Prepared for

Georgia Power Company
241 Ralph McGill Blvd NE
Atlanta, Georgia 30308

2019 ANNUAL GROUNDWATER MONITORING & CORRECTIVE ACTION REPORT

GEORGIA POWER COMPANY
PLANT HAMMOND ASH POND 2 (AP-2)

Prepared by

engineers | scientists | innovators

1255 Roberts Boulevard, Suite 200
Kennesaw, Georgia 30144

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Geosyntec
consultants

CERTIFICATION STATEMENT

This *2019 Annual 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], specifically 40 CFR § 257.90(e), 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.

January 30, 2020

Whitney B. Law
Georgia Professional Engineer No. 36641

Date

Geosyntec consultants

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ACM	Assessment of Corrective Measures
AP	ash pond
ASD	Alternate Source Demonstration
CCR	coal combustion residuals
CFR	Code of Federal Regulations
DO	dissolved oxygen
ft MSL	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
PL	prediction limit
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 Annual 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 during the 2019 calendar year. A semiannual groundwater report documenting activities from January through July 2019 was prepared and submitted to GA EPD in July 2019 (Geosyntec, 2019c). This report includes the results of the annual monitoring for Appendix IV of 40 CFR § 257 conducted in March 2019 and the first and second semiannual monitoring events conducted in April and September 2019 for AP-2.

Due to statistically significant levels (SSL) of cobalt identified in compliance wells HGWC-15 and HGWC-18, as noted 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 annual and 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). Statistical analysis of the data set from the most recent second 2019 semiannual assessment monitoring event does not result in a reportable SSL of cobalt in well HGWC-15. Additionally, an Alternate Source Demonstration (ASD) was prepared and submitted to GA EPD that attributes the source of elevated cobalt concentrations in well HGWC-18 to the dissolution of naturally occurring material under acidic groundwater conditions and unrelated to a release from AP-2 (Geosyntec, 2020a).

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.

Plant Hammond is a four-unit, coal-fired electric generating facility. All four units at Plant Hammond were retired on July 29, 2019 and no longer produce electricity.

AP-2 is a 21-acre surface impoundment located at Plant Hammond. AP-2 was used as a dewatering facility for fly ash and bottom ash. To support operations, dewatered ash is excavated and transported to the nearby Huffaker Road facility, a permitted solid waste disposal location owned and operated by GPC. GPC will close AP-2 through removal of the CCR material from the CCR unit; closure activities will be conducted in accordance with 40 CFR § 257.102 and corresponding Rule 391-3-4-.10(7)(b). The proposed closure by removal approach provides a source control measure that reduces the potential for migration of CCR constituents to groundwater. Details of the closure approach are provided in the Initial Written Closure Plan, published in 2016 to GPC's CCR Rule Compliance website.

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 Revision 01 – AP-2* (HAR Rev 01) submitted to GA EPD in December 2019 under separate cover in support of the AP-2 solid waste handling permit (Geosyntec, 2019d).

1.2.1 Regional and Site Geology

The Site is located within the Great Valley District of the Valley and Ridge Physiographic Province (Valley and Ridge) in 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 primarily by the lower units of the Cambrian age Conasauga Formation, consisting of mostly calcareous shale. However, borings advanced in the northern portions of AP-2 during the Petrologic mapping investigation contained shale not consistent with the Conasauga Formation. The black color and fissile nature of the encountered shale was more consistent with shales found in the younger undifferentiated Devonian and Mississippian Floyd units (Golder, 2018). Based on field borings and knowledge of the regional geology, Petrologic's investigation proposed that the Rome Fault, located immediately north of the Site and containing the Floyd shale, is a thrust fault that dips at

a shallow angle beneath the north-central portions of the Site, uplifting the lower units of the Conasauga Formation in this portion of AP-2. The faulting and displacement along the faults in this region occurred during the Paleozoic Era (approximately 250 million years ago) and are not considered to be active.

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.

As part of the assessment monitoring program, three 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. Pursuant to 40 CFR § 257.195(g)(1)(iv), these three delineation wells will continue to be 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 seven piezometers used to gauge groundwater levels in vicinity of AP-2 (MW-8, MW-9, MW-12, MW-16, MW-17, MW-18, MW-33).

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 December 2019 and discusses any change in status of the monitoring program. All groundwater sampling was performed in accordance with 40 CFR § 257.93.

2.1 Monitoring Well Installation and Maintenance

One additional groundwater level monitoring piezometer (MW-33) was installed on November 21, 2019 to provide additional data to characterize flow conditions downgradient of AP-2. A well installation report that includes detailed boring and well construction logs for MW-33 is provided in **Appendix A**. The location of piezometer MW-33 is shown on **Figure 2** and piezometer construction details are also provided in **Table 1**.

The well and piezometer networks are inspected during each groundwater monitoring event using GA EPD-based inspection criteria. Any issues identified with the wells (e.g., clogged weep holes within the outer protective casing, faded well identification signage, rusted locks and/or latches, etc.) are addressed before the following groundwater sampling event. The well inspection forms for 2019 are provided in **Appendix B**.

Several 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 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.

In addition to completing routine maintenance of the well network in 2019, a dedicated bladder pump was installed by SCS Civil Field Services (CFS) at well MW-22 the week of September 16, 2019.

2.2 Assessment Monitoring

GPC initiated an assessment monitoring program for groundwater at AP-2 in January 2018. Statistical analyses of the 2018 assessment monitoring groundwater data identified SSLs of cobalt in AP-2 compliance wells HGWC-15 and HGWC-18.

Pursuant to 40 CFR § 257.96, an ACM was initiated for AP-2 on February 12, 2019. An *Assessment of Corrective Measures Report* was subsequently prepared for AP-2 (Geosyntec, 2019b) 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.

The initial annual Appendix IV sampling event was conducted in March 2019; the semiannual assessment monitoring events were conducted in April and September 2019. The number of groundwater samples collected for analysis and the dates the samples were collected at AP-2 during the 2019 reporting period is summarized in **Table 2**. Details of these events and analytical results are discussed in Section 3, while the statistical results are discussed in Section 4.

2.3 Alternate Source Demonstration

Based on review of available AP-2-related groundwater and aquifer solids data, the cobalt SSL reported for well HGWC-18 is not associated with a release from AP-2. Cobalt at HGWC-18 is instead associated with natural variation in the groundwater quality due to mobilization of naturally occurring cobalt present in the Floyd shale of the undifferentiated Mississippian/Devonian geologic unit underlying the northern portion of AP-2 as a consequence of naturally lower groundwater pH at this well. An ASD was prepared pursuant to regulations in 40 CFR § 257.95(g)(3)(ii), which allows the owner or operator to "demonstrate that a source other than the CCR unit caused the contamination, or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality." The ASD also serves as an ASD under the GA EPD CCR Rule 391-3-4-.10(6), which incorporates 40 CFR § 257.95(g)(3)(ii) by reference. The ASD was submitted to GA EPD on January 15, 2020, and a copy is also provided in **Appendix C** of this report for reference.

2.4 Additional Groundwater Sampling

Additional groundwater samples were collected from the compliance and delineation wells during the September 2019 semiannual assessment monitoring event and analyzed for supplemental parameters for the on-going ACM efforts presented in the ACM Report. The supplementary data will be used to evaluate (i) attenuation mechanisms and rates and aquifer capacity for attenuation; (ii) amount and distribution of select metal hydroxides or electron donors that may affect geochemical mechanisms parameters; and (iii) groundwater parameters specific to the existing National Pollutant Discharge Elimination

System permitted discharge limits and capabilities of on-site low volume wastewater treatment plant. The scope of these additional efforts and associated results are presented in the *Supplemental Semi-Annual Remedy Selection and Design Progress Report* submitted to GA EPD December 12, 2019 (Geosyntec, 2019e). Additionally, a copy of this report is also provided in **Appendix D** for reference.

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 2019.

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, April, and September 2019 events are presented in **Table 3**. The groundwater elevations observed for the March 2019 event ranged from 588.76 feet mean sea level (ft MSL) (referenced to the North American Vertical Datum of 1988) in well HGWA-1 to 568.93 ft MSL in well MW-22. For the April 2019 event, the groundwater elevations ranged from 585.20 ft MSL in well HGWA-1 to 566.09 ft MSL in well MW-22. For the September 2019 event, the groundwater elevations ranged from 576.98 ft MSL in well MW-18 to 563.52 ft MSL in well MW-22.

The groundwater elevation data were used to prepare potentiometric surface maps for the March, April, and September 2019 events, which are presented on **Figures 3**, **4**, and **5**, 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, April, and September 2019 events**.** Hydraulic gradients were calculated across the central portion of AP-2, typically between, or in close proximity to, wells MW-18 and HGWC-17. The general trajectory of the flow paths used in the calculations are shown on **Figures 3**, **4**, and **5**. The average hydraulic gradient along the westerly flow path lines is 0.009 feet per foot (ft/ft). The calculations are presented on **Table 4**.

The approximate horizontal flow velocities associated with AP-2 were calculated using the following derivative of Darcy's Law:

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

where:

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

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

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

n_e = Effective porosity

The horizontal hydraulic conductivity (K_h) measurements were derived 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 (Geosyntec, 2019d). The geometric mean of the K_h values of the alluvium, residuum, and PWR were used to represent the overall hydraulic conductivity at AP-2, equating to 1.47 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 of 0.009 ft/ft, the average 2019 groundwater flow velocity underneath AP-2 was calculated as 0.088 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). Twelve of the 14 wells were purged and sampled using the installed bladder pump with dedicated tubing; the remaining two delineation wells (i.e., MW-21D, MW-23D) 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 ± 0.1 Standard Units (s.u.).
- Conductivity ± 5%.
- ±0.2 milligrams per liter (mg/L) or ±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, April, and September 2019 are provided in **Appendix E**.

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 E**.

The groundwater analytical results from the 2019 annual and semiannual assessment monitoring events are summarized in **Table 5**. The Pace Analytical laboratory reports associated with the results presented in Table 5 are provided in **Appendix E**.

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 E** 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 assessment monitoring events in April and September 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 not used to establish 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 F-1, Appendix F**.

4.1.2 Appendix IV Statistical Methods

Constituents detected during the initial annual Appendix IV sampling event (March 2019) were sampled during the April and September 2019 semiannual sampling events. 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 F**.

4.2 Statistical Analyses Results

Analytical data from the April and September 2019 semiannual monitoring events were statistically analyzed in accordance with the Statistical Analysis Method Certification (October 2017, revised January 2020). 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.

Based on review of the Appendix III statistical analysis presented in **Table D-1**, 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 and September 2019 semiannual assessment events is provided in **Appendix F**. Based on the statistical analysis, cobalt was determined to exceed both federal and state-based GWPS in wells HGWC-15 and HGWC-18 for the April assessment event, which is consistent with the 2018 reporting year statistical results. However, the background cobalt concentrations reported for the second semiannual event increased which resulted in a recalculation of the GWPS; the site-specific cobalt GWPS increased from 0.0029 mg/L to 0.038 mg/L for the September 2019 data set. Also, the cobalt concentration in well HGWC-15 decreased relative to prior data sets. When these two factors are accounted for statistically, a SSL of cobalt in HGWC-15 is not reported for the September 2019 data set.

The September 2019 data indicates a continued SSL of cobalt in well HGWC-18. However, as discussed in Section 2.3, an ASD has been prepared and submitted to GA

EPD presenting multiple lines of evidence that attribute the cobalt concentration in well HGWC-18 to the dissolution of naturally occurring material under slightly acidic groundwater conditions.

4.3 Delineation Data

Limited groundwater analytical data are available for delineation wells installed at the Site in 2018; therefore, groundwater quality is simply compared to the applicable GWPS. A review of the 2019 analytical data derived from delineation wells identified the following Appendix IV GWPS exceedance:

AP-1 (Federal CCR Rule):

- (*none identified*)

AP-1 (GA EPD CCR Rule):

- Molybdenum: MW-21D

GPC is evaluating preparing a demonstration document that outlines evidence illustrating groundwater molybdenum detections in well MW-21D are naturally occurring within the localized rock formation. The lack of historical molybdenum detections in the near vicinity wells relative to MW-21D suggest an isolated molybdenum source other than AP-1. Aquifer solid material from the well screen zone of MW-21D will be submitted for analysis of total molybdenum in February 2020 to support preparing the demonstration.

5.0 MONITORING PROGRAM STATUS

5.1 Assessment Monitoring 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 continued to be evaluated in response to a potential reemergence of a SSL of cobalt in well HGWC-15. Pursuant to 40 CFR § 257.195(g) (1)(iv), the delineation wells will continue to be sampled as part of the ongoing semiannual assessment groundwater monitoring program.

5.2 Assessment of Corrective Measures

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

(i) the current conceptual site model applicable to evaluating groundwater corrective measures proposed in the ACM Report (Geosyntec, 2019c);

(ii) the analytical data obtained during supplemental ACM-specific field investigations;

(iii) the status of evaluating applicable corrective measures; and

(iv) the planned activities and anticipated schedule for the following semi-annual reporting period.

GPC will include future Semi-Annual Progress Reports with each groundwater monitoring and corrective action report.

6.0 CONCLUSIONS & FUTURE ACTIONS

This *2019 Annual 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 evaluation of the groundwater concentration data from the first semiannual assessment monitoring event (April 2019 data) identified SSLs of cobalt in both compliance wells HGWC-15 and HGWC-18. However, similar statistical evaluation of the data from the second semiannual event (September 2019 data) did not identify a SSL in well HGWC-15, but only HGWC-18.

Based on review of available aquifer solid and groundwater data associated with AP-2, the elevated cobalt groundwater concentrations reported for HGWC-18 are attributed to the dissolution of naturally occurring material under acidic groundwater conditions and is not associated with a release from AP-2. An ASD was prepared and submitted to GA EPD on January 15, 2020 that presents evidence of the naturally occurring cobalt source impacting groundwater concentrations in well HGWC-18. With the exception of HGWC-18, no AP-2 compliance or delineation well sampled during the September 2019 monitoring event reported a cobalt groundwater concentration in excess of the site-specific GWPS.

GPC will continue to monitor AP-2 groundwater under the assessment monitoring program and proceed with the evaluation of remedies presented in the ACM Report (Geosyntec, 2019b). The initial annual Appendix IV sampling event is scheduled to occur in February 2020, with the first semiannual assessment monitoring event tentatively planned for March 2020.

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 [2] (ft MSL)	Top of Screen Elevation [2] (ft MSL)	Bottom of Screen Elevation [2] (ft MSL)	Well Depth (ft BTOC) [3]	Screen Interval Length
Compliance Monitoring Well									
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
Groundwater Level Monitoring Piezometer									
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
MW-33	Downgradient	11/21/2019	1547975.23	1938411.67	593.99	566.06	556.06	37.93	10
Delineation Monitoring Well									
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 MSL = feet mean sea level

ft BTOC = feet below top of casing

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

(2) Elevations referenced to the North American Vertical Datum of 1988 (NAVD88).

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

Table 2

Groundwater Sampling Event Summary for 2019
Plant Hammond AP-2, Floyd County, Georgia

Well ID	Hydraulic Location	Mar 11-15, 2019	Apr 1-8, 2019	Sep 23-30, 2019	Status of Monitoring Well
Purpose of Sampling Event:		**App. IV Annual**	**Assessment**	**Assessment**	
Compliance Monitoring Well					
HGWA-1	Upgradient	S02	A01	A02	Assessment
HGWA-2	Upgradient	S02	A01	A02	Assessment
HGWA-3	Upgradient	S02	A01	A02	Assessment
HGWA-4	Upgradient	S02	A01	A02	Assessment
HGWA-5	Upgradient	S02	A01	A02	Assessment
HGWA-6	Upgradient	S02	A01	A02	Assessment
HGWC-14	Downgradient	S02	A01	A02	Assessment
HGWC-15	Downgradient	S02	A01	A02	Assessment
HGWC-16	Downgradient	S02	A01	A02	Assessment
HGWC-17	Downgradient	S02	A01	A02	Assessment
HGWC-18	Downgradient	S02	A01	A02	Assessment
Delineation Monitoring Well					
MW-21D	Downgradient	S02	A01	A02	Assessment
MW-22	Downgradient	S02	A01	A02	Assessment
MW-23D	Downgradient	S02	A01	A02	Assessment

Notes:

S## = Initial annual Appendix IV sampling event number since program initiation in January 2018.

A## = Semiannual assessment monitoring event number for given reporting year.

Table 3
Summary of Groundwater Elevations
Plant Hammond AP-2, Floyd County, Georgia

Well ID	Top of Casing Elevation [(1)] (ft MSL)	Mar 11, 2019		Apr 1, 2019		Sept 23, 2019	
		Depth to Water (ft BTOC)	Groundwater Elevations (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevations (ft MSL)	Depth to Water (ft BTOC)	Groundwater Elevations (ft MSL)
Compliance Monitoring Well Network							
HGWA-1	595.50	6.74	588.76	10.3	585.20	22.17	573.33
HGWA-2	588.18	3.87	584.31	5.51	582.67	12.54	575.64
HGWA-3	588.06	3.46	584.60	5.19	582.87	12.39	575.67
HGWA-4	588.30	3.97	584.33	5.61	582.69	12.24	576.06
HGWA-5	583.52	3.23	580.29	4.64	578.88	6.94	576.58
HGWA-6	583.72	2.43	581.29	3.95	579.77	6.92	576.80
HGWC-14	598.10	23.23	574.87	24.35	573.75	28.70	569.40
HGWC-15	582.50	12.65	569.85	15.24	567.26	18.05	564.45
HGWC-16	581.10	7.70	573.40	10.46	570.64	12.36	568.74
HGWC-17	585.40	14.15	571.25	16.93	568.47	17.75	567.65
HGWC-18	585.30	14.65	570.65	16.66	568.64	17.36	567.94
Groundwater Level Monitoring Piezometer							
MW-8	587.37	15.92	571.45	17.84	569.53	20.46	566.91
MW-9	591.67	11.27	580.40	11.97	579.70	18.41	573.26
MW-12	584.33	13.93	570.40	17.13	567.20	19.82	564.51
MW-16	575.22	4.50	570.72	6.4	568.82	7.11	568.11
MW-17	587.67	7.40	580.27	9.28	578.39	11.80	575.87
MW-18	593.07	8.93	584.14	9.71	583.36	16.09	576.98
Delineation Monitoring Wells							
MW-21D	581.49	13.77	567.72	15.68	565.81	16.63	564.86
MW-22	578.67	9.74	568.93	12.58	566.09	15.15	563.52
MW-23D	584.00	12.00	572.00	15.33	568.67	17.93	566.07
Surface Water Gauge (ft MSL)							
Coosa River	--	--	571.00	--	565.00	--	562.50

Notes:

-- = not measured or not applicable

ft MSL = feet mean sea level

ft BTOC = feet below top of casing

(1) Elevations referenced to the North American Vertical Datum of 1988 (NAVD88).

Table 4

Groundwater Gradient and Flow Velocity Calculations for 2019

Plant Hammond AP-2, Floyd County, Georgia

	Mar 11, 2019				Apr 1, 2019				Sep 23, 2019				
Flow Path Direction [1]	**h_1 (ft)**	**h_2 (ft)**	**Δl (ft)**	**Δh/Δl (ft/ft)**	**h_1 (ft)**	**h_2 (ft)**	**Δl (ft)**	**Δh/Δl (ft/ft)**	**h_1 (ft)**	**h_2 (ft)**	**Δl (ft)**	**Δh/Δl (ft/ft)**	**Average Δh/Δl (ft/ft)**
Westerly Flow Path	582	571.25	1,250	0.009	580	568.47	1,085	0.011	576.98	567.65	1,320	0.007	0.009

			Averaged for 2019	
Flow Path Direction [1]	**K (ft/d)**	**n**	**Δh/Δl (ft/ft)**	**V (ft/d)[2]**
Westerly Flow Path	1.47	0.15	0.009	0.088

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

Δh/Δl = 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, 4, and 5 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-1	HGWA-2	HGWA-2	HGWA-2	HGWA-3	HGWA-3	HGWA-3	HGWA-4	HGWA-4	HGWA-4	HGWA-5	HGWA-5	HGWA-5
	Sample Date:	3/12/2019	4/2/2019	9/23/2019	3/12/2019	4/2/2019	9/23/2019	3/12/2019	4/1/2019	9/23/2019	3/11/2019	4/2/2019	9/24/2019	3/12/2019	4/2/2019	9/24/2019
	Parameter [1,2,3]															
APPENDIX III	Boron*	--	ND (0.016 J)	ND (0.021 J)	--	ND (0.034 J)	ND (0.040 J)	--	ND (0.0066 J)	ND (0.0081 J)	--	ND (0.010 J)	ND (0.013 J)	--	ND (0.0052 J)	ND (0.0088 J)
	Calcium*	--	132	118	--	ND (22.5 J)	19.5	--	80.5	71.0	--	76.0	36.6	--	26.3	29.3
	Chloride*	--	20.3	17.7	--	5.8	5.1	--	6.5	5.9	--	4.4	3.6	--	1.7	1.7
	Fluoride*	ND (0.29 J)	ND (0.10 J)	ND (0.078 J)	ND (0.038 J)	ND (0.071 J)	ND	ND (0.072 J)	ND (0.029 J)	ND	ND (0.035 J)	ND	ND	ND (0.079 J)	ND (0.12 J)	ND (0.058 J)
	pH*	7.03	6.86	7.02	5.42	5.41	5.33	7.29	7.16	7.30	6.27	6.66	6.16	6.42	6.38	6.40
	Sulfate*	--	84.3	70.2	--	48.7	47.2	--	50.4	43.9	--	4.9	ND	--	23.8	20.7
	TDS*	--	452	442	--	133	129	--	284	268	--	230	131	--	144	133
APPENDIX IV	Antimony	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	--	--
	Arsenic	ND	ND	ND (0.00046 J)	ND (0.00069 J)	ND	ND (0.00067 J)	ND (0.00063 J)	ND	ND (0.0011 J)	ND	ND	ND	ND	ND	ND (0.00055 J)
	Barium	0.042	0.040	0.042	0.12	0.13	0.13	0.13	0.13	0.13	0.029	0.030	0.030	0.050	0.044	0.053
	Beryllium	ND	ND	ND	ND (0.00017 J)	ND (0.00015 J)	ND (0.00011 J)	ND	ND	ND	ND (0.000050 J)	ND	ND	ND	ND	ND
	Cadmium	ND	ND	ND	ND (0.00013 J)	ND (0.00015 J)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Chromium	ND	ND	ND	ND	ND (0.0079 J)	ND (0.00058 J)	ND	ND	ND	ND	0.019	ND	ND	ND	ND
	Cobalt+	ND	ND	ND	0.017	0.019	0.038	ND	ND	ND	ND	ND	ND	ND (0.00099 J)	ND (0.0012 J)	ND (0.00063 J)
	Fluoride	ND (0.29 J)	ND (0.10 J)	ND (0.078 J)	ND (0.038 J)	ND (0.071 J)	ND	ND (0.072 J)	ND (0.029 J)	ND	ND (0.035 J)	ND	ND	ND (0.079 J)	ND (0.12 J)	ND (0.058 J)
	Lead	ND	ND	ND (0.000078 J)	ND	ND	ND (0.000092 J)	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Lithium	ND (0.0010 J)	ND (0.0010 J)	ND (0.0011 J)	ND (0.0018 J)	ND (0.0018 J)	ND (0.0016 J)	ND (0.0032 J)	ND (0.0032 J)	ND (0.0029 J)	ND	ND (0.00098 J)	ND	ND (0.0032 J)	ND (0.0028 J)	ND (0.0035 J)
	Mercury	ND	--	--	ND	--	--	ND	--	--	ND	--	--	ND	--	--
	Molybdenum	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	0.306 U	0.454 U	0.651 U	1.04 U	1.01 U	0.760 U	0.384 U	0.781 U	0.494 U	0.455 U	0.833 U	1.07 U	0.201 U
	Selenium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Thallium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:
-- = Parameter was not analyzed
J = Indicates the parameter was estimated and detected between the method detection limit (MDL) and the reporting limit (RL)
ND = Indicates the parameter was not detected above the analytical MDL
TDS = total dissolved solids
U = Indicates the parameter was not detected above the analytical MDL (Specific to combined radium)
(1) Appendix III/IV parameter per 40 CFR 257 Subpart D. Parameters are reported in units of milligrams per liter (mg/L), except for pH reported as s.u. (standard units)
and combined radium reported as picocuries per liter (pCi/L).
(2) Metals were analyzed by EPA Method 6020B, anions were analyzed by EPA Method 300.0, TDS was analyzed by SM2540C, and combined radium by
EPA Methods 9315/9320. The pH value presented was recorded at the time of sample collection in the field.
(3) Appendix III parameters with a "*" exhibited statistically significant increases (SSIs) over background concentrations during the October 2017 detection monitoring event. Similarly, the
Appendix IV parameter with a "+" exhibited statistically significant levels (SSLs) over established Groundwater Protection Standards (GWPS) during the April and September 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:	HGWA-6	HGWA-6	HGWA-6	HGWC-14	HGWC-14	HGWC-14	HGWC-15	HGWC-15	HGWC-15	HGWC-16	HGWC-16	HGWC-16	HGWC-17	HGWC-17	HGWC-17
	Sample Date:	3/12/2019	4/2/2019	9/24/2019	3/14/2019	4/3/2019	9/24/2019	3/14/2019	4/4/2019	9/24/2019	3/15/2019	4/4/2019	9/25/2019	3/15/2019	4/5/2019	9/25/2019
	Parameter [1,2,3]															
APPENDIX III	Boron*	--	ND (0.013 J)	ND (0.016 J)	--	12.5	14.7	--	2.3	2.9	--	2.1	2.7	--	5.9	8.1
	Calcium*	--	49.7	52.5	--	606	507	--	214	202	--	196	185	--	340	305
	Chloride*	--	1.6	1.3	--	227	188	--	138	120	--	76.8	84.4	--	195	139
	Fluoride*	ND (0.061 J)	ND	ND	ND (0.24 J)	0.66	ND (0.053 J)	ND	ND (0.066 J)	ND (0.12 J)	ND	ND	ND	ND	ND (0.16 J)	ND (0.081 J)
	pH*	7.50	7.46	7.41	4.66	4.67	4.77	5.71	5.66	6.33	7.09	6.95	6.92	6.32	6.26	6.28
	Sulfate*	--	35.5	35.4	--	1520	1110	--	528	382	--	251	223	--	642	434
	TDS*	--	238	222	--	2310	2470	--	926	1140	--	704	813	--	1260	1280
APPENDIX IV	Antimony	ND	--	--	ND	--	--	ND	--	--	ND	--	--	ND	--	--
	Arsenic	ND	ND	ND	ND (0.0029 J)	ND	ND (0.0039 J)	ND	ND (0.00017 J)	ND (0.00037 J)	ND	ND (0.00010 J)	ND	ND	ND	ND
	Barium	0.20	0.19	0.22	0.019	0.016	0.021	0.021	0.018	0.019	0.13	0.11	0.11	0.029	0.022	0.025
	Beryllium	ND	ND	ND	ND (0.00043 J)	ND (0.00027 J)	ND (0.00044 J)	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Cadmium	ND	ND	ND	ND	ND (0.000079 J)	ND	0.0024	0.0018	ND (0.0014 J)	ND	ND	ND	ND	ND	ND
	Chromium	ND	ND	ND	ND	ND	ND	ND	ND	ND (0.00041 J)	ND	ND	ND	ND	ND	ND
	Cobalt+	ND	ND	ND	0.025	0.021	0.026	0.038	0.035	0.022	ND	ND (0.00028 J)	ND	0.017	0.016	0.015
	Fluoride	ND (0.061 J)	ND	ND	ND (0.24 J)	0.66	ND (0.053 J)	ND	ND (0.066 J)	ND (0.12 J)	ND	ND	ND	ND	ND (0.16 J)	ND (0.081 J)
	Lead	ND	ND	ND (0.000071 J)	ND (0.0014 J)	ND (0.0012 J)	ND (0.0013 J)	ND	ND (0.000072 J)	ND (0.00020 J)	ND	ND (0.00016 J)	ND	ND	ND (0.000076 J)	ND (0.000089 J)
	Lithium	ND (0.011 J)	ND (0.0095 J)	ND (0.011 J)	ND	ND	ND	ND	ND (0.00090 J)	ND (0.0012 J)	ND (0.0041 J)	ND (0.0032 J)	ND (0.0038 J)	ND (0.0011 J)	ND (0.00074 J)	ND (0.0011 J)
	Mercury	ND	--	--	ND	--	--	ND	--	--	ND	--	--	ND	--	--
	Molybdenum	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Comb. Radium 226/228	0.982 U	0.621 U	0.874 U	1.50	1.43 U	1.17	0.462 U	0.512 U	0.582 U	0.591 U	0.960 U	0.643 U	0.917 U	1.07 U	1.54
	Selenium	ND	ND	ND	ND (0.0048 J)	ND (0.00091 J)	ND (0.0064 J)	ND	ND (0.00021 J)	ND	ND	ND (0.000089 J)	ND	ND	ND (0.000093 J)	ND
	Thallium	ND	ND	ND	ND (0.00028 J)	ND (0.00028 J)	ND (0.00030 J)	ND	ND	ND	ND	ND	ND	ND	ND (0.00013 J)	ND (0.00012 J)

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 and September 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-18	HGWC-18	HGWC-18	MW-21D[4]	MW-21D[4]	MW-21D[4]	MW-22[4]	MW-22[4]	MW-22[4]	MW-23D[4]	MW-23D[4]	MW-23D[4]
	Sample Date:	3/14/2019	4/5/2019	9/25/2019	3/15/2019	4/4/2019	9/25/2019	3/15/2019	4/5/2019	9/27/2019	3/14/2019	4/5/2019	9/26/2019
	Parameter [1,2,3]												
APPENDIX III	Boron*	--	6.4	11.7	--	5.2	6.4	--	2.1	2.9	--	3.0	3.8
	Calcium*	--	400	437	--	427	420	--	178	202	--	352	306
	Chloride*	--	217	181	--	299	245	--	131	176	--	195	204
	Fluoride*	0.88	0.37	0.73	ND	ND (0.10 J)	ND	ND	ND (0.13 J)	ND (0.28 J)	ND	ND (0.14 J)	ND (0.16 J)
	pH*	4.39	4.50	4.54	6.81	6.70	6.54	5.95	5.96	5.81	6.68	6.66	6.64
	Sulfate*	--	1030	920	--	915	767	--	392	520	--	585	556
	TDS*	--	1610	1960	--	1800	1970	--	890	1110	--	1400	1400
APPENDIX IV	Antimony	ND	--	--	ND	--	--	ND	--	--	ND	--	--
	Arsenic	ND (0.0036 J)	ND (0.0015 J)	ND (0.0044 J)	ND	ND (0.00019 J)	ND	ND	ND	ND (0.00045 J)	ND	ND	ND
	Barium	0.029	0.021	0.030	0.090	0.075	0.066	0.044	0.036	0.028	0.082	0.061	0.064
	Beryllium	ND (0.0026 J)	ND (0.0022 J)	0.0031	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Cadmium	0.0019	0.0017	ND (0.0023 J)	ND	ND	ND	ND (0.00082 J)	ND (0.00064 J)	ND (0.0014 J)	ND	ND	ND
	Chromium	ND	ND	ND	ND	ND	ND	ND	ND	ND (0.00040 J)	ND	ND	ND
	Cobalt+	0.16	0.14	0.18	ND	ND (0.00034 J)	ND	0.028	0.022	0.035	ND (0.0013 J)	ND (0.0012 J)	ND (0.00098 J)
	Fluoride	0.88	0.37	0.73	ND	ND (0.10 J)	ND	ND	ND (0.13 J)	ND (0.28 J)	ND	ND (0.14 J)	ND (0.16 J)
	Lead	ND (0.0015 J)	ND (0.0015 J)	ND (0.0015 J)	ND	ND	ND	ND	ND	ND (0.00010 J)	ND	ND	ND
	Lithium	ND (0.011 J)	ND (0.0084 J)	ND (0.015 J)	ND (0.025 J)	ND (0.019 J)	ND (0.024 J)	ND (0.0020 J)	ND (0.0013 J)	ND (0.0013 J)	ND (0.0028 J)	ND (0.0021 J)	ND (0.0023 J)
	Mercury	ND	--	--	ND	--	--	ND	--	--	ND	--	--
	Molybdenum	ND	ND	ND	0.045	0.033	0.038	ND	ND (0.00013 J)	ND	ND	ND (0.0014 J)	ND (0.0025 J)
	Comb. Radium 226/228	1.37 U	2.22	2.77	0.972 U	0.791 U	0.751 U	0.977	1.06 U	1.44 U	0.872 U	0.932 U	1.25
	Selenium	0.016	ND (0.0018 J)	0.020	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Thallium	ND	ND (0.00014 J)	ND (0.00019 J)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:
-- = Parameter was not analyzed
J = Indicates the parameter was estimated and detected between the method detection limit (MDL) and the reporting limit (RL)
ND = Indicates the parameter was not detected above the analytical MDL
TDS = total dissolved solids
U = Indicates the parameter was not detected above the analytical MDL (Specific to combined radium)
(1) Appendix III/IV parameter per 40 CFR 257 Subpart D. Parameters are reported in units of milligrams per liter (mg/L), except for pH reported as s.u. (standard units) and combined radium reported as picocuries per liter (pCi/L).
(2) Metals were analyzed by EPA Method 6020B, anions were analyzed by EPA Method 300.0, TDS was analyzed by SM2540C, and combined radium by EPA Methods 9315/9320. The pH value presented was recorded at the time of sample collection in the field.
(3) Appendix III parameters with a "*" exhibited statistically significant increases (SSIs) over background concentrations during the October 2017 detection monitoring event. Similarly, the Appendix IV parameter with a "+" exhibited statistically significant levels (SSLs) over established Groundwater Protection Standards (GWPS) during the April and September 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, 0.22	2	2
Beryllium	mg/L	0.003	0.004	0.004
Cadmium	mg/L	0.001, 0.003	0.005	0.005
Chromium	mg/L	0.019	0.1	0.1
Cobalt	mg/L	0.029, 0.038	0.029, 0.038	0.029, 0.038
Fluoride	mg/L	0.36	4	4
Lead	mg/L	0.005	0.015	0.005
Lithium	mg/L	Federal 0.025[4], 0.03 State 0.05, 0.03	0.04	0.05, 0.03
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). Where two numbers are present, they denote the different background levels for each of the two semiannual monitoring events in the order that they were determined.
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 is used; or (iii) background concentrations for constituents were 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 were the background level is higher than the MCL. Where two numbers are present, they denote the different background levels for each of the two semiannual monitoring events in the order that they were determined.
4. 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

N

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

0 330 660 1,320

SCALE IN FEET

SITE LOCATION MAP

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

Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA | JANUARY 2020

FIGURE 1

N:\GA Power\Plant Hammond GW Services\GIS\mxd\Hammond\2019\CCR Reports\AP-2\Figure 1_SiteMap.mxd 1/23/2020 5:38:03 PM

N

LEGEND

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

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

0 150 300 600

SCALE IN FEET

MONITORING WELL NETWORK MAP

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

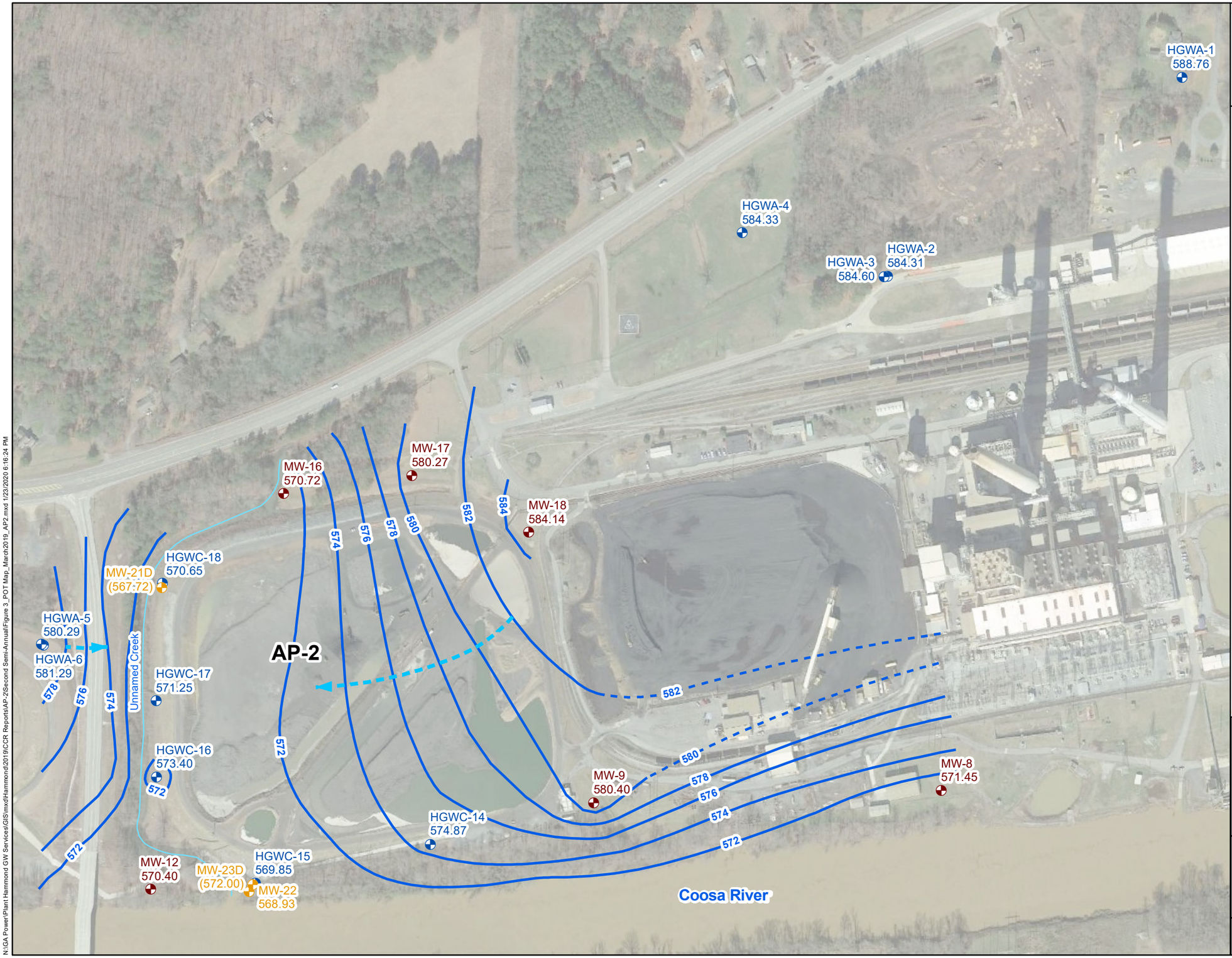
Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA | JANUARY 2020

FIGURE 2

N:\GA Power\Plant Hammond GW Services\GIS\mxd\Hammond\2019\CCR Reports\AP-2\Second Semi-Annual\Figure 2_WellMap.mxd 1/28/2020 7:17:16 AM



N

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.

0 300 600

SCALE IN FEET

POTENTIOMETRIC SURFACE CONTOUR MAP - MARCH 2019

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

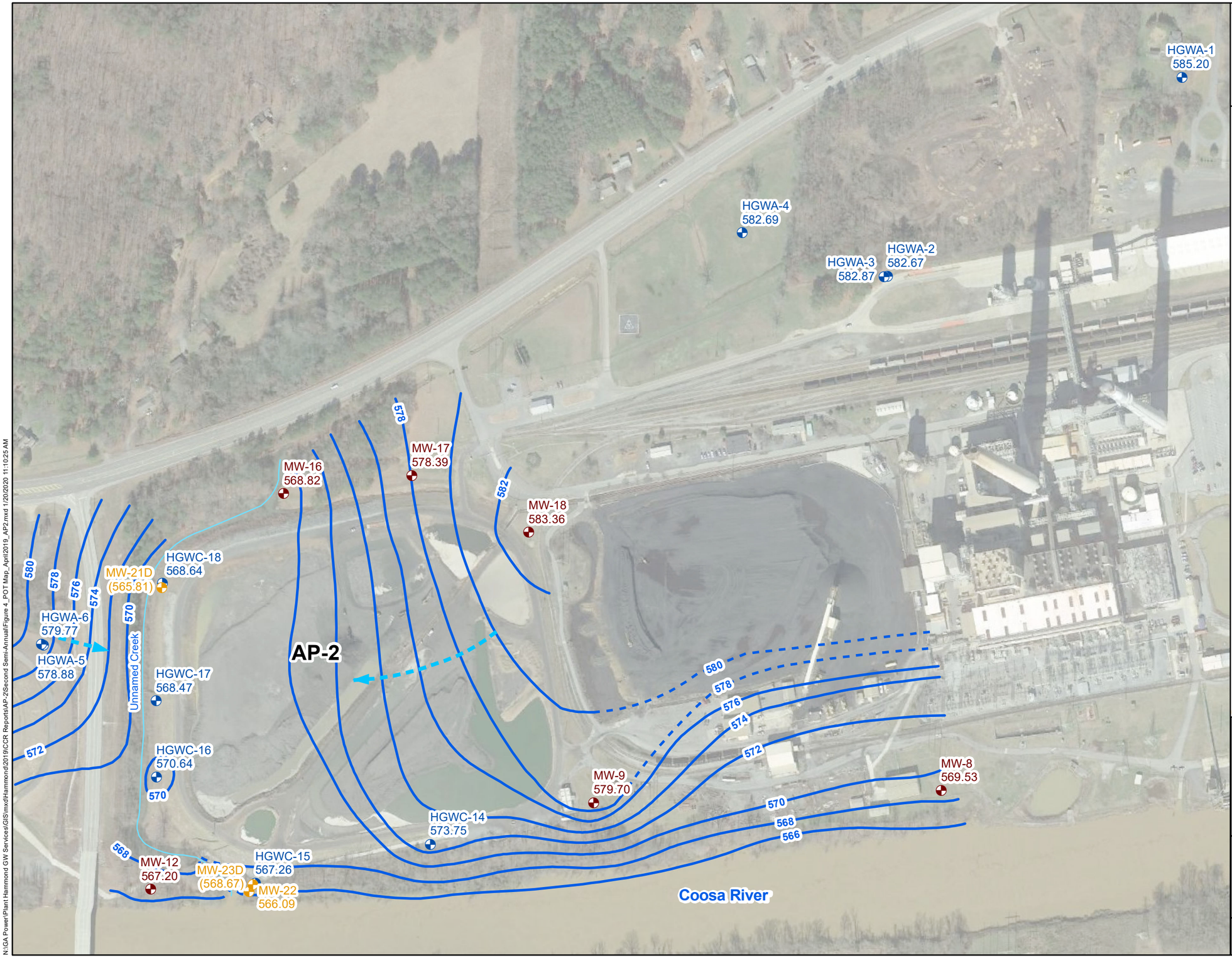
Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA | JANUARY 2019

FIGURE 3

N:\GA Power\Plant Hammond GW Services\GIS\mxd\Hammond\2019\CCR Reports\AP-2\Second Semi-Annual\Figure 3_POT Map_March2019_AP2.mxd 1/23/2020 6:16:24 PM



N

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.

0 300 600

SCALE IN FEET

POTENTIOMETRIC SURFACE CONTOUR MAP - APRIL 2019

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

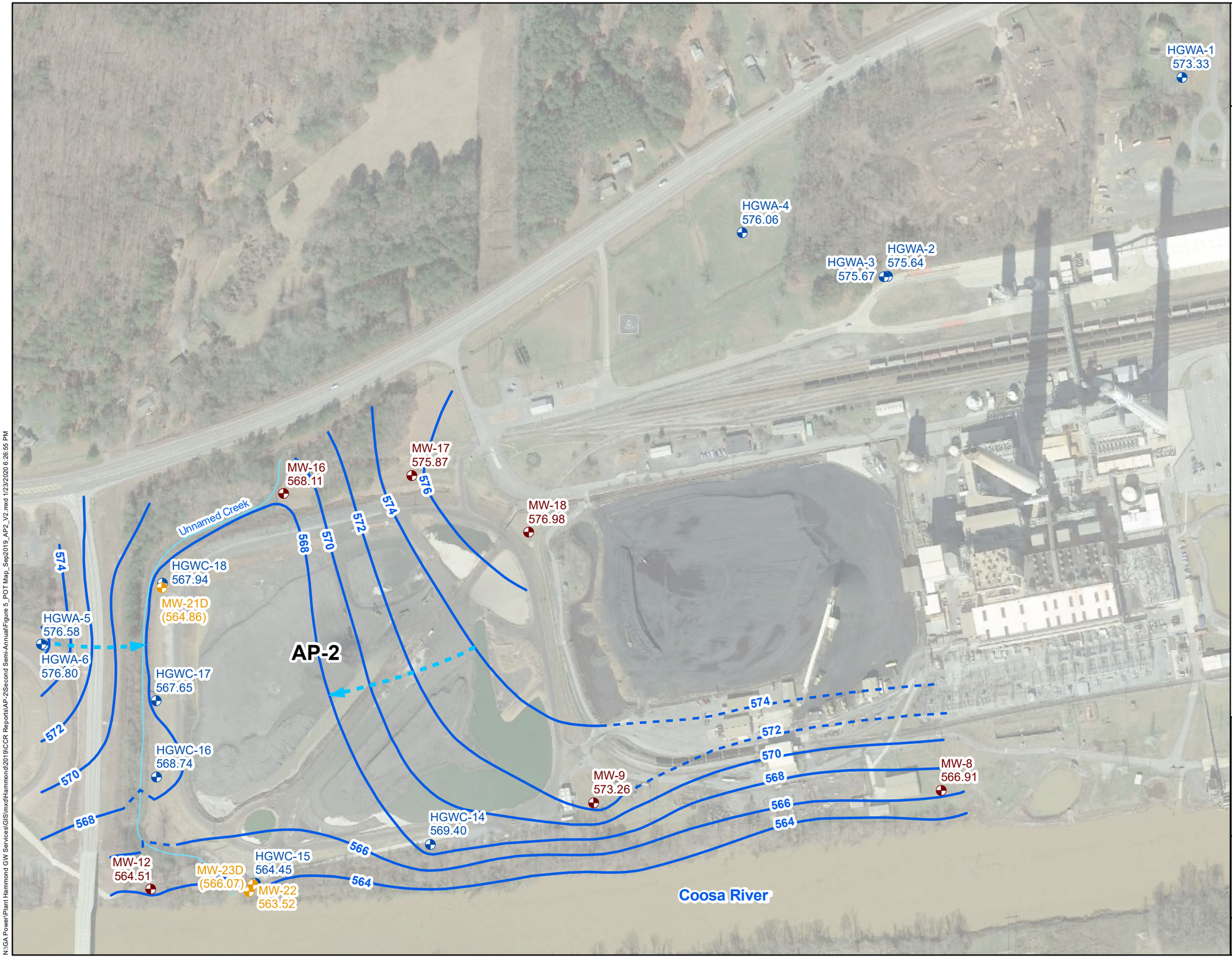
Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA | JANUARY 2020

FIGURE 4

N:\GA Power\Plant Hammond GW Services\GIS\mxd\Hammond\2019\CCR Reports\AP-2\Second Semi-Annual\Figure 4_POT Map_April2019_AP2.mxd 1/20/2020 11:10:25 AM



N

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 September 23, 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.

0 300 600

SCALE IN FEET

POTENTIOMETRIC SURFACE CONTOUR MAP - SEPTEMBER 2019

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

Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA | JANUARY 2020

FIGURE 5

N:\GA Power\Plant Hammond GW Services\GIS\mxd\Hammond\2019\CCR Reports\AP-2\Second Semi-Annual\Figure 5_POT Map_Sep2019_AP2_V2.mxd 1/23/2020 6:26:55 PM

APPENDIX A

Well Design, Installation, and Development Report – Addendum No.3, Plant Hammond Ash Ponds 2 and 3 (AP-2 and AP-3)

Prepared for

Georgia Power Company
241 Ralph McGill Blvd NE
Atlanta, Georgia 30308

WELL DESIGN, INSTALLATION, AND DEVELOPMENT REPORT – ADDENDUM No. 3

PLANT HAMMOND ASH PONDS 2 AND 3 (AP-2 AND AP-3)

Prepared by

engineers | scientists | innovators

1255 Roberts Boulevard, Suite 200
Kennesaw, Georgia 30144

Project Number GW6581B

January 2020

WELL DESIGN, INSTALLATION, AND DEVELOPMENT REPORT – ADDENDUM No. 3

Plant Hammond
Ash Ponds 2 and 3
January 30, 2020

Whitney B. Law, P.E.
Project Manager
Geosyntec Consultants

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LIST OF APPENDICES

LIST OF ACRONYMS

AP	Ash Pond
ASTM	American Society for Testing and Materials
CCR	coal combustion residual
CFR	Code of Federal Regulations
CFS	Civil Field Services
DO	dissolved oxygen
ft MSL	feet mean sea level
GA EPD	Georgia Environmental Protection Division
GPC	Georgia Power Company
NAD83	North America Datum of 1983
NAVD88	North American Vertical Datum of 1988
NSF	National Sanitation Foundation
ORP	oxygen reduction potential
PVC	polyvinyl chloride
SCS	Southern Company Services
TOC	top of casing
US EPA	United States Environmental Protection Agency

1. INTRODUCTION

This report provides details regarding the design, installation, and development of four wells to supplement the current groundwater monitoring system at Georgia Power Company (GPC) Plant Hammond (Site) Ash Ponds 2 and 3 (AP-2 and AP-3). Wells MW-31, MW-32, and MW-33 will be used as groundwater level monitoring piezometers. Wells MW-31 and MW-32 are associated with AP-3, while well MW-33 is associated with AP-2. The report was prepared as an addendum to the *Well Design, Installation, Development, and Decommissioning Report – Plant Hammond Ash Ponds 1 and 2* (ERM, 2017) and the *Well Design, Installation, and Development Report – Plant Hammond Ash Pond 3* (Geosyntec, 2019a) and meets the requirements promulgated in the United States Environmental Protection Agency (US EPA) coal combustion residual (CCR) rule [40 Code of Federal Regulations (CFR) Part 257, Subpart D], specifically 40 CFR §257.91(e)(1).

Plant Hammond is located in Floyd County, approximately 10 miles west of Rome, Georgia. The current groundwater monitoring systems at AP-2 and AP-3 includes wells associated with the certified CCR compliance monitoring well network and groundwater level monitoring piezometers. Additionally, AP-2 has a network of secondary groundwater delineation monitoring wells. The locations of these wells and piezometers are shown on **Figure 1** for AP-3 and **Figure 2** for AP-2. Details regarding the installation of the certified compliance well network are presented in the above referenced ERM and Geosyntec reports, whereas details regarding the installation of the delineation wells at AP-2 are provided in the initial addendum prepared by Geosyntec Consultants (Geosyntec) (Geosyntec, 2019b).

2. DRILLING AND WELL INSTALLATION

Well installation and development activities were performed according to accepted industry standards and following guidelines within the *Manual for Groundwater Monitoring* (GA EPD, 1991). Well drilling, installation, and surface completion activities were performed by Cascade Drilling Inc. (Cascade) of Midland, North Carolina under contact with, and the supervision of, Southern Company Services (SCS) Civil Field Services (CFS) personnel. In accordance with the Georgia Water Well Standards Act, the driller was required to have an insurance bond on file with the State of Georgia at the time of drilling. A copy of this bond is provided in **Appendix A**. A professional geologist (PG) registered to practice in the State of Georgia, and a geologist under the supervision of a PG, both employed with Geosyntec Consultants (Geosyntec), documented the drilling and installation efforts to record observations, soil and rock descriptions, subsurface stratigraphy, water elevations, and other field activities. Geosyntec was also responsible for the development of the newly installed wells.

AP-3 area wells MW-31 and MW-32, and AP-2 area well MW-33 were installed in November 2019. The locations of these wells are shown on **Figures 1** and **2**, respectively. Well construction details are provided in **Table 1**; boring and well construction logs are included in **Appendix B**.

2.1 Drilling Method

Sonic drilling method with continuous core collection was used for borehole advancement at MW-31. At MW-32 and MW-33, hollow-stem auger with 5-ft center [from 10 to 18.5 feet below ground surface (ft bgs)] and continuous (from 18.5 ft bgs to target depth or auger refusal) split spoon soil samplers were used for borehole advancement. At MW-32, a wireline rock coring method was used to advance borings to final depth into the bedrock. A truck-mounted TS-150 Sonic drill rig was used to install well MW-31; a CME-550 rubber tire ATV mounted drill rig installed MW-32 and MW-33 wells. To advance boreholes, the Sonic rig used a 6-inch sonic drill rod and the CME-550 used an 8-inch (OD) auger; a 4-inch drill rod was used for rock coring advancement. Care was taken so that the drilling methods did not introduce contamination of the groundwater from surface activities.

Drilling equipment was cleaned between each borehole.

2.2 Screened Interval

The wells are screened in the uppermost water bearing unit. The three new AP-2 and AP-3 wells are screened from approximately 566 to 543 feet mean sea level (ft MSL) as surveyed relative to the North American Vertical Datum 1988 (NAVD88). All wells are constructed with 10 feet of well screen.

2.3 Well Casings and Screens

The wells are constructed of 2-inch inner diameter Schedule 40 polyvinyl chloride (PVC) casing with flush-threaded fittings. Each well was installed with a 10-foot nominal length pre-packed dual-wall well screen with 0.010-inch slots. The casings and pre-packed screens arrived pre-cleaned and packaged by the manufacturer. The pre-packed well screen was constructed onsite by packing sand between slotted PVC and the well screen. Well construction materials are sufficiently durable to resist chemical and physical degradation and not interfere with the quality of groundwater samples. Casing and screens are flush-threaded. Solvent or glue was not used to construct the wells. A threaded bottom cap was attached to the bottom of the screen. The PVC products used were American Society for Testing and Materials (ASTM) and National Sanitation Foundation (NSF) rated. Well screen interval details are provided in **Table 1**.

2.4 Well Intake Design

Wells were designed and constructed to: (1) allow sufficient groundwater flow to the well for sampling; (2) minimize the passage of formation materials (turbidity) into the wells; and (3) ensure sufficient structural integrity to prevent collapse of the well. The annular space between the face of the formation and the screen was filled to minimize passage of formation materials into the wells. A filter pack of clean, well-rounded, quartz sand was installed in each well. The 0.01-inch slot size was selected to minimize the inflow of formation material without impairing influent groundwater flow.

2.5 Filter Pack

Highly Pure Quartzite of Southern Products & Silica Co. silica sand filter pack was used as the appropriate gradation for all wells. Highly Pure Quartzite meets the ASTM D5092 uniformity coefficient specification of 2.5 or less, with a uniformity coefficient of 1.6.

Filter pack material was placed within the pre-packed dual-wall well screens and in the annular space between the outside of the pre-pack screen and borehole wall to ensure an adequate thickness of filter pack material between the well and the formation. Filter pack

material placed in the annular space outside of the well screen extended approximately 2 feet above the top of screen. No bridging occurred during filter pack placement.

Upon placement of the filter pack, each well was pumped with a submersible pump to assure settlement of the filter pack. The top of filter pack depth was measured following pumping to ensure appropriate extension of filter sand above the screen. The depth of the top of the filter pack was measured and recorded on the well construction logs provided in **Appendix B**.

2.6 Annular Seal

A minimum of two feet of bentonite pellets (PelPlug time-release coated 3/8" bentonite pellets) were placed immediately above the filter pack by gravity-pouring into the annular space and hydrated per manufacture's specifications. A tremie pipe was used to probe the annular space to ensure that no bridging occurred. If any new well was installed within 15 feet of an existing well, the bentonite seal was brought above the elevation corresponding to the screen top of the nearby well. This was done to prevent grout from entering the water-bearing or screen zone. The bentonite was hydrated with potable water for a duration meeting or exceeding the manufacture's specifications prior to grouting the remaining annulus.

The annulus above the bentonite seal was grouted with Aqua Guard bentonite grout placed via tremie pipe from the top of the bentonite seal. During grouting, care was taken to assure that the bentonite seal was not disturbed by locating the base of the tremie pipe approximately 2 feet above the bentonite seal and injecting grout at low pressure/velocity. A cement apron 4-feet by 4-feet by 4-inches was poured around each well. The pad is mounded slightly outward to direct surface drainage away from the well.

2.7 Cap and Protective Casing

The well risers are fitted with a locking cap and a lockable cover. A one-quarter inch vent hole in the PVC riser pipe provides an avenue for the escape of gas. The protective cap guards the casing from damage and the locking cap serves as a security device to prevent well tampering. Bollards were installed around the four corners of the concrete pad to protect the well.

Wells are clearly marked with signs with the proper designation. A weep hole was drilled in the outer protective casing near the bottom above the concrete pad. Pea gravel was placed inside the protective casing between the riser pipe and the outer casing. Wells are

clearly marked with the proper well identification number on the stand-up casing. Construction details are documented on the well construction logs provided in **Appendix B**.

3. WELL DEVELOPMENT

Wells were developed using a combination of surging and pumping to (1) restore the natural hydraulic conductivity of the formation, and (2) to remove fine-grained sediment to ensure low-turbidity groundwater samples. Wells were alternately surged and purged until visually clear of particulates. Turbidity, pH, temperature, conductivity, oxidation-reduction potential (ORP), and dissolved oxygen (DO) measurements were recorded to ensure that each well was fully developed. The development forms are included in **Appendix C**.

All equipment and tubing placed in the well was decontaminated or disposed of between wells.

4. SURVEY

Upon completion of the well installation, the horizontal locations and vertical elevations were surveyed by CFS. The survey pin installed at each well pad was surveyed to within +/- 0.5-foot horizontal accuracy. Elevations were also measured to the nearest 0.01-foot on the top of the PVC well casing [top of casing (TOC) elevation] and ground surface adjacent to the well pad. Northings and eastings were recorded in feet relative to the North America Datum of 1983 (NAD83). Top of casing and ground surface elevations are in feet relative to NAVD88. Certified survey data are provided in the well construction tables.

5. REFERENCES

Environmental Resources Management (ERM), 2017. *Well Design, Installation, Development, and Decommissioning Report – Plant Hammond Ash Ponds 1 and 2*. October 2017.

Georgia Environmental Protection Division (GA EPD), Georgia Department of Natural Resources, 1991. *Manual for Groundwater Monitoring*. September 1991.

Geosyntec Consultants, 2019a. *Well Design, Installation, and Development Report – Addendum, Plant Hammond Ash Pond 3 (AP-3)*. April 2019.

Geosyntec Consultants, 2019b. *Well Design, Installation, and Development Report – Addendum, Plant Hammond Ash Ponds 1 and 2 (AP-1 and AP-2)*. June 2019.

United States Environmental Protection Agency. 2015a. Federal Register. Volume 80. No. 74. Friday April 17, 2015. Part II. Environmental Protection Agency. 40 CFR Parts 257 and 261. Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule. [EPA-HQ-RCRA–2009–0640; FRL–9919–44–OSWER]. RIN–2050–AE81, April 2015

TABLE

Table 1

Summary of Well Construction Details

Plant Hammond AP-2 and AP-3, Floyd County, Georgia

Well ID	Ash Pond	Purpose	Installation Date	Northing [1]	Easting [1]	Ground Surface Elevation [2] (ft MSL)	Top of Nail Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screen Elevation (ft MSL)	Bottom of Screen Elevation (ft MSL)	Well Depth (ft bgs) [3]
MW-31	3	Water Level Monitoring	11/25/2019	1550422.94	1942688.613	608.60	608.83	611.35	552.60	542.60	66.0
MW-32	3	Water Level Monitoring	11/22/2019	1551094.60	1943021.05	583.07	583.25	585.62	559.27	549.27	33.8
MW-33	2	Water Level Monitoring	11/21/2019	1547975.23	1938411.668	591.06	591.26	593.99	566.06	556.06	35.0

Notes:

ft MSL = feet mean sea level

ft bgs = feet below ground surface

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

(2) Elevation referenced to the North American Vertical Datum of 1988 (NAVD88).

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

FIGURES

N

LEGEND

- Compliance Monitoring Well
- Groundwater Level Monitoring Piezometer

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

0 100 200 400

SCALE IN FEET

MONITORING WELL NETWORK MAP

GEORGIA POWER COMPANY
PLANT HAMMOND AP-3
FLOYD COUNTY, GEORGIA

Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA | JANUARY 2020

FIGURE 1

N:\GA Power\Plant Hammond GW Services\GIS\mxd\Hammond\2020\AP2\AP3 Well Install Rpt\AP3\Figure 1_AP3WellMap.mxd 1/28/2020 7:52:26 AM

DRAFT Attorney-Client Privileged Confidential

N

LEGEND

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

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

0 150 300 600

SCALE IN FEET

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 | JANUARY 2020

FIGURE 2

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APPENDIX A

Well Driller Performance Bonds

CONTINUATION
CERTIFICATE

Atlantic Specialty Insurance Company , Surety upon

a certain Bond No. 800033976

Issued on 9/27/2017
Expires on 6/30/2019
Renewed on 3/4/2019
Expires on 6/30/2021

dated effective 09/27/2017
(MONTH-DAY-YEAR)

on behalf of Ricky Davis / Cascade Drilling, L.P.
(PRINCIPAL)

and in favor of Department of Natural Resources, State of Georgia
(OBLIGEE)

does hereby continue said bond in force for the further period

beginning on 06/30/2019
(MONTH-DAY-YEAR)

and ending on 06/30/2021
(MONTH-DAY-YEAR)

Amount of bond Thirty Thousand and 00/100 Dollars ($30,000.00)

Description of bond Performance Bond for Water Well Contractors

Premium: $1200.00

PROVIDED: That this continuation certificate does not create a new obligation and is executed upon the express condition and provision that the Surety's liability under said bond and this and all Continuation Certificates issued in connection therewith shall not be cumulative and that the said Surety's aggregate liability under said bond and this and all such Continuation Certificates on account of all defaults committed during the period (regardless of the number of years) said bond had been and shall be in force, shall not in any event exceed the amount of said bond as hereinbefore set forth.

Signed and dated on March 4th, 2019
(MONTH-DAY-YEAR)

Atlantic Specialty Insurance Company

By Andrew P. Larsen
Attorney-in-Fact Andrew P. Larsen

Parker, Smith & Feek, Inc.
Agent

2233 112th Ave NE Bellevue, WA 98004
Address of Agent

425-709-3600
Telephone Number of Agent

S-0157/GE 8/08

XDP

APPENDIX B

Boring and Well Construction Logs

Geosyntec consultants
engineers | scientists | innovators
Geosyntec Consultants
1255 Roberts Boulevard
Kennesaw, GA 20144

MW-31

CLIENT Southern Company Services
PROJECT NAME Plant Hammond Well Installation
PROJECT NUMBER GW6581B
PROJECT LOCATION Plant Hammond
DATE STARTED 11/25/19 **COMPLETED** 11/26/19
NORTHING 1550422.94 ft **EASTING** 1942688.61 ft
DRILLER SCS Field Services
GROUND ELEVATION 608.6 ft **BORING DIAMETER** 6 in
DRILLING METHOD Sonic
TOP OF CASING ELEVATION 611.35 ft
SAMPLING METHOD Core Barrel (4")
GEOPHYSICAL CONTRACTOR ---
RIG TYPE Sonic TS-150
LOGGED BY B. Weinmann **CHECKED BY** J. Ivanowski

DEPTH (ft)	ELEVATION (ft)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
0	608.6			Hydro excavation (0-10') - No sample.	
5	605				
10	600			598.6 CLAY, with SAND, Light yellow to brown, medium plasticity, fine to medium grained sand, few silt, mostly clay.	Bentonite grout
15	595				Schedule 40 PVC 2"
20	590			20': With gravel.	
25	585				
30	580				
	575				

SCS MONITORING WELLS PLANT HAMMOND MW31 TO MW33_DECEMBER 2019.GPJ ACP GINT LIBRARY CH.GLB 1/10/20

(Continued Next Page)

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Geosyntec Consultants
1255 Roberts Boulevard
Kennesaw, GA 20144

CLIENT Southern Company Services **PROJECT NAME** Plant Hammond Well Installation

PROJECT NUMBER GW6581B **PROJECT LOCATION** Plant Hammond

DEPTH (ft)	ELEVATION (ft)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
35				CLAY, with SAND, Light yellow to brown, medium plasticity, fine to medium grained sand, few silt, mostly clay. *(continued)*	
	570				
40					
	565			CLAY with SAND, light gray and yellow to red, medium plasticity, sand is fine grained, laminated, stiff, moist.	
45					
	560				
50				54': With rock fragments, fine to medium grained sand, brown to gray.	Bentonite 3/8" chips
	555				
55				PARTIALLY WEATHERED ROCK (PWR), Gray, fine to coarse gravel sized limestone fragments and fine to medium grained sand.	
	550				
60					20/40 Silica Sand
				LIMESTONE, Pale gray, limestone.	0.010 slot size 2" Pre Pack, U-Pack Screen
	545				
65					

Bottom of borehole at 66.0 feet.

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Geosyntec Consultants
1255 Roberts Boulevard
Kennesaw, GA 30144

MW-32

CLIENT Southern Company Services
PROJECT NAME Plant Hammond Well Installation
PROJECT NUMBER GW6581B
PROJECT LOCATION Plant Hammond
DATE STARTED 11/22/19 **COMPLETED** 11/26/19
NORTHING 1551094.6 ft **EASTING** 1943021.05 ft
DRILLER SCS Field Services
GROUND ELEVATION 583.07 ft **BORING DIAMETER** 8 in
DRILLING METHOD HSA + Rock Coring (NQ)
TOP OF CASING ELEVATION 585.62 ft
SAMPLING METHOD SPT
GEOPHYSICAL CONTRACTOR ---
RIG TYPE CME 550
LOGGED BY N.Tilahun **CHECKED BY** J. Ivanowski

DEPTH (ft)	ELEVATION (ft)	RECOVERY %	BLOW COUNTS (N VALUE)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION
				0-9': Hand auger.		Top soil
						GRAVELLY CLAY, Light brown, low plasticity, gravel is fine grained, angular, trace fien to coarse sand and silt, medium dense, moist.
	580					3': Reddish brown to dark brown.
5						CLAY, Brown, medium plasticity, trace fine sand and silt, firm, moist.
	575			9-28.3': Hollow stem auger.		
						9 - 13.5': No sample.
10						
	570					
		89	2-2-2 (4)			CLAY, Brown, medium plasticity, trace angular gravel, few fine sand, firm, moist.
15						15 - 18.5': No sample.
	565					
		89	0-0-0 (-)	18.5-20': Weight of hammer.		CLAY, Light brown, high plasticity, very soft, laminated, wet.
20		100	0-0-0 (-)	20-21.5': Weight of hammer.		
		100	3-2-2 (4)			From 21.5': Dark brown, with weathered limestone fragments, laminated, soft, moist to wet.
	560	22	0-1-1 (2)			

CONSTRUCTION DIAGRAM

- Bentonite grout
- Schedule 40 PVC 2"
- Bentonite 3/8" chips
- 20/40 Silica Sand

SCS MONITORING WELLS PLANT HAMMOND MW31 TO MW33_DECEMBER 2019.GPJ ACP GINT LIBRARY CH.GLB 1/10/20

(Continued Next Page)

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CLIENT Southern Company Services **PROJECT NAME** Plant Hammond Well Installation

PROJECT NUMBER GW6581B **PROJECT LOCATION** Plant Hammond

DEPTH (ft)	ELEVATION (ft)	RECOVERY %	BLOW COUNTS (N VALUE)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
25		67	30-40-30 (70)	From 28.3': Coring.		PARTIALLY WEATHERED ROCK (PWR), Gray, fine to coarse gravel sized limestone fragments, very hard, wet. *(continued)*	
		17	50/3" (-)				
	555	17	50/3" (-)				
30						LIMESTONE, Dark gray, thinly bedded, hard, slightly weathered, with light gray to white calcite filled veins.	0.010 slot size 2" Pre Pack, U-Pack Screen
	550					32 - 37': Void.	
35							

Bottom of borehole at 37.0 feet.

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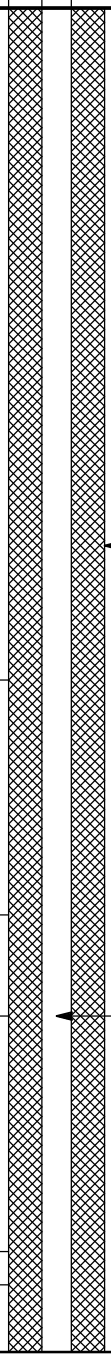
MW-33

CLIENT Southern Company Services
PROJECT NAME Plant Hammond Well Installation
PROJECT NUMBER GW6581B
PROJECT LOCATION Plant Hammond
DATE STARTED 11/21/19 **COMPLETED** 11/22/19
NORTHING 1547975.23 ft **EASTING** 1938411.67 ft
DRILLER SCS Field Services
GROUND ELEVATION 591.06 ft **BORING DIAMETER** 8 in
DRILLING METHOD HSA
TOP OF CASING ELEVATION 593.99 ft
SAMPLING METHOD SPT
GEOPHYSICAL CONTRACTOR ---
RIG TYPE CME 550
LOGGED BY N.Tilahun **CHECKED BY** J. Ivanowski

DEPTH (ft)	ELEVATION (ft msl)	RECOVERY %	BLOW COUNTS (N VALUE)	GRAPHIC LOG	MATERIAL DESCRIPTION
	590				Hydro excavation (0-10') - No sample.
5	585				
10	580				10-13.5': No Sample.
		33	4-8-9 (17)		GRAVELLY CLAY, Brown, low to medium plasticity, gravel is angular to subangular, stiff, trace sand and silt, moist.
15	575				15-18.5': No sample.
		78	14-6-6 (12)		GRAVELLY CLAY, Brown, low to medium plasticity, gravel is angular to subangular, stiff, trace sand and silt, moist.
					SILT, Brown, low to medium plasticity, trace fine sand, firm to stiff, with some clay, moist.

CONSTRUCTION DIAGRAM



SCS MONITORING WELLS PLANT HAMMOND MW31 TO MW33_DECEMBER 2019.GPJ ACP GINT LIBRARY CH.GLB 1/8/20

(Continued Next Page)

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CLIENT Southern Company Services **PROJECT NAME** Plant Hammond Well Installation

PROJECT NUMBER GW6581B **PROJECT LOCATION** Plant Hammond

DEPTH (ft)	ELEVATION (ft msl)	RECOVERY %	BLOW COUNTS (N VALUE)	GRAPHIC LOG	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
20	570	67	5-4-5 (9)		SILT, Brown, low to medium plasticity, trace fine sand, firm to stiff, with some clay, moist. *(continued)* 20': Firm to stiff.	Bentonite 3/8" chips
		100	5-4-6 (10)			
		100	3-3-3 (6)		23': Firm.	
25	565	100	4-6-7 (13)		CLAY, Brown with black mottles, medium to high plasticity, trace silt, trace fine sand, stiff, wet.	
		100	6-7-8 (15)			
		78	2-4-4 (8)		27.5': Firm.	20/40 Silica Sand
30		100	4-6-6 (12)		29': Light brown to light gray.	0.010 slot size 2" Pre Pack, U-Pack Screen
	560	89	4-5-6 (11)		30.5': Light brown to light gray, stiff.	
		100	4-4-7 (11)		CLAYEY SAND, Gray to brown, fine grained, poorly graded, medium dense, moist to wet.	
35		89	7-6-4 (10)		GRAVELLY CLAY, Light brown to brown, medium to high plasticity, gravel is angular to subrounded, stiff, moist to wet.	

Bottom of borehole at 35.0 feet.

APPENDIX C

Well Development Forms

WELL DEVELOPMENT

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GROUNDWATER SAMPLING LOG SHEET

Client: SCS/GA Power
Site: Plant Hammond
Well ID: MW-31
Total Depth (ft): 66'
Depth to Water (ft): 41.56
Well Diameter (in):
Well Volume (gal) = $0.041d^2h$:
Well Volume (L) = gal * 3.785:
d = well diameter (inches); h = length of water column (feet)
Well Type: Flush (Stick Up)
Well Lock: (Yes) No
Well Cap Condition: (Good) Replace
Well Tag Present: (Yes) No

Project No.: GW6581
Location: AP-3
Pump Type/Model: MP Sam
Tubing Material: Polyethylene
Pump Intake Depth (ft):
Start/Stop Purge Time:
Purge Rate (mL/min):
Total Purge Volume (L):
Purge Method: Low-Flow Well Volume Other:
Sampling Method: Pump Discharge Other:

Sampling Date: 12/10/19
Sampler's Name: B. Weinmann
Sample Collection Time: 16:46
Sample Purge Rate (mL/min):
Sample ID:
Laboratory Analyses:
QA/QC Collected?
QA/QC I.D.

All sample containers requiring chemical preservation properly preserved prior to demob from well? Yes No

Time	pH (SU)	Spec. Cond. (µS/cm)	ORP (mV)	DO (mg/L)	Temp. (°C)	Turbidity (NTUs)	DTW (ft btoc)	Purge Rate (mL/min)	Purged Volume (L)	Notes (Purge method, water clarity, odor, purge rate, issues with pump/well/weather/etc.)
1:17	7.38	805.0	158.5	7.96	14.55	10.65			35L	Pump at 65'
1:50	7.31	793.5	88.0	8.86	14.47	14.24			66L	Pump at 60'
1:55	7.21	778.9	73.8	10.02	15.38	8.56			70L	Pump at 60'
2:14	7.26	752.7	73.2	2.88	14.38	28.68			93L	Pump at 55'
2:37	7.27	783.4	65.3	3.20	14.65	11.26				Pump at 55'
2:41	7.24	764.5	61.8	2.82	15.91	8.44				Pump at 55
Stabilizing Criteria	**+/- 0.1 SU**	**+/- 5%**		0.2 mg/L or 10% for DO > 0.5 mg/L (whichever is greater)		**< 5 NTUs**	**< 0.3 ft**	**> 100 mL < 250 mL**	**> 3L**	

WELL DEVELOPMENT

Geosyntec consultants

GROUNDWATER SAMPLING LOG SHEET

Client: GA Power
Site: Plant Hammond
Well ID: MW-32
Total Depth (ft): 36.69
Depth to Water (ft): 19.39'
Well Diameter (in):
Well Volume (gal) = 0.041d²h:
Well Volume (L) = gal * 3.785:
d = well diameter (inches); h = length of water column (feet)

Well Type: Flush (Stick Up)
Well Lock: (Yes) No
Well Cap Condition: (Good) Replace
Well Tag Present: (Yes) No

Project No.: GW6581
Location: AP-3 (across tracks)
Pump Type/Model: Monsoon
Tubing Material: Polyethylene
Pump Intake Depth (ft):
Start/Stop Purge Time:
Purge Rate (mL/min):
Total Purge Volume (L):
Purge Method: Low-Flow Well Volume Other:
Sampling Method: Pump Discharge Other:

Sampling Date: 12/11/19
Sampler's Name: B. Weinmann
Sample Collection Time:
Sample Purge Rate (mL/min):
Sample ID:
Laboratory Analyses:
QA/QC Collected?
QA/QC I.D.

All sample containers requiring chemical preservation properly preserved prior to demob from well? Yes No

Time	pH (SU)	Spec. Cond. (µS/cm)	ORP (mV)	DO (mg/L)	Temp. (°C)	Turbidity (NTUs)	DTW (ft btoc)	Purge Rate (mL/min)	Purged Volume (L)	Notes (Purge method, water clarity, odor, purge rate, issues with pump/well/weather/etc.)
11:53	6.96	918.1	110.1	2.01	18.55	39.49			15	35', surged at start
12:02	6.94	877.5	105.6	2.22	17.61	21.72			29	33'
12:14	6.92	874.6	104.6	2.20	17.74	13.61			43	"
12:19	6.95	895.5	103.1	2.16	17.68	10.17			49	"
12:24	6.93	897.3	103.0	2.90	16.59	9.51			54	"
12:38	6.98	904.0	97.1	1.95	16.58	51.58			76	surged at 12:25
12:44	6.99	893.6	98.0	2.02	17.01	21.81			85	"
12:49	6.92	911.3	96.5	2.19	17.21	14.47			91	"
12:53	6.91	912.9	95.5	1.97	17.43	9.75			99	"
1:02	6.99	932.4	94.5	3.23	15.96	8.02			112	" surged at 1:08
1:21	7.00	876.2	92.3	2.72	18.06	45.00			125	"
1:25	7.03	911.5	92.9	3.89	16.56	19.49			136	"
1:36	7.00	896.2	92.4	2.88	17.54	9.64			147	
1:40	6.93	914.1	92.1	6.19	17.21	7.84			153	
1:44	6.94	918.5	91.5	2.14	16.94	5.95			160	
1:49	6.90	924.8	90.4	2.77	16.86	5.25			167	
Stabilizing Criteria	**+/- 0.1 SU**	**+/- 5%**		0.2 mg/L or 10% for DO > 0.5 mg/L (whichever is greater)		**< 5 NTUs**	**< 0.3 ft**	**> 100 mL < 250 mL**	**> 3L**	

WELL DEVELOPMENT

Geosyntec consultants

GROUNDWATER SAMPLING LOG SHEET

Client: GA Power
Site: Plant Hammond
Well ID: MW-33
Total Depth (ft): 30.5'
Depth to Water (ft): 24.73
Well Diameter (in):
Well Volume (gal) = 0.041d²h:
Well Volume (L) = gal * 3.785:
d = well diameter (inches); h = length of water column (feet)
Well Type: Flush (Stick Up)
Well Lock: Yes No
Well Cap Condition: Good Replace
Well Tag Present: Yes No

Project No.:
Location: ~~Plant H~~ AP-2
Pump Type/Model: Monsoon
Tubing Material: Polyethylene
Pump Intake Depth (ft):
Start/Stop Purge Time:
Purge Rate (mL/min):
Total Purge Volume (L):
Purge Method: Low-Flow Well Volume Other:
Sampling Method: Pump Discharge Other:

Sampling Date: 12/10/19
Sampler's Name: B. Weinmann
Sample Collection Time: 15:30 begin
Sample Purge Rate (mL/min):
Sample ID:
Laboratory Analyses:
QA/QC Collected?
QA/QC I.D.

All sample containers requiring chemical preservation properly preserved prior to demob from well? Yes No

Time	pH (SU)	Spec. Cond. (µS/cm)	ORP (mV)	DO (mg/L)	Temp. (°C)	Turbidity (NTUs)	DTW (ft btoc)	Purge Rate (mL/min)	Purged Volume (L)	Notes (Purge method, water clarity, odor, purge rate, issues with pump/well/weather/etc.)
3:45	6.17	2967.3	77.9	7.83	14.87	17.58			~24L	Pump at 37'
3:51	5.38	2970.5	83.1	9.28	15.64	8.43			~31L	38' Surge
4:01	5.08	2958.1	90.1	8.04	16.85	32.42			~47L	32'
4:10	4.99	2943.7	94.0	3.66	15.93	9.75			~61L	32' Surge
4:24	4.92	3001.7	97.7	2.42	14.86	29.11			~82L	33' begin spiking pump
9:35	6.14	3218.3	164.9	7.36	9.11	12.06	24.14		~35L	35'
9:50	4.81	2951.5	161.4	4.43	13.76	4.42			~~37L~~ 44L	35' Surge) whole screen
10:02	4.68	2929.0	149.2	3.47	14.02	19.66			60L	30'
10:17	4.66	2933.4	145.7	3.05	15.19	9.29			70L	34'
Stabilizing Criteria	**+/- 0.1 SU**	**+/- 5%**		0.2 mg/L or 10% for DO > 0.5 mg/L (whichever is greater)		**< 5 NTUs**	**< 0.3 ft**	**> 100 mL < 250 mL**	**> 3L**	

APPENDIX B

Well Inspection Forms

Geosyntec consultants

WELL INSPECTION FORM

Field Technician: Grant Walker | Site/Location: Hammond | Inspection Date: 03/11/2019

Well Inspection Items

Well ID	Inspection Time	Present (Y/N)						Comments regarding well condition
		Lock	Locking Cap	Bollards	Concrete Pad	Protective Casing	Vegetation	
HGWC-12IA	12:58	Y	Y	Y	Y	Y	N	Top of protective casing had crack
MW-1	13:20	Y	Y	Y	Y	Y	Y	Slight vegetation on pad
APIA-1	13:27	Y	Y	Y	Y	Y	Y	Slight vegetation on pad
~~HGWC-2 HGWC-~~ (GW)								
HGWA-2	13:56	Y	Y	Y	Y	Y	N	Good condition
HGWA-3	13:58	Y	Y	Y	Y	Y	N	SAA
HGWA-1	14:35	Y	Y	Y	Y	Y	N	SAA, Lock rusted

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WELL INSPECTION FORM

Field Technician: Noelia Muskus | Site/Location: AP-2 Plant Hammond | Inspection Date: 3/11/19

Well Inspection Items

Well ID	Inspection Time	Present (Y/N)						Comments regarding well condition
		Lock	Locking Cap	Bollards	Concrete Pad	Protective Casing	Vegetation	
MW-12	1304	Y	Y	Y	Y	Y	Y	Wrong ID tag (AP2-MW12) Fallen tree next to well
								Lock is hard to open.
HGWA-6	1321	Y	Y	Y	Y	Y	Y	
HGWA-5	1329	Y	Y	Y	Y	Y	Y	
HGWA-4	1340	Y	Y	Y	Y	Y	N	Overgrown vegetation on pad

Geosyntec consultants

WELL INSPECTION FORM

Field Technician: BHT | Site/Location: HAMMOND AP-1/AP-2 | Inspection Date: 03/11/19

Well Inspection Items

Well ID	Inspection Time	Present (Y/N)						Comments regarding well condition
		Lock	Locking Cap	Bollards	Concrete Pad	Protective Casing	Vegetation	
HGWC-16	10:10	Y	Y	Y	Y	Y	Y	
HGWC-17	10:15	Y	Y	Y	Y	Y	Y	
HGWC-18	10:26	Y	Y	Y	Y	Y	N	
MW-23D	10:30	Y	Y	Y	Y	Y	N	
HGWC-15	10:44	Y	Y	Y	Y	Y	N	
MW-21D	10:05	Y	Y	Y	Y	Y	N	
MW-22	11:00	Y	Y	Y	Y	Y	N	
HGWC-14	11:20	Y	Y	Y	Y	Y	N	
MW-9	11:37	Y	Y	Y	Y	Y	Y	
PMW-03	11:55	N	N	N	N	N	N	
MW-18	12:11	Y	Y	Y	Y	Y	Y	
MW-17	12:26	Y	Y	Y	Y	Y	N	
MW-16	12:34	Y	Y	Y	Y	Y	N	
PMW-04	12:45	N	N	N	N	N	N	

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WELL INSPECTION FORM

Field Technician: Grant Walter | Site/Location: AP-1 / Hammond | Inspection Date: 03/11/19

Well Inspection Items

Well ID	Inspection Time	Present (Y/N)						Comments regarding well condition
		Lock	Locking Cap	Bollards	Concrete Pad	Protective Casing	Vegetation	
MW-7	9:33	Y	Y	Y	Y	Y	N	Good condition
MW-8	9:45	Y	Y	Y	Y	Y	N	SAA
MW-19	10:13	Y	Y	Y	Y	Y	N	SAA
HGWC-13	10:24	Y	Y	Y	Y	Y	N	SAA
MW-24D	10:26	Y	Y	Y	Y	Y	N	SAA, Needs label
PMW-01	10:35	N	N	N	N	N	N	No lock, No casing
HGWC-11	10:42	Y	Y	Y	Y	Y	N	Good condition
HGWC-12	10:44	Y	Y	Y	Y	Y	N	SAA
MW-25D	10:46	Y	Y	Y	Y	Y	N	SAA
HGWC-10	10:54	Y	Y	Y	Y	Y	N	SAA
MW-6	10:56	Y	Y	Y	Y	Y	N	SAA
MW-5	11:01	Y	Y	Y	Y	Y	N	SAA
HGWC-9	11:08	Y	Y	Y	Y	Y	N	SAA
MW-26D	11:10	Y	Y	Y	Y	Y	N	SAA
MW-20	11:18	Y	Y	Y	Y	Y	N	SAA
MW-27D	11:26	Y	Y	Y	Y	Y	N	SAA
HGWC-8	11:28	Y	Y	Y	Y	Y	N	SAA
MW-29	11:34	Y	Y	Y	Y	Y	N	SAA
HGWC-7	11:41	Y	Y	Y	Y	Y	N	SAA

Groundwater Monitoring Well Integrity Form

Site Name: Hammond AR1 and AP-2
Permit Number:
Well ID: HGWA-1
Date: 4/1/19

		yes	no	n/a
1	**Location/Identification**			
a	Is the well visible and accessible?	X		
b	Is the well properly identified with the correct well ID?	X		
c	Is the well in a high traffic area and does the well require protection from traffic?		X	
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	X		
2	**Protective Casing**			
a	Is the protective casing free from apparent damage and able to be secured?	X		
b	Is the casing free of degradation or deterioration?	X		
c	Does the casing have a functioning weep hole?	X		
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	X		
e	Is the well locked and is the lock in good condition?	X		
3	**Surface pad**			
a	Is the well pad in good condition (not cracked or broken)?	X		
b	Is the well pad sloped away from the protective casing?	X		
c	Is the well pad in complete contact with the protective casing?	X		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	X		
e	Is the pad surface clean (not covered with sediment or debris)?	X		
4	**Internal casing**			
a	Does the cap prevent entry of foreign material into the well?	X		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	X		
c	Is the well properly vented for equilibration of air pressure?	X		
d	Is the survey point clearly marked on the inner casing?	X		
e	Is the depth of the well consistent with the original well log?	X		
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	X		
5	**Sampling: Groundwater Wells Only:**			
a	Does well recharge adequately when purged?	X		
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?	X		
c	Does the well require redevelopment (low flow, turbid)?		X	
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	X		

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Hayward AP-1 and AP-2
Permit Number:
Well ID: HGWA-2
Date: 03/12/19

		yes	no	n/a	
1	**Location/Identification**				
a	Is the well visible and accessible?	X			
b	Is the well properly identified with the correct well ID?	X			
c	Is the well in a high traffic area and does the well require protection from traffic?		X		
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	X			
2	**Protective Casing**				
a	Is the protective casing free from apparent damage and able to be secured?	X			
b	Is the casing free of degradation or deterioration?	X			
c	Does the casing have a functioning weep hole?	X			
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	X		X	GW
e	Is the well locked and is the lock in good condition?	X			
3	**Surface pad**				
a	Is the well pad in good condition (not cracked or broken)?	X			
b	Is the well pad sloped away from the protective casing?	X			
c	Is the well pad in complete contact with the protective casing?	X			
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	X			
e	Is the pad surface clean (not covered with sediment or debris)?	X			
4	**Internal casing**				
a	Does the cap prevent entry of foreign material into the well?	X			
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	X			
c	Is the well properly vented for equilibration of air pressure?	X			
d	Is the survey point clearly marked on the inner casing?	X			
e	Is the depth of the well consistent with the original well log?	X			
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	X			
5	**Sampling: Groundwater Wells Only:**				
a	Does well recharge adequately when purged?	X			
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?	X			
c	Does the well require redevelopment (low flow, turbid)?		X		
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	X			

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: PLANT HAMMOND AP-1 AND AP-2
Permit Number:
Well ID: HAWA-3
Date: 03/12/19

		yes	no	n/a
1	Location/Identification			
a	Is the well visible and accessible?	X		
b	Is the well properly identified with the correct well ID?	X		
c	Is the well in a high traffic area and does the well require protection from traffic?		X	
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	X		
2	Protective Casing			
a	Is the protective casing free from apparent damage and able to be secured?	X		
b	Is the casing free of degradation or deterioration?	X		
c	Does the casing have a functioning weep hole?	X		
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	X		
e	Is the well locked and is the lock in good condition?	X		
3	Surface pad			
a	Is the well pad in good condition (not cracked or broken)?	X		
b	Is the well pad sloped away from the protective casing?	X		
c	Is the well pad in complete contact with the protective casing?	X		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	X		
e	Is the pad surface clean (not covered with sediment or debris)?	X		
4	Internal casing			
a	Does the cap prevent entry of foreign material into the well?	X		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	X		
c	Is the well properly vented for equilibration of air pressure?	X		
d	Is the survey point clearly marked on the inner casing?	X		
e	Is the depth of the well consistent with the original well log?		X	
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	X		
5	Sampling: Groundwater Wells Only:			
a	Does well recharge adequately when purged?	X		
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?	X		
c	Does the well require redevelopment (low flow, turbid)?		X	
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	X		

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: AP-2 Plant Hammond
Permit Number: ~~~
Well ID: HGWA-4
Date: 3/11/2019

		yes	no	n/a
1	**Location/Identification**			
a	Is the well visible and accessible?	X		
b	Is the well properly identified with the correct well ID?	X		
c	Is the well in a high traffic area and does the well require protection from traffic?		X	
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	X		
2	**Protective Casing**			
a	Is the protective casing free from apparent damage and able to be secured?	X		
b	Is the casing free of degradation or deterioration?	X		
c	Does the casing have a functioning weep hole?	X		
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	X		
e	Is the well locked and is the lock in good condition?	X		
3	**Surface pad**			
a	Is the well pad in good condition (not cracked or broken)?	X		
b	Is the well pad sloped away from the protective casing?	X		
c	Is the well pad in complete contact with the protective casing?	X		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	X		
e	Is the pad surface clean (not covered with sediment or debris)?		X	
4	**Internal casing**			
a	Does the cap prevent entry of foreign material into the well?	X		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	X		
c	Is the well properly vented for equilibration of air pressure?			
d	Is the survey point clearly marked on the inner casing?			
e	Is the depth of the well consistent with the original well log?			
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	X		
5	**Sampling: Groundwater Wells Only:**			
a	Does well recharge adequately when purged?	X		
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?	X		
c	Does the well require redevelopment (low flow, turbid)?		X	
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	X		

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Hayward AP-2
Permit Number: —
Well ID: HGWA S
Date: 03/12/19

		yes	no	n/a	
1	**Location/Identification**				
a	Is the well visible and accessible?	X			
b	Is the well properly identified with the correct well ID?	X			
c	Is the well in a high traffic area and does the well require protection from traffic?		X		
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	X			
2	**Protective Casing**				
a	Is the protective casing free from apparent damage and able to be secured?	X			
b	Is the casing free of degradation or deterioration?	X			
c	Does the casing have a functioning weep hole?	X			
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	X		X	GW
e	Is the well locked and is the lock in good condition?	X			
3	**Surface pad**				
a	Is the well pad in good condition (not cracked or broken)?	X			
b	Is the well pad sloped away from the protective casing?	X			
c	Is the well pad in complete contact with the protective casing?	X			
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	X			
e	Is the pad surface clean (not covered with sediment or debris)?		X		
4	**Internal casing**				
a	Does the cap prevent entry of foreign material into the well?	X			
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	X			
c	Is the well properly vented for equilibration of air pressure?	X			
d	Is the survey point clearly marked on the inner casing?	X			
e	Is the depth of the well consistent with the original well log?	X			
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	X			
5	**Sampling: Groundwater Wells Only:**				
a	Does well recharge adequately when purged?	X			
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?	X			
c	Does the well require redevelopment (low flow, turbid)?		X		
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	X			

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: PLANT HAMMOND AP-2
Permit Number:
Well ID: HOWA-6
Date: 03/12/19

		yes	no	n/a
1	**Location/Identification**			
a	Is the well visible and accessible?	X		
b	Is the well properly identified with the correct well ID?	X		
c	Is the well in a high traffic area and does the well require protection from traffic?		X	
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	X		
2	**Protective Casing**			
a	Is the protective casing free from apparent damage and able to be secured?	X		
b	Is the casing free of degradation or deterioration?	X		
c	Does the casing have a functioning weep hole?	X		
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	X		
e	Is the well locked and is the lock in good condition?	X		
3	**Surface pad**			
a	Is the well pad in good condition (not cracked or broken)?	X		
b	Is the well pad sloped away from the protective casing?	X		
c	Is the well pad in complete contact with the protective casing?	X		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	X		
e	Is the pad surface clean (not covered with sediment or debris)?	X		
4	**Internal casing**			
a	Does the cap prevent entry of foreign material into the well?	X		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	X		
c	Is the well properly vented for equilibration of air pressure?	X		
d	Is the survey point clearly marked on the inner casing?	X		
e	Is the depth of the well consistent with the original well log? BTOC	X	X	
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	X		
5	**Sampling: Groundwater Wells Only:**			
a	Does well recharge adequately when purged?	X		
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?	X		
c	Does the well require redevelopment (low flow, turbid)?		X	
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	X		

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Mitchell - AP-2
Permit Number:
Well ID: MW-14
Date: 05/14/19

		yes	no	n/a
1	**Location/Identification**			
a	Is the well visible and accessible?	X		
b	Is the well properly identified with the correct well ID?	X		
c	Is the well in a high traffic area and does the well require protection from traffic?	X	X	
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	X		
2	**Protective Casing**			
a	Is the protective casing free from apparent damage and able to be secured?	X		
b	Is the casing free of degradation or deterioration?	X		
c	Does the casing have a functioning weep hole?	X		
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	X		
e	Is the well locked and is the lock in good condition?	X		
3	**Surface pad**			
a	Is the well pad in good condition (not cracked or broken)?	X		
b	Is the well pad sloped away from the protective casing?	X		
c	Is the well pad in complete contact with the protective casing?	X		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	X		
e	Is the pad surface clean (not covered with sediment or debris)?	X		
4	**Internal casing**			
a	Does the cap prevent entry of foreign material into the well?	X		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	X		
c	Is the well properly vented for equilibration of air pressure?	X		
d	Is the survey point clearly marked on the inner casing?	X		
e	Is the depth of the well consistent with the original well log?		X	
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	X		
5	**Sampling: Groundwater Wells Only:**			
a	Does well recharge adequately when purged?	X		
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?	X		
c	Does the well require redevelopment (low flow, turbid)?		X	
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	X		

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: AP-2 Hayward
Permit Number: —
Well ID: HGWC-15
Date: 03/14/19

		yes	no	n/a
1	**Location/Identification**			
a	Is the well visible and accessible?	X		
b	Is the well properly identified with the correct well ID?	X		
c	Is the well in a high traffic area and does the well require protection from traffic?		X	
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	X		
2	**Protective Casing**			
a	Is the protective casing free from apparent damage and able to be secured?	X		
b	Is the casing free of degradation or deterioration?	X		
c	Does the casing have a functioning weep hole?		X	
d	Is the annular ~~space between~~ casings clear of debris and water, or filled with ~~pea gravel/sand~~?	X		X (GW)
e	Is the well locked and is the lock in good condition?	X		
3	**Surface pad**			
a	Is the well pad in good condition (not cracked or broken)?	X		
b	Is the well pad sloped away from the protective casing?	X		
c	Is the well pad in complete contact with the protective casing?	X		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	X		
e	Is the pad surface clean (not covered with sediment or debris)?	X		
4	**Internal casing**			
a	Does the cap prevent entry of foreign material into the well?	X		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	X		
c	Is the well properly vented for equilibration of air pressure?	X		
d	Is the survey point clearly marked on the inner casing?		X	
e	Is the depth of the well consistent with the original well log?	X		
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	X		
5	**Sampling: Groundwater Wells Only:**			
a	Does well recharge adequately when purged?	X		
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?	X		
c	Does the well require redevelopment (low flow, turbid)?		X	
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	X		

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: PLANT HAMMOND AP-2
Permit Number:
Well ID: HGWC-16
Date: 03/16/19

		yes	no	n/a
1 Location/Identification				
a	Is the well visible and accessible?	X		
b	Is the well properly identified with the correct well ID?	X		
c	Is the well in a high traffic area and does the well require protection from traffic?	~~X~~ BJ	X	
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)		X	
2 Protective Casing				
a	Is the protective casing free from apparent damage and able to be secured?	X		
b	Is the casing free of degradation or deterioration?	X		
c	Does the casing have a functioning weep hole?	X		
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	X		
e	Is the well locked and is the lock in good condition?	X		
3 Surface pad				
a	Is the well pad in good condition (not cracked or broken)?	X		
b	Is the well pad sloped away from the protective casing?	X		
c	Is the well pad in complete contact with the protective casing?	X		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	X		
e	Is the pad surface clean (not covered with sediment or debris)?	X		
4 Internal casing				
a	Does the cap prevent entry of foreign material into the well?	X		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	X		
c	Is the well properly vented for equilibration of air pressure?	X		
d	Is the survey point clearly marked on the inner casing?	X		
e	Is the depth of the well consistent with the original well log?	X		
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	X		
5 Sampling: Groundwater Wells Only:				
a	Does well recharge adequately when purged?	X		
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?	X		
c	Does the well require redevelopment (low flow, turbid)?	X		
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	X		

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: PLANT HAMMOND
Permit Number:
Well ID: HAWC-17
Date: 03/11/19

		yes	no	n/a
1	**Location/Identification**			
a	Is the well visible and accessible?	X		
b	Is the well properly identified with the correct well ID?	X		
c	Is the well in a high traffic area and does the well require protection from traffic?		X	
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)		X	
2	**Protective Casing**			
a	Is the protective casing free from apparent damage and able to be secured?	X		
b	Is the casing free of degradation or deterioration?	X		
c	Does the casing have a functioning weep hole?	X		
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	X		
e	Is the well locked and is the lock in good condition?	X		
3	**Surface pad**			
a	Is the well pad in good condition (not cracked or broken)?	X		
b	Is the well pad sloped away from the protective casing?	X		
c	Is the well pad in complete contact with the protective casing?	X		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	X		
e	Is the pad surface clean (not covered with sediment or debris)?	X		
4	**Internal casing**			
a	Does the cap prevent entry of foreign material into the well?	X		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	X		
c	Is the well properly vented for equilibration of air pressure?	X		
d	Is the survey point clearly marked on the inner casing?	X		
e	Is the depth of the well consistent with the original well log?	X		
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	X		
5	**Sampling: Groundwater Wells Only:**			
a	Does well recharge adequately when purged?	X		
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?	X		
c	Does the well require redevelopment (low flow, turbid)?	X		
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	X		

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: AP-2 Hammond
Permit Number:
Well ID: HGWC-18
Date: 03/14/19

		yes	no	n/a
1	Location/Identification			
a	Is the well visible and accessible?	X		
b	Is the well properly identified with the correct well ID?	X		
c	Is the well in a high traffic area and does the well require protection from traffic?		X	
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	X		
2	Protective Casing			
a	Is the protective casing free from apparent damage and able to be secured?	X		
b	Is the casing free of degradation or deterioration?	X		
c	Does the casing have a functioning weep hole?		X	
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	X		
e	Is the well locked and is the lock in good condition?	X		
3	Surface pad			
a	Is the well pad in good condition (not cracked or broken)?	X		
b	Is the well pad sloped away from the protective casing?	X		
c	Is the well pad in complete contact with the protective casing?	X		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	X		
e	Is the pad surface clean (not covered with sediment or debris)?	X		
4	Internal casing			
a	Does the cap prevent entry of foreign material into the well?	X		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	X		
c	Is the well properly vented for equilibration of air pressure?	X		
d	Is the survey point clearly marked on the inner casing?	X		
e	Is the depth of the well consistent with the original well log?	X		
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	X		
5	Sampling: Groundwater Wells Only:			
a	Does well recharge adequately when purged?	X		
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?	X		
c	Does the well require redevelopment (low flow, turbid)?		X	
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	X		

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: AP-1 Hammond
Permit Number:
Well ID: MW-8
Date: 4/11/19

		yes	no	n/a
1 Location/Identification				
a	Is the well visible and accessible?	X		
b	Is the well properly identified with the correct well ID?	X		
c	Is the well in a high traffic area and does the well require protection from traffic?		X	
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	X		
2 Protective Casing				
a	Is the protective casing free from apparent damage and able to be secured?	X		
b	Is the casing free of degradation or deterioration?	X		
c	Does the casing have a functioning weep hole?	X		
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	X		
e	Is the well locked and is the lock in good condition?	X		
3 Surface pad				
a	Is the well pad in good condition (not cracked or broken)?	X		
b	Is the well pad sloped away from the protective casing?	X		
c	Is the well pad in complete contact with the protective casing?	X		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	X		
e	Is the pad surface clean (not covered with sediment or debris)?	X		
4 Internal casing				
a	Does the cap prevent entry of foreign material into the well?	X		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	X		
c	Is the well properly vented for equilibration of air pressure?	X		
d	Is the survey point clearly marked on the inner casing?	X		
e	Is the depth of the well consistent with the original well log?	X		
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	X		
5 Sampling: Groundwater Wells Only:				
a	Does well recharge adequately when purged?			X
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?			X
c	Does the well require redevelopment (low flow, turbid)?			X
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	X		

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: AD-2 Hammond
Permit Number:
Well ID: MW-9
Date: 4/11/19

		yes	no	n/a
1	Location/Identification			
a	Is the well visible and accessible?	X		
b	Is the well properly identified with the correct well ID?	X		
c	Is the well in a high traffic area and does the well require protection from traffic?		X	
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	X		
2	Protective Casing			
a	Is the protective casing free from apparent damage and able to be secured?	X		
b	Is the casing free of degradation or deterioration?	X		
c	Does the casing have a functioning weep hole?	X		
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	X		
e	Is the well locked and is the lock in good condition?	X		
3	Surface pad			
a	Is the well pad in good condition (not cracked or broken)?	X		
b	Is the well pad sloped away from the protective casing?	X		
c	Is the well pad in complete contact with the protective casing?	X		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	X		
e	Is the pad surface clean (not covered with sediment or debris)?	X		
4	Internal casing			
a	Does the cap prevent entry of foreign material into the well?	X		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	X		
c	Is the well properly vented for equilibration of air pressure?	X		
d	Is the survey point clearly marked on the inner casing?	X		
e	Is the depth of the well consistent with the original well log?	X		
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	X		
5	Sampling: Groundwater Wells Only:			
a	Does well recharge adequately when purged?			X
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?			X
c	Does the well require redevelopment (low flow, turbid)?			X
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	X		

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: MW-12
Date: 4-1-2019

		yes	no	n/a
1	**Location/Identification**			
a	Is the well visible and accessible?	✓		
b	Is the well properly identified with the correct well ID?		✓	
c	Is the well in a high traffic area and does the well require protection from traffic?		✓	
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	✓		
2	**Protective Casing**			
a	Is the protective casing free from apparent damage and able to be secured?	✓		
b	Is the casing free of degradation or deterioration?	✓		
c	Does the casing have a functioning weep hole?	✓		
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	✓		
e	Is the well locked and is the lock in good condition?	✓		
3	**Surface pad**			
a	Is the well pad in good condition (not cracked or broken)?	✓		
b	Is the well pad sloped away from the protective casing?	✓		
c	Is the well pad in complete contact with the protective casing?	✓		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	✓		
e	Is the pad surface clean (not covered with sediment or debris)?	✓		
4	**Internal casing**			
a	Does the cap prevent entry of foreign material into the well?	✓		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	✓		
c	Is the well properly vented for equilibration of air pressure?	✓		
d	Is the survey point clearly marked on the inner casing?	✓		
e	Is the depth of the well consistent with the original well log?	✓		
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	✓		
5	**Sampling: Groundwater Wells Only:**			
a	Does well recharge adequately when purged?			✓
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?			✓
c	Does the well require redevelopment (low flow, turbid)?			✓
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	✓		

7 Corrective actions as needed, by date:
Needs Well Tag and Pea gravel added. 4-1-19 - AR

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: AP-2 Plant Hammond
Permit Number:
Well ID: MW-16
Date: 4/11/19

		yes	no	n/a
1	Location/Identification			
a	Is the well visible and accessible?	X		
b	Is the well properly identified with the correct well ID?	X		
c	Is the well in a high traffic area and does the well require protection from traffic?		X	
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	X		
2	Protective Casing			
a	Is the protective casing free from apparent damage and able to be secured?	X		
b	Is the casing free of degradation or deterioration?	X		
c	Does the casing have a functioning weep hole?	X		
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	X		
e	Is the well locked and is the lock in good condition?	X		
3	Surface pad			
a	Is the well pad in good condition (not cracked or broken)?	X		
b	Is the well pad sloped away from the protective casing?	X		
c	Is the well pad in complete contact with the protective casing?	X		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	X		
e	Is the pad surface clean (not covered with sediment or debris)?	X		
4	Internal casing			
a	Does the cap prevent entry of foreign material into the well?	X		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	X		
c	Is the well properly vented for equilibration of air pressure?	X		
d	Is the survey point clearly marked on the inner casing?	X		
e	Is the depth of the well consistent with the original well log?	X		
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	X		
5	Sampling: Groundwater Wells Only:			
a	Does well recharge adequately when purged?			X
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?			X
c	Does the well require redevelopment (low flow, turbid)?			X
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	X		

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: AP-2 Plant Hammond
Permit Number: —
Well ID: MW-17
Date: 4/1/19

		yes	no	n/a
1	Location/Identification			
a	Is the well visible and accessible?	X		
b	Is the well properly identified with the correct well ID?	X		
c	Is the well in a high traffic area and does the well require protection from traffic?		X	
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	X		
2	Protective Casing			
a	Is the protective casing free from apparent damage and able to be secured?	X		
b	Is the casing free of degradation or deterioration?	X		
c	Does the casing have a functioning weep hole?	X		
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	X		
e	Is the well locked and is the lock in good condition?	X		
3	Surface pad			
a	Is the well pad in good condition (not cracked or broken)?	X		
b	Is the well pad sloped away from the protective casing?	X		
c	Is the well pad in complete contact with the protective casing?	X		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	X		
e	Is the pad surface clean (not covered with sediment or debris)?	X		
4	Internal casing			
a	Does the cap prevent entry of foreign material into the well?	X		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	X		
c	Is the well properly vented for equilibration of air pressure?	X		
d	Is the survey point clearly marked on the inner casing?	X		
e	Is the depth of the well consistent with the original well log?			
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	X		
5	Sampling: Groundwater Wells Only:			
a	Does well recharge adequately when purged?			X
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?			X
c	Does the well require redevelopment (low flow, turbid)?			X
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	X		

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: AP-2 Plant Hammond
Permit Number: —
Well ID: MW-18
Date: 4/1/19

		yes	no	n/a
1	**Location/Identification**			
a	Is the well visible and accessible?	X		
b	Is the well properly identified with the correct well ID?	X		
c	Is the well in a high traffic area and does the well require protection from traffic?		X	
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	X		
2	**Protective Casing**			
a	Is the protective casing free from apparent damage and able to be secured?	X		
b	Is the casing free of degradation or deterioration?	X		
c	Does the casing have a functioning weep hole?	X		
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	X		
e	Is the well locked and is the lock in good condition?	X		
3	**Surface pad**			
a	Is the well pad in good condition (not cracked or broken)?	X		
b	Is the well pad sloped away from the protective casing?	X		
c	Is the well pad in complete contact with the protective casing?	X		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	X		
e	Is the pad surface clean (not covered with sediment or debris)?	X		
4	**Internal casing**			
a	Does the cap prevent entry of foreign material into the well?	X		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	X		
c	Is the well properly vented for equilibration of air pressure?	X		
d	Is the survey point clearly marked on the inner casing?	X		
e	Is the depth of the well consistent with the original well log?	X		
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	X		
5	**Sampling: Groundwater Wells Only:**			
a	Does well recharge adequately when purged?			X
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?			X
c	Does the well require redevelopment (low flow, turbid)?			X
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	X		

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: AD-2 Plant Hammond
Permit Number: —
Well ID: MW-21D
Date: 4/1/19

		yes	no	n/a
1	Location/Identification			
a	Is the well visible and accessible?	X		
b	Is the well properly identified with the correct well ID?	X		
c	Is the well in a high traffic area and does the well require protection from traffic?	(X)	X	
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	X		
2	Protective Casing			
a	Is the protective casing free from apparent damage and able to be secured?	X		
b	Is the casing free of degradation or deterioration?	X		
c	Does the casing have a functioning weep hole?	X		
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	X		
e	Is the well locked and is the lock in good condition?	X		
3	Surface pad			
a	Is the well pad in good condition (not cracked or broken)?	X		
b	Is the well pad sloped away from the protective casing?	X		
c	Is the well pad in complete contact with the protective casing?	X		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	X		
e	Is the pad surface clean (not covered with sediment or debris)?	X		
4	Internal casing			
a	Does the cap prevent entry of foreign material into the well?	X		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	X		
c	Is the well properly vented for equilibration of air pressure?	X		
d	Is the survey point clearly marked on the inner casing?	X		
e	Is the depth of the well consistent with the original well log?			
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	X		
5	Sampling: Groundwater Wells Only:			
a	Does well recharge adequately when purged?	X		
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?			X
c	Does the well require redevelopment (low flow, turbid)?		X	
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	X		

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: AP-2 Hammond
Permit Number:
Well ID: MW-22
Date: 03/14/19

		yes	no	n/a
1	**Location/Identification**			
a	Is the well visible and accessible?	X		
b	Is the well properly identified with the correct well ID?	X		
c	Is the well in a high traffic area and does the well require protection from traffic?		X	
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	X		
2	**Protective Casing**			
a	Is the protective casing free from apparent damage and able to be secured?	X		
b	Is the casing free of degradation or deterioration?	X		
c	Does the casing have a functioning weep hole?	X		
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	X		
e	Is the well locked and is the lock in good condition?	X		
3	**Surface pad**			
a	Is the well pad in good condition (not cracked or broken)?	X		
b	Is the well pad sloped away from the protective casing?	X		
c	Is the well pad in complete contact with the protective casing?	X		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	X		
e	Is the pad surface clean (not covered with sediment or debris)?	X		
4	**Internal casing**			
a	Does the cap prevent entry of foreign material into the well?	X		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	X		
c	Is the well properly vented for equilibration of air pressure?	X		
d	Is the survey point clearly marked on the inner casing?	X		
e	Is the depth of the well consistent with the original well log?	X		
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	X		
5	**Sampling: Groundwater Wells Only:**			
a	Does well recharge adequately when purged?		X	
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?			X
c	Does the well require redevelopment (low flow, turbid)?	X		
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?			

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: AP-2 Hammond
Permit Number:
Well ID: ~~MW-21D~~ OF MW-23D
Date: 07/14/19

		yes	no	n/a
1	**Location/Identification**			
a	Is the well visible and accessible?	X		
b	Is the well properly identified with the correct well ID?	X		NM
c	Is the well in a high traffic area and does the well require protection from traffic?		X	
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	X		
2	**Protective Casing**			
a	Is the protective casing free from apparent damage and able to be secured?	X		
b	Is the casing free of degradation or deterioration?	X		
c	Does the casing have a functioning weep hole?		X	
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	~~X~~		X (cw)
e	Is the well locked and is the lock in good condition?	X		
3	**Surface pad**			
a	Is the well pad in good condition (not cracked or broken)?	X		
b	Is the well pad sloped away from the protective casing?	X		
c	Is the well pad in complete contact with the protective casing?	X		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	X		
e	Is the pad surface clean (not covered with sediment or debris)?	X		
4	**Internal casing**			
a	Does the cap prevent entry of foreign material into the well?	X		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	X		
c	Is the well properly vented for equilibration of air pressure?	X		
d	Is the survey point clearly marked on the inner casing?	X		
e	Is the depth of the well consistent with the original well log?		X	
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	X		
5	**Sampling: Groundwater Wells Only:**			
a	Does well recharge adequately when purged?	X		
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?			X
c	Does the well require redevelopment (low flow, turbid)?		X	
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	X		

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Geosyntec

WELL INSPECTION FORM

Field Technician: Aaron Reeder | Site/Location: Plant Hammond API and 2 | Inspection Date: 4/1/2019

Well Inspection Items

Well ID	Inspection Time	Present (Y/N)						Comments regarding well condition
		Lock	Locking Cap	Bollards	Concrete Pad	Protective Casing	Vegetation	
HGWA-1	1123	Y	Y	Y	Y	Y	Y	
HGWA-2	1143	Y	Y	Y	Y	Y	Y	
HGWA-3	1147	Y	Y	Y	Y	Y	Y	

Geosyntec

WELL INSPECTION FORM

Field Technician: Aaron Reeder | Site/Location: Plant Hammond AP-2 | Inspection Date: 4-1-2019

Well Inspection Items

Well ID	Inspection Time	Present (Y/N)						Comments regarding well condition
		Lock	Locking Cap	Bollards	Concrete Pad	Protective Casing	Vegetation	
HGWA-5	1000	Y	Y	Y	Y	Y	N	good
HGWA-6	1008	Y	Y	Y	Y	Y	N	good
MW-12	0937	Y	Y	Y	Y	Y	N	needs Tag
HGWA-4	1132	Y	Y	Y	Y	Y	N	Ants in well and mound on pad

Geosyntec

WELL INSPECTION FORM

Field Technician: Noelia Muskus | Site/Location: AP-2 / Plant Hammond | Inspection Date: 4/1/19

Well Inspection Items

Well ID	Inspection Time	Present (Y/N)						Comments regarding well condition
		Lock	Locking Cap	Bollards	Concrete Pad	Protective Casing	Vegetation	
MW-9	0857	Y	Y	Y	Y	Y	Y	Ok
HGWC-14	0938	Y	Y	Y	Y	Y	Y	OK
HGWC-15	0951	Y	Y	Y	Y	Y	Y	OK
MW-23D	0959	Y	Y	Y	Y	Y	Y	Ok
MW-22	1013	Y	Y	Y	Y	Y	Y	Ok
HGWC-16	1028	Y	Y	Y	Y	Y	Y	Ok
HGWC-17	1034	Y	Y	Y	Y	Y	Y	OK
MW-21D	1041	Y	Y	Y	Y	Y	Y	OK
HGWC-18	1046	Y	Y	Y	Y	Y	Y	Ok
MW-16	1135	Y	Y	Y	Y	Y	Y	Bees in protective casing
MW-17	1144	Y	Y	Y	Y	Y	Y	OK
MW-18	1157	Y	Y	Y	Y	Y	Y	OK

Groundwater Monitoring Well Integrity Form

Site Name: Hammond AP-1 / AP-2
Permit Number: -
Well ID: HGWA-1
Date, field conditions: 09-23-2019

			yes	no	n/a
1	**Location/Identification**				
	a	Is the well visible and accessible?	✓		
	b	Is the well properly identified with the correct well ID?	✓		
	c	Is the well in a high traffic area and does the well require protection from traffic?	✓		
	d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	✓		
2	**Protective Casing**				
	a	Is the protective casing free from apparent damage and able to be secured?	✓		
	b	Is the casing free of degradation or deterioration?	✓		
	c	Does the casing have a functioning weep hole?	✓ (crossed out) NA 10/04	⊗ NA 10/04	
	d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	✓		
	e	Is the well locked and is the lock in good condition?	✓		
3	**Surface pad**				
	a	Is the well pad in good condition (not cracked or broken)?	✓		
	b	Is the well pad sloped away from the protective casing?	✓		
	c	Is the well pad in complete contact with the protective casing?	✓		
	d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	✓		
	e	Is the pad surface clean (not covered with sediment or debris)?	✓		
4	**Internal casing**				
	a	Does the cap prevent entry of foreign material into the well?	✓		
	b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	✓		
	c	Is the well properly vented for equilibration of air pressure?	✓		
	d	Is the survey point clearly marked on the inner casing?	✓		
	e	Is the depth of the well consistent with the original well log?		✓	
	f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	✓		
5	**Sampling: Groundwater Wells Only:**				
	a	Does well recharge adequately when purged?	✓		
	b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?	✓		
	c	Does the well require redevelopment (low flow, turbid)?		✓	
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?		✓		

7 Corrective actions as needed, by date:

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Signature and Seal of PE/PG responsible for inspection

____

Groundwater Monitoring Well Integrity Form

Site Name: AP1/AP2 Hammond
Permit Number: ~
Well ID: HGW A-2
Date, field conditions: 9/23/19 - Sunny

		yes	no	n/a
1	Location/Identification			
a	Is the well visible and accessible?	✓		
b	Is the well properly identified with the correct well ID?	✓		
c	Is the well in a high traffic area and does the well require protection from traffic?	✓		
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	✓		
2	Protective Casing			
a	Is the protective casing free from apparent damage and able to be secured?	✓		
b	Is the casing free of degradation or deterioration?	✓		
c	Does the casing have a functioning weep hole?	✓		
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	✓		
e	Is the well locked and is the lock in good condition?	✓		
3	Surface pad			
a	Is the well pad in good condition (not cracked or broken)?	✓		
b	Is the well pad sloped away from the protective casing?	✓		
c	Is the well pad in complete contact with the protective casing?	✓		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	✓		
e	Is the pad surface clean (not covered with sediment or debris)?	✓		
4	Internal casing			
a	Does the cap prevent entry of foreign material into the well?	✓		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	✓		
c	Is the well properly vented for equilibration of air pressure?	✓		
d	Is the survey point clearly marked on the inner casing?	✓		
e	Is the depth of the well consistent with the original well log?	✓		
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	✓		
5	Sampling: Groundwater Wells Only:			
a	Does well recharge adequately when purged?	✓		
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?	✓		
c	Does the well require redevelopment (low flow, turbid)?		X	
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	✓		

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: AP-1 / AP-2 Hammond
Permit Number: —
Well ID: HGWA-3
Date, field conditions: 09/23/19 clear, sunny 80°F

		yes	no	n/a
1 Location/Identification				
a	Is the well visible and accessible?	X		
b	Is the well properly identified with the correct well ID?	X		
c	Is the well in a high traffic area and does the well require protection from traffic?	X		
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	X		
2 Protective Casing				
a	Is the protective casing free from apparent damage and able to be secured?	X		
b	Is the casing free of degradation or deterioration?	X		
c	Does the casing have a functioning weep hole?	X		
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	X		
e	Is the well locked and is the lock in good condition?	X		
3 Surface pad				
a	Is the well pad in good condition (not cracked or broken)?	X		
b	Is the well pad sloped away from the protective casing?	X		
c	Is the well pad in complete contact with the protective casing?	X		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	X		
e	Is the pad surface clean (not covered with sediment or debris)?	X		
4 Internal casing				
a	Does the cap prevent entry of foreign material into the well?	X		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	X		
c	Is the well properly vented for equilibration of air pressure?	X		
d	Is the survey point clearly marked on the inner casing?	X		
e	Is the depth of the well consistent with the original well log?	X		
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	X		
5 Sampling: Groundwater Wells Only:				
a	Does well recharge adequately when purged?	X		
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?	X		
c	Does the well require redevelopment (low flow, turbid)?		X	
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	X		

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Hammond AP-2
Permit Number: —
Well ID: HGWA-4
Date, field conditions: 09-24-2019

		yes	no	n/a
1 Location/Identification				
a	Is the well visible and accessible?	✓		
b	Is the well properly identified with the correct well ID?	✓		
c	Is the well in a high traffic area and does the well require protection from traffic?	✓		
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	✓		
2 Protective Casing				
a	Is the protective casing free from apparent damage and able to be secured?	✓		
b	Is the casing free of degradation or deterioration?	✓		
c	Does the casing have a functioning weep hole?	✓		
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	Y		
e	Is the well locked and is the lock in good condition?	Y		
3 Surface pad				
a	Is the well pad in good condition (not cracked or broken)?	Y		
b	Is the well pad sloped away from the protective casing?	Y		
c	Is the well pad in complete contact with the protective casing?	Y		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	Y		
e	Is the pad surface clean (not covered with sediment or debris)?		Y	
4 Internal casing				
a	Does the cap prevent entry of foreign material into the well?	Y		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	Y		
c	Is the well properly vented for equilibration of air pressure?	Y		
d	Is the survey point clearly marked on the inner casing?	Y		
e	Is the depth of the well consistent with the original well log?	~~N~~ ✓	✓	
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	Y		
5 Sampling: Groundwater Wells Only:				
a	Does well recharge adequately when purged?	✓		
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?	✓		
c	Does the well require redevelopment (low flow, turbid)?		✓	
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	✓		

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: AP-2 Hammond
Permit Number: —
Well ID: HGWA-5
Date, field conditions: 09/24/19 clear, sunny, 75°F

		yes	no	n/a
1 Location/Identification				
a	Is the well visible and accessible?	X		
b	Is the well properly identified with the correct well ID?	X		
c	Is the well in a high traffic area and does the well require protection from traffic?		X	
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	X		
2 Protective Casing				
a	Is the protective casing free from apparent damage and able to be secured?	X		
b	Is the casing free of degradation or deterioration?	X		
c	Does the casing have a functioning weep hole?	X		
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	X		
e	Is the well locked and is the lock in good condition?	X		
3 Surface pad				
a	Is the well pad in good condition (not cracked or broken)?	X		
b	Is the well pad sloped away from the protective casing?	X		
c	Is the well pad in complete contact with the protective casing?	X		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	X		
e	Is the pad surface clean (not covered with sediment or debris)?	X		
4 Internal casing				
a	Does the cap prevent entry of foreign material into the well?	X		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	X		
c	Is the well properly vented for equilibration of air pressure?	X		
d	Is the survey point clearly marked on the inner casing?	X		
e	Is the depth of the well consistent with the original well log?	X		
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	X		
5 Sampling: Groundwater Wells Only:				
a	Does well recharge adequately when purged?	X		
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?	X		
c	Does the well require redevelopment (low flow, turbid)?	(NO)	X	
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	X		

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: AP-2 Hammond
Permit Number: -
Well ID: HGWA-6
Date, field conditions: Sunny / 9/24/19

		yes	no	n/a
1 Location/Identification				
a	Is the well visible and accessible?	✓		
b	Is the well properly identified with the correct well ID?	✓		
c	Is the well in a high traffic area and does the well require protection from traffic?		x	
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	✓		
2 Protective Casing				
a	Is the protective casing free from apparent damage and able to be secured?	✓		
b	Is the casing free of degradation or deterioration?	✓		
c	Does the casing have a functioning weep hole?	✓		
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	✓		
e	Is the well locked and is the lock in good condition?	✓		
3 Surface pad				
a	Is the well pad in good condition (not cracked or broken)?	✓		
b	Is the well pad sloped away from the protective casing?	✓		
c	Is the well pad in complete contact with the protective casing?	✓		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	✓		
e	Is the pad surface clean (not covered with sediment or debris)?	✓		
4 Internal casing				
a	Does the cap prevent entry of foreign material into the well?	✓		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	✓		
c	Is the well properly vented for equilibration of air pressure?	✓		
d	Is the survey point clearly marked on the inner casing?	✓		
e	Is the depth of the well consistent with the original well log?	✓		
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	✓		
5 Sampling: Groundwater Wells Only:				
a	Does well recharge adequately when purged?	✓		
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?	✓		
c	Does the well require redevelopment (low flow, turbid)?	VM 10/04	✓ VM 10/04	
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	✓		

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Hammond AP-2
Permit Number: —
Well ID: HGWC-14
Date, field conditions: 09-24-2019

		yes	no	n/a
1	**Location/Identification**			
a	Is the well visible and accessible?	✓		
b	Is the well properly identified with the correct well ID?	✓		
c	Is the well in a high traffic area and does the well require protection from traffic?	✓		
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	✓		
2	**Protective Casing**			
a	Is the protective casing free from apparent damage and able to be secured?	✓		
b	Is the casing free of degradation or deterioration?	✓		
c	Does the casing have a functioning weep hole?	✓		
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	✓		
e	Is the well locked and is the lock in good condition?	✓		
3	**Surface pad**			
a	Is the well pad in good condition (not cracked or broken)?	✓		
b	Is the well pad sloped away from the protective casing?	✓		
c	Is the well pad in complete contact with the protective casing?	✓		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	✓		
e	Is the pad surface clean (not covered with sediment or debris)?	✓		
4	**Internal casing**			
a	Does the cap prevent entry of foreign material into the well?	✓		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	✓		
c	Is the well properly vented for equilibration of air pressure?	✓		
d	Is the survey point clearly marked on the inner casing?	✓		
e	Is the depth of the well consistent with the original well log?		✓	
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	✓		
5	**Sampling: Groundwater Wells Only:**			
a	Does well recharge adequately when purged?	✓		
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?	✓		
c	Does the well require redevelopment (low flow, turbid)?	~~✓~~ NO	✓	
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	✓		

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Hammond AP-2
Permit Number: —
Well ID: HGWC-15
Date, field conditions: 09-24-2019 DRY / Hot

		yes	no	n/a
1	**Location/Identification**			
a	Is the well visible and accessible?	✓		
b	Is the well properly identified with the correct well ID?	✓		
c	Is the well in a high traffic area and does the well require protection from traffic?	✓		
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	✓		
2	**Protective Casing**			
a	Is the protective casing free from apparent damage and able to be secured?	✓		
b	Is the casing free of degradation or deterioration?	✓		
c	Does the casing have a functioning weep hole?	.	✓	
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	✓		
e	Is the well locked and is the lock in good condition?	✓		
3	**Surface pad**			
a	Is the well pad in good condition (not cracked or broken)?	✓		
b	Is the well pad sloped away from the protective casing?	✓		
c	Is the well pad in complete contact with the protective casing?	✓		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	✓		
e	Is the pad surface clean (not covered with sediment or debris)?	✓		
4	**Internal casing**			
a	Does the cap prevent entry of foreign material into the well?	✓		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	✓		
c	Is the well properly vented for equilibration of air pressure?	✓		
d	Is the survey point clearly marked on the inner casing?	✓		
e	Is the depth of the well consistent with the original well log?		✓	
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	✓		
5	**Sampling: Groundwater Wells Only:**			
a	Does well recharge adequately when purged?	✓		
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?	✓		
c	Does the well require redevelopment (low flow, turbid)?	.	✓	
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	✓		

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Hammond AP-2
Permit Number: —
Well ID: HGWC-16
Date, field conditions: 09-25-2019 Dry / Hot

			yes	no	n/a
1	Location/Identification				
	a	Is the well visible and accessible?	✓		
	b	Is the well properly identified with the correct well ID?	✓		
	c	Is the well in a high traffic area and does the well require protection from traffic?	✓		
	d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	✓		
2	Protective Casing				
	a	Is the protective casing free from apparent damage and able to be secured?	✓		
	b	Is the casing free of degradation or deterioration?	✓		
	c	Does the casing have a functioning weep hole?	✓	~~✓~~ NM 10/04	
	d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	✓		
	e	Is the well locked and is the lock in good condition?	✓		
3	Surface pad				
	a	Is the well pad in good condition (not cracked or broken)?	✓		
	b	Is the well pad sloped away from the protective casing?	✓		
	c	Is the well pad in complete contact with the protective casing?	✓		
	d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)		✓	
	e	Is the pad surface clean (not covered with sediment or debris)?	✓		
4	Internal casing				
	a	Does the cap prevent entry of foreign material into the well?	✓		
	b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	✓		
	c	Is the well properly vented for equilibration of air pressure?	✓		
	d	Is the survey point clearly marked on the inner casing?	✓	✗ RG	
	e	Is the depth of the well consistent with the original well log?	✗ RG	✓	
	f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	✓		
5	Sampling: Groundwater Wells Only:				
	a	Does well recharge adequately when purged?	✓		
	b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?	✓		
	c	Does the well require redevelopment (low flow, turbid)?		✓	
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?		✓		

7 Corrective actions as needed, by date:

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Signature and Seal of PE/PG responsible for inspection

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Groundwater Monitoring Well Integrity Form

Site Name: Hammond AP-2
Permit Number: —
Well ID: HGWC-17
Date, field conditions: 04-25-2019

			yes	no	n/a
1	**Location/Identification**				
	a	Is the well visible and accessible?	✓		
	b	Is the well properly identified with the correct well ID?	✓		
	c	Is the well in a high traffic area and does the well require protection from traffic?	✓		
	d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	✓		
2	**Protective Casing**				
	a	Is the protective casing free from apparent damage and able to be secured?	✓		
	b	Is the casing free of degradation or deterioration?	✓		
	c	Does the casing have a functioning weep hole?	~~✗~~ ✓ 10/04	~~✗~~ (NM)	1/04
	d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	✓		
	e	Is the well locked and is the lock in good condition?	✓		
3	**Surface pad**				
	a	Is the well pad in good condition (not cracked or broken)?	✓		
	b	Is the well pad sloped away from the protective casing?	✓		
	c	Is the well pad in complete contact with the protective casing?	✓		
	d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	✓		
	e	Is the pad surface clean (not covered with sediment or debris)?	✓		
4	**Internal casing**				
	a	Does the cap prevent entry of foreign material into the well?	✓		
	b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	✓		
	c	Is the well properly vented for equilibration of air pressure?	✓		
	d	Is the survey point clearly marked on the inner casing?	✓		
	e	Is the depth of the well consistent with the original well log?	✓		
	f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	✓		
5	**Sampling: Groundwater Wells Only:**				
	a	Does well recharge adequately when purged?	✓		
	b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?	✓		
	c	Does the well require redevelopment (low flow, turbid)?		✓	
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?		✓		

7 Corrective actions as needed, by date:

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Signature and Seal of PE/PG responsible for inspection

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Groundwater Monitoring Well Integrity Form

Site Name: Hammond AP-2
Permit Number: —
Well ID: HGWL-18
Date, field conditions: 09-25-2019

		yes	no	n/a
1	**Location/Identification**			
a	Is the well visible and accessible?	✓		
b	Is the well properly identified with the correct well ID?	✓		
c	Is the well in a high traffic area and does the well require protection from traffic?	✓		
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	✓		
2	**Protective Casing**			
a	Is the protective casing free from apparent damage and able to be secured?	✓		
b	Is the casing free of degradation or deterioration?	✓		
c	Does the casing have a functioning weep hole?		✓	
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	✓		
e	Is the well locked and is the lock in good condition?	✓		
3	**Surface pad**			
a	Is the well pad in good condition (not cracked or broken)?	✓		
b	Is the well pad sloped away from the protective casing?	✓		
c	Is the well pad in complete contact with the protective casing?	✓		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	✓		
e	Is the pad surface clean (not covered with sediment or debris)?	✓		
4	**Internal casing**			
a	Does the cap prevent entry of foreign material into the well?	✓		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	✓		
c	Is the well properly vented for equilibration of air pressure?	✓		
d	Is the survey point clearly marked on the inner casing?	✓		
e	Is the depth of the well consistent with the original well log?		✓	
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	✓		
5	**Sampling: Groundwater Wells Only:**			
a	Does well recharge adequately when purged?	✓		
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?	✓		
c	Does the well require redevelopment (low flow, turbid)?		✓	
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	✓		

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond - AP1
Permit Number: -
Well ID: MW-8
Date, field conditions: 9/23/19 - Sunny

		yes	no	n/a
1 Location/Identification				
a	Is the well visible and accessible?	✓		
b	Is the well properly identified with the correct well ID?	✓		
c	Is the well in a high traffic area and does the well require protection from traffic?		X	
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	✓		
2 Protective Casing				
a	Is the protective casing free from apparent damage and able to be secured?	✓		
b	Is the casing free of degradation or deterioration?	✓		
c	Does the casing have a functioning weep hole?	✓		
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	✓		
e	Is the well locked and is the lock in good condition?	✓		
3 Surface pad				
a	Is the well pad in good condition (not cracked or broken)?	✓		
b	Is the well pad sloped away from the protective casing?	✓		
c	Is the well pad in complete contact with the protective casing?	✓		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	✓		
e	Is the pad surface clean (not covered with sediment or debris)?	✓		
4 Internal casing				
a	Does the cap prevent entry of foreign material into the well?	✓		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	✓		
c	Is the well properly vented for equilibration of air pressure?	✓		
d	Is the survey point clearly marked on the inner casing?	✓		
e	Is the depth of the well consistent with the original well log?	✓		
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	✓		
5 Sampling: Groundwater Wells Only:				
a	Does well recharge adequately when purged?			X
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?			X
c	Does the well require redevelopment (low flow, turbid)?			X
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	X (MM) 10/04		

WL only (MM) 10/04

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Hummel AP-2
Permit Number: —
Well ID: MW-9
Date, field conditions: 09-23-2019 DRY / clear

		yes	no	n/a
1 Location/Identification				
a	Is the well visible and accessible?	✓		
b	Is the well properly identified with the correct well ID?	✓		
c	Is the well in a high traffic area and does the well require protection from traffic?		✓	
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	✓		
2 Protective Casing				
a	Is the protective casing free from apparent damage and able to be secured?	✓		
b	Is the casing free of degradation or deterioration?	✓		
c	Does the casing have a functioning weep hole?	✓	WMF (NM) 10/04	
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	✓		
e	Is the well locked and is the lock in good condition?	✓		
3 Surface pad				
a	Is the well pad in good condition (not cracked or broken)?	✓		
b	Is the well pad sloped away from the protective casing?	✓		
c	Is the well pad in complete contact with the protective casing?	✓		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	✓		
e	Is the pad surface clean (not covered with sediment or debris)?		✓	
4 Internal casing				
a	Does the cap prevent entry of foreign material into the well?	✓		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	✓		
c	Is the well properly vented for equilibration of air pressure?	✓		
d	Is the survey point clearly marked on the inner casing?	✓		
e	Is the depth of the well consistent with the original well log?		✓	
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	✓		
5 Sampling: Groundwater Wells Only:				
a	Does well recharge adequately when purged?			✓ WL only
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?			✓ (NM) 10/04
c	Does the well require redevelopment (low flow, turbid)?			✓
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?			✓

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Hammond AP-2
Permit Number: —
Well ID: MW-12
Date, field conditions: 09-23-2014 dry clear

		yes	no	n/a
1 Location/Identification				
a	Is the well visible and accessible?	✓		
b	Is the well properly identified with the correct well ID?	✓		
c	Is the well in a high traffic area and does the well require protection from traffic?	✓		
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	✓		
2 Protective Casing				
a	Is the protective casing free from apparent damage and able to be secured?	✓		
b	Is the casing free of degradation or deterioration?	✓		
c	Does the casing have a functioning weep hole?	✓	~~✓~~ VM 10/04	
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	✓		
e	Is the well locked and is the lock in good condition?	✓		
3 Surface pad				
a	Is the well pad in good condition (not cracked or broken)?	✓		
b	Is the well pad sloped away from the protective casing?	✓		
c	Is the well pad in complete contact with the protective casing?	✓		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	✓		
e	Is the pad surface clean (not covered with sediment or debris)?	✓		
4 Internal casing				
a	Does the cap prevent entry of foreign material into the well?	✓		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	✓		
c	Is the well properly vented for equilibration of air pressure?	✓		
d	Is the survey point clearly marked on the inner casing?	✓		
e	Is the depth of the well consistent with the original well log?		✓	
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	✓		
5 Sampling: Groundwater Wells Only:				
a	Does well recharge adequately when purged?			✓ WL only
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?			✓ VM 10/04
c	Does the well require redevelopment (low flow, turbid)?			✓
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	✓ VM 10/04		~~✓~~ VM 10/04

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: AP-2 Hammond
Permit Number:
Well ID: MW-16
Date, field conditions: Clear, sunny, 60°F (09/23/19)

		yes	no	n/a	
1 Location/Identification					
a	Is the well visible and accessible?	X			
b	Is the well properly identified with the correct well ID?	X			
c	Is the well in a high traffic area and does the well require protection from traffic?		X		
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	X			
2 Protective Casing					
a	Is the protective casing free from apparent damage and able to be secured?	X			
b	Is the casing free of degradation or deterioration?	X			
c	Does the casing have a functioning weep hole?	X			
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	X			
e	Is the well locked and is the lock in good condition?	X			
3 Surface pad					
a	Is the well pad in good condition (not cracked or broken)?	X			
b	Is the well pad sloped away from the protective casing?	X			
c	Is the well pad in complete contact with the protective casing?	X			
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	X			
e	Is the pad surface clean (not covered with sediment or debris)?		X		minor vegetation growth
4 Internal casing					
a	Does the cap prevent entry of foreign material into the well?	X			
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	X			
c	Is the well properly vented for equilibration of air pressure?	X			
d	Is the survey point clearly marked on the inner casing?	X			
e	Is the depth of the well consistent with the original well log?	X			
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	X			
5 Sampling: Groundwater Wells Only:					
a	Does well recharge adequately when purged?			X	WL only
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?			X	
c	Does the well require redevelopment (low flow, turbid)?			X	
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	X			

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: AP-2 Hammond
Permit Number:
Well ID: MW-17
Date, field conditions: Clear, sunny, 60°F (09/23/19)

		yes	no	n/a	
1 Location/Identification					
a	Is the well visible and accessible?	X			
b	Is the well properly identified with the correct well ID?	X			
c	Is the well in a high traffic area and does the well require protection from traffic?		X		
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	X			
2 Protective Casing					
a	Is the protective casing free from apparent damage and able to be secured?	X			
b	Is the casing free of degradation or deterioration?	X			
c	Does the casing have a functioning weep hole?	X			
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	X			
e	Is the well locked and is the lock in good condition?	X			
3 Surface pad					
a	Is the well pad in good condition (not cracked or broken)?	X			
b	Is the well pad sloped away from the protective casing?	X			
c	Is the well pad in complete contact with the protective casing?	X			
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	X			
e	Is the pad surface clean (not covered with sediment or debris)?		X		minor vegetation growth
4 Internal casing					
a	Does the cap prevent entry of foreign material into the well?	X			
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	X			
c	Is the well properly vented for equilibration of air pressure?	X			
d	Is the survey point clearly marked on the inner casing?	X			
e	Is the depth of the well consistent with the original well log?	X			
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	X			
5 Sampling: Groundwater Wells Only:					
a	Does well recharge adequately when purged?			X	WL
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?			X	only
c	Does the well require redevelopment (low flow, turbid)?			X	
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	X			

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: AP-2 Hammond
Permit Number: —
Well ID: MW-18
Date, field conditions: 09/23/19, clear, sunny, 60°F

		yes	no	n/a	
1 Location/Identification					
a	Is the well visible and accessible?	X			
b	Is the well properly identified with the correct well ID?	X			
c	Is the well in a high traffic area and does the well require protection from traffic?	X			
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	X			
2 Protective Casing					
a	Is the protective casing free from apparent damage and able to be secured?	X			
b	Is the casing free of degradation or deterioration?	X			
c	Does the casing have a functioning weep hole?	X			
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	X			
e	Is the well locked and is the lock in good condition?	X			
3 Surface pad					
a	Is the well pad in good condition (not cracked or broken)?	X			
b	Is the well pad sloped away from the protective casing?	X			
c	Is the well pad in complete contact with the protective casing?	X			
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	X			
e	Is the pad surface clean (not covered with sediment or debris)?		X		minor vegetation growth
4 Internal casing					
a	Does the cap prevent entry of foreign material into the well?	X			
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	X			
c	Is the well properly vented for equilibration of air pressure?	X			
d	Is the survey point clearly marked on the inner casing?	X			
e	Is the depth of the well consistent with the original well log?	X			
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	X			
5 Sampling: Groundwater Wells Only:					
a	Does well recharge adequately when purged?			X	WL only
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?			X	
c	Does the well require redevelopment (low flow, turbid)?			X	
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	X			

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Hammond AP-2
Permit Number: —
Well ID: HGWC-117
Date, field conditions: 09-23-2019

		yes	no	n/a
1	**Location/Identification**			
a	Is the well visible and accessible?	✓		
b	Is the well properly identified with the correct well ID?	✓		
c	Is the well in a high traffic area and does the well require protection from traffic?	✓		
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	✓		
2	**Protective Casing**			
a	Is the protective casing free from apparent damage and able to be secured?	✓		
b	Is the casing free of degradation or deterioration?	✓		
c	Does the casing have a functioning weep hole?	✓		
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	✓		
e	Is the well locked and is the lock in good condition?	✓		
3	**Surface pad**			
a	Is the well pad in good condition (not cracked or broken)?	✓		
b	Is the well pad sloped away from the protective casing?	✓		
c	Is the well pad in complete contact with the protective casing?	✓		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	✓		
e	Is the pad surface clean (not covered with sediment or debris)?	✓		
4	**Internal casing**			
a	Does the cap prevent entry of foreign material into the well?	✓		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	✓		
c	Is the well properly vented for equilibration of air pressure?	✓		
d	Is the survey point clearly marked on the inner casing?	✓		
e	Is the depth of the well consistent with the original well log?	✓		
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	✓		
5	**Sampling: Groundwater Wells Only:**			
a	Does well recharge adequately when purged?			✓
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?			✓
c	Does the well require redevelopment (low flow, turbid)?			✓
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	✓ (NM 10/04)		✓ (NM 10/04)

not sampled (NM 10/04) WL only

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Hammond PP-2
Permit Number: —
Well ID: HGWC-118
Date, field conditions: 04-23-2019

		yes	no	n/a	
1 Location/Identification					
a	Is the well visible and accessible?	✓			
b	Is the well properly identified with the correct well ID?	✓			
c	Is the well in a high traffic area and does the well require protection from traffic?	✓			
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	✓			
2 Protective Casing					
a	Is the protective casing free from apparent damage and able to be secured?	✓			
b	Is the casing free of degradation or deterioration?	✓	WM 10/04		
c	Does the casing have a functioning weep hole?	✓			
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	✓			
e	Is the well locked and is the lock in good condition?	✓			
3 Surface pad					
a	Is the well pad in good condition (not cracked or broken)?	✓			
b	Is the well pad sloped away from the protective casing?	✓			
c	Is the well pad in complete contact with the protective casing?	✓			
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	✓			
e	Is the pad surface clean (not covered with sediment or debris)?	✓			
4 Internal casing					
a	Does the cap prevent entry of foreign material into the well?	✓			
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	✓			
c	Is the well properly vented for equilibration of air pressure?	✓			
d	Is the survey point clearly marked on the inner casing?	✓			
e	Is the depth of the well consistent with the original well log?		✓		
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	✓			
5 Sampling: Groundwater Wells Only:					
a	Does well recharge adequately when purged?			✓	WL only
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?			✓	WM 10/04
c	Does the well require redevelopment (low flow, turbid)?			✓	
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	✓ WM 10/04		✓ WM 10/04	

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Hammond AP-2
Permit Number: —
Well ID: MW-21d
Date, field conditions: 09-23-2019 – 09-25-2019

		yes	no	n/a
1	**Location/Identification**			
a	Is the well visible and accessible?	✓		
b	Is the well properly identified with the correct well ID?	✓		
c	Is the well in a high traffic area and does the well require protection from traffic?	✓		
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	✓		
2	**Protective Casing**			
a	Is the protective casing free from apparent damage and able to be secured?	✓		
b	Is the casing free of degradation or deterioration?	✓		
c	Does the casing have a functioning weep hole?	PR= X (NM) 10/04		(NM) 10/04
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	✓		
e	Is the well locked and is the lock in good condition?	✓		
3	**Surface pad**			
a	Is the well pad in good condition (not cracked or broken)?	✓		
b	Is the well pad sloped away from the protective casing?	✓		
c	Is the well pad in complete contact with the protective casing?	✓		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	✓		
e	Is the pad surface clean (not covered with sediment or debris)?	✓		
4	**Internal casing**			
a	Does the cap prevent entry of foreign material into the well?	✓		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	✓		
c	Is the well properly vented for equilibration of air pressure?	✓		
d	Is the survey point clearly marked on the inner casing?	✓		
e	Is the depth of the well consistent with the original well log?	✓		
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	✓		
5	**Sampling: Groundwater Wells Only:**			
a	Does well recharge adequately when purged?	✓ (NM) 10/04		(NM) 10/04
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?			✓
c	Does the well require redevelopment (low flow, turbid)?		✓ (NM) 10/04	(NM) 10/04
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	✓		(NM) 10/04

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: AP-2 Hammond
Permit Number: —
Well ID: MW-22
Date, field conditions: 9/27/19, clear, sunny 75°F

		yes	no	n/a
1	**Location/Identification**			
a	Is the well visible and accessible?	X		
b	Is the well properly identified with the correct well ID?	X		
c	Is the well in a high traffic area and does the well require protection from traffic?		X	
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	X		
2	**Protective Casing**			
a	Is the protective casing free from apparent damage and able to be secured?	X		
b	Is the casing free of degradation or deterioration?	X		
c	Does the casing have a functioning weep hole?	X		
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	X		
e	Is the well locked and is the lock in good condition?	X		
3	**Surface pad**			
a	Is the well pad in good condition (not cracked or broken)?	X		
b	Is the well pad sloped away from the protective casing?	X		
c	Is the well pad in complete contact with the protective casing?	X		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	X		
e	Is the pad surface clean (not covered with sediment or debris)?	X		
4	**Internal casing**			
a	Does the cap prevent entry of foreign material into the well?	X		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	X		
c	Is the well properly vented for equilibration of air pressure?	X		
d	Is the survey point clearly marked on the inner casing?	X		
e	Is the depth of the well consistent with the original well log?		X	
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	X		
5	**Sampling: Groundwater Wells Only:**			
a	Does well recharge adequately when purged?		X	NM
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?	X		
c	Does the well require redevelopment (low flow, turbid)?	X		
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	X		

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Hammond AP-2
Permit Number: —
Well ID: MW-23d
Date, field conditions: 09-23-2019 – 09-26-2019

		yes	no	n/a
1	**Location/Identification**			
a	Is the well visible and accessible?	✓		
b	Is the well properly identified with the correct well ID?	✓		
c	Is the well in a high traffic area and does the well require protection from traffic?	✓		
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	✓		
2	**Protective Casing**			
a	Is the protective casing free from apparent damage and able to be secured?	✓		
b	Is the casing free of degradation or deterioration?	✓		
c	Does the casing have a functioning weep hole?		✓	
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	✓		
e	Is the well locked and is the lock in good condition?	✓		
3	**Surface pad**			
a	Is the well pad in good condition (not cracked or broken)?	✓		
b	Is the well pad sloped away from the protective casing?	✓		
c	Is the well pad in complete contact with the protective casing?	✓		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	✓		
e	Is the pad surface clean (not covered with sediment or debris)?	✓		
4	**Internal casing**			
a	Does the cap prevent entry of foreign material into the well?	✓		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	✓		
c	Is the well properly vented for equilibration of air pressure?	✓		
d	Is the survey point clearly marked on the inner casing?	✓		
e	Is the depth of the well consistent with the original well log?	✓		
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	✓		
5	**Sampling: Groundwater Wells Only:**			
a	Does well recharge adequately when purged?	✓		✓ VM 10/04
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?			✓
c	Does the well require redevelopment (low flow, turbid)?	✓ VM 10/04	✓	✓ VM 10/04
6	Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	✓		✓ VM 10/04

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

APPENDIX C

Alternate Source Demonstration – Cobalt

Prepared for

Georgia Power Company
241 Ralph McGill Blvd NE
Atlanta, Georgia 30308

ALTERNATE SOURCE DEMONSTRATION - COBALT

GEORGIA POWER COMPANY
PLANT HAMMOND ASH POND 2

Prepared by

engineers | scientists | innovators

1255 Roberts Boulevard, Suite 200
Kennesaw, Georgia 30144

Project Number GW6581B

January 2020

Georgia Power

ALTERNATE SOURCE DEMONSTRATION

Plant Hammond
Ash Pond 2 (AP-2)

January 14, 2020

Herwig Goldemund, Ph.D.
Senior Scientist

Whitney Law, P.E.
Project Manager

Certification Statement

Alternate Source Demonstration
Plant Hammond
Ash Pond 2
January 14, 2020

I hereby certify that the facts used to prepare this Alternate Source Demonstration for Georgia Power Company – Plant Hammond Ash Pond 2 are accurate pursuant to the requirements stipulated in 40 CFR 257.95(g)(3)(ii) and Georgia regulations stipulated in Rule 391-3-4-.10(6) of the Georgia Administrative Code, which incorporates 40 CFR 257.95(g)(3)(ii) by reference.

Seal and Signature

January 14, 2020
Date

Geosyntec
consultants

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AP	ash pond
ASD	Alternate Source Demonstration
CCR	Coal Combustion Residual
CFR	Code of Federal Regulations
Co	cobalt
Fe	iron
GPC	Georgia Power Company
GWPS	groundwater protection standard
mg/kg	milligram per kilogram
mg/L	milligram per liter
Mn	manganese
SSI	statistically significant increase
SSL	statistically significant level
s.u.	standard units

1. INTRODUCTION

1.1 Purpose

This document presents an alternate source demonstration (ASD) for the statistically significant level (SSL) of cobalt (Co) detected in compliance well HGWC-18 above the site-specific groundwater protection standard (GWPS). Well HGWC-18 is associated with the CCR unit Ash Pond 2 (AP-2) located at Georgia Power Company (GPC) Plant Hammond (Site). The Co SSL was identified based on statistical evaluations of the groundwater quality data for samples obtained during assessment monitoring activities conducted during 2018 and 2019. This ASD has been prepared pursuant to regulations in Title 40 Code of Federal Regulations (CFR) Part 257 Subpart D [the Federal Coal Combustion Residuals (CCR) Rule], specifically 40 CFR 257.95(g)(3)(ii), which allows the owner or operator to "demonstrate that a source other than the CCR unit caused the contamination, or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality." Moreover, this ASD also serves as an ASD under the Georgia regulations per Rule 391-3-4-.10(6) of the Georgia Administrative Code, which incorporates 40 CFR 257.95(g)(3)(ii) by reference.

1.2 Summary of ASD

Based on review of available AP-2 data, the Co SSL reported for monitoring well HGWC-18 is not associated with a release from AP-2 but is instead associated with natural variation in the groundwater quality due to mobilization of naturally-occurring Co present in the Floyd shale of the undifferentiated Mississippian/Devonian geologic unit underlying the northern portion of AP-2 as a consequence of naturally lower groundwater pH at this well. This ASD provides the following lines of evidence in support of this conclusion.

- Both historical literature and site-specific data collected from solids within the aquifer matrix indicate the presence of naturally-occurring Co in the Floyd shale observed in the northern portions of AP-2;

- The naturally-occurring Co is expected to be mobilized when pH conditions are more acidic, which is likely caused by naturally-occurring pyritic minerals observed in the Floyd shale in vicinity of AP-2; and

- The highest Co concentrations in groundwater are detected in monitoring well HGWC-18, which has a low groundwater pH (around pH 4.5). HGWC-18 is downgradient of a CCR pore water piezometer (i.e., PMW-04) with alkaline pH (pH > 8.5) and no greater than estimated (i.e., J-flagged) Co concentrations that are approximately 200-300 times lower when compared to HGWC-18; this indicates that both the elevated Co as well as the acidic groundwater pH are not related to a release from AP-2.

1.3 Site Description

1.3.1 Operations

Plant Hammond is a four-unit, coal-fired electric generating facility located in Floyd County, Georgia, approximately 10 miles west of Rome, Georgia. The Site 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**).

AP-2 is a 21-acre surface impoundment located at Plant Hammond. AP-2 is located near the center of the Plant as shown on **Figure 1**. AP-2 was used as a dewatering facility for fly ash and bottom ash. When the plant was operating, dewatered ash was excavated and transported to the nearby Huffaker Road Landfill facility, a permitted solid waste disposal location owned and operated by GPC. GPC will close AP-2 through removal of the CCR material from the CCR unit.

1.3.2 Geology and Hydrogeology

1.3.2.1 Geology

The Plant Hammond site is located in the Valley and Ridge Physiographic Province (Valley and Ridge) 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. The topography of the valleys and ridges reflects the underlying geology of the variably eroded folded layers of alternating bedrock units. Ridges are composed of relatively erosion-resistant rocks such as sandstone, conglomerate, or chert whereas valley floors are underlain by more-easily eroded rocks such as limestone, dolomite, and shale.

Geologic mapping performed at the Site by Petrologic Solutions, Inc. (Petrologic) under the direction of Golder (Golder, 2018) indicates the Site is underlain primarily by terrace alluvium, colluvium, residuum, partially weathered shale or shaley limestone bedrock,

and unweathered shale or shaley limestone bedrock. The majority of the bedrock underlying the Site is from either the middle or lower units of the Cambrian Conasauga Formation (Ccls or Ccsl, respectively). The extent of the two units underlying the Site is illustrated on a geologic map prepared by Petrologic and Golder and provided in **Appendix A**.

Faults in the Valley and Ridge are thrust faults, where sheets of limestone, sandstone, and shale have been pushed northwestward on top of each other for distances of tens of miles. The bedrock geology of the Conasauga Formation at the Site is effectively bisected by the Turnip Mountain Fault, as shown on the geologic map in **Appendix A**. North of the plant is the Rome Fault. Based on field borings and knowledge of the regional geology, Petrologic's investigation proposed that the Rome Fault dips at a shallow angle beneath the north-central portions of the Site, uplifting the middle and lower units of the Conasauga Formations.

As indicated on the geologic map, AP-2 is predominantly underlain with the lower unit of the Conasauga Formation. Bedrock from this unit is characterized by brown to gray shale with dolostone fragments (Golder, 2018). However, borings advanced in the northern portions of AP-2 during the Petrologic mapping investigation contained shale not consistent with the Conasauga formation. The borings were located slightly southeast of the intersection of the Rome and Turnip Mountain Faults depicted on the Site geologic map. The black color and fissile nature of the encountered shale was more consistent with shales found in the younger undifferentiated Devonian and Mississippian Floyd units (Golder, 2018). Wells MW-15, MW-16, MW-17, and MW-18 were installed in these boreholes and screened within the partially weathered shale; well locations are denoted on Petrologic's geologic map (**Appendix A**). Well MW-15 was subsequently renamed to compliance well HGWC-18. Well HGWA-6, which was installed approximately 14 months after the installation of wells MW-15, MW-16, MW-17, and MW-18, was also screened within the Floyd shale based on comparison of the boring logs for these five wells. Associated boring and well construction logs are provided in **Appendix B**.

It is also important to consider the spatial extent of the different shales associated with the lower Conasauga and Mississippian Floyd units. The weathering of different parent material with variable geochemical characteristics may yield residual soils that also display different geochemical characteristics within the groundwater samples collected from the same CCR unit. Based on this, the geochemical field parameters and groundwater quality reported for a bedrock-screened well located in the northern portion of AP-2 may be different for that reported for a bedrock-screened well located along the southern portion of AP-2. The certified AP-2 compliance monitoring well network

sampled semiannually includes 11 wells, of which six monitor conditions upgradient of AP-2 and are considered background wells (**Figure 2**). Of the five downgradient wells, only HGWC-18 is located in the northern portion of AP-2 and is screened within partially weathered Floyd shale. The remaining four (HGWC-14, HGWC-15, HGWC-16, and HGWC-17) are screened within the alluvium or residuum. Boring and well construction logs are provided in **Appendix B**. The fact that HGWC-18 is the only downgradient compliance well screened within the Floyd shale and reports Co groundwater concentrations nearly an order of magnitude higher than the derived SSL, provides supporting evidence that the Co SSL originates from a natural bedrock source.

1.3.2.2 Hydrogeology

The uppermost aquifer at AP-2 is a regional groundwater aquifer that occurs in the residuum and the weathered and fractured bedrock. Groundwater recharge is by precipitation falling onto bedrock outcrop areas and then percolating through lower lithologic units to the bedrock. The uppermost aquifer is considered as unconfined; however, localized, semi-confined conditions may be encountered due to the low-permeability clayey nature of the residual soils, or as a result of perched groundwater or poorly interconnected fracture networks in the bedrock. Based on observations of 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 shallow bedrock groundwater flow in the underlying bedrock is characterized as fracture flow (Geosyntec, 2019).

1.4 Groundwater Monitoring and Basis of Statistically Significant Level

CCR compliance groundwater monitoring-related activities have been performed for AP-2 since May 2016 pursuant to detection monitoring and assessment monitoring programs required by 40 CFR § 257.94 and 40 CFR § 257.95, respectively. GPC initiated the assessment monitoring program in January 2018 after identifying statistically significant increases (SSIs) of Appendix III parameter groundwater concentrations over background concentrations. Pursuant to 40 CFR § 257.95, samples were collected from the compliance monitoring well network, depicted on **Figure 2**, during 2018 and 2019 and analyzed for Appendix IV parameters. A SSL of Co was consistently identified within the 2018 and 2019 data for HGWC-18.

GPC initiated an Assessment of Corrective Measures on February 12, 2019. Pursuant to 40 CFR § 257.96, groundwater in the vicinity of AP-2 continues to be monitored during the remedy selection phase in accordance with the established assessment monitoring program. As part of the assessment program, 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 the SSL of Co. Well MW-22 was installed for horizontal delineation and wells MW-21D and MW-23D were installed for vertical delineation. The locations of these wells are shown on **Figure 2**. Supporting boring and well construction logs are provided in **Appendix B**.

1.5 Subsequent Field Investigation Activities

1.5.1 Evaluation of Pore Water

Two temporary piezometers (PMW-03 and PMW-04) were installed in December 2018 within AP-2 and screened within the CCR materials. CCR pore water samples from these wells were collected to provide data to assess Co concentrations within AP-2 relative to groundwater conditions external to the unit. Temporary piezometers PMW-03 and PMW-04 were sampled in December 2018, March, April, and September 2019. CCR pore water sample results are representative of source conditions.

1.5.2 Evaluation of Aquifer Solids

Solid materials from soil and rock borings DPT-1 through DPT-4, DPT-6, MW-21D and MW-23D were collected and retained during previous field investigations and well installation activities. Samples were collected from target depth intervals and submitted for analysis to determine Co concentrations within the native geologic formation. Samples submitted for analysis included materials collected above the water table (if available) as well as from depth intervals coinciding with the screened intervals of adjacent and/or nearby wells. In natural geologic settings, Co tends to be associated with manganese (Mn) and iron (Fe) oxides. Historical geologic investigations have found Co-bearing Mn-oxides in nearby locations (e.g., Pierce, 1944). To verify the occurrence of Mn and Fe oxides in the native formation, these metals were analyzed in addition to Co. The results are presented on **Table 2**; the laboratory report associated with these samples is provided in **Appendix C**. Interpretation of these data are presented in Section 2.

2. ALTERNATE SOURCE DEMONSTRATION

The following subsections analyze lines of evidence that the SSL of Co in groundwater monitoring well HGWC-18 is associated with natural variation in the groundwater quality due to mobilization of naturally-occurring Co as a consequence of lower groundwater pH.

2.1 Naturally-Occurring Cobalt

Cobalt is found naturally in soils and rocks at various concentrations depending on the geologic setting and host rock, which is corroborated by both historical technical reports and site-specific samples. Rose et al. (1979) report 19 milligrams per kilogram (mg/kg) as the average Co concentration for shales. Also, Co is reported to occur in various size deposits within the Floyd shale (Pierce, 1944) underlying large areas of Floyd County. Pierce also reports deposits of Mn and Fe oxide minerals with associated Co within the southern part of Floyd County, which is near where the Site is located. Aquifer solid samples collected at AP-2 confirm the presence of Co within the Floyd shale. The aquifer solid data collected at AP-2 are presented in **Table 2**; the data also illustrate that Co concentrations strongly correlate with Fe and Mn concentrations.

Pyritic minerals observed in the Floyd shale along bedding/slickensided surfaces at outcrops in vicinity of the Site suggest the Floyd shale is acting as a natural source of metals. Dissolved concentrations of naturally-occurring metals (i.e., desorption of Co) are commonly controlled by oxidation of the pyritic minerals, especially in mine settings, and the resulting decrease in groundwater pH. Under acidic conditions, like those reported in well HGWC-18, Co can desorb from these oxides.

As discussed in Section 1.5.2, aquifer solid samples were submitted from locations DPT-1 through DPT-4, DPT-6, MW-21D and MW-23D (**Figure 2**) and analyzed for Co, Mn, and Fe. Co concentrations vary from 1.2 mg/kg to 86 mg/kg (**Table 2**), which is consistent with the Rose et al. (1979) literature values for Co concentrations in natural formations. The similarity between the magnitude of Co concentrations observed in the field and that reported for a published geologic investigation supports the argument that the Co observed in the groundwater sample from HGWC-18 is more likely from a natural occurring source rather than the CCR unit. Had the site-specific data set been more disparate to published values (e.g., 1-2 orders of magnitude difference), it would have been far less likely that that the Co concentrations in well HGWC-18 originated from a natural source.

The variability observed in the aquifer solids samples collected at the Site (i.e., 1.2 to 86 mg/kg) indicates that certain pockets within the Floyd shale may contain higher concentrations of naturally occurring Co as evidenced by the elevated concentration in the deeper sample at DPT-04 (86 mg/kg). The results of the aquifer solid samples demonstrate that there is naturally-occurring Co within soils and bedrock at AP-2, which corroborates the boring logs. Further, it demonstrates that Co concentrations documented in scientific reports for the area are representative of the conditions at the Site. The naturally-occurring Co observed in the aquifer solids can contribute to higher dissolved Co concentrations in groundwater under certain geochemical conditions, mainly through a lower pH.

2.2 Mobilization Mechanism of Naturally-Occurring Cobalt

The naturally-occurring Co of the aquifer matrix near HWGW-18 is likely mobilized by natural acidic conditions within groundwater, believed due to the oxidation of pyritic minerals. Pyrite (FeS_2) is an iron sulfide that oxidizes to ferrous iron (Fe^{2+}) and sulfate (SO_4), releasing hydrogen ions, which lowers the pH of groundwater. The presence of pyrite in vicinity of HGWC-18 has been both observed directly within AP-2 boring logs or suggested by laboratory analytical data reported for the aquifer solid samples and historical groundwater data.

Pyrite was observed within the HGWA-6 boring core during the December 2015 well installation; the well is located approximately 500 feet west and slightly south of HGWC-18 (**Figure 2**). Based on the HGWA-6 boring log description, the well is screened within the Floyd shale. The HGWA-6 log description for the screen interval is similar to the log descriptions noted for wells located along the northern portion of AP-2. Pyrite was also observed in the boring core of well HGWA-5, which is co-located with HGWA-6 but screened at a shallower depth. The boring logs are provided in **Appendix B**. Pyritic minerals have also been observed within multiple borings advanced within the Floyd shale at the nearby (less than 5 miles) Huffaker Road Landfill facility (SCS, 2002). An ASD was previously prepared for the Huffaker Road facility attributing the oxidation of the pyritic minerals to create lower groundwater pH conditions in localized areas which resulted in the mobilization of pH sensitive metals (Co, nickel, and zinc) (Geosyntec, 2018).

Additional evidence that pyritic minerals are present and have oxidized is the elevated Fe concentrations reported within the aquifer solids (**Table 2**) and an average sulfate groundwater concentration of 1,020 milligrams per liter (mg/L) for samples collected from HGWC-18 (Geosyntec, 2019). Pyrite forms Fe and sulfate under oxidizing conditions.

Pore water conditions within AP-2 upgradient of HGWC-18 (i.e., in piezometer PM-04) are alkaline and therefore CCR pore water is not the source of acidic groundwater downgradient of AP-2 in this location.

Figure 3 illustrates the relationship between pH and Co concentrations derived from site-specific samples obtained from compliance wells, delineation wells, and CCR pore water piezometers. The data present a robust statistical relationship between pH and Co concentrations (R^2 = 0.74), with Co concentrations increasing as pH values decrease. Note that groundwater results from monitoring well HGWC-14 appear to be an exception in that the pH is low, but the Co concentrations in groundwater are also relatively low. Well HGWC-14 is screened in alluvium and not in the Floyd shale, which appears to be absent on the southern side of AP-2.

2.3 Comparison of CCR Pore Water and Groundwater Outside AP-2

Since CCR pore water upgradient of HGWC-18 (i.e., PMW-04) is alkaline, it cannot be the source of acidity in this well. The pH of CCR pore water within the northern portion of AP-2, represented by temporary piezometer PMW-04, varied between 7.96 standard units (s.u.) and 8.76 s.u. during the four sampling events of this well (see **Table 1**). This data is representative of pore water conditions upgradient of groundwater well HGWC-18, which has exhibited the lowest groundwater pH conditions (i.e., around 4.5 s.u.) coupled with the highest Co concentrations in groundwater (between 0.14 mg/L and 0.22 mg/L). Cobalt concentrations in pore water at PMW-04 remained relatively constant between a non-detection and estimated value 0.00082 mg/L, which is approximately 200-300 times lower compared to outside groundwater monitoring well HGWC-18. Therefore, CCR pore water in this area of AP-2 cannot be the source of groundwater acidity or Co concentrations outside of AP-2.

3. CONCLUSIONS

The following lines of evidence support the conclusion that the Co SSLs reported for monitoring well HGWC-18 are attributed to natural variation in the groundwater quality due to mobilization of naturally-occurring Co as a consequence of lower groundwater pH at these wells.

- Naturally-Occurring Co:
    - Both historical literature as well as site-specific data collected from solids within the aquifer matrix indicate the presence of naturally-occurring Co in the geologic formations of this area; specifically, the Floyd shale in which well HGWC-18 is screened, has been shown to contain Co-bearing Mn oxides.
- Mobilization Mechanism of Naturally-Occurring Co:
    - The naturally-occurring Co is expected to be mobilized when pH conditions are more acidic; this correlation is supported by the site-specific data obtained from AP-2 compliance wells, delineation wells, and CCR pore water wells; acidic groundwater conditions at HGWC-18 are not related to CCR pore water conditions upgradient of this well, as defined by PMW-04, and is believed related to pyrite oxidation within the Floyd shale.
- Comparison of CCR Pore Water and Groundwater Outside of AP-2:
    - The highest Co concentrations in groundwater are detected in monitoring well HGWC-18, which has a low groundwater pH (around pH 4.5). HGWC-18 is downgradient of a CCR pore water piezometer (i.e., PMW-04) with alkaline pH (pH > 8.5 s.u.) and estimated Co concentrations that are approximately 200-300 times lower compared to HGWC-18; this indicates that both the elevated Co as well as the acidic groundwater pH are not related to a release from AP-2.

4. REFERENCES

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TABLES

Table 1
Select Groundwater and CCR Pore Water Characteristics
Plant Hammond AP-2, Floyd County, Georgia

Sample	HGWC-14		HGWC-15		HGWC-16		HGWC-17		HGWC-18		MW-21D		MW-22		MW-23D		PMW-03		PMW-04	
Event Date	Cobalt	pH	Cobalt	pH	Cobalt	pH	Cobalt	pH	Cobalt	pH	Cobalt	pH	Cobalt	pH	Cobalt	pH	Cobalt	pH	Cobalt	pH
May-2016	ND	4.56	ND (0.042 J)	6.17	ND	7.15	0.017	6.40	ND (0.17 J)	4.83	--	--	--	--	--	--	--	--	--	--
Jul-2016	0.023	4.49	0.039	6.17	ND	7.10	0.015	6.09	0.17	4.58	--	--	--	--	--	--	--	--	--	--
Sep-2016	0.025	4.54	0.045	6.22	ND	7.29	0.015	6.35	0.18	4.51	--	--	--				--	--	--	--
Oct-2016	0.025	4.63	0.056	5.97	ND	7.03	0.014	6.23	0.19	4.53	--	--	--	--	--	--	--	--	--	--
Dec-2016	0.027	4.60	0.054	5.87	ND	6.85	0.014	6.23	0.21	4.56	--	--	--	--	--	--	--	--	--	--
Jan-2017	0.029	4.80	0.055	6.05	ND	7.07	0.015	6.24	0.20	4.61	--	--	--	--	--	--	--	--	--	--
Mar-2017	0.031	4.57	0.072	5.79	ND	7.15	0.017	6.25	0.22	4.63	--	--	--	--	--	--	--	--	--	--
May-2017	0.028	4.61	0.045	6.01	ND	7.11	0.015	6.27	0.21	4.69	--	--	--	--	--	--	--	--	--	--
Apr-2018	0.025	4.50	0.032	5.98	ND	7.07	0.016	6.22	0.19	4.54	--	--	--	--	--	--	--	--	--	--
Jun-2018	0.027	4.49	0.032	6.12	ND	7.00	0.018	6.22	0.19	4.57	--	--	--	--	--	--	--	--	--	--
Oct-2018	0.023	4.67	0.051	5.92	ND	6.94	0.016	6.23	0.19	4.41	--	--	--	--	--	--	--	--	--	--
Dec-2018	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.020	6.08	ND (0.00064 J)	7.96
Mar-2019	0.025	4.66	0.038	5.71	ND	7.09	0.017	6.32	0.16	4.39	ND	6.81	0.028	5.95	ND (0.0013 J)	6.68	0.17	4.15	ND (0.00059 J)	8.63
Apr-2019	0.021	4.67	0.035	5.66	ND (0.00028 J)	6.94	0.016	6.26	0.14	4.50	ND (0.00034 J)	6.70	0.022	5.96	ND (0.0012 J)	6.70	0.14	3.78	ND (0.00082 J)	8.75
Sep-2019	0.026	4.77	0.022	6.33	ND	6.92	0.015	6.28	0.18	4.54	ND	6.54	0.035	5.81	ND (0.00098 J)	6.64	0.053	5.01	ND	8.76

Notes:
-- = No sample collected during the event
CCR = coal combustion residual
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
(1) Cobalt is reported in units of milligrams per liter (mg/L); pH reported as s.u. (standard units).
(2) Cobalt was analyzed by EPA Method 6020B. The pH value presented was recorded at the time of sample collection in the field.
(3) The April 2018 event was the first sampling event conducted under the assessment monitoring phase.

Table 2

Metals Concentrations in Solid Samples

Plant Hammond AP-2, Floyd County, Georgia

Sample Location:	DPT-01		DPT-02		DPT-03		DPT-04		DPT-06		MW-21D	MW-23D
Sample Depth (ft bgs):	**10.5**	**30**	**7**	**25**	**11**	**19**	**11.5**	**20**	**3**	**9**	**35-45**	**50-60**
Cobalt	13	14	8.9	11	1.8	5.7	1.2	86	3.1	8.9	9.7	2.1
Iron	30,000	31,000	19,000	21,000	4,200	26,000	7,100	90,000	20,000	22,000	30,000	5,400
Manganese	470	630	130	1300	6.9	51	19	2,600	61	110	510	720

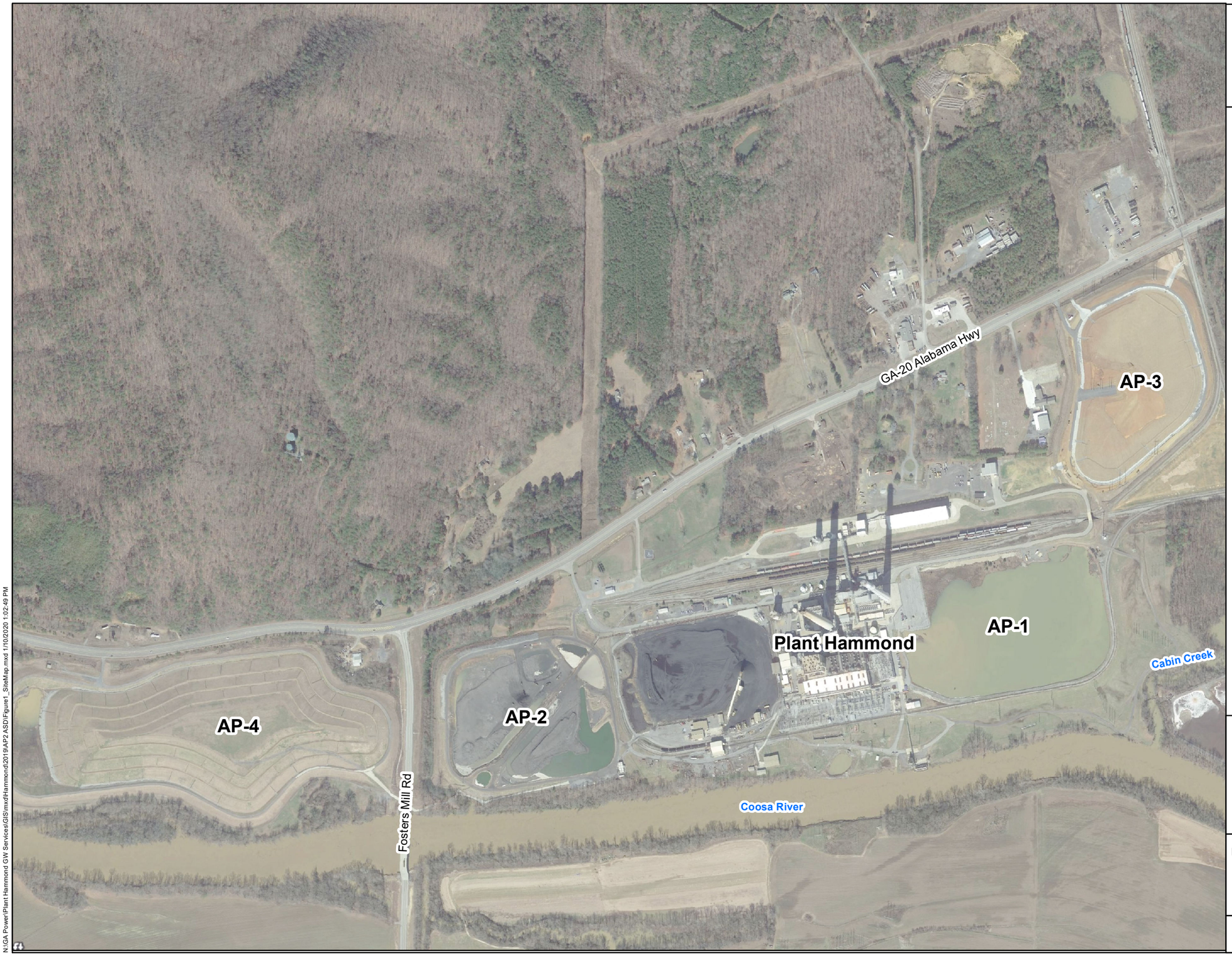
Notes:

ft bgs = feet below ground surface

(1) Metals are reported in units of milligrams per kilogram (mg/Kg).

(2) Metals were analyzed by EPA Method 6020B.

FIGURES



N

0 330 660 1,320

SCALE IN FEET

SITE LOCATION MAP

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

Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA | JANUARY 2020

FIGURE 1

N:\GA Power\Plant Hammond GW Services\GIS\mxd\Hammond\2019\AP2 ASD\Figure1_SiteMap.mxd 1/10/2020 1:02:49 PM

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LEGEND

- Compliance Monitoring Well
- Delineation Monitoring Well
- Groundwater Level Monitoring Piezometer
- DPT Soil Boring
- Pore Water Piezometer

0 150 300 600

SCALE IN FEET

WELL AND SOIL BORING LOCATION MAP

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

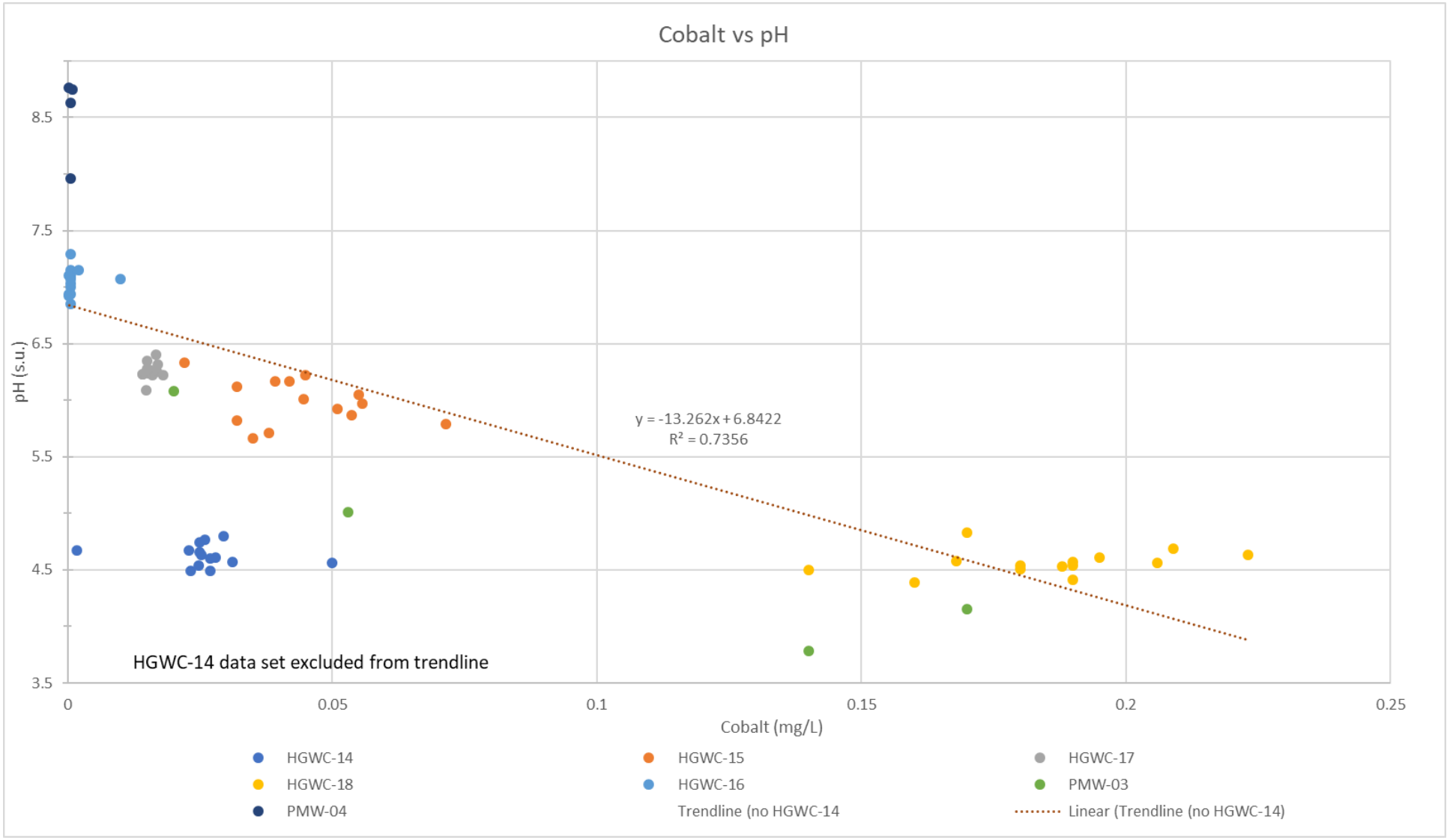
Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA | JANUARY 2020

FIGURE 2

N:\GA Power\Plant Hammond GW Services\GIS\mxd\Hammond\2019\AP2 ASD\Figure2_WellMap.mxd 1/10/2020 1:33:38 PM



Relationship Between pH and Cobalt Concentrations

Georgia Power Company
Plant Hammond AP-2
Floyd County, Georgia

Prepared For: Georgia Power

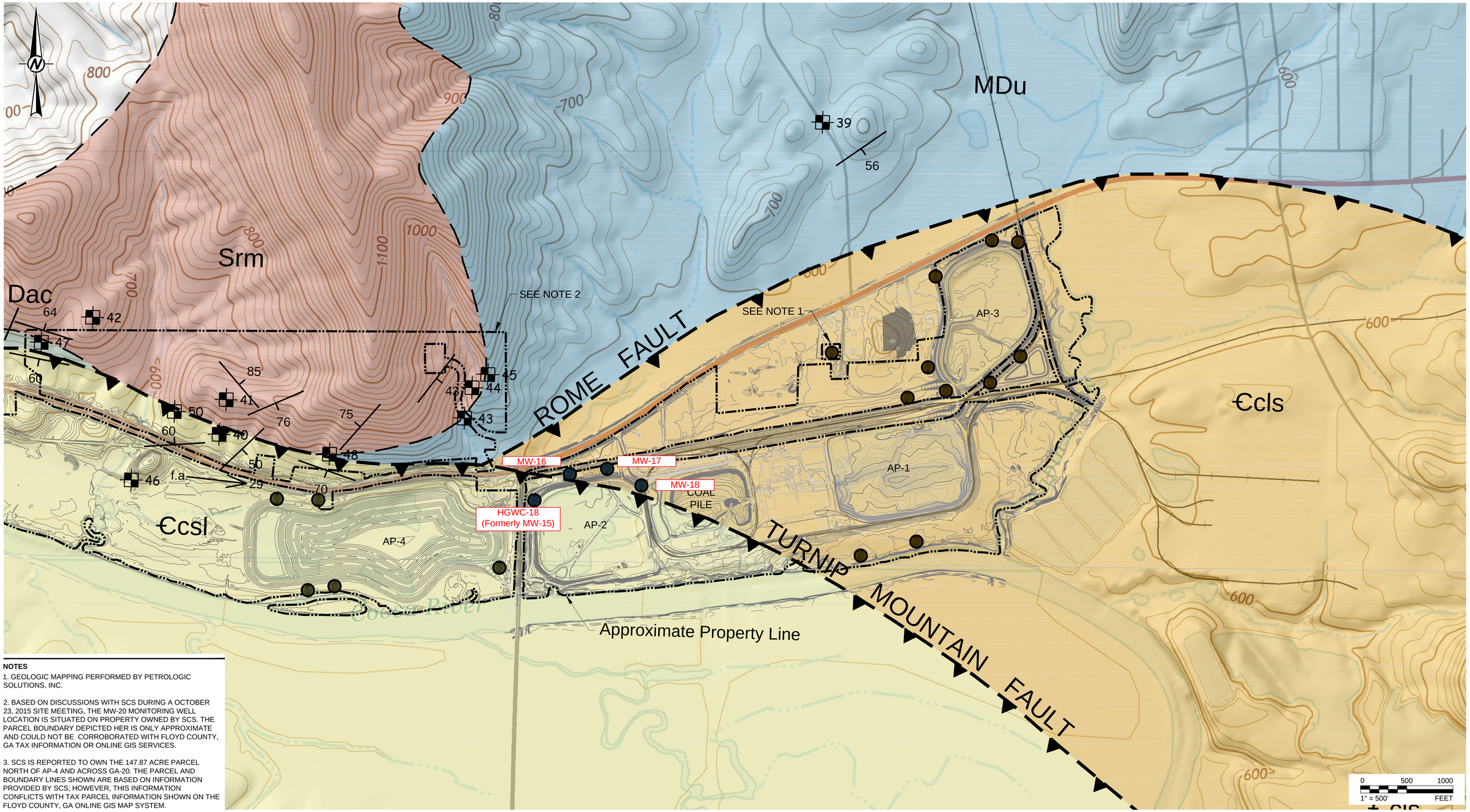
Prepared By: Geosyntec consultants

KENNESAW, GA | JANUARY 2020

Figure 3

APPENDIX A

Site Geologic Map



NOTES

1. GEOLOGIC MAPPING PERFORMED BY PETROLOGIC SOLUTIONS, INC.

2. BASED ON DISCUSSIONS WITH SCS DURING A OCTOBER 23, 2015 SITE MEETING, THE MW-20 MONITORING WELL LOCATION IS SITUATED ON PROPERTY OWNED BY SCS. THE PARCEL BOUNDARY DEPICTED HER IS ONLY APPROXIMATE AND COULD NOT BE CORROBORATED WITH FLOYD COUNTY, GA TAX INFORMATION OR ONLINE GIS SERVICES.

3. SCS IS REPORTED TO OWN THE 147.87 ACRE PARCEL NORTH OF AP-4 AND ACROSS GA-20. THE PARCEL AND BOUNDARY LINES SHOWN ARE BASED ON INFORMATION PROVIDED BY SCS; HOWEVER, THIS INFORMATION CONFLICTS WITH TAX PARCEL INFORMATION SHOWN ON THE FLOYD COUNTY, GA ONLINE GIS MAP SYSTEM.

LEGEND

- MDu - UNDIFFERENTIATED EAST OF TURNIP MOUNTAIN (MISSISSIPPIAN/DEVONIAN)
- Dac - ARMUCHEE CHERT (DEVONIAN) & CHATTANOOGA SHALE (DEVONIAN)
- Srm - RED MOUNTAIN FORMATION (SILURIAN)
- €cls - CONASAUGA FORMATION MIDDLE UNITS (CAMBRIAN)
- €csl - CONASAUGA FORMATION LOWER UNITS (CAMBRIAN)

- PROPERTY BOUNDARY (AS PROVIDED BY SOUTHERN COMPANY SERVICES, INC.)
- INTERPRETED GEOLOGIC CONTACT
- BEDDING
- GEOLOGIC MAP STATION
- THRUST FAULT
- FOLD AXIS (f.a. 29)

- €cls - SHALEY LIMESTONE IN ROCK CORE
- €csl - GRAY & BROWN CALCAREOUS SHALE IN ROCK CORE
- MDu - FISSILE, BLACK SHALE IN ROCK CORE

REFERENCES

1. USGS 7.5 MINUTE QUADRANGLE, LIVINGTON AND ROCK MOUNTAIN, 2014.

CLIENT: Southern Company

CONSULTANT: Golder Associates

YYYY-MM-DD	2017/10/13
DESIGNED	-
PREPARED	SEP
REVIEWED	TIR
APPROVED	RPK

PROJECT: PLANT HAMMOND HYDROGEOLOGIC SITE CONCEPTUAL MODEL AND GROUNDWATER MONITORING NETWORK RECOMMENDATIONS

TITLE: **GEOLOGIC MAP**

PROJECT NO.	REV.	FIGURE
1534855	-	3

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

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Path: \\atlantacad\Southern Company\Plant Hammond\1534855\Production\ | File Name: 1534855-03-Geologic Map.dwg

APPENDIX B

Boring and Well Construction Logs

SOUTHERN COMPANY

LOG OF TEST BORING

BORING AP02-MW16
PAGE 1 OF 1
ECS37736

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DATE STARTED 10/23/2014 **COMPLETED** 10/27/2014 **SURF. ELEV.** 572.7 **COORDINATES:** N:34.252709 E:-85.353530
CONTRACTOR SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; HQ Rock Core
DRILLED BY T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** _____ **BEARING** _____
BORING DEPTH 19.9 ft. **GROUND WATER DEPTH: DURING** 10 ft. **COMP.** _____ **DELAYED** 3.6 ft. after 24 hrs.
NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Sandy Lean Clay (CL)					
		- yellow-brown and brown, damp, stiff, some fine to coarse gravel		SS -1	3.5-5.0	6-8-4 (**12**)	
			565.7				
		Partially Weathered Rock (PWR)					
		- dark brown to black, dry to very moist, very hard, shale		SS -2	8.5-10.0	9-16-37 (**53**)	
			561.8				
		Shale					Auger refusal at 10.9 ft.
		- black, steep bedding dip, fissle, low-angle fold, few thin white veins		RC -1	10.9-14.9	**98** (90)	
		- black, steep bedding dip, fissle, low-angle fold, few thin white veins		RC -2	14.9-19.9	**102** (30)	
			552.8				

Bottom of borehole at 19.9 feet.

SOUTHERN COMPANY

LOG OF TEST BORING

BORING AP02-MW17
PAGE 1 OF 1
ECS37736

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DATE STARTED 10/28/2014 **COMPLETED** 10/28/2014 **SURF. ELEV.** 584.6 **COORDINATES:** N:34.252880 E:-85.352198
CONTRACTOR SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; Hollow Stem Auger
DRILLED BY T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 25.1 ft. **GROUND WATER DEPTH: DURING** 20 ft. **COMP.** **DELAYED** 6.9 ft. after 24 hrs.
NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Lean Clay (CL)					
5		- pale gray-brown, dry, stiff, low to medium plasticity, silty, with yellow-red mottling		SS -1	3.5-5.0	5-5-8 (**13**)	
10		- pale brown, dry, very stiff, low to medium plasticity, with brown yellow mottling, coarse sub-rounded to well-rounded gravel		SS -2	8.5-10.0	5-8-10 (**18**)	
15		- yellow-brown, dry, very hard, silty, low recovery		SS -3	13.5-15.0	5-18-35 (**53**)	
			567.6				
		Silty Gravel (GM)					
20		- dark gray to black, very moist to wet, very dense, partially weathered shale		SS -4	18.5-20.0	33-41-40 (**81**)	
25		- dark gray to black, dry to very moist, very dense, partially weathered shale		SS -5	23.5-24.2	21-50/2" (**100+**)	
			559.5				

Bottom of borehole at 25.1 feet.

SOUTHERN COMPANY

LOG OF TEST BORING

BORING AP02-MW18
PAGE 1 OF 1
ECS37736

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DATE STARTED 10/28/2014 **COMPLETED** 10/29/2014 **SURF. ELEV.** 590.6 **COORDINATES:** N:34.252398 E:-85.350970
CONTRACTOR SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; Hollow Stem Auger
DRILLED BY T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** _____ **BEARING** _____
BORING DEPTH 29.2 ft. **GROUND WATER DEPTH: DURING** 10 ft. **COMP.** _____ **DELAYED** 9.6 ft. after 24 hrs.
NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Fill (SC)					
5		- olive brown, dry, medium dense, with black mottling, coal sand		SS -1	3.5-5.0	5-7-12 (**19**)	
10		- dark olive brown to black, very moist to wet, very loose, some gravel, fine coal or ash		SS -2	8.5-10.0	1-1-3 (**4**)	
			578.6				
15		**Lean Clay (CL)** - yellow-brown, damp, very stiff, with gray and yellow-red mottling, some fine well-rounded gravel		SS -3	13.5-15.0	5-7-12 (**19**)	
		- yellow-brown, damp, very hard, with gray and yellow-red mottling, some fine well-rounded gravel	571.6	SS -4	18.5-19.1	25-50/1" (**100+**)	
20		**Silty Gravel (GM)** - black, wet					
25		- black, wet, very dense, angular gravel, weathered shale		SS -5	23.5-24.2	32-50/2" (**100+**)	
		- black, dry to very moist, very dense, sandy, angular gravel, sheared (irregular) fabric, weathered shale	561.4	SS -6	28.5-29.2	37-50/2" (**100+**)	

Bottom of borehole at 29.2 feet.

SOUTHERN COMPANY

LOG OF TEST BORING

HGWA-1

BORING MW20
PAGE 1 OF 1
ECS37736

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DATE STARTED 12/3/2014 **COMPLETED** 12/3/2014 **SURF. ELEV.** 592.6 **COORDINATES:** N:34.256407 E:-85.344210
CONTRACTOR SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; HQ Rock Core
DRILLED BY T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** _____ **BEARING** _____
BORING DEPTH 29.7 ft. **GROUND WATER DEPTH: DURING** _____ **COMP.** _____ **DELAYED** 17.1 ft. after 24 hrs.
NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
5		**Clayey Gravel (GC)**					
		- brown and light brown, dry, dense		SS -1	3.5-5.0	7-13-18 (**31**)	
			586.6				
10		**Silty Clay (CL)**					
		- pale gray-brown, dry, very stiff, with red and yellow-brown mottling		SS -2	8.5-10.0	7-10-12 (**22**)	
15		- brown, dry, stiff, with gray mottling		SS -3	13.5-15.0	6-6-6 (**12**)	
			574.1				
20		**SHALEY LIMESTONE**					Auger refusal at 18.5 ft.
		- gray and dark gray, not to highly weathered, shale seams less than 1/2 inch, shear/fracture zone fabric, near vertical bedding, water staining		RC -1	18.7-25.2	**95** (23)	
25				RC -2	25.2-29.7	**98** (9)	
			562.9				

Bottom of borehole at 29.7 feet.

SOUTHERN COMPANY

RECORD OF WELL CONSTRUCTION

HGWA-1

WELL: MW20
PAGE 1 OF 1
ECS37736

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

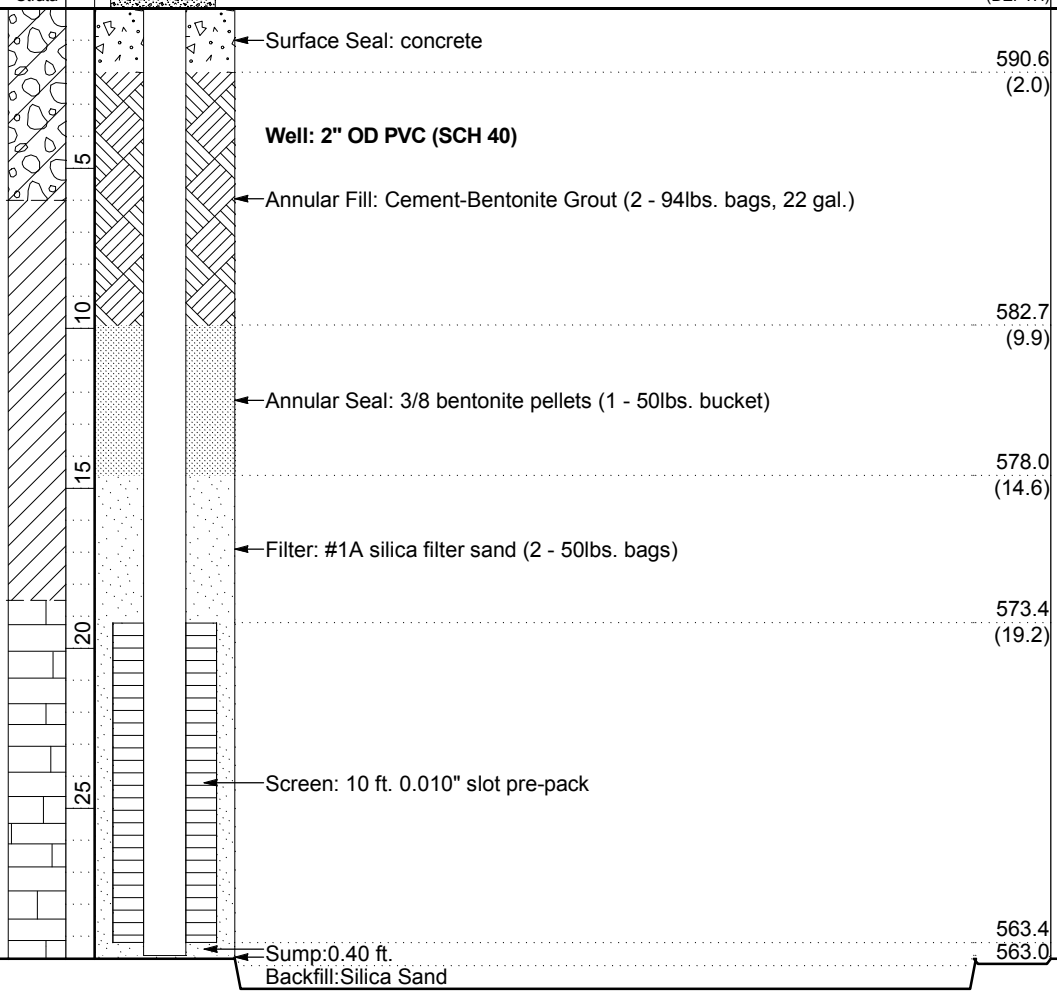
PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DATE STARTED 12/3/2014 **COMPLETED** 12/3/2014 **SURF. ELEV.** 592.6 **COORDINATES:** N:34.256407 E:-85.344210
CONTRACTOR SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; HQ Rock Core
DRILLED BY T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 29.7 ft. **GROUND WATER DEPTH: DURING** **COMP.** **DELAYED** 17.1 ft. after 24 hrs.
NOTES Well installed. Refer to well data sheet.

BOREHOLE DATA — ELEV. / Strata; DEPTH (ft)

WELL DATA

Surface:
protective aluminum cover with bollards; 4-foot square concrete pad



ELEV. (DEPTH)

COMMENTS

RECORD OF BOREHOLE HGWA-2/ APA-3S

SHEET 1 of 1

PROJECT: SCS Hammond
PROJECT NUMBER: 1545812
DRILLED DEPTH: 27.00 ft
LOCATION: Rome, GA

DRILL RIG: Pro Sonic 150
DATE STARTED: 12/2/15
DATE COMPLETED: 12/2/15

NORTHING: 1,549,796.40
EASTING: 1,939,845.20
GS ELEVATION: 585.23
TOC ELEVATION: 588.18 ft

DEPTH W.L.: 8.19 (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 12/2/15
TIME W.L.: 11:10

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0	585	0.00 - 3.00 CLAY; light brown/grey silty clay, trace organic material, soft	CL		582.23				Portland Type I/ Type II/ Gel mix	**WELL CASING** Interval: -3'-15' Material: Schedule 40 PVC Diameter: 6" Joint Type: Screw/Flush
		3.00 - 7.00 SILTY CLAY; grey/orange/light brown silty clay, mottled, stiff to very stiff, some black streaking from 3'-4', moist	CL		3.00 578.23					**WELL SCREEN** Interval: 15'-25' Material: Schedule 40 PVC Diameter: 2' Slot Size: 0.010" End Cap: Schedule 40 PVC
5	580	7.00 - 8.00 CLAY; light brown/orange/grey sandy, gravelly clay, mottled, moist	CL		7.00 577.23				3/8" Bentonite Pellets	**FILTER PACK** Interval: 12.5'-25' Type: #1 sand/ Prepack Filter
		8.00 - 12.00 SANDY GRAVEL; orange/light brown sandy gravel, coarse grained, sub-angular gravel,	GP		8.00 573.23					**FILTER PACK SEAL** Interval: 3'-12.5' Type: 3/8" Bentonite Pellets
10	575	12.00 - 17.00 light brown/orange sandy gravel, coarse grain, loosely compacted, moist			12.00 568.23					**ANNULUS SEAL** Interval: 0'-3' Type: Portland Type I/Type II/Gel Mix
		17.00 - 18.00 GRAVELLY CLAY; orange/light brown gravelly clay, sub-angular gravel, moist	CLG		17.00 567.23				#1 sand	**WELL COMPLETION** Pad: 4'x4'x4" Protective Casing: Anodized Aluminum
15	570	18.00 - 24.00 SANDY GRAVEL; orange/light brown sandy gravel, coarse grained, trace clay lenses, wet	GP		18.00 561.23				0.010" slot screen	**DRILLING METHODS** Soil Drill: 6-inch diameter Sonic Rock Drill: 6-inch diameter Sonic
		24.00 - 26.00 SILT; orange/light brown layered silt, soft, wet	ML		24.00 559.23					
20	565	26.00 - 27.00 grey silt with trace limestone shale and clay, foliated, soft, wet			26.00 558.23				BACKFILL	
		Boring completed at 27.00 ft								
25	560									
30	555									
35	550									
40	545									
45										

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade
DRILLER: Tom Ardito

GA INSPECTOR: James Mullooly
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

Golder Associates

BOREHOLE RECORD HAMMOND BORING LOGS.GPJ PIEDMONT.GDT 9/29/17

RECORD OF BOREHOLE HGWA-3/ APA-3D

SHEET 1 of 1

PROJECT: SCS Hammond
PROJECT NUMBER: 1545812
DRILLED DEPTH: 42.00 ft
LOCATION: Rome, GA

DRILL RIG: Pro Sonic 150
DATE STARTED: 12/1/15
DATE COMPLETED: 12/2/15

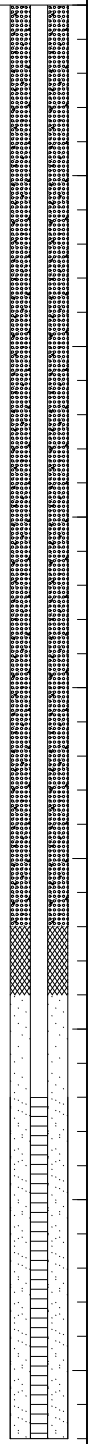
NORTHING: 1,549,793.93
EASTING: 1,939,833.46
GS ELEVATION: 585.19
TOC ELEVATION: 588.06 ft

DEPTH W.L.: 2.68 (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 12/2/15
TIME W.L.: 07:30

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)
0	585	0.00 - 5.00 SANDY CLAY; grey/brown/orange mottled sandy clay, fine grained, medium density, stiff, moist	CLS		580.19
5	580	5.00 - 13.00 CLAYEY GRAVEL; orange/brown clayey gravel with some sand, poorly sorted and angular pieces, gravel becomes more rounded at 9 feet, medium density compaction	GC		5.00 572.19
10	575	13.00 - 14.00 wet around 13.5 feet	GC		13.00 571.19
15	570	14.00 - 17.00 SANDY GRAVEL; brown/grey poorly sorted, well rounded sandy gravel, wet	GP		14.00 568.19
20	565	17.00 - 25.00 orange/brown sandy gravel, well rounded, poorly sorted, wet			17.00 560.19
25	560	25.00 - 26.00 some larger rock fragments and coarse grained sand			25.00 559.19
		26.00 - 31.00 CLAY; brown/grey sandy gravel, changes to grey weathered limestone and clay, medium density, firm, moist	CL		26.00 554.19
30	555	31.00 - 37.00 TRANSITIONALLY WEATHERED ROCK; transitionally weathered limestone and trace clay, angular rock fragments, clay is mottled light and dark grey, wet	TWR		31.00 548.19
35	550	37.00 - 42.00 transitionally weathered dark grey shaly limestone, poorly sorted and angular, some gravel, bottom 3 inches are solid limestone, wet (saturated)			37.00 543.19
40	545	Boring completed at 42.00 ft			
45					

SAMPLES: SAMPLE NO. | TYPE | REC

MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES



WELL CONSTRUCTION DETAILS

WELL CASING
Interval:
Material: Schedule 40 PVC
Diameter: 6"
Joint Type: Screw/Flush

WELL SCREEN
Interval: 32'-42'
Material: Schedule 40 PVC
Diameter: 2'
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 29'-42'
Type: #1 sand/ Prepack Filter

FILTER PACK SEAL
Interval: 27'-29'
Type: 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0'-27'
Type: Portland Type I/Type II/Gel Mix

WELL COMPLETION
Pad: 4'x4'x4"
Protective Casing: Anodized Aluminum

DRILLING METHODS
Soil Drill: 6-inch diameter Sonic
Rock Drill: 6-inch diameter Sonic

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade
DRILLER: Tom Ardito

GA INSPECTOR: James Mullooly
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

Golder Associates

BOREHOLE RECORD HAMMOND BORING LOGS.GPJ PIEDMONT.GDT 9/29/17

SOUTHERN COMPANY

LOG OF TEST BORING

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DATE STARTED 12/3/2014 **COMPLETED** 12/3/2014 **SURF. ELEV.** 585.6 **COORDINATES:** N:34.255014 E:-85.348781
CONTRACTOR SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; Hollow Stem Auger
DRILLED BY T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 24 ft. **GROUND WATER DEPTH: DURING** 15 ft. **COMP.** **DELAYED** 4.5 ft. after 24 hrs.
NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Lean Clay (CL)					
		- pale brown-gray, damp, stiff, with red and yellow-brown mottling		SS -1	3.5-5.0	4-6-9 (**15**)	
		- pale brown-gray, damp, stiff, sandy, with red and yellow-brown mottling		SS -2	8.5-10.0	4-5-6 (**11**)	
			573.6				
		Silty Gravel (GM)					
		- yellow-brown, wet, medium dense, sandy, coarse well-rounded quartz gravel, some clay		SS -3	13.5-15.0	7-12-14 (**26**)	
		- yellow-brown, wet, very loose, sandy, coarse well-rounded quartz gravel, some clay		SS -4	18.5-20.0	2-2-2 (**4**)	
			563.6				
		Clayey Sand (SC)					
		- pale brown, wet, very dense, some partially weathered bedrock (angular gravel)	561.6	SS -5	23.5-23.6	50/1" (**100+**)	Auger refusal at 24 ft.
		Bottom of borehole at 24.0 feet.					

SOUTHERN COMPANY

RECORD OF WELL CONSTRUCTION

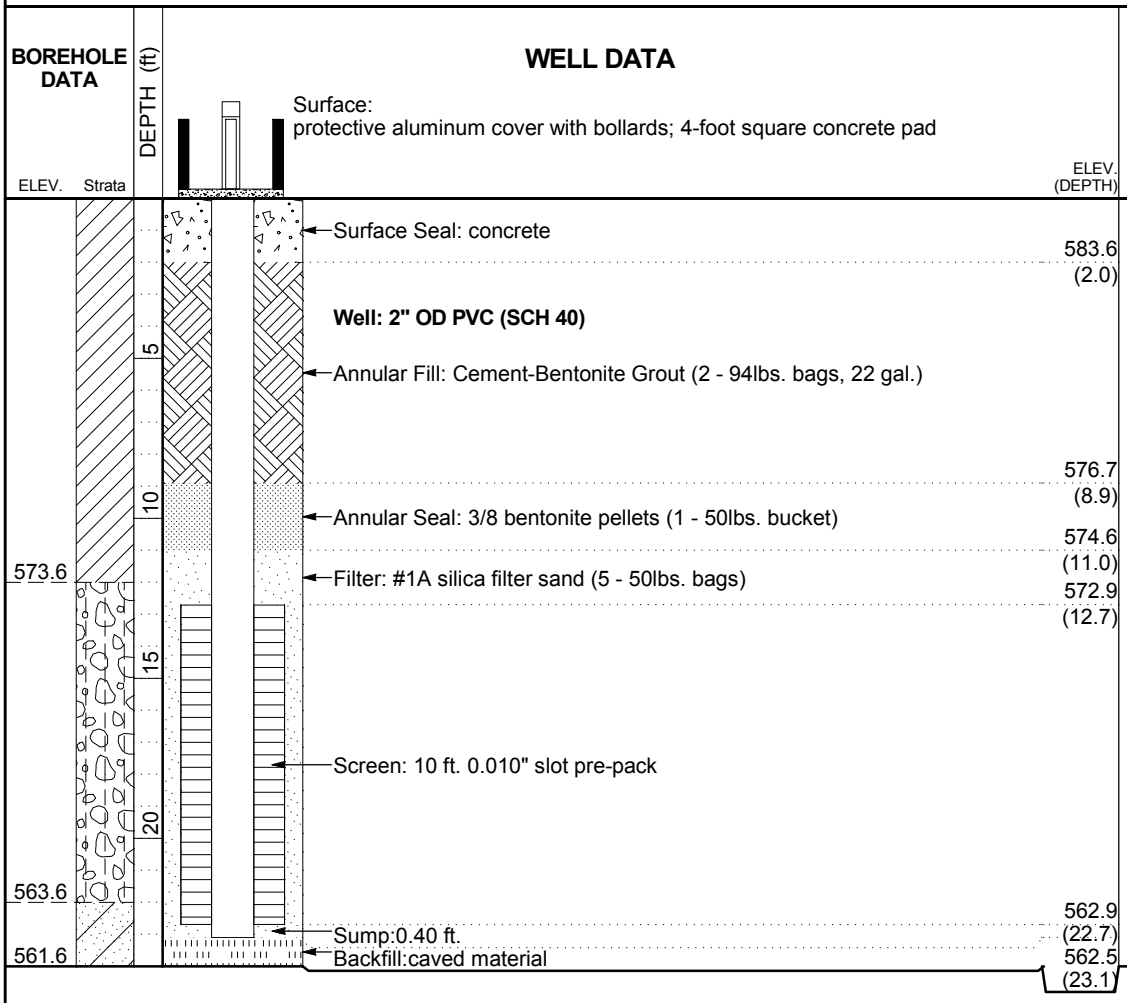
HGWA-4

WELL: MW19
PAGE 1 OF 1
ECS37736

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DATE STARTED 12/3/2014 **COMPLETED** 12/3/2014 **SURF. ELEV.** 585.6 **COORDINATES:** N:34.255014 E:-85.348781
CONTRACTOR SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; Hollow Stem Auger
DRILLED BY T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 24 ft. **GROUND WATER DEPTH: DURING** 15 ft. **COMP.** **DELAYED** 4.5 ft. after 24 hrs.
NOTES Well installed. Refer to well data sheet.



RECORD OF BOREHOLE HGWA-5/ APA-5S

SHEET 1 of 1

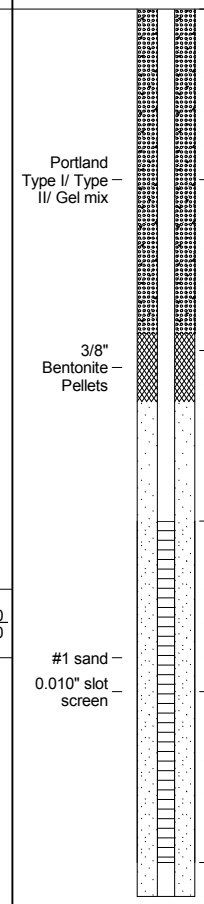
PROJECT: SCS Hammond
PROJECT NUMBER: 1545812
DRILLED DEPTH: 26.00 ft
LOCATION: Rome, GA

DRILL RIG: Pro Sonic 150
DATE STARTED: 12/10/15
DATE COMPLETED: 12/10/15

NORTHING: 1,548,632.65
EASTING: 1,937,183.80
GS ELEVATION: 580.37
TOC ELEVATION: 583.52 ft

DEPTH W.L.: 2.3' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 12/10/15
TIME W.L.: 13:05

DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLE NO.	TYPE	REC
0	580	0.00 - 2.00 CLAY; dark brown/grey clay with some fine to medium sand, trace organic material, trace gravel, non-plastic, very soft, moist W>PL	CL		578.37			
		2.00 - 7.00 yellow orangish red clay, trace fine sand, moderate plasticity, soft to firm, moist, W=PL			2.00			
5	575				573.37			
		7.00 - 16.50 reddish orange and blue grey mottled clay with trace fine sand and gravel, non to low plasticity, very stiff to hard, dry to moist			7.00			
10	570							
15	565				563.87			
		16.50 - 17.00 SILTY SAND; orange brown silty sand, sandy silt, non-plastic, loose, soft, uniform grading, moist	SM		563.37			
		17.00 - 19.00 SILTY CLAY; orange/yellow/dark grey silt and clay, trace gravel, non-plastic, very soft, wet, W>PL SHELBY TUBE: 17'-19'	CL-ML		17.00 561.37		SH	2.00 2.00
20	560	19.00 - 22.50 SAND; alluvium, dark grey sand with some pebbles and cobbles, rounded to sub-rounded, loose, soft, moist to wet	SP		19.00 557.87			
		22.50 - 23.00 CLAY; hard, dark grey clay, non-plastic, dry to moist, W<PL	CL		557.37			
		23.00 - 26.00 SILT; dark grey to black shale with trace fine sand, very stiff to hard, rock fragments contain pyrite, dry, W<PL	ML		23.00 554.37			
25	555	Boring completed at 26.00 ft						
30	550							
35	545							
40	540							
45								



WELL CASING
Interval: -3'-15'
Material: Schedule 40 PVC
Diameter: 6"
Joint Type: Screw/Flush

WELL SCREEN
Interval: 14.8'-24.8'
Material: Schedule 40 PVC
Diameter: 2'
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 11.5'-26'
Type: #1 sand/ Prepack Filter

FILTER PACK SEAL
Interval: 9.5'-11.5'
Type: 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0'-9.5'
Type: Portland Type I/Type II/Gel Mix

WELL COMPLETION
Pad: 4'x4'x4"
Protective Casing: Anodized Aluminum

DRILLING METHODS
Soil Drill: 6-inch diameter Sonic
Rock Drill: 6-inch diameter Sonic

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade
DRILLER: Tom Ardito

GA INSPECTOR: Michael Boatman
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

Golder Associates

BOREHOLE RECORD HAMMOND BORING LOGS.GPJ PIEDMONT.GDT 9/29/17

RECORD OF BOREHOLE HGWA-6/ APA-5D

PROJECT: SCS Hammond
PROJECT NUMBER: 1545812
DRILLED DEPTH: 47.30 ft
LOCATION: Rome, GA

DRILL RIG: Pro Sonic 150
DATE STARTED: 12/10/15
DATE COMPLETED: 12/11/15

NORTHING: 1,548,635.66
EASTING: 1,937,177.39
GS ELEVATION: 580.50
TOC ELEVATION: 583.72 ft

DEPTH W.L.: 3.10' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 12/11/15
TIME W.L.: 07:50

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0	580	0.00 - 2.00 CLAY; dark brown/grey clay with some fine to medium sand, trace organic material, trace gravel, very soft, non-plastic, moist, W>PL	CL		578.5				Portland Type I/ Type II/ Gel mix	**WELL CASING** Interval: -3'-37' Material: Schedule 40 PVC Diameter: 6" Joint Type: Screw/Flush
		2.00 - 7.00 yellow/orange/red clay, trace fine sand, moderate plasticity, soft to firm, moist, W=PL			2.00					
5	575				573.5					**WELL SCREEN** Interval: 37.3'-47.3' Material: Schedule 40 PVC Diameter: 2' Slot Size: 0.010" End Cap: Schedule 40 PVC
		7.00 - 16.50 reddish orange and blue grey mottled clay, trace fine sand and gravel, non to low plasticity, very stiff to hard, dry to moist, W<PL			7.00					**FILTER PACK** Interval: 34'-47.3' Type: #1 sand/ Prepack Filter
10	570									**FILTER PACK SEAL** Interval: 32'-34' Type: 3/8" Bentonite Pellets
										ANNULUS SEAL Interval: 0'-3' Type: Portland Type I/Type II/Gel Mix
15	565				564					**WELL COMPLETION** Pad: 4'x4'x4" Protective Casing: Anodized Aluminum
		16.50 - 17.00 SILTY SAND; orange brown silty sand, non-plastic, loose soft, uniform grading, moist	SM		563.5				3/8" Bentonite Pellets	**DRILLING METHODS** Soil Drill: 6-inch diameter Sonic Rock Drill: 6-inch diameter Sonic
		17.00 - 19.00 SAND and CLAY; orange/yellow/dark grey sand and clay, trace gravel, non plastic, very soft, wet, W>PL	CLS		17.00 561.5					
20	560	19.00 - 22.50 SANDY GRAVEL; alluvium, dark grey sand with some pebbles and cobbles, rounded to sub-rounded, loose, soft, moist to wet	GPS		19.00 558					
		22.50 - 23.00 CLAY; dark grey clay, hard, dry to moist, W<PL	CL		557.5 23.00					
25	555	23.00 - 27.00 SILT and GRAVEL; dark grey to black silt with trace fine sand and gravel, some shale, very stiff to hard, contains rock fragments with pyrite, dry, W<PL	GP-GM		553.5					
		27.00 - 31.00 TRANSITIONALLY WEATHERED ROCK; broken shale, dark grey to black silt with trace fine sand, dry, non-plastic, loose, W<PL	TWR		27.00					
30	550				549.5					
		31.00 - 37.00 broken shale, dark grey to black silt with trace fine sand, dry, non-plastic, loose, W<PL			31.00				3/8" Bentonite Pellets	
35	545				543.5					
		37.00 - 47.00 broken shale, dark grey to black silt with trace fine sand, more rock fragments (30-40%), dry, non-plastic, loose, W<PL			37.00					
40	540								#1 sand 0.010" slot screen	
45										

Log continued on next page

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade
DRILLER: Tom Ardito

GA INSPECTOR: Michael Boatman
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

Golder Associates

RECORD OF BOREHOLE HGWA-6/ APA-5D

PROJECT: SCS Hammond
PROJECT NUMBER: 1545812
DRILLED DEPTH: 47.30 ft
LOCATION: Rome, GA

DRILL RIG: Pro Sonic 150
DATE STARTED: 12/10/15
DATE COMPLETED: 12/11/15

NORTHING: 1,548,635.66
EASTING: 1,937,177.39
GS ELEVATION: 580.50
TOC ELEVATION: 583.72 ft

DEPTH W.L.: 3.10' (bgs)
ELEVATION W.L.: (amsl)
DATE W.L.: 12/11/15
TIME W.L.: 07:50

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (ft)	SAMPLES: SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
45	535	37.00 - 47.00 broken shale, dark grey to black silt with trace fine sand, more rock fragments (30-40%), dry, non-plastic, loose, W<PL *(Continued)*			533.5 / 47.00					
		Boring completed at 47.30 ft								
50	530									
55	525									
60	520									
65	515									
70	510									
75	505									
80	500									
85	495									
90										

WELL CASING
Interval: -3'-37'
Material: Schedule 40 PVC
Diameter: 6"
Joint Type: Screw/Flush

WELL SCREEN
Interval: 37.3'-47.3'
Material: Schedule 40 PVC
Diameter: 2'
Slot Size: 0.010"
End Cap: Schedule 40 PVC

FILTER PACK
Interval: 34'-47.3'
Type: #1 sand/ Prepack Filter

FILTER PACK SEAL
Interval: 32'-34'
Type: 3/8" Bentonite Pellets

ANNULUS SEAL
Interval: 0'-3'
Type: Portland Type I/Type II/Gel Mix

WELL COMPLETION
Pad: 4'x4'x4"
Protective Casing: Anodized Aluminum

DRILLING METHODS
Soil Drill: 6-inch diameter Sonic
Rock Drill: 6-inch diameter Sonic

LOG SCALE: 1 in = 5.5 ft
DRILLING COMPANY: Cascade
DRILLER: Tom Ardito

GA INSPECTOR: Michael Boatman
CHECKED BY: Rachel P. Kirkman, P.G.
DATE: 9/29/17

Golder Associates

HGWC-14

BORING AP02-MW10
PAGE 1 OF 2
ECS37736

SOUTHERN COMPANY

LOG OF TEST BORING

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DATE STARTED 10/16/2014 **COMPLETED** 10/16/2014 **SURF. ELEV.** 595.5 **COORDINATES:** N:34.249688 E:-85.351960
CONTRACTOR SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; Hollow Stem Auger
DRILLED BY T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** _____ **BEARING** _____
BORING DEPTH 40.4 ft. **GROUND WATER DEPTH: DURING** 30 ft. **COMP.** _____ **DELAYED** 23.2 ft. after 96 hrs.
NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION (ELEV.)	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Fill (CL)				
5		- dark brown and brown, dry, hard, clay and gravel	SS -1	3.5-5.0	2-13-21 (**34**)	
10		- dry, stiff, gravel, low recovery	SS -2	8.5-10.0	7-6-8 (**14**)	
15		- brown, very moist, very hard, clay with gravel, some sand	SS -3	13.5-14.6	42-50 (**100+**)	
		578.5				
		Silt (ML)				
20		- dark green and gray, damp, stiff, clayey, with black mottles	SS -4	18.5-20.0	6-5-7 (**12**)	
		573.5				
		Fat Clay (CH)				
25		- brown, damp, medium stiff, medium to high plasticity, some silt	SS -5	23.5-25.0	3-3-5 (**8**)	

(Continued Next Page)

SOUTHERN COMPANY

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

LOG OF TEST BORING

HGWC-14

BORING AP02-MW10

ECS37736

PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
30		**Fat Clay (CH)** *(Con't)* - brown, wet, very stiff, medium to high plasticity, some silt, free water present		SS -6	28.5-30.0	10-15-13 (**28**)	
35		- brown-yellow, wet, stiff, with pale gray-brown mottles, free water present		SS -7	33.5-35.0	3-4-5 (**9**)	
40		- brown-yellow, very moist, very stiff, pale gray-brown mottles	556.5	SS -8	38.5-40.0	4-7-10 (**17**)	
		Clayey Sand (SC) - gray, very moist to wet, fine grain	555.1				
		Bottom of borehole at 40.4 feet.					

SOUTHERN COMPANY

HGWC-14

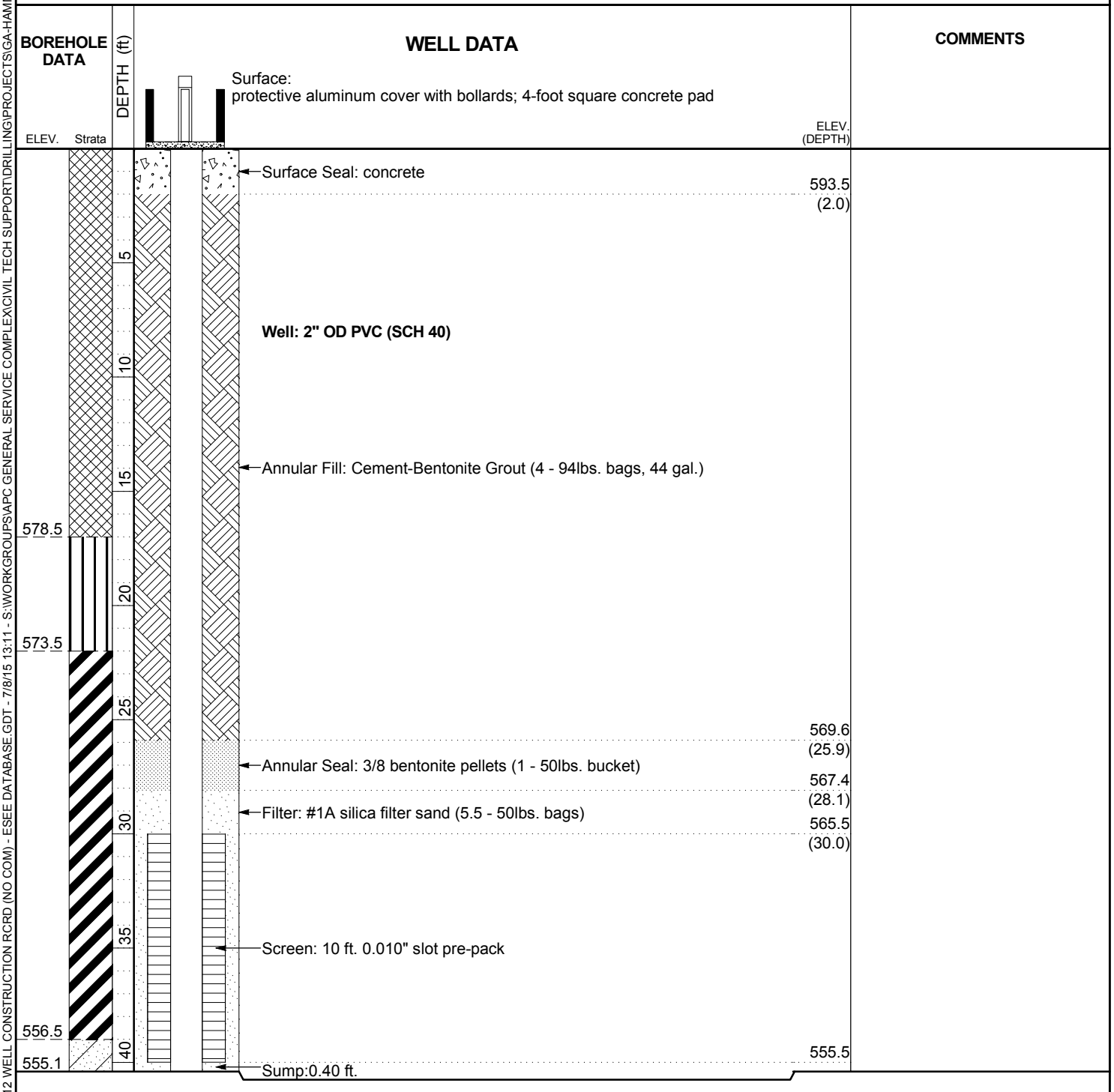
RECORD OF WELL CONSTRUCTION

WELL: AP02-MW10
PAGE 1 OF 1
ECS37736

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DATE STARTED 10/16/2014 **COMPLETED** 10/16/2014 **SURF. ELEV.** 595.5 **COORDINATES:** N:34.249688 E:-85.351960
CONTRACTOR SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; Hollow Stem Auger
DRILLED BY T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 40.4 ft. **GROUND WATER DEPTH: DURING** 30 ft. **COMP.** **DELAYED** 23.2 ft. after 96 hrs.
NOTES Well installed. Refer to well data sheet.



SOUTHERN COMPANY

HGWC-15

LOG OF TEST BORING

BORING AP02-MW11
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ECS37736

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DATE STARTED 10/20/2014 **COMPLETED** 10/20/2014 **SURF. ELEV.** 579.7 **COORDINATES:** N:34.249333 E:-85.353779
CONTRACTOR SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; Hollow Stem Auger
DRILLED BY T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 35.2 ft. **GROUND WATER DEPTH: DURING** 15 ft. **COMP.** **DELAYED** 14 ft. after 24 hrs.
NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Silty Clay (CL)					
		- brown, dry, stiff		SS -1	3.5-5.0	3-5-7 (**12**)	
		- brown, dry, medium stiff		SS -2	8.5-10.0	3-4-4 (**8**)	
		- brown, very moist, soft		SS -3	13.5-15.0	2-2-2 (**4**)	
			563.7				
		Fat Clay (CH)					
		- brown, very moist, stiff, medium to high plasticity, silty		SS -4	18.5-20.0	2-5-5 (**10**)	
		- brown, wet, medium stiff, medium to high plasticity, silty, free water present		SS -5	23.5-25.0	1-2-3 (**5**)	
		- brown, very moist to wet, medium stiff, medium to high plasticity		SS -6	28.5-30.0	2-3-3 (**6**)	
			547.7				
		Elastic Silt (MH)					
		- gray, wet, medium stiff, medium to high plasticity, clayey	544.5	SS -7	33.5-35.0	WH-4-4 (**8**)	

Bottom of borehole at 35.2 feet.

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RECORD OF WELL CONSTRUCTION

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WELL: AP02-MW11
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DATE STARTED 10/20/2014 **COMPLETED** 10/20/2014 **SURF. ELEV.** 579.7 **COORDINATES:** N:34.249333 E:-85.353779
CONTRACTOR SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; Hollow Stem Auger
DRILLED BY T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 35.2 ft. **GROUND WATER DEPTH: DURING** 15 ft. **COMP.** **DELAYED** 14 ft. after 24 hrs.
NOTES Well installed. Refer to well data sheet.

BOREHOLE DATA ELEV.	Strata	DEPTH (ft)	WELL DATA	ELEV. (DEPTH)	COMMENTS
			Surface: protective aluminum cover with bollards; 4-foot square concrete pad		
			Surface Seal: concrete	577.7 (2.0)	
		5	**Well: 2" OD PVC (SCH 40)**		
		10	Annular Fill: Cement-Bentonite Grout (3 - 94lbs. bags, 33 gal.)		
563.7		15			
		20		559.9 (19.8)	
			Annular Seal: 3/8 bentonite pellets (1 - 50lbs. bucket)	557.8 (21.9)	
		25	Filter: #1A silica filter sand (5.5 - 50lbs. bags)	554.9 (24.8)	
		30	Screen: 10 ft. 0.010" slot pre-pack		
547.7					
544.5		35		544.9	
			Sump:0.40 ft.		

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BORING AP02-MW13
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SOUTHERN COMPANY

LOG OF TEST BORING

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DATE STARTED 10/21/2014 **COMPLETED** 10/21/2014 **SURF. ELEV.** 578.4 **COORDINATES:** N:34.250241 E:-85.354825
CONTRACTOR SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; Hollow Stem Auger
DRILLED BY T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 35 ft. **GROUND WATER DEPTH: DURING** 15 ft. **COMP.** **DELAYED** 7.7 ft. after 24 hrs.
NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Fill (CL)					
5		- red-brown, damp, medium stiff, with pale brown mottles, some gravel		SS -1	3.5-5.0	2-2-3 (**5**)	
10		- red-brown, damp, soft, with pale brown mottles, some gravel, low recovery	566.4	SS -2	8.5-10.0	2-2-2 (**4**)	
15		**Clayey Sand (SC)** - brown-gray, very moist, very loose, fine to coarse grain, sticky	560.4	SS -3	13.5-15.0	WH-1-1 (**2**)	
20		**Lean Clay (CL)** - gray, damp, medium stiff, low to medium plasticity		SS -4	18.5-20.0	3-3-5 (**8**)	
25		- gray-brown, damp, stiff, interbedded with clayey SAND (SC), wet, fine to coarse grained, some well rounded fine gravel	550.4	SS -5	23.5-25.0	5-6-4 (**10**)	
30		**Elastic Silt (MH)** - dark gray to black, wet, very stiff, clayey, weathered shale (boulder), dry, gray, strong HCl reaction (carbonate) at bottom of sample	545.4	SS -6	28.5-30.0	9-6-14 (**20**)	
35		**Clayey Gravel (GC)** - dark brown and gray, very moist to wet, very dense, with sand and gravel (well rounded), strong HCl reaction (carbonate gravel)	543.4	SS -7	33.5-34.3	17-50/4" (**100+**)	

Bottom of borehole at 35.0 feet.

SOUTHERN COMPANY

RECORD OF WELL CONSTRUCTION

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WELL: AP02-MW13
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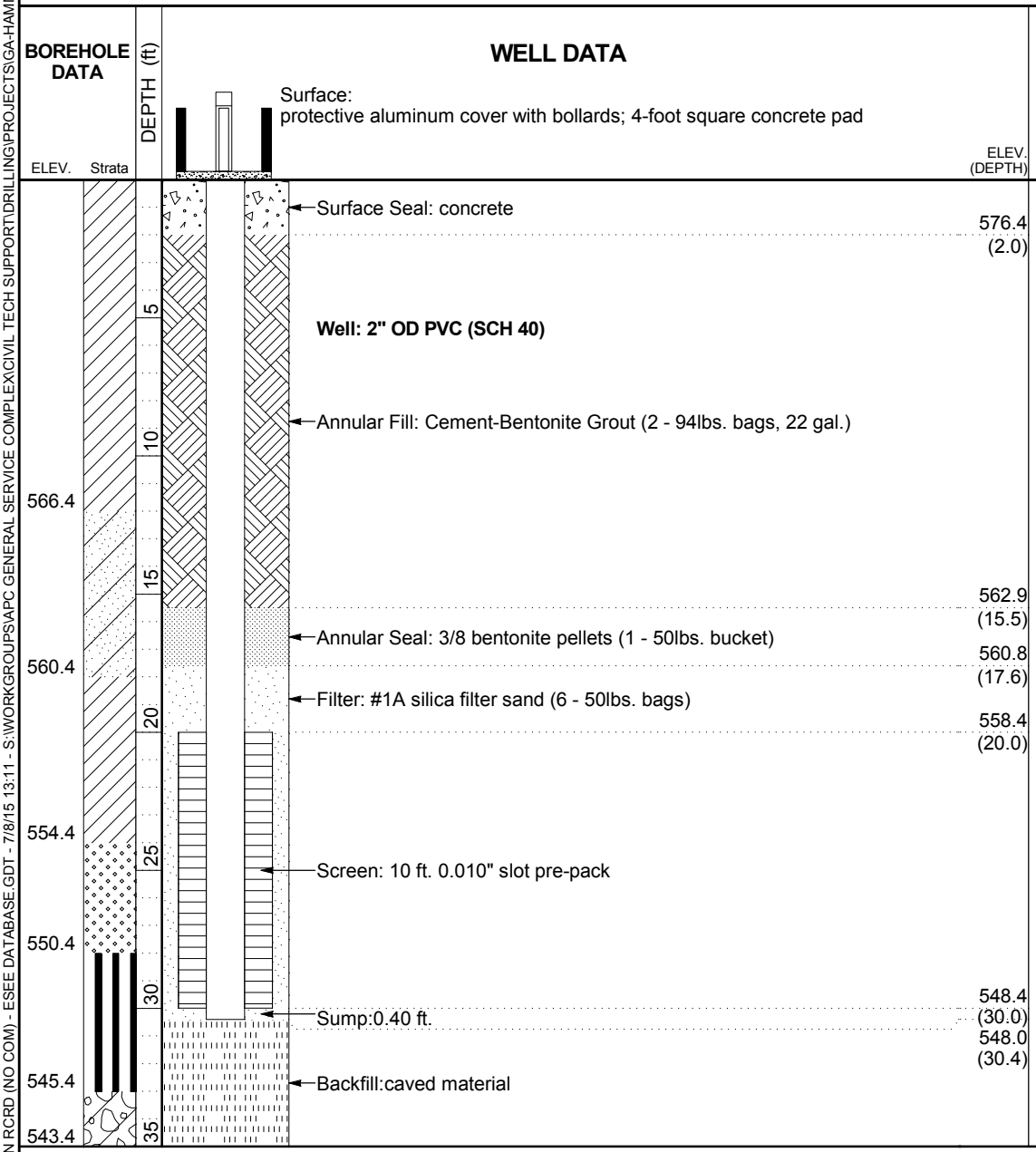
SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DATE STARTED 10/21/2014 **COMPLETED** 10/21/2014 **SURF. ELEV.** 578.4 **COORDINATES:** N:34.250241 E:-85.354825
CONTRACTOR SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; Hollow Stem Auger
DRILLED BY T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 35 ft. **GROUND WATER DEPTH: DURING** 15 ft. **COMP.** **DELAYED** 7.7 ft. after 24 hrs.
NOTES Well installed. Refer to well data sheet.



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BORING AP02-MW14
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SOUTHERN COMPANY

LOG OF TEST BORING

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DATE STARTED 10/22/2014 **COMPLETED** 10/22/2014 **SURF. ELEV.** 582.6 **COORDINATES:** N:34.250901 E:-85.354837
CONTRACTOR SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; Hollow Stem Auger
DRILLED BY T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 25 ft. **GROUND WATER DEPTH: DURING** 15 ft. **COMP.** **DELAYED** 13.9 ft. after 24 hrs.
NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Lean Clay (CL)					
		- pale gray-brown, dry, stiff, with red and yellow-brown mottling (fill)		SS -1	3.5-5.0	5-6-9 (**15**)	
		- red-yellow, dry, stiff, low to medium plasticity, with distinct gray mottling		SS -2	8.5-10.0	3-5-8 (**13**)	
			571.6				
		Clayey Sand (SC)					
		- pale brown, very moist to wet, medium dense, fine grain, with gray mottling		SS -3	13.5-15.0	3-5-5 (**10**)	
		- pale brown, wet, medium dense, with red-yellow mottling		SS -4	18.5-20.0	6-10-13 (**23**)	
		- pale brown, wet, very dense, fine to coarse grain, with red-yellow mottling, coarse well-rounded gravel	558.6	SS -5	23.5-24.3	17-50/4" (**100+**)	
		Partially Weathered Rock (PWR) - dark gray and dark red, claystone and shale, no HCl reaction, possible boulder	557.6				
		Bottom of borehole at 25.0 feet.					

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RECORD OF WELL CONSTRUCTION

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WELL: AP02-MW14
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SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DATE STARTED 10/22/2014 **COMPLETED** 10/22/2014 **SURF. ELEV.** 582.6 **COORDINATES:** N:34.250901 E:-85.354837
CONTRACTOR SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; Hollow Stem Auger
DRILLED BY T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 25 ft. **GROUND WATER DEPTH: DURING** 15 ft. **COMP.** **DELAYED** 13.9 ft. after 24 hrs.
NOTES Well installed. Refer to well data sheet.

BOREHOLE DATA ELEV.	Strata	DEPTH (ft)	WELL DATA	ELEV. (DEPTH)	COMMENTS
			Surface: protective aluminum cover with bollards; 4-foot square concrete pad		
			Surface Seal: concrete	580.6 (2.0)	
			Well: 2" OD PVC (SCH 40)		
		5	Annular Fill: Cement-Bentonite Grout (2 - 94lbs. bags, 22 gal.)		
				573.6 (9.0)	
571.6		10	Annular Seal: 3/8 bentonite pellets (1 - 50lbs. bucket)		
				570.5 (12.1)	
		15	Filter: #1A silica filter sand (6 - 50lbs. bags)		
				568.0 (14.6)	
		20	Screen: 10 ft. 0.010" slot pre-pack		
558.6					
557.6		25	Sump:0.40 ft.	558.0	

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BORING AP02-MW15
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LOG OF TEST BORING

SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DATE STARTED 10/22/2014 **COMPLETED** 10/22/2014 **SURF. ELEV.** 582.5 **COORDINATES:** N:34.251920 E:-85.354784
CONTRACTOR SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; Hollow Stem Auger
DRILLED BY T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 25 ft. **GROUND WATER DEPTH: DURING** 15 ft. **COMP.** **DELAYED** 11.5 ft. after 24 hrs.
NOTES Well installed. Refer to well data sheet.

DEPTH (ft)	GRAPHIC LOG	STRATA DESCRIPTION	ELEV.	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE) / PERCENT RECOVERY (RQD)	COMMENTS
		Gravelly Lean Clay (CL)					
5		- yellow-brown, dry, stiff, with red mottling		SS -1	3.5-5.0	4-5-5 (**10**)	
			574.5				
10		**Silt (ML)** - yellow-brown, dry, hard, low recovery		SS -2	8.5-10.0	13-19-31 (**50**)	
			571.5				
15		**Well-graded Gravelly Sand (SW)**					
		- yellow-brown, very moist, dense, fine to coarse grain, with red-yellow mottling, coarse well-rounded gravel		SS -3	13.5-15.0	14-19-19 (**38**)	
			564.5				
20		**Partially Weathered Rock (PWR)** - black to dark gray, very hard, shale, fissle, irregular and inclined bedding, no HCl reaction		SS -4	18.5-20.0	23-41-43 (**84**)	
25		- black to dark gray, very hard, shale, fissle, irregular and inclined bedding, no HCl reaction	557.5	SS -5	23.5-24.8	19-31-54/4" (**100+**)	

Bottom of borehole at 25.0 feet.

SOUTHERN COMPANY

RECORD OF WELL CONSTRUCTION

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WELL: AP02-MW15
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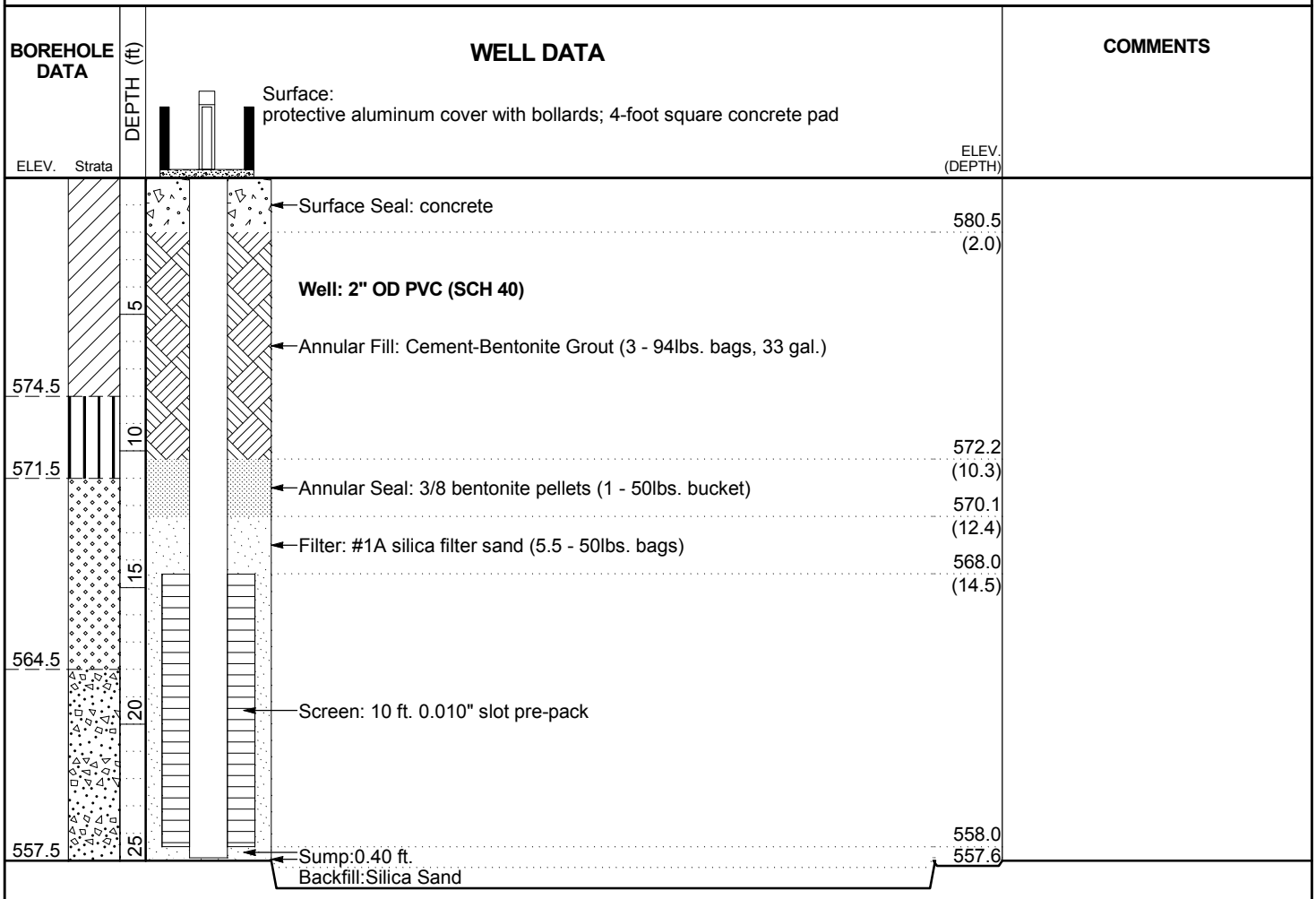
SOUTHERN COMPANY SERVICES, INC.
EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING

PROJECT Ash Pond Piezometers
LOCATION Plant Hammond

DATE STARTED 10/22/2014 **COMPLETED** 10/22/2014 **SURF. ELEV.** 582.5 **COORDINATES:** N:34.251920 E:-85.354784
CONTRACTOR SCS Field Services **EQUIPMENT** CME 550 **METHOD** Hollow Stem Auger; Hollow Stem Auger
DRILLED BY T. Milam **LOGGED BY** W. Shaughnessy **CHECKED BY** L. Millet **ANGLE** **BEARING**
BORING DEPTH 25 ft. **GROUND WATER DEPTH: DURING** 15 ft. **COMP.** **DELAYED** 11.5 ft. after 24 hrs.
NOTES Well installed. Refer to well data sheet.



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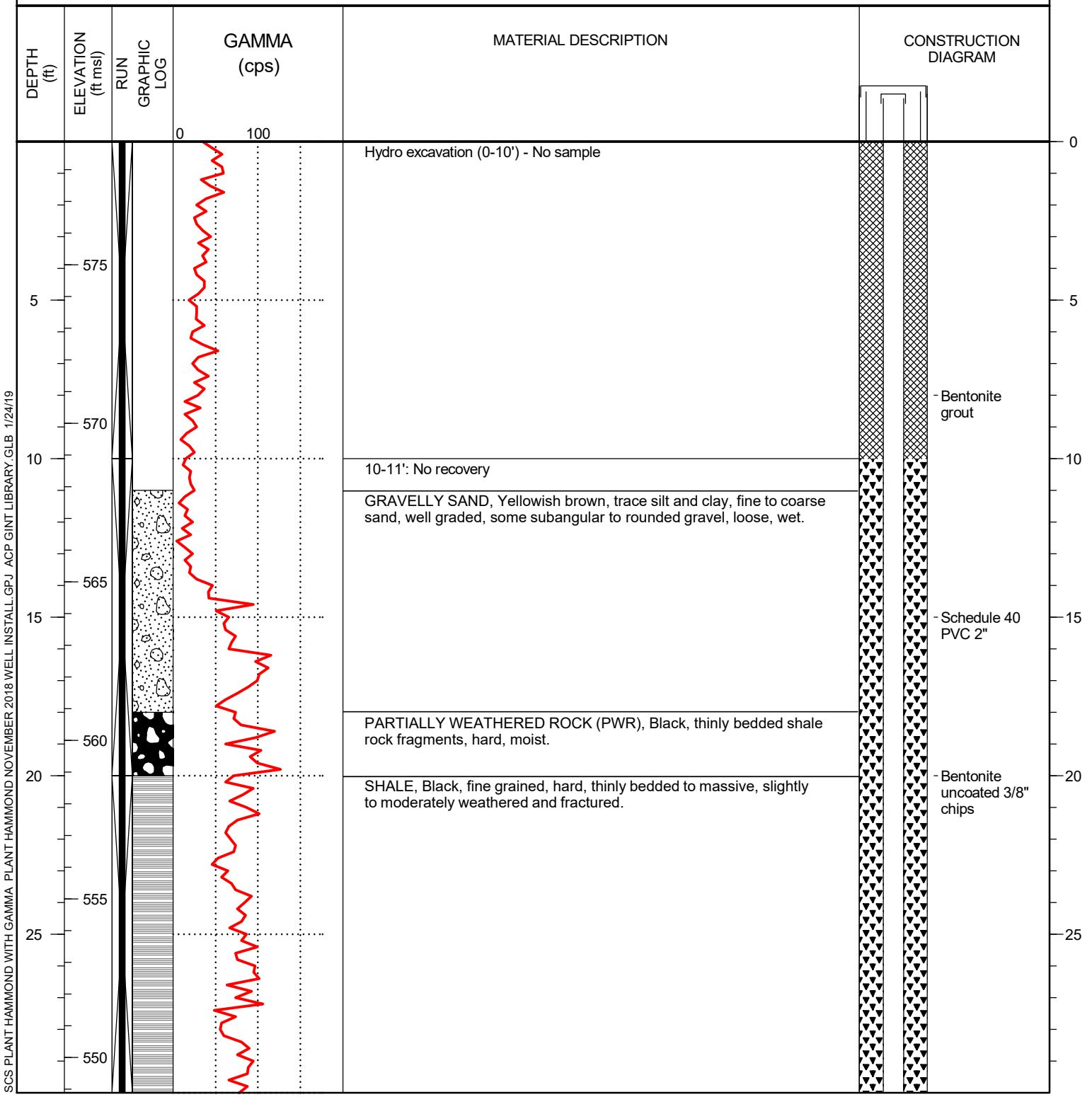
MONITORING WELL MW-21D

CLIENT Southern Company Services
PROJECT NAME Plant Hammond Well Installation
PROJECT NUMBER GW6581B
PROJECT LOCATION Plant Hammond
DATE STARTED 11/19/18 **COMPLETED** 11/19/18
NORTHING 1548814.63 ft **EASTING** 1937556.86ft
DRILLER Cascade Drilling
GROUND ELEVATION 578.89 ft **BORING DIAMETER** 6 in
DRILLING METHOD Sonic
TOP OF CASING ELEVATION 581.49 ft
SAMPLING METHOD 4" core 6" overide
GEOPHYSICAL CONTRACTOR Geosyntec Consultants
RIG TYPE Geoprobe 8140LC
LOGGED BY N.Tilahun **CHECKED BY** J. Ivanowski



SCS PLANT HAMMOND WITH GAMMA PLANT HAMMOND NOVEMBER 2018 WELL INSTALL.GPJ ACP GINT LIBRARY.GLB 1/24/19

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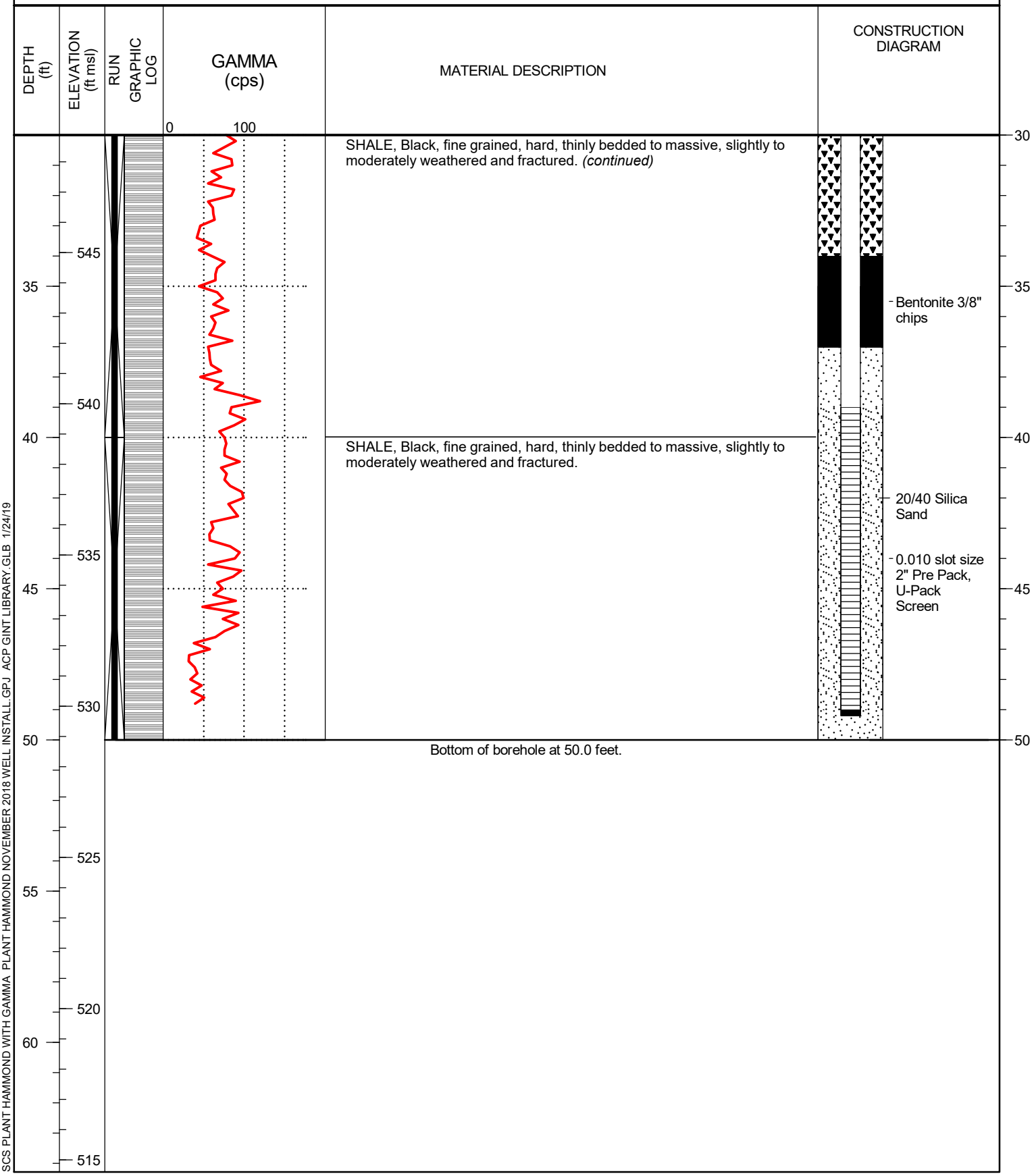
MONITORING WELL MW-21D

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



Bottom of borehole at 50.0 feet.

SCS PLANT HAMMOND WITH GAMMA PLANT HAMMOND NOVEMBER 2018 WELL INSTALL.GPJ ACP GINT LIBRARY.GLB 1/24/19

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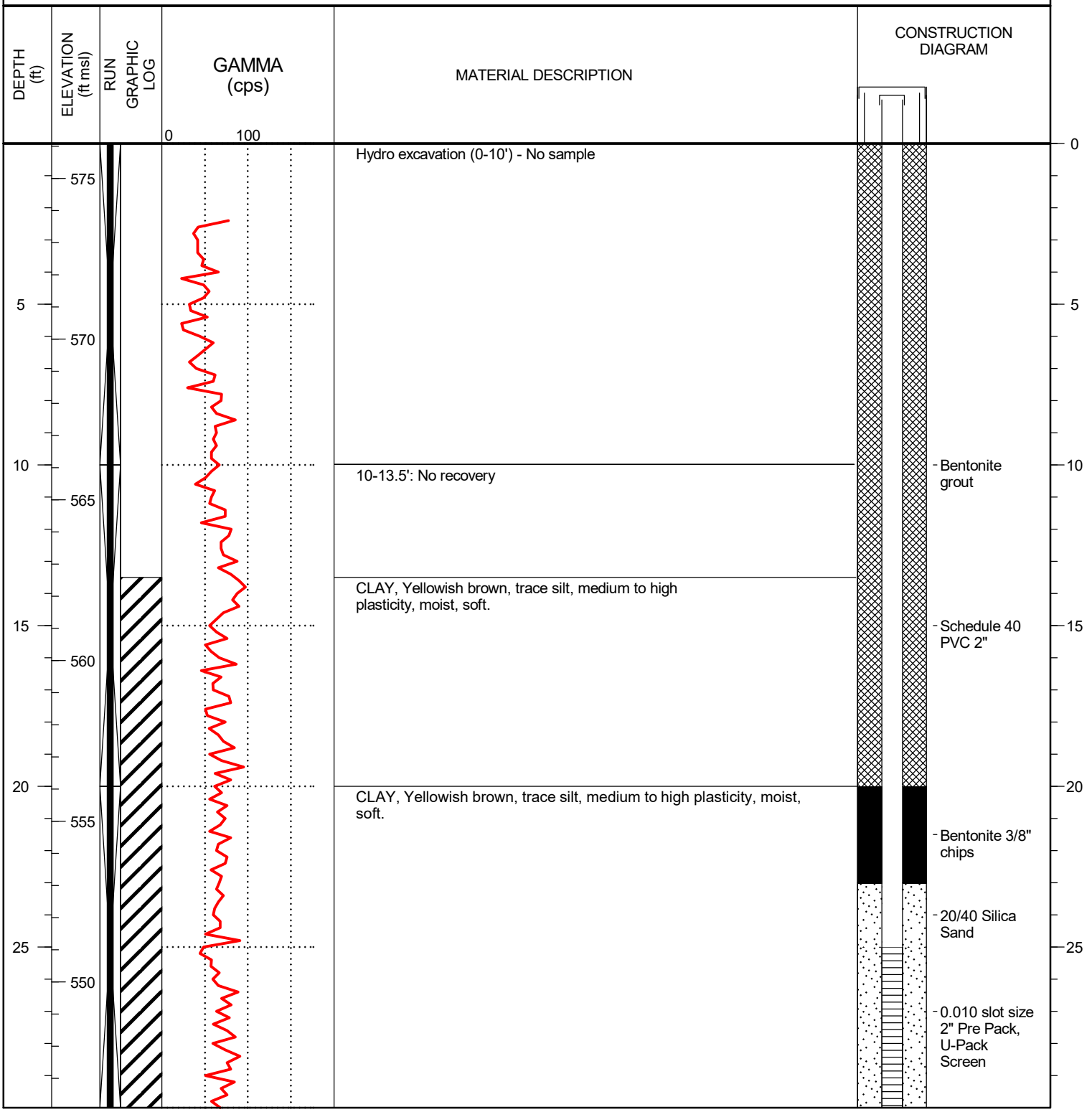
MONITORING WELL MW-22

CLIENT Southern Company Services
PROJECT NAME Plant Hammond Well Installation
PROJECT NUMBER GW6581B
PROJECT LOCATION Plant Hammond
DATE STARTED 11/15/18 **COMPLETED** 11/15/18
NORTHING 1547856.03 ft **EASTING** 1937832.07 ft
DRILLER Cascade Drilling
GROUND ELEVATION 576.09 ft **BORING DIAMETER** 6 in
DRILLING METHOD Sonic
TOP OF CASING ELEVATION 578.67 ft
SAMPLING METHOD 4" core 6" overide
GEOPHYSICAL CONTRACTOR Geosyntec Consultants
RIG TYPE Geoprobe 8140LC
LOGGED BY N.Tilahun **CHECKED BY** J. Ivanowski



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MONITORING WELL MW-22

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

DEPTH (ft)	ELEVATION (ft msl)	RUN	GRAPHIC LOG	GAMMA (cps) 0 100	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
30	545				CLAY, Yellowish brown, trace silt, medium to high plasticity, moist, soft.	
					CLAY, Dark brown, trace silt and fine sand, non plastic to low plasticity, soft, moist, slightly laminated.	
35	540				Bottom of borehole at 35.0 feet.	35
40	535					
45	530					
50	525					
55	520					
60	515					

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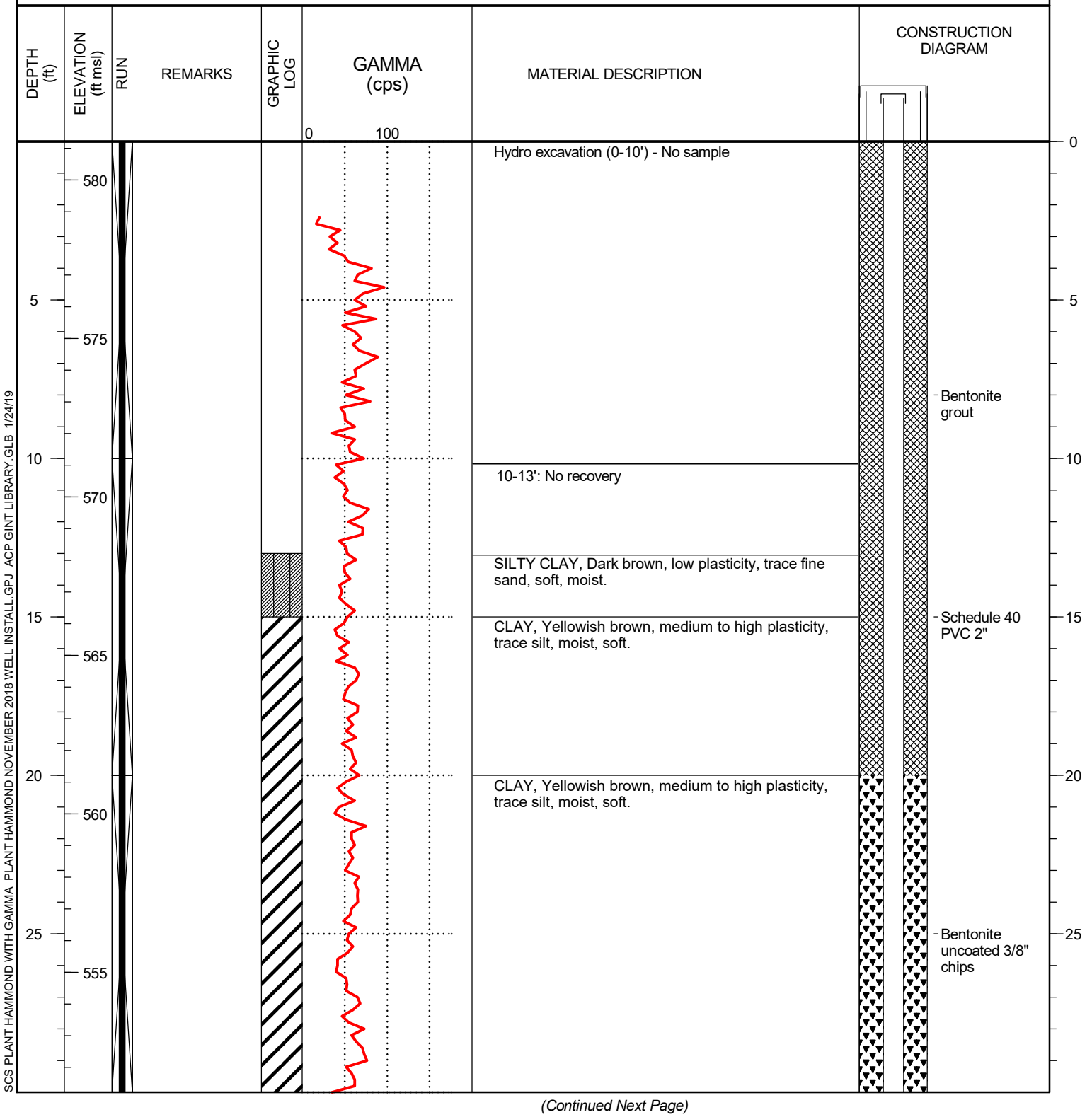
MONITORING WELL MW-23D

CLIENT Southern Company Services
PROJECT NAME Plant Hammond Well Installation
PROJECT NUMBER GW6581B
PROJECT LOCATION Plant Hammond
DATE STARTED 11/15/18 **COMPLETED** 11/15/18
NORTHING 1547877.73 ft **EASTING** 1937844.17ft
DRILLER Cascade Drilling
GROUND ELEVATION 581.21 ft **BORING DIAMETER** 6 in
DRILLING METHOD Sonic
TOP OF CASING ELEVATION 584 ft
SAMPLING METHOD 4" core 6" overide
GEOPHYSICAL CONTRACTOR Geosyntec Consultants
RIG TYPE Geoprobe 8140LC
LOGGED BY N.Tilahun **CHECKED BY** J. Ivanowski



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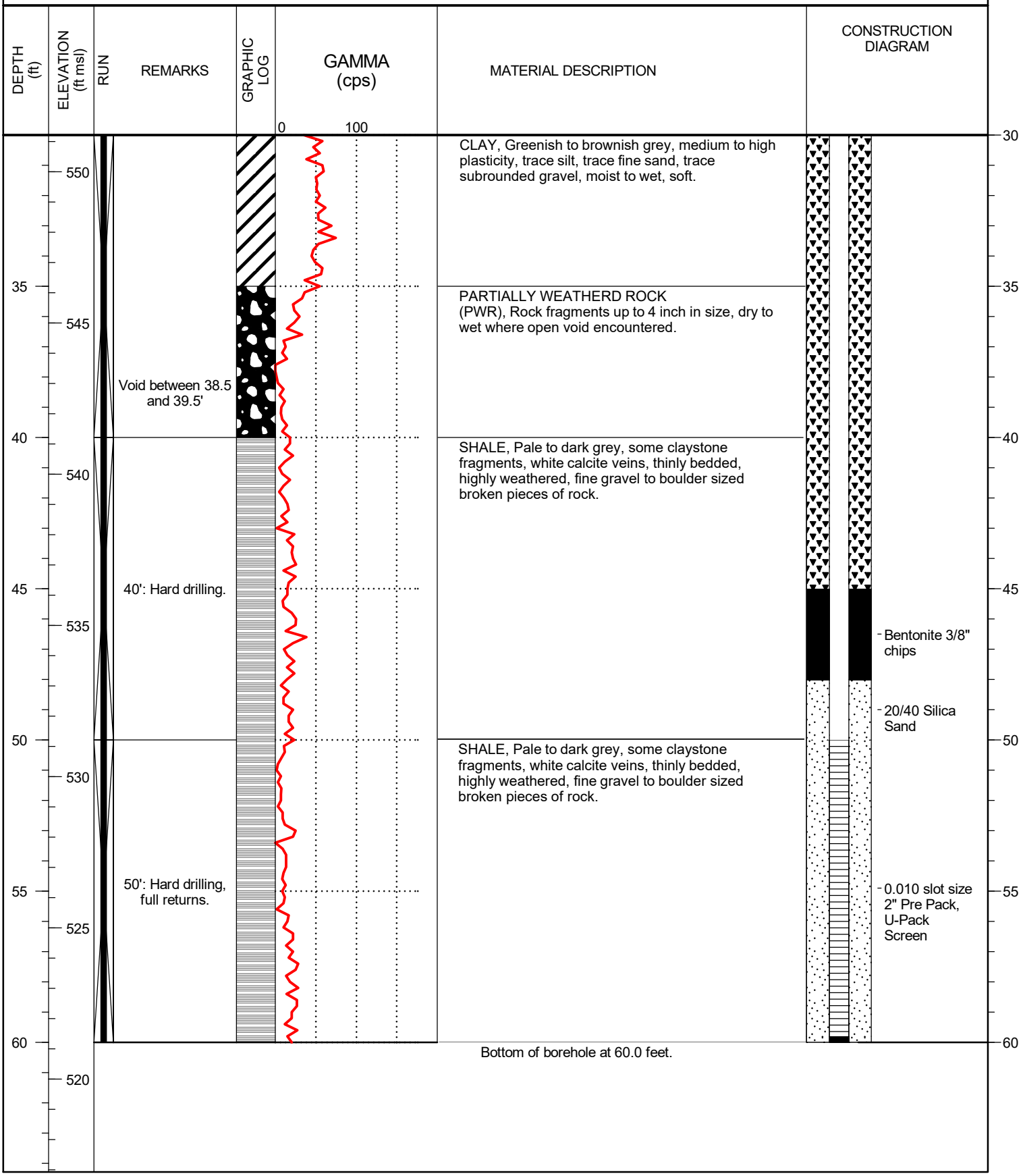
MONITORING WELL MW-23D

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



Bottom of borehole at 60.0 feet.

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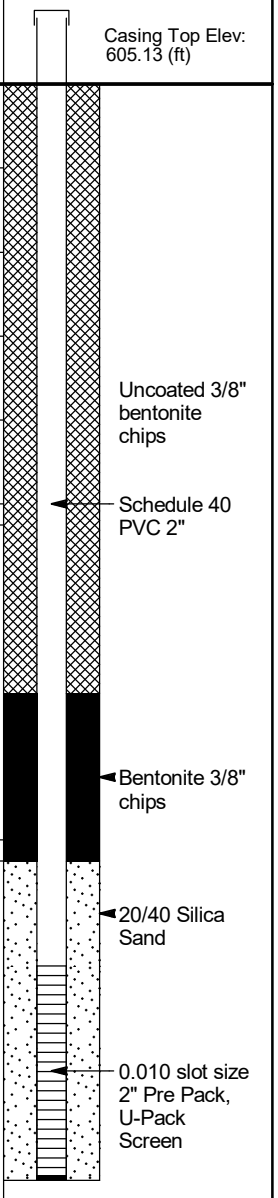
PIEZOMETER AP2-PMW-03

CLIENT Southern Company Services
PROJECT NAME Plant Hammond AP1 and AP2 Porewater Well Installation
PROJECT NUMBER GW6581B
PROJECT LOCATION Plant Hammond
DATE STARTED 12/13/18 **COMPLETED** 12/13/18
NORTHING 1548066.77 ft **EASTING** 1937948.67 ft
DRILLER Universal Engineering Services
GROUND ELEVATION 601.2 ft **BORING DIAMETER** 4 in
DRILLING METHOD Mud Rotary
TOP OF CASING ELEVATION 605.13 ft
SAMPLING METHOD Split Spoon
GEOPHYSICAL CONTRACTOR ---
RIG TYPE Marsh Master
LOGGED BY C. Hug **CHECKED BY** J. Whitmer

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEV
0	SS	100			SAND/GRAVELLY SAND, Dark grey, black, fine to medium grained, subangular to angular, ash, dry to moist. Grass roots on surface. FILL	599.2
	SS	29			SILTY SAND with GRAVEL, Dark grey to black, fine to coarse grained, angular, ash. Gravel is fine grained, angular, ash. FLY and BOTTOM ASH	597.2
5	SS	58			SILTY SAND, Black, predominantly fine grained, angular, ash. FLY ASH Band of orange clay at 5.3' (2" wide) From 5.5': Trace of fine, angular gravel and clay pebbles. FLY ASH	595.2
	SS	13	WL = 595.88 ft (12/19/2018)		CLAY, Orange, red, low to medium plasticity, with some fine grained sand and trace of gravel. FILL	593.2
	SS	17			SAND and GRAVEL, Black and orange, coarse grained sand and fine grained gravel, angular, ash. BOTTOM ASH	591.2
10	SS	75			CLAY, Greenish to grey, low plasticity, with some fine sand. FILL	590.7
	SS	88			SAND/SILTY SAND, Black, fine grained, angular, wet. FLY ASH 11': SAND with SILT, Black, fine to coarse grained, angular, ash. BOTTOM ASH 11.8-11.9': Band of orange clay. From 12': SILTY SAND, dark grey to black, fine grained, angular, ash. FLY ASH	
15	SS	100				
	SS	100			17.75' - 17.85': Band of orange clay.	583.2
	SS	79			CLAY, Orange, low plasticity. With some fine grained sand. FILL	582.7
20	SS	100			SILTY SAND, Dark grey, fine grained, angular, ash. FLY ASH	
	SS	96				
25	SS	100				
	SS	100				
30	SS	71	28'-30': Driller reports 'hard' ground at the end of spoon.			571.5
					CLAY, Orange brown, low plasticity, with some fine grained sand and some organic matter. ALLUVIUM	571.2

Bottom of borehole at 30.0 feet.

CONSTRUCTION DIAGRAM



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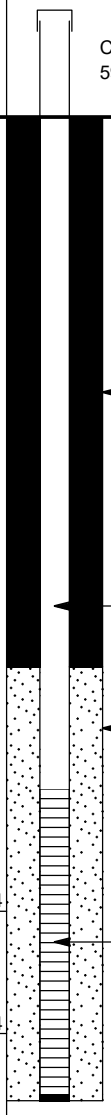
PIEZOMETER AP2-PMW-04

CLIENT Southern Company Services
PROJECT NAME Plant Hammond AP1 and AP2 Porewater Well Installation
PROJECT NUMBER GW6581B
PROJECT LOCATION Plant Hammond
DATE STARTED 12/11/18 **COMPLETED** 12/11/18
NORTHING 1548833.61 ft **EASTING** 1937834.79 ft
DRILLER Universal Engineering Services
GROUND ELEVATION 592.4 ft **BORING DIAMETER** 4 in
DRILLING METHOD Mud Rotary
TOP OF CASING ELEVATION 595.37 ft
SAMPLING METHOD Split Spoon
GEOPHYSICAL CONTRACTOR ---
RIG TYPE Marsh Master
LOGGED BY C. Hug **CHECKED BY** J. Whitmer

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION
0	SS	63	WL = 591.16 ft (12/19/2018)		SILTY SAND, Dark grey, black, fine grained, angular, ash, wet. FLY ASH
	SS	100			
5	SS	67			
	SS	96			With grass roots between 6-7'.
	SS	96			
10	SS	92			
	SS	75			579.4 GRAVELLY SAND, Black, fine to coarse grained, angular, ash. Gravel is fine, subrounded, ash. BOTTOM ASH
15	SS	83			577.4 SILTY SAND, Dark grey, fine to medium grained, angular, quartz. FLY ASH
	SS	79			
	SS	33			574.4 NO RECOVERY (18.0'-19.25')
20					573.2 CLAY, Greenish grey and pale yellow, low to medium plasticity. With some fine, subrounded sand and black organic matter. ALLUVIUM
					Bottom of borehole at 20.0 feet. 572.4

CONSTRUCTION DIAGRAM



ASHWINS_LOG PLANT HAMMOND POREWATER WELL INSTALL_DECEMBER 2018.GPJ ACP GINT LIBRARY_FROM ASHWIN.GLB 4/18/19

APPENDIX C

Laboratory Analytical Reports for Solid Samples

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-111457-1
Client Project/Site: Plant Hammond

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

Attn: Ms. Lauren Petty

Veronica Bortot

Authorized for release by:
5/7/2019 4:39:39 PM

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

Table of Contents

Definitions/Glossary

Client: Southern Company
Project/Site: Plant Hammond

Job ID: 240-111457-1

Qualifiers

Metals

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time

Glossary

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

Job ID: 240-111457-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative
240-111457-1

Comments
No additional comments.

Receipt
The samples were received on 4/24/2019 10:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.2º C.

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

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

Method Summary

Client: Southern Company
Project/Site: Plant Hammond

Job ID: 240-111457-1

Method	Method Description	Protocol	Laboratory
6020B	Metals (ICP/MS)	SW846	TAL CAN
Moisture	Percent Moisture	EPA	TAL CAN
Part Size Red	Particle Size Reduction Preparation	None	TAL CAN
3050B	Preparation, Metals	SW846	TAL CAN
Part Size Red	Particle Size Reduction Preparation	None	TAL CAN

Protocol References:

EPA = US Environmental Protection Agency

None = None

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

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Sample Summary

Client: Southern Company
Project/Site: Plant Hammond

Job ID: 240-111457-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-111457-1	AP2-DPT01-10.5	Solid	10/30/18 13:05	04/24/19 10:15
240-111457-2	AP2-DPT01-30	Solid	10/30/18 14:15	04/24/19 10:15
240-111457-3	AP2-DPT02-7	Solid	10/05/18 13:30	04/24/19 10:15
240-111457-4	AP2-DPT02-25	Solid	10/05/18 14:00	04/24/19 10:15
240-111457-5	AP2-DPT03-11	Solid	10/31/18 11:55	04/24/19 10:15
240-111457-6	AP2-DPT03-19	Solid	10/31/18 12:30	04/24/19 10:15
240-111457-7	AP2-DPT04-11.5	Solid	10/31/18 08:45	04/24/19 10:15
240-111457-8	AP2-DPT04-20	Solid	10/31/18 09:20	04/24/19 10:15
240-111457-9	AP2-DPT06-3	Solid	10/31/18 14:05	04/24/19 10:15
240-111457-10	AP2-DPT06-9	Solid	10/31/18 15:30	04/24/19 10:15
240-111457-11	MW21D-39-49-190422	Solid	04/22/19 09:15	04/24/19 10:15
240-111457-12	MW23D-50-60-190422	Solid	04/22/19 09:25	04/24/19 10:15

Detection Summary

Client: Southern Company
Project/Site: Plant Hammond

Job ID: 240-111457-1

Client Sample ID: AP2-DPT01-10.5 — Lab Sample ID: 240-111457-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	21000	H	9.4	2.8	mg/Kg	2	☼	6020B	Total/NA
Cobalt	13	H	0.19	0.049	mg/Kg	2	☼	6020B	Total/NA
Iron	30000	H	19	7.5	mg/Kg	2	☼	6020B	Total/NA
Manganese	470	H	0.94	0.38	mg/Kg	2	☼	6020B	Total/NA

Client Sample ID: AP2-DPT01-30 — Lab Sample ID: 240-111457-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	21000	H	10	3.1	mg/Kg	2	☼	6020B	Total/NA
Cobalt	14	H	0.20	0.053	mg/Kg	2	☼	6020B	Total/NA
Iron	31000	H	20	8.2	mg/Kg	2	☼	6020B	Total/NA
Manganese	630	H	1.0	0.41	mg/Kg	2	☼	6020B	Total/NA

Client Sample ID: AP2-DPT02-7 — Lab Sample ID: 240-111457-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	15000	H	11	3.3	mg/Kg	2	☼	6020B	Total/NA
Cobalt	8.9	H	0.22	0.057	mg/Kg	2	☼	6020B	Total/NA
Iron	19000	H	22	8.8	mg/Kg	2	☼	6020B	Total/NA
Manganese	130	H	1.1	0.44	mg/Kg	2	☼	6020B	Total/NA

Client Sample ID: AP2-DPT02-25 — Lab Sample ID: 240-111457-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	18000	H	9.5	2.9	mg/Kg	2	☼	6020B	Total/NA
Cobalt	11	H	0.19	0.049	mg/Kg	2	☼	6020B	Total/NA
Iron	21000	H	19	7.6	mg/Kg	2	☼	6020B	Total/NA
Manganese	1300	H	4.7	1.9	mg/Kg	10	☼	6020B	Total/NA

Client Sample ID: AP2-DPT03-11 — Lab Sample ID: 240-111457-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	6700		10	3.0	mg/Kg	2	☼	6020B	Total/NA
Cobalt	1.8		0.20	0.052	mg/Kg	2	☼	6020B	Total/NA
Iron	4200		20	8.1	mg/Kg	2	☼	6020B	Total/NA
Manganese	6.9		1.0	0.41	mg/Kg	2	☼	6020B	Total/NA

Client Sample ID: AP2-DPT03-19 — Lab Sample ID: 240-111457-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	11000		9.9	3.0	mg/Kg	2	☼	6020B	Total/NA
Cobalt	5.7		0.20	0.052	mg/Kg	2	☼	6020B	Total/NA
Iron	26000		20	8.0	mg/Kg	2	☼	6020B	Total/NA
Manganese	51		0.99	0.40	mg/Kg	2	☼	6020B	Total/NA

Client Sample ID: AP2-DPT04-11.5 — Lab Sample ID: 240-111457-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	3500		8.3	2.5	mg/Kg	2	☼	6020B	Total/NA
Cobalt	1.2		0.17	0.043	mg/Kg	2	☼	6020B	Total/NA
Iron	7100		17	6.7	mg/Kg	2	☼	6020B	Total/NA
Manganese	19		0.83	0.33	mg/Kg	2	☼	6020B	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Southern Company
Project/Site: Plant Hammond

Job ID: 240-111457-1

Client Sample ID: AP2-DPT04-20 — Lab Sample ID: 240-111457-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	17000		13	3.8	mg/Kg	2	☼	6020B	Total/NA
Cobalt	86		0.25	0.065	mg/Kg	2	☼	6020B	Total/NA
Iron	90000		130	50	mg/Kg	10	☼	6020B	Total/NA
Manganese	2600		6.3	2.5	mg/Kg	10	☼	6020B	Total/NA

Client Sample ID: AP2-DPT06-3 — Lab Sample ID: 240-111457-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	18000		11	3.3	mg/Kg	2	☼	6020B	Total/NA
Cobalt	3.1		0.22	0.057	mg/Kg	2	☼	6020B	Total/NA
Iron	20000		22	8.8	mg/Kg	2	☼	6020B	Total/NA
Manganese	61		1.1	0.44	mg/Kg	2	☼	6020B	Total/NA

Client Sample ID: AP2-DPT06-9 — Lab Sample ID: 240-111457-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	12000		11	3.5	mg/Kg	2	☼	6020B	Total/NA
Cobalt	8.9		0.23	0.059	mg/Kg	2	☼	6020B	Total/NA
Iron	22000		23	9.2	mg/Kg	2	☼	6020B	Total/NA
Manganese	110		1.1	0.46	mg/Kg	2	☼	6020B	Total/NA

Client Sample ID: MW21D-39-49-190422 — Lab Sample ID: 240-111457-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	7700		8.3	2.5	mg/Kg	2		6020B	Total/NA
Cobalt	9.7		0.17	0.043	mg/Kg	2		6020B	Total/NA
Iron	30000		17	6.6	mg/Kg	2		6020B	Total/NA
Manganese	510		0.83	0.33	mg/Kg	2		6020B	Total/NA
PSR sample generated	DONE				NONE	1		Part Size Red	Total/NA

Client Sample ID: MW23D-50-60-190422 — Lab Sample ID: 240-111457-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	3000		7.5	2.3	mg/Kg	2		6020B	Total/NA
Cobalt	2.1		0.15	0.039	mg/Kg	2		6020B	Total/NA
Iron	5400		15	6.0	mg/Kg	2		6020B	Total/NA
Manganese	720		0.75	0.30	mg/Kg	2		6020B	Total/NA
PSR sample generated	DONE				NONE	1		Part Size Red	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Southern Company
Project/Site: Plant Hammond

Job ID: 240-111457-1

Client Sample ID: AP2-DPT01-10.5

Date Collected: 10/30/18 13:05
Date Received: 04/24/19 10:15

Lab Sample ID: 240-111457-1

Matrix: Solid
Percent Solids: 80.8

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	21000	H	9.4	2.8	mg/Kg	☼	04/26/19 14:00	04/29/19 11:51	2
Cobalt	13	H	0.19	0.049	mg/Kg	☼	04/26/19 14:00	04/29/19 11:51	2
Iron	30000	H	19	7.5	mg/Kg	☼	04/26/19 14:00	04/29/19 11:51	2
Manganese	470	H	0.94	0.38	mg/Kg	☼	04/26/19 14:00	04/29/19 11:51	2

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	80.8		0.1	0.1	%			04/24/19 17:58	1
Percent Moisture	19.2		0.1	0.1	%			04/24/19 17:58	1

Client Sample Results

Client: Southern Company
Project/Site: Plant Hammond

Job ID: 240-111457-1

Client Sample ID: AP2-DPT01-30

Date Collected: 10/30/18 14:15
Date Received: 04/24/19 10:15

Lab Sample ID: 240-111457-2

Matrix: Solid
Percent Solids: 82.0

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	21000	H	10	3.1	mg/Kg	☼	04/26/19 14:00	04/29/19 12:08	2
Cobalt	14	H	0.20	0.053	mg/Kg	☼	04/26/19 14:00	04/29/19 12:08	2
Iron	31000	H	20	8.2	mg/Kg	☼	04/26/19 14:00	04/29/19 12:08	2
Manganese	630	H	1.0	0.41	mg/Kg	☼	04/26/19 14:00	04/29/19 12:08	2

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	82.0		0.1	0.1	%			04/24/19 17:58	1
Percent Moisture	18.0		0.1	0.1	%			04/24/19 17:58	1

Client Sample Results

Client: Southern Company
Project/Site: Plant Hammond

Job ID: 240-111457-1

Client Sample ID: AP2-DPT02-7

Date Collected: 10/05/18 13:30
Date Received: 04/24/19 10:15

Lab Sample ID: 240-111457-3

Matrix: Solid
Percent Solids: 85.0

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	15000	H	11	3.3	mg/Kg	☼	04/26/19 14:00	04/29/19 12:10	2
Cobalt	8.9	H	0.22	0.057	mg/Kg	☼	04/26/19 14:00	04/29/19 12:10	2
Iron	19000	H	22	8.8	mg/Kg	☼	04/26/19 14:00	04/29/19 12:10	2
Manganese	130	H	1.1	0.44	mg/Kg	☼	04/26/19 14:00	04/29/19 12:10	2

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	85.0		0.1	0.1	%			04/24/19 17:58	1
Percent Moisture	15.0		0.1	0.1	%			04/24/19 17:58	1

Client Sample Results

Client: Southern Company
Project/Site: Plant Hammond

Job ID: 240-111457-1

Client Sample ID: AP2-DPT02-25

Date Collected: 10/05/18 14:00
Date Received: 04/24/19 10:15

Lab Sample ID: 240-111457-4

Matrix: Solid
Percent Solids: 79.3

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	18000	H	9.5	2.9	mg/Kg	☼	04/26/19 14:00	04/29/19 12:12	2
Cobalt	11	H	0.19	0.049	mg/Kg	☼	04/26/19 14:00	04/29/19 12:12	2
Iron	21000	H	19	7.6	mg/Kg	☼	04/26/19 14:00	04/29/19 12:12	2
Manganese	1300	H	4.7	1.9	mg/Kg	☼	04/26/19 14:00	04/30/19 12:13	10

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	79.3		0.1	0.1	%			04/24/19 17:58	1
Percent Moisture	20.7		0.1	0.1	%			04/24/19 17:58	1

Client Sample Results

Client: Southern Company
Project/Site: Plant Hammond

Job ID: 240-111457-1

Client Sample ID: AP2-DPT03-11

Date Collected: 10/31/18 11:55
Date Received: 04/24/19 10:15

Lab Sample ID: 240-111457-5

Matrix: Solid
Percent Solids: 87.8

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	6700		10	3.0	mg/Kg	☼	04/26/19 14:00	04/29/19 12:15	2
Cobalt	1.8		0.20	0.052	mg/Kg	☼	04/26/19 14:00	04/29/19 12:15	2
Iron	4200		20	8.1	mg/Kg	☼	04/26/19 14:00	04/29/19 12:15	2
Manganese	6.9		1.0	0.41	mg/Kg	☼	04/26/19 14:00	04/29/19 12:15	2

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87.8		0.1	0.1	%			04/24/19 17:58	1
Percent Moisture	12.2		0.1	0.1	%			04/24/19 17:58	1

Client: Southern Company
Project/Site: Plant Hammond

Job ID: 240-111457-1

Client Sample ID: AP2-DPT03-19

Date Collected: 10/31/18 12:30
Date Received: 04/24/19 10:15

Lab Sample ID: 240-111457-6

Matrix: Solid
Percent Solids: 88.2

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	11000		9.9	3.0	mg/Kg	☼	04/26/19 14:00	04/29/19 12:17	2
Cobalt	5.7		0.20	0.052	mg/Kg	☼	04/26/19 14:00	04/29/19 12:17	2
Iron	26000		20	8.0	mg/Kg	☼	04/26/19 14:00	04/29/19 12:17	2
Manganese	51		0.99	0.40	mg/Kg	☼	04/26/19 14:00	04/29/19 12:17	2

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	88.2		0.1	0.1	%			04/24/19 17:58	1
Percent Moisture	11.8		0.1	0.1	%			04/24/19 17:58	1

Client: Southern Company
Project/Site: Plant Hammond

Job ID: 240-111457-1

Client Sample ID: AP2-DPT04-11.5
Date Collected: 10/31/18 08:45
Date Received: 04/24/19 10:15

Lab Sample ID: 240-111457-7
Matrix: Solid
Percent Solids: 86.6

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	3500		8.3	2.5	mg/Kg	☼	04/26/19 14:00	04/29/19 12:19	2
Cobalt	1.2		0.17	0.043	mg/Kg	☼	04/26/19 14:00	04/29/19 12:19	2
Iron	7100		17	6.7	mg/Kg	☼	04/26/19 14:00	04/29/19 12:19	2
Manganese	19		0.83	0.33	mg/Kg	☼	04/26/19 14:00	04/29/19 12:19	2

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	86.6		0.1	0.1	%			04/24/19 17:58	1
Percent Moisture	13.4		0.1	0.1	%			04/24/19 17:58	1

Client: Southern Company
Project/Site: Plant Hammond

Job ID: 240-111457-1

Client Sample ID: AP2-DPT04-20

Date Collected: 10/31/18 09:20
Date Received: 04/24/19 10:15

Lab Sample ID: 240-111457-8

Matrix: Solid
Percent Solids: 69.5

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	17000		13	3.8	mg/Kg	☼	04/26/19 14:00	04/29/19 12:22	2
Cobalt	86		0.25	0.065	mg/Kg	☼	04/26/19 14:00	04/29/19 12:22	2
Iron	90000		130	50	mg/Kg	☼	04/26/19 14:00	04/29/19 18:42	10
Manganese	2600		6.3	2.5	mg/Kg	☼	04/26/19 14:00	04/29/19 18:42	10

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	69.5		0.1	0.1	%			04/24/19 17:58	1
Percent Moisture	30.5		0.1	0.1	%			04/24/19 17:58	1

Client Sample Results

Client: Southern Company
Project/Site: Plant Hammond

Job ID: 240-111457-1

Client Sample ID: AP2-DPT06-3

Date Collected: 10/31/18 14:05
Date Received: 04/24/19 10:15

Lab Sample ID: 240-111457-9

Matrix: Solid
Percent Solids: 85.9

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	18000		11	3.3	mg/Kg	☼	04/26/19 14:00	04/29/19 12:29	2
Cobalt	3.1		0.22	0.057	mg/Kg	☼	04/26/19 14:00	04/29/19 12:29	2
Iron	20000		22	8.8	mg/Kg	☼	04/26/19 14:00	04/29/19 12:29	2
Manganese	61		1.1	0.44	mg/Kg	☼	04/26/19 14:00	04/29/19 12:29	2

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	85.9		0.1	0.1	%			04/24/19 17:58	1
Percent Moisture	14.1		0.1	0.1	%			04/24/19 17:58	1

Client: Southern Company
Project/Site: Plant Hammond

Job ID: 240-111457-1

Client Sample ID: AP2-DPT06-9

Date Collected: 10/31/18 15:30
Date Received: 04/24/19 10:15

Lab Sample ID: 240-111457-10

Matrix: Solid
Percent Solids: 80.3

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	12000		11	3.5	mg/Kg	☼	04/26/19 14:00	04/29/19 12:31	2
Cobalt	8.9		0.23	0.059	mg/Kg	☼	04/26/19 14:00	04/29/19 12:31	2
Iron	22000		23	9.2	mg/Kg	☼	04/26/19 14:00	04/29/19 12:31	2
Manganese	110		1.1	0.46	mg/Kg	☼	04/26/19 14:00	04/29/19 12:31	2

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	80.3		0.1	0.1	%			04/24/19 17:58	1
Percent Moisture	19.7		0.1	0.1	%			04/24/19 17:58	1

Client: Southern Company
Project/Site: Plant Hammond

Job ID: 240-111457-1

Client Sample ID: MW21D-39-49-190422

Lab Sample ID: 240-111457-11

Date Collected: 04/22/19 09:15

Matrix: Solid

Date Received: 04/24/19 10:15

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	7700		8.3	2.5	mg/Kg		04/26/19 14:00	04/29/19 12:34	2
Cobalt	9.7		0.17	0.043	mg/Kg		04/26/19 14:00	04/29/19 12:34	2
Iron	30000		17	6.6	mg/Kg		04/26/19 14:00	04/29/19 12:34	2
Manganese	510		0.83	0.33	mg/Kg		04/26/19 14:00	04/29/19 12:34	2

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	98.4		0.1	0.1	%			04/29/19 18:01	1
Percent Moisture	1.6		0.1	0.1	%			04/29/19 18:01	1

Method: Part Size Red - Particle Size Reduction Preparation

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
PSR sample generated	DONE				NONE			04/25/19 07:20	1

Client: Southern Company
Project/Site: Plant Hammond

Job ID: 240-111457-1

Client Sample ID: MW23D-50-60-190422

Lab Sample ID: 240-111457-12

Date Collected: 04/22/19 09:25

Matrix: Solid

Date Received: 04/24/19 10:15

Method: 6020B - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	3000		7.5	2.3	mg/Kg		04/26/19 14:00	04/29/19 12:36	2
Cobalt	2.1		0.15	0.039	mg/Kg		04/26/19 14:00	04/29/19 12:36	2
Iron	5400		15	6.0	mg/Kg		04/26/19 14:00	04/29/19 12:36	2
Manganese	720		0.75	0.30	mg/Kg		04/26/19 14:00	04/29/19 12:36	2

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	99.7		0.1	0.1	%			04/29/19 18:01	1
Percent Moisture	0.3		0.1	0.1	%			04/29/19 18:01	1

Method: Part Size Red - Particle Size Reduction Preparation

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
PSR sample generated	DONE				NONE			04/25/19 07:20	1

Client: Southern Company
Project/Site: Plant Hammond

Job ID: 240-111457-1

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 240-378473/1-A ^2
Matrix: Solid
Analysis Batch: 378827

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 378473

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		10	3.0	mg/Kg		04/26/19 14:00	04/29/19 11:47	2
Cobalt	ND		0.20	0.052	mg/Kg		04/26/19 14:00	04/29/19 11:47	2
Iron	ND		20	8.0	mg/Kg		04/26/19 14:00	04/29/19 11:47	2
Manganese	ND		1.0	0.40	mg/Kg		04/26/19 14:00	04/29/19 11:47	2

Method: Moisture - Percent Moisture

Lab Sample ID: 240-111457-9 DU
Matrix: Solid
Analysis Batch: 378115

Client Sample ID: AP2-DPT06-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Solids	85.9			84.5		%				2	20
Percent Moisture	14.1			15.5		%				9	20

QC Association Summary

Client: Southern Company
Project/Site: Plant Hammond

Job ID: 240-111457-1

Metals

Processed Batch: 378172

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-111457-11	MW21D-39-49-190422	Total/NA	Solid	Part Size Red	
240-111457-12	MW23D-50-60-190422	Total/NA	Solid	Part Size Red	

Prep Batch: 378473

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-111457-1	AP2-DPT01-10.5	Total/NA	Solid	3050B	
240-111457-2	AP2-DPT01-30	Total/NA	Solid	3050B	
240-111457-3	AP2-DPT02-7	Total/NA	Solid	3050B	
240-111457-4	AP2-DPT02-25	Total/NA	Solid	3050B	
240-111457-5	AP2-DPT03-11	Total/NA	Solid	3050B	
240-111457-6	AP2-DPT03-19	Total/NA	Solid	3050B	
240-111457-7	AP2-DPT04-11.5	Total/NA	Solid	3050B	
240-111457-8	AP2-DPT04-20	Total/NA	Solid	3050B	
240-111457-9	AP2-DPT06-3	Total/NA	Solid	3050B	
240-111457-10	AP2-DPT06-9	Total/NA	Solid	3050B	
240-111457-11	MW21D-39-49-190422	Total/NA	Solid	3050B	378172
240-111457-12	MW23D-50-60-190422	Total/NA	Solid	3050B	378172
MB 240-378473/1-A ^2	Method Blank	Total/NA	Solid	3050B	
LCS 240-378473/3-A ^2	Lab Control Sample	Total/NA	Solid	3050B	
240-111457-1 MS	AP2-DPT01-10.5	Total/NA	Solid	3050B	
240-111457-1 MSD	AP2-DPT01-10.5	Total/NA	Solid	3050B	

Analysis Batch: 378827

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-111457-1	AP2-DPT01-10.5	Total/NA	Solid	6020B	378473
240-111457-2	AP2-DPT01-30	Total/NA	Solid	6020B	378473
240-111457-3	AP2-DPT02-7	Total/NA	Solid	6020B	378473
240-111457-4	AP2-DPT02-25	Total/NA	Solid	6020B	378473
240-111457-5	AP2-DPT03-11	Total/NA	Solid	6020B	378473
240-111457-6	AP2-DPT03-19	Total/NA	Solid	6020B	378473
240-111457-7	AP2-DPT04-11.5	Total/NA	Solid	6020B	378473
240-111457-8	AP2-DPT04-20	Total/NA	Solid	6020B	378473
240-111457-8	AP2-DPT04-20	Total/NA	Solid	6020B	378473
240-111457-9	AP2-DPT06-3	Total/NA	Solid	6020B	378473
240-111457-10	AP2-DPT06-9	Total/NA	Solid	6020B	378473
240-111457-11	MW21D-39-49-190422	Total/NA	Solid	6020B	378473
240-111457-12	MW23D-50-60-190422	Total/NA	Solid	6020B	378473
MB 240-378473/1-A ^2	Method Blank	Total/NA	Solid	6020B	378473
LCS 240-378473/3-A ^2	Lab Control Sample	Total/NA	Solid	6020B	378473
240-111457-1 MS	AP2-DPT01-10.5	Total/NA	Solid	6020B	378473
240-111457-1 MSD	AP2-DPT01-10.5	Total/NA	Solid	6020B	378473

Analysis Batch: 379049

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-111457-4	AP2-DPT02-25	Total/NA	Solid	6020B	378473

General Chemistry

Analysis Batch: 378115

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-111457-1	AP2-DPT01-10.5	Total/NA	Solid	Moisture	

General Chemistry (Continued)

Analysis Batch: 378115 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-111457-2	AP2-DPT01-30	Total/NA	Solid	Moisture	
240-111457-3	AP2-DPT02-7	Total/NA	Solid	Moisture	
240-111457-4	AP2-DPT02-25	Total/NA	Solid	Moisture	
240-111457-5	AP2-DPT03-11	Total/NA	Solid	Moisture	
240-111457-6	AP2-DPT03-19	Total/NA	Solid	Moisture	
240-111457-7	AP2-DPT04-11.5	Total/NA	Solid	Moisture	
240-111457-8	AP2-DPT04-20	Total/NA	Solid	Moisture	
240-111457-9	AP2-DPT06-3	Total/NA	Solid	Moisture	
240-111457-10	AP2-DPT06-9	Total/NA	Solid	Moisture	
240-111457-9 DU	AP2-DPT06-3	Total/NA	Solid	Moisture	

Analysis Batch: 378765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-111457-11	MW21D-39-49-190422	Total/NA	Solid	Moisture	
240-111457-12	MW23D-50-60-190422	Total/NA	Solid	Moisture	

Organic Prep

Analysis Batch: 378174

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-111457-11	MW21D-39-49-190422	Total/NA	Solid	Part Size Red	
240-111457-12	MW23D-50-60-190422	Total/NA	Solid	Part Size Red	

Client Sample ID: AP2-DPT01-10.5 — **Lab Sample ID: 240-111457-1**
Date Collected: 10/30/18 13:05 — **Matrix: Solid**
Date Received: 04/24/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	378115	04/24/19 17:58	ACR	TAL CAN

Client Sample ID: AP2-DPT01-10.5 — **Lab Sample ID: 240-111457-1**
Date Collected: 10/30/18 13:05 — **Matrix: Solid**
Date Received: 04/24/19 10:15 — **Percent Solids: 80.8**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			378473	04/26/19 14:00	DEE	TAL CAN
Total/NA	Analysis	6020B		2	378827	04/29/19 11:51	DSH	TAL CAN

Client Sample ID: AP2-DPT01-30 — **Lab Sample ID: 240-111457-2**
Date Collected: 10/30/18 14:15 — **Matrix: Solid**
Date Received: 04/24/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	378115	04/24/19 17:58	ACR	TAL CAN

Client Sample ID: AP2-DPT01-30 — **Lab Sample ID: 240-111457-2**
Date Collected: 10/30/18 14:15 — **Matrix: Solid**
Date Received: 04/24/19 10:15 — **Percent Solids: 82.0**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			378473	04/26/19 14:00	DEE	TAL CAN
Total/NA	Analysis	6020B		2	378827	04/29/19 12:08	DSH	TAL CAN

Client Sample ID: AP2-DPT02-7 — **Lab Sample ID: 240-111457-3**
Date Collected: 10/05/18 13:30 — **Matrix: Solid**
Date Received: 04/24/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	378115	04/24/19 17:58	ACR	TAL CAN

Client Sample ID: AP2-DPT02-7 — **Lab Sample ID: 240-111457-3**
Date Collected: 10/05/18 13:30 — **Matrix: Solid**
Date Received: 04/24/19 10:15 — **Percent Solids: 85.0**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			378473	04/26/19 14:00	DEE	TAL CAN
Total/NA	Analysis	6020B		2	378827	04/29/19 12:10	DSH	TAL CAN

Client Sample ID: AP2-DPT02-25 — **Lab Sample ID: 240-111457-4**
Date Collected: 10/05/18 14:00 — **Matrix: Solid**
Date Received: 04/24/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	378115	04/24/19 17:58	ACR	TAL CAN

Lab Chronicle

Client: Southern Company
Project/Site: Plant Hammond

Job ID: 240-111457-1

Client Sample ID: AP2-DPT02-25
Date Collected: 10/05/18 14:00
Date Received: 04/24/19 10:15

Lab Sample ID: 240-111457-4
Matrix: Solid
Percent Solids: 79.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			378473	04/26/19 14:00	DEE	TAL CAN
Total/NA	Analysis	6020B		2	378827	04/29/19 12:12	DSH	TAL CAN
Total/NA	Prep	3050B			378473	04/26/19 14:00	DEE	TAL CAN
Total/NA	Analysis	6020B		10	379049	04/30/19 12:13	DSH	TAL CAN

Client Sample ID: AP2-DPT03-11
Date Collected: 10/31/18 11:55
Date Received: 04/24/19 10:15

Lab Sample ID: 240-111457-5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	378115	04/24/19 17:58	ACR	TAL CAN

Client Sample ID: AP2-DPT03-11
Date Collected: 10/31/18 11:55
Date Received: 04/24/19 10:15

Lab Sample ID: 240-111457-5
Matrix: Solid
Percent Solids: 87.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			378473	04/26/19 14:00	DEE	TAL CAN
Total/NA	Analysis	6020B		2	378827	04/29/19 12:15	DSH	TAL CAN

Client Sample ID: AP2-DPT03-19
Date Collected: 10/31/18 12:30
Date Received: 04/24/19 10:15

Lab Sample ID: 240-111457-6
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	378115	04/24/19 17:58	ACR	TAL CAN

Client Sample ID: AP2-DPT03-19
Date Collected: 10/31/18 12:30
Date Received: 04/24/19 10:15

Lab Sample ID: 240-111457-6
Matrix: Solid
Percent Solids: 88.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			378473	04/26/19 14:00	DEE	TAL CAN
Total/NA	Analysis	6020B		2	378827	04/29/19 12:17	DSH	TAL CAN

Client Sample ID: AP2-DPT04-11.5
Date Collected: 10/31/18 08:45
Date Received: 04/24/19 10:15

Lab Sample ID: 240-111457-7
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	378115	04/24/19 17:58	ACR	TAL CAN

Lab Chronicle

Client: Southern Company
Project/Site: Plant Hammond

Job ID: 240-111457-1

Client Sample ID: AP2-DPT04-11.5
Lab Sample ID: 240-111457-7
Date Collected: 10/31/18 08:45
Matrix: Solid
Date Received: 04/24/19 10:15
Percent Solids: 86.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			378473	04/26/19 14:00	DEE	TAL CAN
Total/NA	Analysis	6020B		2	378827	04/29/19 12:19	DSH	TAL CAN

Client Sample ID: AP2-DPT04-20
Lab Sample ID: 240-111457-8
Date Collected: 10/31/18 09:20
Matrix: Solid
Date Received: 04/24/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	378115	04/24/19 17:58	ACR	TAL CAN

Client Sample ID: AP2-DPT04-20
Lab Sample ID: 240-111457-8
Date Collected: 10/31/18 09:20
Matrix: Solid
Date Received: 04/24/19 10:15
Percent Solids: 69.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			378473	04/26/19 14:00	DEE	TAL CAN
Total/NA	Analysis	6020B		2	378827	04/29/19 12:22	DSH	TAL CAN
Total/NA	Prep	3050B			378473	04/26/19 14:00	DEE	TAL CAN
Total/NA	Analysis	6020B		10	378827	04/29/19 18:42	DSH	TAL CAN

Client Sample ID: AP2-DPT06-3
Lab Sample ID: 240-111457-9
Date Collected: 10/31/18 14:05
Matrix: Solid
Date Received: 04/24/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	378115	04/24/19 17:58	ACR	TAL CAN

Client Sample ID: AP2-DPT06-3
Lab Sample ID: 240-111457-9
Date Collected: 10/31/18 14:05
Matrix: Solid
Date Received: 04/24/19 10:15
Percent Solids: 85.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			378473	04/26/19 14:00	DEE	TAL CAN
Total/NA	Analysis	6020B		2	378827	04/29/19 12:29	DSH	TAL CAN

Client Sample ID: AP2-DPT06-9
Lab Sample ID: 240-111457-10
Date Collected: 10/31/18 15:30
Matrix: Solid
Date Received: 04/24/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	378115	04/24/19 17:58	ACR	TAL CAN

Lab Chronicle

Client: Southern Company
Project/Site: Plant Hammond

Job ID: 240-111457-1

Client Sample ID: AP2-DPT06-9

Lab Sample ID: 240-111457-10

Date Collected: 10/31/18 15:30
Matrix: Solid
Date Received: 04/24/19 10:15
Percent Solids: 80.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			378473	04/26/19 14:00	DEE	TAL CAN
Total/NA	Analysis	6020B		2	378827	04/29/19 12:31	DSH	TAL CAN

Client Sample ID: MW21D-39-49-190422

Lab Sample ID: 240-111457-11

Date Collected: 04/22/19 09:15
Matrix: Solid
Date Received: 04/24/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Processed	Part Size Red			378172	04/25/19 07:15	RB1	TAL CAN
Total/NA	Prep	3050B			378473	04/26/19 14:00	DEE	TAL CAN
Total/NA	Analysis	6020B		2	378827	04/29/19 12:34	DSH	TAL CAN
Total/NA	Analysis	Moisture		1	378765	04/29/19 18:01	JMB	TAL CAN
Total/NA	Analysis	Part Size Red		1	378174	04/25/19 07:20	RB1	TAL CAN

Client Sample ID: MW23D-50-60-190422

Lab Sample ID: 240-111457-12

Date Collected: 04/22/19 09:25
Matrix: Solid
Date Received: 04/24/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Processed	Part Size Red			378172	04/25/19 07:15	RB1	TAL CAN
Total/NA	Prep	3050B			378473	04/26/19 14:00	DEE	TAL CAN
Total/NA	Analysis	6020B		2	378827	04/29/19 12:36	DSH	TAL CAN
Total/NA	Analysis	Moisture		1	378765	04/29/19 18:01	JMB	TAL CAN
Total/NA	Analysis	Part Size Red		1	378174	04/25/19 07:20	RB1	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: Southern Company
Project/Site: Plant Hammond

Job ID: 240-111457-1

Laboratory: Eurofins TestAmerica, Canton

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19
Illinois	NELAP	5	200004	07-31-19
Kansas	NELAP	7	E-10336	04-30-19 *
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19
New York	NELAP	2	10975	03-31-20
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

Laboratory: Eurofins TestAmerica, Pittsburgh

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

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

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

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720-6900
Main Phone: 330-497-9396

Chain of Custody Record

1.4 | CL, 2

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Will Burke	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-50076-10525.1
Client Contact: Mr. Whitney Law	Phone: 678-237-7434	E-Mail: veronica.bortot@testamericainc.com		Page: Page 1 of 1
Company: Geosyntec Consultants, Inc.				Job #: GW6581B/06
Address: 1255 Roberts Blvd, NW Suite 200	Due Date Requested: NLT 5/7/19			
City: Kennesaw	TAT Requested (days): 10			
State, Zip: GA, 30144				
Phone: 678-202-9573(Tel)	PO #: Purchase Order Requested			
Email: wlaw@geosyntec.com	WO #:			
Project Name: GW6581B	Project #: 18020126			
Site: Plant Hammond	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Particle Size Reduction	6020 Co, Fe, Mn, Al	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N		
AP2-DPT01-10.5	10/30/18	1305	C	S	N	N		Y		APPLICABLE TO ALL SAMPLES ON COC perform particle size reduction as needed to ensure homogeneous sample is analyzed.
AP2-DPT01-30	10/30/18	1415	C	S	N	N		Y		
AP2-DPT02-7	10/5/18	1330	C	S	N	N		Y		
AP2-DPT02-25	10/5/18	1400	C	S	N	N		Y		
AP2-DPT03-11	10/31/18	1155	C	S	N	N		Y		
AP2-DPT03-19	10/31/18	1230	C	S	N	N		Y		
AP2-DPT04-11.5	10/31/19	0845	C	S	N	N		Y		
AP2-DPT04-20	10/31/19	0920	C	S	N	N		Y		
AP2-DPT06-3	10/31/19	1405	C	S	N	N		Y		
AP2-DPT06-9	10/31/19	1530	C	S	N	N		Y		
MW21D-39-49-190422	4/22/19	0915	C	S	N	N	Y	Y		
MW23D-50-60-190422	4/22/19	0925	C	S	N	N	Y	Y		

4/23/19

4/23/19

240-111457 Chain of Custody

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

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

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

Special Instructions/QC Requirements: See Special Note above

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

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	W. Whitney Law/Geosyntec	4/23/19 / 10:37	Geosyntec		4-23-19 1037	
2		4-23-19 1453			4-24-19 1015	TAC
3						

Custody Seals Intact: △ Yes △ No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks

Ver: 01/16/2019

TestAmerica Canton Sample Receipt Form/Narrative **Login # : 111457**
Canton Facility

Client Geosyntec Consultants Inc Site Name _____ Cooler unpacked by: MM

Cooler Received on 4-24-19 Opened on 4-24-19

FedEx: 1st Grd (Exp) UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # 7A Foam Box Client Cooler Box Other _____

Packing material used: (Bubble Wrap) Foam (Plastic Bag) None Other _____

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-8 (CF **-0.2** °C) Observed Cooler Temp. 1.4 °C Corrected Cooler Temp. 1.2 °C
   IR GUN #36 (CF **+0.7**°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	(Yes)	No
-Were the seals on the outside of the cooler(s) signed & dated?	(Yes)	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	(No)
-Were tamper/custody seals intact and uncompromised?	(Yes)	No NA
3. Shippers' packing slip attached to the cooler(s)?	(Yes)	No
4. Did custody papers accompany the sample(s)?	(Yes)	No
5. Were the custody papers relinquished & signed in the appropriate place?	(Yes)	No
6. Was/were the person(s) who collected the samples clearly identified on the COC?	(Yes)	No
7. Did all bottles arrive in good condition (Unbroken)?	(Yes)	No
8. Could all bottle labels be reconciled with the COC?	(Yes)	No
9. Were correct bottle(s) used for the test(s) indicated?	(Yes)	No
10. Sufficient quantity received to perform indicated analyses?	(Yes)	No
11. Are these work share samples?	Yes	(No)
If yes, Questions 12-16 have been checked at the originating laboratory.		
12. Were all preserved sample(s) at the correct pH upon receipt?	Yes No	(NA) pH Strip Lot# **HC984738**
13. Were VOAs on the COC?	Yes	(No)
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this.	Yes No	(NA)
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____	Yes	(No)
16. Was a LL Hg or Me Hg trip blank present? _____	Yes	(No)

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by: Martin

All samples sampled in Oct = 2018

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

APPENDIX D

Supplemental Semi-Annual Remedy Selection and Design Progress Report

Prepared for

Georgia Power Company
241 Ralph McGill Blvd NE
Atlanta, Georgia 30308

SUPPLEMENTAL SEMI-ANNUAL REMEDY SELECTION AND DESIGN PROGRESS REPORT

PLANT HAMMOND ASH POND 2 (AP-2)

Prepared by

engineers | scientists | innovators

1255 Roberts Boulevard, Suite 200
Kennesaw, Georgia 30144

Project Number GW6581B

January 2020

SUPPLEMENTAL SEMI-ANNUAL REMEDY SELECTION AND DESIGN PROGRESS REPORT

GEORGIA POWER COMPANY - PLANT HAMMOND

ASH POND 2 (AP-2)

This *Supplemental Semi-Annual Remedy Selection and Design Progress Report, Georgia Power Company - Plant Hammond, Ash Pond 2 (AP-2),* has been prepared in accordance with the United States Environmental Protection Agency coal combustion residual rule, specifically 40 Code of Federal (CFR) § 257.97(a) and the Georgia Environmental Protection Division Rules for Solid Waste Management 391-3-4-.10(6)(a).

Report Prepared by:

Whitney B. Law, P.E.
Georgia Professional Engineer No. 036641

January 30, 2020
Date

Geosyntec consultants

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LIST OF ACRONYMS

ACM	Assessment of Corrective Measures
AP	ash pond
ASD	Alternate Source Demonstration
CCR	coal combustion residuals
CFR	Code of Federal Regulations
CSM	conceptual site model
GA EPD	Georgia Environmental Protection Division
Geosyntec	Geosyntec Consultants, Inc.
GPC	Georgia Power Company
GWPS	Groundwater Protection Standard
MNA	monitored natural attenuation
PRB	permeable reactive barriers
SSI	statistically significant increase
SSL	statistically significant level
US EPA	United States Environmental Protection Agency

1.0 INTRODUCTION

In accordance with the United States Environmental Protection Agency (US EPA) coal combustion residual (CCR) rule (40 Code of Federal Regulations [CFR] 257 Subpart D; published in 80 FR 21302-21501, April 17, 2015) (CCR Rule), Geosyntec Consultants, Inc. (Geosyntec) has prepared this *Supplemental Semi-Annual Remedy Selection and Design Progress Report* (Semi-Annual Remedy Selection Progress Report) for Georgia Power Company (GPC) Plant Hammond Ash Pond 2 (AP-2 or Site). Specifically, this Semi-Annual Progress Report has been prepared pursuant to 40 CFR § 257.97(a) and the Georgia Environmental Protection Division (GA EPD) Rules for Solid Waste Management 391-3-4-.10(6)(a). This Semi-Annual Remedy Selection Progress Report was prepared to document activities conducted in the third and fourth quarters of 2019 (prior semi-annual period) in support of the previously submitted *Assessment of Corrective Measures Report – Plant Hammond Ash Pond 2 (AP-2)* (Geosyntec, 2019b) (ACM Report). As required by the rules, this Semi-Annual Remedy Selection Progress Report describes the progress made in selecting and designing a remedy.

The initial Semi-Annual Progress Report was submitted to GA EPD on December 12, 2019 (Geosyntec, 2019c). This supplemental Semi-Annual Progress Report provides the documents included with the initial Semi-Annual Progress Report supplemented with additional discussion regarding nature and extent delineation, provided in Section 2.1. This supplemental Semi-Annual Progress Report has been included as an appendix to the *2019 Annual Groundwater Monitoring and Corrective Action Report* (Geosyntec, 2020b). GPC will include future semi-annual remedy selection progress reports as an appendix to the routine semi-annual groundwater monitoring and corrective action reports.

On June 12, 2019, Geosyntec completed, on behalf of GPC, the ACM Report to evaluate potential corrective measures to address statistically significant levels (SSLs) of cobalt identified in groundwater at AP-2 (Geosyntec, 2019b). GPC placed the ACM in the Site's operating record and posted to the Site's CCR Rule Compliance website. Pursuant to 40 CFR § 257.97, GPC is evaluating the potential corrective measures presented in the ACM in order to identify an appropriate remedy, or combination of remedies, as soon as feasible.

As discussed in the ACM Report, the following corrective measures are potentially feasible for use at AP-2:

1. Geochemical Manipulation (In-Situ Injection)

2. Hydraulic Containment (Pump and Treat)
3. Monitored Natural Attenuation (MNA)
4. Permeable Reactive Barrier (PRB)
5. Subsurface Vertical Barrier Walls

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**).

Plant Hammond is a four-unit, coal-fired electric generating facility. All four units at Plant Hammond were retired on July 29, 2019 and no longer produces electricity.

AP-2 is a 21-acre surface impoundment located at Plant Hammond. AP-2 was used as a dewatering facility for fly ash and bottom ash. To support operations, dewatered ash is excavated and transported to the nearby Huffaker Road facility, a permitted solid waste disposal location owned and operated by GPC. GPC will close AP-2 through removal of the CCR material from the CCR unit; closure activities will be conducted in accordance with 40 CFR § 257.102 and corresponding Rule 391-3-4-.10(7)(b). The proposed closure by removal approach provides a source control measure that reduces the potential for migration of CCR constituents to groundwater. Details of the closure approach are provided in the Initial Written Closure Plan, published in 2016 to GPC's CCR Rule Compliance website.

2.0 SUMMARY OF WORK COMPLETED

2.1 Nature and Extent Delineation

CCR compliance groundwater monitoring-related activities have been performed for AP-2 since May 2016 pursuant to detection monitoring and assessment monitoring programs required by 40 CFR § 257.94 and 40 CFR § 257.95, respectively. GPC initiated the assessment monitoring program in January 2018 after identifying statistically significant increases (SSIs) of Appendix III parameter groundwater concentrations over background concentrations. Pursuant to 40 CFR § 257.95, samples were collected from the compliance monitoring well network, depicted on **Figure 2**, during 2018 and analyzed for Appendix IV parameters. SSLs of cobalt were identified within the 2018 data for the following wells:

- Cobalt: HGWC-15 and HGWC-18

The cobalt concentrations reported for wells HGWC-15 and HGWC-18 in 2018 exceeded site-specific groundwater protection standards (GWPS) derived from cobalt concentrations reported for background wells located upgradient of AP-2. The cobalt GWPS of 0.029 mg/L was statistically calculated pursuant to US EPA rule 40 CFR § 257.95(h) and GA EPD CCR Rule 391-3-4-.10(6)(a). For each monitoring event, statistical tests are conducted that assess and incorporate changes in background cobalt concentrations into the GWPS derivation. Details of these sampling events and statistical analyses are provided in the following report published to GPC's website and submitted to GA EPD in 2019: *2018 Annual Groundwater Monitoring and Corrective Action Report – Plant Hammond Ash Ponds 1 and 2* (Geosyntec, 2019a).

Pursuant to 40 CFR § 257.96, groundwater in the vicinity of AP-2 continues to be monitored during the remedy selection phase in accordance with the established assessment monitoring program. As part of the assessment program, 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 SSLs of cobalt from the two target wells previously listed. Well MW-22 was installed for horizontal delineation and wells MW-21D and MW-23D were installed for vertical delineation. The locations of these wells are shown on **Figure 2**. Supporting details and documents (e.g., boring logs, well construction table) are provided in the ACM Report.

Based on the Appendix IV groundwater data generated from the second semi-annual assessment monitoring event conducted September 2019, the background cobalt concentrations increased which resulted in a recalculation of the GWPS; the site-specific cobalt GWPS is 0.038 mg/L for the September 2019 data set. Also, the cobalt concentration in well HGWC-15 decreased relative to the results from previous assessment monitoring events. When these two factors are accounted for statistically, a SSL of cobalt in HGWC-15 is not reported. The September 2019 cobalt results for horizontal and vertical delineation wells MW-22 and MW-23D down gradient of HGW-15 are also below the site-specific GWPS, indicating groundwater cobalt concentrations in excess of the GWPS are contained within the property boundary in this area of AP-2. The September 2019 data are currently being finalized and will be published in the *2019 Annual Groundwater Monitoring and Corrective Action Report* (pending submission to GA EPD on January 31, 2020).

The September 2019 data indicates a continued SSL of cobalt in well HGWC-18. However, based on review of available AP-2-related groundwater and aquifer solids data, the cobalt SSL reported for well HGWC-18 is not associated with a release from AP-2 but is instead associated with natural variation in the groundwater quality due to mobilization of naturally occurring cobalt present in the Floyd shale of the undifferentiated Mississippian/Devonian geologic unit underlying the northern portion of AP-2 as a consequence of naturally lower groundwater pH at this well. An Alternate Source Demonstration (ASD) was prepared pursuant to regulations in 40 CFR 257.95(g)(3)(ii), which allows the owner or operator to "demonstrate that a source other than the CCR unit caused the contamination, or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality." The ASD also serves as an ASD under the GA EPD CCR Rule 391-3-4-.10(6), which incorporates 40 CFR 257.95(g)(3)(ii) by reference. The ASD was submitted to GA EPD on January 15, 2020 (Geosyntec, 2020). The ASD is provided in the *2019 Annual Groundwater Monitoring and Corrective Action Report* (Geosyntec, 2020) for reference.

2.2 Summary of Corrective Measures

The closure of AP-2 by removal of the CCR material is a source control measure that reduces the potential for migration of CCR constituents to groundwater. The corrective measures proposed in the ACM are being evaluated to address SSLs in groundwater at and downgradient of the compliance boundary. Each individual corrective measure is evaluated relative to criteria specified in 40 CFR § 257.96(c) and 40 CFR § 257.97(b). A

comparative screening of the corrective measures is provided in **Table 1**; the following provides a brief description of each corrective measure being screened.

- **Geochemical Approaches (In-Situ Injection):** *Use of an injection well network, or other means of introducing reagents or air into the subsurface, to provide suitable reagents for either anaerobic or aerobic attenuation of cobalt.*

- **Hydraulic Containment (Pump and Treat):** T*he use of groundwater extraction system(s) to induce a hydraulic gradient for hydraulic capture or control the migration of impacted groundwater. Extracted water may require subsequent above-ground treatment before permitted discharge or reuse.*

- **Monitored Natural Attenuation (MNA):** *MNA relies on natural attenuation processes to achieve site-specific remediation objectives within a reasonable time frame relative to more active methods.*

- **Permeable Reactive Barrier (PRB):** *PRB technology typically involves the installation of a permeable subsurface wall constructed with reactive media for the removal of constituents as groundwater passes through.*

- **Subsurface Vertical Barrier Walls:** *This approach involves placing a barrier to groundwater flow in the subsurface, frequently around a source area, to prevent future migration of dissolved constituents in groundwater from beneath the source to downgradient areas. Groundwater extraction from upgradient of the barrier is required to avoid groundwater mounding behind the barrier.*

2.3 Field Investigation and Data Collection

Additional data, data analysis, and site-specific evaluation are necessary to refine the conceptual site model (CSM) and to further evaluate the feasibility of each proposed corrective measure. This investigation may occur in different phases as the understanding of site conditions expands. When feasible, data needed to refine the CSM will be collected concurrent with the routine assessment monitoring events. However, supplementary field investigations may be required to complete the data gathering efforts during the remedy selection phase.

Table 2 presents a summary of data collection activities completed during the second 2019 semi-annual reporting period. The applicability and rationale for specific actions and/or analysis of specific parameters are also provided on Table 2.

Field efforts completed at AP-2 during the reporting period in support of remedy selection included collecting supplementary groundwater samples to evaluate:

- Attenuation mechanisms and rates and aquifer capacity for attenuation;
- Amount and distribution of select metal hydroxides or electron donors that may affect geochemical mechanisms; and
- Groundwater parameters specific to the existing National Pollutant Discharge Elimination System (NPDES) permitted discharge limits and capabilities of on-site low volume wastewater treatment plant.

The groundwater samples discussed above were collected during the second semi-annual assessment monitoring event conducted in September 2019. During the event, a site-wide round of groundwater level data were recorded from the AP-2 well network depicted on **Figure 2**. The groundwater level data were used to generate the potentiometric surface map provided on **Figure 3**.

The ACM related analytical results from the September 2019 event are summarized in **Tables 3a** and **3b**. The tables present parameters needed to evaluate in-situ conditions that may affect the performance and feasibility of the corrective measures. As previously mentioned, the Appendix III and IV groundwater data collected during the September 2019 event are not presented herein, but instead are provided in the *2019 Annual Groundwater Monitoring and Corrective Action Report* (Geosyntec, 2020).

The laboratory reports associated with the data presented on Tables 3a and 3b are included in **Appendix A**.

3.0 PLANNED ACTIVITIES & ANTICIPATED SCHEDULE

During the pond closure, temporary changes in site conditions may occur that must be considered as part of remedy selection. GPC proactively initiated adaptive site management, as outlined in the ACM Report (Geosyntec, 2019b), to support the remedial strategy and address potential changes in site conditions as appropriate. The adaptive site management approach may be adjusted over the site's life cycle as new site information and technologies become available. To this end, GPC will continue its data collection efforts as necessary in support of efforts to refine the CSM and to further evaluate the feasibility of each corrective measure proposed in the ACM Report. At this time, all corrective measures outlined in Table 1 are being retained. Once sufficient data are available to make technically-sound decisions regarding the ability to implement one or more specific corrective measures, necessary steps will be taken to design and implement a remedy for AP-2 in accordance with 40 CFR § 257.98.

Supplementary data collection and evaluation activities proposed to be completed during the next semi-annual reporting period are presented on **Table 4**. GPC will continue to prepare semi-annual progress reports to document AP-2 groundwater conditions, results associated with additional data gathering, and the progress in selecting and designing the remedy in accordance with 40 CFR § 257.97(a). GPC will include future semi-annual ACM progress reports in routine groundwater monitoring and corrective action reports. Record keeping, notifications, and publicly accessible internet site requirements for the semi-annual ACM progress reports will be provided in accordance with 40 CFR § 257.105(h)(12), 257.106(h)(9), and 257.107(h)(9), respectively.

4.0 REFERENCES

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

Geosyntec Consultants, 2019b. *Assessment of Corrective Measures Report – Plant Hammond Ash Pond 2 (AP-2)*. June 2019.

Geosyntec Consultants. 2020. *2019 Annual Groundwater Monitoring and Corrective Action Report - Plant Bowen Ash Pond 1 (AP-1).* January 2020.

U.S. Environmental Protection Agency. 2015a. Federal Register. Volume 80. No. 74. Friday April 17, 2015. Part II. Environmental Protection Agency. 40 CFR Parts 257 and 261. Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule. [EPA-HQ-RCRA–2009–0640; FRL–9919–44–OSWER]. RIN–2050–AE81, April 2015.

TABLES

Table 1
Evaluation of Remedial Technologies
Plant Hammond AP-2, Floyd County, Georgia

	Regulatory Citation for Criteria:	40 CFR 257.96(C)(1)	
Corrective Measure	**Description**	**Performance**	**Reliability**
Geochemical Approaches (In-Situ Injection)	Use of an injection well network, or other means of introducing reagents or air into the subsurface, to provide suitable reagents for either anaerobic or aerobic attenuation of Co. Under anaerobic conditions, Co would be attenuated within sparingly soluble sulfide minerals. Under aerobic conditions, soluble iron or manganese and oxygen (either via air sparging or through a chemical oxidant) would be injected to promote the formation of iron or manganese (oxy-) hydroxides for subsequent sorption of Co onto these mineral phases. If sufficient iron is present in groundwater, the use of air sparging alone may be considered to precipitate iron (oxy-) hydroxides for sorption. In-situ chemical oxidation (ISCO) or in-situ chemical reduction (ISCR) can be used to chemically alter the redox environment in the subsurface to affect the mobility of certain inorganic compounds, including Co. However, the main attenuation mechanism for Co is sorption, which is more dependent on pH than redox.	The effective immobilization of Co has been shown under aerobic and anaerobic conditions; however, the anaerobic approach (involving the injection of an electron donor together with iron or manganese and sulfur) requires careful study and testing. While aerobic approaches are somewhat less complex, additional aquifer characterization is needed to further evaluate these options.	Reliability dependent on permeability of the subsurface and the amount and distribution of secondary iron or manganese (oxy-) hydroxides (for aerobic approach), or electron donors and soluble iron or manganese and sulfur that can be consistently distributed (for anaerobic approach). Reliable technology if injected materials can be distributed throughout the impacted aquifer. Bench- and/or pilot-scale treatability testing programs are needed to understand the biogeochemical processes that would effectively reduce migration of Co in groundwater.
Hydraulic Containment ("Pump and Treat")	Hydraulic containment refers to the use of groundwater extraction to induce a hydraulic gradient for hydraulic capture or control the migration of impacted groundwater. This approach uses extraction wells or trenches to capture groundwater, which may subsequently require above-ground treatment and permitted discharge to a receiving water feature, reinjection into the groundwater, or reuse (e.g., land application, CCR conditioning, etc.). It is applicable to a variable mix of inorganic constituents, including dissolved Co.	Pump and treat (P&T) is effective at providing hydraulic control, but it is unclear whether full groundwater remediation can be achieved without further understanding attenuation mechanisms at the Site. At AP-2, implementation of the corrective measure is contingent on completing additional assessment activities (i.e. high-resolution site characterization, additional pump tests, flow modeling, and capture zone analysis). This is needed to refine the constituent distribution in the subsurface to target specific zones for pumping for improved mass recovery efficiency/ effectiveness and to further evaluate the potential remedy performance.	Generally reliable for hydraulic containment, but uncertainty exists whether groundwater remediation goals can be achieved within a reasonable time frame without further understanding attenuation mechanisms.
Monitored Natural Attenuation (MNA)	MNA relies on natural attenuation processes to achieve site-specific remediation objectives within a reasonable time frame relative to more active methods. Under certain conditions (e.g., through sorption, mineral precipitation or oxidation-reduction reactions), MNA effectively reduces the dissolved concentrations of inorganic constituents in groundwater. Attenuation mechanisms for inorganic constituents at CCR sites, including cobalt (Co) at AP-2, are either physical (e.g. dilution, dispersion, flushing, and related processes) or chemical (sorption or oxidation reduction reactions. Chemical attenuation processes include precipitation and sorption reactions such as adsorption on the surfaces of soil minerals, absorption into the matrix of soil minerals, or partitioning into organic matter. Further, oxidation-reduction (redox) reactions, via abiotic or biotic processes, can transform the valence states of some inorganic constituents to less soluble and thus less mobile forms. For Co, the main attenuation processes include sorption to iron and manganese oxides and formation of sparingly soluble sulfide minerals.	Physical and chemical MNA mechanisms for Co, including dilution, dispersion, sorption, and oxidation reduction reactions, can be effective at achieving groundwater protection standards (GWPS) within a reasonable time frame. Attenuation processes for Co are already occurring at the site as evidenced by data from the delineation wells. Source control will improve the mass balance such that the buffer capacity of the aquifer is unlikely to be exhausted, and the attenuation processes already at work for Co at AP-2 will further enhance ongoing MNA.	Reliable as long as the aquifer conditions that result in Co attenuation remain favorable and/or are being enhanced and sufficient attenuation capacity is present. MNA is reliable and can either be used as a stand-alone corrective measure for groundwater impacted by dissolved Co, or in combination with a second technology.
Permeable Reactive Barrier	Permeable reactive barrier (PRB) technology typically involves the installation of a permeable subsurface wall constructed with reactive media for the removal of constituents as groundwater passes through. Either ZVI-Carbon matrix or solid carbon (bio-barrier) are currently proposed for the concurrent removal of Co. The carbon could be composed of peat moss, mulch or another carbon source. Exact placement of the PRB is contingent on finalization of the nature and extent characterization. PRB walls are typically keyed into the bedrock. While the shallow groundwater in the residuum and fractured bedrock is connected to the groundwater in more competent bedrock, the higher permeability/conductivity of the PRB is not expected to impede groundwater flow. PRBs can also be constructed as “funnel and gate” systems, where a barrier wall directs groundwater to a smaller “treatment gate” filled with reactive media.	PRBs have been shown to effectively address Co in groundwater if the right mix of reactive materials (e.g., ZVI and carbon) is selected for removal/immobilization of the constituent. The approach is expected to achieve GWPS for Co as impacted groundwater passes through the reactive barrier. Additional testing is required to select the appropriate sorptive media mix.	Reliable groundwater corrective measure, but loss of reactivity over time may require re-installation depending on the duration of the remedy. Additional data collection, including conducting a bench and/or pilot study, is needed to better characterize current attenuation mechanisms and/or select the appropriate reactive media mix for a PRB wall.
Subsurface Vertical Barrier Walls	This approach involves placing a barrier to groundwater flow in the subsurface, frequently around a source area, to prevent future migration of dissolved constituents in groundwater from beneath the source to downgradient areas. In general, barrier walls are designed to provide containment; localized treatment achieved through the sorption or chemical precipitation reactions from construction of the walls are incidental to the design objective. Barrier walls can also be used in downgradient applications; to limit discharge to a surface water feature or to reduce aquifer recharge from an adjacent surface water feature when groundwater extraction wells are placed near one. A variety of barrier materials can be used, including cement and/or bentonite slurries, geomembrane composite materials, or driven materials such as steel or vinyl sheet pile. Groundwater extraction from upgradient of the barrier is required to avoid groundwater mounding behind the barrier.	Barrier walls are a proven technology for seepage control and/or groundwater cutoff at impoundments. Slurry walls are limited by the depth of installation, which is approximately 90 ft bgs. However, site-specific geologic and technology-specific considerations may limit this depth to shallower installations. Within the context of AP-2, a barrier wall might be used in conjunction with a “funnel and gate” system for a PRB rather than a stand-alone technology. As such, groundwater with Co above GWPS could either be directed to “treatment gates” for passive treatment (in a PRB) or migration of impacted groundwater could be minimized via barrier wall installation. Additional subsurface investigations, aquifer testing, and compatibility testing with site-specific groundwater will be needed.	Generally reliable as a barrier to groundwater flow; however, treatment of downgradient groundwater is incidental and not the primary objective.

Table 1
Evaluation of Remedial Technologies
Plant Hammond AP-2, Floyd County, Georgia

	40 CFR 257.96(C)(1)	40 CFR 257.96(C)(1)	40 CFR 257.96(C)(2)
Corrective Measure	**Ease of Implementation**	**Potential Impacts**	**Time Requirement to Begin/Complete**
Geochemical Approaches (In-Situ Injection)	Moderate. Installation of injection well network or other injection infrastructure would be required. Alternative installation approaches may be considered, such as along the downgradient edge of impacted groundwater, which would function similar to a PRB application. Potential for clogging of aquifer matrix and/or injection well infrastructure. Chemical distribution during injections (i.e., radius of influence) needs to be evaluated.	Minimal impacts are expected if remedy works as designed, based on a thorough pre-design investigation, geochemical modeling, and bench/pilot study results. Redox-altering processes have the potential to mobilize naturally-occurring constituents as an unintended consequence if not properly studied and implemented.	Installation of the injection network can be accomplished relatively quickly (1 to 2 months). However, a thorough pre-design investigation, geochemical modeling, and/or bench- and/or pilot-testing will be required to obtain design parameters prior to design and construction of the corrective measure, which may take up to 24 months. Once installed, the time required to achieve GWPS within the treatment area may be relatively quick but depends on the attenuation process kinetics of each targeted constituent. The time for complete distribution of the injected materials throughout the treatment area is also variable.
Hydraulic Containment ("Pump and Treat")	Moderate. Proven approach, and supplemental installation of extraction wells/trenches is fairly straightforward. The extracted groundwater may potentially require an above-ground treatment system. A variety of sorption and precipitation approaches exist for ex-situ treatment of Co. Operation and maintenance (O&M) requirements are expected to include upkeep of infrastructure components (pumps, pipes, tanks, instrumentation and controls, above-ground treatment system) and handling of treatment residuals.	Moderate. The main potential impacts are related to the presence and operation of an on-site above-ground water treatment facility and related infrastructure to convey and treat extracted groundwater. Pumping activity may unintentionally alter the geochemistry within the hydraulic capture zone.	Installation of extraction wells and/or trenches can be accomplished relatively quickly (1 to 2 months). However, additional aquifer testing, system design and installation, and permit approval may be required, which may take up to 24 months. The initiation of the approach would be contingent on the start-up of the wastewater treatment infrastructure. Hydraulic containment can be achieved relatively quickly after startup of the extraction system, but uncertainty exists with respect to the time to achieve GWPS without additional data collection to better understand attenuation mechanisms for Co.
Monitored Natural Attenuation (MNA)	Reasonably implementable with respect to infrastructure, but moderate to complex with respect to documentation. Proven approach, but additional data are needed to show that the existing attenuation capacity is sufficient to meet site objectives within a reasonable timeframe. A monitoring well network already exists to implement future groundwater monitoring efforts.	None. MNA relies on the natural processes active in the aquifer matrix to reduce constituent concentrations without disturbing the surface or the subsurface.	The infrastructure to initiate MNA is already in place. Demonstrating attenuation mechanisms and capacity can be time-consuming and can take up to 24 months. MNA is expected to be successful within a reasonable time frame following pond closure. Engineering measures will be implemented during closure of AP-2 to minimize potential impacts to the subsurface during closure activities and routine groundwater monitoring will be used to verify that groundwater impacts remain stable or decrease over time.
Permeable Reactive Barrier	Moderate to difficult. Trenching would be required to install a mix of reactive materials in the subsurface. Continuous trenching may be the most feasible construction method. Installation methods and materials are readily available. Once installed, treatment will be passive and O&M requirements are minimal if replacement of the PRB is not necessary.	Minimal impacts are expected following the construction of the remedy. However, ZVI has the potential to create anaerobic conditions downgradient of the PRB wall that may mobilize redox-sensitive naturally-occurring constituents. These conditions need to be carefully monitored. Short-term impacts during the construction of the remedy can be mitigated through appropriate planning and health and safety measures.	Installation of a PRB can be accomplished relatively quickly (6 to 12 months), depending on the final location and configuration. However, bench- and/or pilot-testing would be required to obtain design parameters prior to design and construction of the remedy, which may take up to 24 months. Once installed, the time to achieve GWPS downgradient of the PRB is anticipated to be relatively quick.
Subsurface Vertical Barrier Walls	Moderate to difficult. Trenching will be required to fill in the various slurry mixes; alternatively, sheet pile installations can be accomplished without excavation of trenches. The application of barrier walls is limited by the depth of installation, which similar to PRBs, should be keyed into a low permeability layer such as a thick clay layer or bedrock. Installation methods and materials are readily available. Once installed, above-ground infrastructure to pump and treat groundwater will be required. O&M requirements are expected to include upkeep of infrastructure components (pumps, pipes, tanks, instrumentation and controls, above-ground treatment system) and handling of treatment residuals.	Minimal impacts are expected following the construction of the remedy. Short-term impacts during the construction of the remedy can be mitigated through appropriate planning and health and safety measures. Changes to groundwater flow patterns due to installation of the barrier wall are expected, which can affect other aspects of groundwater corrective action. Pumping activity may unintentionally alter the geochemistry within the hydraulic capture zone that may result in the mobilization of other constituents that may require treatment.	Installation of a barrier wall can be accomplished relatively quickly (6 to 12 months), depending on the final location and configuration. However, some design phase and additional aquifer and compatibility testing will be required, which may take up to 24 months. Once installed, preventing migration of constituents dissolved in groundwater is anticipated to be relatively quick. Since this approach does not treat the downgradient area of impacted groundwater but prevents migration from a source area, it will likely have to be maintained long-term and coupled with other approaches.

Table 1
Evaluation of Remedial Technologies
Plant Hammond AP-2, Floyd County, Georgia

	40 CFR 257.96(C)(3)		
Corrective Measure	**Institutional Requirements**	**Other Env or Public Health Requirements**	**Relative Costs**
Geochemical Approaches (In-Situ Injection)	Deed restrictions may be necessary until in-situ treatment has achieved GWPS. A new UIC permit (for in-situ injections) would be required to implement this corrective measure. No other institutional requirements are expected at this time.	None expected at this point. Based on downgradient sampling results near adjacent water features, there currently are no complete exposure pathways for potential receptors downgradient of AP-2. Potential for mobilization of redox-sensitive constituents exists during implementation of an anerobic attenuation approach. Following installation, the remedy is passive.	Medium (depending on expanse of injection network required and injectate volume required per derived design parameters)
Hydraulic Containment ("Pump and Treat")	Depending on the effluent management strategy, modifications to the existing NPDES permit may be required, or obtaining a new underground injection control (UIC) permit may be needed if groundwater reinjection is chosen. In addition, deed restrictions may be required as long as groundwater conditions are above regulatory standards for unrestricted use.	Based on downgradient sampling results near adjacent water features, there currently are no complete exposure pathways for potential receptors downgradient of AP-2. Above-ground treatment components may need to be present for an extended period of time, generating residuals requiring management and disposal.	Medium to high (depending on remedy duration, complexity of above-ground treatment system, and volume of water processed)
Monitored Natural Attenuation (MNA)	MNA may require the implementation of institutional controls, such as deed restrictions, to preclude potential exposure to groundwater within the footprint of impacted groundwater until GWPS are achieved.	Little to no physical disruption to remediation areas and no adverse construction-related impacts are expected on the surrounding community. Based on downgradient sampling results near adjacent water features, there currently are no complete exposure pathways for potential receptors downgradient of AP-2.	Low to medium
Permeable Reactive Barrier	Deed restrictions may be necessary for groundwater areas upgradient of the PRB (if not installed along the waste boundary). No other institutional requirements are expected at this time.	None expected at this point. Based on downgradient sampling results near adjacent water features, there currently are no complete exposure pathways for potential receptors downgradient of AP-2. Following installation, the remedy is passive. However, certain treatment media (such as ZVI) have the potential to mobilize naturally-occurring constituents downgradient of the PRB.	Medium to high (for installation) - minimal O&M requirements if replacement is not necessary
Subsurface Vertical Barrier Walls	Deed restrictions may be necessary for groundwater areas downgradient of the barrier wall until remedial goals are met. No other institutional requirements are expected at this time.	Based on downgradient sampling results near adjacent water features, there currently are no complete exposure pathways for potential receptors downgradient of AP-2. Due to the need for groundwater extraction associated with barrier walls, above-ground treatment components may need to be present for an extended period of time, generating residuals requiring management and disposal.	Medium to high (depending on length and depth of wall, remedy duration and complexity of above-ground treatment system)

Table 2
Summary of Activity
Plant Hammond AP-2, Floyd County, Georgia

Corrective Measure (CM)	Data Collected/Actions Completed	Applicable Locations Sampled	Applicability & Rationale	Comments/Planned Actions
Geochemical Approaches (In-Situ Injection)	Collected supplementary groundwater samples to evaluate: (i) attenuation mechanisms and rates and aquifer capacity for attenuation; and (ii) amount and distribution of select metal hydroxides or electron donors that may effect geochemical mechanisms	HGWC-14, HGWC-15, HGWC-17, HGWC-18, MW-21D, MW-22	Understand geochemical baseline conditions to evaluate the need for and type of geochemical amendments required to attenuate constituents of interest.	(i) Collect and submit aquifer solid samples for sequential extraction procedure (SEP) for analysis of cobalt (Co) in the aquifer solid matrix; x-ray diffraction (XRD) analysis for mineralogy; total Co, aluminum, iron, manganese, silica concentrations; cation/anion exchange capacity. (ii) Conduct pneumatic slug tests to evaluate aquifer transmissivity, storage coefficient, hydraulic conductivity in support of conducting injections.
Hydraulic Containment	Collected supplementary groundwater samples to evaluate groundwater parameters specific to the existing NPDES permitted discharge limits and capabilities of on-site low volume wastewater treatment plant (LVWTP)	HGWC-15, HGWC-18	Evaluate groundwater concentrations relative to permitted discharge limits for the plant in support of processing/discharging extracted groundwater. Determine if a permit update is required to address potentially new groundwater-specific parameters.	Conduct pneumatic slug tests to evaluate aquifer transmissivity, storage coefficient, hydraulic conductivity in support of designing a groundwater extraction system.
Monitored Natural Attenuation (MNA)	Collected supplementary groundwater samples both upgradient and downgradient of unit to evaluate in situ attenuation mechanisms and rates and aquifer capacity for attenuation	HGWA-1, HGWA-2, HGWA-3, HGWA-4, HGWA-5, HGWA-6, HGWC-14, HGWC-15, HGWC-16, HGWC-17, HGWC-18, MW-21D, MW-22, MW-23D	Evaluate attenuation mechanisms and rates and aquifer capacity for attenuation. Multiple sampling events required to build adequate data set for determining attenuation mechanism trends.	(i) Continue to conduct supplementary groundwater sampling events during pre-closure and closure phase activities to assess plume stability and attenuation mechanisms. (ii) Collect and submit aquifer solid samples for SEP for analysis of Co in the aquifer solid matrix; XRD analysis for mineralogy; total Co, aluminum, iron, manganese, silica concentrations; cation/anion exchange capacity.
Permeable Reactive Barrier (PRB)	Collected supplementary groundwater samples to evaluate attenuation mechanisms and rates and aquifer capacity for attenuation applicable to evaluating reactive media options	HGWC-14, HGWC-15, HGWC-17, HGWC-18, MW-21D, MW-22	Evaluate in situ geochemical conditions and attenuation mechanisms that need to be considered when evaluating reactive media and initial design of a bench-scale treatability study.	(i) Initial identification of possible PRB reactive media based on current dataset, with refinement pending review of subsequent geochemical and aquifer attenuation data. (ii) Conduct pneumatic slug tests to evaluate aquifer transmissivity, storage coefficient, hydraulic conductivity in support of designing a groundwater extraction system.
Subsurface Vertical Barrier Walls	Collected supplementary groundwater samples to evaluate groundwater parameters specific to the existing NPDES permitted discharge limits, since limited pumping (and discharge) of groundwater will be required to maintain an inward hydraulic gradient inside/upgradient of the vertical barrier.	HGWC-15, HGWC-18	Evaluate groundwater concentrations relative to permitted discharge limits for the plant in support of processing/discharging extracted groundwater. Determine if a permit update is required to address potentially new groundwater-specific parameters.	(i) Conduct pneumatic slug tests to evaluate aquifer transmissivity, storage coefficient, hydraulic conductivity in support of developing a groundwater flow model to assess placement of barrier walls, most likely in conjunction with PRBs, and placement of possible groundwater extraction system to maintain designed hydraulic gradients. (ii) Evaluate resources needed to conduct a bench compatibility test of barrier wall material.

Table 3a

Summary of Groundwater Analytical Data - Geochemical Parameter Evaluation

Plant Hammond AP-2, Floyd County, Georgia

Well ID:	HGWA-1	HGWA-2	HGWA-3	HGWA-4	HGWA-5	HGWA-6	HGWC-14
Sample Date:	9/23/2019	9/23/2019	9/23/2019	9/24/2019	9/24/2019	9/24/2019	9/24/2019
Parameter							
Alkalinity, Bicarbonate ($CaCO_3$)	279	29.0	174	109	90.0	158	ND
Alkalinity, Total as $CaCO_3$	279	29.0	174	109	90.0	158	ND
Dissolved Organic Carbon	1.1	2.1	ND	ND (0.85 J)	ND	ND	ND (0.52 J)
Iron	ND (0.022 J)	1.7	0.53	ND (0.021 J)	1.5	0.49	0.84
Magnesium	5.4	2.4	4.8	1.3	5.6	10	53.5
Manganese	0.20	1.1	0.21	0.035	0.077	0.071	5.5
Orthophosphate as P	ND	ND	ND	ND	ND	0.038	ND
Phosphorous	ND	ND	ND (0.026 J)	ND	ND (0.039 J)	ND (0.036 J)	ND
Potassium	0.33	0.88	0.42	ND (0.24 J)	ND (0.65 J)	ND (0.56 J)	12.1
Sodium	20.4	8.7	5.2	8.3	6.2	7.9	12.1
Sulfide	ND	ND	ND	ND	ND	ND	ND

Notes:

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

(1) Well is designated a delineation monitoring well.

(2) Parameters are reported in units of milligrams per liter (mg/L).

Table 3a

Summary of Groundwater Analytical Data - Geochemical Parameter Evaluation

Plant Hammond AP-2, Floyd County, Georgia

Well ID:	HGWC-15	HGWC-16	HGWC-17	HGWC-18	MW-21D(1)	MW-22(1)	MW-23D(1)
Sample Date:	9/24/2019	9/25/2019	9/25/2019	9/25/2019	9/25/2019	9/27/2019	9/26/2019
Parameter							
Alkalinity, Bicarbonate ($CaCO_3$)	124	192	182	ND	62.0	93.0	216
Alkalinity, Total as $CaCO_3$	124	192	182	ND	62.0	93.0	216
Dissolved Organic Carbon	ND (0.61 J)	ND	ND (0.72 J)	ND	ND	ND	ND
Iron	0.053	1.5	0.18	0.11	14.6	0.66	0.17
Magnesium	37.9	15.5	31.2	36.0	67.0	46.3	35.4
Manganese	16.3	0.036	4.4	3.7	0.99	16.7	9.0
Orthophosphate as P	ND	0.021	ND	ND	ND	ND	ND
Phosphorous	0.10	0.069	ND	ND	ND (0.032 J)	0.054	ND (0.025 J)
Potassium	0.89	ND (0.76 J)	2.7	8.9	1.1	1.0	2.1
Sodium	14.7	9.9	15.3	10.4	15.3	15.0	13.1
Sulfide	ND	ND	ND	ND	ND	ND	ND

Notes:

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

(1) Well is designated a delineation monitoring well.

(2) Parameters are reported in units of milligrams per liter (mg/L).

Table 3b

Summary of Groundwater Analytical Data - NPDES Compliance Evaluation
Plant Hammond AP-2, Floyd County, Georgia

Well ID:	HGWC-15	HGWC-18
Sample Date:	9/24/2019	9/25/2019
Parameter		
Nitrogen, Ammonia	ND	0.56
BOD, 5 day	ND	ND
Oil and Grease	ND	ND
Mercury	0.024	ND
Residual Chlorine	ND	ND
Total Kjeldahl Nitrogen	ND	0.40
Total Organic Nitrogen	ND	ND
Total Suspended Solids	ND	6.0

Notes:
ND = Indicates the parameter was not detected above the analytical MDL
NPDES = National Pollutant Discharge Elimination System
(1) Parameters are reported in units of milligrams per liter (mg/L).

Table 4
Proposed ACM Supplementary Data Collection Tasks for First Semi-Annual Period 2020
Plant Hammond AP-2, Floyd County, Georgia

Data Collection Event	Applicable CMs [1]	Applicability/Rationale	Field Component	Parameters of Interest (POI)	Analytical Lab Performing Analysis
Groundwater sampling	3, 4	Evaluation of: (i) attenuation mechanisms and rates and aquifer capacity for attenuation (ii) in situ conditions to establish phytoremediation measures downgradient of unit	Collect groundwater samples from existing well network currently sampled under the assessment monitoring program.	In addition to routine App III/IV parameters: orthophosphate, phosphorous, sulfide, iron, manganese, magnesium, sodium, potassium, total alkalinity, bicarbonate, dissolved organic carbon (DOC), nitrate/nitrite, total hardness, zinc, total dissolved solids, copper, ammonia nitrogen.	Pace-ATL
Aquifer solids sampling (Collect/Submit archived rock cores)	1, 3, 4	Evaluation of within aquifer matrix: (i) attenuation mechanisms and rates and aquifer capacity for attenuation (ii) mineralogy characterization	Collect samples from extracted rock cores archived at the SCS Civil Field Services (CFS) Logan Martin, AL, facility.	Sequential extraction procedure (SEP) for analysis of cobalt (Co) in the aquifer solid matrix; x-ray diffraction (XRD) analysis for mineralogy; total Co, aluminum, iron, manganese, silica concentrations; cation/anion exchange capacity	TestAmerica-Canton; TestAmerica-Knoxville (SEP); DCM Science Lab (XRD)
Aquifer solids sampling	1, 3, 4	Evaluation of within aquifer matrix: (i) attenuation mechanisms and rates and aquifer capacity for attenuation (ii) mineralogy characterization	Collect unconsolidated aquifer solid material from the alluvium, residuum, and/or highly weathered rock zones using a DPT rig (3-4 locations downgradient and 1-2 background locations).	SEP for analysis of Co in the aquifer solid matrix; XRD analysis for mineralogy; total Co, aluminum, iron, manganese, silica concentrations; cation/anion exchange capacity	TestAmerica-Canton; TestAmerica-Knoxville (SEP); DCM Science Lab (XRD)
Pneumatic slug tests	1, 2, 4, 5	Refine our understanding of hydrogeologic conditions within the anticipated treatment area. Slug data will be used in conjunction with groundwater data to prepare a groundwater flow model that evaluates conceptual CM designs.	Conduct pneumatic slug tests in select wells either not previously tested or in those wells for which historical data may be in question.	Transmissivity, storage coefficient, hydraulic conductivity	n/a

Note:
(1) Corrective Measure (CM) Codes:
1 - Geochemical Approaches (In-Situ Injection)
2 - Hydraulic Containment
3 - Monitored Natural Attenuation (MNA)
4 - Permeable Reactive Barrier (PRB)
5 - Subsurface Vertical Barrier Walls

FIGURES

N

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

0 330 660 1,320

SCALE IN FEET

SITE LOCATION MAP

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

Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA | DECEMBER 2019

FIGURE 1

\\arc-01\pr1$\GA Power\Plant Hammond GW Services\GIS\mxd\Hammond\2019\CCR Reports\AP-2\Figure 1_SiteMap.mxd 7/1/2019 12:30:21 PM

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LEGEND

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

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

0 150 300 600

SCALE IN FEET

MONITORING WELL NETWORK MAP

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

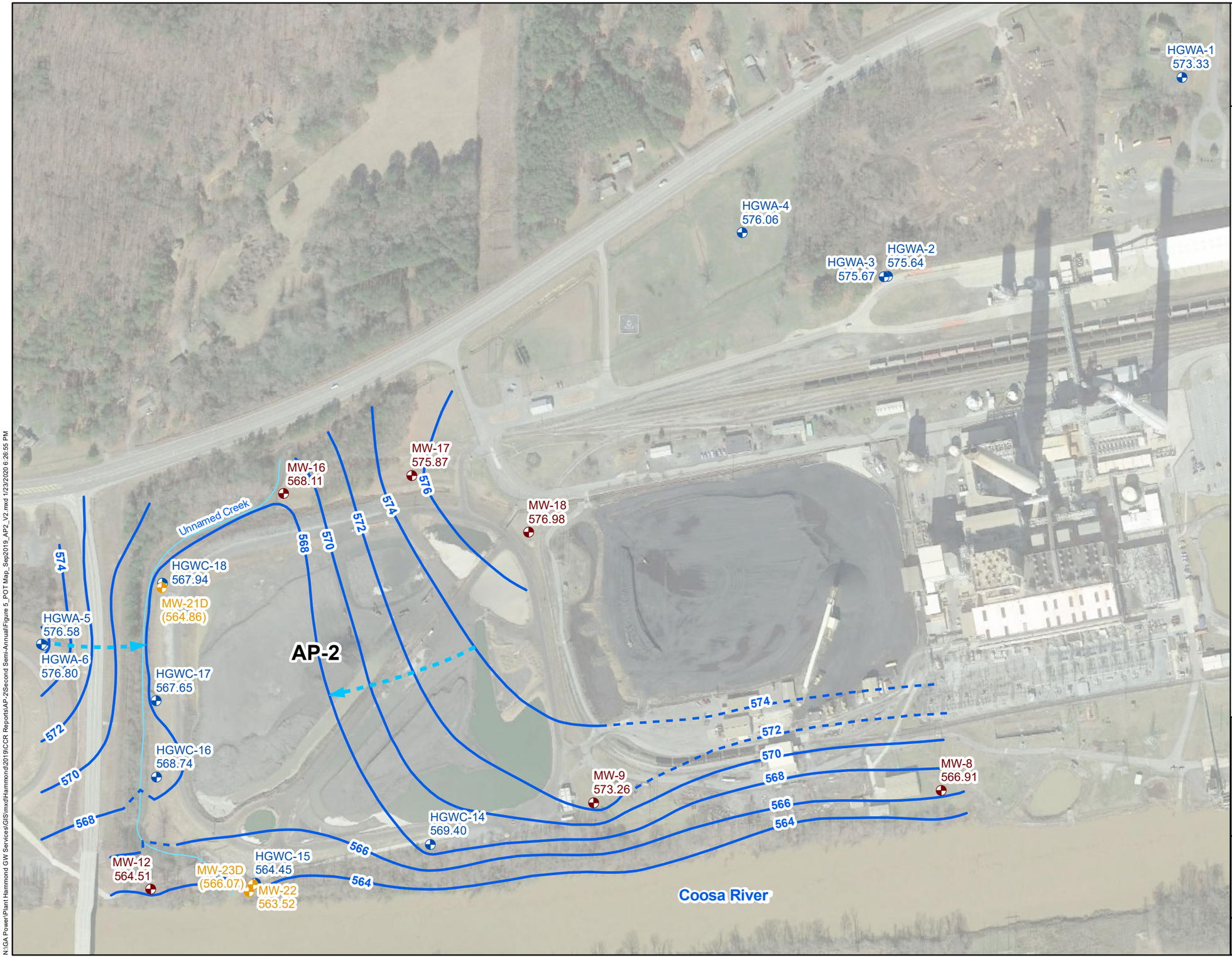
Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA | JANUARY 2020

FIGURE 2

N:\GA Power\Plant Hammond GW Services\GIS\mxd\Hammond\2019\CCR Reports\AP-2\Second Semi-Annual\Figure 2_WellMap.mxd 1/28/2020 7:17:16 AM



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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 September 23, 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.

0 300 600

SCALE IN FEET

POTENTIOMETRIC SURFACE CONTOUR MAP - SEPTEMBER 2019

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

Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA | JANUARY 2020

FIGURE 3

N:\GA Power\Plant Hammond GW Services\GIS\mxd\Hammond\2019\CCR Reports\AP-2\Second Semi-Annual\Figure 5_POT Map_Sep2019_AP2_V2.mxd 1/23/2020 6:26:55 PM

APPENDIX A

Laboratory Analytical Reports

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

October 25, 2019

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

RE: Project: Plant Hammond GW6581
Pace Project No.: 2623499

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on September 24, 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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

CERTIFICATIONS

Project: Plant Hammond GW6581
Pace Project No.: 2623499

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

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174
Alaska DEC- CS/UST/LUST
Alabama Certification #: 41320
Arizona Certification# AZ0819
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
New Hampshire Certification #: 2958
New Jersey Certification #: FL022
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
North Dakota Certification #: R-216
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE SUMMARY

Project: Plant Hammond GW6581
Pace Project No.: 2623499

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623499001	**HGWA-1**	Water	09/23/19 16:15	09/24/19 15:23
2623499002	**HGWA-2**	Water	09/23/19 16:55	09/24/19 15:23
2623499003	**HGWA-3**	Water	09/23/19 17:10	09/24/19 15:23

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE ANALYTE COUNT

Project: Plant Hammond GW6581
Pace Project No.: 2623499

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2623499001	**HGWA-1**	EPA 6010D	KLH	6	PASI-GA
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623499002	**HGWA-2**	EPA 6010D	KLH	6	PASI-GA
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623499003	**HGWA-3**	EPA 6010D	KLH	6	PASI-GA
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond GW6581
Pace Project No.: 2623499

Sample: HGWA-1 **Lab ID: 2623499001** Collected: 09/23/19 16:15 Received: 09/24/19 15:23 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Iron	**0.022J**	mg/L	0.040	0.015	1	10/22/19 14:30	10/23/19 22:51	7439-89-6	
Magnesium	**5.4**	mg/L	0.050	0.011	1	10/22/19 14:30	10/23/19 22:51	7439-95-4	
Manganese	**0.20**	mg/L	0.040	0.0061	1	10/22/19 14:30	10/23/19 22:51	7439-96-5	
Phosphorus	ND	mg/L	0.050	0.023	1	10/22/19 14:30	10/23/19 22:51	7723-14-0	
Potassium	**0.33**	mg/L	0.20	0.026	1	10/22/19 14:30	10/23/19 22:51	7440-09-7	
Sodium	**20.4**	mg/L	1.0	0.19	1	10/22/19 14:30	10/23/19 22:51	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**279**	mg/L	20.0	20.0	1		09/25/19 16:36		
Alkalinity, Total as CaCO3	**279**	mg/L	20.0	20.0	1		09/25/19 16:36		
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/25/19 12:26		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		09/26/19 09:20	18496-25-8	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	**1.1**	mg/L	1.0	0.50	1		10/24/19 23:28		H3

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond GW6581
Pace Project No.: 2623499

Sample: HGWA-2 **Lab ID: 2623499002** Collected: 09/23/19 16:55 Received: 09/24/19 15:23 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Iron	**1.7**	mg/L	0.040	0.015	1	10/22/19 14:30	10/23/19 22:56	7439-89-6	
Magnesium	**2.4**	mg/L	0.050	0.011	1	10/22/19 14:30	10/23/19 22:56	7439-95-4	
Manganese	**1.1**	mg/L	0.040	0.0061	1	10/22/19 14:30	10/23/19 22:56	7439-96-5	
Phosphorus	ND	mg/L	0.050	0.023	1	10/22/19 14:30	10/23/19 22:56	7723-14-0	
Potassium	**0.88**	mg/L	0.20	0.026	1	10/22/19 14:30	10/23/19 22:56	7440-09-7	
Sodium	**8.7**	mg/L	1.0	0.19	1	10/22/19 14:30	10/23/19 22:56	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**29.0**	mg/L	20.0	20.0	1		09/25/19 16:58		
Alkalinity, Total as CaCO3	**29.0**	mg/L	20.0	20.0	1		09/25/19 16:58		
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/25/19 12:27		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		09/26/19 09:23	18496-25-8	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	**2.1**	mg/L	1.0	0.50	1		10/25/19 00:17		H3

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond GW6581
Pace Project No.: 2623499

Sample: HGWA-3 **Lab ID: 2623499003** Collected: 09/23/19 17:10 Received: 09/24/19 15:23 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Iron	**0.53**	mg/L	0.040	0.015	1	10/22/19 14:30	10/23/19 23:24	7439-89-6	
Magnesium	**4.8**	mg/L	0.050	0.011	1	10/22/19 14:30	10/23/19 23:24	7439-95-4	
Manganese	**0.21**	mg/L	0.040	0.0061	1	10/22/19 14:30	10/23/19 23:24	7439-96-5	
Phosphorus	**0.026J**	mg/L	0.050	0.023	1	10/22/19 14:30	10/23/19 23:24	7723-14-0	
Potassium	**0.42**	mg/L	0.20	0.026	1	10/22/19 14:30	10/23/19 23:24	7440-09-7	
Sodium	**5.2**	mg/L	1.0	0.19	1	10/22/19 14:30	10/23/19 23:24	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**174**	mg/L	20.0	20.0	1		09/25/19 17:01		
Alkalinity, Total as CaCO3	**174**	mg/L	20.0	20.0	1		09/25/19 17:01		
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/25/19 12:28		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		09/26/19 09:25	18496-25-8	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/25/19 00:28		H3

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623499

QC Batch: 37339 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A Analysis Description: 6010D MET
Associated Lab Samples: 2623499001, 2623499002, 2623499003

METHOD BLANK: 168935 Matrix: Water
Associated Lab Samples: 2623499001, 2623499002, 2623499003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	mg/L	ND	0.040	0.015	10/23/19 22:41	
Magnesium	mg/L	ND	0.050	0.011	10/23/19 22:41	
Manganese	mg/L	ND	0.040	0.0061	10/23/19 22:41	
Phosphorus	mg/L	ND	0.050	0.023	10/23/19 22:41	
Potassium	mg/L	ND	0.20	0.026	10/23/19 22:41	
Sodium	mg/L	ND	1.0	0.19	10/23/19 22:41	

LABORATORY CONTROL SAMPLE: 168936

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	mg/L	1	1.1	107	80-120	
Magnesium	mg/L	1	1.1	107	80-120	
Manganese	mg/L	1	1.1	106	80-120	
Phosphorus	mg/L	1	1.1	107	80-120	
Potassium	mg/L	1	1.1	108	80-120	
Sodium	mg/L	1	1.1	108	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 168937 168938

Parameter	Units	2623499002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	mg/L	1.7	1	1	2.7	2.8	101	106	75-125	2	20	
Magnesium	mg/L	2.4	1	1	3.4	3.4	101	106	75-125	1	20	
Manganese	mg/L	1.1	1	1	2.1	2.1	101	105	75-125	2	20	
Phosphorus	mg/L	ND	1	1	1.0	1.0	102	103	75-125	1	20	
Potassium	mg/L	0.88	1	1	1.9	1.9	97	101	75-125	2	20	
Sodium	mg/L	8.7	1	1	9.5	9.8	84	112	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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623499

QC Batch: 35970 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 2623499001, 2623499002, 2623499003

METHOD BLANK: 161956 Matrix: Water
Associated Lab Samples: 2623499001, 2623499002, 2623499003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	20.0	20.0	09/25/19 16:26	

LABORATORY CONTROL SAMPLE: 161957

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	100	101	101	85-115	

SAMPLE DUPLICATE: 161958

Parameter	Units	2623499001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	279	281	1	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623499

QC Batch: 35930 Analysis Method: SM 4500-P
QC Batch Method: SM 4500-P Analysis Description: 4500PE Ortho Phosphorus
Associated Lab Samples: 2623499001, 2623499002, 2623499003

METHOD BLANK: 161749 Matrix: Water
Associated Lab Samples: 2623499001, 2623499002, 2623499003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Orthophosphate as P	mg/L	ND	0.020	0.020	09/25/19 11:51	

LABORATORY CONTROL SAMPLE: 161750

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Orthophosphate as P	mg/L	0.5	0.52	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 161862 161863

Parameter	Units	2623499001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Orthophosphate as P	mg/L	ND	0.5	0.5	0.52	0.52	103	103	80-120	0	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623499

QC Batch: 35996 Analysis Method: SM 4500-S2 D
QC Batch Method: SM 4500-S2 D Analysis Description: 4500S2D Sulfide Water
Associated Lab Samples: 2623499001, 2623499002, 2623499003

METHOD BLANK: 162154 Matrix: Water
Associated Lab Samples: 2623499001, 2623499002, 2623499003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide	mg/L	ND	0.20	0.20	09/26/19 09:18	

LABORATORY CONTROL SAMPLE: 162155

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide	mg/L	0.5	0.45	90	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 162156 162157

Parameter	Units	2623499001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide	mg/L	ND	0.5	0.5	0.48	0.47	96	94	30-129	2	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623499

QC Batch: 581439 Analysis Method: SM 5310B
QC Batch Method: SM 5310B Analysis Description: 5310B Dissolved Organic Carbon
Associated Lab Samples: 2623499001, 2623499002, 2623499003

METHOD BLANK: 3160596 Matrix: Water
Associated Lab Samples: 2623499001, 2623499002, 2623499003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.50	10/24/19 23:00	

LABORATORY CONTROL SAMPLE: 3160597

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	20	19.3	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3160598 3160599

Parameter	Units	2624536004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Dissolved Organic Carbon	mg/L	ND	20	20	20.1	19.8	100	98	80-120	2	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3160600 3160601

Parameter	Units	2624536010 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Dissolved Organic Carbon	mg/L	ND	20	20	20.2	20.0	101	100	80-120	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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALIFIERS

Project: Plant Hammond GW6581
Pace Project No.: 2623499

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-GA	Pace Analytical Services - Atlanta, GA
PASI-O	Pace Analytical Services - Ormond Beach

ANALYTE QUALIFIERS

H3	Sample was received or analysis requested beyond the recognized method holding time.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond GW6581
Pace Project No.: 2623499

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623499001	**HGWA-1**	EPA 3010A	37339	EPA 6010D	37380
2623499002	**HGWA-2**	EPA 3010A	37339	EPA 6010D	37380
2623499003	**HGWA-3**	EPA 3010A	37339	EPA 6010D	37380
2623499001	**HGWA-1**	SM 2320B	35970		
2623499002	**HGWA-2**	SM 2320B	35970		
2623499003	**HGWA-3**	SM 2320B	35970		
2623499001	**HGWA-1**	SM 4500-P	35930		
2623499002	**HGWA-2**	SM 4500-P	35930		
2623499003	**HGWA-3**	SM 4500-P	35930		
2623499001	**HGWA-1**	SM 4500-S2 D	35996		
2623499002	**HGWA-2**	SM 4500-S2 D	35996		
2623499003	**HGWA-3**	SM 4500-S2 D	35996		
2623499001	**HGWA-1**	SM 5310B	581439		
2623499002	**HGWA-2**	SM 5310B	581439		
2623499003	**HGWA-3**	SM 5310B	581439		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Pace Analytical

Page : 1 Of 3

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 TAT

Section B — Required Project Information:

Report To:	Joju Abraham
Copy To:	Lauren Petty, Geosyntec
Purchase Order #:	SCS10382775
Project Name:	Plant Hammond
Project #:	GW6581

Section C — Invoice Information:

Attention:	scsinvoices@southernco.com
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Pace Profile #:	327 (AP)

Regulatory Agency:

State / Location: GA

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

MATRIX	CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Other	OT
Tissue	TS

Requested Analysis Filtered (Y/N): N N N N N N ~~N~~ Y (NA)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH + Zn Ac	Na2S2O3	Methanol	Other	Analyses Test Y/N	Total alkalinity, bicarbonate	orthophosphate	iron,manganese,magnesium	phosphorous,potassium	sodium	sulfide	dissolved organic carbon	Residual Chlorine (Y/N)	
1	HGWA-1		G	9/23/19	15:40	9/23/19	16:15	18.88	6	2			3	1					Y	Y	Y	Y	Y	Y	Y		ortho phosphate was field filtered
2																											
3																											
4																											
5																											
6																											
7																											
8																											
9																											
10																											
11																											
12																											

09-23-2019

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	[signature] / Geosyntec	09-23-19	17:45	Malia Martin	9/23/19	17:45				
	Malia Martin / Geosyntec	9/23/19	19:40	[signature] / Pace	9.24.19	1413				
	[signature] / Pace	9.24.19	1523	Charles Hardy	9/24/19	1523	3.8	Y	T	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: DAN GIBBS

SIGNATURE of SAMPLER: [signature]

DATE Signed: 09-23-2019

WO#: 2623499

2623499

CHAIN-OF-CUSTODY / Analytical Request Document

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

Pace Analytical

Page: 2 Of 3

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: Georgia Power - Coal Combustion Residuals	Report To: Joju Abraham	Attention: scsinvoices@southernco.com
Address: 2480 Maner Road	Copy To: Lauren Petty, Geosyntec	Company Name:
Atlanta, GA 30339		Address:
Email: jabraham@southernco.com	Purchase Order #: SCS10382775	Pace Quote:
Phone: (404)506-7239 Fax:	Project Name: Plant Hammond	Pace Project Manager: betsy.mcdaniel@pacelabs.com,
Requested Due Date: Standard TAT	Project #: GW6581	Pace Profile #: 327 (AP)

Regulatory Agency:

State / Location: GA

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

MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

Requested Analysis Filtered (Y/N): Total alkalinity, bicarbonate N; orthophosphate N; iron,manganese,magnesium N; phosphorous,potassium N; sodium N; sulfide N; dissolved organic carbon Y

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	Start DATE	Start TIME	End DATE	End TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH + Zn Ac	Na2S2O3	Methanol	Other	Total alkalinity, bicarbonate	orthophosphate	iron,manganese,magnesium	phosphorous,potassium	sodium	sulfide	dissolved organic carbon	Residual Chlorine (Y/N)	
1	HGWA-2	WT	G	9-23-19	1535	9-23-19	1655	22	6	2			3	1				Y	Y	Y	Y	Y	Y	Y		Orthophosphate was filtered in field
2																										
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

BRW 9-23-19

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Ben Weinmann / Geosyntec	9-23-19	1745	Malia Martin / Geosyntec	9/23/19	1745				
	Malia Martin / Geosyntec	9/23/19	1940	[signature] / Pace	9.24.19	1483				
	[signature] / Pace	9.24.19	1523	Charles [signature]	9/24/19	1523	3.8	Y	Y	Y
							TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Ben Weinmann

SIGNATURE of SAMPLER: [signature]

DATE Signed: 9/23/19

WO#: 2623499

PM: BM Due Date: 10/01/19

CLIENT: GAPower-CCR

Pace Analytical

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 TAT

Section B — Required Project Information:

Report To:	Joju Abraham
Copy To:	Lauren Petty, Geosyntec
Purchase Order #:	SCS10382775
Project Name:	Plant Hammond
Project #:	GWC5B1

Section C — Invoice Information:

Attention:	scsinvoices@southernco.com
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Pace Profile #:	327 (AP)

Regulatory Agency:

State / Location: GA

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

MATRIX	CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Other	OT
Tissue	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH + Zn Ac	Na2S2O3	Methanol	Other	Analyses Test Y/N	Total alkalinity, bicarbonate	orthophosphate	iron,manganese,magnesium	phosphorous,potassium	sodium	sulfide	dissolved organic carbon					Residual Chlorine (Y/N)	
	Requested Analysis Filtered (Y/N)																	Y/N	N	N	N	N	N	N	Y/N						
1	HGWA-3	WT	G	9/23/19	1611	9/23/19	1710	22	6	2			3	1				Y	Y	Y	Y	Y	Y	Y					N	orthophosphate was field filtered
2																														
3																														
4																														
5																														
6																														
7																														
8																														
9																														
10																														
11																														
12																														

NM 09/23/19

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Noelia Muskus/Georgia Power	9/23/19	19:40	1 Pace	9.24.19	1413				
	1 Pace	9.24.19	1523	Charles Hunter	9/24/19	38	X	X	X	X

WO#: 2623499

PM: BM Due Date: 10/01/19

CLIENT: GAPower-CCR

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Noelia Muskus

SIGNATURE of SAMPLER: Noelia Muskus DATE Signed: 9/23/19

Pace Analytical

Sample Condition Upon Receipt

WO#: 2623499

PM: BM Due Date: 10/01/19

CLIENT: GAPower-CCR

Client Name: GA Power CCR

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☑ Client ☐ Commercial ☑ Pace Other _____

Tracking #: _____

Optional
Proj. Due Date:
Proj. Name:

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

Packing Material: ☑ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other _____

Thermometer Used 214

Type of Ice: (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 3.8°C

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 9/24/19 CO

Temp should be above freezing to 6°C

Comments:

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

November 11, 2019

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

RE: Project: Plant Hammond
Pace Project No.: 2623556

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on September 25, 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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

CERTIFICATIONS

Project: Plant Hammond
Pace Project No.: 2623556

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

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174
Alaska DEC- CS/UST/LUST
Alabama Certification #: 41320
Arizona Certification# AZ0819
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
New Hampshire Certification #: 2958
New Jersey Certification #: FL022
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
North Dakota Certification #: R-216
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

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(770)734-4200

SAMPLE SUMMARY

Project: Plant Hammond
Pace Project No.: 2623556

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623556001	**FB-01**	Water	09/24/19 17:25	09/25/19 14:03
2623556002	**EB-01**	Water	09/24/19 17:40	09/25/19 14:03

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SAMPLE ANALYTE COUNT

Project: Plant Hammond
Pace Project No.: 2623556

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2623556001	**FB-01**	EPA 6010	LEC	7	PASI-O
		EPA 6020B	CSW	2	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 1664B	SJS	1	PASI-GA
		SM 2320B	S1A	2	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		SM 2540D	ALW	1	PASI-GA
		SM 4500-Cl G	KN	1	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5210B	KN	1	PASI-GA
		TKN-NH3 Calculation	LPH	1	PASI-GA
		EPA 300.0	MWB	2	PASI-GA
		EPA 350.1	ANB	1	PASI-GA
		EPA 351.2	ANB	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623556002	**EB-01**	EPA 6010	LEC	8	PASI-O
		EPA 6020B	CSW	2	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 1664B	SJS	1	PASI-GA
		SM 2320B	S1A	2	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		SM 2540D	ALW	1	PASI-GA
		SM 4500-Cl G	KN	1	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5210B	KN	1	PASI-GA
		TKN-NH3 Calculation	LPH	1	PASI-GA
		EPA 300.0	MWB	2	PASI-GA
		EPA 350.1	ANB	1	PASI-GA
		EPA 351.2	ANB	1	PASI-GA
		SM 5310B	SA1	1	PASI-O

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ANALYTICAL RESULTS

Project: Plant Hammond
Pace Project No.: 2623556

Sample: FB-01 **Lab ID: 2623556001** Collected: 09/24/19 17:25 Received: 09/25/19 14:03 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	ND	mg/L	0.040	0.0092	1	10/08/19 14:47	10/09/19 21:32	7439-89-6	
Magnesium	ND	mg/L	0.50	0.084	1	10/08/19 14:47	10/09/19 21:32	7439-95-4	
Manganese	ND	mg/L	0.0050	0.00042	1	10/08/19 14:47	10/09/19 21:32	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 14:47	10/09/19 21:32	7723-14-0	N2
Potassium	ND	mg/L	1.0	0.15	1	10/08/19 14:47	10/09/19 21:32	7440-09-7	
Sodium	ND	mg/L	2.0	0.27	1	10/08/19 14:47	10/09/19 21:32	7440-23-5	
Tot Hardness asCaCO3 (SM 2340B	ND	ug/L	3210	506	1	10/08/19 14:47	10/09/19 21:32		
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Copper	ND	mg/L	0.025	0.00019	1	09/27/19 15:26	10/01/19 10:40	7440-50-8	
Zinc	**0.0023J**	mg/L	0.010	0.0015	1	09/27/19 15:26	10/01/19 10:40	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	**0.025**	mg/L	0.00050	0.00014	1	09/30/19 10:50	10/01/19 12:42	7439-97-6	
HEM, Oil and Grease	Analytical Method: EPA 1664B								
Oil and Grease	ND	mg/L	4.9	4.9	1		09/30/19 08:00		
2320B Alkalinity Low Level	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	ND	mg/L	1.0	1.0	1		10/02/19 12:49		
Alkalinity, Total as CaCO3	ND	mg/L	1.0	1.0	1		10/02/19 12:49		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		10/01/19 16:32		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	ND	mg/L	5.0	5.0	1		09/27/19 16:27		
4500CL G Chlorine, Residual	Analytical Method: SM 4500-Cl G								
Chlorine, Total Residual	ND	mg/L	0.1	0.1	1		09/27/19 15:39	7782-50-5	H3,H6
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/26/19 12:54		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		09/26/19 10:51	18496-25-8	
5210B BOD, 5 day	Analytical Method: SM 5210B Preparation Method: SM 5210B								
BOD, 5 day	ND	mg/L	2.0	2.0	1	09/26/19 09:30	10/01/19 10:06		1A
Total Organic Nitrogen Calc.	Analytical Method: TKN-NH3 Calculation								
Total Organic Nitrogen	ND	mg/L	0.40	0.40	1		10/02/19 12:32		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: Plant Hammond
Pace Project No.: 2623556

Sample: FB-01 **Lab ID: 2623556001** Collected: 09/24/19 17:25 Received: 09/25/19 14:03 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	**0.016J**	mg/L	0.050	0.0050	1		09/26/19 09:36	14797-55-8	
Nitrite as N	**0.021J**	mg/L	0.050	0.011	1		09/26/19 09:36	14797-65-0	B
350.1 Ammonia	Analytical Method: EPA 350.1								
Nitrogen, Ammonia	ND	mg/L	0.10	0.10	1		09/30/19 10:31	7664-41-7	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2								
Nitrogen, Kjeldahl, Total	ND	mg/L	0.40	0.40	1	09/30/19 08:40	10/01/19 11:51	7727-37-9	M1
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/01/19 14:58		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
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(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond
Pace Project No.: 2623556

Sample: EB-01 **Lab ID: 2623556002** Collected: 09/24/19 17:40 Received: 09/25/19 14:03 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	ND	mg/L	0.040	0.0092	1	10/08/19 14:47	10/09/19 21:46	7439-89-6	
Magnesium	ND	mg/L	0.50	0.084	1	10/08/19 14:47	10/09/19 21:46	7439-95-4	
Manganese	ND	mg/L	0.0050	0.00042	1	10/08/19 14:47	10/09/19 21:46	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 14:47	10/09/19 21:46	7723-14-0	N2
Potassium	ND	mg/L	1.0	0.15	1	10/08/19 14:47	10/09/19 21:46	7440-09-7	
Sodium	ND	mg/L	2.0	0.27	1	10/08/19 14:47	10/09/19 21:46	7440-23-5	
Tot Hardness asCaCO3 (SM 2340B	ND	mg/L	3.2	0.51	1	10/08/19 14:47	10/09/19 21:46		
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Copper	ND	mg/L	0.025	0.00019	1	09/27/19 15:26	10/01/19 10:46	7440-50-8	
Zinc	**0.0037J**	mg/L	0.010	0.0015	1	09/27/19 15:26	10/01/19 10:46	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	**0.027**	mg/L	0.00050	0.00014	1	09/30/19 10:50	10/01/19 12:45	7439-97-6	
HEM, Oil and Grease	Analytical Method: EPA 1664B								
Oil and Grease	ND	mg/L	4.9	4.9	1		09/30/19 08:00		
2320B Alkalinity Low Level	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	ND	mg/L	1.0	1.0	1		10/02/19 12:53		
Alkalinity, Total as CaCO3	ND	mg/L	1.0	1.0	1		10/02/19 12:53		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		10/01/19 16:32		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	ND	mg/L	5.0	5.0	1		09/27/19 16:27		
4500CL G Chlorine, Residual	Analytical Method: SM 4500-Cl G								
Chlorine, Total Residual	ND	mg/L	0.1	0.1	1		09/27/19 15:39	7782-50-5	H3,H6
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/26/19 12:56		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		09/26/19 10:51	18496-25-8	
5210B BOD, 5 day	Analytical Method: SM 5210B Preparation Method: SM 5210B								
BOD, 5 day	ND	mg/L	2.0	2.0	1	09/26/19 09:30	10/01/19 10:08		1A
Total Organic Nitrogen Calc.	Analytical Method: TKN-NH3 Calculation								
Total Organic Nitrogen	ND	mg/L	0.40	0.40	1		10/02/19 12:32		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
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(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond
Pace Project No.: 2623556

Sample: EB-01 **Lab ID: 2623556002** Collected: 09/24/19 17:40 Received: 09/25/19 14:03 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	**0.015J**	mg/L	0.050	0.0050	1		09/26/19 10:38	14797-55-8	
Nitrite as N	**0.022J**	mg/L	0.050	0.011	1		09/26/19 10:38	14797-65-0	B
350.1 Ammonia	Analytical Method: EPA 350.1								
Nitrogen, Ammonia	ND	mg/L	0.10	0.10	1		09/30/19 10:32	7664-41-7	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2								
Nitrogen, Kjeldahl, Total	ND	mg/L	0.40	0.40	1	09/30/19 08:40	10/01/19 11:53	7727-37-9	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/01/19 15:37		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
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(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623556

QC Batch: 36152 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Associated Lab Samples: 2623556001, 2623556002

METHOD BLANK: 163281 Matrix: Water
Associated Lab Samples: 2623556001, 2623556002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	10/01/19 12:04	

LABORATORY CONTROL SAMPLE: 163282

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: 163283 163284

Parameter	Units	2623578001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	ND	0.0025	0.0025	0.0019	0.0021	77	83	75-125	8	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

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623556

QC Batch: 576632
QC Batch Method: EPA 3010
Analysis Method: EPA 6010
Analysis Description: 6010 MET
Associated Lab Samples: 2623556001, 2623556002

METHOD BLANK: 3133743 Matrix: Water
Associated Lab Samples: 2623556001, 2623556002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium	mg/L	ND	0.50	0.064	10/10/19 13:56	
Iron	mg/L	ND	0.040	0.0092	10/10/19 13:56	
Magnesium	mg/L	ND	0.50	0.084	10/10/19 13:56	
Manganese	mg/L	ND	0.0050	0.00042	10/10/19 13:56	
Phosphorus	mg/L	ND	0.045	0.014	10/10/19 13:56	N2
Potassium	mg/L	ND	1.0	0.15	10/10/19 13:56	
Sodium	mg/L	ND	2.0	0.27	10/10/19 13:56	
Tot Hardness asCaCO3 (SM 2340B	ug/L	ND	3210	506	10/10/19 13:56	

LABORATORY CONTROL SAMPLE: 3133744

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	12.5	13.2	105	80-120	
Iron	mg/L	2.5	2.6	105	80-120	
Magnesium	mg/L	12.5	13.0	104	80-120	
Manganese	mg/L	0.25	0.26	106	80-120	
Phosphorus	mg/L	0.25	0.25	99	80-120	N2
Potassium	mg/L	12.5	12.8	103	80-120	
Sodium	mg/L	12.5	13.2	106	80-120	
Tot Hardness asCaCO3 (SM 2340B	ug/L	82700	86400	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3133745 3133746

Parameter	Units	2623752004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	mg/L	29000 ug/L	12.5	12.5	42.7	41.5	110	100	75-125	3	20	
Iron	mg/L	0.22	2.5	2.5	2.8	2.8	105	103	75-125	1	20	
Magnesium	mg/L	8.5	12.5	12.5	21.6	21.3	105	103	75-125	2	20	
Manganese	mg/L	0.040	0.25	0.25	0.31	0.30	107	103	75-125	3	20	
Phosphorus	mg/L	0.019J	0.25	0.25	0.28	0.28	103	104	75-125	1	20	N2
Potassium	mg/L	0.69J	12.5	12.5	13.6	13.5	103	103	75-125	1	20	
Sodium	mg/L	118	12.5	12.5	135	131	130	102	75-125	3	20	M1
Tot Hardness asCaCO3 (SM 2340B	ug/L	107000	82700	82700	196000	191000	107	102	75-125	2	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

Pace Analytical Services, LLC
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(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623556

QC Batch: 36079 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2623556001, 2623556002

METHOD BLANK: 162814 Matrix: Water
Associated Lab Samples: 2623556001, 2623556002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Copper	mg/L	ND	0.025	0.00019	09/30/19 19:37	
Zinc	mg/L	ND	0.010	0.0015	09/30/19 19:37	

LABORATORY CONTROL SAMPLE: 162815

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	mg/L	0.1	0.098	98	80-120	
Zinc	mg/L	0.1	0.10	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 162816 162817

Parameter	Units	2623500001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	mg/L	ND	0.1	0.1	0.099	0.094	99	94	75-125	6	20	
Zinc	mg/L	0.0019J	0.1	0.1	0.10	0.097	99	95	75-125	3	20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623556

QC Batch: 36120 Analysis Method: EPA 1664B
QC Batch Method: EPA 1664B Analysis Description: 1664 HEM, Oil and Grease
Associated Lab Samples: 2623556001, 2623556002

METHOD BLANK: 163051 Matrix: Water
Associated Lab Samples: 2623556001, 2623556002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Oil and Grease	mg/L	ND	5.0	5.0	09/30/19 08:00	

LABORATORY CONTROL SAMPLE: 163052

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Oil and Grease	mg/L	40	39.9	100	78-114	

MATRIX SPIKE SAMPLE: 163054

Parameter	Units	2623556001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Oil and Grease	mg/L	ND	39.2	37.5	93	78-114	

SAMPLE DUPLICATE: 163053

Parameter	Units	2623453001 Result	Dup Result	RPD	Max RPD	Qualifiers
Oil and Grease	mg/L	ND	ND		75	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623556

QC Batch: 36336 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity, Low Level
Associated Lab Samples: 2623556001, 2623556002

METHOD BLANK: 164031 Matrix: Water
Associated Lab Samples: 2623556001, 2623556002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	1.0	1.0	10/02/19 12:39	

LABORATORY CONTROL SAMPLE: 164032

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	50	48.0	96	85-115	

SAMPLE DUPLICATE: 164047

Parameter	Units	2623614004 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	13.5	14.0	4	10	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623556

QC Batch: 36262
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2623556001, 2623556002

LABORATORY CONTROL SAMPLE: 163778

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	357	89	84-108	

SAMPLE DUPLICATE: 163780

Parameter	Units	2623620001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	146	139	5	10	

SAMPLE DUPLICATE: 163844

Parameter	Units	2623559001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	133	124	7	10	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623556

QC Batch: 36092 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 2623556001, 2623556002

METHOD BLANK: 162876 Matrix: Water
Associated Lab Samples: 2623556001, 2623556002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	5.0	5.0	09/27/19 16:27	

LABORATORY CONTROL SAMPLE: 162877

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	100	100	100	90-110	

SAMPLE DUPLICATE: 162878

Parameter	Units	2623124002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	307	318	4	10	H1

SAMPLE DUPLICATE: 162879

Parameter	Units	2623546003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	34.0	34.0	0	10	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623556

QC Batch: 36088 Analysis Method: SM 4500-Cl G
QC Batch Method: SM 4500-Cl G Analysis Description: 4500CL G Chlorine, Total Residual
Associated Lab Samples: 2623556001, 2623556002

METHOD BLANK: 162851 Matrix: Water
Associated Lab Samples: 2623556001, 2623556002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorine, Total Residual	mg/L	ND	0.1	0.1	09/27/19 15:35	H6

LABORATORY CONTROL SAMPLE: 162852

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorine, Total Residual	mg/L	1	1	100	86-116	H6

SAMPLE DUPLICATE: 162870

Parameter	Units	2623664001 Result	Dup Result	RPD	Max RPD	Qualifiers
Chlorine, Total Residual	mg/L	0.1	0.1	0	10	H3,H6

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623556

QC Batch: 36006 Analysis Method: SM 4500-P
QC Batch Method: SM 4500-P Analysis Description: 4500PE Ortho Phosphorus
Associated Lab Samples: 2623556001, 2623556002

METHOD BLANK: 162241 Matrix: Water
Associated Lab Samples: 2623556001, 2623556002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Orthophosphate as P	mg/L	ND	0.020	0.020	09/26/19 12:53	

LABORATORY CONTROL SAMPLE: 162242

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Orthophosphate as P	mg/L	0.5	0.51	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 162244 162243

Parameter	Units	2623556001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Orthophosphate as P	mg/L	ND	0.5	0.5	0.52	0.51	104	101	80-120	2	10	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623556

QC Batch: 35996 Analysis Method: SM 4500-S2 D
QC Batch Method: SM 4500-S2 D Analysis Description: 4500S2D Sulfide Water
Associated Lab Samples: 2623556001, 2623556002

METHOD BLANK: 162154 Matrix: Water
Associated Lab Samples: 2623556001, 2623556002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide	mg/L	ND	0.20	0.20	09/26/19 09:18	

LABORATORY CONTROL SAMPLE: 162155

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide	mg/L	0.5	0.45	90	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 162156 162157

Parameter	Units	2623499001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide	mg/L	ND	0.5	0.5	0.48	0.47	96	94	30-129	2	10	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623556

QC Batch: 35994 Analysis Method: SM 5210B
QC Batch Method: SM 5210B Analysis Description: 5210B BOD, 5 day
Associated Lab Samples: 2623556001, 2623556002

METHOD BLANK: 162151 Matrix: Water
Associated Lab Samples: 2623556001, 2623556002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
BOD, 5 day	mg/L	ND	2.0	2.0	10/01/19 09:55	1A

LABORATORY CONTROL SAMPLE: 162153

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
BOD, 5 day	mg/L	198	198	100	85-115	1A

SAMPLE DUPLICATE: 162313

Parameter	Units	2623577001 Result	Dup Result	RPD	Max RPD	Qualifiers
BOD, 5 day	mg/L	193	192	1	20	1A

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623556

QC Batch: 35990 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2623556001, 2623556002

METHOD BLANK: 162133 Matrix: Water
Associated Lab Samples: 2623556001, 2623556002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.050	0.0050	09/26/19 08:55	
Nitrite as N	mg/L	0.013J	0.050	0.011	09/26/19 08:55	

LABORATORY CONTROL SAMPLE: 162134

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	10	10.4	104	90-110	
Nitrite as N	mg/L	10	10.5	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 162135 162136

Parameter	Units	2623556001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/L	0.016J	10	10	10.2	10.1	102	101	90-110	1	15	
Nitrite as N	mg/L	0.021J	10	10	10.3	10.5	103	105	90-110	2	15	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623556

QC Batch: 36095 Analysis Method: EPA 350.1
QC Batch Method: EPA 350.1 Analysis Description: 350.1 Ammonia
Associated Lab Samples: 2623556001, 2623556002

METHOD BLANK: 162900 Matrix: Water
Associated Lab Samples: 2623556001, 2623556002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	ND	0.10	0.10	09/30/19 10:18	

LABORATORY CONTROL SAMPLE: 162901

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	10	10.3	103	90-110	

MATRIX SPIKE SAMPLE: 162902

Parameter	Units	2623600001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	ND	10	10.2	102	90-110	

MATRIX SPIKE SAMPLE: 162903

Parameter	Units	2623679001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	0.33	10	12.1	118	90-110	M1

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623556

QC Batch: 36141 Analysis Method: EPA 351.2
QC Batch Method: EPA 351.2 Analysis Description: 351.2 TKN
Associated Lab Samples: 2623556001, 2623556002

METHOD BLANK: 163259 Matrix: Water
Associated Lab Samples: 2623556001, 2623556002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	ND	0.40	0.40	10/01/19 11:44	

LABORATORY CONTROL SAMPLE: 163260

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	10	9.6	96	90-110	

MATRIX SPIKE SAMPLE: 163261

Parameter	Units	2623556001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	ND	10	8.8	88	90-110	M1

MATRIX SPIKE SAMPLE: 163262

Parameter	Units	2623649002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	25.8	10	35.3	95	90-110	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623556

QC Batch: 574634 Analysis Method: SM 5310B
QC Batch Method: SM 5310B Analysis Description: 5310B Dissolved Organic Carbon
Associated Lab Samples: 2623556001, 2623556002

METHOD BLANK: 3122436 Matrix: Water
Associated Lab Samples: 2623556001, 2623556002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.50	10/01/19 14:32	

LABORATORY CONTROL SAMPLE: 3122437

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	20	18.6	93	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3122438 3122439

Parameter	Units	2623556001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Dissolved Organic Carbon	mg/L	ND	20	20	19.6	19.5	96	95	80-120	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3122440 3122441

Parameter	Units	2623635001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Dissolved Organic Carbon	mg/L	ND	20	20	19.6	19.5	96	95	80-120	1	20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2623556

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-GA	Pace Analytical Services - Atlanta, GA
PASI-O	Pace Analytical Services - Ormond Beach

BATCH QUALIFIERS

Batch: 36230

[1]	The calculated SCF was below the desired range of 0.6 to 1.0 mg/L. All other QC indicators, including the LCS, were within acceptance criteria

ANALYTE QUALIFIERS

1A	The calculated SCF was below the desired range of 0.6 to 1.0 mg/L. All other QC indicators, including the LCS, were within acceptance criteria
B	Analyte was detected in the associated method blank.
H1	Analysis conducted outside the EPA method holding time.
H3	Sample was received or analysis requested beyond the recognized method holding time.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
N2	The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond
Pace Project No.: 2623556

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623556001	**FB-01**	EPA 3010	576632	EPA 6010	576717
2623556002	**EB-01**	EPA 3010	576632	EPA 6010	576717
2623556001	**FB-01**	EPA 3005A	36079	EPA 6020B	36104
2623556002	**EB-01**	EPA 3005A	36079	EPA 6020B	36104
2623556001	**FB-01**	EPA 7470A	36152	EPA 7470A	36190
2623556002	**EB-01**	EPA 7470A	36152	EPA 7470A	36190
2623556001	**FB-01**	EPA 1664B	36120		
2623556002	**EB-01**	EPA 1664B	36120		
2623556001	**FB-01**	SM 2320B	36336		
2623556002	**EB-01**	SM 2320B	36336		
2623556001	**FB-01**	SM 2540C	36262		
2623556002	**EB-01**	SM 2540C	36262		
2623556001	**FB-01**	SM 2540D	36092		
2623556002	**EB-01**	SM 2540D	36092		
2623556001	**FB-01**	SM 4500-Cl G	36088		
2623556002	**EB-01**	SM 4500-Cl G	36088		
2623556001	**FB-01**	SM 4500-P	36006		
2623556002	**EB-01**	SM 4500-P	36006		
2623556001	**FB-01**	SM 4500-S2 D	35996		
2623556002	**EB-01**	SM 4500-S2 D	35996		
2623556001	**FB-01**	SM 5210B	35994	SM 5210B	36230
2623556002	**EB-01**	SM 5210B	35994	SM 5210B	36230
2623556001	**FB-01**	TKN-NH3 Calculation	36340		
2623556002	**EB-01**	TKN-NH3 Calculation	36340		
2623556001	**FB-01**	EPA 300.0	35990		
2623556002	**EB-01**	EPA 300.0	35990		
2623556001	**FB-01**	EPA 350.1	36095		
2623556002	**EB-01**	EPA 350.1	36095		
2623556001	**FB-01**	EPA 351.2	36141	EPA 351.2	36143
2623556002	**EB-01**	EPA 351.2	36141	EPA 351.2	36143
2623556001	**FB-01**	SM 5310B	574634		
2623556002	**EB-01**	SM 5310B	574634		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Lauren Petty, Geosyntec	Company Name:	
Atlanta, GA 30339				Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:	GW6581	Pace Profile #:	327 (AP)

Regulatory Agency:

State / Location: GA

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH + Zn Ac	Na2S2O3	Methanol	Other	Analyses Test (Y/N)	Total alkalinity, bicarbonate	orthophosphate	copper,iron,manganese,magnesium	mercury,phosphorous,potassium	sodium,total hardness,zinc	sulfide	dissolved organic carbon	nitrate/nitrite	TDS, TSS, Residual Chlorine	ammonia nitrogen, TKN, TON	BOD (5-day)	Oil and grease by 1664	Residual Chlorine (Y/N)	
	Requested Analysis Filtered (Y/N)																	N	N	N	N	N	N	N	N	N	N	N	N	
1	FB-01	WT	G	9/24/19	1715	9/24/19	1725	20	10	3	1		5	1				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Collected duplicate at MW
2	EB-01	WT	G	9/24/19	1730	9/24/19	1740	20	10	3	1		5	1				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
3																														
4																														
5																														
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8																														
9																														
10																														
11																														
12																														

NM 09/24/19

WO# : 2623556

2623556

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Noelia Muskus / Geosyntec	9/24/19	20:10	Pace	9.25.19	1117	
	Pace	9.25.19	1403	M Zahmann	9/25/19	1403	
							3.0 Y Y X

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Noelia Muskus

SIGNATURE of SAMPLER: Noelia Muskus DATE Signed: 09/24/19

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

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power Project #

WO#: 2623556

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other

Tracking #:

PM: BM Due Date: 10/02/19

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 3.0 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 9/25/19 MP

Temp should be above freezing to 6°C

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

November 11, 2019

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

RE: Project: Plant Hammond
Pace Project No.: 2623562

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on September 25, 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,

Kevin Herring 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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

CERTIFICATIONS

Project: Plant Hammond
Pace Project No.: 2623562

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

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174
Alaska DEC- CS/UST/LUST
Alabama Certification #: 41320
Arizona Certification# AZ0819
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
New Hampshire Certification #: 2958
New Jersey Certification #: FL022
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
North Dakota Certification #: R-216
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

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SAMPLE SUMMARY

Project: Plant Hammond
Pace Project No.: 2623562

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623562001	**HGWA-5**	Water	09/24/19 12:20	09/25/19 14:03
2623562002	**HGWA-6**	Water	09/24/19 11:27	09/25/19 14:03
2623562003	**HGWA-4**	Water	09/24/19 10:52	09/25/19 14:03
2623562004	**HGWC-14**	Water	09/24/19 12:30	09/25/19 14:03
2623562005	**HGWC-15**	Water	09/24/19 14:25	09/25/19 14:03

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SAMPLE ANALYTE COUNT

Project: Plant Hammond
Pace Project No.: 2623562

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2623562001	**HGWA-5**	EPA 6010	LEC	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	MWB	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623562002	**HGWA-6**	EPA 6010	LEC	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	MWB	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623562003	**HGWA-4**	EPA 6010	LEC	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	MWB	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623562004	**HGWC-14**	EPA 6010	LEC	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	MWB	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623562005	**HGWC-15**	EPA 6010D	KLH	7	PASI-GA
		EPA 6020B	CSW	2	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 1664B	SJS	1	PASI-GA
		SM 2320B	S1A	2	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		SM 2540D	ALW	1	PASI-GA
		SM 4500-Cl G	KN	1	PASI-GA
		SM 4500-P	MWB	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5210B	KN	1	PASI-GA
		TKN-NH3 Calculation	LPH	1	PASI-GA
		EPA 300.0	MWB	2	PASI-GA
		EPA 350.1	ANB	1	PASI-GA
		EPA 351.2	ANB	1	PASI-GA
		SM 5310B	SA1	1	PASI-O

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ANALYTICAL RESULTS

Project: Plant Hammond
Pace Project No.: 2623562

Sample: HGWA-5 **Lab ID: 2623562001** Collected: 09/24/19 12:20 Received: 09/25/19 14:03 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**1.5**	mg/L	0.040	0.0092	1	10/08/19 14:47	10/09/19 21:51	7439-89-6	
Magnesium	**5.6**	mg/L	0.50	0.084	1	10/08/19 14:47	10/09/19 21:51	7439-95-4	
Manganese	**0.077**	mg/L	0.0050	0.00042	1	10/08/19 14:47	10/09/19 21:51	7439-96-5	
Phosphorus	**0.039J**	mg/L	0.045	0.014	1	10/08/19 14:47	10/09/19 21:51	7723-14-0	N2
Potassium	**0.65J**	mg/L	1.0	0.15	1	10/08/19 14:47	10/09/19 21:51	7440-09-7	
Sodium	**6.2**	mg/L	2.0	0.27	1	10/08/19 14:47	10/09/19 21:51	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**90.0**	mg/L	20.0	20.0	1		09/30/19 16:45		
Alkalinity, Total as CaCO3	**90.0**	mg/L	20.0	20.0	1		09/30/19 16:45		
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/25/19 21:01		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		09/26/19 10:52	18496-25-8	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/01/19 15:51		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: Plant Hammond
Pace Project No.: 2623562

Sample: HGWA-6 **Lab ID: 2623562002** Collected: 09/24/19 11:27 Received: 09/25/19 14:03 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**0.49**	mg/L	0.040	0.0092	1	10/08/19 14:47	10/09/19 21:56	7439-89-6	
Magnesium	**10**	mg/L	0.50	0.084	1	10/08/19 14:47	10/09/19 21:56	7439-95-4	
Manganese	**0.071**	mg/L	0.0050	0.00042	1	10/08/19 14:47	10/09/19 21:56	7439-96-5	
Phosphorus	**0.036J**	mg/L	0.045	0.014	1	10/08/19 14:47	10/09/19 21:56	7723-14-0	N2
Potassium	**0.56J**	mg/L	1.0	0.15	1	10/08/19 14:47	10/09/19 21:56	7440-09-7	
Sodium	**7.9**	mg/L	2.0	0.27	1	10/08/19 14:47	10/09/19 21:56	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**158**	mg/L	20.0	20.0	1		09/30/19 16:55		
Alkalinity, Total as CaCO3	**158**	mg/L	20.0	20.0	1		09/30/19 16:55		
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	**0.038**	mg/L	0.020	0.020	1		09/25/19 21:01		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		09/26/19 10:53	18496-25-8	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/01/19 16:02		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: Plant Hammond
Pace Project No.: 2623562

Sample: HGWA-4 **Lab ID: 2623562003** Collected: 09/24/19 10:52 Received: 09/25/19 14:03 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**0.021J**	mg/L	0.040	0.0092	1	10/11/19 01:26	10/11/19 15:23	7439-89-6	
Magnesium	**1.3**	mg/L	0.50	0.084	1	10/11/19 01:26	10/11/19 15:23	7439-95-4	
Manganese	**0.035**	mg/L	0.0050	0.00042	1	10/11/19 01:26	10/11/19 15:23	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/11/19 01:26	10/11/19 15:23	7723-14-0	N2
Potassium	**0.24J**	mg/L	1.0	0.15	1	10/11/19 01:26	10/11/19 15:23	7440-09-7	
Sodium	**8.3**	mg/L	2.0	0.27	1	10/11/19 01:26	10/11/19 15:23	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**109**	mg/L	20.0	20.0	1		09/30/19 16:56		
Alkalinity, Total as CaCO3	**109**	mg/L	20.0	20.0	1		09/30/19 16:56		
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/25/19 21:03		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		09/26/19 10:54	18496-25-8	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	**0.85J**	mg/L	1.0	0.50	1		10/01/19 16:18		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Hammond
Pace Project No.: 2623562

Sample: HGWC-14 **Lab ID: 2623562004** Collected: 09/24/19 12:30 Received: 09/25/19 14:03 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**0.84**	mg/L	0.040	0.0092	1	10/08/19 14:47	10/09/19 22:00	7439-89-6	
Magnesium	**53.5**	mg/L	0.50	0.084	1	10/08/19 14:47	10/09/19 22:00	7439-95-4	
Manganese	**5.5**	mg/L	0.10	0.0084	20	10/08/19 14:47	10/10/19 13:29	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 14:47	10/09/19 22:00	7723-14-0	N2
Potassium	**12.1**	mg/L	1.0	0.15	1	10/08/19 14:47	10/09/19 22:00	7440-09-7	
Sodium	**12.1**	mg/L	2.0	0.27	1	10/08/19 14:47	10/09/19 22:00	7440-23-5	
2320B Alkalinity Low Level	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	ND	mg/L	1.0	1.0	1		10/02/19 13:00		
Alkalinity, Total as CaCO3	ND	mg/L	1.0	1.0	1		10/02/19 13:00		
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/25/19 21:02		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		09/26/19 10:55	18496-25-8	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	**0.52J**	mg/L	1.0	0.50	1		10/01/19 16:33		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond
Pace Project No.: 2623562

Sample: HGWC-15 **Lab ID: 2623562005** Collected: 09/24/19 14:25 Received: 09/25/19 14:03 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Iron	**0.053**	mg/L	0.040	0.015	1	09/26/19 18:42	10/01/19 22:40	7439-89-6	
Magnesium	**37.9**	mg/L	0.50	0.11	10	09/26/19 18:42	10/06/19 15:52	7439-95-4	
Manganese	**16.3**	mg/L	0.040	0.0061	1	09/26/19 18:42	10/01/19 22:40	7439-96-5	
Phosphorus	**0.10**	mg/L	0.050	0.023	1	09/26/19 18:42	10/03/19 20:38	7723-14-0	
Potassium	**0.89**	mg/L	0.20	0.026	1	09/26/19 18:42	10/03/19 20:38	7440-09-7	
Sodium	**14.7**	mg/L	1.0	0.19	1	09/26/19 18:42	10/03/19 20:38	7440-23-5	
Total Hardness by 2340B	**681**	mg/L	27.0	4.0	10	09/26/19 18:42	10/06/19 15:52		
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Copper	**0.00086J**	mg/L	0.025	0.00019	1	09/27/19 15:26	10/01/19 11:56	7440-50-8	
Zinc	**0.0085J**	mg/L	0.010	0.0015	1	09/27/19 15:26	10/01/19 11:56	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	**0.024**	mg/L	0.00050	0.00014	1	09/30/19 10:50	10/01/19 12:47	7439-97-6	
HEM, Oil and Grease	Analytical Method: EPA 1664B								
Oil and Grease	ND	mg/L	4.9	4.9	1		09/30/19 08:00		
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**124**	mg/L	20.0	20.0	1		09/30/19 17:10		
Alkalinity, Total as CaCO3	**124**	mg/L	20.0	20.0	1		09/30/19 17:10		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1070**	mg/L	10.0	10.0	1		09/26/19 18:05		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	ND	mg/L	5.0	5.0	1		09/27/19 16:28		
4500CL G Chlorine, Residual	Analytical Method: SM 4500-Cl G								
Chlorine, Total Residual	ND	mg/L	0.1	0.1	1		09/27/19 15:37	7782-50-5	H3,H6
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/25/19 21:02		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		09/26/19 10:56	18496-25-8	
5210B BOD, 5 day	Analytical Method: SM 5210B Preparation Method: SM 5210B								
BOD, 5 day	ND	mg/L	2.0	2.0	1	09/26/19 09:30	10/01/19 10:09		1A
Total Organic Nitrogen Calc.	Analytical Method: TKN-NH3 Calculation								
Total Organic Nitrogen	ND	mg/L	0.40	0.40	1		10/02/19 12:32		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
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(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond
Pace Project No.: 2623562

Sample: HGWC-15 **Lab ID: 2623562005** Collected: 09/24/19 14:25 Received: 09/25/19 14:03 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	**0.74**	mg/L	0.050	0.0050	1		09/26/19 10:59	14797-55-8	
Nitrite as N	**0.030J**	mg/L	0.050	0.011	1		09/26/19 10:59	14797-65-0	B
350.1 Ammonia	Analytical Method: EPA 350.1								
Nitrogen, Ammonia	ND	mg/L	0.10	0.10	1		09/30/19 10:33	7664-41-7	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2								
Nitrogen, Kjeldahl, Total	ND	mg/L	0.40	0.40	1	10/01/19 09:05	10/01/19 13:23	7727-37-9	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	**0.61J**	mg/L	1.0	0.50	1		10/01/19 17:25		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623562

QC Batch: 36152 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Associated Lab Samples: 2623562005

METHOD BLANK: 163281 Matrix: Water
Associated Lab Samples: 2623562005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	10/01/19 12:04	

LABORATORY CONTROL SAMPLE: 163282

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: 163283 163284

Parameter	Units	2623578001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	ND	0.0025	0.0025	0.0019	0.0021	77	83	75-125	8	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

Pace Analytical Services, LLC
110 Technology Parkway
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(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623562

QC Batch: 576632 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 2623562001, 2623562002, 2623562004

METHOD BLANK: 3133743 Matrix: Water
Associated Lab Samples: 2623562001, 2623562002, 2623562004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	mg/L	ND	0.040	0.0092	10/10/19 13:56	
Magnesium	mg/L	ND	0.50	0.084	10/10/19 13:56	
Manganese	mg/L	ND	0.0050	0.00042	10/10/19 13:56	
Phosphorus	mg/L	ND	0.045	0.014	10/10/19 13:56	N2
Potassium	mg/L	ND	1.0	0.15	10/10/19 13:56	
Sodium	mg/L	ND	2.0	0.27	10/10/19 13:56	

LABORATORY CONTROL SAMPLE: 3133744

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	mg/L	2.5	2.6	105	80-120	
Magnesium	mg/L	12.5	13.0	104	80-120	
Manganese	mg/L	0.25	0.26	106	80-120	
Phosphorus	mg/L	0.25	0.25	99	80-120	N2
Potassium	mg/L	12.5	12.8	103	80-120	
Sodium	mg/L	12.5	13.2	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3133745 3133746

Parameter	Units	2623752004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	mg/L	0.22	2.5	2.5	2.8	2.8	105	103	75-125	1	20	
Magnesium	mg/L	8.5	12.5	12.5	21.6	21.3	105	103	75-125	2	20	
Manganese	mg/L	0.040	0.25	0.25	0.31	0.30	107	103	75-125	3	20	
Phosphorus	mg/L	0.019J	0.25	0.25	0.28	0.28	103	104	75-125	1	20	N2
Potassium	mg/L	0.69J	12.5	12.5	13.6	13.5	103	103	75-125	1	20	
Sodium	mg/L	118	12.5	12.5	135	131	130	102	75-125	3	20	M1

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623562

QC Batch: 577481
QC Batch Method: EPA 3010
Analysis Method: EPA 6010
Analysis Description: 6010 MET
Associated Lab Samples: 2623562003

METHOD BLANK: 3139682 Matrix: Water
Associated Lab Samples: 2623562003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	mg/L	ND	0.040	0.0092	10/11/19 15:14	
Magnesium	mg/L	ND	0.50	0.084	10/11/19 15:14	
Manganese	mg/L	ND	0.0050	0.00042	10/11/19 15:14	
Phosphorus	mg/L	ND	0.045	0.014	10/11/19 15:14	N2
Potassium	mg/L	ND	1.0	0.15	10/11/19 15:14	
Sodium	mg/L	ND	2.0	0.27	10/11/19 15:14	

LABORATORY CONTROL SAMPLE: 3139683

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	mg/L	2.5	2.6	106	80-120	
Magnesium	mg/L	12.5	13.1	105	80-120	
Manganese	mg/L	0.25	0.27	109	80-120	
Phosphorus	mg/L	0.25	0.26	103	80-120	N2
Potassium	mg/L	12.5	13.0	104	80-120	
Sodium	mg/L	12.5	13.2	105	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3139684 3139685

Parameter	Units	2623562003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	mg/L	0.021J	2.5	2.5	2.6	2.6	103	103	75-125	0	20	
Magnesium	mg/L	1.3	12.5	12.5	13.8	13.9	101	101	75-125	0	20	
Manganese	mg/L	0.035	0.25	0.25	0.30	0.30	106	107	75-125	1	20	
Phosphorus	mg/L	ND	0.25	0.25	0.26	0.26	105	104	75-125	0	20	N2
Potassium	mg/L	0.24J	12.5	12.5	12.9	13.0	102	102	75-125	0	20	
Sodium	mg/L	8.3	12.5	12.5	21.2	21.3	103	104	75-125	0	20	

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QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623562

QC Batch: 36024
QC Batch Method: EPA 3010A
Associated Lab Samples: 2623562005

Analysis Method: EPA 6010D
Analysis Description: 6010D MET

METHOD BLANK: 162383 Matrix: Water
Associated Lab Samples: 2623562005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	mg/L	ND	0.040	0.015	10/01/19 21:03	
Magnesium	mg/L	ND	0.050	0.011	10/01/19 21:03	
Manganese	mg/L	ND	0.040	0.0061	10/01/19 21:03	
Phosphorus	mg/L	ND	0.050	0.023	10/01/19 21:03	
Potassium	mg/L	ND	0.20	0.026	10/01/19 21:03	
Sodium	mg/L	ND	1.0	0.19	10/01/19 21:03	
Total Hardness by 2340B	mg/L	ND	2.7	0.40	10/01/19 21:03	

LABORATORY CONTROL SAMPLE: 162384

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	mg/L	1	1.0	104	80-120	
Magnesium	mg/L	1	1.1	111	80-120	
Manganese	mg/L	1	1.0	105	80-120	
Phosphorus	mg/L	1	1.0	105	80-120	
Potassium	mg/L	1	1.1	107	80-120	
Sodium	mg/L	1	1.1	107	80-120	
Total Hardness by 2340B	mg/L	6.6	7.1	107	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 162385 162386

Parameter	Units	2623499001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	mg/L	0.022J			1.1	1.1				2	20	
Magnesium	mg/L	5.4			6.9	6.9				1	20	
Manganese	mg/L	0.20			1.2	1.3				1	20	
Phosphorus	mg/L	ND			1.3	1.3				5	20	
Potassium	mg/L	0.33			1.7	1.8				3	20	
Sodium	mg/L	20.4			26.8	27.0				1	20	
Total Hardness by 2340B	mg/L				330	332				1	20	

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QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623562

QC Batch: 36079
QC Batch Method: EPA 3005A
Associated Lab Samples: 2623562005

Analysis Method: EPA 6020B
Analysis Description: 6020B MET

METHOD BLANK: 162814 Matrix: Water
Associated Lab Samples: 2623562005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Copper	mg/L	ND	0.025	0.00019	09/30/19 19:37	
Zinc	mg/L	ND	0.010	0.0015	09/30/19 19:37	

LABORATORY CONTROL SAMPLE: 162815

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	mg/L	0.1	0.098	98	80-120	
Zinc	mg/L	0.1	0.10	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 162816 162817

Parameter	Units	2623500001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	mg/L	ND	0.1	0.1	0.099	0.094	99	94	75-125	6	20	
Zinc	mg/L	0.0019J	0.1	0.1	0.10	0.097	99	95	75-125	3	20	

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QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623562

QC Batch: 36120 Analysis Method: EPA 1664B
QC Batch Method: EPA 1664B Analysis Description: 1664 HEM, Oil and Grease
Associated Lab Samples: 2623562005

METHOD BLANK: 163051 Matrix: Water
Associated Lab Samples: 2623562005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Oil and Grease	mg/L	ND	5.0	5.0	09/30/19 08:00	

LABORATORY CONTROL SAMPLE: 163052

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Oil and Grease	mg/L	40	39.9	100	78-114	

MATRIX SPIKE SAMPLE: 163054

Parameter	Units	2623556001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Oil and Grease	mg/L	ND	39.2	37.5	93	78-114	

SAMPLE DUPLICATE: 163053

Parameter	Units	2623453001 Result	Dup Result	RPD	Max RPD	Qualifiers
Oil and Grease	mg/L	ND	ND		75	

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QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623562

QC Batch: 36180 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 2623562001, 2623562002, 2623562003, 2623562005

METHOD BLANK: 163383 Matrix: Water
Associated Lab Samples: 2623562001, 2623562002, 2623562003, 2623562005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	20.0	20.0	09/30/19 14:21	

LABORATORY CONTROL SAMPLE: 163384

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	100	100	100	85-115	

SAMPLE DUPLICATE: 163385

Parameter	Units	2623563001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	177	174	2	10	

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QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623562

QC Batch: 36336 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity, Low Level
Associated Lab Samples: 2623562004

METHOD BLANK: 164031 Matrix: Water
Associated Lab Samples: 2623562004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	1.0	1.0	10/02/19 12:39	

LABORATORY CONTROL SAMPLE: 164032

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	50	48.0	96	85-115	

SAMPLE DUPLICATE: 164047

Parameter	Units	2623614004 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	13.5	14.0	4	10	

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QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623562

QC Batch: 36029
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2623562005

LABORATORY CONTROL SAMPLE: 162444

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	393	98	84-108	

SAMPLE DUPLICATE: 162445

Parameter	Units	2623494001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	222	248	11	10	D6

SAMPLE DUPLICATE: 162446

Parameter	Units	2623553001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	ND	ND		10	D6

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QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623562

QC Batch: 36092 — Analysis Method: SM 2540D
QC Batch Method: SM 2540D — Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 2623562005

METHOD BLANK: 162876 — Matrix: Water
Associated Lab Samples: 2623562005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	5.0	5.0	09/27/19 16:27	

LABORATORY CONTROL SAMPLE: 162877

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	100	100	100	90-110	

SAMPLE DUPLICATE: 162878

Parameter	Units	2623124002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	307	318	4	10	H1

SAMPLE DUPLICATE: 162879

Parameter	Units	2623546003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	34.0	34.0	0	10	

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QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623562

QC Batch: 36088 Analysis Method: SM 4500-Cl G
QC Batch Method: SM 4500-Cl G Analysis Description: 4500CL G Chlorine, Total Residual
Associated Lab Samples: 2623562005

METHOD BLANK: 162851 Matrix: Water
Associated Lab Samples: 2623562005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorine, Total Residual	mg/L	ND	0.1	0.1	09/27/19 15:35	H6

LABORATORY CONTROL SAMPLE: 162852

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorine, Total Residual	mg/L	1	1	100	86-116	H6

SAMPLE DUPLICATE: 162870

Parameter	Units	2623664001 Result	Dup Result	RPD	Max RPD	Qualifiers
Chlorine, Total Residual	mg/L	0.1	0.1	0	10	H3,H6

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QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623562

QC Batch: 35993 Analysis Method: SM 4500-P
QC Batch Method: SM 4500-P Analysis Description: 4500PE Ortho Phosphorus
Associated Lab Samples: 2623562001, 2623562002, 2623562003, 2623562004, 2623562005

METHOD BLANK: 162147 Matrix: Water
Associated Lab Samples: 2623562001, 2623562002, 2623562003, 2623562004, 2623562005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Orthophosphate as P	mg/L	ND	0.020	0.020	09/25/19 20:56	

LABORATORY CONTROL SAMPLE: 162148

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Orthophosphate as P	mg/L	0.5	0.51	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 162149 162150

Parameter	Units	2623562003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Orthophosphate as P	mg/L	ND	0.5	0.5	0.53	0.52	106	104	80-120	1	10	

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QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623562

QC Batch: 35996 Analysis Method: SM 4500-S2 D
QC Batch Method: SM 4500-S2 D Analysis Description: 4500S2D Sulfide Water
Associated Lab Samples: 2623562001, 2623562002, 2623562003, 2623562004, 2623562005

METHOD BLANK: 162154 Matrix: Water
Associated Lab Samples: 2623562001, 2623562002, 2623562003, 2623562004, 2623562005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide	mg/L	ND	0.20	0.20	09/26/19 09:18	

LABORATORY CONTROL SAMPLE: 162155

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide	mg/L	0.5	0.45	90	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 162156 162157

Parameter	Units	2623499001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide	mg/L	ND	0.5	0.5	0.48	0.47	96	94	30-129	2	10	

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QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623562

QC Batch: 35994 Analysis Method: SM 5210B
QC Batch Method: SM 5210B Analysis Description: 5210B BOD, 5 day
Associated Lab Samples: 2623562005

METHOD BLANK: 162151 Matrix: Water
Associated Lab Samples: 2623562005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
BOD, 5 day	mg/L	ND	2.0	2.0	10/01/19 09:55	1A

LABORATORY CONTROL SAMPLE: 162153

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
BOD, 5 day	mg/L	198	198	100	85-115	1A

SAMPLE DUPLICATE: 162313

Parameter	Units	2623577001 Result	Dup Result	RPD	Max RPD	Qualifiers
BOD, 5 day	mg/L	193	192	1	20	1A

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QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623562

QC Batch: 35990
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2623562005

METHOD BLANK: 162133
Matrix: Water
Associated Lab Samples: 2623562005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.050	0.0050	09/26/19 08:55	
Nitrite as N	mg/L	0.013J	0.050	0.011	09/26/19 08:55	

LABORATORY CONTROL SAMPLE: 162134

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	10	10.4	104	90-110	
Nitrite as N	mg/L	10	10.5	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 162135 162136

Parameter	Units	2623556001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/L	0.016J	10	10	10.2	10.1	102	101	90-110	1	15	
Nitrite as N	mg/L	0.021J	10	10	10.3	10.5	103	105	90-110	2	15	

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QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623562

QC Batch: 36095 Analysis Method: EPA 350.1
QC Batch Method: EPA 350.1 Analysis Description: 350.1 Ammonia
Associated Lab Samples: 2623562005

METHOD BLANK: 162900 Matrix: Water
Associated Lab Samples: 2623562005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	ND	0.10	0.10	09/30/19 10:18	

LABORATORY CONTROL SAMPLE: 162901

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	10	10.3	103	90-110	

MATRIX SPIKE SAMPLE: 162902

Parameter	Units	2623600001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	ND	10	10.2	102	90-110	

MATRIX SPIKE SAMPLE: 162903

Parameter	Units	2623679001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	0.33	10	12.1	118	90-110	M1

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QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623562

QC Batch: 36222 Analysis Method: EPA 351.2
QC Batch Method: EPA 351.2 Analysis Description: 351.2 TKN
Associated Lab Samples: 2623562005

METHOD BLANK: 163614 Matrix: Water
Associated Lab Samples: 2623562005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	ND	0.40	0.40	10/01/19 13:03	

LABORATORY CONTROL SAMPLE: 163615

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	10	10.7	107	90-110	

MATRIX SPIKE SAMPLE: 163616

Parameter	Units	2623680001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	2.3	10	10.5	82	90-110	M1

MATRIX SPIKE SAMPLE: 163621

Parameter	Units	2623680003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	3.5	10	12.3	88	90-110	M1

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QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623562

QC Batch: 574634 Analysis Method: SM 5310B
QC Batch Method: SM 5310B Analysis Description: 5310B Dissolved Organic Carbon
Associated Lab Samples: 2623562001, 2623562002, 2623562003, 2623562004, 2623562005

METHOD BLANK: 3122436 Matrix: Water
Associated Lab Samples: 2623562001, 2623562002, 2623562003, 2623562004, 2623562005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.50	10/01/19 14:32	

LABORATORY CONTROL SAMPLE: 3122437

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	20	18.6	93	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3122438 3122439

Parameter	Units	2623556001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Dissolved Organic Carbon	mg/L	ND	20	20	19.6	19.5	96	95	80-120	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3122440 3122441

Parameter	Units	2623635001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Dissolved Organic Carbon	mg/L	ND	20	20	19.6	19.5	96	95	80-120	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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2623562

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-GA	Pace Analytical Services - Atlanta, GA
PASI-O	Pace Analytical Services - Ormond Beach

SAMPLE QUALIFIERS

Sample: 2623562005

[1]	Sample was received outside the recognized method holding time; client notified and approved.

BATCH QUALIFIERS

Batch: 36230

[1]	The calculated SCF was below the desired range of 0.6 to 1.0 mg/L. All other QC indicators, including the LCS, were within acceptance criteria

ANALYTE QUALIFIERS

1A	The calculated SCF was below the desired range of 0.6 to 1.0 mg/L. All other QC indicators, including the LCS, were within acceptance criteria
B	Analyte was detected in the associated method blank.
D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
H1	Analysis conducted outside the EPA method holding time.
H3	Sample was received or analysis requested beyond the recognized method holding time.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2623562

ANALYTE QUALIFIERS

N2	The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond
Pace Project No.: 2623562

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623562001	**HGWA-5**	EPA 3010	576632	EPA 6010	576717
2623562002	**HGWA-6**	EPA 3010	576632	EPA 6010	576717
2623562003	**HGWA-4**	EPA 3010	577481	EPA 6010	577485
2623562004	**HGWC-14**	EPA 3010	576632	EPA 6010	576717
2623562005	**HGWC-15**	EPA 3010A	36024	EPA 6010D	36072
2623562005	**HGWC-15**	EPA 3005A	36079	EPA 6020B	36104
2623562005	**HGWC-15**	EPA 7470A	36152	EPA 7470A	36190
2623562005	**HGWC-15**	EPA 1664B	36120		
2623562001	**HGWA-5**	SM 2320B	36180		
2623562002	**HGWA-6**	SM 2320B	36180		
2623562003	**HGWA-4**	SM 2320B	36180		
2623562005	**HGWC-15**	SM 2320B	36180		
2623562004	**HGWC-14**	SM 2320B	36336		
2623562005	**HGWC-15**	SM 2540C	36029		
2623562005	**HGWC-15**	SM 2540D	36092		
2623562005	**HGWC-15**	SM 4500-Cl G	36088		
2623562001	**HGWA-5**	SM 4500-P	35993		
2623562002	**HGWA-6**	SM 4500-P	35993		
2623562003	**HGWA-4**	SM 4500-P	35993		
2623562004	**HGWC-14**	SM 4500-P	35993		
2623562005	**HGWC-15**	SM 4500-P	35993		
2623562001	**HGWA-5**	SM 4500-S2 D	35996		
2623562002	**HGWA-6**	SM 4500-S2 D	35996		
2623562003	**HGWA-4**	SM 4500-S2 D	35996		
2623562004	**HGWC-14**	SM 4500-S2 D	35996		
2623562005	**HGWC-15**	SM 4500-S2 D	35996		
2623562005	**HGWC-15**	SM 5210B	35994	SM 5210B	36230
2623562005	**HGWC-15**	TKN-NH3 Calculation	36340		
2623562005	**HGWC-15**	EPA 300.0	35990		
2623562005	**HGWC-15**	EPA 350.1	36095		
2623562005	**HGWC-15**	EPA 351.2	36222	EPA 351.2	36226
2623562001	**HGWA-5**	SM 5310B	574634		
2623562002	**HGWA-6**	SM 5310B	574634		
2623562003	**HGWA-4**	SM 5310B	574634		
2623562004	**HGWC-14**	SM 5310B	574634		
2623562005	**HGWC-15**	SM 5310B	574634		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 4

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Lauren Petty, Geosyntec	Company Name:	
Atlanta, GA 30339				Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:	GW6581	Pace Profile #:	327 (AP)

Regulatory Agency

State / Location: GA

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

MATRIX	CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Other	OT
Tissue	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH + Zn Ac	Na2S2O3	Methanol	Other	Analyses Test (Y/N)	Total alkalinity, bicarbonate	orthophosphate	copper,iron,manganese,magnesium	mercury,phosphorous,potassium	sodium,total hardness,zinc	sulfide	dissolved organic carbon	nitrate/nitrite	TDS, TSS, Residual Chlorine	ammonia nitrogen, TKN, TON	BOD (5-day)	Oil and grease by 1664	Residual Chlorine (Y/N)	
	Requested Analysis Filtered (Y/N)																	Y/N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
1	HGWA-5	WT	G	9/24/19	1111	9/24/19	1220	21	10	3	1		5	1				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	orthophosphate & DOC Field Filtered
2																																
3																																
4																																
5																																
6																																
7																																
8																																
9																																
10																																
11																																
12																																

NM 09/24/19

WO# : 2623562

2623562

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Noelia Muskus / Geosyntec	9/24/19	20:10	Pace	9.25.19	1117				
	Pace	9.25.19	1408	MZalman	9/25/19	1403				
							3.0	Y	Y	Y

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

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Noelia Muskus

SIGNATURE of SAMPLER: Noelia Muskus DATE Signed: 09/24/19

CHAIN-OF-CUSTODY / Analytical Request Document

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Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Lauren Petty, Geosyntec	Company Name:	
Atlanta, GA 30339				Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:	GW6591	Pace Profile #:	327 (AP)

Regulatory Agency: —

State / Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH + Zn Ac	Na2S2O3	Methanol	Other	Analyses Test Y/N	Total alkalinity, bicarbonate	orthophosphate	iron,manganese,magnesium	phosphorous,potassium	sodium	sulfide	dissolved organic carbon	Residual Chlorine (Y/N)	
		MATRIX: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS																	Y	N	N	N	N	N	Y		
1	HGWA-6	WT	G	9/24/19	1015	9/24/19	1127	20	6	2			3	1					Y	Y	Y	Y	Y	Y	Y	N	Orthophosphate field filtered Please filter DOC
2																											
3																											
4																											
5																											
6																											
7																											
8																											
9																											
10																											
11																											
12																											

BDW 9/24/19

WO# : 2623562

PM: BM Due Date: 10/02/19

CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Ben Weinmann / Geosyntec	9.24.19	1828	Malia Murdoch	9/24/19	1633	
	Geosyntec / Malia Murdoch	9/24/19	2010	Pace	9.25.19	1117	
	Pace	9.25.19	1403	MZalman	9/25/19	1403	

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

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Ben Weinmann

SIGNATURE of SAMPLER: Ben W

DATE Signed: 9.24.19

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Lauren Petty, Geosyntec	Company Name:	
Atlanta, GA 30339				Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:	GW6581	Pace Profile #:	327 (AP)

Regulatory Agency: —

State / Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH + Zn Ac	Na2S2O3	Methanol	Other	Analyses Test (Y/N)	Total alkalinity, bicarbonate	orthophosphate	iron, manganese, magnesium	phosphorous, potassium	sodium	sulfide	dissolved organic carbon	Residual Chlorine (Y/N)	
																		Y/N	N	N	N	N	N	N	N		
1	HGWA-4	WT	G	9/24/19	10:35	9/24/19	10:52	22.4	6	2			3	1					Y	Y	Y	Y	Y	Y	Y	N	ortho phosphate & DOC field filtered
2	HGWC-14	WT	G	9/24/19	12:10	9/24/19	12:30	22.4	6	2			3	1					Y	Y	Y	Y	Y	Y	Y	N	same as above
3																											
4																											
5																											
6																											
7																											
8																											
9																											
10																											
11																											
12																											

09-24-2019

WO#: 2623562

PM: BM Due Date: 10/02/19

CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	Dan / Geosyntec	9/24/19	18:10	Malia Mullins / Geosyntec	9/24/19	1810
	Malia Mullins / Geosyntec	9/24/19	2010	/ Pace	9.25.19	1117
	/ Pace	9.25.19	1403	MDalman	9/25/19	1403

SAMPLE CONDITIONS

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

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: DAN GIBBS

SIGNATURE of SAMPLER: [signature] DATE Signed: 9-24-2019

CHAIN-OF-CUSTODY / Analytical Request Document

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

Pace Analytical

Page : 4 of 4

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 TAT

Section B
Required Project Information:

Report To:	Joju Abraham
Copy To:	Lauren Petty, Geosyntec
Purchase Order #:	SCS10382775
Project Name:	Plant Hammond
Project #:	GW6581

Section C
Invoice Information:

Attention:	scsinvoices@southernco.com
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Pace Profile #:	327 (AP)

Regulatory Agency
State / Location
GA

MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

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

Requested Analysis Filtered (Y/N): Total alkalinity, bicarbonate N; orthophosphate N; copper,iron,manganese,magnesium N; mercury,phosphorous,potassium N; sodium,total hardness,zinc N; sulfide N; dissolved organic carbon N; nitrate/nitrite N; TDS, TSS, Residual Clorine N; ammonia nitrogen, TKN, TON N; BOD (5-day) N; Oil and grease by 1664 N

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH + Zn Ac	Na2S2O3	Methanol	Other	Analyses Test Y/N	Total alkalinity, bicarbonate	orthophosphate	copper,iron,manganese,magnesium	mercury,phosphorous,potassium	sodium,total hardness,zinc	sulfide	dissolved organic carbon	nitrate/nitrite	TDS, TSS, Residual Clorine	ammonia nitrogen, TKN, TON	BOD (5-day)	Oil and grease by 1664	Residual Chlorine (Y/N)	
1	HGWC-15	WT	G	9/24/19	13:45	9/24/19	14:25	20.7	10	3	1		5	1					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	orthophosphate & DOC field filtered
2																																
3																																
4																																
5																																
6																																
7																																
8																																
9																																
10																																
11																																
12																																

09-24-2019

WO# : 2623562
PM: BM Due Date: 10/02/19
CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Dan / Geosyntec	9/24/19	18:10	Malia Munhru / Geosyntec	9/24/19	1810				
	Malia Munhru / Geosyntec	9/24/19	20:10	[signature] / Pace	9.25.19	1117				
	[signature] / Pace	9.25.19	1403	[signature]	9/25/19	1403	0.3	Y	Y	Y
							TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: DAN GIBBS

SIGNATURE of SAMPLER: [signature]   DATE Signed: 9-24-19

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Docur

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

WO# : 2623562

PM: BM **Due Date: 10/02/19**

CLIENT: GAPower-CCR

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Lauren Petty, Geosyntec	Company Name:	
	Atlanta, GA 30339			Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:	6W6581	Pace Profile #:	327 (AP)

Regulatory Agency: —

State / Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH + Zn Ac	Na2S2O3	Methanol	Other	Analyses Test Y/N	Total alkalinity, bicarbonate	orthophosphate	iron,manganese,magnesium	phosphorous,potassium	sodium	sulfide	dissolved organic carbon	Residual Chlorine (Y/N)	
	MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS																	Y/N	Y	Y	Y	Y	Y	Y	Y		
1	HGWA-5	WT	G	9/24/19	1111	9/24/19	1220	21	6	2			3	1					Y	Y	Y	Y	Y	Y	Y	N	Orthophosphate & DOC were field filtered
2																											
3																											
4																											
5																											
6																											
7																											
8																											
9																											
10																											
11																											
12																											

NM 09/24/19

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Corrected COC for well HGWA-5	Noelia Muskus/Georgia	9/24/19	2010	J Miller/Pace	9/27/19	1142	
				Rahman	9/27/19	1330	
							0.3

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

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Noelia Muskus

SIGNATURE of SAMPLER: Noelia Muskus DATE Signed: 09/24/19

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power Project # _____

WO# : 2623562

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other

Tracking #: _____

PM: BM Due Date: 10/02/19

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 3.0 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 9/25/19 MP

Temp should be above freezing to 6°C

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

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: The Client submitted exactly same containeres with same analyses for HGWA-5 and HGWA-6 instead of what listed on COC for HGWA-5. The Containeres labels were used for login purposes for HGWA-5. The updated COC for HGWA-5 was received on 09/27/19 @ 1330.

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)

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

November 12, 2019

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

RE: Project: Plant Hammond AP GW6581
Pace Project No.: 2623638

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on September 26, 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,

Kevin Herring 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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

CERTIFICATIONS

Project: Plant Hammond AP GW6581
Pace Project No.: 2623638

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

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174
Alaska DEC- CS/UST/LUST
Alabama Certification #: 41320
Arizona Certification# AZ0819
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
New Hampshire Certification #: 2958
New Jersey Certification #: FL022
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
North Dakota Certification #: R-216
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

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(770)734-4200

SAMPLE SUMMARY

Project: Plant Hammond AP GW6581
Pace Project No.: 2623638

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623638001	**HGWC-16**	Water	09/25/19 11:00	09/26/19 15:22
2623638002	**HGWC-17**	Water	09/25/19 12:35	09/26/19 15:22
2623638003	**MW-21d**	Water	09/25/19 16:12	09/26/19 15:22
2623638004	**HGWC-18**	Water	09/25/19 14:38	09/26/19 15:22

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Plant Hammond AP GW6581
Pace Project No.: 2623638

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2623638001	**HGWC-16**	EPA 6010	CS2	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623638002	**HGWC-17**	EPA 6010	CS2	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623638003	**MW-21d**	EPA 6010	CS2	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623638004	**HGWC-18**	EPA 6010	CS2	7	PASI-O
		EPA 6020B	CSW	2	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 1664B	SJS	1	PASI-GA
		SM 2320B	S1A	2	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		SM 2540D	ALW	1	PASI-GA
		SM 4500-Cl G	KN	1	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5210B	KN	1	PASI-GA
		TKN-NH3 Calculation	LPH	1	PASI-GA
		EPA 300.0	MWB	2	PASI-GA
		EPA 350.1	ANB	1	PASI-GA
		EPA 351.2	ANB	1	PASI-GA
		SM 5310B	SA1	1	PASI-O

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ANALYTICAL RESULTS

Project: Plant Hammond AP GW6581
Pace Project No.: 2623638

Sample: HGWC-16 **Lab ID: 2623638001** Collected: 09/25/19 11:00 Received: 09/26/19 15:22 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**1.5**	mg/L	0.040	0.0092	1	10/08/19 16:13	10/09/19 13:10	7439-89-6	
Magnesium	**15.5**	mg/L	0.50	0.084	1	10/08/19 16:13	10/09/19 13:10	7439-95-4	
Manganese	**0.036**	mg/L	0.0050	0.00042	1	10/08/19 16:13	10/09/19 13:10	7439-96-5	
Phosphorus	**0.069**	mg/L	0.045	0.014	1	10/08/19 16:13	10/09/19 13:10	7723-14-0	N2
Potassium	**0.76J**	mg/L	1.0	0.15	1	10/08/19 16:13	10/09/19 13:10	7440-09-7	
Sodium	**9.9**	mg/L	2.0	0.27	1	10/08/19 16:13	10/09/19 13:10	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**192**	mg/L	20.0	20.0	1		10/01/19 17:52		
Alkalinity, Total as CaCO3	**192**	mg/L	20.0	20.0	1		10/01/19 17:52		
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	**0.021**	mg/L	0.020	0.020	1		09/27/19 10:42		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		09/30/19 15:49	18496-25-8	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/01/19 19:44		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Hammond AP GW6581
Pace Project No.: 2623638

Sample: HGWC-17 **Lab ID: 2623638002** Collected: 09/25/19 12:35 Received: 09/26/19 15:22 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**0.18**	mg/L	0.040	0.0092	1	10/08/19 16:13	10/09/19 13:13	7439-89-6	
Magnesium	**31.2**	mg/L	0.50	0.084	1	10/08/19 16:13	10/09/19 13:13	7439-95-4	
Manganese	**4.4**	mg/L	0.10	0.0084	20	10/08/19 16:13	10/10/19 14:58	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 16:13	10/09/19 13:13	7723-14-0	N2
Potassium	**2.7**	mg/L	1.0	0.15	1	10/08/19 16:13	10/09/19 13:13	7440-09-7	
Sodium	**15.3**	mg/L	2.0	0.27	1	10/08/19 16:13	10/09/19 13:13	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**182**	mg/L	20.0	20.0	1		10/01/19 18:01		
Alkalinity, Total as CaCO3	**182**	mg/L	20.0	20.0	1		10/01/19 18:01		
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/27/19 11:12		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		09/30/19 15:50	18496-25-8	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	**0.72J**	mg/L	1.0	0.50	1		10/01/19 20:41		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Hammond AP GW6581
Pace Project No.: 2623638

Sample: MW-21d **Lab ID: 2623638003** Collected: 09/25/19 16:12 Received: 09/26/19 15:22 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**14.6**	mg/L	0.040	0.0092	1	10/08/19 16:13	10/09/19 13:17	7439-89-6	
Magnesium	**67.0**	mg/L	0.50	0.084	1	10/08/19 16:13	10/09/19 13:17	7439-95-4	
Manganese	**0.99**	mg/L	0.0050	0.00042	1	10/08/19 16:13	10/09/19 13:17	7439-96-5	
Phosphorus	**0.032J**	mg/L	0.045	0.014	1	10/08/19 16:13	10/09/19 13:17	7723-14-0	N2
Potassium	**1.1**	mg/L	1.0	0.15	1	10/08/19 16:13	10/09/19 13:17	7440-09-7	
Sodium	**15.3**	mg/L	2.0	0.27	1	10/08/19 16:13	10/09/19 13:17	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**62.0**	mg/L	20.0	20.0	1		10/01/19 18:04		
Alkalinity, Total as CaCO3	**62.0**	mg/L	20.0	20.0	1		10/01/19 18:04		
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/27/19 11:12		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		09/30/19 15:51	18496-25-8	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/01/19 20:54		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Hammond AP GW6581
Pace Project No.: 2623638

Sample: HGWC-18 **Lab ID: 2623638004** Collected: 09/25/19 14:38 Received: 09/26/19 15:22 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Iron	**0.11**	mg/L	0.040	0.0092	1	10/08/19 16:13	10/09/19 13:20	7439-89-6	
Magnesium	**36.0**	mg/L	0.50	0.084	1	10/08/19 16:13	10/09/19 13:20	7439-95-4	
Manganese	**3.7**	mg/L	0.025	0.0021	5	10/08/19 16:13	10/09/19 17:59	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 16:13	10/09/19 13:20	7723-14-0	N2
Potassium	**8.9**	mg/L	1.0	0.15	1	10/08/19 16:13	10/09/19 13:20	7440-09-7	
Sodium	**10.4**	mg/L	2.0	0.27	1	10/08/19 16:13	10/09/19 13:20	7440-23-5	
Tot Hardness asCaCO3 (SM 2340B	**1060000**	ug/L	6420	1010	2	10/08/19 16:13	10/09/19 17:55		
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Copper	**0.0028J**	mg/L	0.025	0.00019	1	09/30/19 12:43	10/01/19 22:07	7440-50-8	
Zinc	**0.16**	mg/L	0.010	0.0015	1	09/30/19 12:43	10/01/19 22:07	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/03/19 09:37	10/03/19 15:38	7439-97-6	
HEM, Oil and Grease	Analytical Method: EPA 1664B								
Oil and Grease	ND	mg/L	4.8	4.8	1		10/01/19 07:30		
2320B Alkalinity Low Level	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	ND	mg/L	1.0	1.0	1		10/03/19 17:39		
Alkalinity, Total as CaCO3	ND	mg/L	1.0	1.0	1		10/03/19 17:39		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1950**	mg/L	10.0	10.0	1		10/02/19 12:05		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**6.0**	mg/L	5.0	5.0	1		09/27/19 18:18		
4500CL G Chlorine, Residual	Analytical Method: SM 4500-Cl G								
Chlorine, Total Residual	ND	mg/L	0.1	0.1	1		09/27/19 15:40	7782-50-5	H3,H6
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/27/19 11:13		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		09/30/19 15:52	18496-25-8	
5210B BOD, 5 day	Analytical Method: SM 5210B Preparation Method: SM 5210B								
BOD, 5 day	ND	mg/L	2.0	2.0	1	09/27/19 10:01	10/02/19 12:23		1A
Total Organic Nitrogen Calc.	Analytical Method: TKN-NH3 Calculation								
Total Organic Nitrogen	ND	mg/L	0.40	0.40	1		10/03/19 00:55		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: Plant Hammond AP GW6581
Pace Project No.: 2623638

Sample: HGWC-18 **Lab ID: 2623638004** Collected: 09/25/19 14:38 Received: 09/26/19 15:22 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	**0.081**	mg/L	0.050	0.0050	1		09/27/19 05:10	14797-55-8	B
Nitrite as N	**0.013J**	mg/L	0.050	0.011	1		09/27/19 05:10	14797-65-0	B
350.1 Ammonia	Analytical Method: EPA 350.1								
Nitrogen, Ammonia	**0.56**	mg/L	0.10	0.10	1		09/30/19 10:45	7664-41-7	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2								
Nitrogen, Kjeldahl, Total	**0.40**	mg/L	0.40	0.40	1	09/30/19 08:40	10/01/19 11:59	7727-37-9	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/01/19 21:12		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2623638

QC Batch: 36410
QC Batch Method: EPA 7470A
Analysis Method: EPA 7470A
Analysis Description: 7470 Mercury
Associated Lab Samples: 2623638004

METHOD BLANK: 164385
Matrix: Water
Associated Lab Samples: 2623638004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	10/03/19 14:32	

LABORATORY CONTROL SAMPLE: 164386

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0024	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 164387 164388

Parameter	Units	2623623008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L				0.0024	0.0024				3	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2623638

QC Batch: 576681 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 2623638001, 2623638002, 2623638003, 2623638004

METHOD BLANK: 3134011 Matrix: Water
Associated Lab Samples: 2623638001, 2623638002, 2623638003, 2623638004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	mg/L	ND	0.040	0.0092	10/09/19 12:43	
Magnesium	mg/L	ND	0.50	0.084	10/09/19 12:43	
Manganese	mg/L	ND	0.0050	0.00042	10/09/19 12:43	
Phosphorus	mg/L	ND	0.045	0.014	10/09/19 12:43	N2
Potassium	mg/L	ND	1.0	0.15	10/09/19 12:43	
Sodium	mg/L	ND	2.0	0.27	10/09/19 12:43	
Tot Hardness asCaCO3 (SM 2340B	ug/L	ND	3210	506	10/09/19 12:43	

LABORATORY CONTROL SAMPLE: 3134012

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	mg/L	2.5	2.5	98	80-120	
Magnesium	mg/L	12.5	12.2	98	80-120	
Manganese	mg/L	0.25	0.25	98	80-120	
Phosphorus	mg/L	0.25	0.23	92	80-120	N2
Potassium	mg/L	12.5	12.1	97	80-120	
Sodium	mg/L	12.5	12.3	98	80-120	
Tot Hardness asCaCO3 (SM 2340B	ug/L	82700	81100	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3134013 3134014

Parameter	Units	2623635003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	mg/L	3.1	2.5	2.5	5.6	5.6	98	100	75-125	1	20	
Magnesium	mg/L	8.6	12.5	12.5	21.1	21.2	99	101	75-125	1	20	
Manganese	mg/L	0.17	0.25	0.25	0.42	0.42	98	99	75-125	1	20	
Phosphorus	mg/L	0.083	0.25	0.25	0.33	0.33	98	99	75-125	1	20	N2
Potassium	mg/L	0.31J	12.5	12.5	13.1	13.1	102	103	75-125	0	20	
Sodium	mg/L	11.0	12.5	12.5	23.7	23.8	101	103	75-125	1	20	
Tot Hardness asCaCO3 (SM 2340B	ug/L	337000	82700	82700	418000	421000	99	102	75-125	1	20	

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QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2623638

QC Batch: 36170
QC Batch Method: EPA 3005A
Analysis Method: EPA 6020B
Analysis Description: 6020B MET
Associated Lab Samples: 2623638004

METHOD BLANK: 163336 Matrix: Water
Associated Lab Samples: 2623638004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Copper	mg/L	ND	0.025	0.00019	10/01/19 18:14	
Zinc	mg/L	ND	0.010	0.0015	10/01/19 18:14	

LABORATORY CONTROL SAMPLE: 163337

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	mg/L	0.1	0.10	100	80-120	
Zinc	mg/L	0.1	0.10	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 163338 163339

Parameter	Units	2623623007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	mg/L	ND	0.1	0.1	0.10	0.10	105	102	75-125	2	20	
Zinc	mg/L	0.0017J	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 AP GW6581
Pace Project No.: 2623638

QC Batch: 36214
QC Batch Method: EPA 1664B
Analysis Method: EPA 1664B
Analysis Description: 1664 HEM, Oil and Grease
Associated Lab Samples: 2623638004

METHOD BLANK: 163592 Matrix: Water
Associated Lab Samples: 2623638004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Oil and Grease	mg/L	ND	5.0	5.0	10/01/19 07:30	

LABORATORY CONTROL SAMPLE: 163593

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Oil and Grease	mg/L	40	39.9	100	78-114	

MATRIX SPIKE SAMPLE: 163595

Parameter	Units	2623546004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Oil and Grease	mg/L	ND	50	24.6	44	78-114	M3

MATRIX SPIKE SAMPLE: 163596

Parameter	Units	2623680002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Oil and Grease	mg/L	ND	50	27.5	50	78-114	M3

SAMPLE DUPLICATE: 163594

Parameter	Units	2623546002 Result	Dup Result	RPD	Max RPD	Qualifiers
Oil and Grease	mg/L	ND	ND		75	

SAMPLE DUPLICATE: 163597

Parameter	Units	2623680004 Result	Dup Result	RPD	Max RPD	Qualifiers
Oil and Grease	mg/L	ND	ND		75	

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2623638

QC Batch: 36284 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 2623638001, 2623638002, 2623638003

METHOD BLANK: 163853 Matrix: Water
Associated Lab Samples: 2623638001, 2623638002, 2623638003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	20.0	20.0	10/01/19 17:35	

LABORATORY CONTROL SAMPLE: 163854

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	100	98.0	98	85-115	

SAMPLE DUPLICATE: 163855

Parameter	Units	2623635002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	165	164	1	10	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2623638

QC Batch: 36448
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity, Low Level
Associated Lab Samples: 2623638004

METHOD BLANK: 164641
Matrix: Water
Associated Lab Samples: 2623638004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	1.0	1.0	10/03/19 17:36	

LABORATORY CONTROL SAMPLE: 164642

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	50	47.0	94	85-115	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2623638

QC Batch: 36325
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2623638004

LABORATORY CONTROL SAMPLE: 164004

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	421	105	84-108	

SAMPLE DUPLICATE: 164005

Parameter	Units	2623620005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	159	152	5	10	

SAMPLE DUPLICATE: 164006

Parameter	Units	2623623005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	81.0	83.0	2	10	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2623638

QC Batch: 36106
QC Batch Method: SM 2540D
Analysis Method: SM 2540D
Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 2623638004

METHOD BLANK: 162939
Matrix: Water
Associated Lab Samples: 2623638004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	5.0	5.0	09/27/19 18:18	

LABORATORY CONTROL SAMPLE: 162940

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	100	103	103	90-110	

SAMPLE DUPLICATE: 162941

Parameter	Units	2623617001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	48.0	51.0	6	10	

SAMPLE DUPLICATE: 162942

Parameter	Units	2623593001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	82.5	80.0	3	10	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2623638

QC Batch: 36088
QC Batch Method: SM 4500-Cl G
Analysis Method: SM 4500-Cl G
Analysis Description: 4500CL G Chlorine, Total Residual
Associated Lab Samples: 2623638004

METHOD BLANK: 162851
Matrix: Water
Associated Lab Samples: 2623638004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorine, Total Residual	mg/L	ND	0.1	0.1	09/27/19 15:35	H6

LABORATORY CONTROL SAMPLE: 162852

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorine, Total Residual	mg/L	1	1	100	86-116	H6

SAMPLE DUPLICATE: 162870

Parameter	Units	2623664001 Result	Dup Result	RPD	Max RPD	Qualifiers
Chlorine, Total Residual	mg/L	0.1	0.1	0	10	H3,H6

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2623638

QC Batch: 36055 Analysis Method: SM 4500-P
QC Batch Method: SM 4500-P Analysis Description: 4500PE Ortho Phosphorus
Associated Lab Samples: 2623638001, 2623638002, 2623638003, 2623638004

METHOD BLANK: 162666 Matrix: Water
Associated Lab Samples: 2623638001, 2623638002, 2623638003, 2623638004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Orthophosphate as P	mg/L	ND	0.020	0.020	09/27/19 10:41	

LABORATORY CONTROL SAMPLE: 162667

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Orthophosphate as P	mg/L	0.5	0.52	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 162668 162669

Parameter	Units	2623638001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Orthophosphate as P	mg/L	0.021	0.5	0.5	0.53	0.53	101	102	80-120	1	10	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2623638

QC Batch: 36186 Analysis Method: SM 4500-S2 D
QC Batch Method: SM 4500-S2 D Analysis Description: 4500S2D Sulfide Water
Associated Lab Samples: 2623638001, 2623638002, 2623638003, 2623638004

METHOD BLANK: 163399 Matrix: Water
Associated Lab Samples: 2623638001, 2623638002, 2623638003, 2623638004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide	mg/L	ND	0.20	0.20	09/30/19 14:59	

LABORATORY CONTROL SAMPLE: 163400

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide	mg/L	0.5	0.51	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 163401 163402

Parameter	Units	2623644003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide	mg/L	ND	0.5	0.5	0.49	0.50	98	100	30-129	2	10	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2623638

QC Batch: 36054 Analysis Method: SM 5210B
QC Batch Method: SM 5210B Analysis Description: 5210B BOD, 5 day
Associated Lab Samples: 2623638004

METHOD BLANK: 162663 Matrix: Water
Associated Lab Samples: 2623638004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
BOD, 5 day	mg/L	ND	2.0	2.0	10/02/19 12:17	1A

LABORATORY CONTROL SAMPLE: 162665

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
BOD, 5 day	mg/L	198	196	99	85-115	1A

SAMPLE DUPLICATE: 162714

Parameter	Units	2623603001 Result	Dup Result	RPD	Max RPD	Qualifiers
BOD, 5 day	mg/L	364	396	8	20	1A

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2623638

QC Batch: 36045
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2623638004

METHOD BLANK: 162623 Matrix: Water
Associated Lab Samples: 2623638004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrate as N	mg/L	0.013J	0.050	0.0050	09/27/19 01:45	
Nitrite as N	mg/L	0.020J	0.050	0.011	09/27/19 01:45	

LABORATORY CONTROL SAMPLE: 162624

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	10	10.6	106	90-110	
Nitrite as N	mg/L	10	10.9	109	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 162625 162626

Parameter	Units	2623614003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/L	0.66	10	10	11.2	11.2	105	105	90-110	0	15	
Nitrite as N	mg/L	0.020J	10	10	10.9	10.9	109	108	90-110	1	15	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2623638

QC Batch: 36095
QC Batch Method: EPA 350.1
Analysis Method: EPA 350.1
Analysis Description: 350.1 Ammonia
Associated Lab Samples: 2623638004

METHOD BLANK: 162900
Matrix: Water
Associated Lab Samples: 2623638004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	ND	0.10	0.10	09/30/19 10:18	

LABORATORY CONTROL SAMPLE: 162901

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	10	10.3	103	90-110	

MATRIX SPIKE SAMPLE: 162902

Parameter	Units	2623600001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	ND	10	10.2	102	90-110	

MATRIX SPIKE SAMPLE: 162903

Parameter	Units	2623679001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	0.33	10	12.1	118	90-110	M1

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2623638

QC Batch: 36141 Analysis Method: EPA 351.2
QC Batch Method: EPA 351.2 Analysis Description: 351.2 TKN
Associated Lab Samples: 2623638004

METHOD BLANK: 163259 Matrix: Water
Associated Lab Samples: 2623638004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	ND	0.40	0.40	10/01/19 11:44	

LABORATORY CONTROL SAMPLE: 163260

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	10	9.6	96	90-110	

MATRIX SPIKE SAMPLE: 163261

Parameter	Units	2623556001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	ND	10	8.8	88	90-110	M1

MATRIX SPIKE SAMPLE: 163262

Parameter	Units	2623649002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	25.8	10	35.3	95	90-110	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2623638

QC Batch: 574634 Analysis Method: SM 5310B
QC Batch Method: SM 5310B Analysis Description: 5310B Dissolved Organic Carbon
Associated Lab Samples: 2623638001, 2623638002, 2623638003, 2623638004

METHOD BLANK: 3122436 Matrix: Water
Associated Lab Samples: 2623638001, 2623638002, 2623638003, 2623638004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.50	10/01/19 14:32	

LABORATORY CONTROL SAMPLE: 3122437

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	20	18.6	93	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3122438 3122439

Parameter	Units	2623556001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Dissolved Organic Carbon	mg/L	ND	20	20	19.6	19.5	96	95	80-120	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3122440 3122441

Parameter	Units	2623635001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Dissolved Organic Carbon	mg/L	ND	20	20	19.6	19.5	96	95	80-120	1	20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALIFIERS

Project: Plant Hammond AP GW6581
Pace Project No.: 2623638

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-GA	Pace Analytical Services - Atlanta, GA
PASI-O	Pace Analytical Services - Ormond Beach

BATCH QUALIFIERS

Batch: 36328

[1]	The calculated SCF was below the desired range of 0.6 to 1.0 mg/L. All other QC indicators, including the LCS, were within acceptance criteria

ANALYTE QUALIFIERS

1A	The calculated SCF was below the desired range of 0.6 to 1.0 mg/L. All other QC indicators, including the LCS, were within acceptance criteria
B	Analyte was detected in the associated method blank.
H3	Sample was received or analysis requested beyond the recognized method holding time.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M3	Matrix spike recovery was outside laboratory control limits due to matrix interferences.
N2	The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond AP GW6581
Pace Project No.: 2623638

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623638001	**HGWC-16**	EPA 3010	576681	EPA 6010	576722
2623638002	**HGWC-17**	EPA 3010	576681	EPA 6010	576722
2623638003	**MW-21d**	EPA 3010	576681	EPA 6010	576722
2623638004	**HGWC-18**	EPA 3010	576681	EPA 6010	576722
2623638004	**HGWC-18**	EPA 3005A	36170	EPA 6020B	36202
2623638004	**HGWC-18**	EPA 7470A	36410	EPA 7470A	36427
2623638004	**HGWC-18**	EPA 1664B	36214		
2623638001	**HGWC-16**	SM 2320B	36284		
2623638002	**HGWC-17**	SM 2320B	36284		
2623638003	**MW-21d**	SM 2320B	36284		
2623638004	**HGWC-18**	SM 2320B	36448		
2623638004	**HGWC-18**	SM 2540C	36325		
2623638004	**HGWC-18**	SM 2540D	36106		
2623638004	**HGWC-18**	SM 4500-Cl G	36088		
2623638001	**HGWC-16**	SM 4500-P	36055		
2623638002	**HGWC-17**	SM 4500-P	36055		
2623638003	**MW-21d**	SM 4500-P	36055		
2623638004	**HGWC-18**	SM 4500-P	36055		
2623638001	**HGWC-16**	SM 4500-S2 D	36186		
2623638002	**HGWC-17**	SM 4500-S2 D	36186		
2623638003	**MW-21d**	SM 4500-S2 D	36186		
2623638004	**HGWC-18**	SM 4500-S2 D	36186		
2623638004	**HGWC-18**	SM 5210B	36054	SM 5210B	36328
2623638004	**HGWC-18**	TKN-NH3 Calculation	36406		
2623638004	**HGWC-18**	EPA 300.0	36045		
2623638004	**HGWC-18**	EPA 350.1	36095		
2623638004	**HGWC-18**	EPA 351.2	36141	EPA 351.2	36143
2623638001	**HGWC-16**	SM 5310B	574634		
2623638002	**HGWC-17**	SM 5310B	574634		
2623638003	**MW-21d**	SM 5310B	574634		
2623638004	**HGWC-18**	SM 5310B	574634		

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:	Standard TAT

Section B — Required Project Information:

Report To:	Joju Abraham
Copy To:	Lauren Petty, Geosyntec
Purchase Order #:	SCS10382775
Project Name:	Plant Hammond
Project #:	GWC5331

Section C — Invoice Information:

Attention:	scsinvoices@southernco.com
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Pace Profile #:	327 (AP)

Regulatory Agency: State / Location: GA

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

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH + Zn Ac	Na2S2O3	Methanol	Other	Analyses Test Y/N	Total alkalinity, bicarbonate	orthophosphate	iron,manganese,magnesium	phosphorous,potassium	sodium	sulfide	dissolved organic carbon	Residual Chlorine (Y/N)	
																		Y/N	N	N	N	N	N	N	N		
1	MGWC-16	WT	G	9/25/19	10:30	9/25/19	11:00	20.24	6	2			3	1					Y	Y	Y	Y	Y	Y	Y	2	orthopesphate doc Field Filtered
2	MGWC-17	WT	G	9/25/19	12:15	9/25/19	12:35		6	2			3	1					Y	Y	Y	Y	Y	Y	Y	2	↓
3	MW-21d	WT	G	9/25/19	15:38	9/25/19	16:12	22.87	6	2			3	1					Y	Y	Y	Y	Y	Y	Y	2	
4																											
5																											
6																											
7																											
8																											
9																											
10																											
11																											
12																											

1 DC 09-25-19

1 2 3

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Dan Gibbs / Georgia	9/25/19	17:45	Malia Mumm / Geosyntec	9/25/19	1745	
	Malia Mumm / Geo	9/25/19	1915	1 Pace	9.26.19	1135	
	1 Pace	9.26.19	1522	Charles Hunter	9/26/19	1522	4.0 Y Y Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: DAN GIBBS

SIGNATURE of SAMPLER: [signature] DATE Signed: 9-25-2019

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

Page 1 of 2

WO# : 2623638

2623638

Pace Analytical

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 TAT

Section B
Required Project Information:

Report To:	Joju Abraham
Copy To:	Lauren Petty, Geosyntec
Purchase Order #:	SCS10382775
Project Name:	Plant Hammond
Project #:	GW6581

Section C
Invoice Information:

Attention:	scsinvoices@southernco.com
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Pace Profile #:	327 (AP)

Regulatory Agency	
State / Location	GA

MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH + Zn Ac	Na2S2O3	Methanol	Other	Analyses Test Y/N	Total alkalinity, bicarbonate	orthophosphate	copper,iron,manganese,magnesium	mercury,phosphorous,potassium	sodium,total hardness,zinc	sulfide	dissolved organic carbon	nitrate/nitrite	TDS, TSS, Residual Clorine	ammonia nitrogen, TKN, TON	BOD (5-day)	Oil and grease by 1664	Residual Chlorine (Y/N)	2623638
Requested Analysis Filtered (Y/N)																			N	N	N	N	N	N	N	N	N	N	N	N		
1	HGWC-18	WT	G	9/25/19	13:55	9/25/19	14:38	22.8	10	3	1		5	1					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	[illegible]	(N/Y) Orthophosphate DOC Field Filtered
2																																
3																																
4																																
5																																
6																																
7																																
8																																
9																																
10																																
11																																
12																																

4

DG 09-25-2019

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	[signature] / Geosyntec	9/25/19	17:45	Noelia Muskus	9/25/19	1745				
	Noelia Muskus / Geosyntec	9/25/19	1915	[signature] / Pace	9.26.19	1135				
	[signature] / Pace	9.26.19	1522	Charles Hawley	9/26/19	1522	7.0	Y	Y	Y
							TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Dan Gibbs

SIGNATURE of SAMPLER: [signature]

DATE Signed: 09-25-2019

Pace Analytical

Sample Condition Upon Rece

Client Name: GA Power

WO# : 2623638

PM: BM **Due Date: 10/03/19**

CLIENT: GAPower-CCR

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Othe

Tracking #:

Proj. Due Date:
Proj. Name:

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

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other

Thermometer Used 214 **Type of Ice:** Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 4.10 **Biological Tissue is Frozen:** Yes No

Date and Initials of person examining contents: 4/26/19 CD

Temp should be above freezing to 6°C

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

November 11, 2019

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

RE: Project: Plant Hammond GW6581
Pace Project No.: 2623704

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on September 27, 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,

Kevin Herring 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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

CERTIFICATIONS

Project: Plant Hammond GW6581
Pace Project No.: 2623704

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

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174
Alaska DEC- CS/UST/LUST
Alabama Certification #: 41320
Arizona Certification# AZ0819
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
New Hampshire Certification #: 2958
New Jersey Certification #: FL022
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
North Dakota Certification #: R-216
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

Pace Analytical Services, LLC
110 Technology Parkway
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(770)734-4200

SAMPLE SUMMARY

Project: Plant Hammond GW6581
Pace Project No.: 2623704

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623704001	**EB-02**	Water	09/26/19 17:50	09/27/19 13:15
2623704002	**FB-02**	Water	09/26/19 18:25	09/27/19 13:15

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE ANALYTE COUNT

Project: Plant Hammond GW6581
Pace Project No.: 2623704

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2623704001	**EB-02**	EPA 6010D	KLH	7	PASI-GA
		EPA 6020B	CSW	2	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 1664B	SJS	1	PASI-GA
		SM 2320B	S1A	2	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		SM 2540D	ALW	1	PASI-GA
		SM 4500-Cl G	KN	1	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5210B	KN	1	PASI-GA
		TKN-NH3 Calculation	LPH	1	PASI-GA
		EPA 300.0	MWB	2	PASI-GA
		EPA 350.1	ANB	1	PASI-GA
		EPA 351.2	ANB	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623704002	**FB-02**	EPA 6010D	KLH	7	PASI-GA
		EPA 6020B	CSW	2	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 1664B	SJS	1	PASI-GA
		SM 2320B	S1A	2	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		SM 2540D	ALW	1	PASI-GA
		SM 4500-Cl G	KN	1	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5210B	KN	1	PASI-GA
		TKN-NH3 Calculation	LPH	1	PASI-GA
		EPA 300.0	MWB	2	PASI-GA
		EPA 350.1	ANB	1	PASI-GA
		EPA 351.2	ANB	1	PASI-GA
		SM 5310B	SA1	1	PASI-O

Pace Analytical Services, LLC
110 Technology Parkway
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(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond GW6581
Pace Project No.: 2623704

Sample: EB-02 **Lab ID: 2623704001** Collected: 09/26/19 17:50 Received: 09/27/19 13:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Iron	ND	mg/L	0.040	0.015	1	10/01/19 12:18	10/06/19 16:59	7439-89-6	
Magnesium	ND	mg/L	0.050	0.011	1	10/01/19 12:18	10/06/19 16:59	7439-95-4	
Manganese	ND	mg/L	0.040	0.0061	1	10/01/19 12:18	10/06/19 16:59	7439-96-5	
Phosphorus	**0.041J**	mg/L	0.050	0.023	1	10/01/19 12:18	10/06/19 16:59	7723-14-0	
Potassium	ND	mg/L	0.20	0.026	1	10/01/19 12:18	10/06/19 16:59	7440-09-7	
Sodium	ND	mg/L	1.0	0.19	1	10/01/19 12:18	10/06/19 16:59	7440-23-5	
Total Hardness by 2340B	ND	mg/L	2.7	0.40	1	10/01/19 12:18	10/06/19 16:59		
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Copper	ND	mg/L	0.025	0.00019	1	09/30/19 13:30	10/03/19 20:25	7440-50-8	
Zinc	**0.0016J**	mg/L	0.010	0.0015	1	09/30/19 13:30	10/03/19 20:25	7440-66-6	B
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/03/19 17:10	10/04/19 11:50	7439-97-6	
HEM, Oil and Grease	Analytical Method: EPA 1664B								
Oil and Grease	ND	mg/L	4.9	4.9	1		10/02/19 08:00		
2320B Alkalinity Low Level	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	ND	mg/L	1.0	1.0	1		10/04/19 14:47		
Alkalinity, Total as CaCO3	ND	mg/L	1.0	1.0	1		10/04/19 14:47		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**16.0**	mg/L	10.0	10.0	1		10/03/19 16:28		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	ND	mg/L	5.0	5.0	1		09/30/19 12:16		
4500CL G Chlorine, Residual	Analytical Method: SM 4500-Cl G								
Chlorine, Total Residual	ND	mg/L	0.1	0.1	1		10/01/19 12:28	7782-50-5	H3,H6
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/28/19 13:59		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		09/30/19 17:42	18496-25-8	
5210B BOD, 5 day	Analytical Method: SM 5210B Preparation Method: SM 5210B								
BOD, 5 day	ND	mg/L	2.0	2.0	1	09/27/19 21:37	10/02/19 14:49		1A
Total Organic Nitrogen Calc.	Analytical Method: TKN-NH3 Calculation								
Total Organic Nitrogen	ND	mg/L	0.40	0.40	1		10/03/19 22:50		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
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(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond GW6581
Pace Project No.: 2623704

Sample: EB-02 **Lab ID: 2623704001** Collected: 09/26/19 17:50 Received: 09/27/19 13:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.050	0.0050	1		09/28/19 10:57	14797-55-8	
Nitrite as N	**0.017J**	mg/L	0.050	0.011	1		09/28/19 10:57	14797-65-0	
350.1 Ammonia	Analytical Method: EPA 350.1								
Nitrogen, Ammonia	ND	mg/L	0.10	0.10	1		09/30/19 11:30	7664-41-7	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2								
Nitrogen, Kjeldahl, Total	ND	mg/L	0.40	0.40	1	10/01/19 09:05	10/01/19 13:15	7727-37-9	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	**0.65J**	mg/L	1.0	0.50	1		10/02/19 15:32		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond GW6581
Pace Project No.: 2623704

Sample: FB-02 **Lab ID: 2623704002** Collected: 09/26/19 18:25 Received: 09/27/19 13:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Iron	ND	mg/L	0.040	0.015	1	10/01/19 12:18	10/06/19 17:04	7439-89-6	
Magnesium	ND	mg/L	0.050	0.011	1	10/01/19 12:18	10/06/19 17:04	7439-95-4	
Manganese	ND	mg/L	0.040	0.0061	1	10/01/19 12:18	10/06/19 17:04	7439-96-5	
Phosphorus	ND	mg/L	0.050	0.023	1	10/01/19 12:18	10/06/19 17:04	7723-14-0	
Potassium	ND	mg/L	0.20	0.026	1	10/01/19 12:18	10/06/19 17:04	7440-09-7	
Sodium	ND	mg/L	1.0	0.19	1	10/01/19 12:18	10/06/19 17:04	7440-23-5	
Total Hardness by 2340B	ND	mg/L	2.7	0.40	1	10/01/19 12:18	10/06/19 17:04		
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Copper	**0.00030J**	mg/L	0.025	0.00019	1	09/30/19 13:30	10/03/19 20:30	7440-50-8	
Zinc	**0.0019J**	mg/L	0.010	0.0015	1	09/30/19 13:30	10/03/19 20:30	7440-66-6	B
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/03/19 17:10	10/04/19 11:53	7439-97-6	
HEM, Oil and Grease	Analytical Method: EPA 1664B								
Oil and Grease	ND	mg/L	4.9	4.9	1		10/02/19 08:00		
2320B Alkalinity Low Level	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	ND	mg/L	1.0	1.0	1		10/04/19 15:01		
Alkalinity, Total as CaCO3	ND	mg/L	1.0	1.0	1		10/04/19 15:01		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		10/03/19 16:28		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	ND	mg/L	5.0	5.0	1		09/30/19 12:16		
4500CL G Chlorine, Residual	Analytical Method: SM 4500-Cl G								
Chlorine, Total Residual	ND	mg/L	0.1	0.1	1		10/01/19 12:29	7782-50-5	H3,H6
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/28/19 13:59		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		09/30/19 17:43	18496-25-8	
5210B BOD, 5 day	Analytical Method: SM 5210B Preparation Method: SM 5210B								
BOD, 5 day	ND	mg/L	2.0	2.0	1	09/27/19 21:37	10/02/19 14:50		1A
Total Organic Nitrogen Calc.	Analytical Method: TKN-NH3 Calculation								
Total Organic Nitrogen	ND	mg/L	0.40	0.40	1		10/03/19 22:50		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond GW6581
Pace Project No.: 2623704

Sample: FB-02 **Lab ID: 2623704002** Collected: 09/26/19 18:25 Received: 09/27/19 13:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	**0.011J**	mg/L	0.050	0.0050	1		09/28/19 11:39	14797-55-8	
Nitrite as N	**0.018J**	mg/L	0.050	0.011	1		09/28/19 11:39	14797-65-0	
350.1 Ammonia	Analytical Method: EPA 350.1								
Nitrogen, Ammonia	**0.16**	mg/L	0.10	0.10	1		09/30/19 11:31	7664-41-7	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2								
Nitrogen, Kjeldahl, Total	ND	mg/L	0.40	0.40	1	10/01/19 09:05	10/01/19 13:16	7727-37-9	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/02/19 16:13		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623704

QC Batch: 36428 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Associated Lab Samples: 2623704001, 2623704002

METHOD BLANK: 164509 Matrix: Water
Associated Lab Samples: 2623704001, 2623704002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	10/04/19 10:46	

LABORATORY CONTROL SAMPLE: 164510

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0025	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 164511 164512

Parameter	Units	2623696001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	ND	0.0025	0.0025	0.0022	0.0022	88	88	75-125	0	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623704

QC Batch: 36168 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A Analysis Description: 6010D MET
Associated Lab Samples: 2623704001, 2623704002

METHOD BLANK: 163328 Matrix: Water
Associated Lab Samples: 2623704001, 2623704002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	mg/L	ND	0.040	0.015	10/06/19 16:50	
Magnesium	mg/L	ND	0.050	0.011	10/06/19 16:50	
Manganese	mg/L	ND	0.040	0.0061	10/06/19 16:50	
Phosphorus	mg/L	ND	0.050	0.023	10/06/19 16:50	
Potassium	mg/L	ND	0.20	0.026	10/06/19 16:50	
Sodium	mg/L	ND	1.0	0.19	10/06/19 16:50	
Total Hardness by 2340B	mg/L	ND	2.7	0.40	10/06/19 16:50	

LABORATORY CONTROL SAMPLE: 163329

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	mg/L	1	1.0	100	80-120	
Magnesium	mg/L	1	1.0	102	80-120	
Manganese	mg/L	1	1.0	100	80-120	
Phosphorus	mg/L	1	1.0	103	80-120	
Potassium	mg/L	1	1.1	110	80-120	
Sodium	mg/L	1	1.1	108	80-120	
Total Hardness by 2340B	mg/L	6.6	6.8	103	80-120	

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623704

QC Batch: 36173 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2623704001, 2623704002

METHOD BLANK: 163347 Matrix: Water
Associated Lab Samples: 2623704001, 2623704002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Copper	mg/L	ND	0.025	0.00019	10/03/19 16:32	
Zinc	mg/L	0.0016J	0.010	0.0015	10/03/19 16:32	

LABORATORY CONTROL SAMPLE: 163348

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Copper	mg/L	0.1	0.099	99	80-120	
Zinc	mg/L	0.1	0.10	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 163349 163350

Parameter	Units	2623696001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Copper	mg/L	ND	0.1	0.1	0.088	0.090	88	90	75-125	3	20	
Zinc	mg/L	0.0040J	0.1	0.1	0.091	0.096	87	91	75-125	5	20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623704

QC Batch: 36282 Analysis Method: EPA 1664B
QC Batch Method: EPA 1664B Analysis Description: 1664 HEM, Oil and Grease
Associated Lab Samples: 2623704001, 2623704002

METHOD BLANK: 163839 Matrix: Water
Associated Lab Samples: 2623704001, 2623704002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Oil and Grease	mg/L	ND	5.0	5.0	10/02/19 08:00	

LABORATORY CONTROL SAMPLE: 163840

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Oil and Grease	mg/L	40	39.8	100	78-114	

MATRIX SPIKE SAMPLE: 163842

Parameter	Units	2623558001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Oil and Grease	mg/L	23.1	40	80.3	143	78-114	M3

SAMPLE DUPLICATE: 163841

Parameter	Units	2623698001 Result	Dup Result	RPD	Max RPD	Qualifiers
Oil and Grease	mg/L	ND	ND		75	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
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(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623704

QC Batch: 36503 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity, Low Level
Associated Lab Samples: 2623704001, 2623704002

METHOD BLANK: 164938 Matrix: Water
Associated Lab Samples: 2623704001, 2623704002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	1.0	1.0	10/04/19 14:44	

LABORATORY CONTROL SAMPLE: 164939

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	50	47.5	95	85-115	

SAMPLE DUPLICATE: 164940

Parameter	Units	2623704001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	ND		10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623704

QC Batch: 36437 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2623704001, 2623704002

LABORATORY CONTROL SAMPLE: 164569

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	412	103	84-108	

SAMPLE DUPLICATE: 164570

Parameter	Units	2623700006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	225	219	3	10	

SAMPLE DUPLICATE: 164571

Parameter	Units	2623710002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1450	1330	9	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623704

QC Batch: 36165 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 2623704001, 2623704002

METHOD BLANK: 163320 Matrix: Water
Associated Lab Samples: 2623704001, 2623704002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	5.0	5.0	09/30/19 12:16	

LABORATORY CONTROL SAMPLE: 163321

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	100	99.5	100	90-110	

SAMPLE DUPLICATE: 163322

Parameter	Units	2623465001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	10.0	ND		10	

SAMPLE DUPLICATE: 163323

Parameter	Units	2623682001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	6.5	ND		10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623704

QC Batch: 36248 Analysis Method: SM 4500-Cl G
QC Batch Method: SM 4500-Cl G Analysis Description: 4500CL G Chlorine, Total Residual
Associated Lab Samples: 2623704001, 2623704002

METHOD BLANK: 163705 Matrix: Water
Associated Lab Samples: 2623704001, 2623704002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorine, Total Residual	mg/L	ND	0.1	0.1	10/01/19 12:26	H6

LABORATORY CONTROL SAMPLE: 163706

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorine, Total Residual	mg/L	1	1	100	86-116	H6

SAMPLE DUPLICATE: 163724

Parameter	Units	2623782001 Result	Dup Result	RPD	Max RPD	Qualifiers
Chlorine, Total Residual	mg/L	0.3	0.3	0	10	H3,H6

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623704

QC Batch: 36125 Analysis Method: SM 4500-P
QC Batch Method: SM 4500-P Analysis Description: 4500PE Ortho Phosphorus
Associated Lab Samples: 2623704001, 2623704002

METHOD BLANK: 163138 Matrix: Water
Associated Lab Samples: 2623704001, 2623704002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Orthophosphate as P	mg/L	ND	0.020	0.020	09/28/19 13:30	

LABORATORY CONTROL SAMPLE: 163139

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Orthophosphate as P	mg/L	0.5	0.51	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 163140 163141

Parameter	Units	2623698004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Orthophosphate as P	mg/L	ND	0.5	0.5	0.50	0.50	100	101	80-120	1	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623704

QC Batch: 36187 Analysis Method: SM 4500-S2 D
QC Batch Method: SM 4500-S2 D Analysis Description: 4500S2D Sulfide Water
Associated Lab Samples: 2623704001, 2623704002

METHOD BLANK: 163403 Matrix: Water
Associated Lab Samples: 2623704001, 2623704002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide	mg/L	ND	0.20	0.20	09/30/19 17:04	

LABORATORY CONTROL SAMPLE: 163404

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide	mg/L	0.5	0.45	90	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 163405 163406

Parameter	Units	2623614004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide	mg/L	ND	0.5	0.5	0.40	0.40	81	80	30-129	1	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623704

QC Batch: 36102 Analysis Method: SM 5210B
QC Batch Method: SM 5210B Analysis Description: 5210B BOD, 5 day
Associated Lab Samples: 2623704001, 2623704002

METHOD BLANK: 162918 Matrix: Water
Associated Lab Samples: 2623704001, 2623704002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
BOD, 5 day	mg/L	ND	2.0	2.0	10/02/19 14:17	1A

LABORATORY CONTROL SAMPLE: 162920

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
BOD, 5 day	mg/L	198	205	104	85-115	1A

SAMPLE DUPLICATE: 163019

Parameter	Units	2623686001 Result	Dup Result	RPD	Max RPD	Qualifiers
BOD, 5 day	mg/L	831	690	19	20	1A

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623704

QC Batch: 36067 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2623704001, 2623704002

METHOD BLANK: 162737 Matrix: Water
Associated Lab Samples: 2623704001, 2623704002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.050	0.0050	09/27/19 18:48	
Nitrite as N	mg/L	ND	0.050	0.011	09/27/19 18:48	

LABORATORY CONTROL SAMPLE: 162738

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	10	10.5	105	90-110	
Nitrite as N	mg/L	10	10.7	107	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 162739 162740

Parameter	Units	2623562005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/L	0.74			11.2	11.2				0	15	H1
Nitrite as N	mg/L	0.030J			10.7	10.5				2	15	H1

MATRIX SPIKE SAMPLE: 163021

Parameter	Units	2623704001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	ND	10	10.5	105	90-110	
Nitrite as N	mg/L	0.017J	10	10.8	108	90-110	

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REPORT OF LABORATORY ANALYSIS

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(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623704

QC Batch: 36150 Analysis Method: EPA 350.1
QC Batch Method: EPA 350.1 Analysis Description: 350.1 Ammonia
Associated Lab Samples: 2623704001, 2623704002

METHOD BLANK: 163273 Matrix: Water
Associated Lab Samples: 2623704001, 2623704002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	ND	0.10	0.10	09/30/19 11:18	

LABORATORY CONTROL SAMPLE: 163274

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	10	10.3	103	90-110	

MATRIX SPIKE SAMPLE: 163275

Parameter	Units	2623698001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	1.4	10	12.0	106	90-110	

MATRIX SPIKE SAMPLE: 163276

Parameter	Units	2623682001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	0.96	10	11.5	105	90-110	

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REPORT OF LABORATORY ANALYSIS

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(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623704

QC Batch: 36222 Analysis Method: EPA 351.2
QC Batch Method: EPA 351.2 Analysis Description: 351.2 TKN
Associated Lab Samples: 2623704001, 2623704002

METHOD BLANK: 163614 Matrix: Water
Associated Lab Samples: 2623704001, 2623704002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	ND	0.40	0.40	10/01/19 13:03	

LABORATORY CONTROL SAMPLE: 163615

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	10	10.7	107	90-110	

MATRIX SPIKE SAMPLE: 163616

Parameter	Units	2623680001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	2.3	10	10.5	82	90-110	M1

MATRIX SPIKE SAMPLE: 163621

Parameter	Units	2623680003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	3.5	10	12.3	88	90-110	M1

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REPORT OF LABORATORY ANALYSIS

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(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623704

QC Batch: 575017 Analysis Method: SM 5310B
QC Batch Method: SM 5310B Analysis Description: 5310B Dissolved Organic Carbon
Associated Lab Samples: 2623704001, 2623704002

METHOD BLANK: 3124986 Matrix: Water
Associated Lab Samples: 2623704001, 2623704002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.50	10/02/19 15:06	

LABORATORY CONTROL SAMPLE: 3124987

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	20	19.0	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3124988 3124989

Parameter	Units	2623704001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Dissolved Organic Carbon	mg/L	0.65J	20	20	19.6	19.8	95	96	80-120	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3124990 3124991

Parameter	Units	2623708004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Dissolved Organic Carbon	mg/L	ND	20	20	19.6	19.4	96	96	80-120	1	20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALIFIERS

Project: Plant Hammond GW6581
Pace Project No.: 2623704

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-GA	Pace Analytical Services - Atlanta, GA
PASI-O	Pace Analytical Services - Ormond Beach

BATCH QUALIFIERS

Batch: 36345

[1]	The calculated SCF was below the desired range of 0.6 to 1.0 mg/L. All other QC indicators, including the LCS, were within acceptance criteria

ANALYTE QUALIFIERS

1A	The calculated SCF was below the desired range of 0.6 to 1.0 mg/L. All other QC indicators, including the LCS, were within acceptance criteria
B	Analyte was detected in the associated method blank.
H1	Analysis conducted outside the EPA method holding time.
H3	Sample was received or analysis requested beyond the recognized method holding time.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M3	Matrix spike recovery was outside laboratory control limits due to matrix interferences.

Pace Analytical Services, LLC
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(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond GW6581
Pace Project No.: 2623704

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623704001	**EB-02**	EPA 3010A	36168	EPA 6010D	36254
2623704002	**FB-02**	EPA 3010A	36168	EPA 6010D	36254
2623704001	**EB-02**	EPA 3005A	36173	EPA 6020B	36203
2623704002	**FB-02**	EPA 3005A	36173	EPA 6020B	36203
2623704001	**EB-02**	EPA 7470A	36428	EPA 7470A	36481
2623704002	**FB-02**	EPA 7470A	36428	EPA 7470A	36481
2623704001	**EB-02**	EPA 1664B	36282		
2623704002	**FB-02**	EPA 1664B	36282		
2623704001	**EB-02**	SM 2320B	36503		
2623704002	**FB-02**	SM 2320B	36503		
2623704001	**EB-02**	SM 2540C	36437		
2623704002	**FB-02**	SM 2540C	36437		
2623704001	**EB-02**	SM 2540D	36165		
2623704002	**FB-02**	SM 2540D	36165		
2623704001	**EB-02**	SM 4500-Cl G	36248		
2623704002	**FB-02**	SM 4500-Cl G	36248		
2623704001	**EB-02**	SM 4500-P	36125		
2623704002	**FB-02**	SM 4500-P	36125		
2623704001	**EB-02**	SM 4500-S2 D	36187		
2623704002	**FB-02**	SM 4500-S2 D	36187		
2623704001	**EB-02**	SM 5210B	36102	SM 5210B	36345
2623704002	**FB-02**	SM 5210B	36102	SM 5210B	36345
2623704001	**EB-02**	TKN-NH3 Calculation	36472		
2623704002	**FB-02**	TKN-NH3 Calculation	36472		
2623704001	**EB-02**	EPA 300.0	36067		
2623704002	**FB-02**	EPA 300.0	36067		
2623704001	**EB-02**	EPA 350.1	36150		
2623704002	**FB-02**	EPA 350.1	36150		
2623704001	**EB-02**	EPA 351.2	36222	EPA 351.2	36226
2623704002	**FB-02**	EPA 351.2	36222	EPA 351.2	36226
2623704001	**EB-02**	SM 5310B	575017		
2623704002	**FB-02**	SM 5310B	575017		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A
Required Client Information:

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

Section B
Required Project Information:

Report To:	Joju Abraham
Copy To:	Lauren Petty, Geosyntec
Purchase Order #:	SCS10382775
Project Name:	Plant Hammond
Project #:	GW 6581

Section C
Invoice Information:

Attention:	scsinvoices@southernco.com
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Pace Profile #:	327 (AP)

Regulatory Agency	
State / Location	GA

MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH + Zn Ac	Na2S2O3	Methanol	Other	Analyses Test
																		Y/N
1	EB-02	WT	C	9/26/19	1735	9/26/19	1750	25	10	3	1		5	1				
2	FB-02	WT	G	9/26/19	1800	9/26/19	1825	25	10	3	1		5	1				
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		

Requested Analysis Filtered (Y/N)

ITEM #	Total alkalinity, bicarbonate	orthophosphate	copper,iron,manganese,magnesium	mercury,phosphorous,potassium	sodium,total hardness,zinc	sulfide	dissolved organic carbon	nitrate/nitrite	TDS, TSS, Residual Clorine	ammonia nitrogen, TKN, TON	BOD (5-day)	Oil and grease by 1664	Residual Chlorine (Y/N)	
Filtered (Y/N)	N	N	N	N	N	N	N	N	N	N	N	N		
1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	1
2	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	2

NM 09/26/19

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Noelia Muskus / Geosyntec	9/26/19	2055	[signature] / Pace	9/27/19	1142				
				[signature]	9/27/19	1315	2.0	Y	Y	Y
							TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Noelia Muskus

SIGNATURE of SAMPLER: [signature] DATE Signed: 9/26/19

WO# : 2623704

2623704

Pace Analytical

Sample Condition Upon Receipt

WO#: 2623704

Client Name: GAPower/CCR

PM: BM Due Date: 10/04/19

CLIENT: GAPower-CCR

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other _____

Tracking #: _____

Proj. Due Date:
Proj. Name:

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

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____

Thermometer Used 214 Type of Ice: Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 5.0°C Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 9/27/19

Temp should be above freezing to 6°C Comments:

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

November 02, 2019

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

RE: Project: Plant Hammond GW6581
Pace Project No.: 2623705

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on September 27, 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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

CERTIFICATIONS

Project: Plant Hammond GW6581
Pace Project No.: 2623705

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

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174
Alaska DEC- CS/UST/LUST
Alabama Certification #: 41320
Arizona Certification# AZ0819
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
New Hampshire Certification #: 2958
New Jersey Certification #: FL022
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
North Dakota Certification #: R-216
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE SUMMARY

Project: Plant Hammond GW6581
Pace Project No.: 2623705

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623705001	**MW-23d**	Water	09/26/19 10:25	09/27/19 13:15

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE ANALYTE COUNT

Project: Plant Hammond GW6581
Pace Project No.: 2623705

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2623705001	**MW-23d**	EPA 6010D	KLH	6	PASI-GA
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	MWB	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O

Pace Analytical Services, LLC
110 Technology Parkway
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(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond GW6581
Pace Project No.: 2623705

Sample: MW-23d **Lab ID: 2623705001** Collected: 09/26/19 10:25 Received: 09/27/19 13:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Iron	**0.17**	mg/L	0.040	0.015	1	10/31/19 16:05	11/01/19 01:03	7439-89-6	
Magnesium	**35.4**	mg/L	0.050	0.011	1	10/31/19 16:05	11/01/19 01:03	7439-95-4	M1
Manganese	**9.0**	mg/L	0.040	0.0061	1	10/31/19 16:05	11/01/19 01:03	7439-96-5	M1
Phosphorus	**0.025J**	mg/L	0.050	0.023	1	10/31/19 16:05	11/01/19 01:03	7723-14-0	
Potassium	**2.1**	mg/L	0.20	0.026	1	10/31/19 16:05	11/01/19 01:03	7440-09-7	
Sodium	**13.1**	mg/L	1.0	0.19	1	10/31/19 16:05	11/01/19 01:03	7440-23-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**216**	mg/L	20.0	20.0	1		10/01/19 18:59		
Alkalinity, Total as CaCO3	**216**	mg/L	20.0	20.0	1		10/01/19 18:59		
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/27/19 20:41		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		09/30/19 17:44	18496-25-8	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/02/19 16:31		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623705

QC Batch: 37765
QC Batch Method: EPA 3010A
Analysis Method: EPA 6010D
Analysis Description: 6010D MET
Associated Lab Samples: 2623705001

METHOD BLANK: 171372 Matrix: Water
Associated Lab Samples: 2623705001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	mg/L	ND	0.040	0.015	11/01/19 00:53	
Magnesium	mg/L	ND	0.050	0.011	11/01/19 00:53	
Manganese	mg/L	ND	0.040	0.0061	11/01/19 00:53	
Phosphorus	mg/L	ND	0.050	0.023	11/01/19 00:53	
Potassium	mg/L	ND	0.20	0.026	11/01/19 00:53	
Sodium	mg/L	ND	1.0	0.19	11/01/19 00:53	

LABORATORY CONTROL SAMPLE: 171373

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	mg/L	1	1.0	103	80-120	
Magnesium	mg/L	1	1.0	104	80-120	
Manganese	mg/L	1	1.0	104	80-120	
Phosphorus	mg/L	1	1.0	104	80-120	
Potassium	mg/L	1	0.99	99	80-120	
Sodium	mg/L	1	1.0	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 171374 171375

Parameter	Units	2623705001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	mg/L	0.17	1	1	1.2	1.2	104	102	75-125	2	20	
Magnesium	mg/L	35.4	1	1	36.7	36.1	130	75	75-125	2	20	M1
Manganese	mg/L	9.0	1	1	10.3	10.1	126	110	75-125	2	20	M1
Phosphorus	mg/L	0.025J	1	1	1.1	1.1	107	107	75-125	0	20	
Potassium	mg/L	2.1	1	1	3.3	3.3	119	119	75-125	0	20	
Sodium	mg/L	13.1	1	1	14.3	14.1	125	100	75-125	2	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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623705

QC Batch: 36284
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Associated Lab Samples: 2623705001

METHOD BLANK: 163853
Matrix: Water
Associated Lab Samples: 2623705001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	20.0	20.0	10/01/19 17:35	

LABORATORY CONTROL SAMPLE: 163854

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	100	98.0	98	85-115	

SAMPLE DUPLICATE: 163855

Parameter	Units	2623635002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	165	164	1	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623705

QC Batch: 36119
QC Batch Method: SM 4500-P
Analysis Method: SM 4500-P
Analysis Description: 4500PE Ortho Phosphorus
Associated Lab Samples: 2623705001

METHOD BLANK: 163046
Matrix: Water
Associated Lab Samples: 2623705001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Orthophosphate as P	mg/L	ND	0.020	0.020	09/27/19 20:37	

LABORATORY CONTROL SAMPLE: 163047

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Orthophosphate as P	mg/L	0.5	0.52	105	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 163048 163049

Parameter	Units	2623707001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Orthophosphate as P	mg/L	ND	0.5	0.5	0.50	0.51	100	102	80-120	2	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623705

QC Batch: 36187
QC Batch Method: SM 4500-S2 D
Analysis Method: SM 4500-S2 D
Analysis Description: 4500S2D Sulfide Water
Associated Lab Samples: 2623705001

METHOD BLANK: 163403
Matrix: Water
Associated Lab Samples: 2623705001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide	mg/L	ND	0.20	0.20	09/30/19 17:04	

LABORATORY CONTROL SAMPLE: 163404

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide	mg/L	0.5	0.45	90	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 163405 163406

Parameter	Units	2623614004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide	mg/L	ND	0.5	0.5	0.40	0.40	81	80	30-129	1	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623705

QC Batch: 575017 — Analysis Method: SM 5310B
QC Batch Method: SM 5310B — Analysis Description: 5310B Dissolved Organic Carbon
Associated Lab Samples: 2623705001

METHOD BLANK: 3124986 — Matrix: Water
Associated Lab Samples: 2623705001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.50	10/02/19 15:06	

LABORATORY CONTROL SAMPLE: 3124987

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	20	19.0	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3124988 3124989

Parameter	Units	2623704001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Dissolved Organic Carbon	mg/L	0.65J	20	20	19.6	19.8	95	96	80-120	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3124990 3124991

Parameter	Units	2623708004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Dissolved Organic Carbon	mg/L	ND	20	20	19.6	19.4	96	96	80-120	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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALIFIERS

Project: Plant Hammond GW6581
Pace Project No.: 2623705

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-GA	Pace Analytical Services - Atlanta, GA
PASI-O	Pace Analytical Services - Ormond Beach

ANALYTE QUALIFIERS

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond GW6581
Pace Project No.: 2623705

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623705001	**MW-23d**	EPA 3010A	37765	EPA 6010D	37960
2623705001	**MW-23d**	SM 2320B	36284		
2623705001	**MW-23d**	SM 4500-P	36119		
2623705001	**MW-23d**	SM 4500-S2 D	36187		
2623705001	**MW-23d**	SM 5310B	575017		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Lauren Petty, Geosyntec	Company Name:	
Atlanta, GA 30339				Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:	GW6581	Pace Profile #:	327 (AP)

Regulatory Agency: —

State / Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH + Zn Ac	Na2S2O3	Methanol	Other	Analyses Test Y/N	Total alkalinity, bicarbonate	orthophosphate	iron,manganese,magnesium	phosphorous,potassium	sodium	sulfide	dissolved organic carbon					Residual Chlorine (Y/N)	
																		Y/N	N	N	N	N	N	N	N					
1	MW-23d	WT	G	09/24/19	09:40	09/24/19	10:25	19.2	6	2			3	1					Y	Y	Y	Y	Y	Y	Y					N	orthophosphate & DOC Field Filtered
2																														
3																														
4																														
5																														
6																														
7																														
8																														
9																														
10																														
11																														
12																														

09-26-2019

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Dan Gibbs / Geosyntec	9/26/2019	1900	Malia Murdan / Geosyntec	9/26/19	1900				
	Malia Murdan / Geosyntec	9/26/19	2055	J Miller Pace	9/27/19	1147				
				Charles Hunter	9/27/19	1315	2.0	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Dan Gibbs

SIGNATURE of SAMPLER: [signature]

DATE Signed: 09-26-2019

WO# : 2623705

2623705

Pace Analytical

Sample Condition Upon Receip

WO# : 2623705

Client Name: GAPower/CCR

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

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

Proj. Due Date:
Proj. Name:

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____

Thermometer Used 214 **Type of Ice:** Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 5.1°C **Biological Tissue is Frozen:** Yes No

Date and Initials of person examining contents: 9/27/19

Temp should be above freezing to 6°C

Comments:

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

October 07, 2019

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

RE: Project: Plant Hammond
Pace Project No.: 2623750

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on September 30, 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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

CERTIFICATIONS

Project: Plant Hammond
Pace Project No.: 2623750

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

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174
Alaska DEC- CS/UST/LUST
Alabama Certification #: 41320
Arizona Certification# AZ0819
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
New Hampshire Certification #: 2958
New Jersey Certification #: FL022
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
North Dakota Certification #: R-216
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE SUMMARY

Project: Plant Hammond
Pace Project No.: 2623750

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623750001	**MW-22**	Water	09/27/19 10:55	09/30/19 12:39

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE ANALYTE COUNT

Project: Plant Hammond
Pace Project No.: 2623750

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2623750001	**MW-22**	EPA 6010D	KLH	6	PASI-GA
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond
Pace Project No.: 2623750

Sample: MW-22 **Lab ID: 2623750001** Collected: 09/27/19 10:55 Received: 09/30/19 12:39 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
Iron	**0.66**	mg/L	0.040	0.015	1	10/02/19 13:49	10/06/19 16:25	7439-89-6	
Magnesium	**46.3**	mg/L	0.050	0.011	1	10/02/19 13:49	10/06/19 16:25	7439-95-4	M1
Manganese	**16.7**	mg/L	0.040	0.0061	1	10/02/19 13:49	10/06/19 16:25	7439-96-5	M1
Phosphorus	**0.054**	mg/L	0.050	0.023	1	10/02/19 13:49	10/06/19 16:25	7723-14-0	
Potassium	**1.0**	mg/L	0.20	0.026	1	10/02/19 13:49	10/06/19 16:25	7440-09-7	
Sodium	**15.0**	mg/L	1.0	0.19	1	10/02/19 13:49	10/06/19 16:25	7440-23-5	M1
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**93.0**	mg/L	20.0	20.0	1		10/03/19 14:24		
Alkalinity, Total as CaCO3	**93.0**	mg/L	20.0	20.0	1		10/03/19 14:24		
4500PE Ortho Phosphorus	Analytical Method: SM 4500-P								
Orthophosphate as P	ND	mg/L	0.020	0.020	1		10/01/19 15:37		H3
4500S2D Sulfide Water	Analytical Method: SM 4500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		10/03/19 13:49	18496-25-8	
5310B Dissolved Organic Carbon	Analytical Method: SM 5310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/04/19 09:43		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623750

QC Batch: 36332
QC Batch Method: EPA 3010A
Analysis Method: EPA 6010D
Analysis Description: 6010D MET
Associated Lab Samples: 2623750001

METHOD BLANK: 164020 Matrix: Water
Associated Lab Samples: 2623750001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	mg/L	ND	0.040	0.015	10/06/19 16:06	
Magnesium	mg/L	ND	0.050	0.011	10/06/19 16:06	
Manganese	mg/L	ND	0.040	0.0061	10/06/19 16:06	
Phosphorus	mg/L	ND	0.050	0.023	10/06/19 16:06	
Potassium	mg/L	ND	0.20	0.026	10/06/19 16:06	
Sodium	mg/L	ND	1.0	0.19	10/06/19 16:06	

LABORATORY CONTROL SAMPLE: 164021

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron	mg/L	1	0.96	96	80-120	
Magnesium	mg/L	1	0.98	98	80-120	
Manganese	mg/L	1	0.96	96	80-120	
Phosphorus	mg/L	1	1.0	102	80-120	
Potassium	mg/L	1	1.0	103	80-120	
Sodium	mg/L	1	1.0	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 164022 164023

Parameter	Units	2623750001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	mg/L	0.66	1	1	1.7	1.7	105	100	75-125	3	20	
Magnesium	mg/L	46.3	1	1	50.2	48.4	389	209	75-125	4	20	M1
Manganese	mg/L	16.7	1	1	18.6	17.7	189	101	75-125	5	20	M1
Phosphorus	mg/L	0.054	1	1	1.1	1.1	109	109	75-125	0	20	
Potassium	mg/L	1.0	1	1	2.3	2.2	122	113	75-125	4	20	
Sodium	mg/L	15.0	1	1	16.8	16.3	184	131	75-125	3	20	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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623750

QC Batch: 36366 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 2623750001

METHOD BLANK: 164227 Matrix: Water
Associated Lab Samples: 2623750001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	20.0	20.0	10/03/19 11:56	

LABORATORY CONTROL SAMPLE: 164228

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	100	96.0	96	85-115	

SAMPLE DUPLICATE: 164468

Parameter	Units	2623706006 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	173	172	1	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623750

QC Batch: 36245 — Analysis Method: SM 4500-P
QC Batch Method: SM 4500-P — Analysis Description: 4500PE Ortho Phosphorus
Associated Lab Samples: 2623750001

METHOD BLANK: 163688 — Matrix: Water
Associated Lab Samples: 2623750001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Orthophosphate as P	mg/L	ND	0.020	0.020	10/01/19 15:34	

LABORATORY CONTROL SAMPLE: 163689

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Orthophosphate as P	mg/L	0.5	0.52	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 163690 163691

Parameter	Units	2623750001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Orthophosphate as P	mg/L	ND	0.5	0.5	0.50	0.51	100	101	80-120	2	10	H3

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623750

QC Batch: 36416
QC Batch Method: SM 4500-S2 D
Analysis Method: SM 4500-S2 D
Analysis Description: 4500S2D Sulfide Water
Associated Lab Samples: 2623750001

METHOD BLANK: 164448
Matrix: Water
Associated Lab Samples: 2623750001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide	mg/L	ND	0.20	0.20	10/03/19 13:40	

LABORATORY CONTROL SAMPLE: 164449

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide	mg/L	0.5	0.43	87	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 164450 164451

Parameter	Units	2623698001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide	mg/L	ND	0.5	0.5	ND	ND	17	15	30-129		10	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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623750

QC Batch: 575346
QC Batch Method: SM 5310B
Analysis Method: SM 5310B
Analysis Description: 5310B Dissolved Organic Carbon
Associated Lab Samples: 2623750001

METHOD BLANK: 3126906
Matrix: Water
Associated Lab Samples: 2623750001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Dissolved Organic Carbon	mg/L	ND	1.0	0.50	10/04/19 06:33	

LABORATORY CONTROL SAMPLE: 3126907

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Dissolved Organic Carbon	mg/L	20	18.9	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3126908 3126909

Parameter	Units	2623752004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Dissolved Organic Carbon	mg/L	1.8	20	20	21.1	20.9	97	96	80-120	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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2623750

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-GA	Pace Analytical Services - Atlanta, GA
PASI-O	Pace Analytical Services - Ormond Beach

ANALYTE QUALIFIERS

H3	Sample was received or analysis requested beyond the recognized method holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond
Pace Project No.: 2623750

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623750001	**MW-22**	EPA 3010A	36332	EPA 6010D	36376
2623750001	**MW-22**	SM 2320B	36366		
2623750001	**MW-22**	SM 4500-P	36245		
2623750001	**MW-22**	SM 4500-S2 D	36416		
2623750001	**MW-22**	SM 5310B	575346		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Lauren Petty, Geosyntec	Company Name:	
Atlanta, GA 30339				Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:	GW6581	Pace Profile #:	327 (AP)

Regulatory Agency:

State / Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH + Zn Ac	Na2S2O3	Methanol	Other	Analyses Test Y/N	Total alkalinity, bicarbonate	orthophosphate	iron,manganese,magnesium	phosphorous,potassium	sodium	sulfide	dissolved organic carbon				Residual Chlorine (Y/N)
																		Y/N	N	N	N	N	N	N	N	N	(N)	
1	MW-22	WT	G	9/26/19	1014	9/26/19	1055	20	6	2			3	1				Y	Y	Y	Y	Y	Y	Y				2
2																												
3																												
4																												
5																												
6																												
7																												
8																												
9																												
10																												
11																												
12																												

09/27/19

AM

WO# : 2623750

2623750

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Noelia Muskus / Geosyntec	9/29/19	2130	Pace	9.30.19	1034	
	Pace	9.30.19	1239	MDaliman	9/30/19	1239	
							2.9
							Y
							Y
							Y

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

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Noelia Muskus

SIGNATURE of SAMPLER: Noelia Muskus DATE Signed: 9/27/19

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power Project #

WO#: 2623750

PM: BM **Due Date: 10/07/19**

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 ☐ Samples on ice, cooling process has begun

Cooler Temperature 2.9 **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C

Comments:

Date and Initials of person examining contents: 9/30/19 MR

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

October 09, 2019

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

RE: Project: Plant Hammond AP GW6581
Pace Project No.: 2623792

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on October 01, 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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

CERTIFICATIONS

Project: Plant Hammond AP GW6581
Pace Project No.: 2623792

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE SUMMARY

Project: Plant Hammond AP GW6581
Pace Project No.: 2623792

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623792001	**PMW-04**	Water	09/30/19 14:32	10/01/19 12:05

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE ANALYTE COUNT

Project: Plant Hammond AP GW6581
Pace Project No.: 2623792

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2623792001	**PMW-04**	EPA 6020B	CSW	2
		EPA 300.0	MWB	1

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond AP GW6581
Pace Project No.: 2623792

Sample: PMW-04 **Lab ID: 2623792001** Collected: 09/30/19 14:32 Received: 10/01/19 12:05 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								
Boron	**20.6**	mg/L	2.0	0.25	50	10/03/19 17:28	10/07/19 14:30	7440-42-8	
Cobalt	ND	mg/L	0.0025	0.00030	1	10/03/19 17:28	10/05/19 16:51	7440-48-4	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**880**	mg/L	100	1.7	100		10/09/19 00:46	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2623792

QC Batch: 36434 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2623792001

METHOD BLANK: 164547 Matrix: Water
Associated Lab Samples: 2623792001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	mg/L	ND	0.040	0.0049	10/05/19 14:53	
Cobalt	mg/L	ND	0.0025	0.00030	10/05/19 14:53	

LABORATORY CONTROL SAMPLE: 164548

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	mg/L	1	1.0	104	80-120	
Cobalt	mg/L	0.1	0.099	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 164549 164550

Parameter	Units	2623793002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	mg/L	0.025J	1	1	1.1	1.0	103	100	75-125	4	20	
Cobalt	mg/L	0.00042J	0.1	0.1	0.10	0.097	102	96	75-125	6	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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2623792

QC Batch: 36584
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2623792001

METHOD BLANK: 165271
Matrix: Water
Associated Lab Samples: 2623792001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	0.017	10/09/19 00:04	

LABORATORY CONTROL SAMPLE: 165272

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 165273 165274

Parameter	Units	2623792001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	880	1000	1000	1860	1860	98	98	90-110	0	15	

MATRIX SPIKE SAMPLE: 165275

Parameter	Units	2623793001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	17.5	10	26.4	89	90-110	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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALIFIERS

Project: Plant Hammond AP GW6581
Pace Project No.: 2623792

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.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond AP GW6581
Pace Project No.: 2623792

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623792001	**PMW-04**	EPA 3005A	36434	EPA 6020B	36455
2623792001	**PMW-04**	EPA 300.0	36584		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: Georgia Power - Coal Combustion Residuals	Report To: Joju Abraham	Attention: scsinvoices@southernco.com
Address: 2480 Maner Road	Copy To: Lauren Petty, Geosyntec	Company Name:
Atlanta, GA 30339		Address:
Email: jabraham@southernco.com	Purchase Order #: SCS10382775	Pace Quote:
Phone: (404)506-7239 Fax:	Project Name: Plant Hammond	Pace Project Manager: betsy.mcdaniel@pacelabs.com.
Requested Due Date: Standard TAT	Project #: GW6581	Pace Profile #: 327 (AP)

Regulatory Agency:

State / Location: GA

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

MATRIX	CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Other	OT
Tissue	TS

Requested Analysis Filtered (Y/N): - N N - N

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Arsenic	Boron	Cobalt	Molybdenum	Sulfate	Residual Chlorine (Y/N)	
1	PMW-04	WT	G	9/30/19	1425	9/30/19	1432	24	2	1		1							-	Y	Y	-	Y	N	L1
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

NM 09/30/19

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Noelia Muskus / Geosyntec	9/30/19	1725	Chad Russo geo	9/30	1725				
	Chad Russo geo	9/30	1900	Oscar Bayman, Pace	10/1/19	10:30				
				Charlie Finkl	10/1/19	1205	5.1	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Noelia Muskus

SIGNATURE of SAMPLER: Noelia Muskus DATE Signed: 9/30/19

WO#: 2623792

2623792

Pace Analytical

Sample Condition Upon Receipt

WO# : 2623792

Client Name: GAPower CCR

PM: BM Due Date: 10/08/19

CLIENT: GAPower-CCR

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☑ Commercial ☐ Pace Other _____

Optional
Proj. Due Date:
Proj. Name:

Tracking #: _____

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

Packing Material: ☑ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other _____

Thermometer Used 214 Type of Ice: (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 5.1 °C Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 10/11/19 CHK

Temp should be above freezing to 6°C

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

October 15, 2019

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

RE: Project: Plant Hammond AP GW6581
Pace Project No.: 2623869

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on October 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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

CERTIFICATIONS

Project: Plant Hammond AP GW6581
Pace Project No.: 2623869

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE SUMMARY

Project: Plant Hammond AP GW6581
Pace Project No.: 2623869

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623869001	**PMW-03**	Water	10/01/19 09:04	10/02/19 13:52

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE ANALYTE COUNT

Project: Plant Hammond AP GW6581
Pace Project No.: 2623869

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2623869001	**PMW-03**	EPA 6020B	CSW	2	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond AP GW6581
Pace Project No.: 2623869

Sample: PMW-03 **Lab ID: 2623869001** Collected: 10/01/19 09:04 Received: 10/02/19 13:52 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								
Boron	**2.8**	mg/L	0.040	0.0049	1	10/04/19 14:03	10/07/19 19:16	7440-42-8	
Cobalt	**0.053**	mg/L	0.0025	0.00030	1	10/04/19 14:03	10/07/19 19:16	7440-48-4	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993								
Sulfate	**420**	mg/L	14.0	7.0	14		10/13/19 10:30	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2623869

QC Batch: 36492 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2623869001

METHOD BLANK: 164870 Matrix: Water
Associated Lab Samples: 2623869001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	mg/L	ND	0.040	0.0049	10/07/19 17:47	
Cobalt	mg/L	ND	0.0025	0.00030	10/07/19 17:47	

LABORATORY CONTROL SAMPLE: 164871

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	mg/L	1	1.0	101	80-120	
Cobalt	mg/L	0.1	0.10	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 164872 164873

Parameter	Units	2623808004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	mg/L	0.048	1	1	1.0	1.0	99	99	75-125	0	20	
Cobalt	mg/L	0.00049J	0.1	0.1	0.095	0.10	94	99	75-125	5	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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2623869

QC Batch: 503241
QC Batch Method: EPA 300.0 Rev 2.1 1993
Analysis Method: EPA 300.0 Rev 2.1 1993
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2623869001

METHOD BLANK: 2705166 Matrix: Water
Associated Lab Samples: 2623869001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfate	mg/L	ND	1.0	0.50	10/12/19 15:31	

LABORATORY CONTROL SAMPLE: 2705167

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	50	50.3	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2705168 2705169

Parameter	Units	2624007001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	13.6	50	50	62.1	58.4	97	90	90-110	6	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2705170 2705171

Parameter	Units	92449004022 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	466	50	50	501	506	70	79	90-110	1	10	M6

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALIFIERS

Project: Plant Hammond AP GW6581
Pace Project No.: 2623869

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-A	Pace Analytical Services - Asheville
PASI-GA	Pace Analytical Services - Atlanta, GA

ANALYTE QUALIFIERS

M6	Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond AP GW6581
Pace Project No.: 2623869

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623869001	**PMW-03**	EPA 3005A	36492	EPA 6020B	36507
2623869001	**PMW-03**	EPA 300.0 Rev 2.1 1993	503241		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A — Required Client Information:

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

Section B — Required Project Information:

Report To:	Joju Abraham
Copy To:	Lauren Petty, Geosyntec
Purchase Order #:	SCS10382775
Project Name:	Plant Hammond
Project #:	GW6581

Section C — Invoice Information:

Attention:	scsinvoices@southernco.com
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Pace Profile #:	327 (AP)

Regulatory Agency: State / Location: GA

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

MATRIX	CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Other	OT
Tissue	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Requested Analysis Filtered (Y/N): Arsenic	Boron	Cobalt	Molybdenum	Sulfate	Residual Chlorine (Y/N)
				DATE	TIME	DATE	TIME																	
1	PMW-03	WT	G	10/01/19	0856	10/01/19	0904	23	2	1		1							-	Y	Y	-	Y	N
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

NM 10/01/19

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Noelia Muskus/Georgia Power	10/02/19	11:30	Pace	10/2/19	1130				
	Pace	10/2/19	1352	Charles Hunter	10/2/19	1352	7.8	Y	Y	Y

WO# : 2623869

2623869

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Noelia Muskus

SIGNATURE of SAMPLER: Noelia Muskus DATE Signed: 10/01/19

WO# : 2623869

PM: BM Due Date: 10/09/19

CLIENT: GAPower-CCR

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power CCR

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other _____

Tracking #: _____

Optional
Proj. Due Date:
Proj. Name:

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

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other _____

Thermometer Used 214 Type of Ice: (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 1.8c Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 10/2/19 CH

Temp should be above freezing to 6°C

Comments:

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

APPENDIX E

Laboratory Analytical and Field Sampling Reports

Appendix E1: Laboratory Analytical Data Packages and Data Validation Reports

Appendix E2: Field Data Sheets

APPENDIX E1

Laboratory Analytical Data Packages and Data Validation Reports

Laboratory Reports

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

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110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE SUMMARY

Project: Plant Hammond
Pace Project No.: 2616036

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

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SAMPLE ANALYTE COUNT

Project: Plant Hammond
Pace Project No.: 2616036

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

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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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond
Pace Project No.: 2616036

Sample: HGWA-2 **Lab ID: 2616036002** Collected: 03/12/19 10:45 Received: 03/13/19 14:00 Matrix: Water

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

REPORT OF LABORATORY ANALYSIS

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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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(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2616036

QC Batch: 24380 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Associated Lab Samples: 2616036001, 2616036002, 2616036003, 2616036004, 2616036005

METHOD BLANK: 109357 Matrix: Water
Associated Lab Samples: 2616036001, 2616036002, 2616036003, 2616036004, 2616036005

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

LABORATORY CONTROL SAMPLE: 109358

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 109378 109379

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

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

Pace Analytical Services, LLC
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(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2616036

QC Batch: 24312
QC Batch Method: EPA 3005A
Associated Lab Samples: 2616036001

Analysis Method: EPA 6020B
Analysis Description: 6020B MET

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

Pace Analytical Services, LLC
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(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2616036

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 108898 108899

Parameter	Units	2616034004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
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	

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2616036

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 109376 109377

Parameter	Units	2616039003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 of 1 3/19/19

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham / Lauren Petty	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Geosyntec	Company Name:	
	Atlanta, GA 30339			Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10348606	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:		Pace Profile #:	327.4 (AP) or 328.5 (Huff)

Regulatory Agency: | State / Location: GA

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses 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)
1	HGWA-1	WT	G	3/12/19	1410	3/12/19	1431		4	1		3							Y	Y	Y		N	N	N
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

3/12/19 DM

WO#: 2616036

2616036

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	Noelia Muskus	3/12/19	2205		3/12/19	2205
	STLouis/Geosyntec	3/13/19	943	Pace	3/13/19	0944
				MDalmaso	3/13/19	1400

SAMPLE CONDITIONS

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

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Noelia Muskus

SIGNATURE of SAMPLER: Noelia Muskus DATE Signed: 3/12/19

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

2 of 3

Page : ~~1~~ WC 3/13/019 1

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 TAT

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:	scsinvoices@southernco.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

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

MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

Requested Analysis Filtered (Y/N): App. IV Metals N; Fluoride by 300.0 N; Radium 226/228 N; Metals (As, B, Co, Mo) —

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses 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)
1	HGWA-2	WT	G	03/12/19	10:29	03/12/19	10:45	[illegible]	4	1		3							Y	Y	Y	N	N	N
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

GW 03/12/19

WO#: 2616036
PM: BM Due Date: 03/20/19
CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Grant Walter / Geosyntec	03/12/19	1950	Mælia Muskon	3/12/19	1950	2.5	Y	Y	Y
	Mælia Muskon	3/12/19	2205	[illegible] Lao	3/12/19	2205				
	[illegible] Law / Geosyntec	3/13/19	943	[illegible] Pace	3.13.19	0944				
				M Zalman	3/13/19	1400				
							TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Grant Walter

SIGNATURE of SAMPLER: [signature] DATE Signed: 03/12/19

CHAIN-OF-CUSTODY / Analytical Request Document

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

3 of 3

Page : 1 of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham / Lauren Petty	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Geosyntec	Company Name:	
	Atlanta, GA 30339			Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10348606	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	STANDARD TAT	Project #:		Pace Profile #:	327.4 (AP) or 328.5 (Huff)

Regulatory Agency: —

State / Location: GA

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses 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)
	MATRIX: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Other OT, Tissue TS																	Y/N	N	N	N	—		
1	HBWA-3	WT	G	03/12/19	1430	03/12/19	1630	25	4	1		3							Y	Y	Y	N	N	N
2	FB-01	WT	G	03/11/19	1915	03/11/19	1915	25	4	1		3							Y	Y	Y	N	N	N
3	EB-01	WT	G	3/12/19	1950	3/12/19	1950	25	4	1		3							Y	Y	Y	N	N	N
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

03/12/19

BAT

WO#: 2616036

PM: BM Due Date: 03/20/19

CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
		3/12/19	1950	Marlia Mathews	3/12/19	1950	
	Marlia Mathews	3/12/19	2205	[illegible]	3/12/19	2205	
	[illegible] Geosyntec	3/13/19	943	Pace	3/13/19	0944	
				MZalman	3/13/19	1400	2.5 Y Y Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: BENJAMIN HOLT-TICKHILL

SIGNATURE of SAMPLER: [signature] DATE Signed: 03/12/19

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

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power

Project # _____

WO#: 2616036

PM: BM Due Date: 03/20/19

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 MR

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond
Pace Project No.: 2616037

QC Batch: 334698 Analysis Method: EPA 9315
QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium
Associated Lab Samples: 2616037001, 2616037002, 2616037003, 2616037004, 2616037005

METHOD BLANK: 1628718 Matrix: Water
Associated Lab Samples: 2616037001, 2616037002, 2616037003, 2616037004, 2616037005

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

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond
Pace Project No.: 2616037

QC Batch: 334688 Analysis Method: EPA 9320
QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228
Associated Lab Samples: 2616037001, 2616037002, 2616037003, 2616037004, 2616037005

METHOD BLANK: 1628693 Matrix: Water
Associated Lab Samples: 2616037001, 2616037002, 2616037003, 2616037004, 2616037005

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

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 of 1

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

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

Regulatory Agency: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses 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)
1	HGWA-1	WT	G	3/12/19	1410	3/12/19	1431		4	1		3						Y	Y	Y		N	N	N
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

3/12/19

WO#: 2616037

2616037

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	Noelia Muskus	3/12/19	2205		3/12/19	2205
	GTS Geosyntec	3/13/19	943	Pace	3/13/19	0944
				MZalmon	3/13/19	1400

SAMPLE CONDITIONS

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

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Noelia Muskus

SIGNATURE of SAMPLER: Noelia Muskus

DATE Signed: 3/12/19

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

2 of 3

Page : ~~1~~ wc 3/13/019 1

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 TAT

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:	scsinvoices@southernco.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

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

MATRIX	CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Other	OT
Tissue	TS

Requested Analysis Filtered (Y/N): App. IV Metals N, Fluoride by 300.0 N, Radium 226/228 N, Metals —

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	Collected Start DATE	Start TIME	End DATE	End TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses 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)
1	HGWA-2	WT	G	[illegible]	10:29	[illegible]	10:45	[illegible]	4	1		3							Y	Y	Y	N	N	N
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

GW 03/12/19

WO#: 2616037

PM: BM Due Date: 04/10/19

CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Grant Walter / Geosyntec	03/12/19	1950	Moelia Musbus	3/12/19	1950	2.5	Y	Y	Y
	Moelia Musbus	3/12/19	2205	Ashley Loo	3/12/19	2205				
	[illegible] / Geosyntec	3/13/19	943	[illegible] Pace	3.13.19	0941				
				M Dalman	3/13/19	1400				
							TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

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

Page: 1 ~~1~~ of ~~1~~ (initialed, 5/13/19)

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 TAT

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: scsinvoices@southernco.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

Requested Analysis Filtered (Y/N): App. IV Metals N; Fluoride by 300.0 N; Radium 226/228 N; Metals (As, B, Co, Mo) —; Sulfate by 300.0 —

Matrix codes: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

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

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	App. IV Metals	Fluoride by 300.0	Radium 226/228	Metals (As, B, Co, Mo)	Sulfate by 300.0	Residual Chlorine (Y/N)
1	HGWA-3	WT	G	3/11/19	10:20	3/11/19	10:20	25	4	1		3						Y	Y	Y	H	H	H
2	FB-01	WT	G	03/11/19	1915	03/11/19	1915	25	4	1		7						Y	Y	Y	H	H	H
3	EB-01	WT	G	3/12/19	1950	3/12/19	1950	25	4	1		3						Y	Y	Y	KH	H	H
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

BW 03/12/19

WO#: 2616037
PM: BM Due Date: 04/10/19
CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	[signature]	3/12/19	1950	Mallia Mushon	3/12/19	1950				
	Mallia Mushon	3/12/19	2205	[signature]	3/12/19	2205				
	[signature] / Geosyntec	3/13/19	943	Pace	3.13.19	0944				
				M Dalman	3/13/19	1400	2.5	Y	Y	Y

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Benjamin Ucjia-Tickhoe
SIGNATURE of SAMPLER: [signature]
DATE Signed: 03/12/19

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA 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 MR

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2616039

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 109376 109377

Parameter	Units	2616039003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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	

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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		

CHAIN-OF-CUSTODY / Analytical Request Document

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

1 of 3

Page : 1 of 1 3/13/19

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham / Lauren Petty	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Geosyntec	Company Name:	
	Atlanta, GA 30339			Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10348606	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:		Pace Profile #:	327.4 (AP) or 328.5 (Huff)

Regulatory Agency: ____ State / Location: GA

Requested Analysis Filtered (Y/N)

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

MATRIX	CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Other	OT
Tissue	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses 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)
																		Y/N	N	N	N		—	
1	HGWA-4	WT	G	3/11/19	1750	3/11/19	1811	8°C	4	1		3							Y	Y	Y	N	N	N
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

NM 3/11/19

WO#: 2616039

2616039

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Noelia Muskus	3/11/19	2205	[illegible]	3/12/19	2205	
	[illegible] Geosyntec	3/13/19	943	[illegible] Pace	3.13.19	0944	
				M Rahman	3/13/19	1400	

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

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Noelia Muskus

SIGNATURE of SAMPLER: Noelia Muskus 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.

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Page : 1 of 1 — 3/13/19

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham / Lauren Petty	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Geosyntec	Company Name:	
	Atlanta, GA 30339			Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10348606	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	standard TAT	Project #:		Pace Profile #:	327.4 (AP) or 328.5 (Huff)

Regulatory Agency: —

State / Location: GA

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

MATRIX	CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Other	OT
Tissue	TS

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses 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)
																		N	N	N	N				
1	HGWA-S	WT	G	03/12/19	10:52	03/12/19	13:16	18	4	1		3							Y	Y	Y	N	N		N
2																										
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

GW 03/12/19

WO#: 2616039

PM: BM Due Date: 03/20/19

CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Grant Walter/Geosyntec	03/12/19	1950	Media Morton	3/12/19	1950	
	Media Morton	3/12/19	2205	GB Lowe	3/12/19	2205	
	GB Lowe/Geosyntec	3/13/19	943	Pace	3.15.19	0944	
				MDahman	3/13/19	1400	2.5 Y Y Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Grant Walter

SIGNATURE of SAMPLER: Grant Walter DATE Signed: 03/12/19

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

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

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Page: ~~1 of 1~~ 3/17/19

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 TAT

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:	scsinvoices@southernco.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

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

MATRIX	CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Other	OT
Tissue	TS

Requested Analysis Filtered (Y/N): App. IV Metals N, Fluoride by 300.0 N, Radium 226/228 N

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses 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)
1	AGWA-6	WG	G	[illegible]	13:00	[illegible]	13:00	[illegible]	4	1		3							Y	Y	Y	N	N	N
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

BUT 03/12/19

WO#: 2616039

2616039

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	[signature]	3/12/19	1950	Malia Mahan	3/12/19	1950				
	Malia Mahan	3/12/19	2205	WBLaw	3/12/19	2205				
	WB Law/Geosyntec	3/13/19	943	[signature] Pace	3.13.19	0944				
				M Lalman	3/13/19	1400	2.5	Y	Y	Y
							TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: REHJAUIH UGJIA TICHNOR

SIGNATURE of SAMPLER: [signature] DATE Signed: 03/17/19

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power

Project #

WO#: 2616039

PM: BM Due Date: 03/20/19

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 MR

Comments:

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

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(770)734-4200

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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(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

1 of 3

Page : 1 of 1 3/13/19

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham / Lauren Petty	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Geosyntec	Company Name:	
	Atlanta, GA 30339			Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10348606	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:		Pace Profile #:	327.4 (AP) or 328.5 (Huff)

Regulatory Agency: | State / Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses 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)
	MATRIX: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Other OT, Tissue TS																	N	N	N		—		
1	HGWA-4	WT	G	3/11/19	1750	3/11/19	1811	4°C	4	1		3						Y	Y	Y		N N		N
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

NM 3/11/19

WO#:2616040

2616040

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Nolia Muskus	3/12/19	2205	[signature]	3/12/19	2205	
	[signature] / Geosyntec	3/13/19	943	[signature] Pace	3.13.19	0744	
				MZahman	3/13/19	1400	

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

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Nolia Muskus

SIGNATURE of SAMPLER: Nolia Muskus 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

Page : 1 of 1 3/13/19

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham / Lauren Petty	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Geosyntec	Company Name:	
	Atlanta, GA 30339			Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10348606	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com
Requested Due Date:	standard TAT	Project #:		Pace Profile #:	327.4 (AP) or 328.5 (Huff)

Regulatory Agency: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses 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)
																		Y/N	N	N	N			
1	HGWA-S	WT	G	03/12/19	0852	03/12/19	13:16	17	4	1		3							Y	Y	Y	N	N	N
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

GW 03/12/19

WO#: 2616040

PM: BM Due Date: 04/10/19

CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	Grant Walter/Geosyntec	03/12/19	1950	Media Markus	3/12/19	1950
	Media Markus	3/12/19	2205	[illegible]	3/12/19	2205
	[illegible] Lowe/Geosyntec	3/13/19	943	[illegible] Pace	3.13.19	0944
				MDalman	3/13/19	1400

SAMPLE CONDITIONS

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

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Grant Walter

SIGNATURE of SAMPLER: [signature] DATE Signed: 03/12/19

PaceAnalytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

3 of 3

Page : 1 of 1 3/13/19

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 TAT

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:	scsinvoices@southernco.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

MATRIX / CODE: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Other OT, Tissue TS

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

Requested Analysis Filtered (Y/N): App. IV Metals N; Fluoride by 300.0 N; Radium 226/228 N; Metals (As, B, Co, Mo) —; Sulfate by 300.0 —

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses 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)
1	HGWA-6	WT	G	3/12/19	13:20	3/12/19	13:20	[illegible]	4	1		3							Y	Y	Y	N	N	N
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

BJT 03/12/19

WO#: 2616040
PM: BM Due Date: 04/10/19
CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	[signature]	3/12/19	1950	[signature]	3/12/19	1950				
	[signature]	3/12/19	2205	WBlaw	3/12/19	2205				
	WBlaw/Geosyntec	3/13/19	943	[signature] Pace	3.13.19	0944				
				[signature]	3/13/19	1400	2.5	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: REHJAMIH UGJIA TICKNER

SIGNATURE of SAMPLER: [signature]

DATE Signed: 03/12/19

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power

Project #

WO#: 2616040

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 ☐ 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 MR

Temp should be above freezing to 6°C

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

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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

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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

Pace Analytical Services, LLC
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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	

REPORT OF LABORATORY ANALYSIS

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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	

REPORT OF LABORATORY ANALYSIS

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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	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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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	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
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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 Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	ND	0.0025	0.0025	0.0025	0.0025	101	102	75-125	1	20	

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

Pace Analytical Services, LLC
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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 Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
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	

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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Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2616162

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 110488 110489

Parameter	Units	2616179004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
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	

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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		

Pace Analytical

CHAIN-OF-CUSTODY

The Chain-of-Custody is a LEGAL

WO# : 2616162

2616162

Set 01

Page: 1 of 2

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham / Lauren Petty	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Geosyntec	Company Name:	
	Atlanta, GA 30339			Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10348606	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com
Requested Due Date:	Standard TAT	Project #:		Pace Profile #:	327.4 (AP) or 328.5 (Huff)

Regulatory Agency

State / Location: GA

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses 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)	
1	HGWC-15	WT	G	03/14	9:17	03/14	9:58	18	4	1		3						Y	Y	Y		—		1
2	FD-2	WT	G	03/14	—	03/14	—		4	1		3						Y	Y	Y		—		2
3	HGWC-18	WT	G	03/14	14:31	03/14	14:53	16	4	1		3						Y	Y	Y		—		3
4	MW-23D	WT	G	03/14	16:37	03/14	16:42	18	4	1		3						Y	Y	Y		—		4
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

GW 03/14/19

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Grant Walter / Geosyntec	03/14/19	1848	Madia Mynbeen	3/14/19	1848				
	Madia Mynbeen Geosyntec	3/14/19	2026	Will Blair / Geosyntec	3/14/19	2026				
	Will Blair / Geosyntec	3/15/19	1129	M. RAHMAN	3/15/19	1129				
				Jessica Walter PACE	3/15/19	1300	4.5°	Y	N	Y

SAMPLER NAME AND SIGNATURE			TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Grant Walter					
SIGNATURE of SAMPLER:	Grant Walter	DATE Signed: 03/14/19				

Pace Analytical

CHAIN-OF-CUSTODY / Ar

The Chain-of-Custody is a LEGAL DOCU

WO# : 2616162

PM: BM **Due Date: 03/22/19**

CLIENT: GAPower-CCR

Set 01

2 of 2

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham / Lauren Petty	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Geosyntec	Company Name:	
	Atlanta, GA 30339			Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10348606	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:		Pace Profile #:	327.4 (AP) or 328.5 (Huff)

Regulatory Agency: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses 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)	
1	HGWC-14	WT	G	3/14/19	1600	3/14/19	1641	17	4	1		3						Y	Y	Y	Y	—		N	5
2																									—
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

BMT 03/14/19

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	[illegible] / Geo	3/14/19	1840	Malia Mahan / Geo	3/14/19	1840				
	Malia Mahan / Geo	3/14/19	2026	[illegible] / Geosyntec	3/14/19	2026				
	[illegible] / Geosyntec	3/15/19	1129	M. RAHMAN	3/15/19	1129				
				Jessica Weible PACE	3/15/19	1300	4.5°	Y	N	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: [illegible] TICKNER

SIGNATURE of SAMPLER: [signature] DATE Signed: 3/14/19

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

Pace Analytical

Sample Condition Upon Receipt

WO#: 2616162

Client Name: GA Power - CCR

PM: BM Due Date: 03/22/19

CLIENT: GAPower-CCR

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other Courier

Tracking #: _____

Proj. Due Date:
Proj. Name:

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

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

Temp should be above freezing to 6°C

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

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Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
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(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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		

Pace Analytical

CHAIN-OF-CUSTOD

The Chain-of-Custody is a LEG/

WO# : 2616170

2616170

Set 01

Page : 1 Of 2

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Informa	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham / Lauren Petty	Attention:	
Address:	2480 Maner Road	Copy To:	Geosyntec	Company Name:	
	Atlanta, GA 30339			Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10348606	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:		Pace Profile #:	327.4 (AP) or 328.5 (Huff)

Regulatory Agency	
State / Location	GA

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique	MATRIX CODE Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Other OT Tissue TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses 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)	
1	HGWC-15		WT	G	03/14	9:17	03/14	9:58	18	4	1		3						Y	Y	Y	Y	—		1
2	FD-2		WT	G	03/14	—	03/14	—		4	1		3						Y	Y	Y	Y	—		2
3	HGWC-18		WT	G	03/14	14:31	03/14	14:53	16	4	1		3						Y	Y	Y	Y	—		3
4	MW-23D		WT	G	03/14	16:37	03/14	16:42	18	4	1		3						Y	Y	Y	Y	—		4
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

GW 03/14/19

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Grant Walter / Geosyntec	03/14/19	1848	Nadia Mufleh	3/14/19	1848				
	Nadia Mufleh Geosyntec	3/14/19	2026	W Law / Geosyntec	3/14/19	2026				
	Scott Law Geosyntec	3/15/19	1129	M. RAHMAN	3/15/19	1129				
				Jessica Walter PACE	3/15/19	1300	4.5°	Y	N	Y

SAMPLER NAME AND SIGNATURE			TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Grant Walter					
SIGNATURE of SAMPLER:	Grant Walter	DATE Signed: 03/14/19				

Pace Analytical

CHAIN-OF-CUSTOI

The Chain-of-Custody is a LE

WO#: 2616170

PM: BM Due Date: 04/12/19

CLIENT: GAPower-CCR

ely.

Set 01

Page: 2 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: Standard TAT

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

Regulatory Agency
State / Location: GA

Requested Analysis Filtered (Y/N)

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

MATRIX	CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Other	OT
Tissue	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses 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)	
1	HGWC-14	WT	G	3/14/19	1620	3/14/19	1641	17	4	1		3						Y	Y	Y				N	5
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

BMT 03/14/19

ADDITIONAL COMMENTS

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[illegible] / Geo	3/14/19	1840	Nadia Mendoza / Geo	3/14/19	1840
Nadia Mendoza / Geo	3/14/19	2026	[illegible] / Geosyntec	3/14/19	2026
[illegible] / Geosyntec	3/15/19	1129	M. RAHMAN	3/15/19	1129
			Jessica Wertle PACE	3/15/19	1300

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

SAMPLE CONDITIONS

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

Pace Analytical

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

Tracking #: _____

Optional
Proj. Due Date:
Proj. Name:

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

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

Temp should be above freezing to 6°C

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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 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 22:52	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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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 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 23:09	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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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	2616228001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	ND	0.0025	0.0025	0.0023	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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2616228

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 111123 111124

Parameter	Units	2616193001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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	

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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		

Pace Analytical

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 TAT

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:	scsinvoices@southernco.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

MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

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

Requested Analysis Filtered (Y/N): App. IV Metals / Fluoride by 300.0 / Radium 226/228: —; Metals (As, B, Co, Mo) / Sulfate by 300.0: —

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses 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)
1	MW-22	WT	G	3/15/19	0835	3/15/19	0856	17	4	1		3							Y	Y	Y		—							N
2	HGWC-16	WT	G	3/15/19	1341	3/15/19	1352	18	4	1		3							Y	Y	Y		—							N
3																														
4																														
5																														
6																														
7																														
8																														
9																														
10																														
11																														
12																														

GW 03/15/19

WO# : 2616228

2616228

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Grant Walter / Geosyntec	03/15/19	1455	Marlia Martin / Geosyntec	3/15/19	1455				
	Marlia Martin / Geosyntec	3/18/19	1026	Pasco Nagar	3/18/19	10:26	MR 3/18/19			
				M Dalman	3/18/19	4:2	4.2	Y	Y	
							TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE 1203

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:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham / Lauren Petty	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Geosyntec	Company Name:	
	Atlanta, GA 30339			Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10348606	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:		Pace Profile #:	327.4 (AP) or 328.5 (Huff)

Regulatory Agency: State / Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses 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)
1	MW-21D	WT	G	3/15/19	1135	3/15/19	1156	17	4	1		3							Y	Y	Y			N
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

BMT 15 3/18/19

WO#: 2616228

PM: BM Due Date: 03/25/19

CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Beth Tuckner	03/15	1455	Melia Martin/Georgia	3/15/19	1455	
	Melia Martin/Kenergy	3/18/19	1026	Pascal Reynolds	3/18/19	10:26	
				MRahman	3/18/19	1200	4.2 Y Y Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Beth Tuckner

SIGNATURE of SAMPLER: [signature] DATE Signed: 03/15/19

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

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham / Lauren Petty	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Geosyntec	Company Name:	
	Atlanta, GA 30339			Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10348606	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com
Requested Due Date:	Standard TAT	Project #:		Pace Profile #:	327.4 (AP) or 328.5 (Huff)

Regulatory Agency: —

State / Location: GA

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

MATRIX	CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Other	OT
Tissue	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analysis Test Y/N	Requested Analysis Filtered (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)
1	#GWC-17	WT	G	3/8/19		3/15/19			4	1		3							Y	Y	Y	—		N
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

NJM 3/15/19

WO#: 2616228

PM: BM Due Date: 03/25/19

CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Noelia Muskus/Geosyntec	3/18/19	1076	Pascal Fayard	3/18/19	10:26				
				MZalman	3/18/19	1200				
							4.2	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Noelia Muskus

SIGNATURE of SAMPLER: Noelia Muskus DATE Signed: 3/15/19

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA 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 MM

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
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(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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		

Pace Analytical

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:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham / Lauren Petty	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road Atlanta, GA 30339	Copy To:	Geosyntec	Company Name:	
				Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10348606	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:		Pace Profile #:	327.4 (AP) or 328.5 (Huff)

Regulatory Agency: State / Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses 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)
1	MW-22	WT	G	3/15/19	0835	3/15/19	0856	17	4	1		3							Y	Y	Y	—		N
2	HGWC-16	WT	G	3/15/19	1341	3/15/19	1352	18	4	1		3							Y	Y	Y	—		N
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

(GW) 03/15/19

WO# : 2616229

2616229

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Grant Walter / Geosyntec	03/18/19	1455	Malia Morton / Geosyntec	3/15/19	1455	
	Malia Morton / Geosyntec	3/18/19	1026	Pascal Payne	3/18/19	10:26	MK 3/18/19
				M Zalman	3/18/19	1200	4.2 F Y Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Grant Walter

SIGNATURE of SAMPLER: Grant Walter DATE Signed: 03/15/19

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

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 2 Of 3

Section A
Required Client Information:

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

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:	scsinvoices@southernco.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

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

MATRIX	CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Other	OT
Tissue	TS

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses 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)
1	MW-21D	WT	G	3/15/19	1135	3/15/19	1156	17	4	1		3							Y	Y	Y	(dash)	(dash)	N
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

BMT 3/15/19

WO#: 2616229
PM: BM Due Date: 04/15/19
CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	BEN TICKNER	03/15	1455	Nadia Mackins / Geosyntec	3/15/19	1455				
	Nadia Mackins / Geosyntec	3/18/19	1026	Pascal Raymond	3/18/19	10:26				
				M Dalman	3/18/19	1200	4.2	Y	Y	Y
							TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: BEN TICKNER
SIGNATURE of SAMPLER: [signature] DATE Signed: 03/15/19

Pace Analytical

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:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham / Lauren Petty	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Geosyntec	Company Name:	
	Atlanta, GA 30339			Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10348606	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:		Pace Profile #:	327.4 (AP) or 328.5 (Huff)

Regulatory Agency: | State / Location: GA

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

MATRIX	CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Other	OT
Tissue	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Requested Analysis Filtered (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)
1	MGWC-17	WT	G	3/15/19		3/15/19		WC	4	1		3							Y	Y	Y			N
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

3/15/19 NP

WO#: 2616229

PM: BM Due Date: 04/15/19

CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Noelia Muskus/Geosyntec	3/18/19	1026	Pascal Payne	3/18/19	10:26	
				MZaluman	3/18/19	1200	

SAMPLER NAME AND SIGNATURE			TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Noelia Muskus		4.2	Y	Y	Y
SIGNATURE of SAMPLER:	Noelia Muskus	DATE Signed: 3/15/19				

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power

Project #

WO#: 2616229

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

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

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110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

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110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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 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 23:21	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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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	2616228001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	ND	0.0025	0.0025	0.0023	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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2616230

QC Batch: 24707
QC Batch Method: EPA 3005A
Associated Lab Samples: 2616230001

Analysis Method: EPA 6020B
Analysis Description: 6020B MET

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

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2616230

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 111123 111124

Parameter	Units	2616193001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2616230

QC Batch: 24985
QC Batch Method: EPA 300.0
Analysis 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 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	
Sulfate	mg/L	22.0	10	10	28.9	29.2	69	72	90-110	1	15	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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham / Lauren Petty	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Geosyntec	Company Name:	
	Atlanta, GA 30339			Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10348606	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:		Pace Profile #:	327.4 (AP) or 328.5 (Huff)

Regulatory Agency: | State / Location: GA

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses 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)
1	FB-02	WT	G	3/15/19	1445	3/15/19	1460	20	4	1		3						Y	Y	Y	Y	Y	Y	N
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

3/15/19

AJM

WO#: 2616230

2616230

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Noelia Muskus Kaczynski	3/18/19	1026	Pascal Raymond	3/18/19	10:24	
				MDahlman	3/18/19	1200	
							4.2 Y Y Y

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

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Noelia Muskus

SIGNATURE of SAMPLER: Noelia Muskus

DATE Signed: 3/15/19

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power

Project #

WO#: 2616230

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: 03/18/19 MM

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond
Pace Project No.: 2616231

QC Batch: 334703 Analysis Method: EPA 9320
QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228
Associated Lab Samples: 2616231001

METHOD BLANK: 1628726 Matrix: Water
Associated Lab Samples: 2616231001

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

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

REPORT OF LABORATORY ANALYSIS

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110 Technology Parkway
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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond
Pace Project No.: 2616231

QC Batch: 334701 Analysis Method: EPA 9315
QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium
Associated Lab Samples: 2616231001

METHOD BLANK: 1628722 Matrix: Water
Associated Lab Samples: 2616231001

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

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QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2616231

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham / Lauren Petty	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Geosyntec	Company Name:	
	Atlanta, GA 30339			Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10348606	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:		Pace Profile #:	327.4 (AP) or 328.5 (Huff)

Regulatory Agency: | State / Location: GA

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses 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)
1	FB-02	WT	G	3/15/19	1445	3/15/19	1460	20	4	1		3						Y	Y	Y	Y		Y	Y	N
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

3/15/19

AM

WO#: 2616231

2616231

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Nadia Muskus Geosyntec	3/18/19	1026	Pascal Payton	3/18/19	10:26	
				MDallman	3/18/19	1200	4.2 Y Y Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Nadia Muskus

SIGNATURE of SAMPLER: Nadia Muskus DATE Signed: 3/15/19

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

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA 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

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
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(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
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Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2616885

QC Batch: 25905
QC Batch Method: EPA 3005A
Associated Lab Samples: 2616885001

Analysis Method: EPA 6020B
Analysis Description: 6020B MET

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 Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
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.: 2616885

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 116815 116816

Parameter	Units	2616901004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	ND	0.1	0.1	0.10	0.10	103	102	75-125	1	20	
Barium	mg/L	0.027	0.1	0.1	0.13	0.13	105	100	75-125	4	20	
Beryllium	mg/L	0.00015J	0.1	0.1	0.10	0.10	100	100	75-125	0	20	
Boron	mg/L	0.63	1	1	1.6	1.6	102	101	75-125	0	20	
Cadmium	mg/L	ND	0.1	0.1	0.11	0.10	105	105	75-125	0	20	
Calcium	mg/L	11.9J	1	1	13.1J	17.2J	129	532	75-125	27	20	M6,R1
Chromium	mg/L	0.0030J	0.1	0.1	0.11	0.11	106	106	75-125	0	20	
Cobalt	mg/L	0.0022J	0.1	0.1	0.11	0.10	103	101	75-125	2	20	
Lead	mg/L	ND	0.1	0.1	0.10	0.10	102	101	75-125	0	20	
Lithium	mg/L	ND	0.1	0.1	0.10	0.10	102	100	75-125	2	20	
Molybdenum	mg/L	ND	0.1	0.1	0.11	0.10	107	103	75-125	4	20	
Selenium	mg/L	ND	0.1	0.1	0.10	0.10	101	100	75-125	1	20	
Thallium	mg/L	ND	0.1	0.1	0.10	0.10	103	102	75-125	1	20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2616885

QC Batch: 25772
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2616885001

LABORATORY CONTROL SAMPLE: 116265

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	403	101	84-108	

SAMPLE DUPLICATE: 116266

Parameter	Units	2616783001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	87.0	115	28	10	D6

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Lauren Petty, Geosyntec	Company Name:	
Atlanta, GA 30339				Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10348606	Pace Quote:	
Phone:	(404)506-7239 Fax	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:		Pace Profile #:	327 (AP) or 328 (Huff)

Regulatory Agency: GA

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Requested Analysis Filtered (Y/N): Metals (App. III & App. IV)	Mets (App. III, App. IV, D&O)	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	HGWA-3	WT	G	4/1/19	1700	4/1/19	1725	12	5	2		3							Y	—		Y	Y	—
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

NM 4/1/19

WO#: 2616885

2616885

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Appendix IV (1): Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Molybdenum, Selenium, Thallium	Noelia Muskus/Geo	4/1/19	930	Nardos Tilahun/Geo	4/2/19	0930
	Nardos Tilahun/Geo	4/2/19	1036	[signature]	4/2/19	1036
				[signature]	4/2/19	1130

SAMPLE CONDITIONS

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

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Noelia Muskus

SIGNATURE of SAMPLER: Noelia Muskus DATE Signed: 4/1/19

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power

Project #

WO#: 2616885

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other

Tracking #:

PM: BM Due Date: 04/09/19

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 2.0 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 4/2/19 MR

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Lauren Petty, Geosyntec	Company Name:	
Atlanta, GA 30339				Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10348606	Pace Quote:	
Phone:	(404)506-7239 Fax	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:		Pace Profile #:	327 (AP) or 328 (Huff)

Regulatory Agency: State / Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals (App. III & App. IV)	Mets (App. III, App. IV, D&O)	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	HGWA-3	WT	G	4/1/19	1700	4/1/19	1705	12	5	2		3							Y	—	Y	Y		1
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

NM 4/1/19

WO#: 2616886

2616886

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Appendix IV (1): Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Molybdenum, Selenium, Thalium	Noelia Muskus/Geo	4/1/19	930	Nardos Tilahun/Geo	4/2/19	0930	
	Nardos Tilahun/Geo	4/2/19	1036	[illegible] Pace	4.2.19	1036	
				M Rahman	4/2/19	1130	

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

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Noelia Muskus

SIGNATURE of SAMPLER: Noelia Muskus DATE Signed: 4/1/19

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power

Project #

WO#: 2616886

PM: BM Due Date: 04/30/19

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 2.0 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 KKR

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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 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 22:29	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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2616925

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 116815 116816

Parameter	Units	2616901004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	ND	0.1	0.1	0.10	0.10	103	102	75-125	1	20	
Barium	mg/L	0.027	0.1	0.1	0.13	0.13	105	100	75-125	4	20	
Beryllium	mg/L	0.00015J	0.1	0.1	0.10	0.10	100	100	75-125	0	20	
Boron	mg/L	0.63	1	1	1.6	1.6	102	101	75-125	0	20	
Cadmium	mg/L	ND	0.1	0.1	0.11	0.10	105	105	75-125	0	20	
Calcium	mg/L	11.9J	1	1	13.1J	17.2J	129	532	75-125	27	20	M6,R1
Chromium	mg/L	0.0030J	0.1	0.1	0.11	0.11	106	106	75-125	0	20	
Cobalt	mg/L	0.0022J	0.1	0.1	0.11	0.10	103	101	75-125	2	20	
Lead	mg/L	ND	0.1	0.1	0.10	0.10	102	101	75-125	0	20	
Lithium	mg/L	ND	0.1	0.1	0.10	0.10	102	100	75-125	2	20	
Molybdenum	mg/L	ND	0.1	0.1	0.11	0.10	107	103	75-125	4	20	
Selenium	mg/L	ND	0.1	0.1	0.10	0.10	101	100	75-125	1	20	
Thallium	mg/L	ND	0.1	0.1	0.10	0.10	103	102	75-125	1	20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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	

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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.	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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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		

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:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Lauren Petty, Geosyntec	Company Name:	
	Atlanta, GA 30339			Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10348606	Pace Quote:	
Phone:	(404)506-7239 Fax	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:		Pace Profile #:	327 (AP) or 328 (Huff)

Regulatory Agency: State/Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals (App. III & App. IV)	Mets (App. III, App. IV, D&O	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	HGWA-1	WT	G	04/02	9:48	04/02	10:02	16	5	2		3						Y	Y	—		Y	Y	—
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

GW 04/02/19

WO#: 2616925

2616925

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
App IV (1): Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Molybdenum, Selenium, Thallium	Grant Walter/Geosyntec	04/02/19	1745	Malia Muston/Georgia	4/2/19	1745	
	Malia Muston/Georgia	4/2/19	1950	[illegible]	4/2/19	1930	
	[illegible]	4/3/19	0954	[illegible]	4/3/19	0954	
				MMuston	4/3/19	1110	1.0 Y Y Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Grant Walter

SIGNATURE of SAMPLER: [signature] DATE Signed: 04/02/19

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

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:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Lauren Petty, Geosyntec	Company Name:	
Atlanta, GA 30339				Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10348606	Pace Quote:	
Phone:	(404)506-7239 Fax	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:		Pace Profile #:	327 (AP) or 328 (Huff)

Regulatory Agency: GA

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analysis Test Y/N	Requested Analysis Filtered (Y/N): Metals (App. III & App. IV)	Mets (App. III, App. IV, D&O)	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	HGWA-2	WT	G	4/2/19	13:10	4/2/19	13:40	17.0	5	2		3						Y	—			Y	Y	—
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

DCA 4/2/2019

WO#:2616925

2616925

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
APP IV (1): Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Molybdenum, Selenium, Thallium	Dalton Anderson (GEO)	4/2/19	17:45	Mallie Munton / Geosyntec	4/2/19	1745	
	Mallie Munton / Geosyntec	4/2/19	1938	Kelli Law / Geosyntec	4/2/19	1938	
	Kelli Law / Geosyntec	4/3/19	0954	[illegible] / Pace	4/3/19	0954	
				M Dalman	4/3/19	1110	

SAMPLE CONDITIONS			
TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
1-0	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Dalton Anderson

SIGNATURE of SAMPLER: [signature] DATE Signed: 4/2/19

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power

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: 83 Type of Ice: Wet Blue None

☐ Samples on ice, cooling process has begun

Cooler Temperature: 1.0 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 4/3/19 MR

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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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110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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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(770)734-4200

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	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond
Pace Project No.: 2616926

QC Batch: 337392 Analysis Method: EPA 9315
QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium
Associated Lab Samples: 2616926001, 2616926002

METHOD BLANK: 1642069 Matrix: Water
Associated Lab Samples: 2616926001, 2616926002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.117 ± 0.178 (0.382) C:94% T:NA	pCi/L	04/12/19 08:07	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond
Pace Project No.: 2616926

QC Batch: 337342 Analysis Method: EPA 9320
QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228
Associated Lab Samples: 2616926001, 2616926002

METHOD BLANK: 1641953 Matrix: Water
Associated Lab Samples: 2616926001, 2616926002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	-0.245 ± 0.294 (0.748) C:78% T:79%	pCi/L	04/16/19 16:22	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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		

Pace Analytical

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 TAT

Section B — Required Project Information:

Report To:	Joju Abraham
Copy To:	Lauren Petty, Geosyntec
Purchase Order #:	SCS10348606
Project Name:	Plant Hammond
Project #:	

Section C — Invoice Information:

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

Regulatory Agency: —

State / Location: GA

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

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Requested Analysis Filtered (Y/N): Metals (App. III & App. IV)	Mets (App. III, App. IV, D&O)	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	HGWA-1	WT	G	04/02	9:48	04/02	10:02	16	8	2		3						Y	—			Y	Y	—
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

GW 04/02/19

WO#: 2616926

2616926

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
App IV (1): Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Molybdenum, Selenium, Thallium	Grant Walter / Geosyntec	04/02/19	1745	Malia Mosman / Georgia	4/2/19	1745				
	Julia Mosman / Georgia	4/2/19	1950	[illegible] / Geosyntec	4/2/19	1930				
	[illegible] / Geosyntec	4/3/19	0954	[illegible] Pace	4/3/19	0954				
				MDalman	4/3/19	1110	1.0	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Grant Walter

SIGNATURE of SAMPLER: [signature] DATE Signed: 04/02/19

Pace Analytical

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:	jabraham@southernco.com
Phone:	(404)506-7239 Fax:
Requested Due Date:	Standard TAT

Section B — Required Project Information:

Report To:	Joju Abraham
Copy To:	Lauren Petty, Geosyntec
Purchase Order #:	SCS10348606
Project Name:	Plant Hammond
Project #:	

Section C — Invoice Information:

Attention:	scsinvoices@southernco.com
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Pace Profile #:	327 (AP) or 328 (Huff)

Regulatory Agency

State / Location: GA

MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

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

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals (App. III & App. IV)	Mets (App. III, App. IV, D&O)	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	HGWA-2	WT	G	4/2/19	15:10	4/2/19	13:40	17.0	5	2		3							Y	—	—	Y	Y	—

DCA 4/2/2019

WO#: 2616926
PM: BM Due Date: 05/01/19
CLIENT: GAPower-CCR

ADDITIONAL COMMENTS: APP IV (1): Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Molybdenum, Selenium, Thallium

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Dalton Anderson (Geo)	4/2/19	17:45	Marlin Mudum / Geosyntec	4/2/19	1745
Marlin Mudum / Geosyntec	4/2/19	1930	EB Law / Geosyntec	4/2/19	1930
EB Law / Geosyntec	4/3/19	0954	[illegible] / Pace	4.3.19	0954
			M Dalman	4/3/19	1110

SAMPLE CONDITIONS

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

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Dalton Anderson
SIGNATURE of SAMPLER: [signature] DATE Signed: 4/2/19

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA 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

☐ Samples on ice, cooling process has begun

Cooler Temperature 1.0 **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 4/3/19 MR

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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 Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
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	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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 Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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 Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2616927

QC Batch: 25905
QC Batch Method: EPA 3005A
Associated Lab Samples: 2616927001

Analysis Method: EPA 6020B
Analysis Description: 6020B MET

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	2616901004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2616927

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 116815 116816

Parameter	Units	2616901004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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	2616933004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2616927

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 116819 116820

Parameter	Units	2616933004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
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	

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	4.4	10	10	14.5	14.6	101	102	90-110	0	15	
Fluoride	mg/L	ND	10	10	10.6	10.6	106	106	90-110	0	15	
Sulfate	mg/L	4.9	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

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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		

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 TAT

Section B — Required Project Information:

Report To:	Joju Abraham
Copy To:	Lauren Petty, Geosyntec
Purchase Order #:	SCS10348606
Project Name:	Plant Hammond
Project #:	

Section C — Invoice Information:

Attention:	scsinvoices@southernco.com
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Pace Profile #:	327 (AP) or 328 (Huff)

Regulatory Agency: State / Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test (Y/N)	Metals (App. III & App. IV) (3)	Mets (App. III, App. IV, D&O)	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	HGWA-4	WT	G	04/02	11:52	04/02	12:11	5°	5	2		3						Y	Y	—	Y	Y		—
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

GW 04/02/19

WO#: 2616927

2616927

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
App IV (3): Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Molybdenum, Selenium, Thallium	Grant Walter/Geosyntec	04/02/19	1745	Noelia Martinez	4/2/19	1745				
	Noelia Martinez/Geosyntec	4/2/19	1930	Will Blaw/Geosyntec	4/2/19	1930				
	Will Blaw/Geosyntec	4/3/19	0954	Pace	4.3.19	0954				
				M Dalman	4/3/19	1110	1.0	Y	Y	Y

SAMPLER NAME AND SIGNATURE

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:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Lauren Petty, Geosyntec	Company Name:	
Atlanta, GA 30339				Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10348606	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com
Requested Due Date:	Standard TAT	Project #:		Pace Profile #:	327 (AP) or 328 (Huff)

Regulatory Agency: —

State/Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test (Y/N)	Metals (App. III & App. IV)	Mets (App. III, App. IV, D&O)	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	HGWA-5	WT	G	4/2/19	10:00	4/2/19	10:40	MS	5	2		3							Y	—		Y	Y	—
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

DCA 4/2/2019

WO#: 2616927

PM: BM Due Date: 04/10/19

CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
APP IV (3): Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Molybdenum, Selenium, Thallium	Dalton Anderson (GP)	4/2/19	17:45	Nadia Mendoza/Geosyntec	4/2/19	1745	
	Nadia Mendoza/Geosyntec	4/2/19	1930	Will Lowe/Geosyntec	4/2/19	1930	
	Will Lowe/Geosyntec	4/3/19	0954	[signature] Pace	4/3/19	0954	
				MDalman	4/3/19	1110	1.0 Y Y Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Dalton Anderson

SIGNATURE of SAMPLER: [signature] DATE Signed: 4/2/19

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

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 TAT

Section B — Required Project Information:

Report To:	Joju Abraham
Copy To:	Lauren Petty, Geosyntec
Purchase Order #:	SCS10348606
Project Name:	Plant Hammond
Project #:	

Section C — Invoice Information:

Attention:	scsinvoices@southernco.com
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Pace Profile #:	327 (AP) or 328 (Huff)

Regulatory Agency: —

State / Location: GA

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

MATRIX	CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Other	OT
Tissue	TS

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test (Y/N)	Metals (App. III & App. IV)	Mets (App. III, App. IV, D&O)	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	HGWA-6	WT	G	4/2/19	1012	4/2/19	1037	19	5	2		3						Y	Y	—	Y	Y		—
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

NM 4/2/19

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

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Appendix III (3): Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Molybdenum, Selenium, Thalium	Noelia Muskus / Georgia Power	4/2/19	1930	[illegible] / Geosyntec	4/2/19	1930				
	[illegible] / Geosyntec	4/3/19	0954	[illegible] / Pace	4/3/19	0954				
				[illegible]	4/3/19	1110	1.0	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Noelia Muskus

SIGNATURE of SAMPLER: Noelia Muskus DATE Signed: 4/2/19

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

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power

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 ☐

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 1.0 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 4/3/19 MR

Temp should be above freezing to 6°C

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
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Peachtree Corners, GA 30092
(770)734-4200

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

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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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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		

CHAIN-OF-CUSTODY / Analytical Request Document

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Page : 1 Of 3

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
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Atlanta, GA 30339				Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10348606	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:		Pace Profile #:	327 (AP) or 328 (Huff)

Regulatory Agency: GA

Matrix Codes: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Requested Analysis Filtered (Y/N): Metals (App. III & App. IV) (2)	Metals (App. III, App. IV, D&O)	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	HGWA-4	WT	G	04/02	11:52	04/02	12:11	8°	5	2		3						Y	Y	—		Y	Y	—
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

04/02/19

GW

WO#: 2616928

2616928

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
App IV (3): Arsenic, Barium,	Grant Walter/Geosyntec	04/02/19	1745	Melia Mosher	4/2/19	1745	
Beryllium, Cadmium, Chromium,	Melia Mosher/Geosyntec	4/2/19	1930	Will Law/Geosyntec	4/2/19	1930	
Cobalt, Fluoride, Lead, Lithium,	Will Law/Geosyntec	4/3/19	0954	Pace	4.3.19	0954	
Molybdenum, Selenium, Thallium				MDalman	4/3/19	1110	1.0 Y Y Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Grant Walter

SIGNATURE of SAMPLER: Grant Walter DATE Signed: 04/02/19

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

CHAIN-OF-CUSTODY / Analytical Request Document

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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 TAT

Section B — Required Project Information:

Report To:	Joju Abraham
Copy To:	Lauren Petty, Geosyntec
Purchase Order #:	SCS10348606
Project Name:	Plant Hammond
Project #:	

Section C — Invoice Information:

Attention:	scsinvoices@southernco.com
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Pace Profile #:	327 (AP) or 328 (Huff)

Regulatory Agency: —
State / Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test	Y/N	Metals (App. III & App. IV)	Mets (App. III, App. IV, D&O)	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	HGWA-5	WT	G	4/2/19	10:00	4/2/19	10:40	MS	5	2		3							Y	—		Y	Y		—
2																									
3																									
4																									
5																									
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11																									
12																									

DCA 4/2/2019

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

WO#: 2616928

PM: BM Due Date: 05/01/19

CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
APP IV (3): Arsenic, Barium, Beryllium,	Dalton Anderson (GA)	4/2/19	17:45	Nadia Mendoza/Geosyntec	4/2/19	1745	
Cadmium, Chromium, Cobalt,	Nadia Mendoza/Geosyntec	4/2/19	1930	Luke Lowe/Geosyntec	4/2/19	1930	
Fluoride, Lead, Lithium, Molybdenum,	Luke Lowe/Geosyntec	4/3/19	0954	J Pence	4/3/19	0954	
Selenium, Thallium				M Dalman	4/3/19	1110	1.0 Y Y Y

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

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Dalton Anderson

SIGNATURE of SAMPLER: [signature] DATE Signed: 4/2/19

PaceAnalytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 3 Of 3

Section A — Required Client Information:

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

Section B — Required Project Information:

Report To:	Joju Abraham
Copy To:	Lauren Petty, Geosyntec
Purchase Order #:	SCS10348606
Project Name:	Plant Hammond
Project #:	

Section C — Invoice Information:

Attention:	scsinvoices@southernco.com
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Pace Profile #:	327 (AP) or 328 (Huff)

Regulatory Agency:

State / Location: GA

MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals (App. III & App. IV)	Mets (App. III, App. IV, D&O)	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	HGWA-6	WG	G	4/2/19	1012	4/2/19	1037	17	5	2		3							Y	—		Y	Y	—
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

NM 4/2/19

WO#: 2616928

PM: BM Due Date: 05/01/19

CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
Appendix III (3): Arsenic, Barium	Noelia Muskus / Geosyntec	4/2/19	1930	OBlaw / Geosyntec	4/2/19	1930				
Beryllium, Cadmium, Chromium, Cobalt,	OBlaw / Geosyntec	4/3/19	0954	[signature] / Pace	4.3.19	0954				
Fluoride, Lead, Lithium, Molybdenum, Selenium				MDalman	4/3/19	1110	1.0	Y	Y	Y
Thalium										

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Noelia Muskus

SIGNATURE of SAMPLER: Noelia Muskus DATE Signed: 4/2/19

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA 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

☐ Samples on ice, cooling process has begun

Cooler Temperature 1.0 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 4/3/19 MR

Temp should be above freezing to 6°C

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

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Peachtree Corners, GA 30092
(770)734-4200

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

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Peachtree Corners, GA 30092
(770)734-4200

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 Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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 Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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 Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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 Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	0.00017J	0.01	0.01	0.010	0.010	102	99	75-125	3	20	
Barium	mg/L	0.018	0.05	0.05	0.069	0.068	101	99	75-125	1	20	
Beryllium	mg/L	ND	0.01	0.01	0.0088	0.0084	87	84	75-125	4	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2617072

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2543177 2543178

Parameter	Units	2617072001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
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	

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2617072

QC Batch: 26251 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2617072001, 2617072002, 2617072003

LABORATORY CONTROL SAMPLE: 118507

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	404	101	84-108	

SAMPLE DUPLICATE: 118508

Parameter	Units	2617035009 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	85.0	50.0	52	10	D6

SAMPLE DUPLICATE: 118509

Parameter	Units	2617069003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	340	341	0	10	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Lauren Petty, Geosyntec	Company Name:	
Atlanta, GA 30339				Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10348606	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:		Pace Profile #:	327 (AP) or 328 (Huff)

Regulatory Agency: | State / Location: GA

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals (App. III & App. IV)	Mets (App. III, App. IV, D&O	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	HGWC-15	WT	G	04/04	10:23	04/04	10:44	8	5	2		3						Y	—			Y	Y	—
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

GW 04/04/19

WO#: 2617072

2617072

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
App IV (3): Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Molybdenum, Selenium, Thallium	Grant Walter / Geosyntec	04/04/19	1804		4-4-19	1804	
		4-4-19	2030	Will Blanco / Geosyntec	4/4/19	2030	
	Will Blanco / Geosyntec	4/5/19	0933	Pace	4.5.19	0933	
				M Dahman	4/5/19	1120	1.2 Y Y Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Grant Walter

SIGNATURE of SAMPLER: Grant Walter DATE Signed: 04/04/19

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

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:	jabraham@southernco.com
Phone: (404)506-7239	Fax:
Requested Due Date:	

Section B — Required Project Information:

Report To:	Joju Abraham
Copy To:	Lauren Petty, Geosyntec
Purchase Order #:	SCS10348606
Project Name:	Plant Hammond
Project #:	

Section C — Invoice Information:

Attention:	scsinvoices@southernco.com
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Pace Profile #:	327 (AP) or 328 (Huff)

Regulatory Agency: —

State / Location: GA

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

MATRIX	CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Other	OT
Tissue	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Requested Analysis Filtered (Y/N): Metals (App. III & App. IV)	Mets (App. III, App. IV, D&O)	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	HGWC-16	WT	G	4/4/19	12:30	4/4/19	12:52	6.8°C	5	2		3						Y	Y	—		Y	Y	—
2	MW-21D	WT	G	4/4/19	15:19	4/4/19	15:39	7.9°C	5	2		3						Y	Y	—		Y	Y	—
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

4/4/2019

DCA

WO#: 2617072
PM: BM **Due Date: 04/12/19**
CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
APP III + IV (3): Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Molybdenum, Selenium, Thallium	Dalton Anderson (Geo)	4/4/19	1804		4-4-19	1804				
		4-4-19	2030	Jeff Blaw / Geosyntec	4/4/19	2038				
	Jeff Blaw / Geosyntec	4/5/19	0933	/ Pace	4.5.19	0933				
				Mona Inman	4/5/19	1120	1.2	Y	Y	Y

SAMPLER NAME AND SIGNATURE			TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Dalton Anderson					
SIGNATURE of SAMPLER:		DATE Signed: 4/4/2019				

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power

Project #

WO#: 2617072

PM: BM Due Date: 04/12/19

CLIENT: GAPower-CCR

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other

Tracking #:

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

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
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(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Lauren Petty, Geosyntec	Company Name:	
	Atlanta, GA 30339			Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10348606	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:		Pace Profile #:	327 (AP) or 328 (Huff)

Regulatory Agency: —

State / Location: GA

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Requested Analysis Filtered (Y/N): Metals (App. III & App. IV)	Mets (App. III, App. IV, D&O	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	HGWC-15	WT	G	04/04	10:23	04/04	10:44	8	5	2		3							Y	—		Y	Y	—
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

GW 04/04/19

WO#: 2617073

2617073

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
App IV (3): Arsenic, Barium, Beryllium,	Grant Walter / Geosyntec	04/04/19	1804		4-4-19	1804				
Cadmium, Chromium, Cobalt, Fluoride,		4-4-19	2030	Will Laws / Geosyntec	4/4/19	2030				
Lead, Lithium, Molybdenum,	Will Laws / Geosyntec	4/5/19	0933		4.5.19	0933				
Selenium, Thallium				M Dahman	4/5/19	1120	1.2	Y	Y	Y
							TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Grant Walter

SIGNATURE of SAMPLER: Grant Walter

DATE Signed: 04/04/19

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Lauren Petty, Geosyntec	Company Name:	
Atlanta, GA 30339				Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10348606	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:		Project #:		Pace Profile #:	327 (AP) or 328 (Huff)

Regulatory Agency: State / Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals (App. III & App. IV)	Mets (App. III, App. IV, D&O)	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	HGWC-16	WT	G	4/4/19	12:35	4/4/19	12:52	6.8	5	2		3						Y	Y	—		Y	Y	—
2	MW-21D	WT	G	4/4/19	15:19	4/4/19	15:39	11.5	5	2		3						Y	Y	—		Y	Y	—
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

4/4/2019

DCA

WO# : 2617073

PM: BM Due Date: 05/03/19

CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
APP III + IV (3): Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Molybdenum, Selenium, Thallium	Dalton Anderson (GA)	4/4/19	1804		4-4-19	1804				
		4-4-19	2030	Lots Blow / Geosyntec	4/4/19	2035				
	Lots Blow / Geosyntec	4/5/19	0833		4.5.19	0933				
					4/5/19	1120	1.2	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Dalton Anderson

SIGNATURE of SAMPLER: DATE Signed: 4/4/2019

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

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power

Project #

WO#: 2617073

PM: BM **Due Date: 05/03/19**

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 1.2 **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C

☐ Samples on ice, cooling process has begun

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

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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 Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
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	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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 Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
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	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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 Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
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	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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 Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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 Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
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	

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2617150

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2545219 2545220

Parameter	Units	92424526001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
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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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2617150

QC Batch: 26252 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2617150001, 2617150002, 2617150003, 2617150004, 2617150005

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	

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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		

PaceAnalytical

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:	

Section B — Required Project Information:

Report To:	Joju Abraham
Copy To:	Lauren Petty, Geosyntec
Purchase Order #:	SCS10348606
Project Name:	Plant Hammond
Project #:	

Section C — Invoice Information:

Attention:	scsinvoices@southernco.com
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Pace Profile #:	327 (AP) or 328 (Huff)

Regulatory Agency:

State / Location: GA

MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

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

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals (App. III & App. IV)	Mets (App. III, App. IV, D&O)	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	MW-22	WT	G	04/05	9:35	04/05	9:51	16	5	2		3							Y	—		Y	Y	—
2	MW-23D	WT	G	04/05	11:07	04/05	11:33	17	5	2		3							Y	—		Y	Y	
3	HGWC-14	WT	G	04/05	12:35	04/05	12:52	19	5	2		3							Y	—		Y	Y	
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

GW 04/05/19

WO#:2617150

2617150

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
App IV (3): Arsenic, Barium, Beryllium,	Grant Walter / Geosyntec	04/05/19	1743	Malia Murdum / Geosyntec	4/5/19	1743				
Cadmium, Chromium, Cobalt,	Malia Murdum / Geosyntec	4/5/19	1945	[illegible] / Geosyntec	4/5/19	1945				
Fluoride, Lead, Lithium,	[illegible] / Geosyntec	4/8/19	1116	[illegible] / Pace	4.8.19	1116				
Molybdenum, Selenium, Thallium				M Lalunan	4/8/19	1530	1.1	Y	Y	Y
							TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Grant Walter

SIGNATURE of SAMPLER: [signature]

DATE Signed: 04/05/19

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Lauren Petty, Geosyntec	Company Name:	
Atlanta, GA 30339				Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10348606	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:		Project #:		Pace Profile #:	327 (AP) or 328 (Huff)

Regulatory Agency: GA

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test (Y/N)	Requested Analysis Filtered (Y/N): Metals (App. III & App. IV)	Mels (App. III, App. IV, D&O)	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	HGWC-17	WT	G	4/5/19	12:05	4/5/19	12:25	15.5	5	2		3							Y	—		Y	Y	—
2	HGWC-18	WT	G	4/5/19	14:00	4/5/19	14:25	15.9	5	2		3							Y	—		Y	Y	—
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

DCA 4/5/19

WO#: 2617150

PM: BM Due Date: 04/15/19

CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
APP III & IV (3): Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Molybdenum, Selenium, Thallium	Dalton Anderson (GP)	4/5/19	1743	Malia Mumm / Geosyntec	4/5/19	1743	
	Malia Mumm / Geosyntec	4/5/19	1945	[illegible] / Geosyntec	4/5/19	1945	
	[illegible] / Geosyntec	4/8/19	1116	[illegible] Pace	4/8/19	1116	
				M Dalman	4/8/19	1530	1.1

SAMPLER NAME AND SIGNATURE			
PRINT Name of SAMPLER:	Dalton Anderson		
SIGNATURE of SAMPLER:	[signature]	DATE Signed:	4/5/19

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

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA 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

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 ME

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

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(770)734-4200

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

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110 Technology Parkway
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(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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		

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:	Joju Abraham
Copy To:	Lauren Petty, Geosyntec
Purchase Order #:	SCS10348606
Project Name:	Plant Hammond
Project #:	

Section C — Invoice Information:

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

Regulatory Agency: —

State / Location: GA

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

MATRIX	CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Other	OT
Tissue	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Requested Analysis Filtered (Y/N): Metals (App. III & App. IV)	Mets (App. III, App. IV, D&O)	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	MW [illegible]																							
2	MW [illegible]																							
3	HOW [illegible]	WT	G	4/4/19	[illegible]	4/5/19	[illegible]		4	X										X			X	
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

WO#: 2617152

2617152

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[illegible]	[illegible]		1743	Malia Mustian / Geosyntec	4/5/19	1743
[illegible]	Malia Mustian / Geosyntec	4/5/19	1945	Lott Law / Geosyntec	4/5/19	1945
[illegible]	Lott Law / Geosyntec	4/8/19	1116	Pace M Dalmon	4/8/19	1116
[illegible]					4/8/19	1532

SAMPLE CONDITIONS

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

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: [illegible]

SIGNATURE of SAMPLER: [illegible] DATE Signed: 4/5/19

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A — Required Client Information:

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

Section B — Required Project Information:

Report To:	Joju Abraham
Copy To:	Lauren Petty, Geosyntec
Purchase Order #:	SCS10348506
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)

Regulatory Agency: —

State / Location: GA

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Requested Analysis Filtered (Y/N): Metals (App. III & App. IV)	Mets (App. III, App. IV, D&O)	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	HGWC-17	WT	G	4/5/19	12:05	4/5/19	12:25	15.5	5	2		3						Y	—	—	Y	Y	—
2	HGWC-16	WT	G	4/5/19	14:05	4/5/19	14:25	15.5	5	2		3						Y	—	—	Y	Y	—
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

DCA 4/5/19

WO#: 2617152

2617152

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
APP III & IV (3): Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Molybdenum, Selenium, Thallium	Dalton Anderson (Geo)	4/5/19	1743	Mollie Martens / Geosyntec	4/5/19	1743
	Mollie Martens / Geosyntec	4/5/19	1945	WB Lane / Geosyntec	4/5/19	1945
	WB Lane / Geosyntec	4/5/19	1116	Pace	4/8/19	1116
				M Zahnan	4/8/19	1530

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

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Dalton Anderson

SIGNATURE of SAMPLER: Dalton Anderson DATE Signed: 4/5/19

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power

Project #

WO#: 2617152

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 ☐

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 MP

Comments:

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

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Peachtree Corners, GA 30092
(770)734-4200

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

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110 Technology Parkway
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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 Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2617148

QC Batch: 468895
QC Batch Method: EPA 7470A
Analysis 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 Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	ND	0.0025	0.0025	0.0019	0.0019	77	77	75-125	0	25	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
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QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2617148

QC Batch: 469500
QC Batch Method: EPA 3010A
Associated Lab Samples: 2617148001

Analysis Method: EPA 6020B
Analysis Description: 6020 MET

METHOD BLANK: 2549697
Associated Lab Samples: 2617148001

Matrix: Water

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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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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	2617148001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
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	

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2617148

QC Batch: 26252
QC Batch Method: SM 2540C
Analysis 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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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2617148

QC Batch: 26135
QC Batch Method: EPA 300.0
Analysis 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 Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A — Required Client Information:

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

Section B — Required Project Information:

Report To:	Joju Abraham
Copy To:	Lauren Petty, Geosyntec
Purchase Order #:	SCS10348606
Project Name:	Plant Hammond
Project #:	

Section C — Invoice Information:

Attention:	scsinvoices@southernco.com
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Pace Profile #:	327 (AP) or 328 (Huff)

Regulatory Agency:

State / Location: GA

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

MATRIX CODE: Drinking Water = DW; Water = WT; Waste Water = WW; Product = P; Soil/Solid = SL; Oil = OL; Wipe = WP; Air = AR; Other = OT; Tissue = TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Requested Analysis Filtered (Y/N): Metals (App. III & App. IV)	Mets (App. III, App. IV, D&O)	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	FB-01	WT	G	4/5/19	0940	4/15/19	0850	17	5	2		3						Y	Y	—	Y	Y		—
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

NM 4/5/19

WO#: 2617148

2617148

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Nadia Muskus/Geosyntec	4/5/19	1945	WB Leal / Geosyntec	4/5/19	1945				
	WB Leal/Geosyntec	4/8/19	1116	[illegible] / Pace	4.8.19	1116				
				MQuinan	4/8/19	1530	1.1	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Nadia Muskus

SIGNATURE of SAMPLER: Nadia Muskus DATE Signed: 4/5/19

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA 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

☐ Samples on ice, cooling process has begun

Cooler Temperature 1.1 **Biological Tissue is Frozen:** Yes No

Date and Initials of person examining contents: 4/8/19 MR

Temp should be above freezing to 6°C

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
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(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond
Pace Project No.: 2617149

QC Batch: 337923
QC Batch Method: EPA 9315
Analysis 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.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A — Required Client Information:

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

Section B — Required Project Information:

Report To:	Joju Abraham
Copy To:	Lauren Petty, Geosyntec
Purchase Order #:	SCS10348606
Project Name:	Plant Hammond
Project #:	

Section C — Invoice Information:

Attention:	scsinvoices@southernco.com
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Pace Profile #:	327 (AP) or 328 (Huff)

Regulatory Agency: —

State / Location: GA

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

MATRIX	CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Other	OT
Tissue	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Requested Analysis Filtered (Y/N): Metals (App. III & App. IV)	Metals (App. III, App. IV, D&O)	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	FB-01	WT	G	4/5/19	0940	4/15/19	0850	17	5	2		3							Y	—		Y	Y	—
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

NM 4/5/19

WO# : 2617149

2617149

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Nadia Muskus / Georgia Power	4/5/19	1945	[illegible] / Geosyntec	4/5/19	1945	
	[illegible] / Geosyntec	4/8/19	1116	[illegible] / Pace	4.8.19	1116	
				[illegible]	4/8/19	1530	1.1 Y Y Y

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

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Nadia Muskus

SIGNATURE of SAMPLER: Nadia Muskus DATE Signed: 4/5/19

Sample Condition Upon Receipt

Face Analytical

Client Name: GA 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 ☐

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

Comments:

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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 Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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 Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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 Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	ND	0.0025	0.0025	0.0019	0.0019	77	77	75-125	0	25	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2617207

QC Batch: 468622
QC Batch Method: EPA 3010A
Analysis Method: EPA 6020B
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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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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		

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 TAT

Section B Required Project Information:

Report To:	Joju Abraham
Copy To:	Lauren Petty, Geosyntec
Purchase Order #:	SCS10348606
Project Name:	Plant Hammond
Project #:	

Section C Invoice Information:

Attention:	scsinvoices@southernco.com
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Pace Profile #:	327 (AP) or 328 (Huff)

Regulatory Agency:

State / Location: GA

MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals (App. III & App. IV)	Mets (App. III, App. IV, D&O)	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	FB-02	WT	G	4/8/19	1740	4/8/19	1745	19	5	2		3							-	Y	-	Y	Y	-
2	EB-01	WT	G	4/8/19	1755	4/8/19	1800	19	5	2		3							-	Y	-	Y	Y	-
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

NM 4/8/19

WO#: 2617207

2617207

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Nodia Muskus / Geo	4/8/19	2010	EB Laws / Geosyntec	4/8/19	2010				
	EB Laws / Geosyntec	4/9/19	1127	[illegible] / Pace	4.9.19	1127				
				M Rahman	4/9/19	1330	0.7	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Nodia Muskus

SIGNATURE of SAMPLER: Nodia Muskus

DATE Signed: 4/8/19

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA 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

☐ Samples on ice, cooling process has begun

Cooler Temperature 0.7

Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 4/9/19 AK

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

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		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A
Required Client Information:

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

Section B
Required Project Information:

Report To:	Joju Abraham
Copy To:	Lauren Petty, Geosyntec
Purchase Order #:	SCS10348606
Project Name:	Plant Hammond
Project #:	

Section C
Invoice Information:

Attention:	scsinvoices@southernco.com
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Pace Profile #:	327 (AP) or 328 (Huff)

Regulatory Agency	
State / Location	GA

MATRIX / CODE: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Other OT, Tissue TS

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Metals (App. III & App. IV)	Mets (App. III, App. IV, D&O)	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	FB-02	WT	G	4/8/19	1740	4/8/19	1745	19	5	2		3							-	Y	-	Y	Y	-
2	EB-01	WT	G	4/8/19	1755	4/8/19	1800	19	5	2		3							-	Y	-	Y	Y	-
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

NM 4/8/19

WO#:2617208

2617208

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Noelia Muskus / Geo	4/8/19	2010	EBlow / Geosyntec	4/8/19	2010				
	EBlow / Geosyntec	4/9/19	1127	[illegible] / Pace	4.9.19	1127				
				MRahman	4/9/19	1330	0.7	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Noelia Muskus

SIGNATURE of SAMPLER: Noelia Muskus DATE Signed: 4/8/19

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA 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

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 MR

Temp should be above freezing to 6°C

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

December 11, 2019

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

RE: Project: Plant Hammond AP GW6581
Pace Project No.: 2623500

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on September 24, 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 report issued on 10/1/2019. The report has been revised to remove mercury data 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,

Kevin Herring 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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

CERTIFICATIONS

Project: Plant Hammond AP GW6581
Pace Project No.: 2623500

Pace Analytical Services Atlanta
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

Pace Analytical Services Asheville
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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE SUMMARY

Project: Plant Hammond AP GW6581
Pace Project No.: 2623500

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623500001	**HGWA-1**	Water	09/23/19 16:15	09/24/19 15:23
2623500002	**HGWA-2**	Water	09/23/19 16:55	09/24/19 15:23
2623500003	**HGWA-3**	Water	09/23/19 17:10	09/24/19 15:23

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SAMPLE ANALYTE COUNT

Project: Plant Hammond AP GW6581
Pace Project No.: 2623500

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2623500001	**HGWA-1**	EPA 6020B	CSW	14	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
2623500002	**HGWA-2**	EPA 6020B	CSW	14	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
2623500003	**HGWA-3**	EPA 6020B	CSW	14	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond AP GW6581
Pace Project No.: 2623500

Sample: HGWA-1 **Lab ID: 2623500001** Collected: 09/23/19 16:15 Received: 09/24/19 15:23 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	0.00027	1	09/27/19 15:26	09/30/19 19:49	7440-36-0	
Arsenic	**0.00046J**	mg/L	0.0050	0.00035	1	09/27/19 15:26	09/30/19 19:49	7440-38-2	B
Barium	**0.042**	mg/L	0.010	0.00049	1	09/27/19 15:26	09/30/19 19:49	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	09/27/19 15:26	09/30/19 19:49	7440-41-7	
Boron	**0.021J**	mg/L	0.040	0.0049	1	09/27/19 15:26	09/30/19 19:49	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	09/27/19 15:26	09/30/19 19:49	7440-43-9	
Calcium	**118**	mg/L	5.0	0.55	50	09/27/19 15:26	09/30/19 19:54	7440-70-2	M6
Chromium	ND	mg/L	0.010	0.00039	1	09/27/19 15:26	09/30/19 19:49	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	09/27/19 15:26	09/30/19 19:49	7440-48-4	
Lead	**0.000078J**	mg/L	0.0050	0.000046	1	09/27/19 15:26	09/30/19 19:49	7439-92-1	
Lithium	**0.0011J**	mg/L	0.030	0.00078	1	09/27/19 15:26	09/30/19 19:49	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	09/27/19 15:26	09/30/19 19:49	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	09/27/19 15:26	09/30/19 19:49	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	09/27/19 15:26	09/30/19 19:49	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**442**	mg/L	10.0	10.0	1		09/26/19 18:04		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993								
Chloride	**17.7**	mg/L	1.0	0.60	1		09/27/19 21:18	16887-00-6	
Fluoride	**0.078J**	mg/L	0.30	0.050	1		09/27/19 21:18	16984-48-8	
Sulfate	**70.2**	mg/L	1.0	0.50	1		09/27/19 21:18	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond AP GW6581
Pace Project No.: 2623500

Sample: HGWA-2 **Lab ID: 2623500002** Collected: 09/23/19 16:55 Received: 09/24/19 15:23 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	0.00027	1	09/27/19 15:26	09/30/19 20:40	7440-36-0	
Arsenic	**0.00067J**	mg/L	0.0050	0.00035	1	09/27/19 15:26	09/30/19 20:40	7440-38-2	B
Barium	**0.13**	mg/L	0.010	0.00049	1	09/27/19 15:26	09/30/19 20:40	7440-39-3	
Beryllium	**0.00011J**	mg/L	0.0030	0.000074	1	09/27/19 15:26	09/30/19 20:40	7440-41-7	
Boron	**0.040J**	mg/L	0.040	0.0049	1	09/27/19 15:26	09/30/19 20:40	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	09/27/19 15:26	09/30/19 20:40	7440-43-9	
Calcium	**19.5**	mg/L	5.0	0.55	50	09/27/19 15:26	09/30/19 20:46	7440-70-2	
Chromium	**0.00058J**	mg/L	0.010	0.00039	1	09/27/19 15:26	09/30/19 20:40	7440-47-3	
Cobalt	**0.038**	mg/L	0.0050	0.00030	1	09/27/19 15:26	09/30/19 20:40	7440-48-4	
Lead	**0.000092J**	mg/L	0.0050	0.000046	1	09/27/19 15:26	09/30/19 20:40	7439-92-1	
Lithium	**0.0016J**	mg/L	0.030	0.00078	1	09/27/19 15:26	09/30/19 20:40	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	09/27/19 15:26	09/30/19 20:40	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	09/27/19 15:26	09/30/19 20:40	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	09/27/19 15:26	09/30/19 20:40	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**129**	mg/L	10.0	10.0	1		09/26/19 18:04		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993								
Chloride	**5.1**	mg/L	1.0	0.60	1		09/27/19 21:33	16887-00-6	
Fluoride	ND	mg/L	0.30	0.050	1		09/27/19 21:33	16984-48-8	
Sulfate	**47.2**	mg/L	1.0	0.50	1		09/27/19 21:33	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond AP GW6581
Pace Project No.: 2623500

Sample: HGWA-3 **Lab ID: 2623500003** Collected: 09/23/19 17:10 Received: 09/24/19 15:23 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	0.00027	1	09/27/19 15:26	09/30/19 20:52	7440-36-0	
Arsenic	**0.0011J**	mg/L	0.0050	0.00035	1	09/27/19 15:26	09/30/19 20:52	7440-38-2	B
Barium	**0.13**	mg/L	0.010	0.00049	1	09/27/19 15:26	09/30/19 20:52	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	09/27/19 15:26	09/30/19 20:52	7440-41-7	
Boron	**0.0081J**	mg/L	0.040	0.0049	1	09/27/19 15:26	09/30/19 20:52	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	09/27/19 15:26	09/30/19 20:52	7440-43-9	
Calcium	**71.0**	mg/L	5.0	0.55	50	09/27/19 15:26	09/30/19 20:57	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	09/27/19 15:26	09/30/19 20:52	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	09/27/19 15:26	09/30/19 20:52	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	09/27/19 15:26	09/30/19 20:52	7439-92-1	
Lithium	**0.0029J**	mg/L	0.030	0.00078	1	09/27/19 15:26	09/30/19 20:52	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	09/27/19 15:26	09/30/19 20:52	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	09/27/19 15:26	09/30/19 20:52	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	09/27/19 15:26	09/30/19 20:52	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**268**	mg/L	10.0	10.0	1		09/26/19 18:04		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993								
Chloride	**5.9**	mg/L	1.0	0.60	1		09/27/19 21:47	16887-00-6	
Fluoride	ND	mg/L	0.30	0.050	1		09/27/19 21:47	16984-48-8	
Sulfate	**43.9**	mg/L	1.0	0.50	1		09/27/19 21:47	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2623500

QC Batch: 36079 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2623500001, 2623500002, 2623500003

METHOD BLANK: 162814 Matrix: Water
Associated Lab Samples: 2623500001, 2623500002, 2623500003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	09/30/19 19:37	
Arsenic	mg/L	0.00043J	0.0050	0.00035	09/30/19 19:37	
Barium	mg/L	ND	0.010	0.00049	09/30/19 19:37	
Beryllium	mg/L	ND	0.0030	0.000074	09/30/19 19:37	
Boron	mg/L	ND	0.040	0.0049	09/30/19 19:37	
Cadmium	mg/L	ND	0.0025	0.00011	09/30/19 19:37	
Calcium	mg/L	ND	0.10	0.011	09/30/19 19:37	
Chromium	mg/L	ND	0.010	0.00039	09/30/19 19:37	
Cobalt	mg/L	ND	0.0050	0.00030	09/30/19 19:37	
Lead	mg/L	ND	0.0050	0.000046	09/30/19 19:37	
Lithium	mg/L	ND	0.030	0.00078	09/30/19 19:37	
Molybdenum	mg/L	ND	0.010	0.00095	09/30/19 19:37	
Selenium	mg/L	ND	0.010	0.0013	09/30/19 19:37	
Thallium	mg/L	ND	0.0010	0.000052	09/30/19 19:37	

LABORATORY CONTROL SAMPLE: 162815

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	100	80-120	
Barium	mg/L	0.1	0.11	106	80-120	
Beryllium	mg/L	0.1	0.10	101	80-120	
Boron	mg/L	1	1.0	103	80-120	
Cadmium	mg/L	0.1	0.10	100	80-120	
Calcium	mg/L	1	1.0	101	80-120	
Chromium	mg/L	0.1	0.099	99	80-120	
Cobalt	mg/L	0.1	0.097	97	80-120	
Lead	mg/L	0.1	0.11	106	80-120	
Lithium	mg/L	0.1	0.10	104	80-120	
Molybdenum	mg/L	0.1	0.10	104	80-120	
Selenium	mg/L	0.1	0.099	99	80-120	
Thallium	mg/L	0.1	0.11	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 162816 162817

Parameter	Units	2623500001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.11	0.10	108	104	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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2623500

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 162816 162817

Parameter	Units	2623500001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	0.00046J	0.1	0.1	0.10	0.10	103	100	75-125	3	20	
Barium	mg/L	0.042	0.1	0.1	0.15	0.15	110	106	75-125	3	20	
Beryllium	mg/L	ND	0.1	0.1	0.098	0.094	98	94	75-125	4	20	
Boron	mg/L	0.021J	1	1	1.0	0.99	99	97	75-125	2	20	
Cadmium	mg/L	ND	0.1	0.1	0.10	0.098	101	98	75-125	3	20	
Calcium	mg/L	118	1	1	116	129	-296	1090	75-125	11	20	M6
Chromium	mg/L	ND	0.1	0.1	0.10	0.098	102	98	75-125	3	20	
Cobalt	mg/L	ND	0.1	0.1	0.10	0.097	100	97	75-125	3	20	
Lead	mg/L	0.000078J	0.1	0.1	0.10	0.10	104	101	75-125	3	20	
Lithium	mg/L	0.0011J	0.1	0.1	0.10	0.098	102	97	75-125	4	20	
Molybdenum	mg/L	ND	0.1	0.1	0.11	0.10	108	102	75-125	6	20	
Selenium	mg/L	ND	0.1	0.1	0.098	0.098	98	98	75-125	1	20	
Thallium	mg/L	ND	0.1	0.1	0.11	0.10	105	101	75-125	4	20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2623500

QC Batch: 36029 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2623500001, 2623500002, 2623500003

LABORATORY CONTROL SAMPLE: 162444

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	393	98	84-108	

SAMPLE DUPLICATE: 162445

Parameter	Units	2623494001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	222	248	11	10	D6

SAMPLE DUPLICATE: 162446

Parameter	Units	2623553001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	ND	ND		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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2623500

QC Batch: 500244 Analysis Method: EPA 300.0 Rev 2.1 1993
QC Batch Method: EPA 300.0 Rev 2.1 1993 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2623500001, 2623500002, 2623500003

METHOD BLANK: 2691483 Matrix: Water
Associated Lab Samples: 2623500001, 2623500002, 2623500003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	09/27/19 16:24	
Fluoride	mg/L	ND	0.10	0.050	09/27/19 16:24	
Sulfate	mg/L	ND	1.0	0.50	09/27/19 16:24	

LABORATORY CONTROL SAMPLE: 2691484

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	50.9	102	90-110	
Fluoride	mg/L	2.5	2.7	109	90-110	
Sulfate	mg/L	50	52.1	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2691487 2691488

Parameter	Units	92447237002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	16.9	50	50	69.7	69.4	105	105	90-110	0	10	
Fluoride	mg/L	ND	2.5	2.5	2.8	2.7	110	108	90-110	2	10	
Sulfate	mg/L	91.9	50	50	139	139	94	95	90-110	0	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2691489 2691490

Parameter	Units	92447233001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	7.9	50	50	60.5	60.9	105	106	90-110	1	10	
Fluoride	mg/L	ND	2.5	2.5	3.0	3.1	120	125	90-110	4	10	M1
Sulfate	mg/L	36.6	50	50	90.2	90.3	107	107	90-110	0	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALIFIERS

Project: Plant Hammond AP GW6581
Pace Project No.: 2623500

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.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond AP GW6581
Pace Project No.: 2623500

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623500001	**HGWA-1**	EPA 3005A	36079	EPA 6020B	36104
2623500002	**HGWA-2**	EPA 3005A	36079	EPA 6020B	36104
2623500003	**HGWA-3**	EPA 3005A	36079	EPA 6020B	36104
2623500001	**HGWA-1**	SM 2540C	36029		
2623500002	**HGWA-2**	SM 2540C	36029		
2623500003	**HGWA-3**	SM 2540C	36029		
2623500001	**HGWA-1**	EPA 300.0 Rev 2.1 1993	500244		
2623500002	**HGWA-2**	EPA 300.0 Rev 2.1 1993	500244		
2623500003	**HGWA-3**	EPA 300.0 Rev 2.1 1993	500244		

Pace Analytical

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:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Lauren Petty, Geosyntec	Company Name:	
Atlanta, GA 30339				Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:	GW6581	Pace Profile #:	327 (AP)

Regulatory Agency: GA

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Antimony, Arsenic , Barium	Beryllium, Boron, Calcium	Cadmium, Chromium, Cobalt	Lead, Lithium, Molybdenum	Selenium, Thallium	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
	Requested Analysis Filtered (Y/N)																	N	N	N	N	N	N	N		
1	HGWA-1	WT	G	9/23/19	15:40	9/23/19	16:15	18.8	4	1		3						Y	Y	Y	Y	Y	Y	Y		
2																										
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

09-23-2019

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Dan Gibbs/Geosyntec	09.23.19	17:45	Madia Mustan/Geosyntec	9/23/19	17:45				
	Madia Mustan/Geosyntec	09/23/19	19:40	1 Parcel	9.24.19	1413				
	1 Parcel	9.24.19	1523	Charles Hunter	9/24/19	1523	3.8	Y	Y	Y

WO#: 2623500

2623500

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: DAN GIBBS

SIGNATURE of SAMPLER:

DATE Signed: 09.23.2019

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

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 TAT

Section B — Required Project Information:

Report To:	Joju Abraham
Copy To:	Lauren Petty, Geosyntec
Purchase Order #:	SCS10382775
Project Name:	Plant Hammond
Project #:	GW6581

Section C — Invoice Information:

Attention:	scsinvoices@southernco.com
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Pace Profile #:	327 (AP)

Regulatory Agency: —

State / Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Antimony, Arsenic, Barium	Beryllium, Boron, Calcium	Cadmium, Chromium, Cobalt	Lead, Lithium, Molybdenum	Selenium, Thallium	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
	MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS																	Y/N	N	N	N	N	N	N	N	
1	HGWA-2	WT	G	9/23/19	1535	9/23/19	1655	22	4	1	3	3							Y	Y	Y	Y	Y	Y	Y	N
2																										
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

BRW 9/23/19

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Ben Weinmann / Geosyntec	9/23/19	17:15	Malia Murkins / Geosyntec	9/23/19	17:45	
	Malia Murkins / Geosyntec	9/23/19	19:40	Pace	9.24.19	1413	
	Pace	9.24.19	1523	Charles Hunter	9/24/19	1523	3.8 Y Y Y

WO#: 2623500

PM: BM Due Date: 10/01/19

CLIENT: GAPower-CCR

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Ben Weinmann

SIGNATURE of SAMPLER: Ben Weinmann DATE Signed: 9/23/19

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

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Lauren Petty, Geosyntec	Company Name:	
Atlanta, GA 30339				Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:	GWG581	Pace Profile #:	327 (AP)

Regulatory Agency: —

State / Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Y/N	Analyses Test: Antimony, Arsenic, Barium	Beryllium, Boron, Calcium	Cadmium, Chromium, Cobalt	Lead, Lithium, Molybdenum	Selenium, Thallium	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)	
																		Y/N	N	N	N	N	N	N	N		
1	HGWA-3	WT	G	9/23/19	1611	9/23/19	1710	22	4	1		3							Y	Y	Y	Y	Y	Y	Y	N	3
2																											
3																											
4																											
5																											
6																											
7																											
8																											
9																											
10																											
11																											
12																											

09/23/19

NM

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Noelia Muskus/Geosyntec	9/23/19	19:40	1 Pace	9.24.19	1418	
	1 Pace	9.24.19	1523	Charles Hunter	9/24/19	1523	3.8 X Y Y

WO#: 2623500

PM: BM Due Date: 10/01/19

CLIENT: GAPower-CCR

SAMPLER NAME AND SIGNATURE			
PRINT Name of SAMPLER:	Noelia Muskus		
SIGNATURE of SAMPLER:	Noelia Muskus	DATE Signed:	09/23/19

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

Pace Analytical

Sample Condition Upon Receip

WO# : 2623500

Client Name: GA Power CCR

PM: BM Due Date: 10/01/19

CLIENT: GAPower-CCR

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other _____

Tracking #: _____

Proj. Due Date:
Proj. Name:

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

Packing Material: ☑ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other _____

Thermometer Used 214 Type of Ice: (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 3.8 °C Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 9/24/19 CAH

Comments:

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

December 11, 2019

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

RE: Project: Plant Hammond
Pace Project No.: 2623553

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on September 25, 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,

Kevin Herring 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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

CERTIFICATIONS

Project: Plant Hammond
Pace Project No.: 2623553

Pace Analytical Services Atlanta
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

Pace Analytical Services Asheville
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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE SUMMARY

Project: Plant Hammond
Pace Project No.: 2623553

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623553001	**FB-01**	Water	09/24/19 17:25	09/25/19 14:03
2623553002	**EB-01**	Water	09/24/19 17:40	09/25/19 14:03

Pace Analytical Services, LLC
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Peachtree Corners, GA 30092
(770)734-4200

SAMPLE ANALYTE COUNT

Project: Plant Hammond
Pace Project No.: 2623553

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2623553001	**FB-01**	EPA 6020B	CSW	14	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
2623553002	**EB-01**	EPA 6020B	CSW	14	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A

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ANALYTICAL RESULTS

Project: Plant Hammond
Pace Project No.: 2623553

Sample: FB-01 **Lab ID: 2623553001** Collected: 09/24/19 17:25 Received: 09/25/19 14:03 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	0.00027	1	09/27/19 15:26	10/01/19 10:40	7440-36-0	
Arsenic	**0.00060J**	mg/L	0.0050	0.00035	1	09/27/19 15:26	10/01/19 10:40	7440-38-2	B
Barium	ND	mg/L	0.010	0.00049	1	09/27/19 15:26	10/01/19 10:40	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	09/27/19 15:26	10/01/19 10:40	7440-41-7	
Boron	ND	mg/L	0.040	0.0049	1	09/27/19 15:26	10/01/19 10:40	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	09/27/19 15:26	10/01/19 10:40	7440-43-9	
Calcium	**0.028J**	mg/L	0.10	0.011	1	09/27/19 15:26	10/01/19 10:40	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	09/27/19 15:26	10/01/19 10:40	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	09/27/19 15:26	10/01/19 10:40	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	09/27/19 15:26	10/01/19 10:40	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	09/27/19 15:26	10/01/19 10:40	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	09/27/19 15:26	10/01/19 10:40	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	09/27/19 15:26	10/01/19 10:40	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	09/27/19 15:26	10/01/19 10:40	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		09/26/19 18:05		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993								
Chloride	ND	mg/L	1.0	0.60	1		10/01/19 18:33	16887-00-6	
Fluoride	ND	mg/L	0.30	0.050	1		10/01/19 18:33	16984-48-8	
Sulfate	ND	mg/L	1.0	0.50	1		10/01/19 18:33	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
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ANALYTICAL RESULTS

Project: Plant Hammond
Pace Project No.: 2623553

Sample: EB-01 **Lab ID: 2623553002** Collected: 09/24/19 17:40 Received: 09/25/19 14:03 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	0.00027	1	09/27/19 15:26	10/01/19 10:46	7440-36-0	
Arsenic	**0.00046J**	mg/L	0.0050	0.00035	1	09/27/19 15:26	10/01/19 10:46	7440-38-2	B
Barium	ND	mg/L	0.010	0.00049	1	09/27/19 15:26	10/01/19 10:46	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	09/27/19 15:26	10/01/19 10:46	7440-41-7	
Boron	ND	mg/L	0.040	0.0049	1	09/27/19 15:26	10/01/19 10:46	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	09/27/19 15:26	10/01/19 10:46	7440-43-9	
Calcium	**0.064J**	mg/L	0.10	0.011	1	09/27/19 15:26	10/01/19 10:46	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	09/27/19 15:26	10/01/19 10:46	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	09/27/19 15:26	10/01/19 10:46	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	09/27/19 15:26	10/01/19 10:46	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	09/27/19 15:26	10/01/19 10:46	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	09/27/19 15:26	10/01/19 10:46	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	09/27/19 15:26	10/01/19 10:46	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	09/27/19 15:26	10/01/19 10:46	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		09/26/19 18:05		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993								
Chloride	ND	mg/L	1.0	0.60	1		10/01/19 19:16	16887-00-6	
Fluoride	ND	mg/L	0.30	0.050	1		10/01/19 19:16	16984-48-8	
Sulfate	ND	mg/L	1.0	0.50	1		10/01/19 19:16	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623553

QC Batch: 36079
QC Batch Method: EPA 3005A
Analysis Method: EPA 6020B
Analysis Description: 6020B MET
Associated Lab Samples: 2623553001, 2623553002

METHOD BLANK: 162814 Matrix: Water
Associated Lab Samples: 2623553001, 2623553002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	09/30/19 19:37	
Arsenic	mg/L	0.00043J	0.0050	0.00035	09/30/19 19:37	
Barium	mg/L	ND	0.010	0.00049	09/30/19 19:37	
Beryllium	mg/L	ND	0.0030	0.000074	09/30/19 19:37	
Boron	mg/L	ND	0.040	0.0049	09/30/19 19:37	
Cadmium	mg/L	ND	0.0025	0.00011	09/30/19 19:37	
Calcium	mg/L	ND	0.10	0.011	09/30/19 19:37	
Chromium	mg/L	ND	0.010	0.00039	09/30/19 19:37	
Cobalt	mg/L	ND	0.0050	0.00030	09/30/19 19:37	
Lead	mg/L	ND	0.0050	0.000046	09/30/19 19:37	
Lithium	mg/L	ND	0.030	0.00078	09/30/19 19:37	
Molybdenum	mg/L	ND	0.010	0.00095	09/30/19 19:37	
Selenium	mg/L	ND	0.010	0.0013	09/30/19 19:37	
Thallium	mg/L	ND	0.0010	0.000052	09/30/19 19:37	

LABORATORY CONTROL SAMPLE: 162815

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	100	80-120	
Barium	mg/L	0.1	0.11	106	80-120	
Beryllium	mg/L	0.1	0.10	101	80-120	
Boron	mg/L	1	1.0	103	80-120	
Cadmium	mg/L	0.1	0.10	100	80-120	
Calcium	mg/L	1	1.0	101	80-120	
Chromium	mg/L	0.1	0.099	99	80-120	
Cobalt	mg/L	0.1	0.097	97	80-120	
Lead	mg/L	0.1	0.11	106	80-120	
Lithium	mg/L	0.1	0.10	104	80-120	
Molybdenum	mg/L	0.1	0.10	104	80-120	
Selenium	mg/L	0.1	0.099	99	80-120	
Thallium	mg/L	0.1	0.11	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 162816 162817

Parameter	Units	2623500001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.11	0.10	108	104	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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623553

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 162816 162817

Parameter	Units	2623500001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	0.00046J	0.1	0.1	0.10	0.10	103	100	75-125	3	20	
Barium	mg/L	0.042	0.1	0.1	0.15	0.15	110	106	75-125	3	20	
Beryllium	mg/L	ND	0.1	0.1	0.098	0.094	98	94	75-125	4	20	
Boron	mg/L	0.021J	1	1	1.0	0.99	99	97	75-125	2	20	
Cadmium	mg/L	ND	0.1	0.1	0.10	0.098	101	98	75-125	3	20	
Calcium	mg/L	118	1	1	116	129	-296	1090	75-125	11	20	M6
Chromium	mg/L	ND	0.1	0.1	0.10	0.098	102	98	75-125	3	20	
Cobalt	mg/L	ND	0.1	0.1	0.10	0.097	100	97	75-125	3	20	
Lead	mg/L	0.000078J	0.1	0.1	0.10	0.10	104	101	75-125	3	20	
Lithium	mg/L	0.0011J	0.1	0.1	0.10	0.098	102	97	75-125	4	20	
Molybdenum	mg/L	ND	0.1	0.1	0.11	0.10	108	102	75-125	6	20	
Selenium	mg/L	ND	0.1	0.1	0.098	0.098	98	98	75-125	1	20	
Thallium	mg/L	ND	0.1	0.1	0.11	0.10	105	101	75-125	4	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623553

QC Batch: 36029 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2623553001, 2623553002

LABORATORY CONTROL SAMPLE: 162444

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	393	98	84-108	

SAMPLE DUPLICATE: 162445

Parameter	Units	2623494001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	222	248	11	10	D6

SAMPLE DUPLICATE: 162446

Parameter	Units	2623553001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	ND	ND		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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623553

QC Batch: 500861
QC Batch Method: EPA 300.0 Rev 2.1 1993
Analysis Method: EPA 300.0 Rev 2.1 1993
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2623553001, 2623553002

METHOD BLANK: 2694298 Matrix: Water
Associated Lab Samples: 2623553001, 2623553002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	10/01/19 16:22	
Fluoride	mg/L	ND	0.10	0.050	10/01/19 16:22	
Sulfate	mg/L	ND	1.0	0.50	10/01/19 16:22	

LABORATORY CONTROL SAMPLE: 2694299

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	49.2	98	90-110	
Fluoride	mg/L	2.5	2.3	92	90-110	
Sulfate	mg/L	50	50.4	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2694300 2694301

Parameter	Units	2623559001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	1.7	50	50	53.7	53.7	104	104	90-110	0	10	
Fluoride	mg/L	0.058J	2.5	2.5	2.5	2.5	98	99	90-110	1	10	
Sulfate	mg/L	20.7	50	50	72.4	72.6	103	104	90-110	0	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2694302 2694303

Parameter	Units	2623584001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	89.4	50	50	132	133	86	87	90-110	1	10	M1
Fluoride	mg/L	0.42	2.5	2.5	4.2	4.3	152	153	90-110	1	10	M1
Sulfate	mg/L	142	50	50	177	180	69	74	90-110	2	10	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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2623553

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.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond
Pace Project No.: 2623553

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623553001	**FB-01**	EPA 3005A	36079	EPA 6020B	36104
2623553002	**EB-01**	EPA 3005A	36079	EPA 6020B	36104
2623553001	**FB-01**	SM 2540C	36029		
2623553002	**EB-01**	SM 2540C	36029		
2623553001	**FB-01**	EPA 300.0 Rev 2.1 1993	500861		
2623553002	**EB-01**	EPA 300.0 Rev 2.1 1993	500861		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Lauren Petty, Geosyntec	Company Name:	
Atlanta, GA 30339				Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:	GW6581	Pace Profile #:	327 (AP)

Regulatory Agency:

State / Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analysis Test Y/N	Antimony, Arsenic, Barium	Beryllium, Boron, Calcium	Cadmium, Chromium, Cobalt	Lead, Lithium, Molybdenum	Selenium, Thallium	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
	MATRIX: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS																	N	N	N	N	N	N	N	N	
1	FB-01	WT	G	9/24/19	1715	9/24/19	1725	20	4	1		3						Y	Y	Y	Y	Y	Y	Y		
2	EB-01	WT	G	9/24/19	1730	9/24/19	1740	20	4	1		3						Y	Y	Y	Y	Y	Y	Y		
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

NM 09/24/19

WO# : 2623553

2623553

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Nadia Muskus / Geosyntec	9/23/19	20:10	Pace	9.25.19	1117	
	Pace	9.25.19	1403	M Zaiman	9/25/19	1423	
							3.0 / Y / Y / Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Nadia Muskus

SIGNATURE of SAMPLER: Nadia Muskus DATE Signed: 09/24/19

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

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Powere Project #

WO#: 2623553

PM: BM Due Date: 10/02/19

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 ☐ Samples on ice, cooling process has begun

Cooler Temperature 3.0 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 9/25/19 MK

Temp should be above freezing to 6°C

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

October 25, 2019

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

RE: Project: Plant Hammond
Pace Project No.: 2623555

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on September 25, 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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

CERTIFICATIONS

Project: Plant Hammond
Pace Project No.: 2623555

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE SUMMARY

Project: Plant Hammond
Pace Project No.: 2623555

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623555001	**FB-01**	Water	09/24/19 17:25	09/25/19 14:03
2623555002	**EB-01**	Water	09/24/19 17:40	09/25/19 14:03

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(770)734-4200

SAMPLE ANALYTE COUNT

Project: Plant Hammond
Pace Project No.: 2623555

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2623555001	**FB-01**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2623555002	**EB-01**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond
Pace Project No.: 2623555

Sample: FB-01 **Lab ID: 2623555001** Collected: 09/24/19 17:25 Received: 09/25/19 14:03 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.213 ± 0.236 (0.475) C:90% T:NA**	pCi/L	10/15/19 09:42	13982-63-3	
Radium-228	EPA 9320	**0.361 ± 0.477 (1.02) C:80% T:70%**	pCi/L	10/18/19 11:07	15262-20-1	
Total Radium	Total Radium Calculation	**0.574 ± 0.713 (1.50)**	pCi/L	10/21/19 11:40	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond
Pace Project No.: 2623555

Sample: EB-01 **Lab ID: 2623555002** Collected: 09/24/19 17:40 Received: 09/25/19 14:03 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.371 ± 0.265 (0.418) C:84% T:NA**	pCi/L	10/15/19 08:49	13982-63-3	
Radium-228	EPA 9320	**0.896 ± 0.500 (0.914) C:81% T:73%**	pCi/L	10/18/19 14:14	15262-20-1	
Total Radium	Total Radium Calculation	**1.27 ± 0.765 (1.33)**	pCi/L	10/21/19 11:40	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond
Pace Project No.: 2623555

QC Batch: 365380 Analysis Method: EPA 9320
QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228
Associated Lab Samples: 2623555001, 2623555002

METHOD BLANK: 1772185 Matrix: Water
Associated Lab Samples: 2623555001, 2623555002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.766 ± 0.438 (0.794) C:80% T:71%	pCi/L	10/18/19 11:08	

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond
Pace Project No.: 2623555

QC Batch: 365376 Analysis Method: EPA 9315
QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium
Associated Lab Samples: 2623555001, 2623555002

METHOD BLANK: 1772181 Matrix: Water
Associated Lab Samples: 2623555001, 2623555002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.470 ± 0.253 (0.295) C:98% T:NA	pCi/L	10/15/19 08:49	

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2623555

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond
Pace Project No.: 2623555

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623555001	**FB-01**	EPA 9315	365376		
2623555002	**EB-01**	EPA 9315	365376		
2623555001	**FB-01**	EPA 9320	365380		
2623555002	**EB-01**	EPA 9320	365380		
2623555001	**FB-01**	Total Radium Calculation	367107		
2623555002	**EB-01**	Total Radium Calculation	367107		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A — Required Client Information:

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

Section B — Required Project Information:

Report To:	Joju Abraham
Copy To:	Lauren Petty, Geosyntec
Purchase Order #:	SCS10382775
Project Name:	Plant Hammond
Project #:	GW6581

Section C — Invoice Information:

Attention:	scsinvoices@southernco.com
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Pace Profile #:	327 (AP)

Requested Analysis Filtered (Y/N): GA

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test (Y/N)	Antimony, Arsenic, Barium	Beryllium, Boron, Calcium	Cadmium, Chromium, Cobalt	Lead, Lithium, Molybdenum	Selenium, Thallium	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
	MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS																	N	N	N	N	N	N	N		
1	FB-01	WT	G	9/24/19	1715	9/24/19	1725	20	4	1		3							Y	Y	Y	Y	Y	Y	Y	
2	EB-01	WT	G	9/24/19	1730	9/24/19	1740	20	4	1		3							Y	Y	Y	Y	Y	Y	Y	
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

NM 09/24/19

WO# : 2623555

2623555

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Nadia Muskus/Geosyntec	9/23/19	20:10	Pace	9.23.19	1117	
	Pace	9.25.19	1403	M Kalman	9/25/19	1423	
							3.0 Y Y

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

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Nadia Muskus

SIGNATURE of SAMPLER: Nadia Muskus

DATE Signed: 09/24/19

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Powere

Project #

WO# : 2623555

PM: BM **Due Date: 10/23/19**

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 ☐ Samples on ice, cooling process has begun

Cooler Temperature 3.0 **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 9/25/19 MK

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

December 11, 2019

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

RE: Project: Plant Hammond
Pace Project No.: 2623559

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on September 25, 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,

Kevin Herring 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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

CERTIFICATIONS

Project: Plant Hammond
Pace Project No.: 2623559

Pace Analytical Services Atlanta
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

Pace Analytical Services Asheville
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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE SUMMARY

Project: Plant Hammond
Pace Project No.: 2623559

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623559001	**HGWA-5**	Water	09/24/19 12:20	09/25/19 14:03
2623559002	**HGWA-6**	Water	09/24/19 11:27	09/25/19 14:03
2623559003	**HGWA-4**	Water	09/24/19 10:52	09/25/19 14:03
2623559004	**HGWC-14**	Water	09/24/19 12:30	09/25/19 14:03
2623559005	**HGWC-15**	Water	09/24/19 14:25	09/25/19 14:03

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE ANALYTE COUNT

Project: Plant Hammond
Pace Project No.: 2623559

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2623559001	**HGWA-5**	EPA 6020B	CSW	13	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
2623559002	**HGWA-6**	EPA 6020B	CSW	13	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
2623559003	**HGWA-4**	EPA 6020B	CSW	13	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
2623559004	**HGWC-14**	EPA 6020B	CSW	13	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
2623559005	**HGWC-15**	EPA 6020B	CSW	13	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A

Pace Analytical Services, LLC
110 Technology Parkway
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(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond
Pace Project No.: 2623559

Sample: HGWA-5 **Lab ID: 2623559001** Collected: 09/24/19 12:20 Received: 09/25/19 14:03 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								
Arsenic	**0.00055J**	mg/L	0.0050	0.00035	1	09/27/19 15:26	10/01/19 10:51	7440-38-2	B
Barium	**0.053**	mg/L	0.010	0.00049	1	09/27/19 15:26	10/01/19 10:51	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	09/27/19 15:26	10/01/19 10:51	7440-41-7	
Boron	**0.0088J**	mg/L	0.040	0.0049	1	09/27/19 15:26	10/01/19 10:51	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	09/27/19 15:26	10/01/19 10:51	7440-43-9	
Calcium	**29.3**	mg/L	5.0	0.55	50	09/27/19 15:26	10/01/19 10:57	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	09/27/19 15:26	10/01/19 10:51	7440-47-3	
Cobalt	**0.00063J**	mg/L	0.0050	0.00030	1	09/27/19 15:26	10/01/19 10:51	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	09/27/19 15:26	10/01/19 10:51	7439-92-1	
Lithium	**0.0035J**	mg/L	0.030	0.00078	1	09/27/19 15:26	10/01/19 10:51	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	09/27/19 15:26	10/01/19 10:51	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	09/27/19 15:26	10/01/19 10:51	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	09/27/19 15:26	10/01/19 10:51	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**133**	mg/L	10.0	10.0	1		10/01/19 16:32		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993								
Chloride	**1.7**	mg/L	1.0	0.60	1		10/01/19 16:51	16887-00-6	
Fluoride	**0.058J**	mg/L	0.30	0.050	1		10/01/19 16:51	16984-48-8	
Sulfate	**20.7**	mg/L	1.0	0.50	1		10/01/19 16:51	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond
Pace Project No.: 2623559

Sample: HGWA-6 **Lab ID: 2623559002** Collected: 09/24/19 11:27 Received: 09/25/19 14:03 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								
Arsenic	ND	mg/L	0.0050	0.00035	1	09/27/19 15:26	10/01/19 11:03	7440-38-2	
Barium	**0.22**	mg/L	0.010	0.00049	1	09/27/19 15:26	10/01/19 11:03	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	09/27/19 15:26	10/01/19 11:03	7440-41-7	
Boron	**0.016J**	mg/L	0.040	0.0049	1	09/27/19 15:26	10/01/19 11:03	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	09/27/19 15:26	10/01/19 11:03	7440-43-9	
Calcium	**52.5**	mg/L	5.0	0.55	50	09/27/19 15:26	10/01/19 11:09	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	09/27/19 15:26	10/01/19 11:03	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	09/27/19 15:26	10/01/19 11:03	7440-48-4	
Lead	**0.000071J**	mg/L	0.0050	0.000046	1	09/27/19 15:26	10/01/19 11:03	7439-92-1	
Lithium	**0.011J**	mg/L	0.030	0.00078	1	09/27/19 15:26	10/01/19 11:03	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	09/27/19 15:26	10/01/19 11:03	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	09/27/19 15:26	10/01/19 11:03	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	09/27/19 15:26	10/01/19 11:03	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**222**	mg/L	10.0	10.0	1		10/01/19 16:33		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993								
Chloride	**1.3**	mg/L	1.0	0.60	1		10/01/19 17:35	16887-00-6	
Fluoride	ND	mg/L	0.30	0.050	1		10/01/19 17:35	16984-48-8	
Sulfate	**35.4**	mg/L	1.0	0.50	1		10/01/19 17:35	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond
Pace Project No.: 2623559

Sample: HGWA-4 **Lab ID: 2623559003** Collected: 09/24/19 10:52 Received: 09/25/19 14:03 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								
Arsenic	ND	mg/L	0.0050	0.00035	1	09/27/19 15:26	10/01/19 11:14	7440-38-2	
Barium	**0.030**	mg/L	0.010	0.00049	1	09/27/19 15:26	10/01/19 11:14	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	09/27/19 15:26	10/01/19 11:14	7440-41-7	
Boron	**0.013J**	mg/L	0.040	0.0049	1	09/27/19 15:26	10/01/19 11:14	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	09/27/19 15:26	10/01/19 11:14	7440-43-9	
Calcium	**36.6**	mg/L	5.0	0.55	50	09/27/19 15:26	10/01/19 11:20	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	09/27/19 15:26	10/01/19 11:14	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	09/27/19 15:26	10/01/19 11:14	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	09/27/19 15:26	10/01/19 11:14	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	09/27/19 15:26	10/01/19 11:14	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	09/27/19 15:26	10/01/19 11:14	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	09/27/19 15:26	10/01/19 11:14	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	09/27/19 15:26	10/01/19 11:14	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**131**	mg/L	10.0	10.0	1		10/01/19 16:33		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993								
Chloride	**3.6**	mg/L	1.0	0.60	1		10/01/19 17:49	16887-00-6	
Fluoride	ND	mg/L	0.30	0.050	1		10/01/19 17:49	16984-48-8	
Sulfate	ND	mg/L	1.0	0.50	1		10/01/19 17:49	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond
Pace Project No.: 2623559

Sample: HGWC-14 **Lab ID: 2623559004** Collected: 09/24/19 12:30 Received: 09/25/19 14:03 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								
Arsenic	**0.0039J**	mg/L	0.0050	0.00035	1	09/27/19 15:26	10/01/19 11:44	7440-38-2	B
Barium	**0.021**	mg/L	0.010	0.00049	1	09/27/19 15:26	10/01/19 11:44	7440-39-3	
Beryllium	**0.00044J**	mg/L	0.0030	0.000074	1	09/27/19 15:26	10/01/19 11:44	7440-41-7	
Boron	**14.7**	mg/L	2.0	0.25	50	09/27/19 15:26	10/01/19 11:50	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	09/27/19 15:26	10/01/19 11:44	7440-43-9	
Calcium	**507**	mg/L	25.0	2.7	250	09/27/19 15:26	10/01/19 17:47	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	09/27/19 15:26	10/01/19 11:44	7440-47-3	
Cobalt	**0.026**	mg/L	0.0050	0.00030	1	09/27/19 15:26	10/01/19 11:44	7440-48-4	
Lead	**0.0013J**	mg/L	0.0050	0.000046	1	09/27/19 15:26	10/01/19 11:44	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	09/27/19 15:26	10/01/19 11:44	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	09/27/19 15:26	10/01/19 11:44	7439-98-7	
Selenium	**0.0064J**	mg/L	0.010	0.0013	1	09/27/19 15:26	10/01/19 11:44	7782-49-2	
Thallium	**0.00030J**	mg/L	0.0010	0.000052	1	09/27/19 15:26	10/01/19 11:44	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**2470**	mg/L	10.0	10.0	1		10/01/19 16:33		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993								
Chloride	**188**	mg/L	25.0	15.0	25		10/02/19 07:25	16887-00-6	
Fluoride	**0.053J**	mg/L	0.30	0.050	1		10/01/19 18:04	16984-48-8	
Sulfate	**1110**	mg/L	25.0	12.5	25		10/02/19 07:25	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond
Pace Project No.: 2623559

Sample: HGWC-15 **Lab ID: 2623559005** Collected: 09/24/19 14:25 Received: 09/25/19 14:03 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								
Arsenic	**0.00037J**	mg/L	0.0050	0.00035	1	09/27/19 15:26	10/01/19 11:56	7440-38-2	B
Barium	**0.019**	mg/L	0.010	0.00049	1	09/27/19 15:26	10/01/19 11:56	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	09/27/19 15:26	10/01/19 11:56	7440-41-7	
Boron	**2.9**	mg/L	2.0	0.25	50	09/27/19 15:26	10/01/19 12:02	7440-42-8	
Cadmium	**0.0014J**	mg/L	0.0025	0.00011	1	09/27/19 15:26	10/01/19 11:56	7440-43-9	
Calcium	**202**	mg/L	5.0	0.55	50	09/27/19 15:26	10/01/19 12:02	7440-70-2	
Chromium	**0.00041J**	mg/L	0.010	0.00039	1	09/27/19 15:26	10/01/19 11:56	7440-47-3	
Cobalt	**0.022**	mg/L	0.0050	0.00030	1	09/27/19 15:26	10/01/19 11:56	7440-48-4	
Lead	**0.00020J**	mg/L	0.0050	0.000046	1	09/27/19 15:26	10/01/19 11:56	7439-92-1	
Lithium	**0.0012J**	mg/L	0.030	0.00078	1	09/27/19 15:26	10/01/19 11:56	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	09/27/19 15:26	10/01/19 11:56	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	09/27/19 15:26	10/01/19 11:56	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	09/27/19 15:26	10/01/19 11:56	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1140**	mg/L	10.0	10.0	1		10/01/19 16:34		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993								
Chloride	**120**	mg/L	9.0	5.4	9		10/02/19 07:39	16887-00-6	
Fluoride	**0.12J**	mg/L	0.30	0.050	1		10/01/19 18:18	16984-48-8	
Sulfate	**382**	mg/L	9.0	4.5	9		10/02/19 07:39	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623559

QC Batch: 36079 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2623559001, 2623559002, 2623559003, 2623559004, 2623559005

METHOD BLANK: 162814 Matrix: Water
Associated Lab Samples: 2623559001, 2623559002, 2623559003, 2623559004, 2623559005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	0.00043J	0.0050	0.00035	09/30/19 19:37	
Barium	mg/L	ND	0.010	0.00049	09/30/19 19:37	
Beryllium	mg/L	ND	0.0030	0.000074	09/30/19 19:37	
Boron	mg/L	ND	0.040	0.0049	09/30/19 19:37	
Cadmium	mg/L	ND	0.0025	0.00011	09/30/19 19:37	
Calcium	mg/L	ND	0.10	0.011	09/30/19 19:37	
Chromium	mg/L	ND	0.010	0.00039	09/30/19 19:37	
Cobalt	mg/L	ND	0.0050	0.00030	09/30/19 19:37	
Lead	mg/L	ND	0.0050	0.000046	09/30/19 19:37	
Lithium	mg/L	ND	0.030	0.00078	09/30/19 19:37	
Molybdenum	mg/L	ND	0.010	0.00095	09/30/19 19:37	
Selenium	mg/L	ND	0.010	0.0013	09/30/19 19:37	
Thallium	mg/L	ND	0.0010	0.000052	09/30/19 19:37	

LABORATORY CONTROL SAMPLE: 162815

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	0.11	106	80-120	
Beryllium	mg/L	0.1	0.10	101	80-120	
Boron	mg/L	1	1.0	103	80-120	
Cadmium	mg/L	0.1	0.10	100	80-120	
Calcium	mg/L	1	1.0	101	80-120	
Chromium	mg/L	0.1	0.099	99	80-120	
Cobalt	mg/L	0.1	0.097	97	80-120	
Lead	mg/L	0.1	0.11	106	80-120	
Lithium	mg/L	0.1	0.10	104	80-120	
Molybdenum	mg/L	0.1	0.10	104	80-120	
Selenium	mg/L	0.1	0.099	99	80-120	
Thallium	mg/L	0.1	0.11	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 162816 162817

Parameter	Units	2623500001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	0.00046J	0.1	0.1	0.10	0.10	103	100	75-125	3	20	
Barium	mg/L	0.042	0.1	0.1	0.15	0.15	110	106	75-125	3	20	
Beryllium	mg/L	ND	0.1	0.1	0.098	0.094	98	94	75-125	4	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623559

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 162816 162817

Parameter	Units	2623500001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	mg/L	0.021J	1	1	1.0	0.99	99	97	75-125	2	20	
Cadmium	mg/L	ND	0.1	0.1	0.10	0.098	101	98	75-125	3	20	
Calcium	mg/L	118	1	1	116	129	-296	1090	75-125	11	20	M6
Chromium	mg/L	ND	0.1	0.1	0.10	0.098	102	98	75-125	3	20	
Cobalt	mg/L	ND	0.1	0.1	0.10	0.097	100	97	75-125	3	20	
Lead	mg/L	0.000078J	0.1	0.1	0.10	0.10	104	101	75-125	3	20	
Lithium	mg/L	0.0011J	0.1	0.1	0.10	0.098	102	97	75-125	4	20	
Molybdenum	mg/L	ND	0.1	0.1	0.11	0.10	108	102	75-125	6	20	
Selenium	mg/L	ND	0.1	0.1	0.098	0.098	98	98	75-125	1	20	
Thallium	mg/L	ND	0.1	0.1	0.11	0.10	105	101	75-125	4	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623559

QC Batch: 36262 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2623559001, 2623559002, 2623559003, 2623559004, 2623559005

LABORATORY CONTROL SAMPLE: 163778

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	357	89	84-108	

SAMPLE DUPLICATE: 163780

Parameter	Units	2623620001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	146	139	5	10	

SAMPLE DUPLICATE: 163844

Parameter	Units	2623559001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	133	124	7	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
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(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623559

QC Batch: 500861 Analysis Method: EPA 300.0 Rev 2.1 1993
QC Batch Method: EPA 300.0 Rev 2.1 1993 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2623559001, 2623559002, 2623559003, 2623559004, 2623559005

METHOD BLANK: 2694298 Matrix: Water
Associated Lab Samples: 2623559001, 2623559002, 2623559003, 2623559004, 2623559005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	10/01/19 16:22	
Fluoride	mg/L	ND	0.10	0.050	10/01/19 16:22	
Sulfate	mg/L	ND	1.0	0.50	10/01/19 16:22	

LABORATORY CONTROL SAMPLE: 2694299

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	49.2	98	90-110	
Fluoride	mg/L	2.5	2.3	92	90-110	
Sulfate	mg/L	50	50.4	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2694300 2694301

Parameter	Units	2623559001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	1.7	50	50	53.7	53.7	104	104	90-110	0	10	
Fluoride	mg/L	0.058J	2.5	2.5	2.5	2.5	98	99	90-110	1	10	
Sulfate	mg/L	20.7	50	50	72.4	72.6	103	104	90-110	0	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2694302 2694303

Parameter	Units	2623584001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	89.4	50	50	132	133	86	87	90-110	1	10	M1
Fluoride	mg/L	0.42	2.5	2.5	4.2	4.3	152	153	90-110	1	10	M1
Sulfate	mg/L	142	50	50	177	180	69	74	90-110	2	10	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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2623559

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.
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.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond
Pace Project No.: 2623559

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623559001	**HGWA-5**	EPA 3005A	36079	EPA 6020B	36104
2623559002	**HGWA-6**	EPA 3005A	36079	EPA 6020B	36104
2623559003	**HGWA-4**	EPA 3005A	36079	EPA 6020B	36104
2623559004	**HGWC-14**	EPA 3005A	36079	EPA 6020B	36104
2623559005	**HGWC-15**	EPA 3005A	36079	EPA 6020B	36104
2623559001	**HGWA-5**	SM 2540C	36262		
2623559002	**HGWA-6**	SM 2540C	36262		
2623559003	**HGWA-4**	SM 2540C	36262		
2623559004	**HGWC-14**	SM 2540C	36262		
2623559005	**HGWC-15**	SM 2540C	36262		
2623559001	**HGWA-5**	EPA 300.0 Rev 2.1 1993	500861		
2623559002	**HGWA-6**	EPA 300.0 Rev 2.1 1993	500861		
2623559003	**HGWA-4**	EPA 300.0 Rev 2.1 1993	500861		
2623559004	**HGWC-14**	EPA 300.0 Rev 2.1 1993	500861		
2623559005	**HGWC-15**	EPA 300.0 Rev 2.1 1993	500861		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Lauren Petty, Geosyntec	Company Name:	
Atlanta, GA 30339				Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:	GW6501	Pace Profile #:	327 (AP)

Regulatory Agency: —

State / Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analysis Test (Y/N)	Arsenic, Barium, Beryllium	Boron, Calcium, Cadmium	Chromium, Cobalt, Lead	Lithium, Molybdenum	Selenium, Thallium	TDS, Cl, F, SO4	Radium 226/228			Residual Chlorine (Y/N)
																		N	N	N	N	N	N	N				
1	HGWA-5	WT	G	9/24/19	1111	9/24/19	1220	21	4	1		3						Y	Y	Y	Y	Y	Y	Y				N
2																												
3																												
4																												
5																												
6																												
7																												
8																												
9																												
10																												
11																												
12																												

NM 09/24/19

WO# : 2623559

2623559

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Noelia Muskus/Georgia Power	9/24/19	20:10	Pace	9.25.19	1127	
	Pace	9.25.19	1403	MZahman	9/25/19	1403	
							3.0 / Y / Y / Y

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

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Noelia Muskus

SIGNATURE of SAMPLER: Noelia Muskus DATE Signed: 09/24/19

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Lauren Petty, Geosyntec	Company Name:	
Atlanta, GA 30339				Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:	GW6581	Pace Profile #:	327 (AP)

Regulatory Agency: —

State / Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test (Y/N)	Arsenic, Barium, Beryllium	Boron, Calcium, Cadmium,	Chromium, Cobalt, Lead	Lithium, Molybdenum	Selenium, Thallium	TDS, Cl, F, SO4	Radium 226/228			Residual Chlorine (Y/N)
																		Y/N	N	N	N	N	N	N	N			
1	HGWA-6	WT	G	9.24.19	1015	9.24.19	1127	20°	4	1		3							Y	Y	Y	Y	Y	Y	Y			N
2																													
3																													
4																													
5																													
6																													
7																													
8																													
9																													
10																													
11																													
12																													

BW 9/24/19

WO# : 2623559

PM: BM Due Date: 10/02/19

CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Ben Weinmann / Geosyntec	9.24.19	1633	Malia Muston	9/24/19	1633	
	Malia Muston / Geosyntec	9/24/19	20:10	I-Pace	9.25.19	1117	
	I-Pace	9.25.19	1403	MZuhlman	9/25/19	1403	

SAMPLER NAME AND SIGNATURE			TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Ben Weinmann		3.0	Y	Y	Y
SIGNATURE of SAMPLER:	Ben W	DATE Signed: 9.24.19				

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A — Required Client Information:

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

Section B — Required Project Information:

Report To:	Joju Abraham
Copy To:	Lauren Petty, Geosyntec
Purchase Order #:	SCS10382775
Project Name:	Plant Hammond
Project #:	GW6581

Section C — Invoice Information:

Attention:	scsinvoices@southernco.com
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Pace Profile #:	327 (AP)

Regulatory Agency: —

State / Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test: Y/N	Arsenic, Barium, Beryllium	Boron, Calcium, Cadmium	Chromium, Cobalt, Lead	Lithium, Molybdenum	Selenium, Thallium	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
	MATRIX: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS																	N	N	N	N	N	N	N	N	
1	HGWA-4	WT	G	9/24/19	10:35	9/24/19	10:52	21.8	4	1		3						Y	Y	Y	Y	Y	Y	Y	N	
2	HGWC-14	WT	G	9/24/19	12:10	9/24/19	12:30	22.9	4	1		3						Y	Y	Y	Y	Y	Y	Y	N	
3	HGWC-15	WT	G	9/24/19	13:45	9/24/19	14:25	20.17	4	1		3						Y	Y	Y	Y	Y	Y	Y	N	
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

09-24-2019

WO# : 2623559

PM: BM Due Date: 10/02/19

CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	Paul / Geosyntec	9/24/19	18:10	Malia Mumtaz / Geosyntec	9/24/19	1810
	Malia Mumtaz	9/24/19	20:10	Pace	9.25.19	1417
	Pace	9.25.19	1403	MRahmen	9/25/19	1403

SAMPLE CONDITIONS

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

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: DAN GIBBS

SIGNATURE of SAMPLER: [signature]

DATE Signed: 9-24-19

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power Project #

WO#: 2623559

PM: BM Due Date: 10/02/19

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 3.0 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: 9/25/19 MK

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

October 29, 2019

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

RE: Project: Plant Hammond
Pace Project No.: 2623560

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on September 25, 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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

CERTIFICATIONS

Project: Plant Hammond
Pace Project No.: 2623560

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE SUMMARY

Project: Plant Hammond
Pace Project No.: 2623560

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623560001	**HGWA-5**	Water	09/24/19 12:20	09/25/19 14:03
2623560002	**HGWA-6**	Water	09/24/19 11:27	09/25/19 14:03
2623560003	**HGWA-4**	Water	09/24/19 10:52	09/25/19 14:03
2623560004	**HGWC-14**	Water	09/24/19 12:30	09/25/19 14:03
2623560005	**HGWC-15**	Water	09/24/19 14:25	09/25/19 14:03

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(770)734-4200

SAMPLE ANALYTE COUNT

Project: Plant Hammond
Pace Project No.: 2623560

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2623560001	**HGWA-5**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2623560002	**HGWA-6**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2623560003	**HGWA-4**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2623560004	**HGWC-14**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2623560005	**HGWC-15**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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(770)734-4200

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond
Pace Project No.: 2623560

Sample: HGWA-5 **Lab ID: 2623560001** Collected: 09/24/19 12:20 Received: 09/25/19 14:03 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.119 ± 0.137 (0.271) C:90% T:NA**	pCi/L	10/15/19 17:39	13982-63-3	
Radium-228	EPA 9320	**0.0823 ± 0.361 (0.822) C:75% T:82%**	pCi/L	10/18/19 14:13	15262-20-1	
Total Radium	Total Radium Calculation	**0.201 ± 0.498 (1.09)**	pCi/L	10/21/19 11:42	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond
Pace Project No.: 2623560

Sample: HGWA-6 **Lab ID: 2623560002** Collected: 09/24/19 11:27 Received: 09/25/19 14:03 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.412 ± 0.215 (0.356) C:90% T:NA**	pCi/L	10/15/19 17:40	13982-63-3	
Radium-228	EPA 9320	**0.462 ± 0.511 (1.07) C:75% T:78%**	pCi/L	10/18/19 14:13	15262-20-1	
Total Radium	Total Radium Calculation	**0.874 ± 0.726 (1.43)**	pCi/L	10/21/19 11:42	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond
Pace Project No.: 2623560

Sample: HGWA-4 **Lab ID: 2623560003** Collected: 09/24/19 10:52 Received: 09/25/19 14:03 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.422 ± 0.182 (0.243) C:90% T:NA**	pCi/L	10/15/19 17:40	13982-63-3	
Radium-228	EPA 9320	**0.0327 ± 0.386 (0.889) C:76% T:80%**	pCi/L	10/18/19 14:13	15262-20-1	
Total Radium	Total Radium Calculation	**0.455 ± 0.568 (1.13)**	pCi/L	10/21/19 11:42	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond
Pace Project No.: 2623560

Sample: HGWC-14 **Lab ID: 2623560004** Collected: 09/24/19 12:30 Received: 09/25/19 14:03 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.609 ± 0.200 (0.207) C:99% T:NA**	pCi/L	10/15/19 17:40	13982-63-3	
Radium-228	EPA 9320	**0.559 ± 0.428 (0.856) C:78% T:93%**	pCi/L	10/18/19 14:13	15262-20-1	
Total Radium	Total Radium Calculation	**1.17 ± 0.628 (1.06)**	pCi/L	10/21/19 11:42	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond
Pace Project No.: 2623560

Sample: HGWC-15 **Lab ID: 2623560005** Collected: 09/24/19 14:25 Received: 09/25/19 14:03 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.464 ± 0.286 (0.408) C:90% T:NA**	pCi/L	10/16/19 08:20	13982-63-3	
Radium-228	EPA 9320	**0.118 ± 0.383 (0.858) C:76% T:94%**	pCi/L	10/18/19 14:13	15262-20-1	
Total Radium	Total Radium Calculation	**0.582 ± 0.669 (1.27)**	pCi/L	10/21/19 11:42	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond
Pace Project No.: 2623560

QC Batch: 365381 Analysis Method: EPA 9320
QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228
Associated Lab Samples: 2623560001, 2623560002, 2623560003, 2623560004, 2623560005

METHOD BLANK: 1772186 Matrix: Water
Associated Lab Samples: 2623560001, 2623560002, 2623560003, 2623560004, 2623560005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.0377 ± 0.401 (0.924) C:77% T:72%	pCi/L	10/18/19 14:14	

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond
Pace Project No.: 2623560

QC Batch: 365377 Analysis Method: EPA 9315
QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium
Associated Lab Samples: 2623560001, 2623560002, 2623560003, 2623560004, 2623560005

METHOD BLANK: 1772182 Matrix: Water
Associated Lab Samples: 2623560001, 2623560002, 2623560003, 2623560004, 2623560005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.373 ± 0.153 (0.180) C:94% T:NA	pCi/L	10/15/19 19:08	

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2623560

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond
Pace Project No.: 2623560

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623560001	**HGWA-5**	EPA 9315	365377		
2623560002	**HGWA-6**	EPA 9315	365377		
2623560003	**HGWA-4**	EPA 9315	365377		
2623560004	**HGWC-14**	EPA 9315	365377		
2623560005	**HGWC-15**	EPA 9315	365377		
2623560001	**HGWA-5**	EPA 9320	365381		
2623560002	**HGWA-6**	EPA 9320	365381		
2623560003	**HGWA-4**	EPA 9320	365381		
2623560004	**HGWC-14**	EPA 9320	365381		
2623560005	**HGWC-15**	EPA 9320	365381		
2623560001	**HGWA-5**	Total Radium Calculation	367110		
2623560002	**HGWA-6**	Total Radium Calculation	367110		
2623560003	**HGWA-4**	Total Radium Calculation	367110		
2623560004	**HGWC-14**	Total Radium Calculation	367110		
2623560005	**HGWC-15**	Total Radium Calculation	367110		

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:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Lauren Petty, Geosyntec	Company Name:	
Atlanta, GA 30339				Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:	GW6581	Pace Profile #:	327 (AP)

GA

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test (Y/N)	Arsenic, Barium, Beryllium	Boron, Calcium, Cadmium,	Chromium, Cobalt, Lead	Lithium, Molybdenum	Selenium, Thallium	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
																		Y/N	N	N	N	N	N	N	N	
1	HGWA-5	WT	G	9/24/19	1111	9/24/19	1200	21	4	1		3						Y	Y	Y	Y	Y	Y	Y	Y	N
2																										
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

NM 09/24/19

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

WO# : 2623560

2623560

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Noelia Muskus Geosyntec	9/24/19	20:10	Pace	9.25.19	1147	
	Pace	9.25.19	1403	M Rahman	9/25/19	1403	

SAMPLER NAME AND SIGNATURE		TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Noelia Muskus	3.0	Y	Y	Y
SIGNATURE of SAMPLER:	Noelia Muskus	DATE Signed: 09/24/19			

PaceAnalytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 2 Of 3

Section A
Required Client Information:

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

Section B
Required Project Information:

Report To:	Joju Abraham
Copy To:	Lauren Petty, Geosyntec
Purchase Order #:	SCS10382775
Project Name:	Plant Hammond
Project #:	GW6581

Section C
Invoice Information:

Attention:	scsinvoices@southernco.com
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Pace Profile #:	327 (AP

GA

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

MATRIX	CODE
Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Other	OT
Tissue	TS

Requested Analysis Filtered (Y/N): Arsenic, Barium, Beryllium N; Boron, Calcium, Cadmium, N; Chromium, Cobalt, Lead N; Lithium, Molybdenum N; Selenium, Thallium N; TDS, Cl, F, SO4 N; Radium 226/228 N

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Arsenic, Barium, Beryllium	Boron, Calcium, Cadmium,	Chromium, Cobalt, Lead	Lithium, Molybdenum	Selenium, Thallium	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	HGWA-6	WT	G	9.24.19	1015	9.24.19	1127	20°	4	1		3							Y	Y	Y	Y	Y	Y	Y	N
2																										
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

BRW 9/24/19

WO#:2623560
PM: BM Due Date: 10/23/19
CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	Ben Weinmann / Geosyntec	9.24.19	1633	[signature]	9/24/19	1633
	[signature] Geosyntec	9/24/19	20:10	[signature] / Pace	9.25.19	1117
	[signature] / Pace	9.25.19	1403	[signature]	9/25/19	1403

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Ben Weinmann
SIGNATURE of SAMPLER: [signature] DATE Signed: 9.24.19

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

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:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Lauren Petty, Geosyntec	Company Name:	
Atlanta, GA 30339				Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	Betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:	GW6581	Pace Profile #:	327 (AP)

GA

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analysis Test Y/N	Arsenic, Barium, Beryllium	Boron, Calcium, Cadmium,	Chromium, Cobalt, Lead	Lithium, Molybdenum	Selenium, Thallium	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
	MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS																	Required Analysis Filtered (Y/N)	N	N	N	N	N	N	N	
1	HGWA-4	WT	G	9/24/19	10:35	9/24/19	10:52	21.8	4	1		3							Y	Y	Y	Y	Y	Y	Y	N
2	HGWC-14	WT	G	9/24/19	12:10	9/24/19	12:30	22.4	4	1		3							Y	Y	Y	Y	Y	Y	Y	N
3	HGWC-15	WT	G	9/24/19	13:45	9/24/19	14:25	21.1	4	1		3							Y	Y	Y	Y	Y	Y	Y	N
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

09-24-2019

WO#: 2623560

PM: BM Due Date: 10/23/19

CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Geosyntec	9/24/19	18:10	Maria Mumtaz / Geosyntec	9/24/19	1810	
	Maria Mumtaz	9/24/19	20:10	Pace	9.25.19	1117	
	Pace	9.25.19	1403	[signature]	9/25/19	1403	

SAMPLER NAME AND SIGNATURE		TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Dan Gibbs	3.0	Y	Y	Y
SIGNATURE of SAMPLER:	[signature]	DATE Signed:	9-24-19		

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power Project #: _____

WO#: 2623560

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other

Tracking #: _____

PM: BM Due Date: 10/23/19

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: 3.0 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 9/25/19 MK

Temp should be above freezing to 6°C

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

December 13, 2019

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

RE: Project: Plant Hammond AP GW6581
Pace Project No.: 2623636

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on September 26, 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,

Kevin Herring 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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

CERTIFICATIONS

Project: Plant Hammond AP GW6581
Pace Project No.: 2623636

Pace Analytical Services Atlanta
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

Pace Analytical Services Asheville
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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE SUMMARY

Project: Plant Hammond AP GW6581
Pace Project No.: 2623636

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623636001	**HGWC-16**	Water	09/25/19 11:00	09/26/19 15:22
2623636002	**HGWC-17**	Water	09/25/19 12:35	09/26/19 15:22
2623636003	**HGWC-18**	Water	09/25/19 14:38	09/26/19 15:22
2623636004	**MW-21d**	Water	09/25/19 16:12	09/26/19 15:22

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE ANALYTE COUNT

Project: Plant Hammond AP GW6581
Pace Project No.: 2623636

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2623636001	**HGWC-16**	EPA 6020B	CSW	13	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
2623636002	**HGWC-17**	EPA 6020B	CSW	13	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
2623636003	**HGWC-18**	EPA 6020B	CSW	13	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
2623636004	**MW-21d**	EPA 6020B	CSW	13	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond AP GW6581
Pace Project No.: 2623636

Sample: HGWC-16 **Lab ID: 2623636001** Collected: 09/25/19 11:00 Received: 09/26/19 15:22 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								
Arsenic	ND	mg/L	0.0050	0.00035	1	09/30/19 12:43	10/01/19 21:33	7440-38-2	
Barium	**0.11**	mg/L	0.010	0.00049	1	09/30/19 12:43	10/01/19 21:33	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	09/30/19 12:43	10/01/19 21:33	7440-41-7	
Boron	**2.7**	mg/L	2.0	0.25	50	09/30/19 12:43	10/01/19 21:39	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	09/30/19 12:43	10/01/19 21:33	7440-43-9	
Calcium	**185**	mg/L	5.0	0.55	50	09/30/19 12:43	10/01/19 21:39	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	09/30/19 12:43	10/01/19 21:33	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	09/30/19 12:43	10/01/19 21:33	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	09/30/19 12:43	10/01/19 21:33	7439-92-1	
Lithium	**0.0038J**	mg/L	0.030	0.00078	1	09/30/19 12:43	10/01/19 21:33	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	09/30/19 12:43	10/01/19 21:33	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	09/30/19 12:43	10/01/19 21:33	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	09/30/19 12:43	10/01/19 21:33	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**813**	mg/L	10.0	10.0	1		10/02/19 12:05		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993								
Chloride	**84.4**	mg/L	1.0	0.60	1		10/01/19 20:57	16887-00-6	
Fluoride	ND	mg/L	0.30	0.050	1		10/01/19 20:57	16984-48-8	
Sulfate	**223**	mg/L	5.0	2.5	5		10/02/19 09:55	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond AP GW6581
Pace Project No.: 2623636

Sample: HGWC-17 **Lab ID: 2623636002** Collected: 09/25/19 12:35 Received: 09/26/19 15:22 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								
Arsenic	ND	mg/L	0.0050	0.00035	1	09/30/19 12:43	10/01/19 21:44	7440-38-2	
Barium	**0.025**	mg/L	0.010	0.00049	1	09/30/19 12:43	10/01/19 21:44	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	09/30/19 12:43	10/01/19 21:44	7440-41-7	
Boron	**8.1**	mg/L	2.0	0.25	50	09/30/19 12:43	10/01/19 21:50	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	09/30/19 12:43	10/01/19 21:44	7440-43-9	
Calcium	**305**	mg/L	5.0	0.55	50	09/30/19 12:43	10/01/19 21:50	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	09/30/19 12:43	10/01/19 21:44	7440-47-3	
Cobalt	**0.015**	mg/L	0.0050	0.00030	1	09/30/19 12:43	10/01/19 21:44	7440-48-4	
Lead	**0.000089J**	mg/L	0.0050	0.000046	1	09/30/19 12:43	10/01/19 21:44	7439-92-1	
Lithium	**0.0011J**	mg/L	0.030	0.00078	1	09/30/19 12:43	10/01/19 21:44	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	09/30/19 12:43	10/01/19 21:44	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	09/30/19 12:43	10/01/19 21:44	7782-49-2	
Thallium	**0.00012J**	mg/L	0.0010	0.000052	1	09/30/19 12:43	10/01/19 21:44	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1280**	mg/L	10.0	10.0	1		10/02/19 12:05		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993								
Chloride	**139**	mg/L	10.0	6.0	10		10/02/19 10:09	16887-00-6	
Fluoride	**0.081J**	mg/L	0.30	0.050	1		10/01/19 21:12	16984-48-8	
Sulfate	**434**	mg/L	10.0	5.0	10		10/02/19 10:09	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond AP GW6581
Pace Project No.: 2623636

Sample: HGWC-18 **Lab ID: 2623636003** Collected: 09/25/19 14:38 Received: 09/26/19 15:22 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								
Arsenic	**0.0044J**	mg/L	0.0050	0.00035	1	09/30/19 12:43	10/01/19 22:07	7440-38-2	
Barium	**0.030**	mg/L	0.010	0.00049	1	09/30/19 12:43	10/01/19 22:07	7440-39-3	
Beryllium	**0.0031**	mg/L	0.0030	0.000074	1	09/30/19 12:43	10/01/19 22:07	7440-41-7	
Boron	**11.7**	mg/L	2.0	0.25	50	09/30/19 12:43	10/01/19 22:13	7440-42-8	
Cadmium	**0.0023J**	mg/L	0.0025	0.00011	1	09/30/19 12:43	10/01/19 22:07	7440-43-9	
Calcium	**437**	mg/L	5.0	0.55	50	09/30/19 12:43	10/01/19 22:13	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	09/30/19 12:43	10/01/19 22:07	7440-47-3	
Cobalt	**0.18**	mg/L	0.0050	0.00030	1	09/30/19 12:43	10/01/19 22:07	7440-48-4	
Lead	**0.0015J**	mg/L	0.0050	0.000046	1	09/30/19 12:43	10/01/19 22:07	7439-92-1	
Lithium	**0.015J**	mg/L	0.030	0.00078	1	09/30/19 12:43	10/01/19 22:07	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	09/30/19 12:43	10/01/19 22:07	7439-98-7	
Selenium	**0.020**	mg/L	0.010	0.0013	1	09/30/19 12:43	10/01/19 22:07	7782-49-2	
Thallium	**0.00019J**	mg/L	0.0010	0.000052	1	09/30/19 12:43	10/01/19 22:07	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1960**	mg/L	10.0	10.0	1		10/02/19 12:05		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993								
Chloride	**181**	mg/L	15.0	9.0	15		10/02/19 10:23	16887-00-6	
Fluoride	**0.73**	mg/L	0.30	0.050	1		10/01/19 21:26	16984-48-8	
Sulfate	**920**	mg/L	15.0	7.5	15		10/02/19 10:23	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond AP GW6581
Pace Project No.: 2623636

Sample: MW-21d **Lab ID: 2623636004** Collected: 09/25/19 16:12 Received: 09/26/19 15:22 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								
Arsenic	ND	mg/L	0.0050	0.00035	1	09/30/19 12:43	10/01/19 22:19	7440-38-2	
Barium	**0.066**	mg/L	0.010	0.00049	1	09/30/19 12:43	10/01/19 22:19	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	09/30/19 12:43	10/01/19 22:19	7440-41-7	
Boron	**6.4**	mg/L	2.0	0.25	50	09/30/19 12:43	10/01/19 22:24	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	09/30/19 12:43	10/01/19 22:19	7440-43-9	
Calcium	**420**	mg/L	5.0	0.55	50	09/30/19 12:43	10/01/19 22:24	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	09/30/19 12:43	10/01/19 22:19	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	09/30/19 12:43	10/01/19 22:19	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	09/30/19 12:43	10/01/19 22:19	7439-92-1	
Lithium	**0.024J**	mg/L	0.030	0.00078	1	09/30/19 12:43	10/01/19 22:19	7439-93-2	
Molybdenum	**0.038**	mg/L	0.010	0.00095	1	09/30/19 12:43	10/01/19 22:19	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	09/30/19 12:43	10/01/19 22:19	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	09/30/19 12:43	10/01/19 22:19	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1970**	mg/L	10.0	10.0	1		10/02/19 12:05		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993								
Chloride	**245**	mg/L	17.0	10.2	17		10/02/19 10:37	16887-00-6	
Fluoride	ND	mg/L	0.30	0.050	1		10/01/19 22:10	16984-48-8	
Sulfate	**767**	mg/L	17.0	8.5	17		10/02/19 10:37	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2623636

QC Batch: 36170 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2623636001, 2623636002, 2623636003, 2623636004

METHOD BLANK: 163336 Matrix: Water
Associated Lab Samples: 2623636001, 2623636002, 2623636003, 2623636004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0050	0.00035	10/01/19 18:14	
Barium	mg/L	ND	0.010	0.00049	10/01/19 18:14	
Beryllium	mg/L	ND	0.0030	0.000074	10/01/19 18:14	
Boron	mg/L	ND	0.040	0.0049	10/01/19 18:14	
Cadmium	mg/L	ND	0.0025	0.00011	10/01/19 18:14	
Calcium	mg/L	ND	0.10	0.011	10/01/19 18:14	
Chromium	mg/L	ND	0.010	0.00039	10/01/19 18:14	
Cobalt	mg/L	ND	0.0050	0.00030	10/01/19 18:14	
Lead	mg/L	ND	0.0050	0.000046	10/01/19 18:14	
Lithium	mg/L	ND	0.030	0.00078	10/01/19 18:14	
Molybdenum	mg/L	ND	0.010	0.00095	10/01/19 18:14	
Selenium	mg/L	ND	0.010	0.0013	10/01/19 18:14	
Thallium	mg/L	ND	0.0010	0.000052	10/01/19 18:14	

LABORATORY CONTROL SAMPLE: 163337

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.1	0.097	97	80-120	
Barium	mg/L	0.1	0.10	100	80-120	
Beryllium	mg/L	0.1	0.097	97	80-120	
Boron	mg/L	1	0.97	97	80-120	
Cadmium	mg/L	0.1	0.10	101	80-120	
Calcium	mg/L	1	0.98	98	80-120	
Chromium	mg/L	0.1	0.098	98	80-120	
Cobalt	mg/L	0.1	0.099	99	80-120	
Lead	mg/L	0.1	0.098	98	80-120	
Lithium	mg/L	0.1	0.099	99	80-120	
Molybdenum	mg/L	0.1	0.10	102	80-120	
Selenium	mg/L	0.1	0.10	102	80-120	
Thallium	mg/L	0.1	0.098	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 163338 163339

Parameter	Units	2623623007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	ND	0.1	0.1	0.10	0.099	100	99	75-125	1	20	
Barium	mg/L	0.017	0.1	0.1	0.13	0.12	109	106	75-125	3	20	
Beryllium	mg/L	0.000084J	0.1	0.1	0.10	0.093	102	93	75-125	9	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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2623636

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 163338 163339

Parameter	Units	2623623007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	mg/L	0.0072J	1	1	1.0	0.95	100	94	75-125	6	20	
Cadmium	mg/L	ND	0.1	0.1	0.10	0.10	101	100	75-125	2	20	
Calcium	mg/L	1.1	1	1	2.1	2.1	97	94	75-125	1	20	
Chromium	mg/L	0.00076J	0.1	0.1	0.10	0.10	101	101	75-125	1	20	
Cobalt	mg/L	ND	0.1	0.1	0.10	0.10	104	100	75-125	4	20	
Lead	mg/L	ND	0.1	0.1	0.10	0.098	99	98	75-125	2	20	
Lithium	mg/L	0.0029J	0.1	0.1	0.10	0.097	102	94	75-125	7	20	
Molybdenum	mg/L	ND	0.1	0.1	0.11	0.10	108	104	75-125	4	20	
Selenium	mg/L	ND	0.1	0.1	0.10	0.098	102	98	75-125	3	20	
Thallium	mg/L	ND	0.1	0.1	0.099	0.099	99	99	75-125	0	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2623636

QC Batch: 36325 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2623636001, 2623636002, 2623636003, 2623636004

LABORATORY CONTROL SAMPLE: 164004

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	421	105	84-108	

SAMPLE DUPLICATE: 164005

Parameter	Units	2623620005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	159	152	5	10	

SAMPLE DUPLICATE: 164006

Parameter	Units	2623623005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	81.0	83.0	2	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2623636

QC Batch: 500861 Analysis Method: EPA 300.0 Rev 2.1 1993
QC Batch Method: EPA 300.0 Rev 2.1 1993 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2623636001, 2623636002, 2623636003, 2623636004

METHOD BLANK: 2694298 Matrix: Water
Associated Lab Samples: 2623636001, 2623636002, 2623636003, 2623636004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	10/01/19 16:22	
Fluoride	mg/L	ND	0.10	0.050	10/01/19 16:22	
Sulfate	mg/L	ND	1.0	0.50	10/01/19 16:22	

LABORATORY CONTROL SAMPLE: 2694299

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	49.2	98	90-110	
Fluoride	mg/L	2.5	2.3	92	90-110	
Sulfate	mg/L	50	50.4	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2694300 2694301

Parameter	Units	2623559001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	1.7	50	50	53.7	53.7	104	104	90-110	0	10	
Fluoride	mg/L	0.058J	2.5	2.5	2.5	2.5	98	99	90-110	1	10	
Sulfate	mg/L	20.7	50	50	72.4	72.6	103	104	90-110	0	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2694302 2694303

Parameter	Units	2623584001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	89.4	50	50	132	133	86	87	90-110	1	10	M1
Fluoride	mg/L	0.42	2.5	2.5	4.2	4.3	152	153	90-110	1	10	M1
Sulfate	mg/L	142	50	50	177	180	69	74	90-110	2	10	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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALIFIERS

Project: Plant Hammond AP GW6581
Pace Project No.: 2623636

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-A	Pace Analytical Services - Asheville
PASI-GA	Pace Analytical Services - Atlanta, GA

ANALYTE QUALIFIERS

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond AP GW6581
Pace Project No.: 2623636

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623636001	**HGWC-16**	EPA 3005A	36170	EPA 6020B	36202
2623636002	**HGWC-17**	EPA 3005A	36170	EPA 6020B	36202
2623636003	**HGWC-18**	EPA 3005A	36170	EPA 6020B	36202
2623636004	**MW-21d**	EPA 3005A	36170	EPA 6020B	36202
2623636001	**HGWC-16**	SM 2540C	36325		
2623636002	**HGWC-17**	SM 2540C	36325		
2623636003	**HGWC-18**	SM 2540C	36325		
2623636004	**MW-21d**	SM 2540C	36325		
2623636001	**HGWC-16**	EPA 300.0 Rev 2.1 1993	500861		
2623636002	**HGWC-17**	EPA 300.0 Rev 2.1 1993	500861		
2623636003	**HGWC-18**	EPA 300.0 Rev 2.1 1993	500861		
2623636004	**MW-21d**	EPA 300.0 Rev 2.1 1993	500861		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A — Required Client Information:

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

Section B — Required Project Information:

Report To:	Joju Abraham
Copy To:	Lauren Petty, Geosyntec
Purchase Order #:	SCS10382775
Project Name:	Plant Hammond
Project #:	GW6581

Section C — Invoice Information:

Attention:	scsinvoices@southernco.com
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Pace Profile #:	327 (AP)

Regulatory Agency: —

State / Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Arsenic, Barium, Beryllium	Boron, Calcium, Cadmium,	Chromium, Cobalt, Lead	Lithium, Molybdenum	Selenium, Thallium	TDS, Cl, F, SO4	Radium 226/228					Residual Chlorine (Y/N)	
																		N	N	N	N	N	W	N	N							
1	HGWC-16	GW	G	9/25/19	10:36	9/25/19	11:00	22.8	4	1		3						Y	Y	Y	Y	Y	Y	Y						2	1
2	HGWC-17	GW	G	9/25/19	12:15	9/25/19	12:35	21.6	4	1		3						Y	Y	Y	Y	Y	Y	Y						2	2
3	HGWC-18	GW	G	9/25/19	13:55	9/25/19	14:38	22.8	4	1		3						Y	Y	Y	Y	Y	Y	Y						2	3
4	MW-21d	GW	G	9/25/19	15:38	9/25/19	16:12	22.8	4	1		3						Y	Y	Y	Y	Y	Y	Y						2	4
5																															
6																															
7																															
8																															
9																															
10																															
11																															
12																															

09-25-19

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	1 Pace / Geosyntec	9/25/19	17:45	Mollie Mullins / Geosyntec	9/25/19	1745	
	Mollie Mullins / Geo	9/25/19	1915	1 Pace	9.26.19	1135	
	1 Pace	9.26.19	1522	Charles Hawkins	9/26/19	1522	4° Y Y X

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: DAN GIBBS

SIGNATURE of SAMPLER: [signature] DATE Signed: 9-25-2019

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

WO# : 2623636

2623636

Page 15 of 15

Pace Analytical

Sample Condition Upon Recei

WO# : 2623636

Client Name: GA Power

PM: BM Due Date: 10/03/19

CLIENT: GAPower-CCR

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other

Tracking #:

Proj. Due Date:
Proj. Name:

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

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other

Thermometer Used 214

Type of Ice: Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 4/10

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 9/26/19 CDS

Temp should be above freezing to 6°C

Comments:

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

October 29, 2019

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

RE: Project: Plant Hammond AP GW6581
Pace Project No.: 2623637

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on September 26, 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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

CERTIFICATIONS

Project: Plant Hammond AP GW6581
Pace Project No.: 2623637

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE SUMMARY

Project: Plant Hammond AP GW6581
Pace Project No.: 2623637

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623637001	**HGWC-16**	Water	09/25/19 11:00	09/26/19 15:22
2623637002	**HGWC-17**	Water	09/25/19 12:35	09/26/19 15:22
2623637003	**HGWC-18**	Water	09/25/19 14:38	09/26/19 15:22
2623637004	**MW-21d**	Water	09/25/19 16:12	09/26/19 15:22

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE ANALYTE COUNT

Project: Plant Hammond AP GW6581
Pace Project No.: 2623637

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2623637001	**HGWC-16**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2623637002	**HGWC-17**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2623637003	**HGWC-18**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2623637004	**MW-21d**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond AP GW6581
Pace Project No.: 2623637

Sample: HGWC-16 **Lab ID: 2623637001** Collected: 09/25/19 11:00 Received: 09/26/19 15:22 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.550 ± 0.350 (0.586) C:85% T:NA**	pCi/L	10/16/19 08:23	13982-63-3	
Radium-228	EPA 9320	**0.0933 ± 0.368 (0.831) C:74% T:84%**	pCi/L	10/22/19 15:57	15262-20-1	
Total Radium	Total Radium Calculation	**0.643 ± 0.718 (1.42)**	pCi/L	10/24/19 12:46	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond AP GW6581
Pace Project No.: 2623637

Sample: HGWC-17 **Lab ID: 2623637002** Collected: 09/25/19 12:35 Received: 09/26/19 15:22 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.865 ± 0.394 (0.526) C:89% T:NA**	pCi/L	10/16/19 08:23	13982-63-3	
Radium-228	EPA 9320	**0.678 ± 0.438 (0.831) C:69% T:84%**	pCi/L	10/22/19 15:58	15262-20-1	
Total Radium	Total Radium Calculation	**1.54 ± 0.832 (1.36)**	pCi/L	10/24/19 12:46	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond AP GW6581
Pace Project No.: 2623637

Sample: HGWC-18 **Lab ID: 2623637003** Collected: 09/25/19 14:38 Received: 09/26/19 15:22 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**1.09 ± 0.410 (0.418) C:93% T:NA**	pCi/L	10/16/19 08:23	13982-63-3	
Radium-228	EPA 9320	**1.68 ± 0.583 (0.803) C:75% T:72%**	pCi/L	10/22/19 15:58	15262-20-1	
Total Radium	Total Radium Calculation	**2.77 ± 0.993 (1.22)**	pCi/L	10/24/19 12:46	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond AP GW6581
Pace Project No.: 2623637

Sample: MW-21d **Lab ID: 2623637004** Collected: 09/25/19 16:12 Received: 09/26/19 15:22 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.477 ± 0.280 (0.393) C:94% T:NA**	pCi/L	10/16/19 08:23	13982-63-3	
Radium-228	EPA 9320	**0.274 ± 0.414 (0.893) C:59% T:83%**	pCi/L	10/22/19 15:59	15262-20-1	
Total Radium	Total Radium Calculation	**0.751 ± 0.694 (1.29)**	pCi/L	10/24/19 12:46	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond AP GW6581
Pace Project No.: 2623637

QC Batch: 365382 Analysis Method: EPA 9320
QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228
Associated Lab Samples: 2623637001, 2623637002, 2623637003, 2623637004

METHOD BLANK: 1772187 Matrix: Water
Associated Lab Samples: 2623637001, 2623637002, 2623637003, 2623637004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.573 ± 0.379 (0.723) C:78% T:84%	pCi/L	10/22/19 15:57	

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 AP GW6581
Pace Project No.: 2623637

QC Batch: 365379 Analysis Method: EPA 9315
QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium
Associated Lab Samples: 2623637001, 2623637002, 2623637003, 2623637004

METHOD BLANK: 1772184 Matrix: Water
Associated Lab Samples: 2623637001, 2623637002, 2623637003, 2623637004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.298 ± 0.261 (0.477) C:93% T:NA	pCi/L	10/16/19 08:22	

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 AP GW6581
Pace Project No.: 2623637

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

Pace Analytical Services, LLC
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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond AP GW6581
Pace Project No.: 2623637

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623637001	**HGWC-16**	EPA 9315	365379		
2623637002	**HGWC-17**	EPA 9315	365379		
2623637003	**HGWC-18**	EPA 9315	365379		
2623637004	**MW-21d**	EPA 9315	365379		
2623637001	**HGWC-16**	EPA 9320	365382		
2623637002	**HGWC-17**	EPA 9320	365382		
2623637003	**HGWC-18**	EPA 9320	365382		
2623637004	**MW-21d**	EPA 9320	365382		
2623637001	**HGWC-16**	Total Radium Calculation	367752		
2623637002	**HGWC-17**	Total Radium Calculation	367752		
2623637003	**HGWC-18**	Total Radium Calculation	367752		
2623637004	**MW-21d**	Total Radium Calculation	367752		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A — Required Client Information:

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

Section B — Required Project Information:

Report To:	Joju Abraham
Copy To:	Lauren Petty, Geosyntec
Purchase Order #:	SCS10382775
Project Name:	Plant Hammond
Project #:	GW6581

Section C — Invoice Information:

Attention:	scsinvoices@southernco.com
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Pace Profile #:	327 (AP

Regulatory Agency: GA

Site Location: GA

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

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test (Y/N)	Arsenic, Barium, Beryllium	Boron, Calcium, Cadmium,	Chromium, Cobalt, Lead	Lithium, Molybdenum	Selenium, Thallium	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)	
																		Y/N	N	N	N	N	W	N	N		
1	HGWC-16	GT	G	9/25/19	10:36	9/25/19	11:00	22.8	4	1		3						Y	Y	Y	Y	Y	Y	Y		N	1
2	HGWC-17	GT	G	9/25/19	12:15	9/25/19	12:35		4	1		3						Y	Y	Y	Y	Y	Y	Y		N	2
3	HGWC-18	GT	G	9/25/19	13:55	9/25/19	14:38		4	1		3						Y	Y	Y	Y	Y	Y	Y		N	3
4	MW-21d	GT	G	9/25/19	15:38	9/25/19	16:12		4	1		3						Y	Y	Y	Y	Y	Y	Y		N	4
5																											
6																											
7																											
8																											
9																											
10																											
11																											
12																											

09-25-19

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	1 Pace / Geosyntec	9/25/19	17:45	Mallia Mullins / Geosyntec	9/25/19	1745	
	Mallia Mullins / Geo	9/25/19	1915	1 Pace	9.26.19	1135	
	1 Pace	9.26.19	1522	Rhonda Hunter	9/26/19	1522	4.0 X X X

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: DAN GIBBS

SIGNATURE of SAMPLER: [signature]

DATE Signed: 9-25-2019

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

WO# : 2623637

2623637

Pace Analytical

Sample Condition Upon Receipt

WO#: 2623637

Client Name: GA Power

PM: BM Due Date: 10/24/19

CLIENT: GAPower-CCR

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other _____

Tracking #: _____

Optional
Proj. Due Date:
Proj. Name:

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

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____

Thermometer Used 214 Type of Ice: (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 4 | 10 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 4/26/19 CH

Temp should be above freezing to 6°C Comments:

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

December 13, 2019

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

RE: Project: Plant Hammond GW6581
Pace Project No.: 2623710

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on September 27, 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,

Kevin Herring 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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

CERTIFICATIONS

Project: Plant Hammond GW6581
Pace Project No.: 2623710

Pace Analytical Services Atlanta
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

Pace Analytical Services, LLC
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SAMPLE SUMMARY

Project: Plant Hammond GW6581
Pace Project No.: 2623710

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623710001	**MW-23d**	Water	09/26/19 10:25	09/27/19 13:15
2623710002	**FD-02**	Water	09/26/19 00:00	09/27/19 13:15

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE ANALYTE COUNT

Project: Plant Hammond GW6581
Pace Project No.: 2623710

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2623710001	**MW-23d**	EPA 6020B	CSW	13
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2623710002	**FD-02**	EPA 6020B	CSW	13
		SM 2540C	ALW	1
		EPA 300.0	MWB	3

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ANALYTICAL RESULTS

Project: Plant Hammond GW6581
Pace Project No.: 2623710

Sample: MW-23d **Lab ID: 2623710001** Collected: 09/26/19 10:25 Received: 09/27/19 13:15 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								
Arsenic	ND	mg/L	0.0050	0.00035	1	09/30/19 13:30	10/03/19 20:36	7440-38-2	
Barium	**0.064**	mg/L	0.010	0.00049	1	09/30/19 13:30	10/03/19 20:36	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	09/30/19 13:30	10/03/19 20:36	7440-41-7	
Boron	**3.8**	mg/L	2.0	0.25	50	09/30/19 13:30	10/03/19 20:42	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	09/30/19 13:30	10/03/19 20:36	7440-43-9	
Calcium	**306**	mg/L	25.0	2.7	250	09/30/19 13:30	10/04/19 16:07	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	09/30/19 13:30	10/03/19 20:36	7440-47-3	
Cobalt	**0.00098J**	mg/L	0.0050	0.00030	1	09/30/19 13:30	10/03/19 20:36	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	09/30/19 13:30	10/03/19 20:36	7439-92-1	
Lithium	**0.0023J**	mg/L	0.030	0.00078	1	09/30/19 13:30	10/03/19 20:36	7439-93-2	
Molybdenum	**0.0025J**	mg/L	0.010	0.00095	1	09/30/19 13:30	10/03/19 20:36	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	09/30/19 13:30	10/03/19 20:36	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	09/30/19 13:30	10/03/19 20:36	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1400**	mg/L	10.0	10.0	1		10/03/19 16:46		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**204**	mg/L	25.0	0.60	25		10/02/19 21:25	16887-00-6	
Fluoride	**0.16J**	mg/L	0.30	0.029	1		10/02/19 11:14	16984-48-8	
Sulfate	**556**	mg/L	25.0	0.42	25		10/02/19 21:25	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond GW6581
Pace Project No.: 2623710

Sample: FD-02 **Lab ID: 2623710002** Collected: 09/26/19 00:00 Received: 09/27/19 13:15 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								
Arsenic	ND	mg/L	0.0050	0.00035	1	09/30/19 13:30	10/03/19 20:47	7440-38-2	
Barium	**0.067**	mg/L	0.010	0.00049	1	09/30/19 13:30	10/03/19 20:47	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	09/30/19 13:30	10/03/19 20:47	7440-41-7	
Boron	**4.0**	mg/L	2.0	0.25	50	09/30/19 13:30	10/03/19 20:53	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	09/30/19 13:30	10/03/19 20:47	7440-43-9	
Calcium	**320**	mg/L	25.0	2.7	250	09/30/19 13:30	10/04/19 16:13	7440-70-2	
Chromium	**0.0012J**	mg/L	0.010	0.00039	1	09/30/19 13:30	10/03/19 20:47	7440-47-3	
Cobalt	**0.0010J**	mg/L	0.0050	0.00030	1	09/30/19 13:30	10/03/19 20:47	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	09/30/19 13:30	10/03/19 20:47	7439-92-1	
Lithium	**0.0024J**	mg/L	0.030	0.00078	1	09/30/19 13:30	10/03/19 20:47	7439-93-2	
Molybdenum	**0.0027J**	mg/L	0.010	0.00095	1	09/30/19 13:30	10/03/19 20:47	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	09/30/19 13:30	10/03/19 20:47	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	09/30/19 13:30	10/03/19 20:47	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1450**	mg/L	10.0	10.0	1		10/03/19 16:46		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**201**	mg/L	25.0	0.60	25		10/02/19 21:48	16887-00-6	
Fluoride	**0.17J**	mg/L	0.30	0.029	1		10/02/19 11:36	16984-48-8	
Sulfate	**556**	mg/L	25.0	0.42	25		10/02/19 21:48	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623710

QC Batch: 36173
QC Batch Method: EPA 3005A
Analysis Method: EPA 6020B
Analysis Description: 6020B MET
Associated Lab Samples: 2623710001, 2623710002

METHOD BLANK: 163347
Matrix: Water
Associated Lab Samples: 2623710001, 2623710002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0050	0.00035	10/03/19 16:32	
Barium	mg/L	ND	0.010	0.00049	10/03/19 16:32	
Beryllium	mg/L	ND	0.0030	0.000074	10/03/19 16:32	
Boron	mg/L	ND	0.040	0.0049	10/03/19 16:32	
Cadmium	mg/L	ND	0.0025	0.00011	10/03/19 16:32	
Calcium	mg/L	ND	0.10	0.011	10/03/19 16:32	
Chromium	mg/L	ND	0.010	0.00039	10/03/19 16:32	
Cobalt	mg/L	ND	0.0050	0.00030	10/03/19 16:32	
Lead	mg/L	ND	0.0050	0.000046	10/03/19 16:32	
Lithium	mg/L	ND	0.030	0.00078	10/03/19 16:32	
Molybdenum	mg/L	ND	0.010	0.00095	10/03/19 16:32	
Selenium	mg/L	ND	0.010	0.0013	10/03/19 16:32	
Thallium	mg/L	ND	0.0010	0.000052	10/03/19 16:32	

LABORATORY CONTROL SAMPLE: 163348

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.1	0.097	97	80-120	
Barium	mg/L	0.1	0.10	100	80-120	
Beryllium	mg/L	0.1	0.10	100	80-120	
Boron	mg/L	1	1.0	102	80-120	
Cadmium	mg/L	0.1	0.098	98	80-120	
Calcium	mg/L	1	0.99	99	80-120	
Chromium	mg/L	0.1	0.099	99	80-120	
Cobalt	mg/L	0.1	0.099	99	80-120	
Lead	mg/L	0.1	0.098	98	80-120	
Lithium	mg/L	0.1	0.10	102	80-120	
Molybdenum	mg/L	0.1	0.10	102	80-120	
Selenium	mg/L	0.1	0.10	102	80-120	
Thallium	mg/L	0.1	0.098	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 163349 163350

Parameter	Units	2623696001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	0.0013J	0.1	0.1	0.099	0.10	98	103	75-125	5	20	
Barium	mg/L	0.095	0.1	0.1	0.22	0.22	122	127	75-125	2	20	M1
Beryllium	mg/L	0.000099J	0.1	0.1	0.086	0.091	86	91	75-125	5	20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623710

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 163349 163350

Parameter	Units	2623696001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	mg/L	16.4	1	1	20.1	20.1	373	367	75-125	0	20	M6
Cadmium	mg/L	ND	0.1	0.1	0.090	0.093	90	93	75-125	3	20	
Calcium	mg/L	658	1	1	644	642	-1420	-1570	75-125	0	20	M6
Chromium	mg/L	ND	0.1	0.1	0.091	0.094	91	94	75-125	3	20	
Cobalt	mg/L	0.027	0.1	0.1	0.12	0.12	89	92	75-125	3	20	
Lead	mg/L	0.000054J	0.1	0.1	0.089	0.094	89	94	75-125	5	20	
Lithium	mg/L	0.039	0.1	0.1	0.13	0.13	90	94	75-125	3	20	
Molybdenum	mg/L	0.045	0.1	0.1	0.14	0.15	96	102	75-125	4	20	
Selenium	mg/L	ND	0.1	0.1	0.098	0.11	97	105	75-125	8	20	
Thallium	mg/L	0.00088J	0.1	0.1	0.091	0.097	90	96	75-125	6	20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623710

QC Batch: 36437
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2623710001, 2623710002

LABORATORY CONTROL SAMPLE: 164569

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	412	103	84-108	

SAMPLE DUPLICATE: 164570

Parameter	Units	2623700006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	225	219	3	10	

SAMPLE DUPLICATE: 164571

Parameter	Units	2623710002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1450	1330	9	10	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623710

QC Batch: 36286
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2623710001, 2623710002

METHOD BLANK: 163856 Matrix: Water
Associated Lab Samples: 2623710001, 2623710002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.031J	1.0	0.024	10/02/19 07:36	
Fluoride	mg/L	ND	0.30	0.029	10/02/19 07:36	
Sulfate	mg/L	0.053J	1.0	0.017	10/02/19 07:36	

LABORATORY CONTROL SAMPLE: 163857

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.7	107	90-110	
Fluoride	mg/L	10	10.9	109	90-110	
Sulfate	mg/L	10	10.6	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 163858 163859

Parameter	Units	2623702001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	1.7	10	10	11.0	11.7	93	100	90-110	6	15	
Fluoride	mg/L	0.12J	10	10	9.5	10.3	94	102	90-110	8	15	
Sulfate	mg/L	30.3	10	10	36.7	37.2	64	69	90-110	1	15	M1

MATRIX SPIKE SAMPLE: 163860

Parameter	Units	2623702002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	6.5	10	16.5	100	90-110	
Fluoride	mg/L	0.098J	10	10.7	106	90-110	
Sulfate	mg/L	0.23J	10	10.7	104	90-110	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALIFIERS

Project: Plant Hammond GW6581
Pace Project No.: 2623710

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.
M6	Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond GW6581
Pace Project No.: 2623710

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623710001	**MW-23d**	EPA 3005A	36173	EPA 6020B	36203
2623710002	**FD-02**	EPA 3005A	36173	EPA 6020B	36203
2623710001	**MW-23d**	SM 2540C	36437		
2623710002	**FD-02**	SM 2540C	36437		
2623710001	**MW-23d**	EPA 300.0	36286		
2623710002	**FD-02**	EPA 300.0	36286		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Lauren Petty, Geosyntec	Company Name:	
Atlanta, GA 30339				Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:	GW6581	Pace Profile #:	327 (AP)

Regulatory Agency: —

State / Location: GA

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Requested Analysis Filtered (Y/N): Arsenic, Barium, Beryllium	Boron, Calcium, Cadmium	Chromium, Cobalt, Lead	Lithium, Molybdenum	Selenium, Thallium	TDS, Cl, F, SO4	Radium 226/228					Residual Chlorine (Y/N)	
	MATRIX: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Other OT, Tissue TS																	N	N	N	N	N	N	N						
1	MW-23.1	WT	G	9/26/19	9:40	9/26/19	10:25	5.2	4	1		3						Y	Y	Y	Y	Y	Y	Y					N	
2	FD-02	WT	G	9/26/19	\	9/26/19	\		4	1		3						Y	Y	Y	Y	Y	Y	Y					N	
3																														
4																														
5																														
6																														
7																														
8																														
9																														
10																														
11																														
12																														

09-26-2019

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Dave / Geosyntec	09/26/2019	1900	Mollie Mayhorn / Geosyntec	9/26/19	1900				
	Mollie Mayhorn / Geosyntec	9/26/19	2055	J. Mullaly / Pace	9/27/19	1142				
				Charles Hawkins	9/27/19	1315	5.0	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: DAN GIDDS

SIGNATURE of SAMPLER: [signature] DATE Signed: 09-26-2019

WO#: 2623710

2623710

Pace Analytical

Sample Condition Upon Receipt

WO# : 2623710

Client Name: GA Power

PM: BM Due Date: 10/04/19

CLIENT: GAPower-CCR

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other

Tracking #: _____

Proj. Due Date:
Proj. Name:

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

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other _____

Thermometer Used 214

Type of Ice: ~~Wet~~ Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 5.0°C

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 9/27/19 CM

Temp should be above freezing to 6°C

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

October 22, 2019

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

RE: Project: Plant Hammond GW6581
Pace Project No.: 2623711

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on September 27, 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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

CERTIFICATIONS

Project: Plant Hammond GW6581
Pace Project No.: 2623711

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

Pace Analytical Services, LLC
110 Technology Parkway
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(770)734-4200

SAMPLE SUMMARY

Project: Plant Hammond GW6581
Pace Project No.: 2623711

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623711001	**MW-23d**	Water	09/26/19 10:25	09/27/19 13:15
2623711002	**FD-02**	Water	09/26/19 00:00	09/27/19 13:15

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(770)734-4200

SAMPLE ANALYTE COUNT

Project: Plant Hammond GW6581
Pace Project No.: 2623711

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2623711001	**MW-23d**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2623711002	**FD-02**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond GW6581
Pace Project No.: 2623711

Sample: MW-23d **Lab ID: 2623711001** Collected: 09/26/19 10:25 Received: 09/27/19 13:15 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	**0.512 ± 0.198 (0.263) C:95% T:NA**	pCi/L	10/14/19 19:10	13982-63-3	
Radium-228	EPA 9320	**0.741 ± 0.461 (0.881) C:77% T:85%**	pCi/L	10/16/19 11:10	15262-20-1	
Total Radium	Total Radium Calculation	**1.25 ± 0.659 (1.14)**	pCi/L	10/18/19 11:04	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond GW6581
Pace Project No.: 2623711

Sample: FD-02 **Lab ID: 2623711002** Collected: 09/26/19 00:00 Received: 09/27/19 13:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.331 ± 0.157 (0.216) C:87% T:NA**	pCi/L	10/14/19 19:10	13982-63-3	
Radium-228	EPA 9320	**0.214 ± 0.353 (0.767) C:76% T:93%**	pCi/L	10/16/19 11:10	15262-20-1	
Total Radium	Total Radium Calculation	**0.545 ± 0.510 (0.983)**	pCi/L	10/18/19 11:04	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond GW6581
Pace Project No.: 2623711

QC Batch: 365001 Analysis Method: EPA 9315
QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium
Associated Lab Samples: 2623711001, 2623711002

METHOD BLANK: 1770530 Matrix: Water
Associated Lab Samples: 2623711001, 2623711002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.564 ± 0.187 (0.181) C:94% T:NA	pCi/L	10/14/19 19:10	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond GW6581
Pace Project No.: 2623711

QC Batch: 365002 Analysis Method: EPA 9320
QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228
Associated Lab Samples: 2623711001, 2623711002

METHOD BLANK: 1770531 Matrix: Water
Associated Lab Samples: 2623711001, 2623711002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.538 ± 0.357 (0.676) C:80% T:85%	pCi/L	10/16/19 11:11	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALIFIERS

Project: Plant Hammond GW6581
Pace Project No.: 2623711

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond GW6581
Pace Project No.: 2623711

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623711001	**MW-23d**	EPA 9315	365001		
2623711002	**FD-02**	EPA 9315	365001		
2623711001	**MW-23d**	EPA 9320	365002		
2623711002	**FD-02**	EPA 9320	365002		
2623711001	**MW-23d**	Total Radium Calculation	366903		
2623711002	**FD-02**	Total Radium Calculation	366903		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Lauren Petty, Geosyntec	Company Name:	
Atlanta, GA 30339				Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:	GW6581	Pace Profile #:	327 (AP)

Regulatory Agency: State / Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test (Y/N)	Arsenic, Barium, Beryllium	Boron, Calcium, Cadmium,	Chromium, Cobalt, Lead	Lithium, Molybdenum	Selenium, Thallium	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
																		Y/N	N	N	N	N	N	N	N	
1	MW-23I	GW	G	9/26/19	9:40	9/26/19	10:25	19.2	4	1		3						Y	Y	Y	Y	Y	Y	Y	N
2	FD-02	GW	G	9/26/19	"	9/26/19	"		4	1		3						Y	Y	Y	Y	Y	Y	Y	N
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

09-26-2019

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Dan / Geosyntec	09/26/2019	1900	Mollie Mynhier / Geosyntec	9/26/19	1900	
	Mollie Mynhier / Geosyntec	9/26/19	2055	J. Mullig / Pace	9/27/19	1142	
				Charles Hawker	9/27/19	1315	5.0 Y Y Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: DAN GEDES

SIGNATURE of SAMPLER: [signature] DATE Signed: 09-26-2019

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

WO#: 2623711

Page 1 of 12

2623711

Pace Analytical

Sample Condition Upon Rece

WO#: 2623711

Client Name: G-A Power

PM: BM Due Date: 10/25/19

CLIENT: GAPower-CCR

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☑ Commercial ☑ Pace Othe

Tracking #: _____

Proj. Due Date:
Proj. Name:

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

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other _____

Thermometer Used 214

Type of Ice: Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 5.0 °C

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 9/27/19 CM

Temp should be above freezing to 6°C

Comments:

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

December 13, 2019

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

RE: Project: Plant Hammond GW6581
Pace Project No.: 2623714

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on September 27, 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,

Kevin Herring 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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

CERTIFICATIONS

Project: Plant Hammond GW6581
Pace Project No.: 2623714

Pace Analytical Services Atlanta
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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE SUMMARY

Project: Plant Hammond GW6581
Pace Project No.: 2623714

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623714001	**EB-02**	Water	09/26/19 17:50	09/27/19 13:15
2623714002	**FB-02**	Water	09/26/19 18:25	09/27/19 13:15

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE ANALYTE COUNT

Project: Plant Hammond GW6581
Pace Project No.: 2623714

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2623714001	**EB-02**	EPA 6020B	CSW	14
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2623714002	**FB-02**	EPA 6020B	CSW	14
		SM 2540C	ALW	1
		EPA 300.0	MWB	3

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond GW6581
Pace Project No.: 2623714

Sample: EB-02 **Lab ID: 2623714001** Collected: 09/26/19 17:50 Received: 09/27/19 13:15 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	0.00027	1	10/01/19 12:00	10/03/19 22:45	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	10/01/19 12:00	10/03/19 22:45	7440-38-2	
Barium	ND	mg/L	0.010	0.00049	1	10/01/19 12:00	10/03/19 22:45	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	10/01/19 12:00	10/03/19 22:45	7440-41-7	
Boron	ND	mg/L	0.040	0.0049	1	10/01/19 12:00	10/03/19 22:45	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	10/01/19 12:00	10/03/19 22:45	7440-43-9	
Calcium	ND	mg/L	0.10	0.011	1	10/01/19 12:00	10/03/19 22:45	7440-70-2	
Chromium	**0.0063J**	mg/L	0.010	0.00039	1	10/01/19 12:00	10/03/19 22:45	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	10/01/19 12:00	10/03/19 22:45	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	10/01/19 12:00	10/03/19 22:45	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	10/01/19 12:00	10/03/19 22:45	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/01/19 12:00	10/03/19 22:45	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	10/01/19 12:00	10/03/19 22:45	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	10/01/19 12:00	10/03/19 22:45	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**13.0**	mg/L	10.0	10.0	1		10/03/19 16:48		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**0.035J**	mg/L	1.0	0.024	1		10/04/19 14:51	16887-00-6	B
Fluoride	ND	mg/L	0.30	0.029	1		10/04/19 14:51	16984-48-8	
Sulfate	ND	mg/L	1.0	0.017	1		10/04/19 14:51	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond GW6581
Pace Project No.: 2623714

Sample: FB-02 **Lab ID: 2623714002** Collected: 09/26/19 18:25 Received: 09/27/19 13:15 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	0.00027	1	10/01/19 12:00	10/03/19 22:50	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	10/01/19 12:00	10/03/19 22:50	7440-38-2	
Barium	ND	mg/L	0.010	0.00049	1	10/01/19 12:00	10/03/19 22:50	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	10/01/19 12:00	10/03/19 22:50	7440-41-7	
Boron	ND	mg/L	0.040	0.0049	1	10/01/19 12:00	10/03/19 22:50	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	10/01/19 12:00	10/03/19 22:50	7440-43-9	
Calcium	ND	mg/L	0.10	0.011	1	10/01/19 12:00	10/03/19 22:50	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	10/01/19 12:00	10/03/19 22:50	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	10/01/19 12:00	10/03/19 22:50	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	10/01/19 12:00	10/03/19 22:50	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	10/01/19 12:00	10/03/19 22:50	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/01/19 12:00	10/03/19 22:50	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	10/01/19 12:00	10/03/19 22:50	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	10/01/19 12:00	10/03/19 22:50	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**13.0**	mg/L	10.0	10.0	1		10/03/19 20:28		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**0.028J**	mg/L	1.0	0.024	1		10/04/19 15:55	16887-00-6	B
Fluoride	ND	mg/L	0.30	0.029	1		10/04/19 15:55	16984-48-8	
Sulfate	ND	mg/L	1.0	0.017	1		10/04/19 15:55	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623714

QC Batch: 36236
QC Batch Method: EPA 3005A
Analysis Method: EPA 6020B
Analysis Description: 6020B MET
Associated Lab Samples: 2623714001, 2623714002

METHOD BLANK: 163651 Matrix: Water
Associated Lab Samples: 2623714001, 2623714002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	10/03/19 19:06	
Arsenic	mg/L	ND	0.0050	0.00035	10/03/19 19:06	
Barium	mg/L	ND	0.010	0.00049	10/03/19 19:06	
Beryllium	mg/L	ND	0.0030	0.000074	10/03/19 19:06	
Boron	mg/L	ND	0.040	0.0049	10/03/19 19:06	
Cadmium	mg/L	ND	0.0025	0.00011	10/03/19 19:06	
Calcium	mg/L	ND	0.10	0.011	10/03/19 19:06	
Chromium	mg/L	ND	0.010	0.00039	10/03/19 19:06	
Cobalt	mg/L	ND	0.0050	0.00030	10/03/19 19:06	
Lead	mg/L	ND	0.0050	0.000046	10/03/19 19:06	
Lithium	mg/L	ND	0.030	0.00078	10/03/19 19:06	
Molybdenum	mg/L	ND	0.010	0.00095	10/03/19 19:06	
Selenium	mg/L	ND	0.010	0.0013	10/03/19 19:06	
Thallium	mg/L	ND	0.0010	0.000052	10/03/19 19:06	

LABORATORY CONTROL SAMPLE: 163652

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	103	80-120	
Barium	mg/L	0.1	0.11	107	80-120	
Beryllium	mg/L	0.1	0.10	101	80-120	
Boron	mg/L	1	1.0	102	80-120	
Cadmium	mg/L	0.1	0.11	105	80-120	
Calcium	mg/L	1	1.0	102	80-120	
Chromium	mg/L	0.1	0.10	102	80-120	
Cobalt	mg/L	0.1	0.10	104	80-120	
Lead	mg/L	0.1	0.10	104	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	0.10	104	80-120	
Thallium	mg/L	0.1	0.10	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 163653 163654

Parameter	Units	2623702001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L	0.00029J	0.1	0.1	0.11	0.11	105	106	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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623714

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 163653 163654

Parameter	Units	2623702001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	ND	0.1	0.1	0.10	0.10	103	105	75-125	2	20	
Barium	mg/L	0.018	0.1	0.1	0.13	0.13	107	108	75-125	1	20	
Beryllium	mg/L	0.000077J	0.1	0.1	0.11	0.10	108	102	75-125	6	20	
Boron	mg/L	0.58	1	1	1.6	1.6	106	100	75-125	4	20	
Cadmium	mg/L	ND	0.1	0.1	0.10	0.11	104	107	75-125	3	20	
Calcium	mg/L	3.7	1	1	4.9	5.0	118	130	75-125	2	20	M1
Chromium	mg/L	0.00073J	0.1	0.1	0.10	0.11	103	107	75-125	4	20	
Cobalt	mg/L	ND	0.1	0.1	0.10	0.11	104	107	75-125	3	20	
Lead	mg/L	0.00013J	0.1	0.1	0.10	0.10	103	103	75-125	0	20	
Lithium	mg/L	0.0017J	0.1	0.1	0.11	0.10	108	103	75-125	4	20	
Molybdenum	mg/L	ND	0.1	0.1	0.11	0.11	107	109	75-125	2	20	
Selenium	mg/L	0.018	0.1	0.1	0.12	0.12	100	103	75-125	3	20	
Thallium	mg/L	ND	0.1	0.1	0.10	0.10	104	104	75-125	0	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623714

QC Batch: 36437
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2623714001

LABORATORY CONTROL SAMPLE: 164569

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	412	103	84-108	

SAMPLE DUPLICATE: 164570

Parameter	Units	2623700006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	225	219	3	10	

SAMPLE DUPLICATE: 164571

Parameter	Units	2623710002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1450	1330	9	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623714

QC Batch: 36464
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2623714002

LABORATORY CONTROL SAMPLE: 164734

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	408	102	84-108	

SAMPLE DUPLICATE: 164735

Parameter	Units	2623714002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	13.0	ND		10	

SAMPLE DUPLICATE: 164763

Parameter	Units	2623696005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	275	262	5	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond GW6581
Pace Project No.: 2623714

QC Batch: 36494
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2623714001, 2623714002

METHOD BLANK: 164898 Matrix: Water
Associated Lab Samples: 2623714001, 2623714002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.026J	1.0	0.024	10/04/19 14:09	
Fluoride	mg/L	ND	0.30	0.029	10/04/19 14:09	
Sulfate	mg/L	ND	1.0	0.017	10/04/19 14:09	

LABORATORY CONTROL SAMPLE: 164899

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.2	102	90-110	
Fluoride	mg/L	10	10.3	103	90-110	
Sulfate	mg/L	10	9.9	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 164900 164901

Parameter	Units	2623714001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	0.035J	10	10	10.1	10	101	100	90-110	1	15	
Fluoride	mg/L	ND	10	10	10.2	10.1	102	100	90-110	1	15	
Sulfate	mg/L	ND	10	10	9.8	9.8	98	98	90-110	1	15	

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALIFIERS

Project: Plant Hammond GW6581
Pace Project No.: 2623714

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond GW6581
Pace Project No.: 2623714

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623714001	**EB-02**	EPA 3005A	36236	EPA 6020B	36255
2623714002	**FB-02**	EPA 3005A	36236	EPA 6020B	36255
2623714001	**EB-02**	SM 2540C	36437		
2623714002	**FB-02**	SM 2540C	36464		
2623714001	**EB-02**	EPA 300.0	36494		
2623714002	**FB-02**	EPA 300.0	36494		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A — Required Client Information:

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

Section B — Required Project Information:

Report To:	Joju Abraham
Copy To:	Lauren Petty, Geosyntec
Purchase Order #:	SCS10382775
Project Name:	Plant Hammond
Project #:	GW6581

Section C — Invoice Information:

Attention:	scsinvoices@southernco.com
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Pace Profile #:	327 (AP)

Regulatory Agency:

State / Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test: Y/N	Antimony, Arsenic, Barium	Beryllium, Boron, Calcium	Cadmium, Chromium, Cobalt	Lead, Lithium, Molybdenum	Selenium, Thallium	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	EB-02	WT	G	9/26/19	1735	9/26/19	1750	25	4	1		3						Y	Y	Y	Y	Y	Y	Y	N
2	FB-02	WT	G	9/26/19	1800	9/26/19	1825	25	4	1		3						Y	Y	Y	Y	Y	Y	Y	N
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

AJM 09/26/19

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Noelia Muskus / Geosyntec	9/26/19	2055	J Mueller / Pace	9/27/19	1142	
				Chandra Hunter	9/27/19	1315	5.0 Y Y Y

WO#: 2623714

2623714

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Noelia Muskus

SIGNATURE of SAMPLER: Noelia Muskus DATE Signed: 9/26/19

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

Pace Analytical

Sample Condition Upon Rece

WO#: 2623714

Client Name: GA Power

PM: BM Due Date: 10/04/19

CLIENT: GAPower-CCR

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☒ Commercial ☑ Pace Other _____

Optional
Proj. Due Date:
Proj. Name:

Tracking #: _____

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

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other _____

Thermometer Used 214 Type of Ice: Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 5.0°C. Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 9/27/19 dw

Temp should be above freezing to 6°C

Comments:

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

October 25, 2019

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

RE: Project: Plant Hammond GW6581
Pace Project No.: 2623715

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on September 27, 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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

CERTIFICATIONS

Project: Plant Hammond GW6581
Pace Project No.: 2623715

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE SUMMARY

Project: Plant Hammond GW6581
Pace Project No.: 2623715

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623715001	**EB-02**	Water	09/26/19 17:50	09/27/19 13:15
2623715002	**FB-02**	Water	09/26/19 18:25	09/27/19 13:15

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE ANALYTE COUNT

Project: Plant Hammond GW6581
Pace Project No.: 2623715

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2623715001	**EB-02**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2623715002	**FB-02**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond GW6581
Pace Project No.: 2623715

Sample: EB-02 **Lab ID: 2623715001** Collected: 09/26/19 17:50 Received: 09/27/19 13:15 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	**0.364 ± 0.165 (0.229) C:87% T:NA**	pCi/L	10/14/19 19:10	13982-63-3	
Radium-228	EPA 9320	**0.788 ± 0.417 (0.747) C:82% T:82%**	pCi/L	10/16/19 11:09	15262-20-1	
Total Radium	Total Radium Calculation	**1.15 ± 0.582 (0.976)**	pCi/L	10/18/19 11:04	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond GW6581
Pace Project No.: 2623715

Sample: FB-02 **Lab ID: 2623715002** Collected: 09/26/19 18:25 Received: 09/27/19 13:15 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 ± 0.139 (0.219) C:96% T:NA**	pCi/L	10/14/19 19:10	13982-63-3	
Radium-228	EPA 9320	**0.681 ± 0.393 (0.720) C:77% T:88%**	pCi/L	10/16/19 11:10	15262-20-1	
Total Radium	Total Radium Calculation	**0.929 ± 0.532 (0.939)**	pCi/L	10/18/19 11:04	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond GW6581
Pace Project No.: 2623715

QC Batch: 365001 Analysis Method: EPA 9315
QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium
Associated Lab Samples: 2623715001, 2623715002

METHOD BLANK: 1770530 Matrix: Water
Associated Lab Samples: 2623715001, 2623715002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.564 ± 0.187 (0.181) C:94% T:NA	pCi/L	10/14/19 19:10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond GW6581
Pace Project No.: 2623715

QC Batch: 365002 Analysis Method: EPA 9320
QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228
Associated Lab Samples: 2623715001, 2623715002

METHOD BLANK: 1770531 Matrix: Water
Associated Lab Samples: 2623715001, 2623715002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.538 ± 0.357 (0.676) C:80% T:85%	pCi/L	10/16/19 11:11	

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALIFIERS

Project: Plant Hammond GW6581
Pace Project No.: 2623715

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond GW6581
Pace Project No.: 2623715

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623715001	**EB-02**	EPA 9315	365001		
2623715002	**FB-02**	EPA 9315	365001		
2623715001	**EB-02**	EPA 9320	365002		
2623715002	**FB-02**	EPA 9320	365002		
2623715001	**EB-02**	Total Radium Calculation	366904		
2623715002	**FB-02**	Total Radium Calculation	366904		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A — Required Client Information:

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

Section B — Required Project Information:

Report To:	Joju Abraham
Copy To:	Lauren Petty, Geosyntec
Purchase Order #:	SCS10382775
Project Name:	Plant Hammond
Project #:	GW6581

Section C — Invoice Information:

Attention:	scsinvoices@southernco.com
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Pace Profile #:	327 (AP)

Regulatory Agency: —

State / Location: GA

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analysis Test Y/N	Requested Analysis Filtered (Y/N): Antimony, Arsenic, Barium	Beryllium, Boron, Calcium	Cadmium, Chromium, Cobalt	Lead, Lithium, Molybdenum	Selenium, Thallium	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	EB-02	WT	G	9/26/19	1735	9/26/19	1750	25	4	1		3						Y	Y	Y	Y	Y	Y	Y	N
2	FB-02	WT	G	9/26/19	1800	9/26/19	1825	25	4	1		3						Y	Y	Y	Y	Y	Y	Y	N
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

MM 09/26/19

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Noelia Muskus/Geosyntec	9/26/19	2055	J Mueller/Pace	9/27/19	1142				
				Charles Hinds	9/27/19	1315	5.0	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Noelia Muskus

SIGNATURE of SAMPLER: Noelia Muskus DATE Signed: 9/26/19

WO# : 2623715

2623715

Sample Condition Upon Rec

WO#: 2623715

Pace Analytical

Client Name: GA Power

PM: BM **Due Date: 10/25/19**

CLIENT: GAPower-CCR

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other _____

Tracking #: _____

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

Proj. Due Date:
Proj. Name:

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other _____

Thermometer Used 214

Cooler Temperature 5.0 °C

Type of Ice: Wet Blue None

☐ Samples on ice, cooling process has begun

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 9/27/19 CH

Temp should be above freezing to 6°C

Comments:

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

December 13, 2019

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

RE: Project: Plant Hammond
Pace Project No.: 2623746

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on September 30, 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,

Kevin Herring 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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

CERTIFICATIONS

Project: Plant Hammond
Pace Project No.: 2623746

Pace Analytical Services Atlanta
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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE SUMMARY

Project: Plant Hammond
Pace Project No.: 2623746

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623746001	**MW-22**	Water	09/27/19 10:55	09/30/19 12:39

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE ANALYTE COUNT

Project: Plant Hammond
Pace Project No.: 2623746

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2623746001	**MW-22**	EPA 6020B	CSW	13
		SM 2540C	ALW	1
		EPA 300.0	MWB	3

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: Plant Hammond
Pace Project No.: 2623746

Sample: MW-22 **Lab ID: 2623746001** Collected: 09/27/19 10:55 Received: 09/30/19 12:39 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								
Arsenic	**0.00045J**	mg/L	0.0050	0.00035	1	10/03/19 17:28	10/05/19 15:19	7440-38-2	
Barium	**0.028**	mg/L	0.010	0.00049	1	10/03/19 17:28	10/05/19 15:19	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	10/03/19 17:28	10/05/19 15:19	7440-41-7	
Boron	**2.9**	mg/L	2.0	0.25	50	10/03/19 17:28	10/05/19 15:25	7440-42-8	
Cadmium	**0.0014J**	mg/L	0.0025	0.00011	1	10/03/19 17:28	10/05/19 15:19	7440-43-9	
Calcium	**202**	mg/L	5.0	0.55	50	10/03/19 17:28	10/05/19 15:25	7440-70-2	
Chromium	**0.00040J**	mg/L	0.010	0.00039	1	10/03/19 17:28	10/05/19 15:19	7440-47-3	
Cobalt	**0.035**	mg/L	0.0050	0.00030	1	10/03/19 17:28	10/05/19 15:19	7440-48-4	
Lead	**0.00010J**	mg/L	0.0050	0.000046	1	10/03/19 17:28	10/05/19 15:19	7439-92-1	
Lithium	**0.0013J**	mg/L	0.030	0.00078	1	10/03/19 17:28	10/05/19 15:19	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/03/19 17:28	10/05/19 15:19	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	10/03/19 17:28	10/05/19 15:19	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	10/03/19 17:28	10/05/19 15:19	7440-28-0	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1110**	mg/L	10.0	10.0	1		10/03/19 20:31		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**176**	mg/L	25.0	0.60	25		10/07/19 19:58	16887-00-6	
Fluoride	**0.28J**	mg/L	0.30	0.029	1		10/07/19 15:22	16984-48-8	
Sulfate	**520**	mg/L	25.0	0.42	25		10/07/19 19:58	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623746

QC Batch: 36434
QC Batch Method: EPA 3005A
Associated Lab Samples: 2623746001

Analysis Method: EPA 6020B
Analysis Description: 6020B MET

METHOD BLANK: 164547 Matrix: Water
Associated Lab Samples: 2623746001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0050	0.00035	10/05/19 14:53	
Barium	mg/L	ND	0.010	0.00049	10/05/19 14:53	
Beryllium	mg/L	ND	0.0030	0.000074	10/05/19 14:53	
Boron	mg/L	ND	0.040	0.0049	10/05/19 14:53	
Cadmium	mg/L	ND	0.0025	0.00011	10/05/19 14:53	
Calcium	mg/L	ND	0.10	0.011	10/05/19 14:53	
Chromium	mg/L	ND	0.010	0.00039	10/05/19 14:53	
Cobalt	mg/L	ND	0.0050	0.00030	10/05/19 14:53	
Lead	mg/L	ND	0.0050	0.000046	10/05/19 14:53	
Lithium	mg/L	ND	0.030	0.00078	10/05/19 14:53	
Molybdenum	mg/L	ND	0.010	0.00095	10/05/19 14:53	
Selenium	mg/L	ND	0.010	0.0013	10/05/19 14:53	
Thallium	mg/L	ND	0.0010	0.000052	10/05/19 14:53	

LABORATORY CONTROL SAMPLE: 164548

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	0.10	101	80-120	
Boron	mg/L	1	1.0	104	80-120	
Cadmium	mg/L	0.1	0.10	101	80-120	
Calcium	mg/L	1	0.99	99	80-120	
Chromium	mg/L	0.1	0.10	101	80-120	
Cobalt	mg/L	0.1	0.099	99	80-120	
Lead	mg/L	0.1	0.10	100	80-120	
Lithium	mg/L	0.1	0.10	102	80-120	
Molybdenum	mg/L	0.1	0.10	101	80-120	
Selenium	mg/L	0.1	0.099	99	80-120	
Thallium	mg/L	0.1	0.10	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 164549 164550

Parameter	Units	2623793002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	ND	0.1	0.1	0.10	0.098	102	98	75-125	4	20	
Barium	mg/L	0.042	0.1	0.1	0.14	0.14	103	99	75-125	3	20	
Beryllium	mg/L	ND	0.1	0.1	0.10	0.099	103	99	75-125	4	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623746

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 164549 164550

Parameter	Units	2623793002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	mg/L	0.025J	1	1	1.1	1.0	103	100	75-125	4	20	
Cadmium	mg/L	ND	0.1	0.1	0.10	0.10	104	101	75-125	3	20	
Calcium	mg/L	17.6	1	1	19.5	20.2	188	260	75-125	4	20	M6
Chromium	mg/L	ND	0.1	0.1	0.11	0.10	106	101	75-125	5	20	
Cobalt	mg/L	0.00042J	0.1	0.1	0.10	0.097	102	96	75-125	6	20	
Lead	mg/L	ND	0.1	0.1	0.10	0.10	104	100	75-125	4	20	
Lithium	mg/L	0.011	0.1	0.1	0.12	0.11	108	102	75-125	5	20	
Molybdenum	mg/L	ND	0.1	0.1	0.11	0.10	106	103	75-125	3	20	
Selenium	mg/L	ND	0.1	0.1	0.10	0.098	101	98	75-125	4	20	
Thallium	mg/L	ND	0.1	0.1	0.10	0.10	104	100	75-125	4	20	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623746

QC Batch: 36464
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2623746001

LABORATORY CONTROL SAMPLE: 164734

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	408	102	84-108	

SAMPLE DUPLICATE: 164735

Parameter	Units	2623714002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	13.0	ND		10	

SAMPLE DUPLICATE: 164763

Parameter	Units	2623696005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	275	262	5	10	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2623746

QC Batch: 36548
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2623746001

METHOD BLANK: 165133 Matrix: Water
Associated Lab Samples: 2623746001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.033J	1.0	0.024	10/07/19 12:57	
Fluoride	mg/L	ND	0.30	0.029	10/07/19 12:57	
Sulfate	mg/L	ND	1.0	0.017	10/07/19 12:57	

LABORATORY CONTROL SAMPLE: 165134

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.6	106	90-110	
Fluoride	mg/L	10	10.5	105	90-110	
Sulfate	mg/L	10	10.3	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 165135 165136

Parameter	Units	2623738001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	138	200	200	338	335	100	98	90-110	1	15	
Fluoride	mg/L	2.0	200	200	207	205	102	101	90-110	1	15	
Sulfate	mg/L	ND	200	200	250	248	102	101	90-110	1	15	

MATRIX SPIKE SAMPLE: 165137

Parameter	Units	2623745001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	110	200	316	103	90-110	
Fluoride	mg/L	2.0J	200	211	104	90-110	
Sulfate	mg/L	557	200	717	80	90-110	M6

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2623746

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

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond
Pace Project No.: 2623746

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623746001	**MW-22**	EPA 3005A	36434	EPA 6020B	36455
2623746001	**MW-22**	SM 2540C	36464		
2623746001	**MW-22**	EPA 300.0	36548		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Lauren Petty, Geosyntec	Company Name:	
Atlanta, GA 30339				Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:	GW6581	Pace Profile #:	327 (AP)

Regulatory Agency:

State / Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Arsenic, Barium, Beryllium	Boron, Calcium, Cadmium,	Chromium, Cobalt, Lead	Lithium, Molybdenum	Selenium, Thallium	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
	MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS																	N	N	N	N	N	N	N	N	
1	MW-22	WT	G	9/27/19	1014	9/27/19	1055	22	4	1		3						Y	Y	Y	Y	Y	Y	Y	Y	N
2																										
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

09/27/19

NM

WO#: 2623746

2623746

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Noelia Muskus/Geosyntec	9/29/19	2130	1 Pace	9.30.19	1034	
	1 Pace	9.30.19	1239	MZalman	9/30/19	1239	

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

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Noelia Muskus

SIGNATURE of SAMPLER: Noelia Muskus DATE Signed: 09/27/19

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power

Project #

WO#: 2623746

PM: BM Due Date: 10/07/19

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 ☐ Samples on ice, cooling process has begun

Cooler Temperature 2.9 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 9/30/19 MR

Comments:

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

October 29, 2019

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

RE: Project: Plant Hammond
Pace Project No.: 2623747

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on September 30, 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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

CERTIFICATIONS

Project: Plant Hammond
Pace Project No.: 2623747

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE SUMMARY

Project: Plant Hammond
Pace Project No.: 2623747

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623747001	**MW-22**	Water	09/27/19 10:55	09/30/19 12:39

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE ANALYTE COUNT

Project: Plant Hammond
Pace Project No.: 2623747

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2623747001	**MW-22**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond
Pace Project No.: 2623747

Sample: MW-22 **Lab ID: 2623747001** Collected: 09/27/19 10:55 Received: 09/30/19 12:39 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.493 ± 0.278 (0.328) C:96% T:NA**	pCi/L	10/16/19 08:26	13982-63-3	
Radium-228	EPA 9320	**0.942 ± 0.648 (1.26) C:70% T:83%**	pCi/L	10/22/19 14:24	15262-20-1	
Total Radium	Total Radium Calculation	**1.44 ± 0.926 (1.59)**	pCi/L	10/23/19 10:22	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond
Pace Project No.: 2623747

QC Batch: 365558 Analysis Method: EPA 9315
QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium
Associated Lab Samples: 2623747001

METHOD BLANK: 1773085 Matrix: Water
Associated Lab Samples: 2623747001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.522 ± 0.298 (0.379) C:86% T:NA	pCi/L	10/16/19 07:53	

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

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond
Pace Project No.: 2623747

QC Batch: 365559
QC Batch Method: EPA 9320
Analysis Method: EPA 9320
Analysis Description: 9320 Radium 228
Associated Lab Samples: 2623747001

METHOD BLANK: 1773086
Matrix: Water
Associated Lab Samples: 2623747001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.0794 ± 0.355 (0.809) C:69% T:86%	pCi/L	10/22/19 14:24	

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2623747

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond
Pace Project No.: 2623747

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623747001	**MW-22**	EPA 9315	365558		
2623747001	**MW-22**	EPA 9320	365559		
2623747001	**MW-22**	Total Radium Calculation	367488		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A — Required Client Information:

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

Section B — Required Project Information:

Report To:	Joju Abraham
Copy To:	Lauren Petty, Geosyntec
Purchase Order #:	SCS10382775
Project Name:	Plant Hammond
Project #:	6W6581

Section C — Invoice Information:

Attention:	scsinvoices@southernco.com
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Pace Profile #:	327 (AP)

Regulatory Agency: —

State / Location: GA

Requested Analyses Filtered (Y/N): Y

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test: Arsenic, Barium, Beryllium	Boron, Calcium, Cadmium,	Chromium, Cobalt, Lead	Lithium, Molybdenum	Selenium, Thallium	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
																		N	N	N	N	N	N	N	
1	MW-22	WT	G	9/27/19	1014	9/27/19	1055	20	4	1		3						Y	Y	Y	Y	Y	Y	Y	N
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

09/27/19

NM

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

WO# : 2623747

2623747

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	Nzelia Muskus/Geosyntec	9/29/19	2130	Pace	9.30.19	1034
	Pace	9.30.19	1239	M Salman	9/30/19	1239

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Nzelia Muskus

SIGNATURE of SAMPLER: Nzelia Muskus

DATE Signed: 09/27/19

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

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power

Project #

WO#: 2623747

PM: BM **Due Date: 10/28/19**

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 ☐ Samples on ice, cooling process has begun

Cooler Temperature 2.9 **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C **Comments:**

Date and Initials of person examining contents: 9/30/19 MR

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

October 31, 2019

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

RE: Project: Plant Hammond AP GW6581
Pace Project No.: 2623794

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on October 01, 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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

CERTIFICATIONS

Project: Plant Hammond AP GW6581
Pace Project No.: 2623794

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE SUMMARY

Project: Plant Hammond AP GW6581
Pace Project No.: 2623794

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623794001	**HGWA-1**	Water	09/30/19 09:52	10/01/19 12:05
2623794002	**HGWA-2**	Water	09/30/19 11:17	10/01/19 12:05
2623794003	**HGWA-3**	Water	09/30/19 11:35	10/01/19 12:05

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

SAMPLE ANALYTE COUNT

Project: Plant Hammond AP GW6581
Pace Project No.: 2623794

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2623794001	**HGWA-1**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2623794002	**HGWA-2**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2623794003	**HGWA-3**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond AP GW6581
Pace Project No.: 2623794

Sample: HGWA-1 **Lab ID: 2623794001** Collected: 09/30/19 09:52 Received: 10/01/19 12:05 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.306 ± 0.242 (0.390) C:88% T:NA**	pCi/L	10/25/19 08:33	13982-63-3	
Radium-228	EPA 9320	**-0.0906 ± 0.261 (0.644) C:71% T:85%**	pCi/L	10/29/19 12:24	15262-20-1	
Total Radium	Total Radium Calculation	**0.306 ± 0.503 (1.03)**	pCi/L	10/30/19 10:55	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond AP GW6581
Pace Project No.: 2623794

Sample: HGWA-2 **Lab ID: 2623794002** Collected: 09/30/19 11:17 Received: 10/01/19 12:05 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.585 ± 0.304 (0.356) C:91% T:NA**	pCi/L	10/25/19 08:33	13982-63-3	
Radium-228	EPA 9320	**0.454 ± 0.438 (0.899) C:76% T:76%**	pCi/L	10/29/19 15:27	15262-20-1	
Total Radium	Total Radium Calculation	**1.04 ± 0.742 (1.26)**	pCi/L	10/30/19 10:55	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond AP GW6581
Pace Project No.: 2623794

Sample: HGWA-3 **Lab ID: 2623794003** Collected: 09/30/19 11:35 Received: 10/01/19 12:05 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.384 ± 0.276 (0.453) C:87% T:NA**	pCi/L	10/25/19 08:39	13982-63-3	
Radium-228	EPA 9320	**-0.00390 ± 0.427 (0.986) C:74% T:82%**	pCi/L	10/29/19 15:28	15262-20-1	
Total Radium	Total Radium Calculation	**0.384 ± 0.703 (1.44)**	pCi/L	10/30/19 10:55	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond AP GW6581
Pace Project No.: 2623794

QC Batch: 366498 Analysis Method: EPA 9315
QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium
Associated Lab Samples: 2623794001, 2623794002, 2623794003

METHOD BLANK: 1777737 Matrix: Water
Associated Lab Samples: 2623794001, 2623794002, 2623794003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.599 ± 0.309 (0.395) C:98% T:NA	pCi/L	10/25/19 09:42	

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond AP GW6581
Pace Project No.: 2623794

QC Batch: 366499 Analysis Method: EPA 9320
QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228
Associated Lab Samples: 2623794001, 2623794002, 2623794003

METHOD BLANK: 1777739 Matrix: Water
Associated Lab Samples: 2623794001, 2623794002, 2623794003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.720 ± 0.387 (0.688) C:72% T:87%	pCi/L	10/29/19 12:24	

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALIFIERS

Project: Plant Hammond AP GW6581
Pace Project No.: 2623794

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

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond AP GW6581
Pace Project No.: 2623794

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623794001	**HGWA-1**	EPA 9315	366498		
2623794002	**HGWA-2**	EPA 9315	366498		
2623794003	**HGWA-3**	EPA 9315	366498		
2623794001	**HGWA-1**	EPA 9320	366499		
2623794002	**HGWA-2**	EPA 9320	366499		
2623794003	**HGWA-3**	EPA 9320	366499		
2623794001	**HGWA-1**	Total Radium Calculation	368512		
2623794002	**HGWA-2**	Total Radium Calculation	368512		
2623794003	**HGWA-3**	Total Radium Calculation	368512		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Lauren Petty, Geosyntec	Company Name:	
Atlanta, GA 30339				Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:	GW6581	Pace Profile #:	327 (AP)

Regulatory Agency

State / Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	Antimony, Arsenic, Barium	Beryllium, Boron, Calcium	Cadmium, Chromium, Cobalt	Lead, Lithium, Molybdenum	Selenium, Thallium	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)	
		MATRIX: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Other OT, Tissue TS																									
1	HGWA-1	WT	G	9-30-19	9:39	9-30-19	9:52	18.8	2			2													Y	N	1
2	HGWA-2	WT	G	9/30/19	11:04	9-30-19	11:17	21.3	2			2													Y	N	2
3																											
4																											
5																											
6																											
7																											
8																											
9																											
10																											
11																											
12																											

09-30-2019

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Dan Gibbs / Geosyntec	09-30-19	1725	Chad Russo geo	9/30	1725	
	Chad Russo	9/30	1900	PASUAL SAMMONS PACE	10/1/19	10:30	
				Charles Hunt	10/1/19	1205	5.1 Y Y Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: DAN GIBBS

SIGNATURE of SAMPLER:

DATE Signed: 09-30-2019

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

WO#: 2623794

2623794

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Lauren Petty, Geosyntec	Company Name:	
Atlanta, GA 30339				Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone: (404)506-7239	Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	standard TAT	Project #:	GWG581	Pace Profile #:	327 (AP)

Regulatory Agency: —

State / Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analysis Test Y/N	Antimony, Arsenic, Barium	Beryllium, Boron, Calcium	Cadmium, Chromium, Cobalt	Lead, Lithium, Molybdenum	Selenium, Thallium	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)	
	MATRIX: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Other OT, Tissue TS																										
1	HGWA-3	GW	G	9/30	1059	9/30	1135	21	2			2													Y	N	3
2																											
3																											
4																											
5																											
6																											
7										(CR)																	
8												9/30/19															
9																											
10																											
11																											
12																											

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Chad Russo geo	9/30	1900	PASCAL RAYMOND PACE	10/1/19	10:30				
				Charlie Hanks	10/1/19	1205	5.1	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Chad Russo

SIGNATURE of SAMPLER: Chad Russo

DATE Signed: 9/30/19

WO#: 2623794

PM: BM Due Date: ~~10/29/19~~

CLIENT: GAPower-CCR

Pace Analytical

Sample Condition Upon Receipt

WO#: 2623794

Client Name: GAPower CCR

PM: BM Due Date: 10/29/19

CLIENT: GAPower-CCR

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☑ Commercial ☐ Pace Other _____

Tracking #: _____

Optional: Proj. Due Date: Proj. Name:

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

Packing Material: ☑ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other _____

Thermometer Used 214 **Type of Ice:** (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 5.1°C **Biological Tissue is Frozen:** Yes No Date and Initials of person examining contents: 10/11 CDH

Temp should be above freezing to 6°C **Comments:**

Chain of Custody Present:	☑Yes	☐No	☐N/A	1.
Chain of Custody Filled Out:	☑Yes	☐No	☐N/A	2.
Chain of Custody Relinquished:	☑Yes	☐No	☐N/A	3.
Sampler Name & Signature on COC:	☑Yes	☐No	☐N/A	4.
Samples Arrived within Hold Time:	☑Yes	☐No	☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes	☑No	☐N/A	6.
Rush Turn Around Time Requested:	☐Yes	☑No	☐N/A	7.
Sufficient Volume:	☑Yes	☐No	☐N/A	8.
Correct Containers Used:	☑Yes	☐No	☐N/A	9.
-Pace Containers Used:	☐Yes	☐No	☐N/A	
Containers Intact:	☑Yes	☐No	☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes	☐No	☑N/A	11.
Sample Labels match COC:	☑Yes	☐No	☐N/A	12.
-Includes date/time/ID/Analysis Matrix: W				
All containers needing preservation have been checked.	☑Yes	☐No	☐N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes	☐No	☐N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes	☑No		Initial when completed: _____ Lot # of added preservative: _____
Samples checked for dechlorination:	☐Yes	☐No	☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes	☐No	☑N/A	15.
Trip Blank Present:	☐Yes	☐No	☑N/A	16.
Trip Blank Custody Seals Present	☐Yes	☐No	☑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
(Pending 2019 2nd semester)

Geosyntec consultants

180A Market Place Boulevard
Knoxville, TN 37922
PH 865.330.0037
www.geosyntec.com

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 (^{o}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 ≤ 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 (2σ) < 3) was demonstrated between the field duplicates and the original samples HGWC-13 and HGWC-15, respectively.

4.11 Sensitivity

The samples were reported to the MDCs. No elevated nondetect results were reported.

4.12 Electronic Data Deliverables Review

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II reports and the EDDs.

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ATTACHMENT 1
DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY
Assigned by Geosyntec's Data Validation Team per the SOP

DATA QUALIFIER DEFINITIONS

U* This analyte should be considered "not-detected" because it was detected in an associated blank at a similar level.

UJ The analyte was analyzed for, but was not detected above the level of the reported sample reporting/method detection limit. The reported method detection limit is approximate and may be inaccurate or imprecise.

J The analyte was positively identified but the result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

ATTACHMENT 2
DATA VALIDATION REASON CODES
Assigned by Geosyntec's Data Validation Team per the SOP

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.

Geosyntec consultants

180A Market Place Boulevard
Knoxville, TN 37922
PH 865.330.0037
www.geosyntec.com

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.

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ATTACHMENT 1
DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY
Assigned by Geosyntec's Data Validation Team per the SOP

DATA QUALIFIER DEFINITIONS

U* This analyte should be considered "not-detected" because it was detected in an associated blank at a similar level.

UJ The analyte was analyzed for, but was not detected above the level of the reported sample reporting/method detection limit. The reported method detection limit is approximate and may be inaccurate or imprecise.

J The analyte was positively identified but the result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

ATTACHMENT 2
DATA VALIDATION REASON CODES
Assigned by Geosyntec's Data Validation Team per the SOP

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.

Geosyntec consultants

180A Market Place Boulevard
Knoxville, TN 37922
PH 865.330.0037
www.geosyntec.com

Memorandum

Date: 17 January 2020

To: Whitney Law

From: Kristoffer Henderson

CC: J. Caprio

Subject: **Stage 2A Data Validations - Level II Data Deliverables – Pace Analytical Services, LLC Project Numbers 2623500, 2623553, 2623555, 2623559, 2623560, 2623567, 2623571, 2623636, 2623637, 2623639, 2623640, 2623693, 2623694, 2623710, 2623711, 2623712, 2623713, 2623714, 2623715, 2623746, 2623747, 2623748, 2623749 and 2623794**

SITE: Plant Hammond AP1/AP2

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of thirty-seven aqueous samples, two field duplicate samples, two equipment blanks and two field blanks, collected 23-30 September 2019, as part of the Plant Hammond AP1/AP2 on-site sampling event.

The samples were analyzed at Pace Analytical Services, LLC, Peachtree Corners, Georgia, for the following analytical tests:

- Total and Dissolved Metals by United States (US) Environmental Protection Agency (EPA) Methods 3005A/6020B
- Total Dissolved Solids (TDS) by Standard Method 2540C
- Total and Dissolved Chloride, Fluoride and Sulfate by USEPA Method 300.0

The samples were analyzed at Pace Analytical Services, LLC, Greensburg, Pennsylvania, for the following analytical tests:

- Radium-226 by USEPA Method 9315
- Radium-228 by USEPA 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. 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); and,
- 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).

The following samples were analyzed and reported in the laboratory reports:

Laboratory ID	Client ID
2623500001	HGWA-1
2623500002	HGWA-2
2623500003	HGWA-3
2623553001	FB-01
2623553002	EB-01
2623555001	FB-01
2623555002	EB-01
2623559001	HGWA-5
2623559002	HGWA-6
2623559003	HGWA-4
2623559004	HGWC-14
2623559005	HGWC-15
2623560001	HGWA-5
2623560002	HGWA-6
2623560003	HGWA-4
2623560004	HGWC-14
2623560005	HGWC-15
2623567001	HGWC-8
2623567002	MW-30d
2623567003	MW-29
2623571001	HGWC-8
2623571002	MW-30d
2623571003	MW-29
2623636001	HGWC-16
2623636002	HGWC-17
2623636003	HGWC-18
2623636004	MW-21d
2623637001	HGWC-16
2623637002	HGWC-17
2623637003	HGWC-18
2623637004	MW-21d
2623639001	HGWC-7

Laboratory ID	Client ID
2623639002	MW-20
2623639003	MW-5
2623640001	HGWC-7
2623640002	MW-20
2623640003	MW-5
2623693001	FD-01
2623694001	FD-01
2623710001	MW-23d
2623710002	FD-02
2623711001	MW-23d
2623711002	FD-02
2623712001	HGWC-13
2623712002	MW-24D
2623712003	MW-27D
2623712004	MW-6
2623712005	MW-7
2623712006	MW-28D
2623712007	MW-28D (Filtered)
2623712008	MW-26D
2623713001	HGWC-13
2623713002	MW-24D
2623713003	MW-27D
2623713004	MW-6
2623713005	MW-7
2623713006	MW-28D
2623713007	MW-28D (Filtered)
2623713008	MW-26D
2623714001	EB-02
2623714002	FB-02
2623715001	EB-02
2623715002	FB-02
2623746001	MW-22

Laboratory ID	Client ID
2623747001	MW-22
2623748001	HGWC-9
2623748002	HGWC-10
2623748003	MW-19
2623748004	MW-25d
2623748005	HGWC-12
2623748006	HGWC-11
2623749001	HGWC-9

Laboratory ID	Client ID
2623749002	HGWC-10
2623749003	MW-19
2623749004	MW-25d
2623749005	HGWC-12
2623749006	HGWC-11
2623794001	HGWA-1
2623794002	HGWA-2
2623794003	HGWA-3

The samples were received within 0-6ºC. No sample preservation issues were noted by the laboratory.

The following issues were noted with the chain of custody (COC) forms:

- 2623693, 2623694, 2623710 and 2623711: There were no times of collection listed for the field duplicates, FD-01 and FD-02. The laboratory assigned collection times of 00:00.
- 2623693, 2623694, 2623710, 2623711, 2623712, 2623713, 2623714, 2623715 and 2623794: The relinquished by date and time were not documented for the final sample transfer.
- 2623553 and 2623555: There was a time discrepancy for the sample transfer. For the first sample transfer on page 1 of the COC and the second sample transfer on pages 2 and 3 of the COC, the relinquished by times were documented as 9/23/19 2010 and the received by times were documented as 9/23/19 1117.
- 2623567 and 2623571: The laboratory noted that sample MW-29 was labeled HGWC-7. The client was notified, and the laboratory was instructed to log the sample in as MW-29.

Laboratory report 2623500 was revised on October 1, 2019 to remove compounds not requested on the COC.

1.0 METALS

The samples were analyzed for metals by USEPA methods 3005A/6020B.

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
✓ Assessment of Total Metals vs. Dissolved Metals
✓ 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 the 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 36079, 36136, 36170, 36173, 36236, 36449 and 36434). Metals were not detected in the method blanks above the method detection limits (MDLs), with the following exception.

2623500 and 2623553: Arsenic was detected at an estimated concentration greater than the MDL and less than the reporting limit (RL) in the method blank in batch 36079. Therefore, the arsenic concentrations in the associated samples less than five times the method blank concentrations 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**
HGWA-1	Arsenic	0.00046	J B	0.00046	U*	BL
HGWA-2	Arsenic	0.00067	J B	0.00067	U*	BL
HGWA-3	Arsenic	0.0011	J B	0.0011	U*	BL
FB-01	Arsenic	0.0006	J B	0.0006	U*	BL
EB-01	Arsenic	0.00046	J B	0.00046	U*	BL
HGWA-1	Arsenic	0.00046	J B	0.00046	U*	BL
HGWA-5	Arsenic	0.00055	J B	0.00055	U*	BL

Sample	Analyte	Laboratory Result (mg/L)	Laboratory Flag	Validation Result (mg/L)	Validation Qualifier*	Reason Code**
HGWC-14	Arsenic	0.0039	J B	0.0039	U*	BL
HGWC-15	Arsenic	0.00037	J B	0.00037	U*	BL

mg/L- milligram per liter
J- estimated concentration greater than the MDL and less than the RL
B-laboratory flag indicating analyte was detected in the associated method blank
* 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). Three sample set specific MS/MSD pairs were reported using samples HGWA-1, HGWC-8 and MW-28D (Filtered). The recovery and relative percent difference (RPD) results were within the laboratory specified acceptance criteria, with the following exceptions.

The MS recovery was low, and the MSD recovery was high for calcium, both outside the laboratory specified acceptance criteria in the MS/MSD pair using sample HGWA-1. Since the calcium concentration in sample HGWA-1 was greater than four times the spiked concentration, no qualifications were applied to the data.

The recovery of calcium in the MS using sample HGWC-8 was low and outside the laboratory specified acceptance criteria. Since the calcium concentration in sample HGWC-8 was greater than four times the spiked concentration, no qualifications were applied to the data.

The MS recovery was high, and the MSD recovery was low for dissolved calcium, both outside the laboratory specified acceptance criteria in the MS/MSD pair using sample MW-28D (Filtered). Since the dissolved calcium concentration in sample MW-28D (Filtered) was greater than four times the spiked concentration, no qualifications were applied to the data.

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). Seven LCSs were reported. The recovery results were within the laboratory specified acceptance criteria.

1.6 Equipment Blank

Two equipment blanks were collected with the sample sets, EB-01 and EB-02. Metals were not detected in the equipment blanks above the MDLs, with the following exceptions.

Arsenic (0.00046 mg/L) and calcium (0.064 mg/L) were detected at estimated concentrations greater than the MDLs and less than the RLs in EB-01. Since the arsenic concentration in EB-01 was U* qualified due to method blank contamination and the calcium concentration in the associated samples were greater than five times the equipment blank concentration, no additional qualifications were applied to the arsenic data.

Chromium (0.0063 mg/L) was detected at an estimated concentration greater than the MDL and less than the RL in EB-02. Therefore, the chromium concentrations less than five times the equipment 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
HGWC-15	Chromium	0.00041	J	0.00041	U*	BE
MW-30d	Chromium	0.00041	J	0.00041	U*	BE
MW-5	Chromium	0.0052	J	0.0052	U*	BE
FD-01	Chromium	0.0027	J	0.0027	U*	BE
FD-02	Chromium	0.0012	J	0.0012	U*	BE
MW-24D	Chromium	0.00042	J	0.00042	U*	BE
MW-7	Chromium	0.0013	J	0.0013	U*	BE
MW-28D	Chromium	0.00081	J	0.00081	U*	BE
MW-28D (Filtered)	Chromium, Dissolved	0.00048	J	0.00048	U*	BE
MW-26D	Chromium	0.00076	J	0.00076	U*	BE
MW-22	Chromium	0.0004	J	0.0004	U*	BE

mg/L- milligram per liter
J-estimated concentration greater than the MDL and less than the RL

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.

Arsenic (0.00060 mg/L) and calcium (0.028 mg/L) were detected at estimated concentrations greater than the MDLs and less than the RLs in FB-01. Since the arsenic concentration in FB-01 was U* qualified due to method blank contamination and the calcium concentration in the associated samples were greater than five times the field blank concentration, no additional qualifications were applied to the data.

1.8 Field Duplicate

Two field duplicate samples were collected with the sample sets, FD-1 and FD-2. Acceptable precision (RPD $\leq$ 20% or the difference between the concentrations < RL) was demonstrated between the field duplicates and the original samples HGWC-8 and MW-23D, respectively.

1.9 Assessment of Total Metals vs. Dissolved Metals

Sample MW-28D was collected as both a filtered (dissolved) and an unfiltered sample (total) due to high turbidity in the sample. The concentrations of the unfiltered sample were greater than or equal to the concentrations of the filtered sample.

1.10 Sensitivity

The samples were reported to the MDLs. Elevated nondetect results were not reported.

1.11 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 B, M1 and M6 used in the level II reports were not included in the EDDs. No other discrepancies were identified between the level II reports and the EDDs.

2.0 WET CHEMISTRY

The samples were analyzed for TDS by Standard Method 2540C and chloride, fluoride and sulfate by USEPA 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
✓ Laboratory Duplicate
✓ Equipment Blank
✓ Field Blank
✓ Field Duplicate
✓ Assessment of Total vs. Dissolved

✓ Sensitivity
⊗ Electronic Data Deliverables Review

2.1 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 this analysis, for the dataset is 100%.

2.2 Holding Times

The holding times for the analysis of a water sample for the wet chemistry parameters are listed below. The holding times were met for the sample analyses.

Analyte	Holding Time
TDS	7 days from collection to analysis
Chloride, Fluoride and Sulfate	28 days from collection to analysis

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). Seven method blanks were reported for the anions (batches 500244, 500861, 36185, 500864, 36286, 36494 and 36548). The anions were not detected in the method blanks above the MDLs, with the following exceptions.

2623567 and 2623693: Chloride (0.033 mg/L) was detected at an estimated concentration greater than the MDL and less than the RL in the method blank in batch 36185. Since the chloride concentrations in the associated samples were greater than five times the method blank concentration, no qualifications were applied to the data.

2623710 and 2623712: Chloride (0.031 mg/L) and sulfate (0.053 mg/L) were detected at estimated concentrations greater than the MDLs and less than the RLs in the method blank in batch 36185. Since the chloride and sulfate concentrations in the associated samples were greater than five times the method blank concentrations, no qualifications were applied to the data.

2623714: Chloride (0.026 mg/L) was detected at an estimated concentration greater than the MDL and less than the RL in the method blank in batch 36494. Since the chloride concentrations in the associated samples were greater than five times the method blank concentration, no qualifications were applied to the data.

2623746 and 2623748: Chloride (0.033 mg/L) was detected at an estimated concentration greater than the MDL and less than the RL in the method blank in batch 36548. Since the chloride concentrations in the associated samples were greater than five times the method blank concentration, no qualifications were applied to the data.

Sample	Analyte	Laboratory Result (mg/L)	Laboratory Flag	Validation Result (mg/L)	Validation Qualifier*	Reason Code**
EB-02	Chloride	0.035	J B	0.035	U*	BL
FB-02	Chloride	0.028	J B	0.028	U*	BL

mg/L- milligram per liter
J- estimated concentration greater than the MDL and less than the RL
B-laboratory flag indicating analyte was detected in the associated method blank

2.4 Matrix Spike/Matrix Spike Duplicate

One sample set specific MS/MSD pair was reported using sample HGWA-5 and two sample set specific MSs were reported using samples MW-29 and EB-02 for the anions. The RPD and recovery results were within the laboratory specified acceptance criteria, with the following exceptions.

The recovery of sulfate in the MS using sample MW-29 was low and outside the laboratory specified acceptance criteria. Since the sulfate concentration in sample MW-29 was greater than four times the spiked concentration, no qualifications were applied to the data.

Batch MSs and MS/MSD pairs were also reported for the anions. 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). LCSs were reported for each analysis and batch as appropriate. The recovery results were within the laboratory specified acceptance criteria.

2.6 Laboratory Duplicate

Six sample set specific laboratory duplicates were reported for TDS using samples FB-01, HGWA-5, HGWC-7, FD-02, FB-02 and MW-19. The RPD results were within the laboratory 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.

2.7 Equipment Blank

Two equipment blanks were collected with the sample sets, EB-01 and EB-02. The wet chemistry parameters were not detected in the equipment blanks above the MDLs, with the following exceptions.

TDS (13.0 mg/L) was detected at a concentration greater than the RL and chloride (0.035 mg/L) was detected at an estimated concentration greater than the MDL and less than the RL in EB-02. Since the chloride concentration in EB-02 was U* qualified due to method blank contamination and TDS was detected at concentrations greater than five times the equipment blank concentration, no qualifications were applied to the data.

2.8 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.

TDS (13.0 mg/L) was detected at a concentration greater than the RL and chloride (0.028 mg/L) was detected at an estimated concentration greater than the MDL and less than the RL in FB-02. Since the chloride concentration in FB-02 was U* qualified due to method blank contamination

and TDS was detected at concentrations greater than five times the field blank concentration, no qualifications were applied to the data.

2.9 Field Duplicate

Two field duplicate samples were collected with the sample sets, FD-1 and FD-2. Acceptable precision (RPD $\leq$ 20% or the difference between the concentrations < RL) was demonstrated between the field duplicates and the original samples HGWC-8 and MW-23D, respectively.

2.10 Assessment of Total vs. Dissolved

Sample MW-28D was collected as both a filtered (dissolved) and an unfiltered sample (total) due to high turbidity in the sample. The concentrations of the unfiltered sample were greater than or equal to the concentrations of the filtered sample.

2.11 Sensitivity

The samples were reported to the MDLs. No elevated nondetect results were reported.

2.12 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. The laboratory flags M6 and B used in the level II reports were not included in the EDDs. No other discrepancies were identified between the level II reports and the EDDs.

3.0 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
✓ Assessment of Total vs. Dissolved
✓ Sensitivity
✓ Electronic Data Deliverables Review

3.1 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%.

3.2 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.

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). Six method blanks were reported for the radium-228 data (batches 365380, 365381, 365002, 365382, 365559, 365771 and 366499). Seven method blanks were reported for the radium-226 data (batches 365376, 365377, 365001, 365379, 365558, 365770 and 366498). Radium-226 and radium-228 were not detected in the method blanks above the minimum detectable concentrations (MDCs), with the following exceptions.

2623555, 2623560, 2623571, 2623711, 2623713, 2623747, 2623749 and 2623794: Radium-226 was detected at concentrations greater than the MDCs in the method blanks in batches 365376, 365377, 365001, 365558, 365770 and 366498. Therefore, the radium-226 concentrations in the associated samples less than five times the method blank concentrations were U* qualified as not detected at the reported concentrations. In addition, the total radium concentrations with both a U* qualified result for radium-226 and radium-228 concentration less than the MDCs were U* qualified as not detected and the total radium concentrations with both a U* qualified result for radium-226 and radium-228 concentration greater than the MDC was J qualified as estimated.

2623794: Radium-228 was detected at a concentration greater than the MDC in the method blank in batch 366499. Since radium-228 was not detected in the associated samples at concentrations greater than the MDCs, no qualifications were applied to the data.

Sample	Analyte	Laboratory Result (pCi/L)	Laboratory Flag	Validation Result (pCi/L)	Validation Qualifier	Reason Code
HGWA-6	Radium-226	0.412	NA	0.412	U*	BL
HGWA-6	Combined Radium 226 + 228	0.874	U	0.874	U*	BL
HGWA-4	Radium-226	0.422	NA	0.422	U*	BL
HGWA-4	Combined Radium 226 + 228	0.455	U	0.455	U*	BL
HGWC-14	Radium-226	0.609	NA	0.609	U*	BL
HGWC-14	Combined Radium 226 + 228	1.17	NA	1.17	U*	BL
HGWC-15	Radium-226	0.464	NA	0.464	U*	BL
HGWC-15	Combined Radium 226 + 228	0.582	U	0.582	U*	BL
HGWC-8	Radium-226	0.652	NA	0.652	U*	BL
HGWC-8	Combined Radium 226 + 228	1.30	NA	1.30	U*	BL
MW-30d	Radium-226	0.416	NA	0.416	U*	BL
MW-30d	Combined Radium 226 + 228	1.16	NA	1.16	U*	BL
MW-29	Radium-226	0.451	NA	0.451	U*	BL

Sample	Analyte	Laboratory Result (pCi/L)	Laboratory Flag	Validation Result (pCi/L)	Validation Qualifier	Reason Code
MW-29	Combined Radium 226 + 228	0.675	U	0.675	U*	BL
MW-23d	Radium-226	0.512	NA	0.512	U*	BL
MW-23d	Combined Radium 226 + 228	1.25	NA	1.25	U*	BL
FD-02	Radium-226	0.331	NA	0.331	U*	BL
FD-02	Combined Radium 226 + 228	0.545	U	0.545	U*	BL
HGWC-13	Radium-226	0.939	NA	0.939	U*	BL
HGWC-13	Combined Radium 226 + 228	0.939	U	0.939	U*	BL
MW-24D	Radium-226	0.531	NA	0.531	U*	BL
MW-24D	Combined Radium 226 + 228	0.878	U	0.878	U*	BL
MW-27D	Radium-226	0.759	NA	0.759	U*	BL
MW-7	Radium-226	0.485	NA	0.485	U*	BL
MW-7	Combined Radium 226 + 228	0.947	U	0.947	U*	BL
MW-28D	Radium-226	0.474	NA	0.474	U*	BL
MW-28D	Combined Radium 226 + 228	0.997	U	0.997	U*	BL
MW-28D (Filtered)	Radium-226	0.374	NA	0.374	U*	BL
MW-28D (Filtered)	Combined Radium 226 + 228	0.727	U	0.727	U*	BL
MW-22	Radium-226	0.493	NA	0.493	U*	BL
MW-22	Combined Radium 226 + 228	1.44	U	1.44	U*	BL
MW-19	Radium-226	0.534	NA	0.534	U*	BL
MW-19	Combined Radium 226 + 228	0.534	U	0.534	U*	BL
MW-25d	Radium-226	0.676	NA	0.676	U*	BL
MW-25d	Combined Radium 226 + 228	0.945	U	0.945	U*	BL
HGWC-12	Radium-226	0.806	NA	0.806	U*	BL
HGWC-12	Combined Radium 226 + 228	0.958	U	0.958	U*	BL
HGWC-11	Radium-226	0.444	NA	0.444	U*	BL
HGWC-11	Combined Radium 226 + 228	1.78	NA	1.78	J	BL
HGWA-2	Radium-226	0.585	NA	0.585	U*	BL
HGWA-2	Combined Radium 226 + 228	1.04	U	1.04	U*	BL

pCi/L-picocuries per liter
NA-not applicable

3.4 Matrix Spike/Matrix Spike Duplicate

MS/MSD pairs were not reported with 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). One LCS and five LCS/LCS duplicate (LCSD) pairs were reported for radium-226. One LCS and four LCS/LCSD pairs were reported for radium-228. The recovery and replicate error ratio (RER) [2 sigma (2σ)] results were within the laboratory specified acceptance criteria, with the following exception.

2623555: The recovery of radium-228 was high in the LCS in batch 365380. Since radium-228 was not detected in the associated samples above the MDCs, no qualifications were applied to the data.

3.6 Laboratory Duplicate

One sample set specific laboratory duplicate was reported for radium-226 using samples. The RER (2σ) result was within the laboratory specified acceptance criteria.

Six batch laboratory duplicates were also reported for radium-226 and two batch laboratory duplicates were reported for radium-228. 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 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 specified acceptance criteria.

3.8 Equipment Blank

Two equipment blanks were collected with the sample sets, EB-01 and EB-02. Radium-226 and radium-228 were not detected in the equipment blanks above the MDCs, with the following exceptions.

Radium-226 and radium-228 were detected at concentrations greater than the MDC in EB-02. Since the radium-226 concentration in EB-02 was U* qualified due to method blank contamination, no additional qualifications were applied to the radium-226 data, based on

professional and technical judgment. However, the radium-228 concentrations in the associated samples less than five times the method blank concentrations were U* qualified as not detected at the reported concentrations. In addition, the total radium concentration with both a U* qualified result for radium-228 and radium-226 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
HGWC-11	Radium-228	1.34	NA	1.34	U*	BE
HGWC-18	Radium-228	1.68	NA	1.68	U*	BE
HGWC-18	Combined Radium 226 + 228	2.77	NA	2.77	J	BE

pCi/L-picocuries per liter
NA-not applicable

3.9 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 exceptions.

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.

3.10 Field Duplicate

Two field duplicate samples were collected with the sample sets, FD-1 and FD-2. Acceptable precision (RER (2σ) < 3) was demonstrated between the field duplicates and the original samples HGWC-8 and MW-23D, respectively.

3.11 Assessment of Total vs. Dissolved

Sample MW-28D was collected as both a filtered (dissolved) and an unfiltered sample (total) due to high turbidity in the sample. The concentrations of the unfiltered sample were greater than or equal to the concentrations of the filtered sample.

3.12 Sensitivity

The samples were reported to the MDCs. No elevated nondetect results were reported.

3.13 Electronic Data Deliverables Review

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II reports and the EDDs.

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ATTACHMENT 1
DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY
Assigned by Geosyntec's Data Validation Team

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.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2
DATA VALIDATION REASON CODES
Assigned by Geosyntec's Data Validation Team

Reason Code	Explanation
13	Other
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."
H	Holding time exceedance.
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 E2

Field Sampling Forms

Product Name: Low-Flow System

Date: 2019-03-12 14:41:33

Project Information:		Pump Information:	
Operator Name	Noelia Muskus	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	440279		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWA-1	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.485 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	6.86 ft	Total Volume Pumped	7 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 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:		Pump Information:	
Operator Name	Grant Walter	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	597519		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWA-2	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.485 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	3.46 ft	Total Volume Pumped	22.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 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 (EP A 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:		Pump Information:	
Operator Name	Benjamin Mejia-Tickner	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	613179		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWA-3	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.485 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	4.15 ft	Total Volume Pumped	28.1 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 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 (EP A 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:		Pump Information:	
Operator Name	Benjamin Mejia-Tickner	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	613179		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWA-4	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.485 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	3.97 ft	Total Volume Pumped	16.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 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 (EP A 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:		Pump Information:	
Operator Name	Grant Walter	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	597519		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWA-5	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.485 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	3.15 ft	Total Volume Pumped	12.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 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:		Pump Information:	
Operator Name	Benjamin Mejia-Tickner	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	613179		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWA-6	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.485 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	2.43 ft	Total Volume Pumped	31.28 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 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 (EP A 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:		Pump Information:	
Operator Name	Benjamin Mejia-Tickner	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	613179		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWC-14	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.485 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	22.90 ft	Total Volume Pumped	6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 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:		Pump Information:	
Operator Name	Grant Walter	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	597519		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWC-15	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.485 L
Well Total Depth	38 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	10.21 ft	Total Volume Pumped	19 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 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 (EP A 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:		Pump Information:	
Operator Name	Grant Walter	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	597519		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWC-16	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.485 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	6.23 ft	Total Volume Pumped	124 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 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 (EP A 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:		Pump Information:	
Operator Name	Noelia Muskus	Pump Model/Type	Alexis
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	440279		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWC-17	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.09 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	12.03 ft	Total Volume Pumped	10 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 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									
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:		Pump Information:	
Operator Name	Grant Walter	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	597519		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWC-18	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.485 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	12.63 ft	Total Volume Pumped	9.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 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 (EP A 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:		Pump Information:	
Operator Name	Benjamin Mejia-Tickner	Pump Model/Type	Alexis
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	613179		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	MW-21D	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.09 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	12.05 ft	Total Volume Pumped	8 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 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:		Pump Information:	
Operator Name	Grant Walter	Pump Model/Type	Alexis
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	25 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	597519		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	MW-22	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.2015856 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	7.32 ft	Total Volume Pumped	25 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 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									
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:		Pump Information:	
Operator Name	Grant Walter	Pump Model/Type	Alexis
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	55 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	597519		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	MW-23D	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.3354883 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	9.68 ft	Total Volume Pumped	14 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 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 (EP A 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:		Pump Information:	
Operator Name	Grant Walter	Pump Model/Type	Alexis
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	501336		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	27.5 ft

Well Information:		Pumping Information:	
Well ID	HGWA-1	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.09 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	10.44 ft	Total Volume Pumped	10.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 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:		Pump Information:	
Operator Name	Dalton Anderson	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	497259		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWA-2	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.485 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	5.93 ft	Total Volume Pumped	11.25 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 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:		Pump Information:	
Operator Name	Noelia Muskus	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	364452		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWA-3	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.485 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	5.30 ft	Total Volume Pumped	8.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 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:		Pump Information:	
Operator Name	Grant Walter	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	501336		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	20.8 ft

Well Information:		Pumping Information:	
Well ID	HGWA-4	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.485 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	5.68 ft	Total Volume Pumped	15.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 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 (EP A 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:		Pump Information:	
Operator Name	Dalton Anderson	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	497259		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWA-5	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.485 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	4.72 ft	Total Volume Pumped	4.75 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 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									
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:		Pump Information:	
Operator Name	Noelia Muskus	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	364452		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWA-6	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.485 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	4.00 ft	Total Volume Pumped	6.75 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 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:		Pump Information:	
Operator Name	Grant Walter	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	588863		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	38 ft

Well Information:		Pumping Information:	
Well ID	HGWC-14	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.485 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	24.13 ft	Total Volume Pumped	9 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 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:		Pump Information:	
Operator Name	Grant Walter	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	501336		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	33 ft

Well Information:		Pumping Information:	
Well ID	HGWC-15	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.485 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	15.38 ft	Total Volume Pumped	28.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 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:		Pump Information:	
Operator Name	Dalton Anderson	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	497259		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWC-16	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.485 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	14.15 ft	Total Volume Pumped	105 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 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:		Pump Information:	
Operator Name	Dalton Anderson	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	497259		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWC-17	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.485 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	16.94 ft	Total Volume Pumped	53 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 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:		Pump Information:	
Operator Name	Dalton Anderson	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	497259		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWC-18	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.485 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	16.60 ft	Total Volume Pumped	10.25 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 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:		Pump Information:	
Operator Name	Dalton Anderson	Pump Model/Type	Alexis
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	497259		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	MW-21D	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.09 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	15.58 ft	Total Volume Pumped	7 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 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:		Pump Information:	
Operator Name	Grant Walter	Pump Model/Type	Alexis
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	30 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	501336		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	MW-22	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.2239027 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	12.73 ft	Total Volume Pumped	14.24 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 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									
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:		Pump Information:	
Operator Name	Grant Walter	Pump Model/Type	Alexis
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	30 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	588863		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	MW-22	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.2239027 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	12.71 ft	Total Volume Pumped	14.24 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 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 (EP A 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:		Pump Information:	
Operator Name	Grant Walter	Pump Model/Type	Alexis
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	44 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	588863		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	MW-23D	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.2863906 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	15.83 ft	Total Volume Pumped	11.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 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 (EP A 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

Product Name: Low-Flow System

Date: 2019-09-23 15:33:40

Project Information:		Pump Information:	
Operator Name	Dan Gibbs	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	27.50 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	463453		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	27.50 ft

Well Information:		Pumping Information:	
Well ID	HGWA-1	Final Pumping Rate	250 mL/min
Well diameter	2 in	Total System Volume	0.6077442 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	22.18 ft	Total Volume Pumped	5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	15:12:05	299.91	19.51	6.87	666.62	0.81	22.82	0.38	73.97
Last 5	15:17:05	599.88	19.41	6.97	683.54	4.73	22.90	0.39	68.82
Last 5	15:22:05	899.88	18.93	7.00	683.93	5.14	22.96	0.36	66.85
Last 5	15:27:05	1199.88	18.88	7.01	681.21	4.87	22.94	0.33	65.60
Last 5	15:32:05	1499.88	18.88	7.02	677.72	4.59	22.94	0.28	64.44
Variance 0			-0.48	0.04	0.39			-0.03	-1.97
Variance 1			-0.05	0.01	-2.72			-0.03	-1.26
Variance 2			-0.00	0.01	-3.49			-0.05	-1.16

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for Radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EP A 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 = 32.28'

Grab Samples

HGWA-1

Grab

Product Name: Low-Flow System

Date: 2019-09-30 09:52:13

Project Information:		Pump Information:	
Operator Name	Dan Gibbs	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	27.50 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	463453		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	27.50 ft

Well Information:		Pumping Information:	
Well ID	HGWA-1	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.6077442 L
Well Total Depth	32.28 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	22.35 ft	Total Volume Pumped	8 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:14:08	1200.03	17.86	7.00	698.30	3.64	22.94	0.71	65.88
Last 5	09:19:08	1500.02	17.93	7.00	700.71	2.76	22.94	0.53	65.34
Last 5	09:24:08	1800.03	17.99	7.00	701.37	1.65	22.94	0.40	64.81
Last 5	09:29:08	2100.03	18.22	7.00	700.47	1.10	22.94	0.33	64.07
Last 5	09:34:08	2400.03	18.08	7.00	702.34	1.02	22.94	0.29	63.31
Variance 0			0.06	-0.00	0.66			-0.13	-0.53
Variance 1			0.23	0.00	-0.90			-0.07	-0.74
Variance 2			-0.14	0.00	1.87			-0.04	-0.76

Notes

Radium 2-1L plastic w/HNO3

Grab Samples

HGWA-1

Grab

Geosyntec consultants

GROUNDWATER SAMPLING LOG SHEET

Client:	SCS	Project No.:	GW6581	Sampling Date:	9/23/19
Site:	AP1 / AP2	Location:	Plant Hammond	Sampler's Name:	B. Weinmann
Well ID:	HGWA-2	Pump Type/Model:	Bladder / QED MP50	Sample Collection Time:	1615
Total Depth (ft):	28.43	Tubing Material:	Polyethylene	Sample Purge Rate (mL/min):	175
Depth to Water (ft):	12.46	Pump Intake Depth (ft):	~~1535~~ 22.95	Sample ID:	HGWA-2
Well Diameter (in):	2"	Start/Stop Purge Time:	~~3:35~~ / 1655	Laboratory Analyses:	App. III + IV
Well Volume (gal) = $0.041d^2h$:	~~[illegible]~~ 2.62	Purge Rate (mL/min):	175 ml		
Well Volume (L) = gal * 3.785:	9.91	Total Purge Volume (L):	8.25		

d = well diameter (inches); h = length of water column (feet)

Well Type: Flush / **Stick Up** (circled)

Well Lock: **Yes** (circled) / No

Well Cap Condition: **Good** (circled) / Replace

Well Tag Present: **Yes** (circled) / No

Purge Method: **Low-Flow** (circled) / Well Volume / Other: —

Sampling Method: **Pump Discharge** (circled) / Other: —

QA/QC Collected? No

QA/QC I.D. —

All sample containers requiring chemical preservation properly preserved prior to demob from well? **Yes** (circled) / No

Time	pH (SU)	Spec. Cond. (µS/cm)	ORP (mV)	DO (mg/L)	Temp. (°C)	Turbidity (NTUs)	DTW (ft btoc)	Purge Rate (mL/min)	Purged Volume (L)	Notes (Purge method, water clarity, odor, purge rate, issues with pump/well/weather/etc.)
~~3:50~~ 1542	5.50	193.70	30.60	0.33	22.41	35.1	12.52	75	2	
1547	~~5.58~~ 5.49	~~19.70~~ 198.00	27.60	0.24	23.02	24.1	12.73	454	~~2.3~~ 4	
1552	5.41	180.00	26.90	0.18	20.43	15.1	12.55	25	5	
1557	5.40	178.00	25.10	0.18	21.64	11.5	12.57	175	5.5	
1602	5.36	174.60	23.80	0.15	21.41	8.11	12.55	175	6.5	
1607	5.35	173.20	22.80	0.16	21.60	5.43	12.54	175	~~4.25~~ 7.5	
1612	5.33	170.70	22.70	0.16	21.65	4.44	12.54	175	8.25	
Stabilizing Criteria	+/- 0.1 SU	+/- 5%		0.2 mg/L or 10% for DO > 0.5 mg/L (whichever is greater)		< 5 NTUs	< 0.3 ft	> 100 mL < 250 mL	> 3L	

BEW 9/23/19

Product Name: Low-Flow System

Date: 2019-09-30 11:01:40

Project Information:		Pump Information:	
Operator Name	Dan Gibbs	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	22.95 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	463453		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	22.95 ft

Well Information:		Pumping Information:	
Well ID	HGWA-2	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.5874355 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	12.65 ft	Total Volume Pumped	8 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:39:33	1200.02	21.89	5.51	213.01	16.90	12.68	0.27	77.83
Last 5	10:44:33	1500.02	21.07	5.48	208.16	13.10	12.68	0.39	79.57
Last 5	10:49:33	1800.03	20.91	5.42	202.42	9.87	12.68	0.28	81.65
Last 5	10:54:33	2100.03	20.94	5.38	198.16	4.65	12.68	0.23	83.62
Last 5	10:59:33	2400.03	21.03	5.35	195.88	4.77	12.68	0.21	85.59
Variance 0			-0.16	-0.05	-5.74			-0.11	2.08
Variance 1			0.03	-0.05	-4.26			-0.06	1.97
Variance 2			0.09	-0.03	-2.29			-0.02	1.98

Notes

Radium 2-1L plastic w/HNO3

Grab Samples

HGWA-2

Grab

Product Name: Low-Flow System

Date: 2019-09-23 17:21:39

Project Information:		Pump Information:	
Operator Name	Noelia Muskus	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	513028		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWA-3	Final Pumping Rate	150 mL/min
Well diameter	2 in	Total System Volume	0.485 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	12.31 ft	Total Volume Pumped	5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	15:47:39	599.94	21.11	7.28	420.89	11.30	12.32	0.62	30.66
Last 5	15:52:39	899.93	21.26	7.29	419.77	6.50	12.32	0.45	26.64
Last 5	15:57:39	1199.93	21.23	7.29	419.87	6.47	12.32	0.38	23.79
Last 5	16:02:39	1499.93	21.24	7.30	419.78	5.84	12.32	0.34	21.25
Last 5	16:07:39	1799.93	21.50	7.30	420.11	3.53	12.32	0.31	18.32
Variance 0			-0.02	-0.00	0.10			-0.07	-2.85
Variance 1			0.00	0.00	-0.09			-0.04	-2.54
Variance 2			0.26	0.00	0.33			-0.03	-2.93

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 = 45.36 ft.

Grab Samples

HGWA-3

Grab

Geosyntec consultants

GROUNDWATER SAMPLING LOG SHEET

Client: Geosyntec
Site: Plant Hammond
Well ID: HGWA-3
Total Depth (ft): 44.87
Depth to Water (ft): 12.46
Well Diameter (in): 2
Well Volume (gal) = $0.041d^2h$: 5.32
Well Volume (L) = gal * 3.785: 20.12
d = well diameter (inches): h = length of water column (feet)
Well Type: Flush / Stick Up (circled: Stick Up)
Well Lock: Yes (circled) / No
Well Cap Condition: Good (circled) / Replace
Well Tag Present: Yes (circled) / No

Project No.: GW6581
Location: AP-1/2
Pump Type/Model: bladder
Tubing Material: poly
Pump Intake Depth (ft): 39.87
Start/Stop Purge Time: 1030/ 1135
Purge Rate (mL/min): 220
Total Purge Volume (L): 6
Purge Method: Low-Flow (circled) / Well Volume / Other: —
Sampling Method: Pump Discharge (circled) / Other: —

Sampling Date: 9/3/19
Sampler's Name: Chad Russo
Sample Collection Time: 1059
Sample Purge Rate (mL/min): 220
Sample ID: HGWA-3
Laboratory Analyses: Rad, um
QA/QC Collected? N/A
QA/QC I.D. N/A

All sample containers requiring chemical preservation properly preserved prior to demob from well? Yes No

Time	pH (SU)	Spec. Cond. (µS/cm)	ORP (mV)	DO (mg/L)	Temp. (°C)	Turbidity (NTUs)	DTW (ft btoc)	Purge Rate (mL/min)	Purged Volume (L)	Notes (Purge method, water clarity, odor, purge rate, issues with pump/well/weather/etc.)
1034	7.38	435.4	29.10	0.55	21.05	11.8	12.48	220	2.25	
1039	7.37	432.2	19.70	0.33	20.63	6.27	12.47	220	3	
1044	7.37	433.8	13.1	0.3	20.8	4.58	12.47	220	4	
1049	7.36	432	9.5	0.35	20.79	4.36	12.47	220	5	
1054	7.37	431.7	5.4	0.36	20.84	3.42	12.47	220	6	
Stabilizing Criteria	+/- 0.1 SU	+/- 5%		0.2 mg/L or 10% for DO > 0.5 mg/L (whichever is greater)		< 5 NTUs	< 0.3 ft	> 100 mL < 250 mL	> 3L	

10/2/19 CR

Product Name: Low-Flow System

Date: 2019-09-24 11:02:29

Project Information:		Pump Information:	
Operator Name	Dan Gibbs	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	20.80 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	463453		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	20.80 ft

Well Information:		Pumping Information:	
Well ID	HGWA-4	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.5778393 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	12.29 ft	Total Volume Pumped	16 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:08:15	3600.04	21.15	6.09	188.71	0.99	12.50	0.57	75.32
Last 5	10:13:15	3900.04	21.24	6.11	195.03	0.71	12.50	0.56	87.06
Last 5	10:18:15	4200.05	21.33	6.14	202.59	1.20	12.50	0.57	107.41
Last 5	10:23:15	4500.05	21.45	6.15	207.45	0.50	12.50	0.55	160.37
Last 5	10:28:15	4800.05	21.42	6.16	212.55	0.57	12.50	0.54	362.52
Variance 0			0.09	0.02	7.56			0.01	20.34
Variance 1			0.12	0.01	4.86			-0.03	52.96
Variance 2			-0.03	0.01	5.10			-0.00	202.15

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 = 24.79'

Grab Samples

HGWA-4

Grab

Product Name: Low-Flow System

Date: 2019-09-24 12:14:06

Project Information:		Pump Information:	
Operator Name	Noelia Muskus	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	513028		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWA-5	Final Pumping Rate	155 mL/min
Well diameter	2 in	Total System Volume	0.485 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	6.95 ft	Total Volume Pumped	7.25 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:46:35	1801.01	20.57	6.24	190.17	5.55	7.76	0.75	43.55
Last 5	10:51:35	2101.00	20.39	6.28	207.05	5.77	7.85	0.57	41.87
Last 5	10:56:35	2401.00	20.47	6.34	213.51	5.05	7.90	0.46	38.70
Last 5	11:01:35	2701.00	20.65	6.39	221.74	4.52	7.89	0.39	36.45
Last 5	11:06:35	3001.00	20.83	6.40	221.49	3.96	7.91	0.37	34.43
Variance 0			0.09	0.06	6.46			-0.11	-3.17
Variance 1			0.17	0.05	8.23			-0.07	-2.25
Variance 2			0.19	0.02	-0.25			-0.02	-2.01

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 27.54 ft.

Grab Samples

HGWA-5

Grab

Product Name: Low-Flow System

Date: 2019-09-24 10:51:30

Project Information:		Pump Information:	
Operator Name	Ben Weinmann	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	642531		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWA-6	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.485 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	6.91 ft	Total Volume Pumped	19.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:34:54	300.08	20.60	7.42	376.96	11.60	8.20	0.08	0.92
Last 5	10:39:54	600.03	20.56	7.42	377.82	2.44	8.37	0.06	-4.35
Last 5	10:44:54	900.02	20.07	7.42	378.65	2.26	8.44	0.06	-10.63
Last 5	10:49:54	1200.03	19.81	7.41	378.74	2.17	8.48	0.07	-16.46
Last 5									
Variance 0			-0.03	-0.00	0.87			-0.02	-5.27
Variance 1			-0.49	0.00	0.82			-0.00	-6.28
Variance 2			-0.26	-0.01	0.09			0.00	-5.83

Notes

Four bottles: Two 1-L plastic bottles with NHO3 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 = 50.48'

Grab Samples

HGWA-6

Grab

Product Name: Low-Flow System

Date: 2019-09-24 12:36:28

Project Information:		Pump Information:	
Operator Name	Dan Gibbs	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	38 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	463453		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	38 ft

Well Information:		Pumping Information:	
Well ID	HGWC-14	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.6546101 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	28.72 ft	Total Volume Pumped	5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	11:37:45	300.03	23.39	4.85	2669.88	5.41	28.72	1.70	438.68
Last 5	11:42:45	600.02	22.10	4.78	2711.98	3.38	28.79	0.58	396.01
Last 5	11:47:45	900.03	21.96	4.77	2723.24	3.70	28.79	0.24	377.27
Last 5	11:57:45	1500.03	22.01	4.77	2721.80	3.94	28.79	0.17	389.97
Last 5									
Variance 0			-1.29	-0.07	42.11			-1.12	-42.66
Variance 1			-0.14	-0.00	11.25			-0.34	-18.74
Variance 2			0.06	-0.00	-1.43			-0.07	12.70

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for Radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 43.10'

Grab Sample

HGWC-14

Grab

Product Name: Low-Flow System

Date: 2019-09-24 14:32:19

Project Information:		Pump Information:	
Operator Name	Dan Gibbs	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	33 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	463453		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	33 ft

Well Information:		Pumping Information:	
Well ID	HGWC-15	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.632293 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	18.13 ft	Total Volume Pumped	6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	13:20:19	600.02	20.31	6.45	1458.29	13.90	18.61	0.26	254.45
Last 5	13:25:19	900.03	20.22	6.44	1461.15	7.60	18.61	0.20	238.11
Last 5	13:30:19	1200.03	20.19	6.41	1455.02	4.60	18.61	0.18	225.58
Last 5	13:35:19	1500.03	20.11	6.38	1452.83	3.19	18.61	0.16	216.59
Last 5	13:40:19	1800.03	20.17	6.33	1445.72	2.39	18.61	0.16	211.99
Variance 0			-0.03	-0.02	-6.13			-0.02	-12.53
Variance 1			-0.08	-0.03	-2.19			-0.01	-9.00
Variance 2			0.06	-0.04	-7.12			-0.01	-4.59

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: 2019-09-25 11:10:22

Project Information:		Pump Information:	
Operator Name	Dan Gibbs	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	28.10 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	463453		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	28.10 ft

Well Information:		Pumping Information:	
Well ID	HGWC-16	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.6104222 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	12.40 ft	Total Volume Pumped	18 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:11:42	3000.03	20.19	6.91	1102.48	10.60	12.88	0.14	26.36
Last 5	10:16:42	3300.02	20.20	6.91	1102.46	7.50	12.88	0.14	24.52
Last 5	10:21:42	3600.02	20.04	6.92	1103.03	4.93	12.88	0.17	23.02
Last 5	10:26:42	3900.03	20.14	6.92	1104.30	4.71	12.88	0.18	21.81
Last 5	10:31:42	4200.03	20.24	6.92	1100.84	4.51	12.88	0.16	20.64
Variance 0			-0.16	0.01	0.57			0.03	-1.50
Variance 1			0.10	0.00	1.27			0.01	-1.22
Variance 2			0.09	0.00	-3.45			-0.02	-1.17

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 = 33.43'

Grab Samples

HGWC-16

Product Name: Low-Flow System

Date: 2019-09-25 12:41:56

Project Information:		Pump Information:	
Operator Name	Dan Gibbs	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	22.80 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	463453		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	22.80 ft

Well Information:		Pumping Information:	
Well ID	HGWC-17	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.5867661 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	17.74 ft	Total Volume Pumped	8 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	11:50:09	1200.02	21.02	6.31	1690.52	8.43	18.11	0.19	63.65
Last 5	11:55:09	1500.02	21.04	6.30	1694.50	5.32	18.11	0.18	65.24
Last 5	12:00:09	1800.02	21.06	6.29	1693.82	4.89	18.11	0.17	66.65
Last 5	12:05:09	2100.03	21.06	6.28	1695.59	4.48	18.11	0.17	67.77
Last 5	12:10:09	2400.03	21.06	6.28	1692.36	4.06	18.11	0.17	68.82
Variance 0			0.03	-0.01	-0.68			-0.01	1.41
Variance 1			0.00	-0.01	1.78			-0.00	1.12
Variance 2			0.00	-0.00	-3.23			-0.00	1.05

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for Radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 27.83'

Grab Samples

HGWC-17

Grab

Product Name: Low-Flow System

Date: 2019-09-25 14:47:16

Project Information:		Pump Information:	
Operator Name	Dan Gibbs	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	22.80 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	463453		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	22.80 ft

Well Information:		Pumping Information:	
Well ID	HGWC-18	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.5867661 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	17.32 ft	Total Volume Pumped	5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	13:30:49	300.05	23.47	4.64	2320.51	3.37	17.42	1.56	123.31
Last 5	13:35:49	600.03	22.89	4.56	2365.31	5.48	17.49	0.35	131.71
Last 5	13:40:49	900.02	22.85	4.54	2367.84	4.90	17.49	0.25	137.01
Last 5	13:45:49	1200.02	22.87	4.54	2367.44	4.77	17.49	0.22	140.69
Last 5	13:50:49	1500.02	22.88	4.54	2370.32	4.89	17.49	0.20	143.47
Variance 0			-0.04	-0.02	2.53			-0.10	5.30
Variance 1			0.02	-0.00	-0.40			-0.03	3.68
Variance 2			0.01	-0.01	2.88			-0.02	2.78

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 = 27.69'

Grab Samples

HGWC-18

Grab

Product Name: Low-Flow System

Date: 2019-09-25 15:35:54

Project Information:		Pump Information:	
Operator Name	Dan Gibbs	Pump Model/Type	Alexis
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	48.80 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	463453		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	46.80 ft

Well Information:		Pumping Information:	
Well ID	MW-21D	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.3078151 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	16.55 ft	Total Volume Pumped	4 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	15:18:40	300.02	23.47	6.35	2375.53	2.12	16.94	0.29	57.84
Last 5	15:23:40	600.02	23.07	6.44	2384.45	1.74	16.94	0.23	45.46
Last 5	15:28:40	900.02	22.99	6.49	2350.48	1.63	16.94	0.22	36.71
Last 5	15:33:40	1200.02	22.89	6.54	2323.64	1.10	16.94	0.23	29.24
Last 5									
Variance 0			-0.40	0.08	8.91			-0.06	-12.38
Variance 1			-0.08	0.06	-33.97			-0.01	-8.75
Variance 2			-0.10	0.04	-26.84			0.00	-7.47

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 (EP A 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 51.62'

Grab Samples

MW-21D

Grab

Product Name: Low-Flow System

Date: 2019-09-26 11:29:54

Project Information:		Pump Information:	
Operator Name	Dan Gibbs	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	32.58 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	463453		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	32.58 ft

Well Information:		Pumping Information:	
Well ID	MW-22	Final Pumping Rate	100 mL/min
Well diameter	2 in	Total System Volume	0.6304184 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	15.30 ft	Total Volume Pumped	11.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:58:00	300.02	20.72	6.07	1491.80	3.87	16.22	2.85	77.29
Last 5	11:03:00	600.02	20.43	5.96	1508.02	5.59	16.65	1.70	75.23
Last 5	11:08:00	900.02	20.48	5.92	1509.54	5.84	17.20	1.18	75.16
Last 5	11:13:00	1200.02	20.50	5.90	1510.91	8.33	17.60	0.91	75.74
Last 5									
Variance 0			-0.29	-0.12	16.22			-1.15	-2.06
Variance 1			0.05	-0.04	1.51			-0.52	-0.07
Variance 2			0.02	-0.02	1.38			-0.27	0.59

Notes

Increased purge rate to 600 ml per 5 min to purge dry because of water level stability. Will sample in 24h.

Grab Samples

Product Name: Low-Flow System

Date: 2019-09-27 11:08:44

Project Information:		Pump Information:	
Operator Name	Noelia Muskus	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	513028		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	MW-22	Final Pumping Rate	140 mL/min
Well diameter	2 in	Total System Volume	0.485 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	15.40 ft	Total Volume Pumped	8.7 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:49:38	2100.00	19.32	5.81	1587.49	7.61	21.82	0.65	80.21
Last 5	09:54:38	2400.00	19.34	5.81	1586.36	5.96	22.35	0.66	80.82
Last 5	09:59:38	2700.00	19.49	5.82	1585.64	5.71	22.65	0.66	81.23
Last 5	10:04:38	3000.00	19.54	5.81	1582.36	5.31	23.06	0.66	81.81
Last 5	10:09:38	3299.99	19.72	5.81	1581.20	4.87	23.36	0.65	82.30
Variance 0			0.15	0.00	-0.72			0.00	0.40
Variance 1			0.05	-0.00	-3.27			-0.00	0.58
Variance 2			0.18	-0.00	-1.16			-0.01	0.50

Notes

Water was turbid. Purged at low flow until turbidity <5 NTU. 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 = 38.50 ft.

Grab Samples

MW-22

Grab

Product Name: Low-Flow System

Date: 2019-09-26 09:45:17

Project Information:		Pump Information:	
Operator Name	Dan Gibbs	Pump Model/Type	Alexis
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	59.82 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	463453		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	57.82 ft

Well Information:		Pumping Information:	
Well ID	MW-23D	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.357002 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	18.08 ft	Total Volume Pumped	4 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:20:32	300.05	20.00	6.61	1774.63	1.76	18.16	0.84	78.96
Last 5	09:25:32	600.02	19.82	6.63	1789.44	1.85	18.16	0.44	73.04
Last 5	09:30:32	900.02	19.83	6.63	1768.51	1.36	18.16	0.42	71.10
Last 5	09:35:32	1200.01	19.70	6.64	1762.67	0.77	18.16	0.36	70.50
Last 5									
Variance 0			-0.18	0.02	14.81			-0.39	-5.92
Variance 1			0.01	0.01	-20.93			-0.02	-1.95
Variance 2			-0.12	0.00	-5.84			-0.06	-0.59

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 = 62.82'

Grab Samples

MW-23d

Grab

FD-02

Grab

APPENDIX F

Statistical Analyses

Detection Monitoring Program Statistical Analysis Package
Plant Hammond Ash Pond 2 (AP-2)
April and September 2019 events
(AM 01 & AM 02)

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

Parameter	Well ID	2019 AM 01			2019 AM 02		
		Upper PL	Lower PL	Apr 1-5, 2019	Upper PL	Lower PL	Sep 23-30, 2019
Boron (mg/L)	HGWC-14	0.045	-	12.5	0.044	-	14.7
Boron (mg/L)	HGWC-15	0.045	-	2.3	0.044	-	2.9
Boron (mg/L)	HGWC-16	0.045	-	2.1	0.044	-	2.7
Boron (mg/L)	HGWC-17	0.045	-	5.9	0.044	-	8.1
Boron (mg/L)	HGWC-18	0.045	-	6.4	0.044	-	11.7
Calcium (mg/L)	HGWC-14	123	-	606	123	-	507
Calcium (mg/L)	HGWC-15	123	-	214	123	-	202
Calcium (mg/L)	HGWC-16	123	-	196	123	-	185
Calcium (mg/L)	HGWC-17	123	-	340	123	-	305
Calcium (mg/L)	HGWC-18	123	-	400	123	-	437
Chloride (mg/L)	HGWC-14	20.3	-	227	20.3	-	188
Chloride (mg/L)	HGWC-15	20.3	-	138	20.3	-	120
Chloride (mg/L)	HGWC-16	20.3	-	76.8	20.3	-	84.4
Chloride (mg/L)	HGWC-17	20.3	-	195	20.3	-	139
Chloride (mg/L)	HGWC-18	20.3	-	217	20.3	-	181
Fluoride (mg/L)	HGWC-14	0.36	-	0.66	0.36	-	0.053 J
Fluoride (mg/L)	HGWC-15	0.36	-	0.066 J	0.36	-	0.12 J
Fluoride (mg/L)	HGWC-16	0.36	-	ND	0.36	-	ND
Fluoride (mg/L)	HGWC-17	0.36	-	0.16 J	0.36	-	0.081 J
Fluoride (mg/L)	HGWC-18	0.36	-	0.37	0.36	-	0.73
pH (s.u.)	HGWC-14	7.7	4.5	4.7	7.7	4.9	4.8
pH (s.u.)	HGWC-15	7.7	4.5	5.7	7.7	4.9	6.3
pH (s.u.)	HGWC-16	7.7	4.5	7.0	7.7	4.9	6.9
pH (s.u.)	HGWC-17	7.7	4.5	6.3	7.7	4.9	6.3
pH (s.u.)	HGWC-18	7.7	4.5	4.5	7.7	4.9	4.5
Sulfate (mg/L)	HGWC-14	84.3	-	1520	84.3	-	1110
Sulfate (mg/L)	HGWC-15	84.3	-	528	84.3	-	382
Sulfate (mg/L)	HGWC-16	84.3	-	251	84.3	-	223
Sulfate (mg/L)	HGWC-17	84.3	-	642	84.3	-	434
Sulfate (mg/L)	HGWC-18	84.3	-	1030	84.3	-	920
TDS (mg/L)	HGWC-14	416	-	2310	417	-	2470
TDS (mg/L)	HGWC-15	416	-	926	417	-	1140
TDS (mg/L)	HGWC-16	416	-	704	417	-	813
TDS (mg/L)	HGWC-17	416	-	1260	417	-	1280
TDS (mg/L)	HGWC-18	416	-	1610	417	-	1960

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.

Prediction Limit (AM 01) - 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.

Prediction Limit (AM 01) - All Results

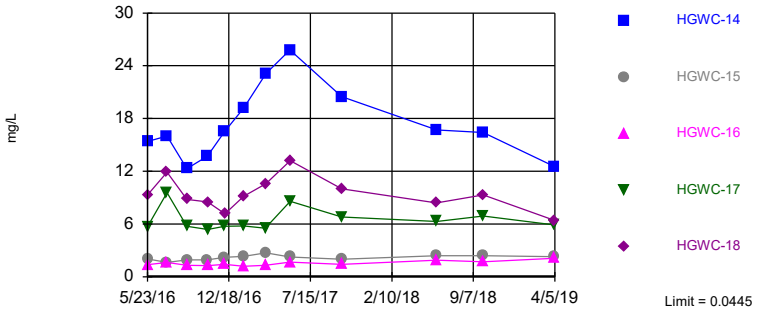
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2 Printed 7/22/2019, 2:20 AM

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-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.

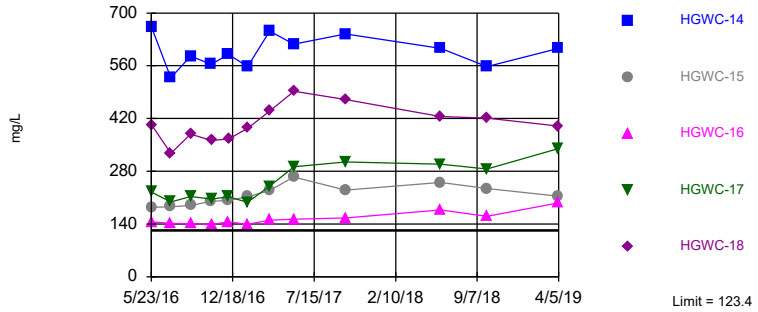
Constituent: Boron Analysis Run 7/22/2019 2:19 AM

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.

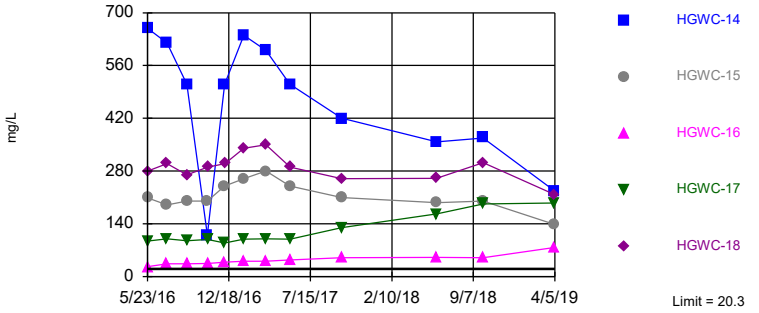
Constituent: Calcium Analysis Run 7/22/2019 2:19 AM

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

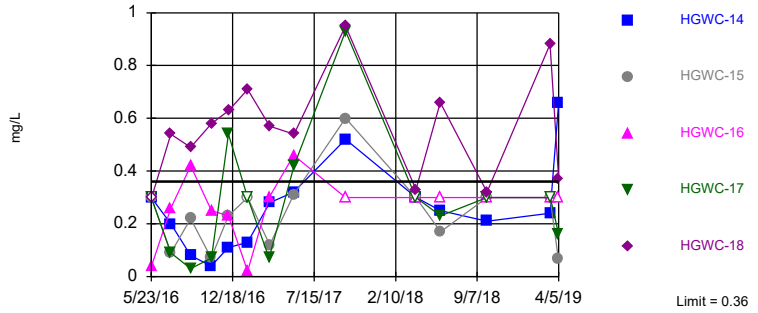
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Hollow symbols indicate censored values.

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

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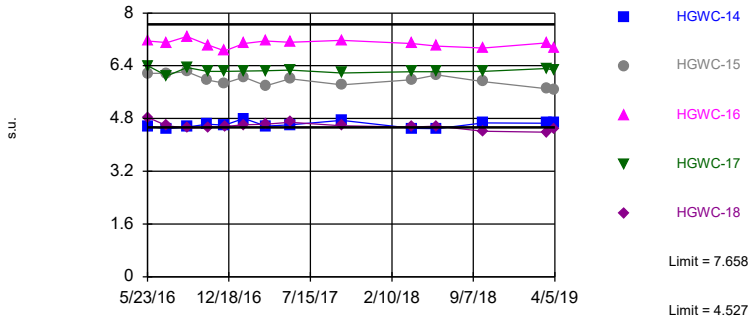
Exceeds Limits: HGWC-18

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

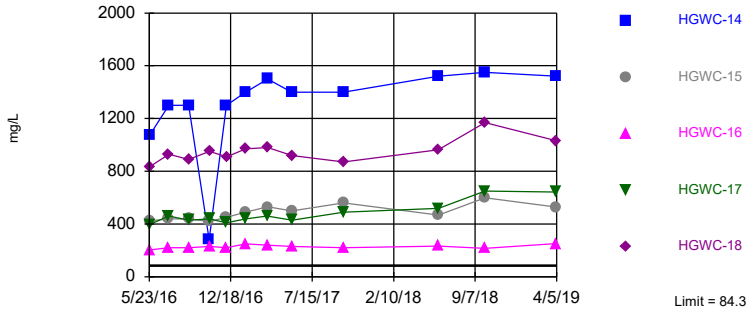
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG

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

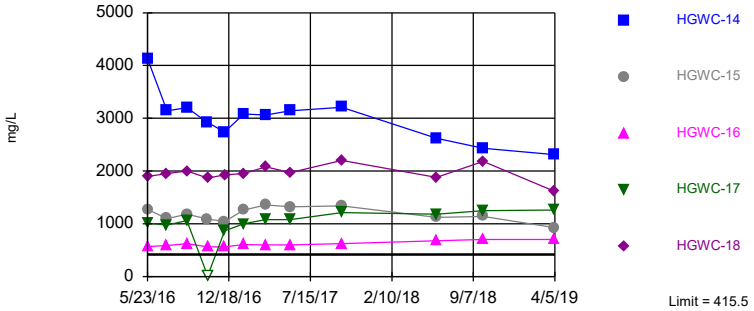
Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG

Hollow symbols indicate censored values.

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

Trend Test (AM 01) - Significant Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2 Printed 7/24/2019, 10:31 AM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
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 (AM 01) - All Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2 Printed 7/24/2019, 10:31 AM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
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 (AM 01) - All Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2 Printed 7/24/2019, 10:31 AM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
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

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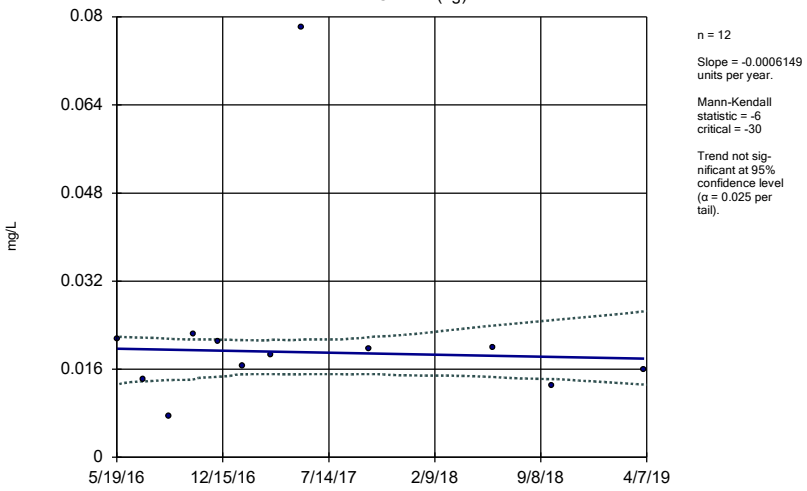
Sen's Slope and 95% Confidence Band

HGWA-1 (bg)



n = 12

Slope = -0.0006149 units per year.

Mann-Kendall statistic = -6
critical = -30

Trend not significant at 95% confidence level (α = 0.025 per tail).

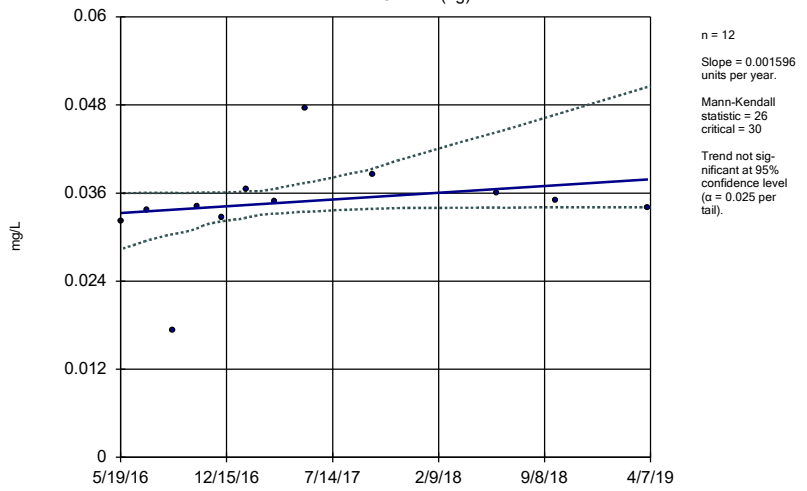
Constituent: Boron Analysis Run 7/24/2019 10:29 AM

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

Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG

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 significant at 95% confidence level (α = 0.025 per tail).

Constituent: Boron Analysis Run 7/24/2019 10:29 AM

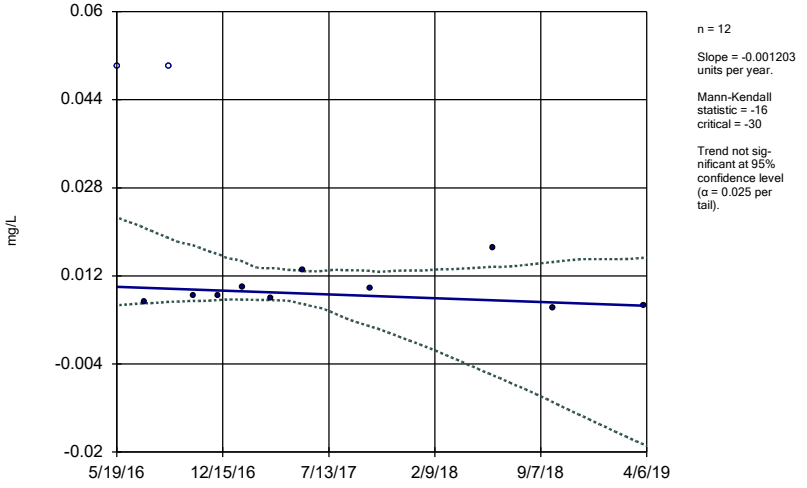
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG

Hollow symbols indicate censored values.

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 significant at 95% confidence level (α = 0.025 per tail).

Constituent: Boron Analysis Run 7/24/2019 10:29 AM

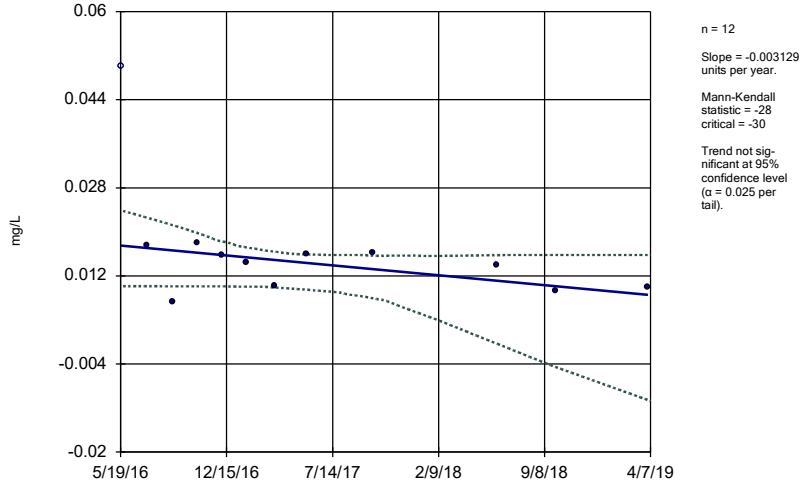
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG

Hollow symbols indicate censored values.

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 significant at 95% confidence level (α = 0.025 per tail).

Constituent: Boron Analysis Run 7/24/2019 10:29 AM

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

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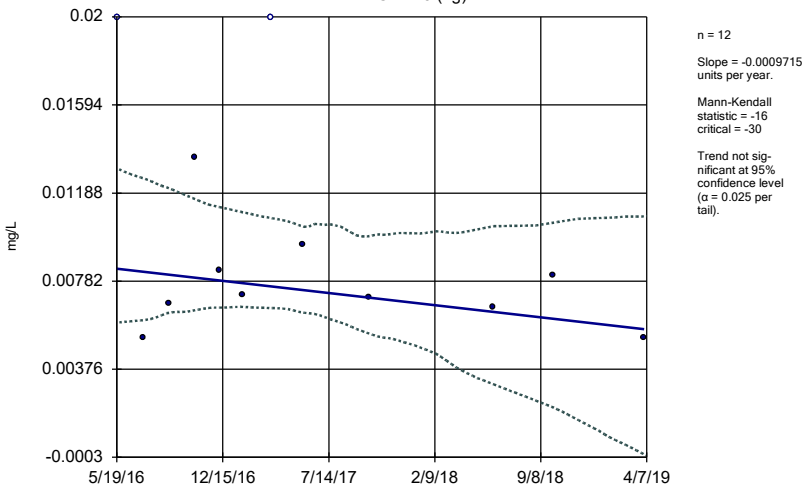
Hollow symbols indicate censored values.

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 significant at 95% confidence level (α = 0.025 per tail).

Constituent: Boron Analysis Run 7/24/2019 10:29 AM

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

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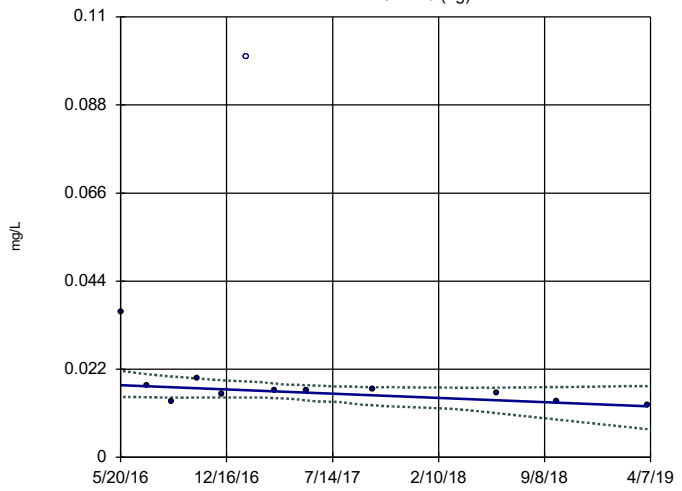
Hollow symbols indicate censored values.

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 significant at 95% confidence level (α = 0.025 per tail).

Constituent: Boron Analysis Run 7/24/2019 10:29 AM

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

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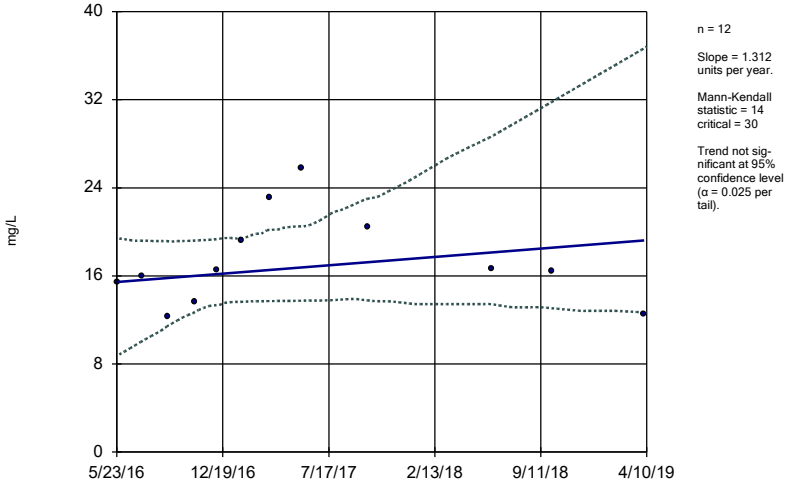
Sen's Slope and 95% Confidence Band

HGWC-14



n = 12

Slope = 1.312 units per year.

Mann-Kendall statistic = 14
critical = 30

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Boron Analysis Run 7/24/2019 10:29 AM

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

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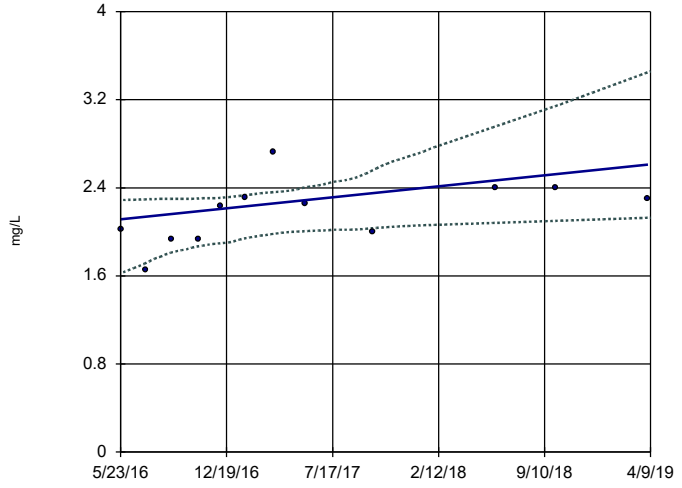
Sen's Slope and 95% Confidence Band

HGWC-15



n = 12

Slope = 0.1736 units per year.

Mann-Kendall statistic = 32
critical = 30

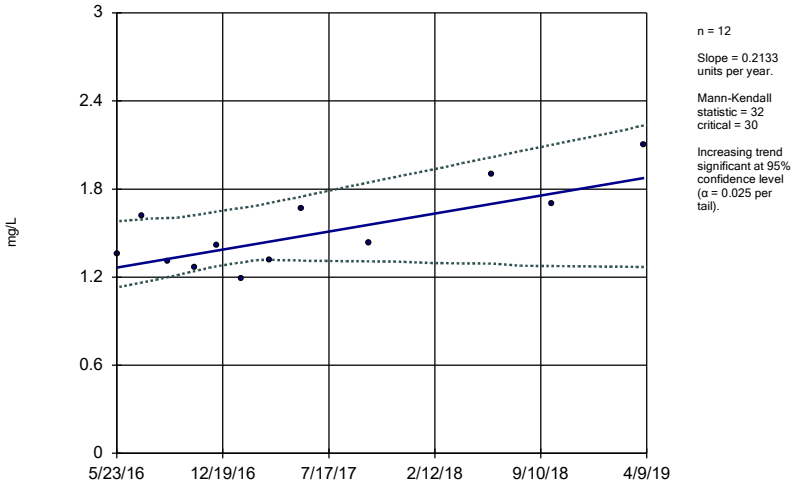
Increasing trend significant at 95% confidence level (α = 0.025 per tail).

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-16



n = 12

Slope = 0.2133 units per year.

Mann-Kendall statistic = 32 critical = 30

Increasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Boron Analysis Run 7/24/2019 10:29 AM

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

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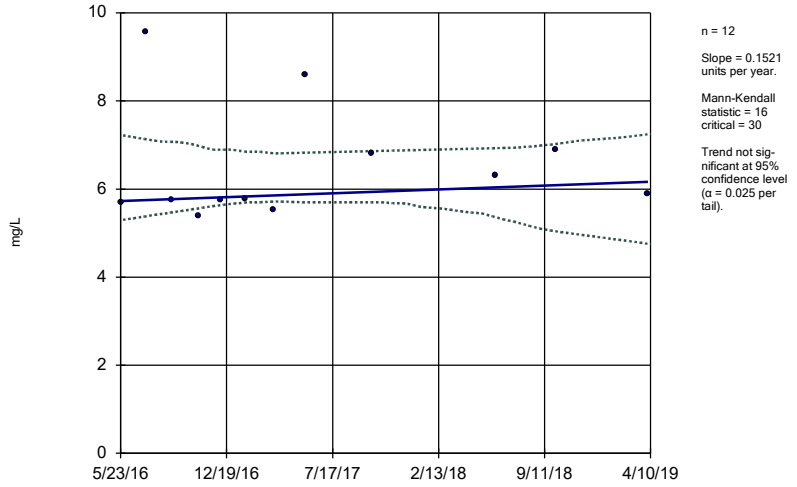
Sen's Slope and 95% Confidence Band

HGWC-17



n = 12

Slope = 0.1521 units per year.

Mann-Kendall statistic = 16 critical = 30

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Boron Analysis Run 7/24/2019 10:29 AM

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

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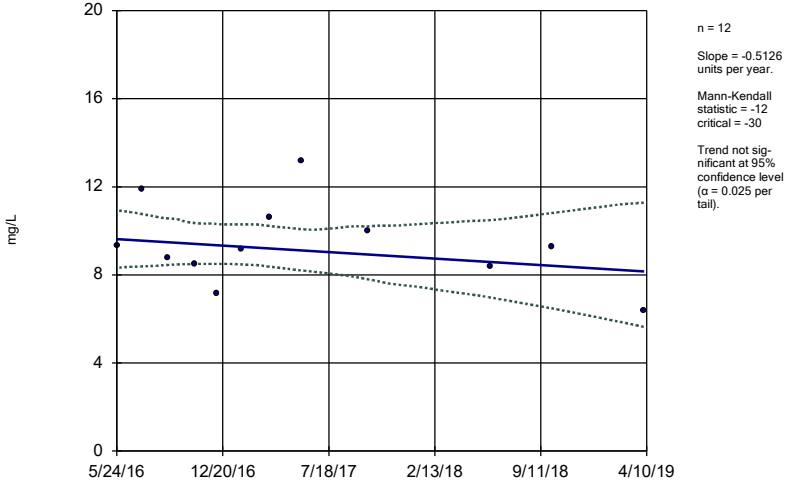
Sen's Slope and 95% Confidence Band

HGWC-18



n = 12

Slope = -0.5126 units per year.

Mann-Kendall statistic = -12 critical = -30

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Boron Analysis Run 7/24/2019 10:29 AM

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

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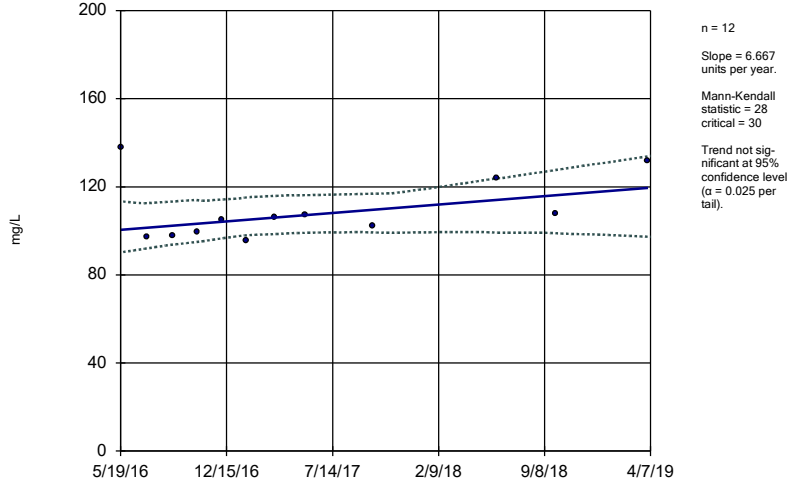
Sen's Slope and 95% Confidence Band

HGWA-1 (bg)



n = 12

Slope = 6.667 units per year.

Mann-Kendall statistic = 28 critical = 30

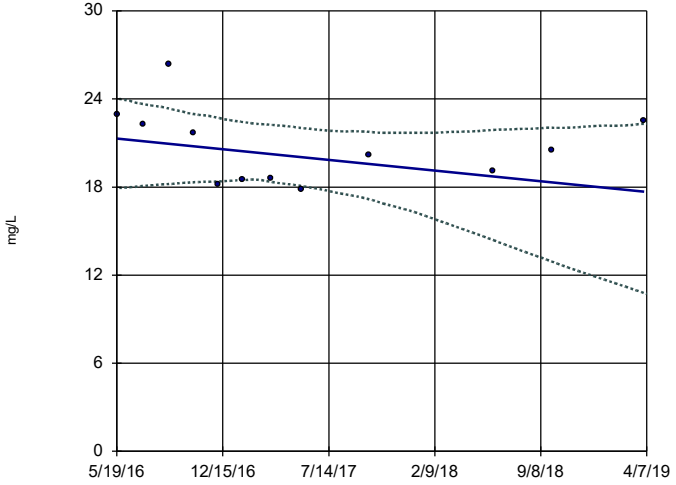
Trend not significant at 95% confidence level (α = 0.025 per tail).

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 significant at 95% confidence level (α = 0.025 per tail).

Constituent: Calcium Analysis Run 7/24/2019 10:29 AM

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

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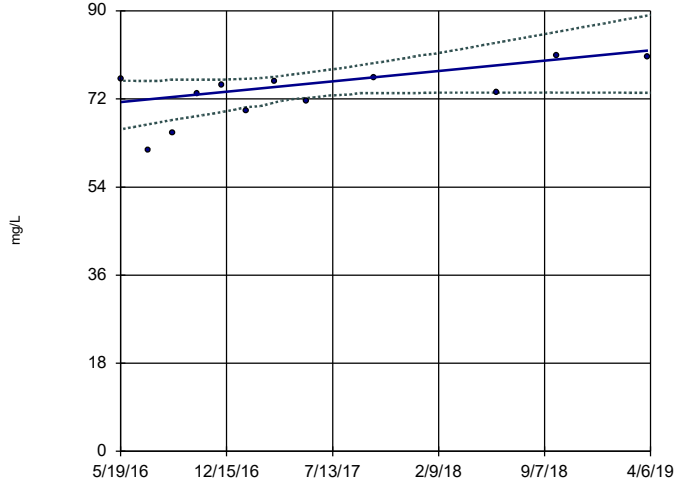
Sen's Slope and 95% Confidence Band

HGWA-3 (bg)



n = 12

Slope = 3.671 units per year.

Mann-Kendall statistic = 32 critical = 30

Increasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Calcium Analysis Run 7/24/2019 10:29 AM

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

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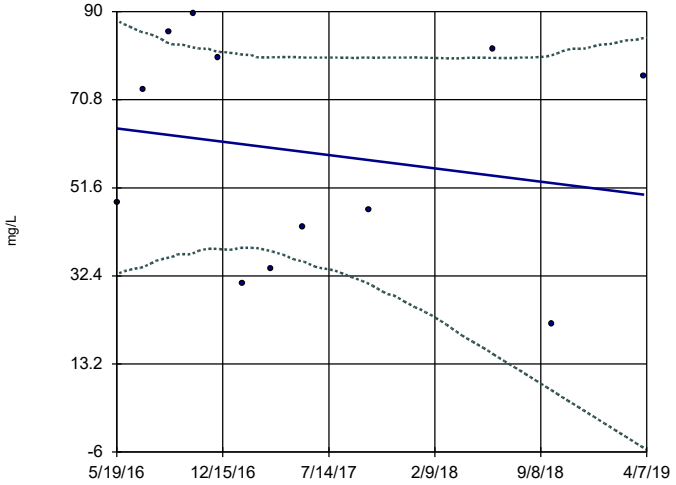
Sen's Slope and 95% Confidence Band

HGWA-4 (bg)



n = 12

Slope = -5.012 units per year.

Mann-Kendall statistic = -10 critical = -30

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Calcium Analysis Run 7/24/2019 10:29 AM

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

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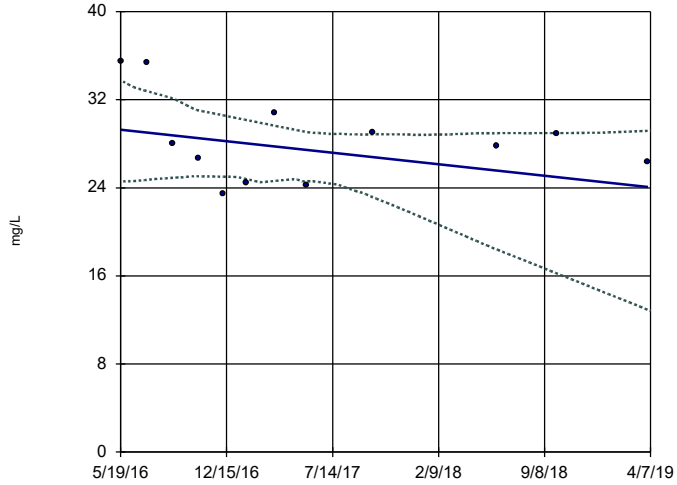
Sen's Slope and 95% Confidence Band

HGWA-5 (bg)



n = 12

Slope = -1.812 units per year.

Mann-Kendall statistic = -18 critical = -30

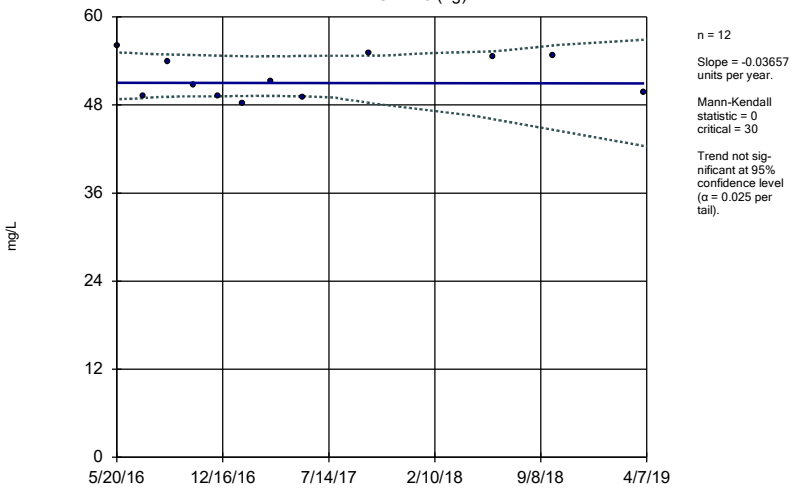
Trend not significant at 95% confidence level (α = 0.025 per tail).

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 significant at 95% confidence level (α = 0.025 per tail).

Constituent: Calcium Analysis Run 7/24/2019 10:29 AM

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

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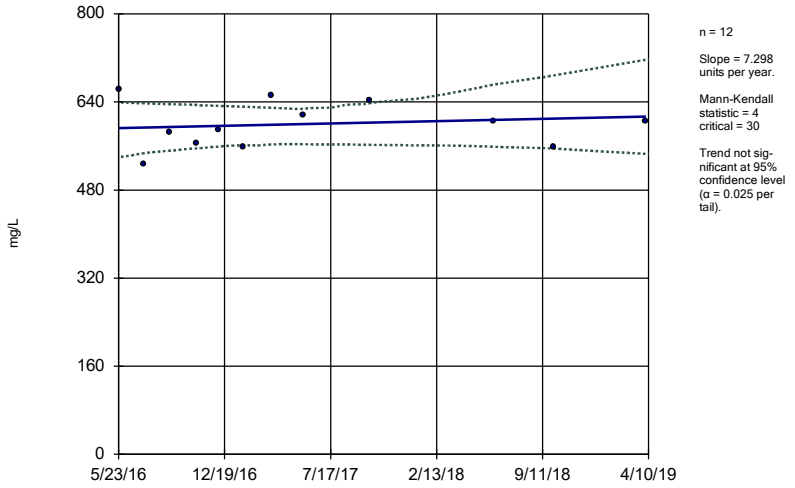
Sen's Slope and 95% Confidence Band

HGWC-14



n = 12

Slope = 7.298 units per year.

Mann-Kendall statistic = 4 critical = 30

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Calcium Analysis Run 7/24/2019 10:29 AM

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

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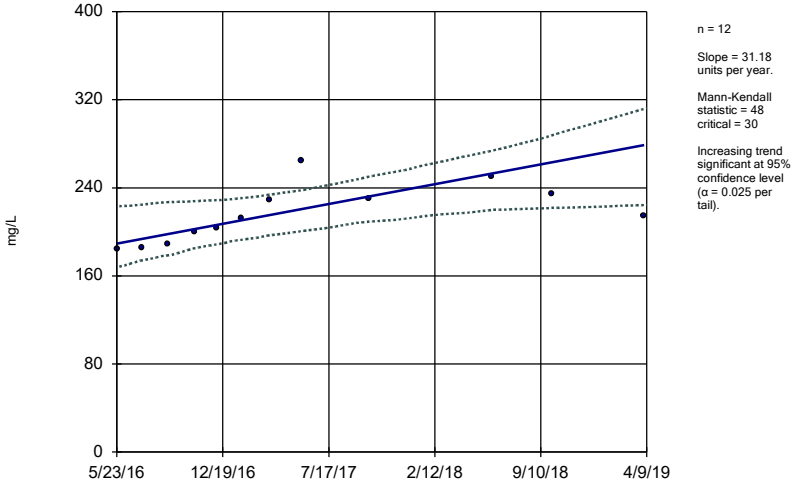
Sen's Slope and 95% Confidence Band

HGWC-15



n = 12

Slope = 31.18 units per year.

Mann-Kendall statistic = 48 critical = 30

Increasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Calcium Analysis Run 7/24/2019 10:29 AM

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

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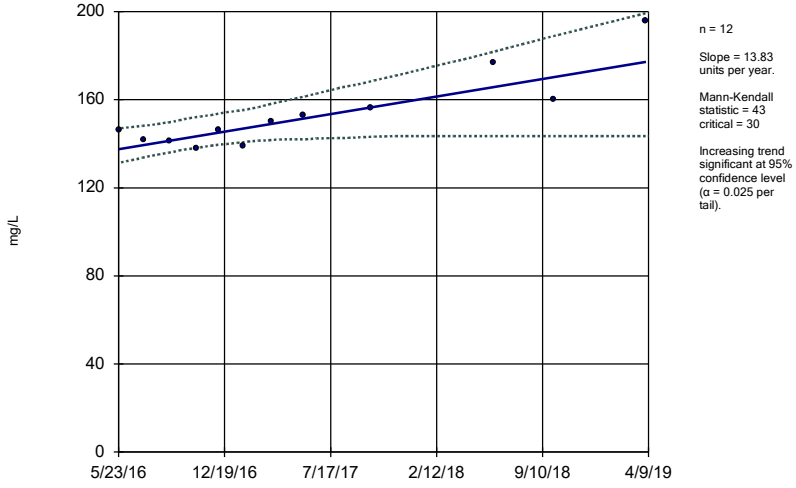
Sen's Slope and 95% Confidence Band

HGWC-16



n = 12

Slope = 13.83 units per year.

Mann-Kendall statistic = 43 critical = 30

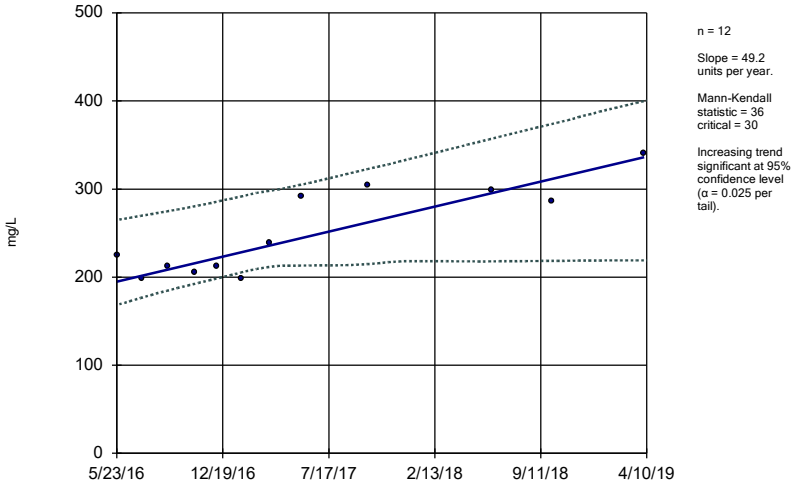
Increasing trend significant at 95% confidence level (α = 0.025 per tail).

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 (α = 0.025 per tail).

Constituent: Calcium Analysis Run 7/24/2019 10:29 AM

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

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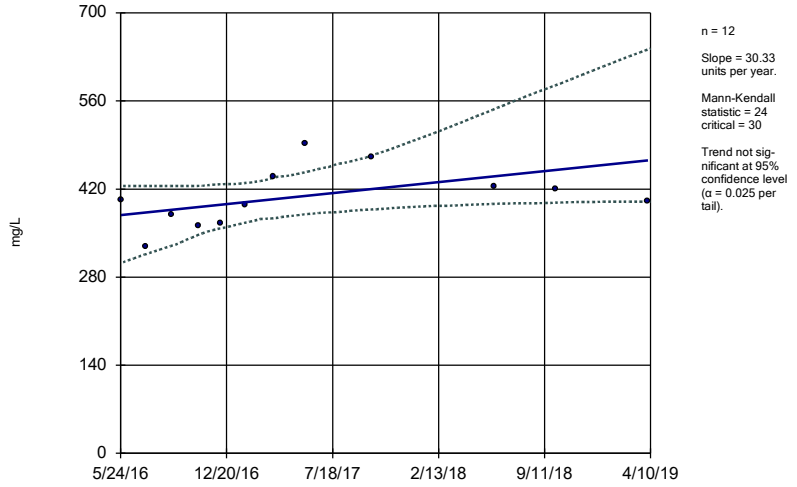
Sen's Slope and 95% Confidence Band

HGWC-18



n = 12

Slope = 30.33 units per year.

Mann-Kendall statistic = 24 critical = 30

Trend not significant at 95% confidence level (α = 0.025 per tail).

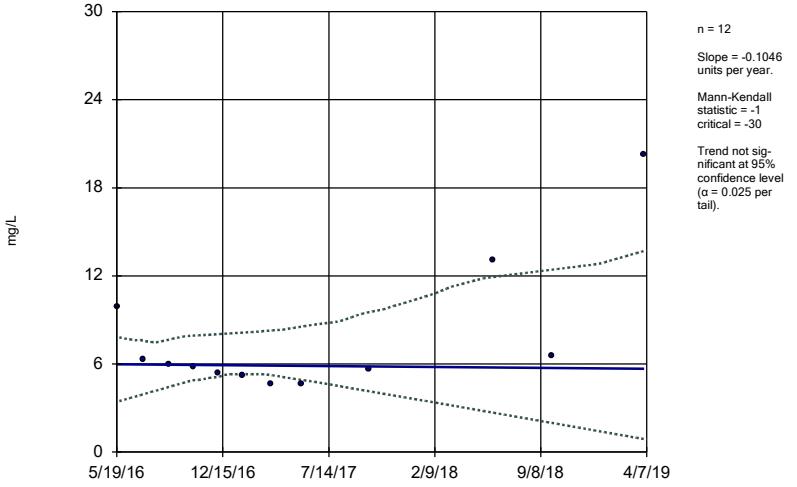
Constituent: Calcium Analysis Run 7/24/2019 10:29 AM

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

Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG

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 significant at 95% confidence level (α = 0.025 per tail).

Constituent: Chloride Analysis Run 7/24/2019 10:29 AM

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

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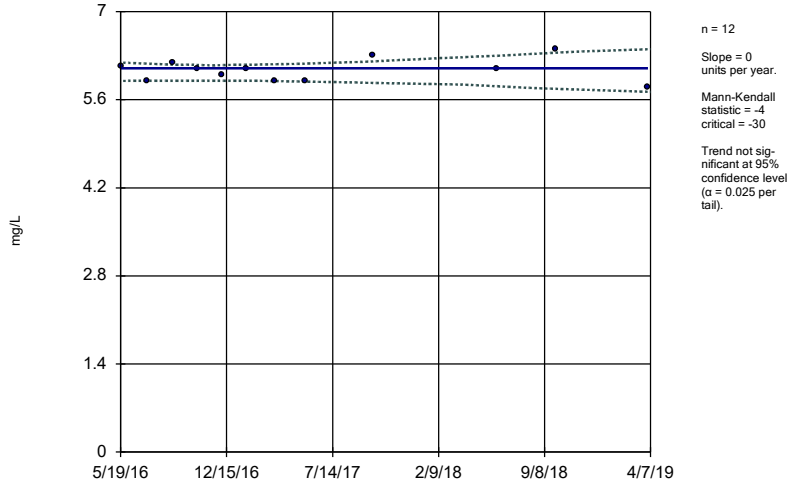
Sen's Slope and 95% Confidence Band

HGWA-2 (bg)



n = 12

Slope = 0 units per year.

Mann-Kendall statistic = -4 critical = -30

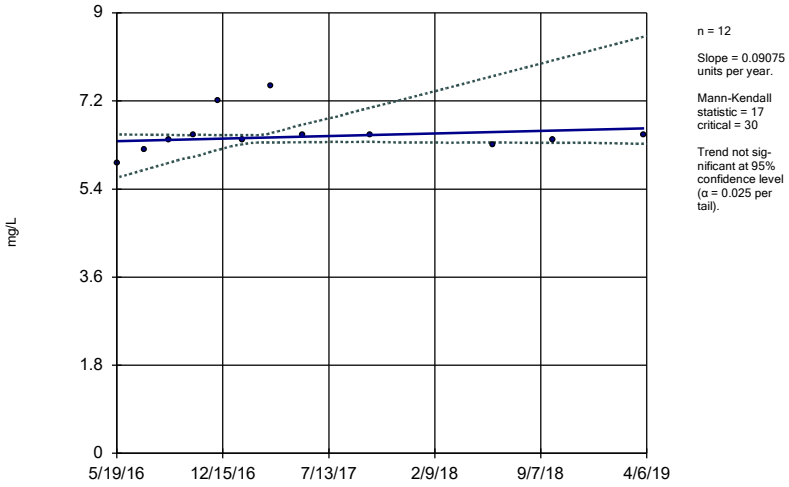
Trend not significant at 95% confidence level (α = 0.025 per tail).

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)



n = 12

Slope = 0.09075 units per year.

Mann-Kendall statistic = 17 critical = 30

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Chloride Analysis Run 7/24/2019 10:29 AM

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

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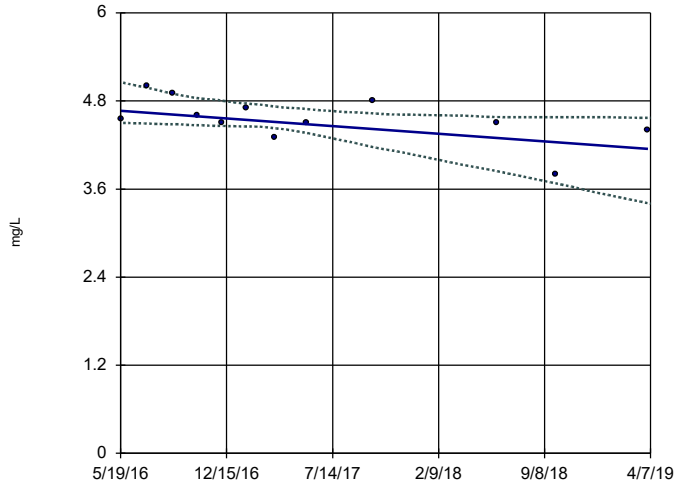
Sen's Slope and 95% Confidence Band

HGWA-4 (bg)



n = 12

Slope = -0.1811 units per year.

Mann-Kendall statistic = -31 critical = -30

Decreasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Chloride Analysis Run 7/24/2019 10:29 AM

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

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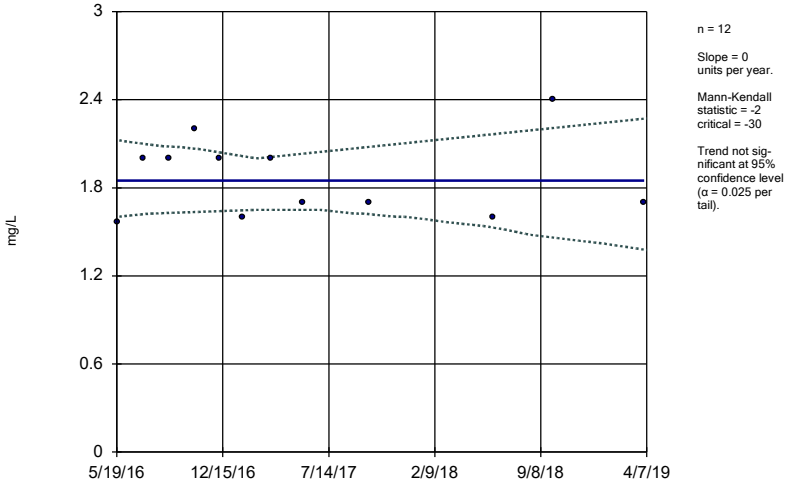
Sen's Slope and 95% Confidence Band

HGWA-5 (bg)



n = 12

Slope = 0 units per year.

Mann-Kendall statistic = -2 critical = -30

Trend not significant at 95% confidence level (α = 0.025 per tail).

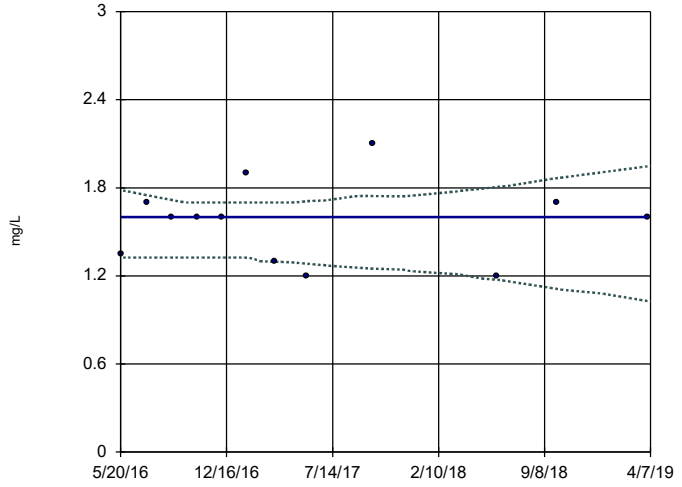
Constituent: Chloride Analysis Run 7/24/2019 10:29 AM

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

Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG

Sen's Slope and 95% Confidence Band

HGWA-6 (bg)



n = 12

Slope = 0 units per year.

Mann-Kendall statistic = -2 critical = -30

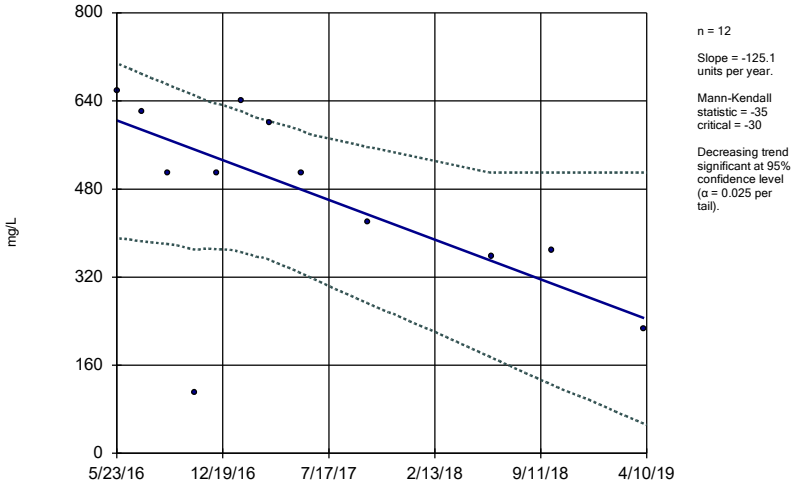
Trend not significant at 95% confidence level (α = 0.025 per tail).

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-14



n = 12

Slope = -125.1 units per year.

Mann-Kendall statistic = -35 critical = -30

Decreasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Chloride Analysis Run 7/24/2019 10:29 AM

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

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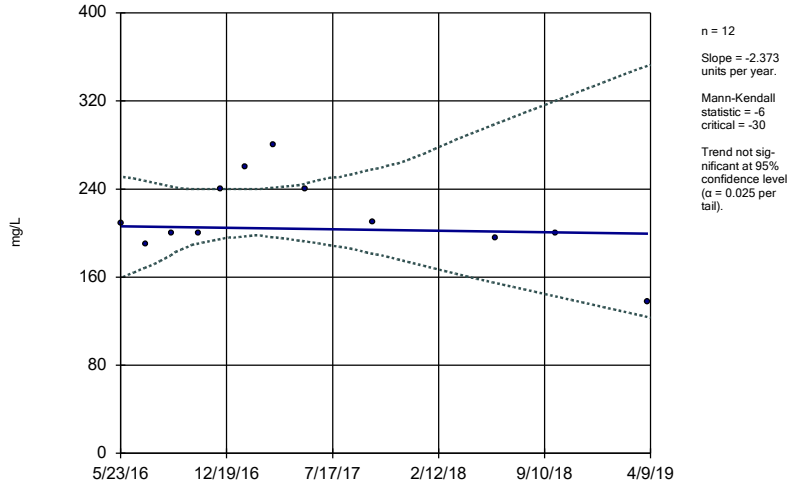
Sen's Slope and 95% Confidence Band

HGWC-15



n = 12

Slope = -2.373 units per year.

Mann-Kendall statistic = -6 critical = -30

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Chloride Analysis Run 7/24/2019 10:29 AM

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

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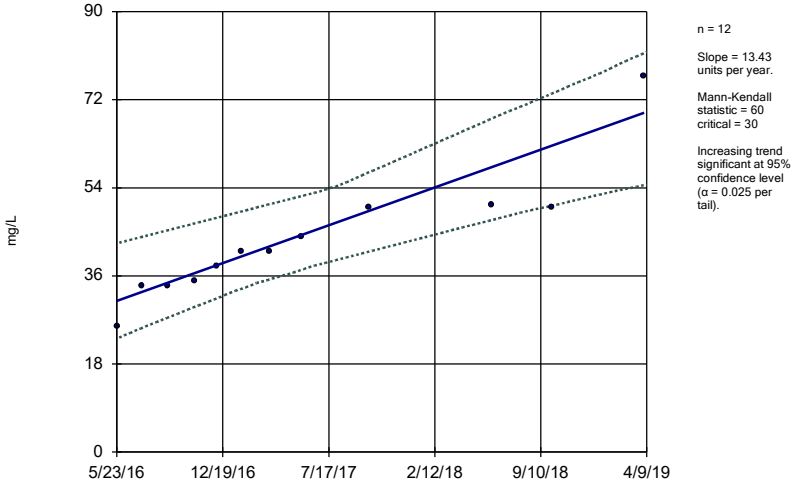
Sen's Slope and 95% Confidence Band

HGWC-16



n = 12

Slope = 13.43 units per year.

Mann-Kendall statistic = 60 critical = 30

Increasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Chloride Analysis Run 7/24/2019 10:29 AM

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

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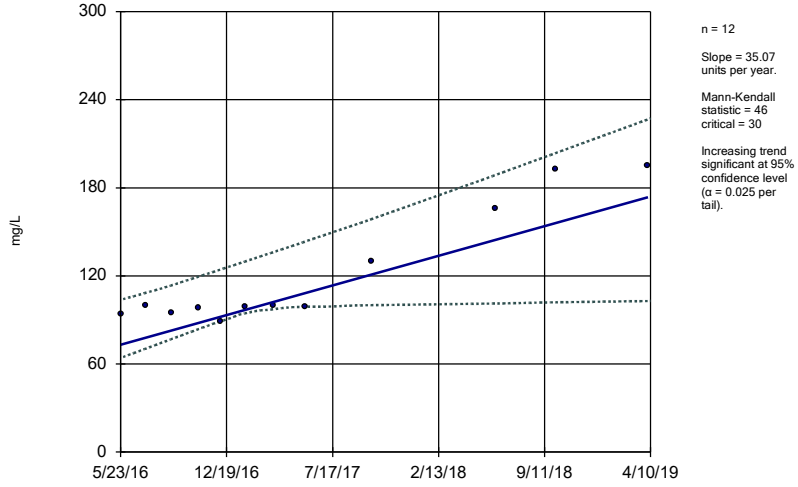
Sen's Slope and 95% Confidence Band

HGWC-17



n = 12

Slope = 35.07 units per year.

Mann-Kendall statistic = 46 critical = 30

Increasing trend significant at 95% confidence level (α = 0.025 per tail).

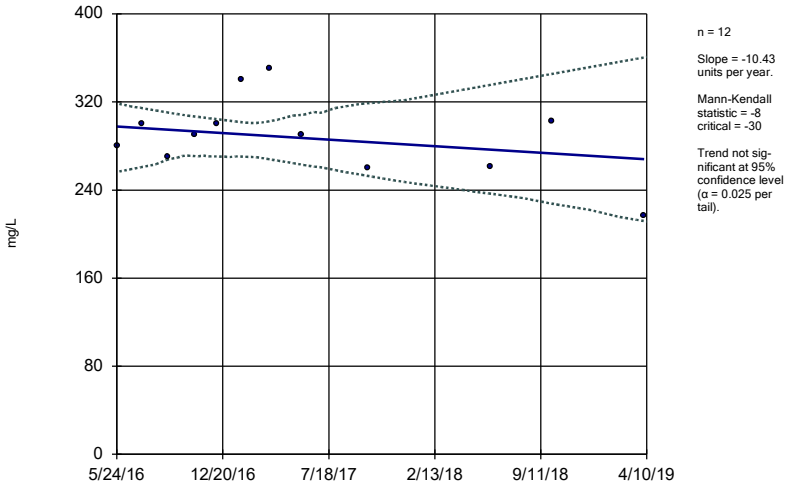
Constituent: Chloride Analysis Run 7/24/2019 10:29 AM

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

Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG

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 significant at 95% confidence level (α = 0.025 per tail).

Constituent: Chloride Analysis Run 7/24/2019 10:29 AM

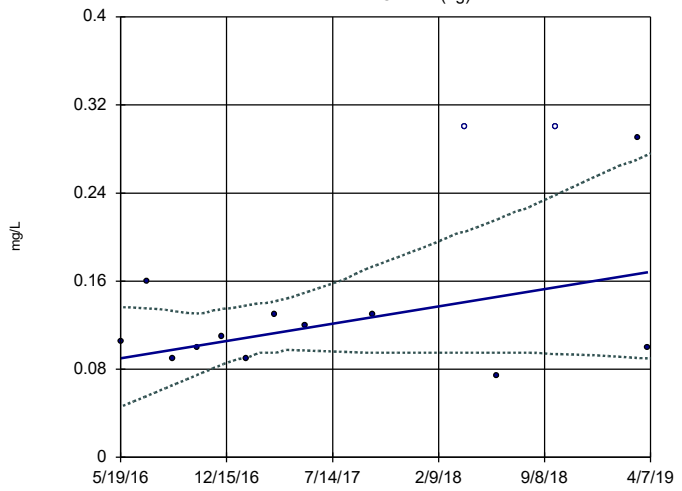
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG

Hollow symbols indicate censored values.

Sen's Slope and 95% Confidence Band

HGWA-1 (bg)



n = 14

Slope = 0.02724 units per year.

Mann-Kendall statistic = 19 critical = 37

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Fluoride Analysis Run 7/24/2019 10:29 AM

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

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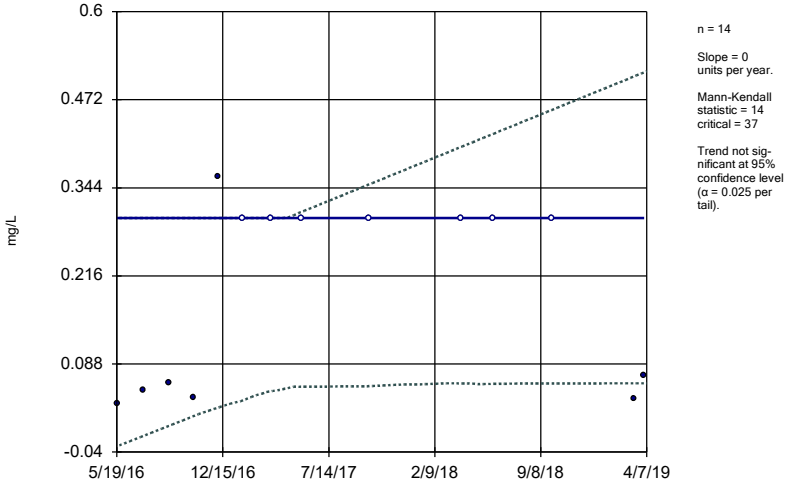
Hollow symbols indicate censored values.

Sen's Slope and 95% Confidence Band

HGWA-2 (bg)



n = 14

Slope = 0 units per year.

Mann-Kendall statistic = 14 critical = 37

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Fluoride Analysis Run 7/24/2019 10:29 AM

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

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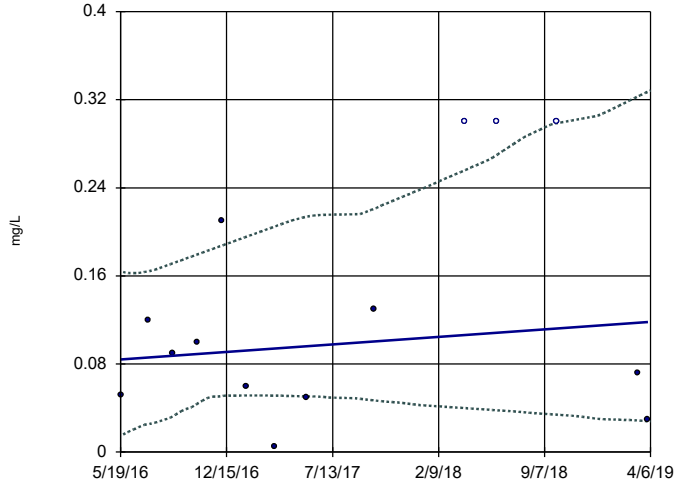
Hollow symbols indicate censored values.

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 significant at 95% confidence level (α = 0.025 per tail).

Constituent: Fluoride Analysis Run 7/24/2019 10:29 AM

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

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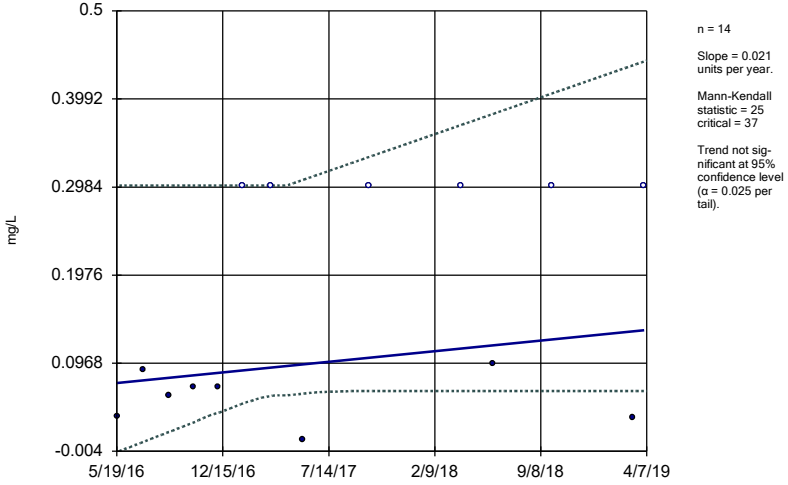
Hollow symbols indicate censored values.

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 significant at 95% confidence level (α = 0.025 per tail).

Constituent: Fluoride Analysis Run 7/24/2019 10:29 AM

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

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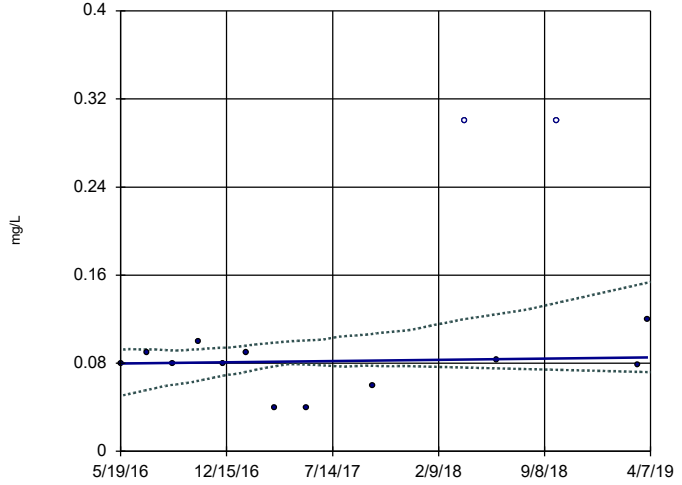
Hollow symbols indicate censored values.

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 significant at 95% confidence level (α = 0.025 per tail).

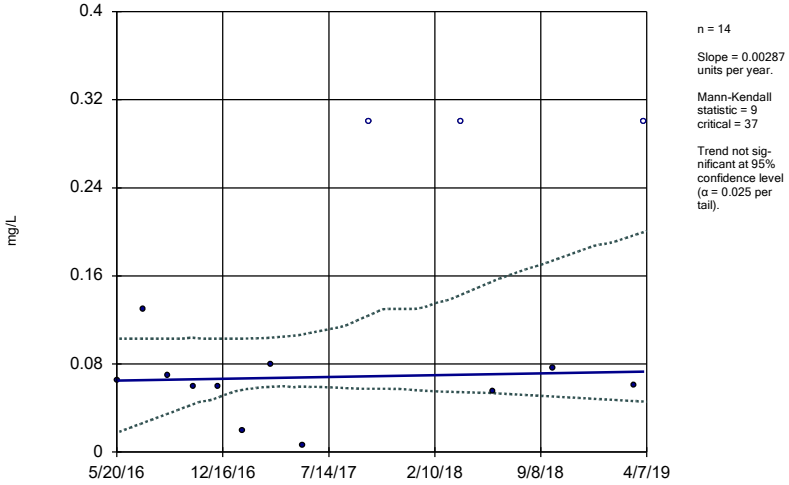
Constituent: Fluoride Analysis Run 7/24/2019 10:29 AM

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

Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

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 significant at 95% confidence level (α = 0.025 per tail).

Constituent: Fluoride Analysis Run 7/24/2019 10:29 AM

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

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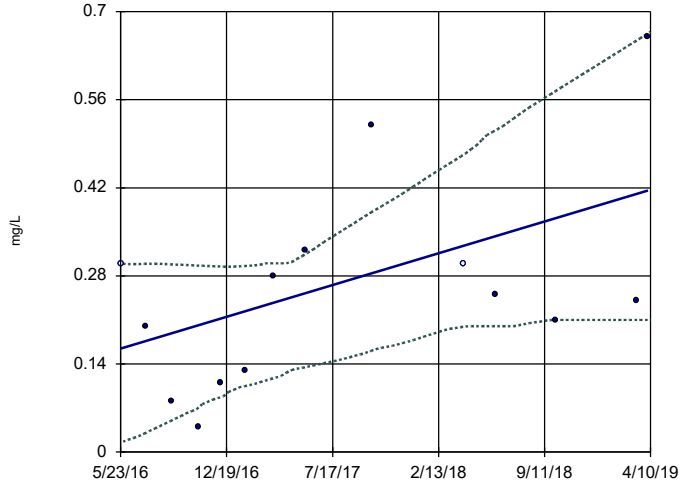
Hollow symbols indicate censored values.

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 significant at 95% confidence level (α = 0.025 per tail).

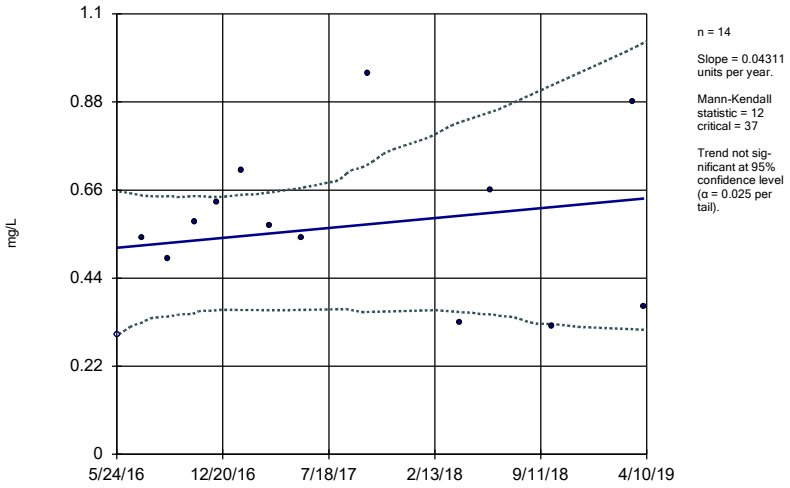
Constituent: Fluoride Analysis Run 7/24/2019 10:29 AM

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

Hollow symbols indicate censored values.

Sen's Slope and 95% Confidence Band

HGWC-18



n = 14

Slope = 0.04311 units per year.

Mann-Kendall statistic = 12
critical = 37

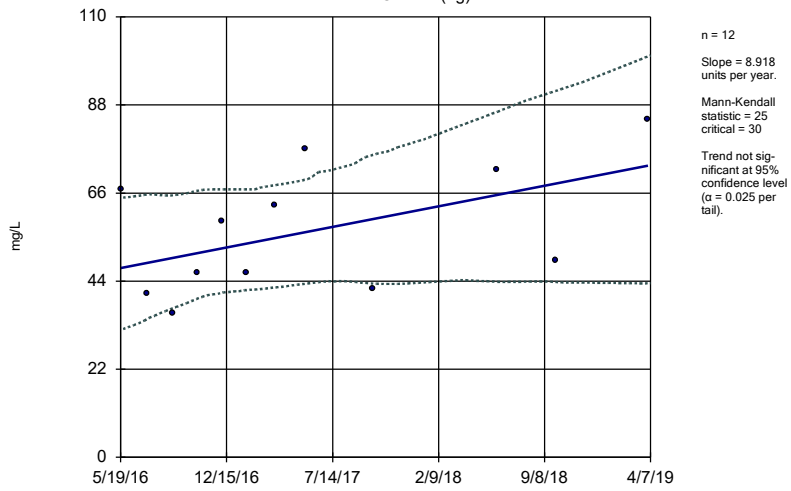
Trend not significant at 95% confidence level (α = 0.025 per tail).

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-1 (bg)



n = 12

Slope = 8.918 units per year.

Mann-Kendall statistic = 25
critical = 30

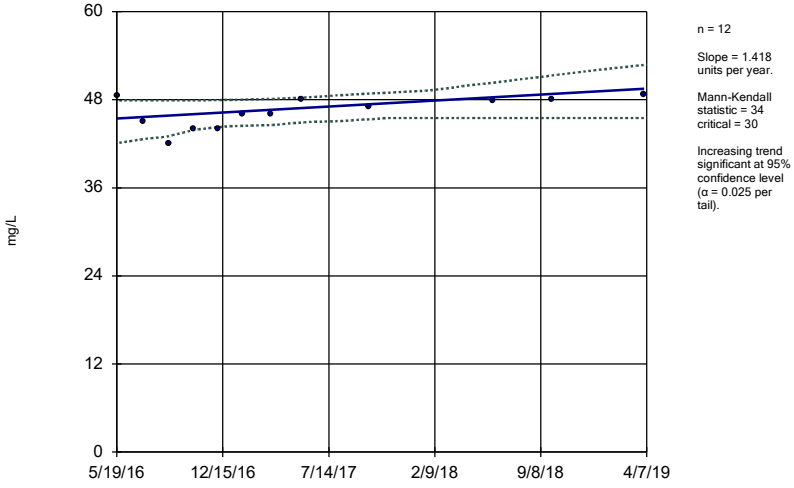
Trend not significant at 95% confidence level (α = 0.025 per tail).

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-2 (bg)



n = 12

Slope = 1.418 units per year.

Mann-Kendall statistic = 34
critical = 30

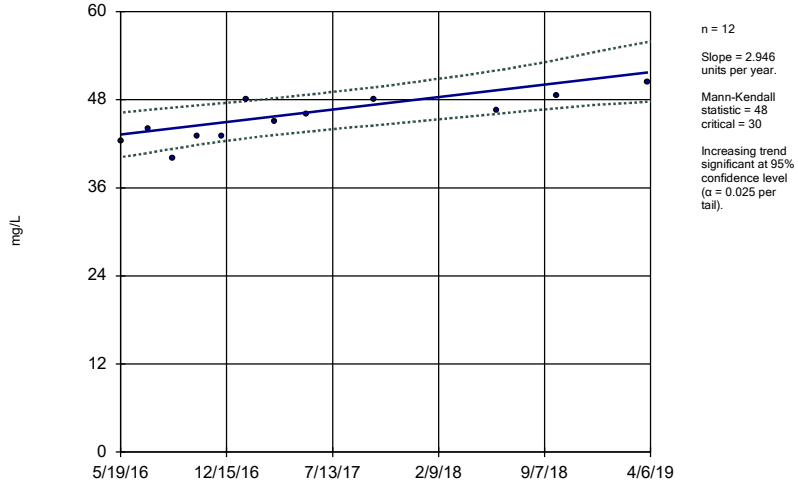
Increasing trend significant at 95% confidence level (α = 0.025 per tail).

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-3 (bg)



n = 12

Slope = 2.946 units per year.

Mann-Kendall statistic = 48
critical = 30

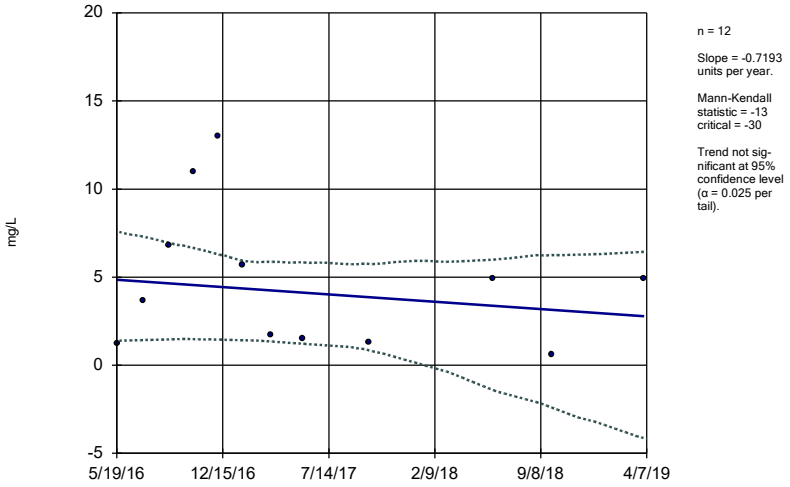
Increasing trend significant at 95% confidence level (α = 0.025 per tail).

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-4 (bg)



n = 12

Slope = -0.7193 units per year.

Mann-Kendall statistic = -13
critical = -30

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Sulfate Analysis Run 7/24/2019 10:29 AM

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

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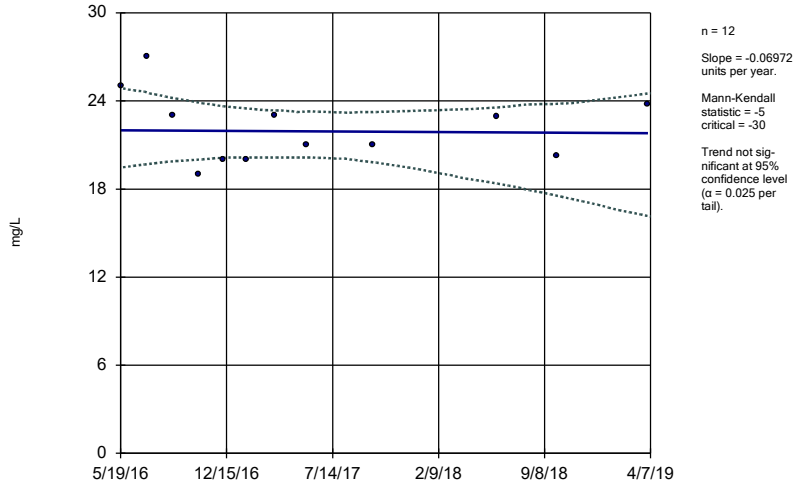
Sen's Slope and 95% Confidence Band

HGWA-5 (bg)



n = 12

Slope = -0.06972 units per year.

Mann-Kendall statistic = -5
critical = -30

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Sulfate Analysis Run 7/24/2019 10:29 AM

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

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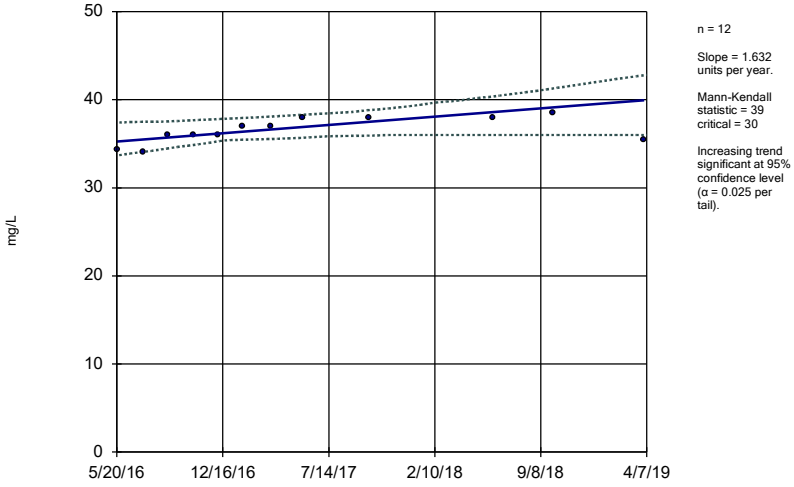
Sen's Slope and 95% Confidence Band

HGWA-6 (bg)



n = 12

Slope = 1.632 units per year.

Mann-Kendall statistic = 39
critical = 30

Increasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Sulfate Analysis Run 7/24/2019 10:29 AM

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

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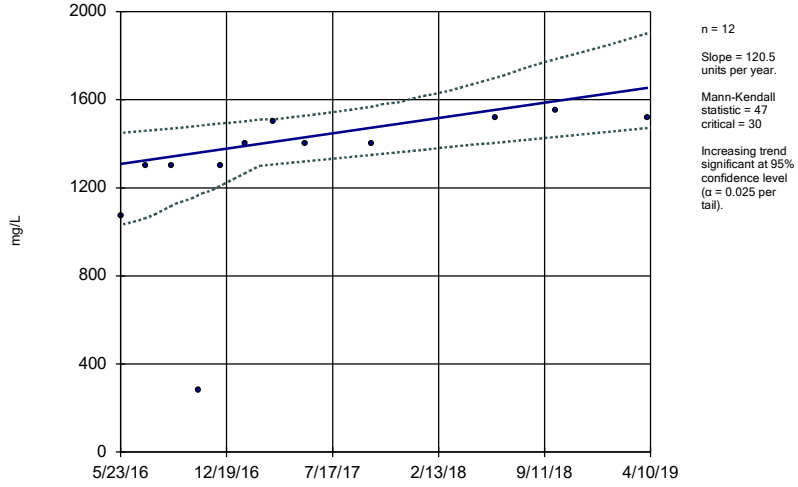
Sen's Slope and 95% Confidence Band

HGWC-14



n = 12

Slope = 120.5 units per year.

Mann-Kendall statistic = 47
critical = 30

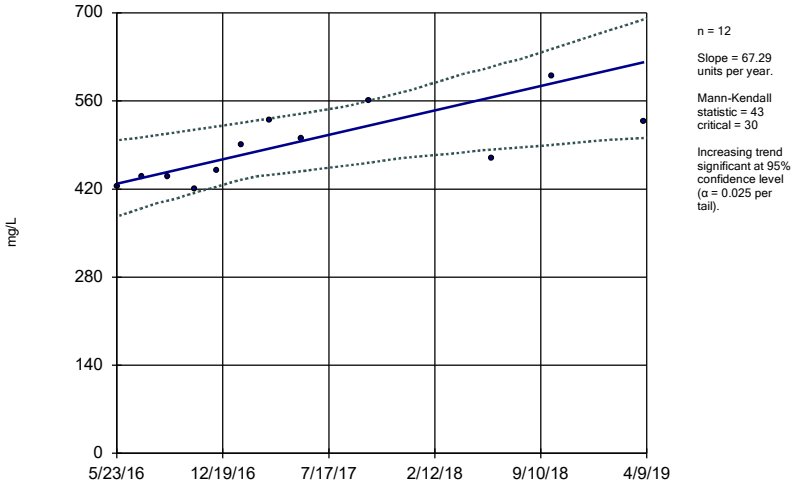
Increasing trend significant at 95% confidence level (α = 0.025 per tail).

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-15



n = 12

Slope = 67.29 units per year.

Mann-Kendall statistic = 43 critical = 30

Increasing trend significant at 95% confidence level (α = 0.025 per tail).

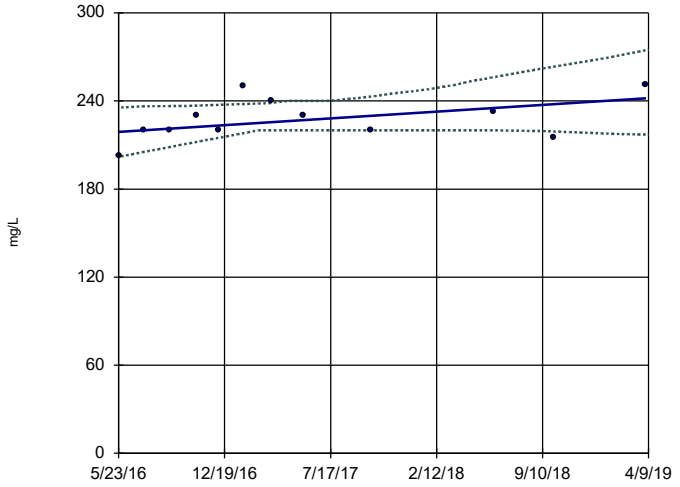
Constituent: Sulfate Analysis Run 7/24/2019 10:29 AM

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

Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG

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 significant at 95% confidence level (α = 0.025 per tail).

Constituent: Sulfate Analysis Run 7/24/2019 10:29 AM

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

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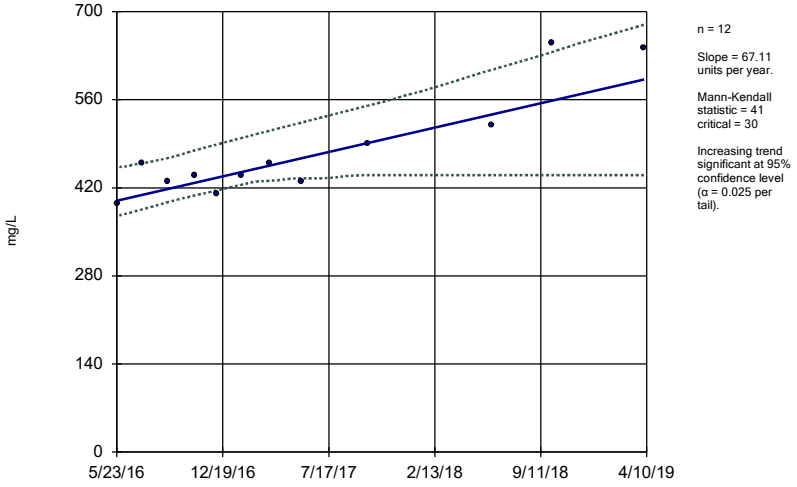
Sen's Slope and 95% Confidence Band

HGWC-17



n = 12

Slope = 67.11 units per year.

Mann-Kendall statistic = 41 critical = 30

Increasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Sulfate Analysis Run 7/24/2019 10:29 AM

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

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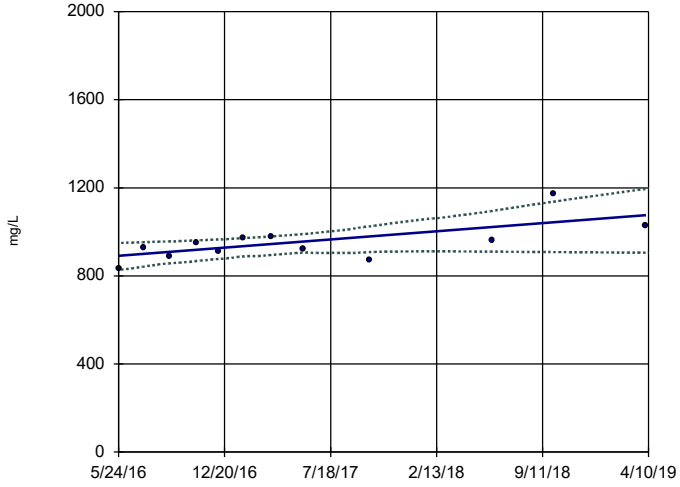
Sen's Slope and 95% Confidence Band

HGWC-18



n = 12

Slope = 64.07 units per year.

Mann-Kendall statistic = 32 critical = 30

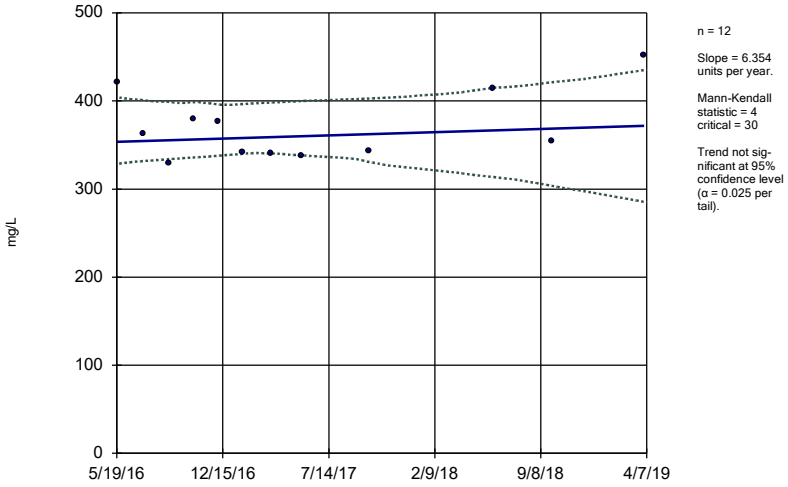
Increasing trend significant at 95% confidence level (α = 0.025 per tail).

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)



n = 12

Slope = 6.354 units per year.

Mann-Kendall statistic = 4 critical = 30

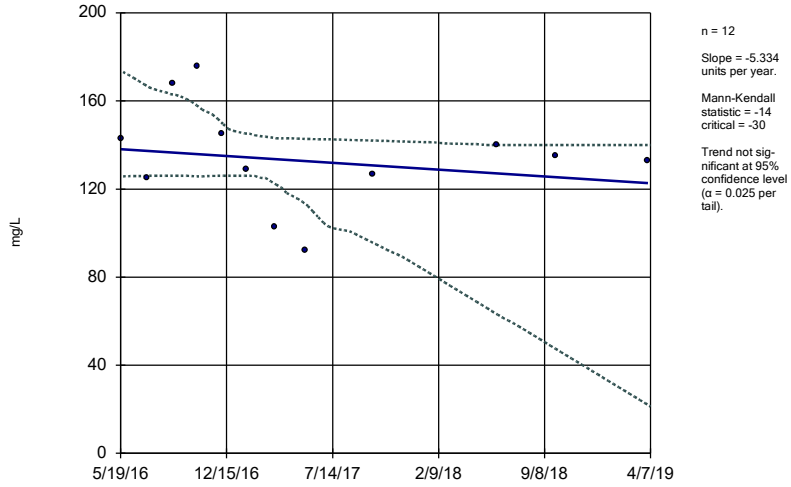
Trend not significant at 95% confidence level (α = 0.025 per tail).

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)



n = 12

Slope = -5.334 units per year.

Mann-Kendall statistic = -14 critical = -30

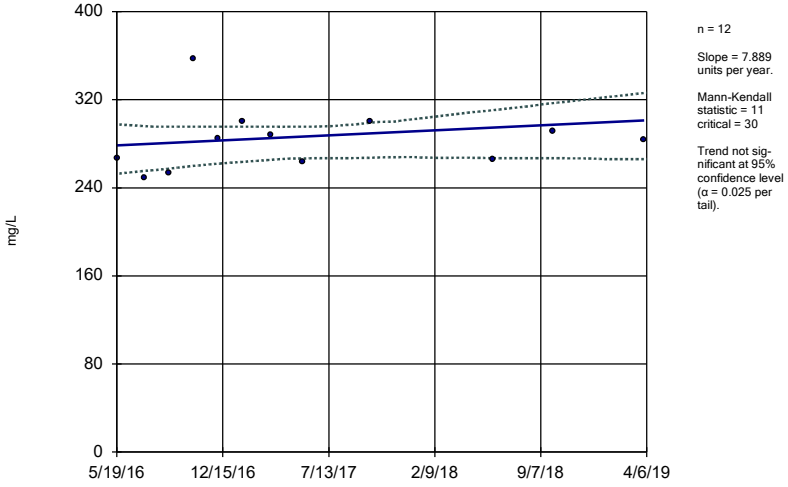
Trend not significant at 95% confidence level (α = 0.025 per tail).

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)



n = 12

Slope = 7.889 units per year.

Mann-Kendall statistic = 11 critical = 30

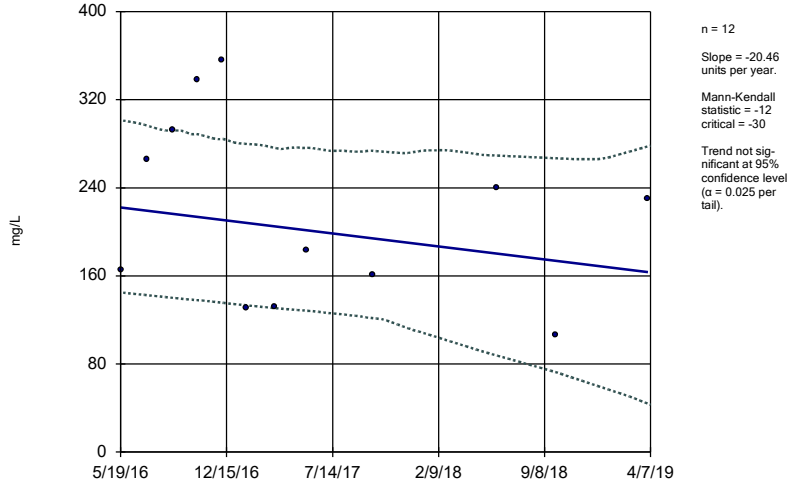
Trend not significant at 95% confidence level (α = 0.025 per tail).

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)



n = 12

Slope = -20.46 units per year.

Mann-Kendall statistic = -12 critical = -30

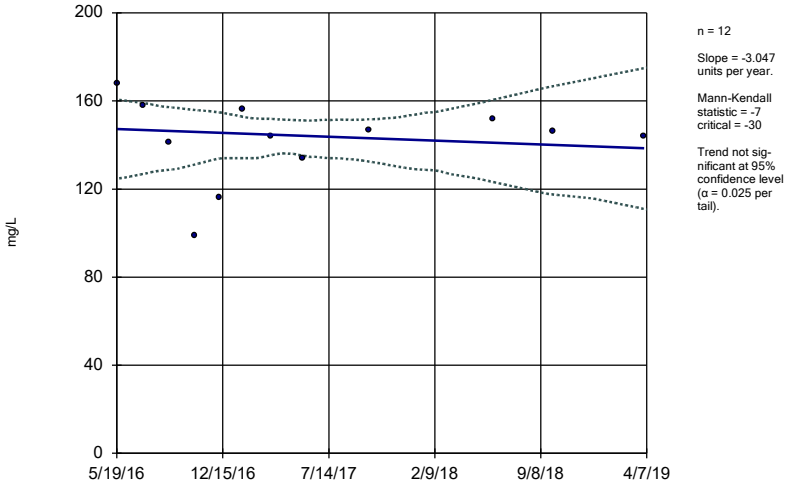
Trend not significant at 95% confidence level (α = 0.025 per tail).

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-5 (bg)



n = 12

Slope = -3.047 units per year.

Mann-Kendall statistic = -7 critical = -30

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Total Dissolved Solids Analysis Run 7/24/2019 10:30 AM

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

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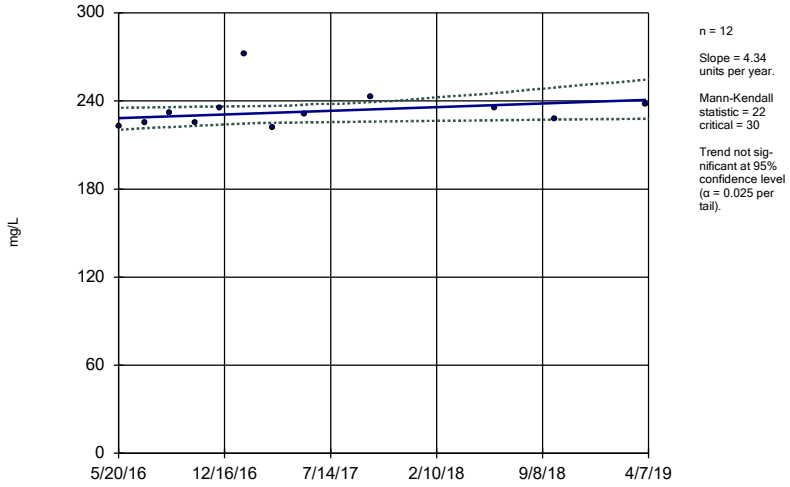
Sen's Slope and 95% Confidence Band

HGWA-6 (bg)



n = 12

Slope = 4.34 units per year.

Mann-Kendall statistic = 22 critical = 30

Trend not significant at 95% confidence level (α = 0.025 per tail).

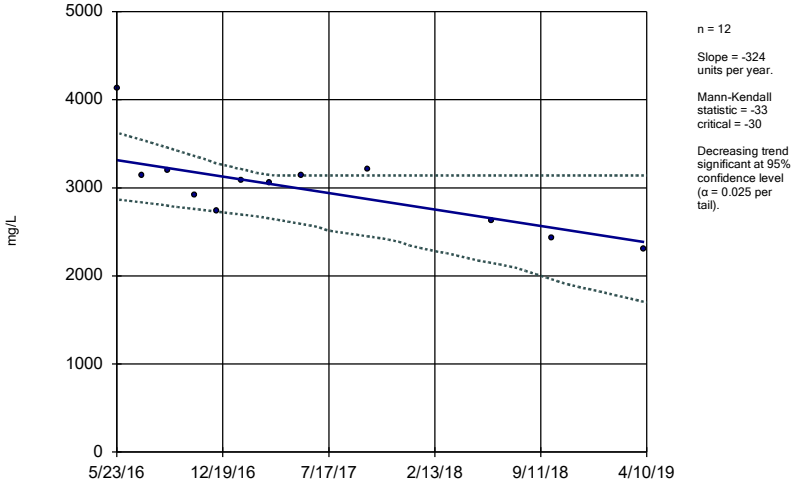
Constituent: Total Dissolved Solids Analysis Run 7/24/2019 10:30 AM

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

Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG

Sen's Slope and 95% Confidence Band

HGWC-14



n = 12

Slope = -324 units per year.

Mann-Kendall statistic = -33 critical = -30

Decreasing trend significant at 95% confidence level (α = 0.025 per tail).

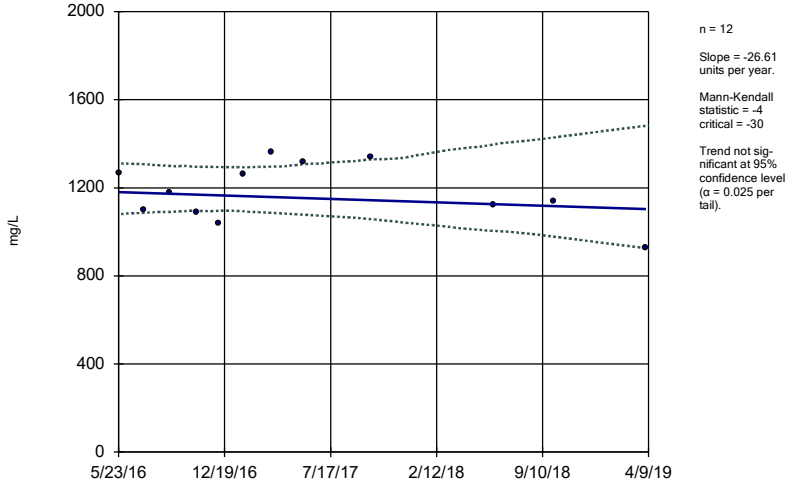
Constituent: Total Dissolved Solids Analysis Run 7/24/2019 10:30 AM

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

Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG

Sen's Slope and 95% Confidence Band

HGWC-15



n = 12

Slope = -26.61 units per year.

Mann-Kendall statistic = -4 critical = -30

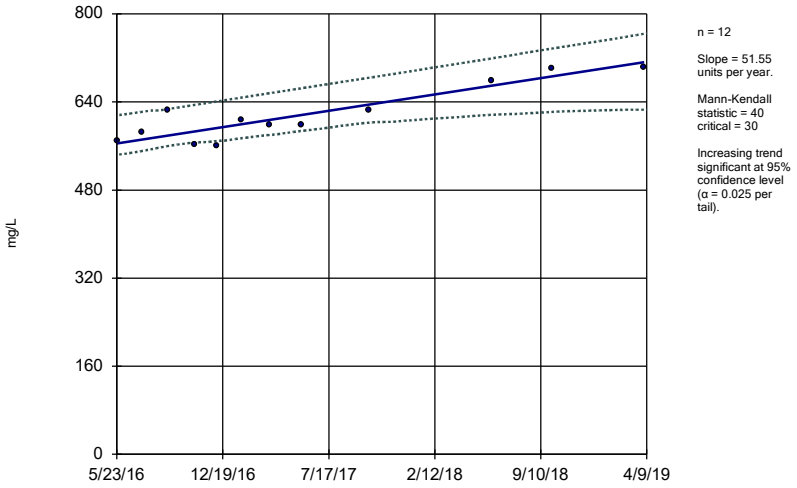
Trend not significant at 95% confidence level (α = 0.025 per tail).

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



n = 12

Slope = 51.55 units per year.

Mann-Kendall statistic = 40 critical = 30

Increasing trend significant at 95% confidence level (α = 0.025 per tail).

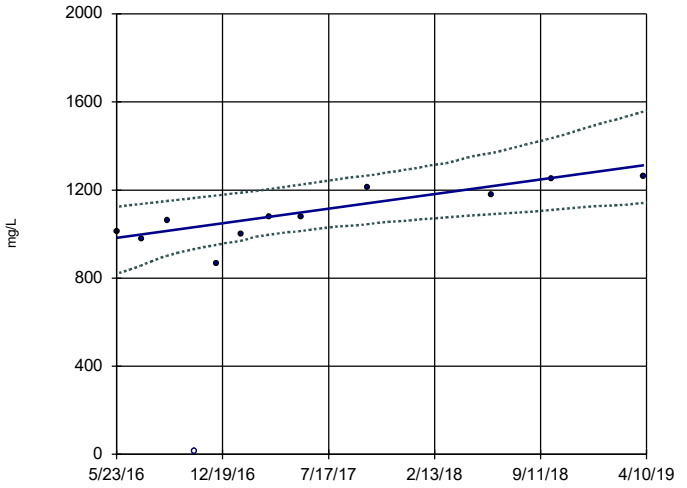
Constituent: Total Dissolved Solids Analysis Run 7/24/2019 10:30 AM

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

Hollow symbols indicate censored values.

Sen's Slope and 95% Confidence Band

HGWC-17



n = 12

Slope = 114.8 units per year.

Mann-Kendall statistic = 45 critical = 30

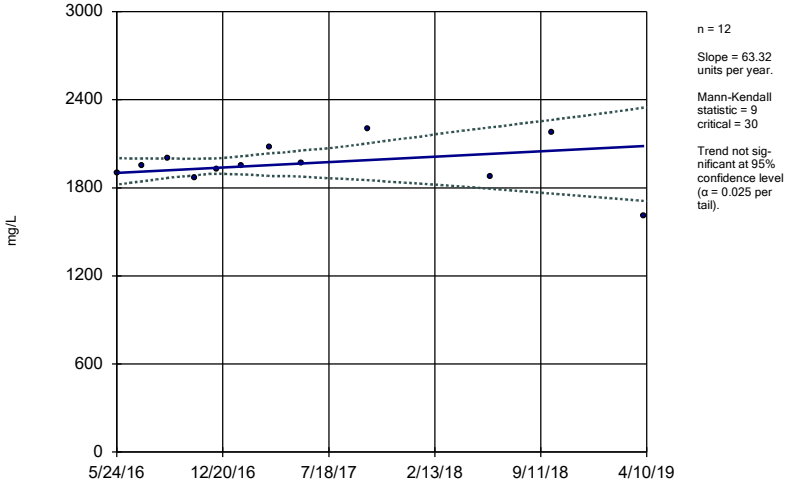
Increasing trend significant at 95% confidence level (α = 0.025 per tail).

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



n = 12

Slope = 63.32 units per year.

Mann-Kendall statistic = 9 critical = 30

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Total Dissolved Solids Analysis Run 7/24/2019 10:30 AM

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

Prediction Limit (AM 02) - Significant Results

Hammond AP Client: Georgia Power Data: Hammond AP-2 Printed 12/16/2019, 5:16 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Boron (mg/L)	HGWC-14	0.04407	n/a	9/24/2019	14.7	Yes	78	7.692	ln(x)	0.001504	Param Inter 1 of 2
Boron (mg/L)	HGWC-15	0.04407	n/a	9/24/2019	2.9	Yes	78	7.692	ln(x)	0.001504	Param Inter 1 of 2
Boron (mg/L)	HGWC-16	0.04407	n/a	9/25/2019	2.7	Yes	78	7.692	ln(x)	0.001504	Param Inter 1 of 2
Boron (mg/L)	HGWC-17	0.04407	n/a	9/25/2019	8.1	Yes	78	7.692	ln(x)	0.001504	Param Inter 1 of 2
Boron (mg/L)	HGWC-18	0.04407	n/a	9/25/2019	11.7	Yes	78	7.692	ln(x)	0.001504	Param Inter 1 of 2
Calcium (mg/L)	HGWC-14	122.8	n/a	9/24/2019	507	Yes	78	0	sqrt(x)	0.001504	Param Inter 1 of 2
Calcium (mg/L)	HGWC-15	122.8	n/a	9/24/2019	202	Yes	78	0	sqrt(x)	0.001504	Param Inter 1 of 2
Calcium (mg/L)	HGWC-16	122.8	n/a	9/25/2019	185	Yes	78	0	sqrt(x)	0.001504	Param Inter 1 of 2
Calcium (mg/L)	HGWC-17	122.8	n/a	9/25/2019	305	Yes	78	0	sqrt(x)	0.001504	Param Inter 1 of 2
Calcium (mg/L)	HGWC-18	122.8	n/a	9/25/2019	437	Yes	78	0	sqrt(x)	0.001504	Param Inter 1 of 2
Chloride (mg/L)	HGWC-14	20.3	n/a	9/24/2019	188	Yes	78	0	n/a	0.000317	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-15	20.3	n/a	9/24/2019	120	Yes	78	0	n/a	0.000317	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-16	20.3	n/a	9/25/2019	84.4	Yes	78	0	n/a	0.000317	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-17	20.3	n/a	9/25/2019	139	Yes	78	0	n/a	0.000317	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-18	20.3	n/a	9/25/2019	181	Yes	78	0	n/a	0.000317	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-18	0.36	n/a	9/25/2019	0.73	Yes	90	30	n/a	0.0002377	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-14	7.69	4.9	9/24/2019	4.77	Yes	90	0	n/a	0.0004753	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-18	7.69	4.9	9/25/2019	4.54	Yes	90	0	n/a	0.0004753	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-14	84.3	n/a	9/24/2019	1110	Yes	78	1.282	n/a	0.000317	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-15	84.3	n/a	9/24/2019	382	Yes	78	1.282	n/a	0.000317	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-16	84.3	n/a	9/25/2019	223	Yes	78	1.282	n/a	0.000317	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-17	84.3	n/a	9/25/2019	434	Yes	78	1.282	n/a	0.000317	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-18	84.3	n/a	9/25/2019	920	Yes	78	1.282	n/a	0.000317	NP Inter (normality) 1 of 2
Total Dissolved Solids (mg/L)	HGWC-14	416.7	n/a	9/24/2019	2470	Yes	78	0	sqrt(x)	0.001504	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-15	416.7	n/a	9/24/2019	1140	Yes	78	0	sqrt(x)	0.001504	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-16	416.7	n/a	9/25/2019	813	Yes	78	0	sqrt(x)	0.001504	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-17	416.7	n/a	9/25/2019	1280	Yes	78	0	sqrt(x)	0.001504	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-18	416.7	n/a	9/25/2019	1960	Yes	78	0	sqrt(x)	0.001504	Param Inter 1 of 2

Prediction Limit (AM 02) - All Results

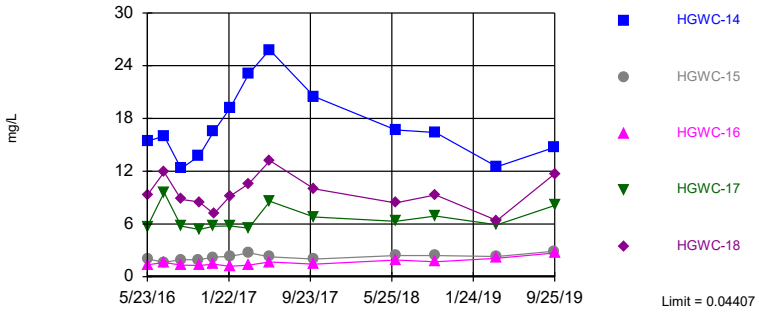
Hammond AP Client: Georgia Power Data: Hammond AP-2 Printed 12/16/2019, 5:16 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Boron (mg/L)	**HGWC-14**	**0.04407**	**n/a**	**9/24/2019**	**14.7**	**Yes**	**78**	**7.692**	**ln(x)**	**0.001504**	**Param Inter 1 of 2**
Boron (mg/L)	**HGWC-15**	**0.04407**	**n/a**	**9/24/2019**	**2.9**	**Yes**	**78**	**7.692**	**ln(x)**	**0.001504**	**Param Inter 1 of 2**
Boron (mg/L)	**HGWC-16**	**0.04407**	**n/a**	**9/25/2019**	**2.7**	**Yes**	**78**	**7.692**	**ln(x)**	**0.001504**	**Param Inter 1 of 2**
Boron (mg/L)	**HGWC-17**	**0.04407**	**n/a**	**9/25/2019**	**8.1**	**Yes**	**78**	**7.692**	**ln(x)**	**0.001504**	**Param Inter 1 of 2**
Boron (mg/L)	**HGWC-18**	**0.04407**	**n/a**	**9/25/2019**	**11.7**	**Yes**	**78**	**7.692**	**ln(x)**	**0.001504**	**Param Inter 1 of 2**
Calcium (mg/L)	**HGWC-14**	**122.8**	**n/a**	**9/24/2019**	**507**	**Yes**	**78**	**0**	**sqrt(x)**	**0.001504**	**Param Inter 1 of 2**
Calcium (mg/L)	**HGWC-15**	**122.8**	**n/a**	**9/24/2019**	**202**	**Yes**	**78**	**0**	**sqrt(x)**	**0.001504**	**Param Inter 1 of 2**
Calcium (mg/L)	**HGWC-16**	**122.8**	**n/a**	**9/25/2019**	**185**	**Yes**	**78**	**0**	**sqrt(x)**	**0.001504**	**Param Inter 1 of 2**
Calcium (mg/L)	**HGWC-17**	**122.8**	**n/a**	**9/25/2019**	**305**	**Yes**	**78**	**0**	**sqrt(x)**	**0.001504**	**Param Inter 1 of 2**
Calcium (mg/L)	**HGWC-18**	**122.8**	**n/a**	**9/25/2019**	**437**	**Yes**	**78**	**0**	**sqrt(x)**	**0.001504**	**Param Inter 1 of 2**
Chloride (mg/L)	**HGWC-14**	**20.3**	**n/a**	**9/24/2019**	**188**	**Yes**	**78**	**0**	**n/a**	**0.000317**	**NP Inter (normality) 1 of 2**
Chloride (mg/L)	**HGWC-15**	**20.3**	**n/a**	**9/24/2019**	**120**	**Yes**	**78**	**0**	**n/a**	**0.000317**	**NP Inter (normality) 1 of 2**
Chloride (mg/L)	**HGWC-16**	**20.3**	**n/a**	**9/25/2019**	**84.4**	**Yes**	**78**	**0**	**n/a**	**0.000317**	**NP Inter (normality) 1 of 2**
Chloride (mg/L)	**HGWC-17**	**20.3**	**n/a**	**9/25/2019**	**139**	**Yes**	**78**	**0**	**n/a**	**0.000317**	**NP Inter (normality) 1 of 2**
Chloride (mg/L)	**HGWC-18**	**20.3**	**n/a**	**9/25/2019**	**181**	**Yes**	**78**	**0**	**n/a**	**0.000317**	**NP Inter (normality) 1 of 2**
Fluoride (mg/L)	HGWC-14	0.36	n/a	9/24/2019	0.053	No	90	30	n/a	0.0002377	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-15	0.36	n/a	9/24/2019	0.12	No	90	30	n/a	0.0002377	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-16	0.36	n/a	9/25/2019	0.3ND	No	90	30	n/a	0.0002377	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-17	0.36	n/a	9/25/2019	0.081	No	90	30	n/a	0.0002377	NP Inter (normality) 1 of 2
Fluoride (mg/L)	**HGWC-18**	**0.36**	**n/a**	**9/25/2019**	**0.73**	**Yes**	**90**	**30**	**n/a**	**0.0002377**	**NP Inter (normality) 1 of 2**
pH (s.u.)	**HGWC-14**	**7.69**	**4.9**	**9/24/2019**	**4.77**	**Yes**	**90**	**0**	**n/a**	**0.0004753**	**NP Inter (normality) 1 of 2**
pH (s.u.)	HGWC-15	7.69	4.9	9/24/2019	6.33	No	90	0	n/a	0.0004753	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-16	7.69	4.9	9/25/2019	6.92	No	90	0	n/a	0.0004753	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-17	7.69	4.9	9/25/2019	6.28	No	90	0	n/a	0.0004753	NP Inter (normality) 1 of 2
pH (s.u.)	**HGWC-18**	**7.69**	**4.9**	**9/25/2019**	**4.54**	**Yes**	**90**	**0**	**n/a**	**0.0004753**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**HGWC-14**	**84.3**	**n/a**	**9/24/2019**	**1110**	**Yes**	**78**	**1.282**	**n/a**	**0.000317**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**HGWC-15**	**84.3**	**n/a**	**9/24/2019**	**382**	**Yes**	**78**	**1.282**	**n/a**	**0.000317**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**HGWC-16**	**84.3**	**n/a**	**9/25/2019**	**223**	**Yes**	**78**	**1.282**	**n/a**	**0.000317**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**HGWC-17**	**84.3**	**n/a**	**9/25/2019**	**434**	**Yes**	**78**	**1.282**	**n/a**	**0.000317**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**HGWC-18**	**84.3**	**n/a**	**9/25/2019**	**920**	**Yes**	**78**	**1.282**	**n/a**	**0.000317**	**NP Inter (normality) 1 of 2**
Total Dissolved Solids (mg/L)	**HGWC-14**	**416.7**	**n/a**	**9/24/2019**	**2470**	**Yes**	**78**	**0**	**sqrt(x)**	**0.001504**	**Param Inter 1 of 2**
Total Dissolved Solids (mg/L)	**HGWC-15**	**416.7**	**n/a**	**9/24/2019**	**1140**	**Yes**	**78**	**0**	**sqrt(x)**	**0.001504**	**Param Inter 1 of 2**
Total Dissolved Solids (mg/L)	**HGWC-16**	**416.7**	**n/a**	**9/25/2019**	**813**	**Yes**	**78**	**0**	**sqrt(x)**	**0.001504**	**Param Inter 1 of 2**
Total Dissolved Solids (mg/L)	**HGWC-17**	**416.7**	**n/a**	**9/25/2019**	**1280**	**Yes**	**78**	**0**	**sqrt(x)**	**0.001504**	**Param Inter 1 of 2**
Total Dissolved Solids (mg/L)	**HGWC-18**	**416.7**	**n/a**	**9/25/2019**	**1960**	**Yes**	**78**	**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=-4.172, Std. Dev.=0.5769, n=78, 7.692% NDs. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9711, critical = 0.957. Kappa = 1.82 (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.

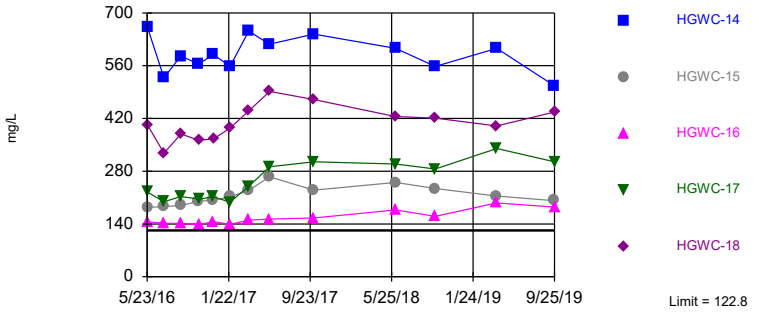
Constituent: Boron Analysis Run 12/16/2019 5:11 PM

Hammond AP Client: Georgia Power 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=7.248, Std. Dev.=2.107, n=78. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9578, critical = 0.957. Kappa = 1.82 (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.

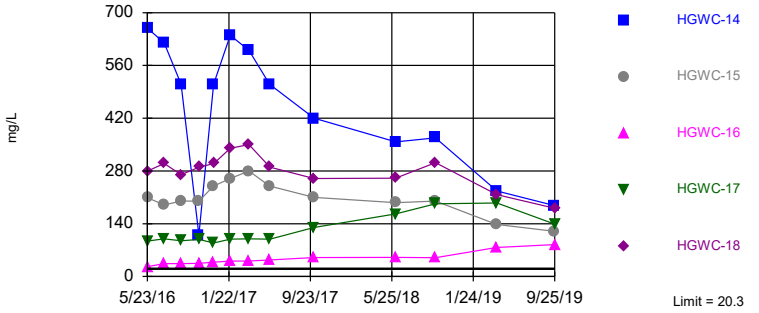
Constituent: Calcium Analysis Run 12/16/2019 5:11 PM

Hammond AP Client: Georgia Power 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 78 background values. Annual per-constituent alpha = 0.003165. Individual comparison alpha = 0.000317 (1 of 2). Comparing 5 points to limit.

Constituent: Chloride Analysis Run 12/16/2019 5:11 PM

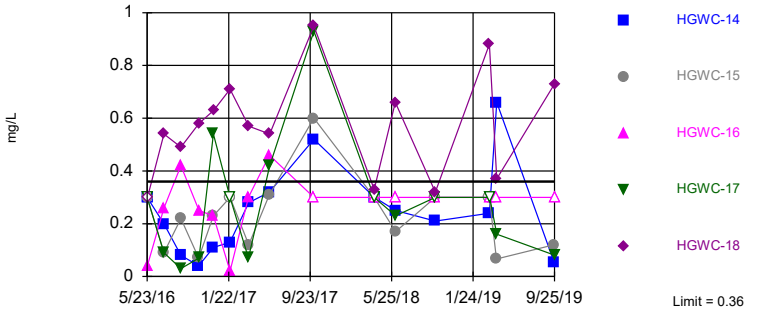
Hammond AP Client: Georgia Power Data: Hammond AP-2

Hollow symbols indicate censored values.

Exceeds Limit: 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 90 background values. 30% NDs. Annual per-constituent alpha = 0.002374. Individual comparison alpha = 0.0002377 (1 of 2). Comparing 5 points to limit.

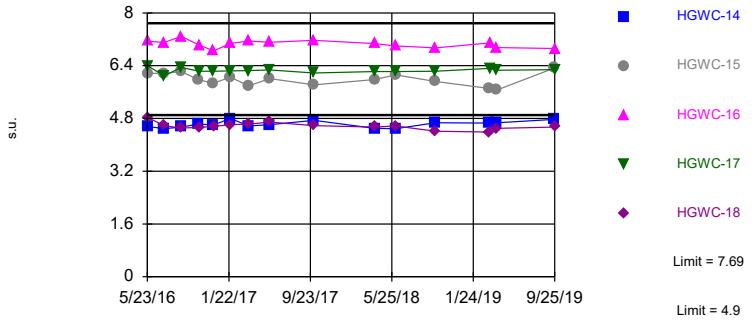
Constituent: Fluoride Analysis Run 12/16/2019 5:11 PM

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

Exceeds Limits: 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. Limits are highest and lowest of 90 background values. Annual per-constituent alpha = 0.004748. Individual comparison alpha = 0.0004753 (1 of 2). Comparing 5 points to limit.

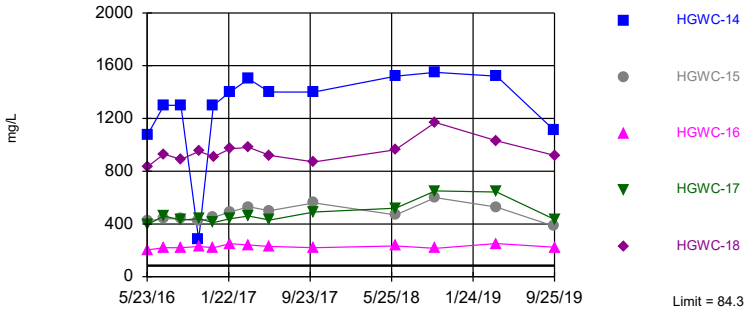
Constituent: pH Analysis Run 12/16/2019 5:11 PM

Hammond AP Client: Georgia Power 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 78 background values. 1.282% NDs. Annual per-constituent alpha = 0.003165. Individual comparison alpha = 0.000317 (1 of 2). Comparing 5 points to limit.

Constituent: Sulfate Analysis Run 12/16/2019 5:11 PM

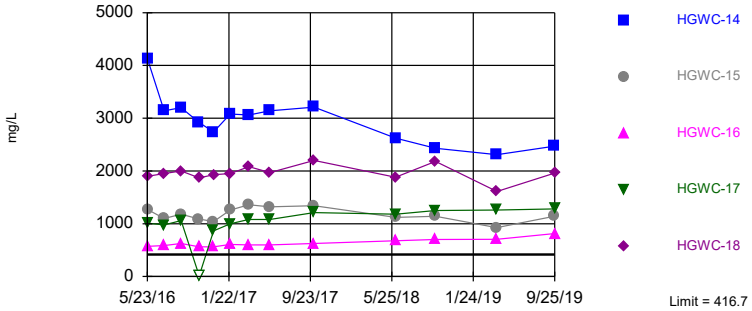
Hammond AP Client: Georgia Power Data: Hammond AP-2

Hollow symbols indicate censored values.

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=14.85, Std. Dev.=3.059, n=78. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9624, critical = 0.957. Kappa = 1.82 (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 12/16/2019 5:11 PM

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

Trend Test (AM 02) - Significant Results

Hammond AP Client: Georgia Power Data: Hammond AP-2 Printed 12/16/2019, 5:26 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Boron (mg/L)	**HGWC-15**	**0.2388**	**44**	**43**	**Yes**	**13**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Boron (mg/L)	**HGWC-16**	**0.2616**	**44**	**43**	**Yes**	**13**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Calcium (mg/L)	**HGWC-15**	**21.55**	**44**	**43**	**Yes**	**13**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Calcium (mg/L)	**HGWC-16**	**13.92**	**53**	**43**	**Yes**	**13**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Calcium (mg/L)	**HGWC-17**	**40.14**	**45**	**43**	**Yes**	**13**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Chloride (mg/L)	**HGWC-14**	**-127.8**	**-45**	**-43**	**Yes**	**13**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Chloride (mg/L)	**HGWC-16**	**15.63**	**72**	**43**	**Yes**	**13**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Chloride (mg/L)	**HGWC-17**	**25.36**	**52**	**43**	**Yes**	**13**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Sulfate (mg/L)	**HGWA-3 (bg)**	**2.359**	**44**	**43**	**Yes**	**13**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Total Dissolved Solids (mg/L)	**HGWC-16**	**55.46**	**52**	**43**	**Yes**	**13**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Total Dissolved Solids (mg/L)	**HGWC-17**	**102.7**	**57**	**43**	**Yes**	**13**	**7.692**	**n/a**	**n/a**	**0.01**	**NP**

Trend Test (AM 02) - All Results

Hammond AP Client: Georgia Power Data: Hammond AP-2 Printed 12/16/2019, 5:26 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Boron (mg/L)	HGWA-1 (bg)	-0.00007761	-2	-43	No	13	0	n/a	n/a	0.01	NP
Boron (mg/L)	HGWA-2 (bg)	0.001938	36	43	No	13	0	n/a	n/a	0.01	NP
Boron (mg/L)	HGWA-3 (bg)	-0.0008154	-20	-43	No	13	15.38	n/a	n/a	0.01	NP
Boron (mg/L)	HGWA-4 (bg)	-0.00197	-32	-43	No	13	7.692	n/a	n/a	0.01	NP
Boron (mg/L)	HGWA-5 (bg)	-0.0005293	-12	-43	No	13	15.38	n/a	n/a	0.01	NP
Boron (mg/L)	HGWA-6 (bg)	-0.001592	-30	-43	No	13	7.692	n/a	n/a	0.01	NP
Boron (mg/L)	HGWC-14	0.3554	8	43	No	13	0	n/a	n/a	0.01	NP
Boron (mg/L)	**HGWC-15**	**0.2388**	**44**	**43**	**Yes**	**13**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Boron (mg/L)	**HGWC-16**	**0.2616**	**44**	**43**	**Yes**	**13**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Boron (mg/L)	HGWC-17	0.2932	24	43	No	13	0	n/a	n/a	0.01	NP
Boron (mg/L)	HGWC-18	-0.06223	-4	-43	No	13	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWA-1 (bg)	6.226	34	43	No	13	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWA-2 (bg)	-0.8743	-12	-43	No	13	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWA-3 (bg)	2.805	26	43	No	13	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWA-4 (bg)	-5.219	-16	-43	No	13	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWA-5 (bg)	-0.8044	-12	-43	No	13	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWA-6 (bg)	0.1814	2	43	No	13	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWC-14	-8.589	-8	-43	No	13	0	n/a	n/a	0.01	NP
Calcium (mg/L)	**HGWC-15**	**21.55**	**44**	**43**	**Yes**	**13**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Calcium (mg/L)	**HGWC-16**	**13.92**	**53**	**43**	**Yes**	**13**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Calcium (mg/L)	**HGWC-17**	**40.14**	**45**	**43**	**Yes**	**13**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Calcium (mg/L)	HGWC-18	25.54	30	43	No	13	0	n/a	n/a	0.01	NP
Chloride (mg/L)	HGWA-1 (bg)	0.4947	9	43	No	13	0	n/a	n/a	0.01	NP
Chloride (mg/L)	HGWA-2 (bg)	-0.05758	-16	-43	No	13	0	n/a	n/a	0.01	NP
Chloride (mg/L)	HGWA-3 (bg)	0	5	43	No	13	0	n/a	n/a	0.01	NP
Chloride (mg/L)	HGWA-4 (bg)	-0.273	-43	-43	No	13	0	n/a	n/a	0.01	NP
Chloride (mg/L)	HGWA-5 (bg)	0	-5	-43	No	13	0	n/a	n/a	0.01	NP
Chloride (mg/L)	HGWA-6 (bg)	-0.007467	-9	-43	No	13	0	n/a	n/a	0.01	NP
Chloride (mg/L)	**HGWC-14**	**-127.8**	**-45**	**-43**	**Yes**	**13**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Chloride (mg/L)	HGWC-15	-21.09	-18	-43	No	13	0	n/a	n/a	0.01	NP
Chloride (mg/L)	**HGWC-16**	**15.63**	**72**	**43**	**Yes**	**13**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Chloride (mg/L)	**HGWC-17**	**25.36**	**52**	**43**	**Yes**	**13**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Chloride (mg/L)	HGWC-18	-21.85	-20	-43	No	13	0	n/a	n/a	0.01	NP
Fluoride (mg/L)	HGWA-1 (bg)	0.003862	7	53	No	15	13.33	n/a	n/a	0.01	NP
Fluoride (mg/L)	HGWA-2 (bg)	0	19	53	No	15	53.33	n/a	n/a	0.01	NP
Fluoride (mg/L)	HGWA-3 (bg)	0.03217	21	53	No	15	26.67	n/a	n/a	0.01	NP
Fluoride (mg/L)	HGWA-4 (bg)	0.02985	33	53	No	15	46.67	n/a	n/a	0.01	NP
Fluoride (mg/L)	HGWA-5 (bg)	0	1	53	No	15	13.33	n/a	n/a	0.01	NP
Fluoride (mg/L)	HGWA-6 (bg)	0.008808	20	53	No	15	26.67	n/a	n/a	0.01	NP
Fluoride (mg/L)	HGWC-18	0.05356	22	53	No	15	6.667	n/a	n/a	0.01	NP
pH (s.u.)	HGWA-1 (bg)	-0.06525	-40	-53	No	15	0	n/a	n/a	0.01	NP
pH (s.u.)	HGWA-2 (bg)	-0.09743	-35	-53	No	15	0	n/a	n/a	0.01	NP
pH (s.u.)	HGWA-3 (bg)	-0.03141	-14	-53	No	15	0	n/a	n/a	0.01	NP
pH (s.u.)	HGWA-4 (bg)	-0.1626	-32	-53	No	15	0	n/a	n/a	0.01	NP
pH (s.u.)	HGWA-5 (bg)	-0.04924	-38	-53	No	15	0	n/a	n/a	0.01	NP
pH (s.u.)	HGWA-6 (bg)	-0.03588	-32	-53	No	15	0	n/a	n/a	0.01	NP
pH (s.u.)	HGWC-14	0.04652	35	53	No	15	0	n/a	n/a	0.01	NP
pH (s.u.)	HGWC-18	-0.04363	-35	-53	No	15	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWA-1 (bg)	8.418	31	43	No	13	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWA-2 (bg)	1.285	36	43	No	13	0	n/a	n/a	0.01	NP

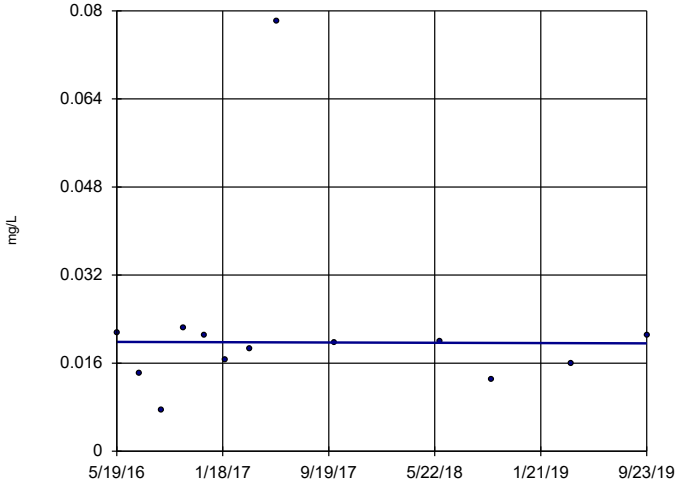
Trend Test (AM 02) - All Results

Hammond AP Client: Georgia Power Data: Hammond AP-2 Printed 12/16/2019, 5:26 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Sulfate (mg/L)	**HGWA-3 (bg)**	**2.359**	**44**	**43**	**Yes**	**13**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Sulfate (mg/L)	HGWA-4 (bg)	-0.7293	-25	-43	No	13	7.692	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWA-5 (bg)	-0.14	-9	-43	No	13	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWA-6 (bg)	1.213	31	43	No	13	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWC-14	111.2	39	43	No	13	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWC-15	42.15	31	43	No	13	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWC-16	3.986	21	43	No	13	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWC-17	54.62	37	43	No	13	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWC-18	40.85	29	43	No	13	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWA-1 (bg)	11.04	14	43	No	13	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWA-2 (bg)	-5.334	-17	-43	No	13	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWA-3 (bg)	2.517	9	43	No	13	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWA-4 (bg)	-23.09	-21	-43	No	13	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWA-5 (bg)	-3.858	-15	-43	No	13	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWA-6 (bg)	1.905	11	43	No	13	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWC-14	-280.1	-41	-43	No	13	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWC-15	-16.94	-5	-43	No	13	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	**HGWC-16**	**55.46**	**52**	**43**	**Yes**	**13**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Total Dissolved Solids (mg/L)	**HGWC-17**	**102.7**	**57**	**43**	**Yes**	**13**	**7.692**	**n/a**	**n/a**	**0.01**	**NP**
Total Dissolved Solids (mg/L)	HGWC-18	20.5	11	43	No	13	0	n/a	n/a	0.01	NP

Sen's Slope Estimator

HGWA-1 (bg)



n = 13

Slope = -0.00007761 units per year.

Mann-Kendall statistic = -2
critical = -43

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Boron Analysis Run 12/16/2019 5:23 PM

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

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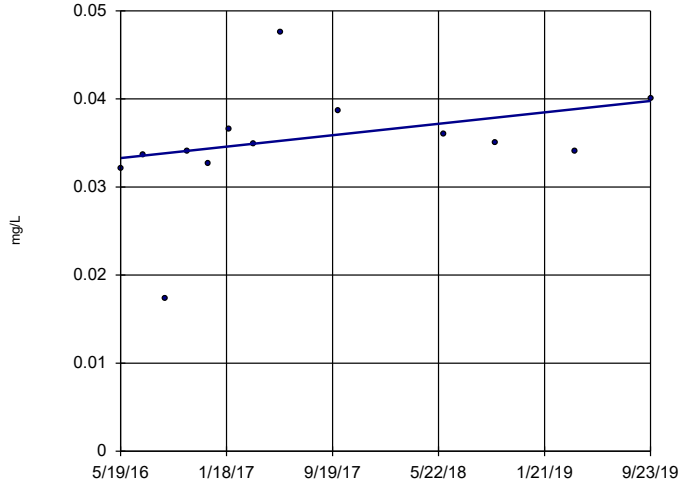
Sen's Slope Estimator

HGWA-2 (bg)



n = 13

Slope = 0.001938 units per year.

Mann-Kendall statistic = 36
critical = 43

Trend not significant at 99% confidence level (α = 0.005 per tail).

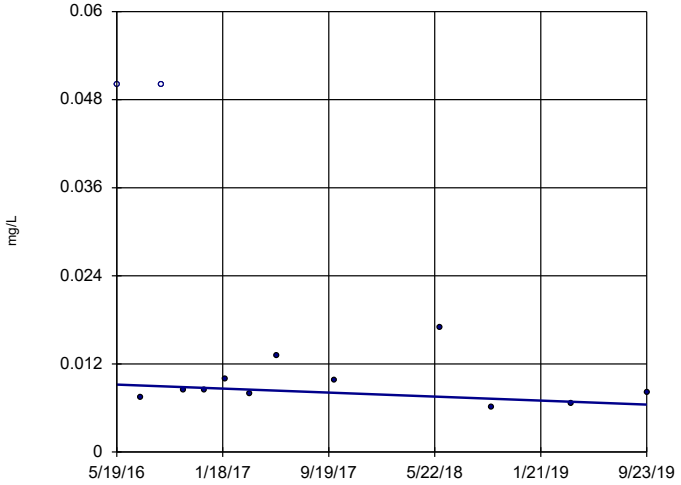
Constituent: Boron Analysis Run 12/16/2019 5:23 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWA-3 (bg)



n = 13

Slope = -0.0008154 units per year.

Mann-Kendall statistic = -20
critical = -43

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Boron Analysis Run 12/16/2019 5:23 PM

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

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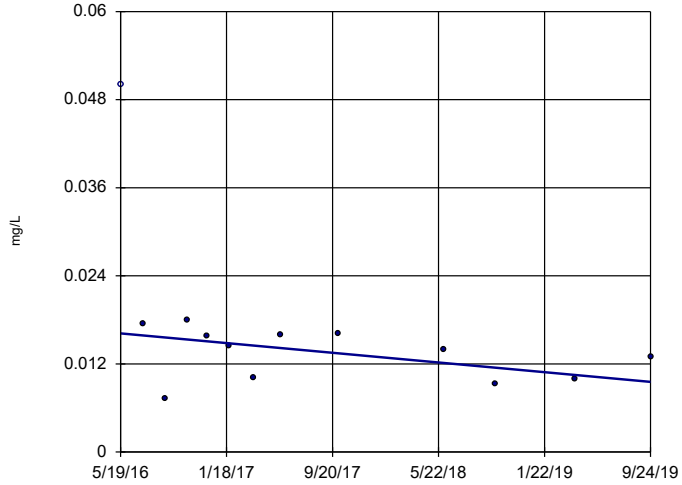
Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWA-4 (bg)



n = 13

Slope = -0.00197 units per year.

Mann-Kendall statistic = -32
critical = -43

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Boron Analysis Run 12/16/2019 5:23 PM

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

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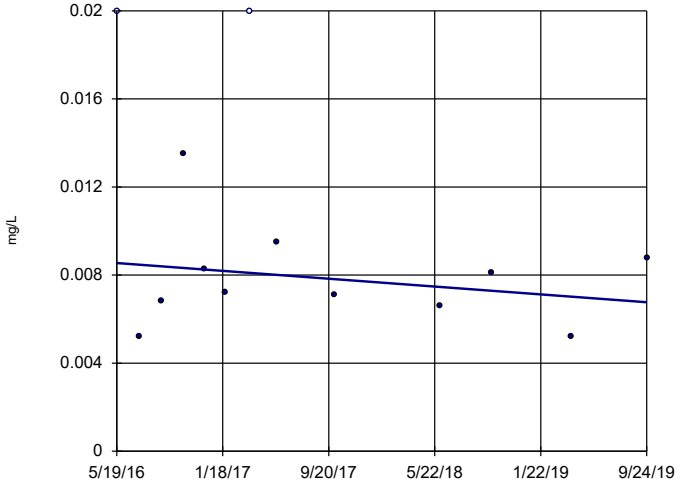
Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWA-5 (bg)



n = 13

Slope = -0.0005293 units per year.

Mann-Kendall statistic = -12
critical = -43

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Boron Analysis Run 12/16/2019 5:23 PM

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

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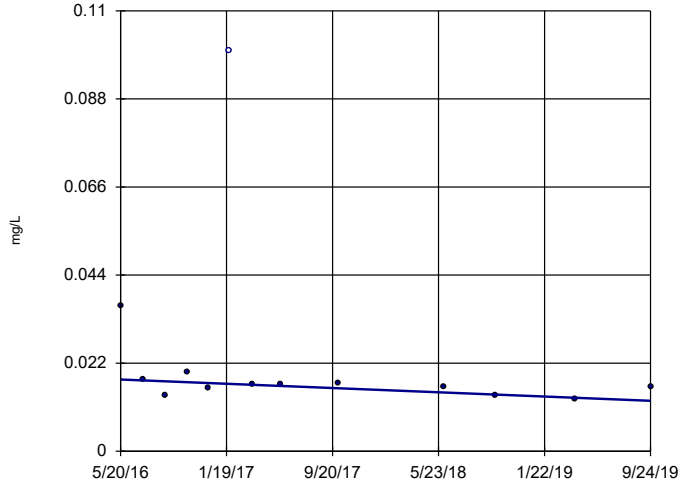
Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWA-6 (bg)



n = 13

Slope = -0.001592 units per year.

Mann-Kendall statistic = -30
critical = -43

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Boron Analysis Run 12/16/2019 5:23 PM

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

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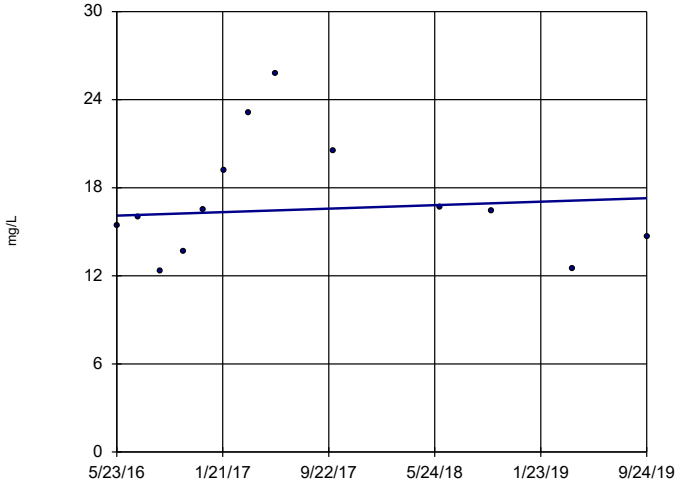
Sen's Slope Estimator

HGWC-14



n = 13

Slope = 0.3554 units per year.

Mann-Kendall statistic = 8
critical = 43

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Boron Analysis Run 12/16/2019 5:23 PM

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

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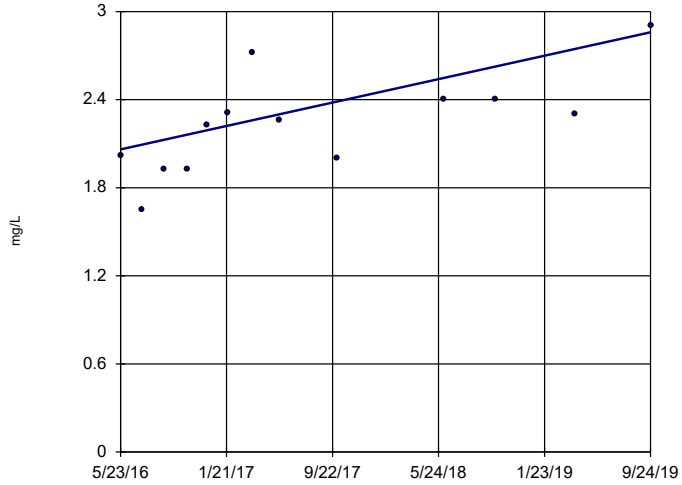
Sen's Slope Estimator

HGWC-15



n = 13

Slope = 0.2388 units per year.

Mann-Kendall statistic = 44
critical = 43

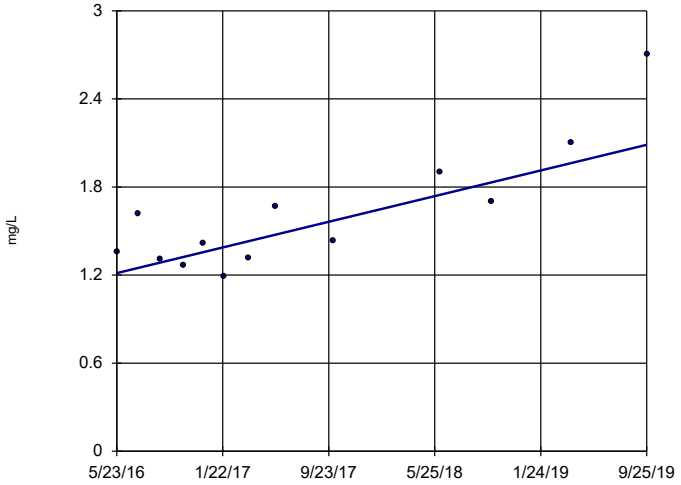
Increasing trend significant at 99% confidence level (α = 0.005 per tail).

Constituent: Boron Analysis Run 12/16/2019 5:23 PM

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

Sen's Slope Estimator

HGWC-16



n = 13

Slope = 0.2616 units per year.

Mann-Kendall statistic = 44
critical = 43

Increasing trend significant at 99% confidence level (α = 0.005 per tail).

Constituent: Boron Analysis Run 12/16/2019 5:23 PM

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

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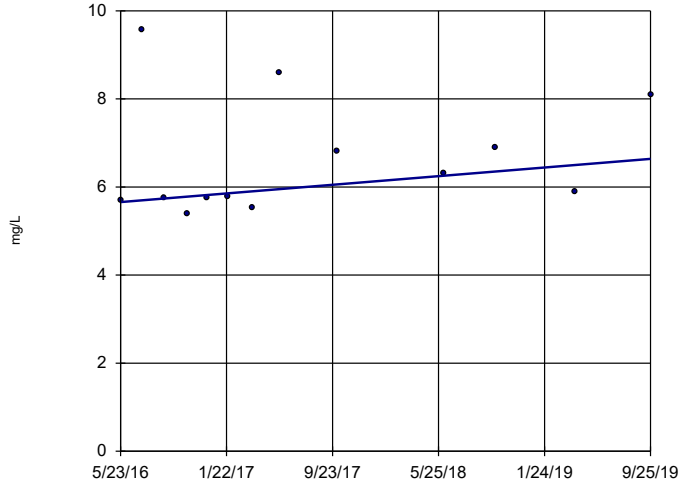
Sen's Slope Estimator

HGWC-17



n = 13

Slope = 0.2932 units per year.

Mann-Kendall statistic = 24
critical = 43

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Boron Analysis Run 12/16/2019 5:24 PM

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

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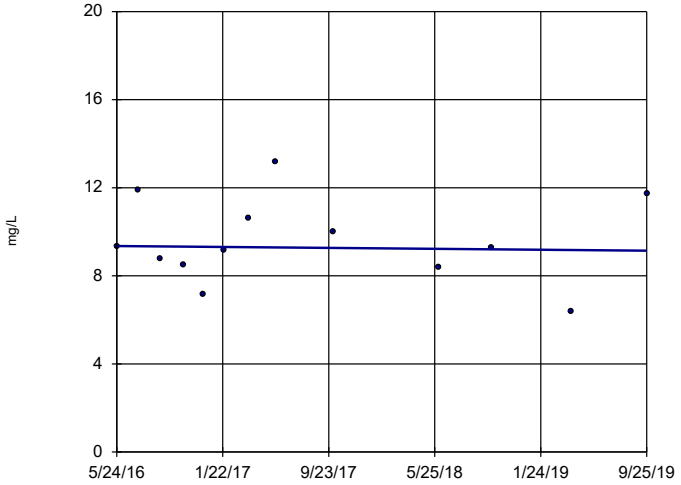
Sen's Slope Estimator

HGWC-18



n = 13

Slope = -0.06223 units per year.

Mann-Kendall statistic = -4
critical = -43

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Boron Analysis Run 12/16/2019 5:24 PM

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

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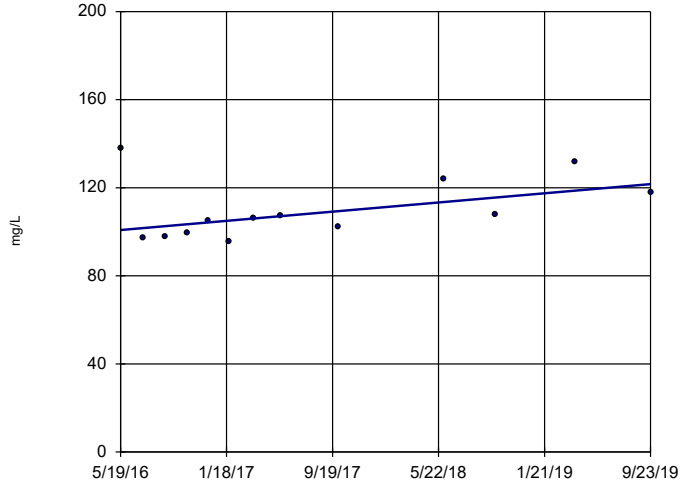
Sen's Slope Estimator

HGWA-1 (bg)



n = 13

Slope = 6.226 units per year.

Mann-Kendall statistic = 34
critical = 43

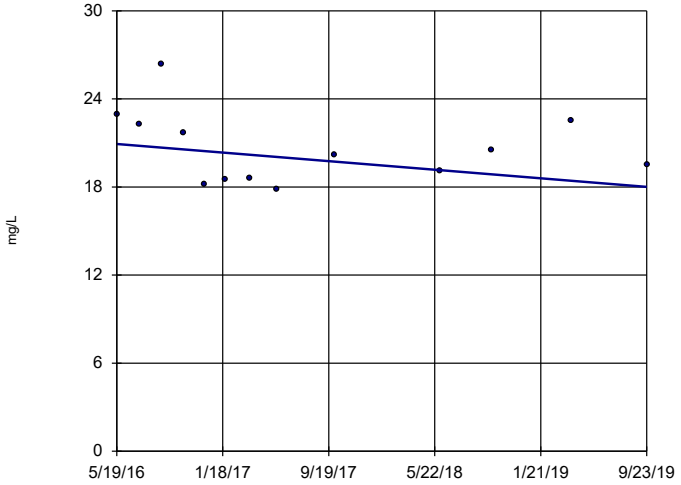
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Calcium Analysis Run 12/16/2019 5:24 PM

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

Sen's Slope Estimator

HGWA-2 (bg)



n = 13

Slope = -0.8743 units per year.

Mann-Kendall statistic = -12
critical = -43

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Calcium Analysis Run 12/16/2019 5:24 PM

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

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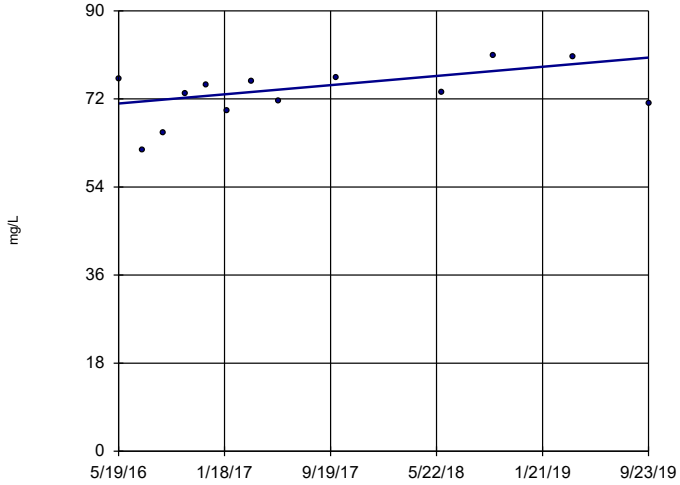
Sen's Slope Estimator

HGWA-3 (bg)



n = 13

Slope = 2.805 units per year.

Mann-Kendall statistic = 26
critical = 43

Trend not significant at 99% confidence level (α = 0.005 per tail).

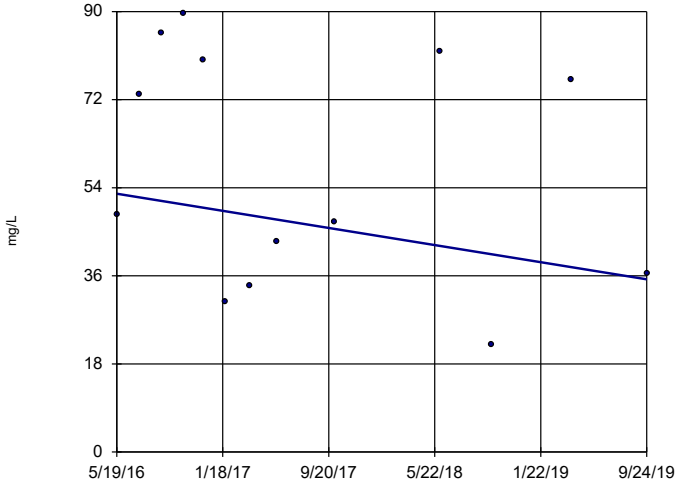
Constituent: Calcium Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Sen's Slope Estimator

HGWA-4 (bg)



n = 13

Slope = -5.219 units per year.

Mann-Kendall statistic = -16
critical = -43

Trend not significant at 99% confidence level (α = 0.005 per tail).

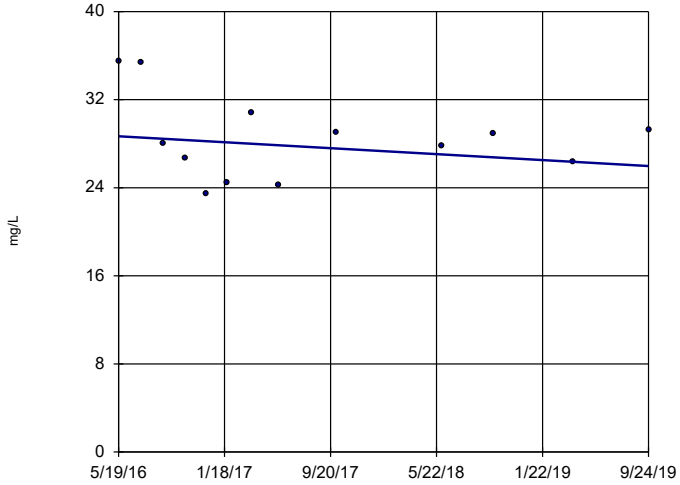
Constituent: Calcium Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Sen's Slope Estimator

HGWA-5 (bg)



n = 13

Slope = -0.8044 units per year.

Mann-Kendall statistic = -12
critical = -43

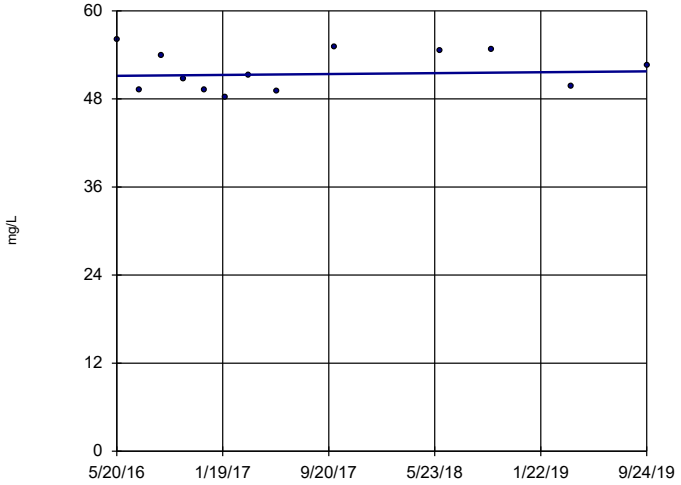
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Calcium Analysis Run 12/16/2019 5:24 PM

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

Sen's Slope Estimator

HGWA-6 (bg)



n = 13

Slope = 0.1814 units per year.

Mann-Kendall statistic = 2 critical = 43

Trend not significant at 99% confidence level (α = 0.005 per tail).

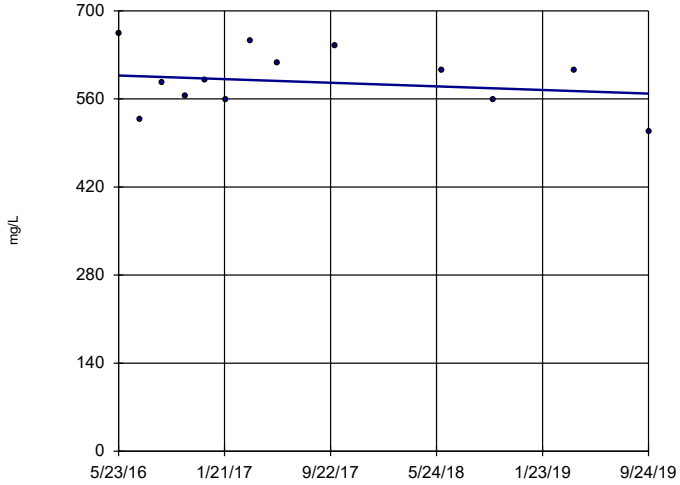
Constituent: Calcium Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Sen's Slope Estimator

HGWC-14



n = 13

Slope = -8.589 units per year.

Mann-Kendall statistic = -8 critical = -43

Trend not significant at 99% confidence level (α = 0.005 per tail).

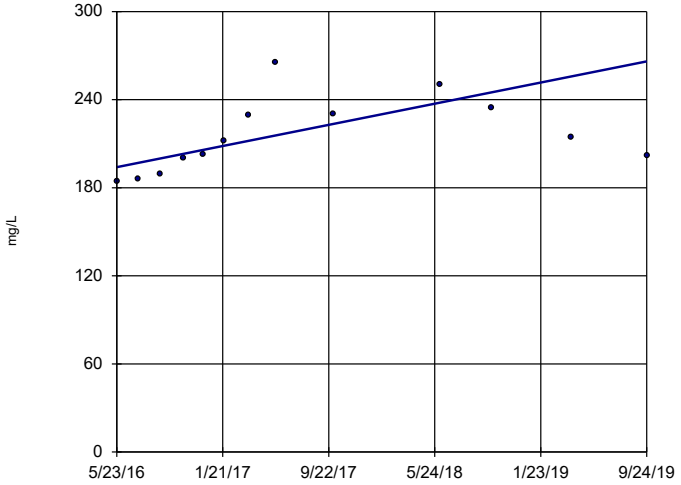
Constituent: Calcium Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Sen's Slope Estimator

HGWC-15



n = 13

Slope = 21.55 units per year.

Mann-Kendall statistic = 44 critical = 43

Increasing trend significant at 99% confidence level (α = 0.005 per tail).

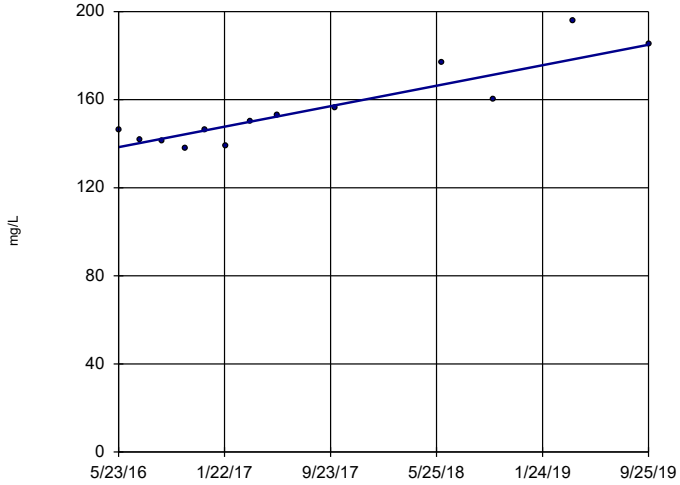
Constituent: Calcium Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Sen's Slope Estimator

HGWC-16



n = 13

Slope = 13.92 units per year.

Mann-Kendall statistic = 53 critical = 43

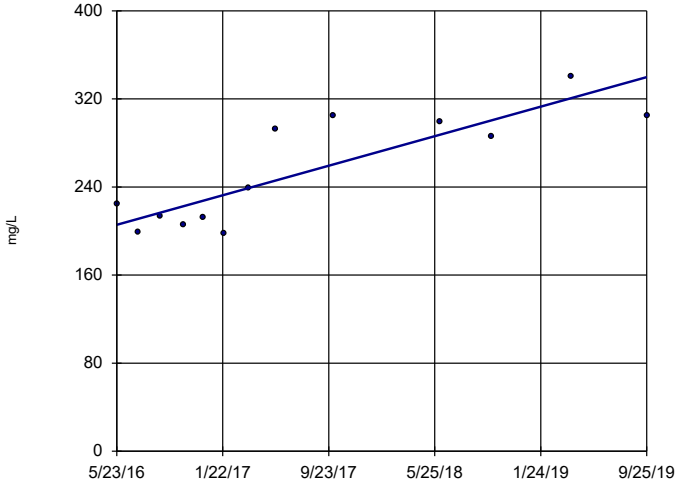
Increasing trend significant at 99% confidence level (α = 0.005 per tail).

Constituent: Calcium Analysis Run 12/16/2019 5:24 PM

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

Sen's Slope Estimator

HGWC-17



n = 13

Slope = 40.14 units per year.

Mann-Kendall statistic = 45 critical = 43

Increasing trend significant at 99% confidence level (α = 0.005 per tail).

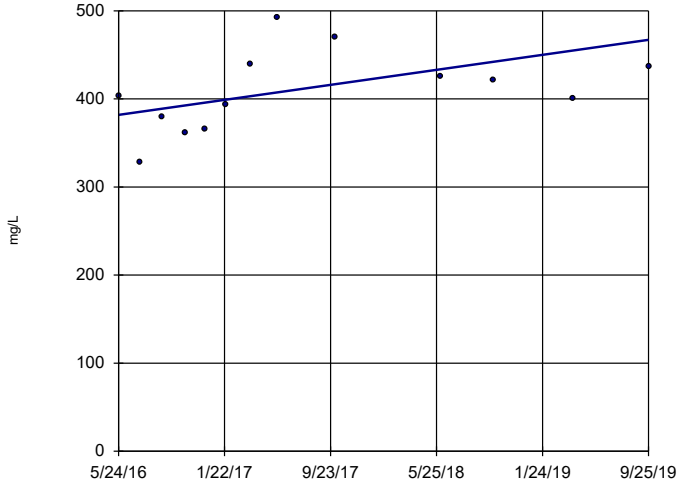
Constituent: Calcium Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Sen's Slope Estimator

HGWC-18



n = 13

Slope = 25.54 units per year.

Mann-Kendall statistic = 30 critical = 43

Trend not significant at 99% confidence level (α = 0.005 per tail).

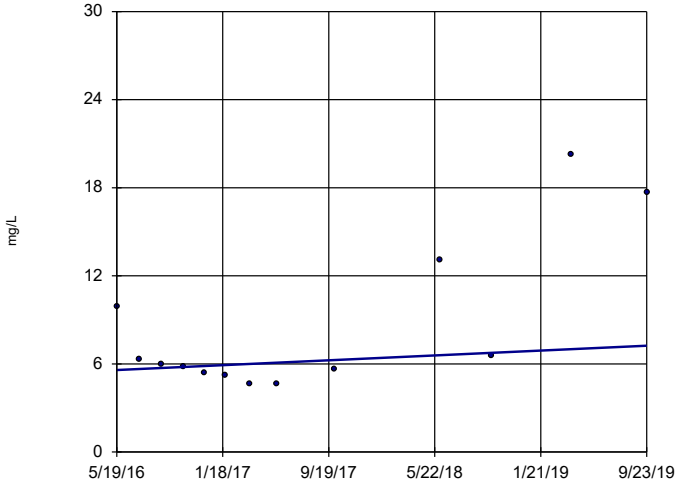
Constituent: Calcium Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Sen's Slope Estimator

HGWA-1 (bg)



n = 13

Slope = 0.4947 units per year.

Mann-Kendall statistic = 9 critical = 43

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride Analysis Run 12/16/2019 5:24 PM

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

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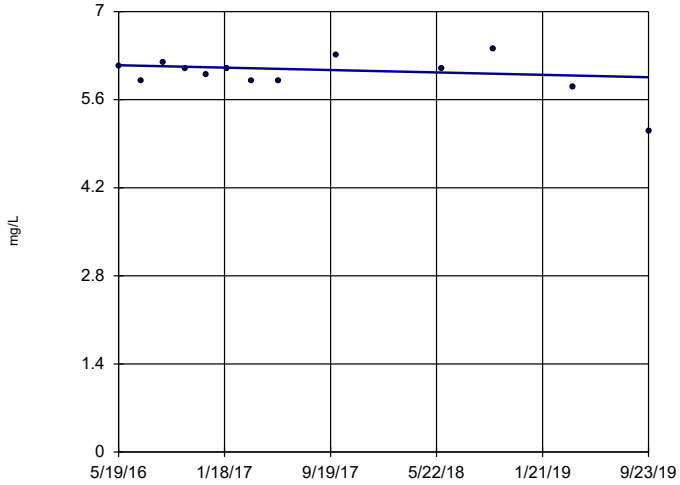
Sen's Slope Estimator

HGWA-2 (bg)



n = 13

Slope = -0.05758 units per year.

Mann-Kendall statistic = -16 critical = -43

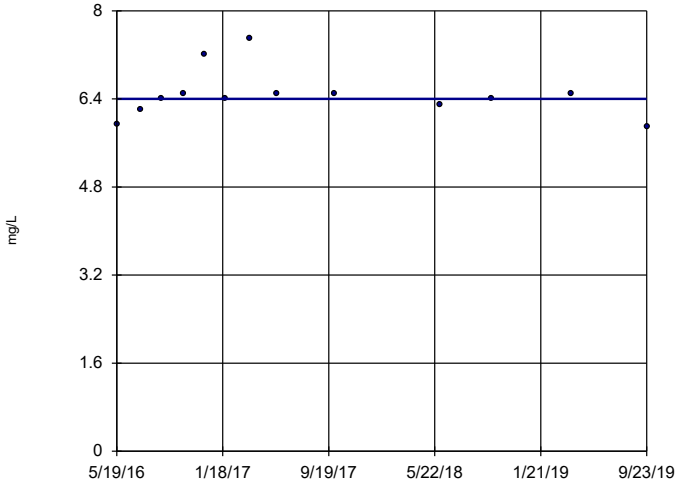
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride Analysis Run 12/16/2019 5:24 PM

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

Sen's Slope Estimator

HGWA-3 (bg)



n = 13

Slope = 0 units per year.

Mann-Kendall statistic = 5
critical = 43

Trend not significant at 99% confidence level (α = 0.005 per tail).

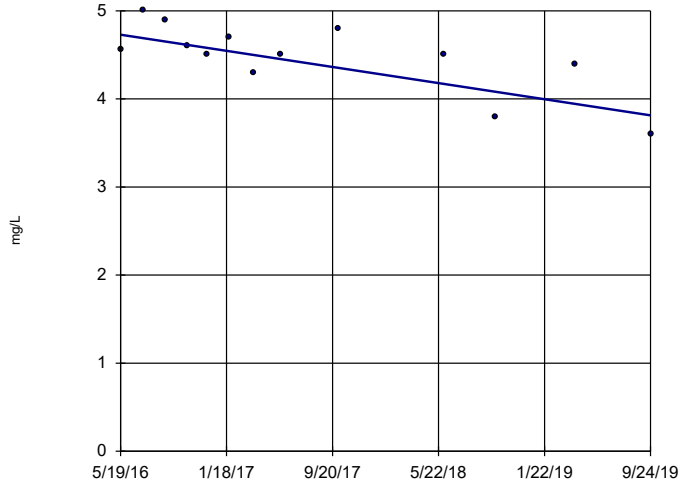
Constituent: Chloride Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Sen's Slope Estimator

HGWA-4 (bg)



n = 13

Slope = -0.273 units per year.

Mann-Kendall statistic = -43
critical = -43

Trend not significant at 99% confidence level (α = 0.005 per tail).

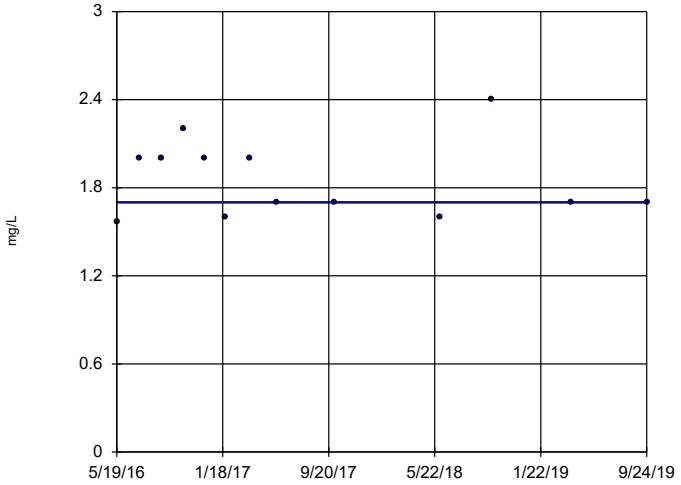
Constituent: Chloride Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Sen's Slope Estimator

HGWA-5 (bg)



n = 13

Slope = 0 units per year.

Mann-Kendall statistic = -5
critical = -43

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride Analysis Run 12/16/2019 5:24 PM

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

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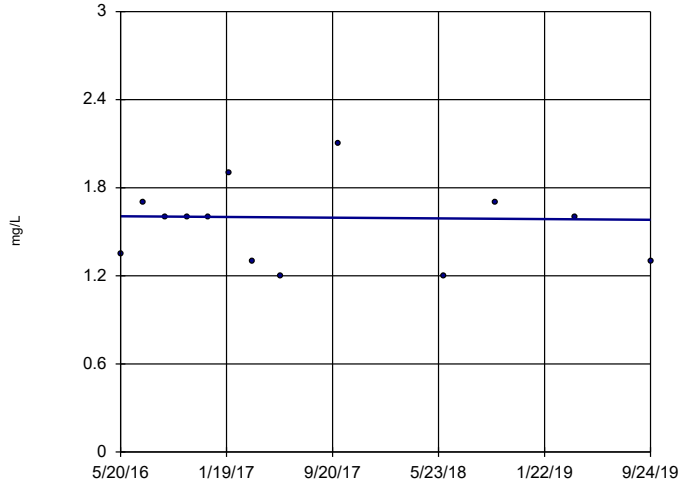
Sen's Slope Estimator

HGWA-6 (bg)



n = 13

Slope = -0.007467 units per year.

Mann-Kendall statistic = -9
critical = -43

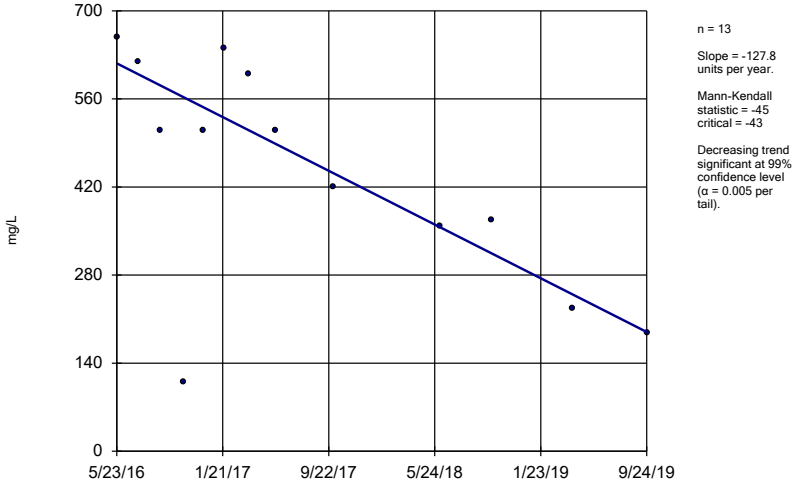
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride Analysis Run 12/16/2019 5:24 PM

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

Sen's Slope Estimator

HGWC-14



n = 13

Slope = -127.8 units per year.

Mann-Kendall statistic = -45
critical = -43

Decreasing trend significant at 99% confidence level (α = 0.005 per tail).

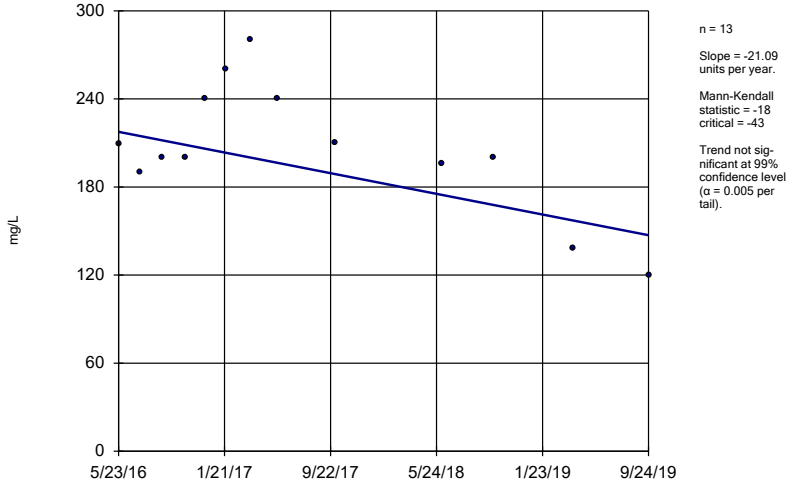
Constituent: Chloride Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Sen's Slope Estimator

HGWC-15



n = 13

Slope = -21.09 units per year.

Mann-Kendall statistic = -18
critical = -43

Trend not significant at 99% confidence level (α = 0.005 per tail).

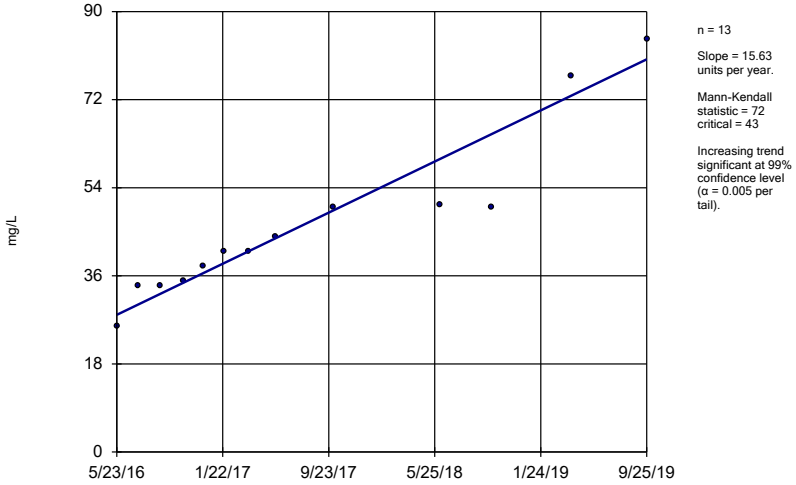
Constituent: Chloride Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Sen's Slope Estimator

HGWC-16



n = 13

Slope = 15.63 units per year.

Mann-Kendall statistic = 72
critical = 43

Increasing trend significant at 99% confidence level (α = 0.005 per tail).

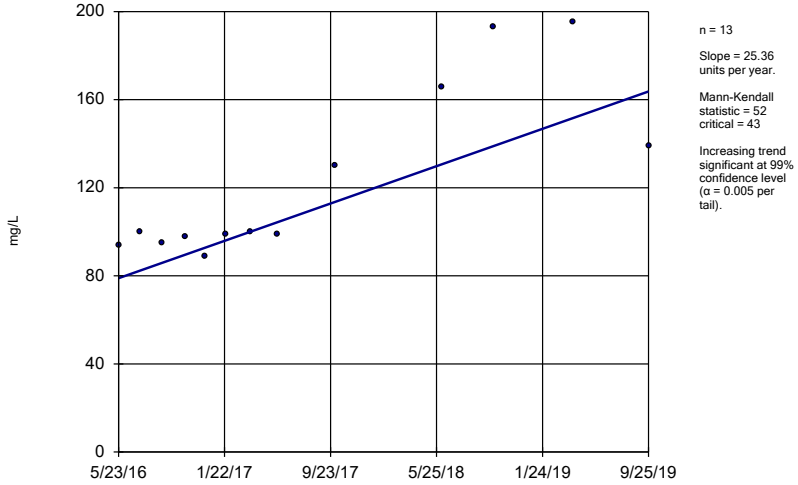
Constituent: Chloride Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Sen's Slope Estimator

HGWC-17



n = 13

Slope = 25.36 units per year.

Mann-Kendall statistic = 52
critical = 43

Increasing trend significant at 99% confidence level (α = 0.005 per tail).

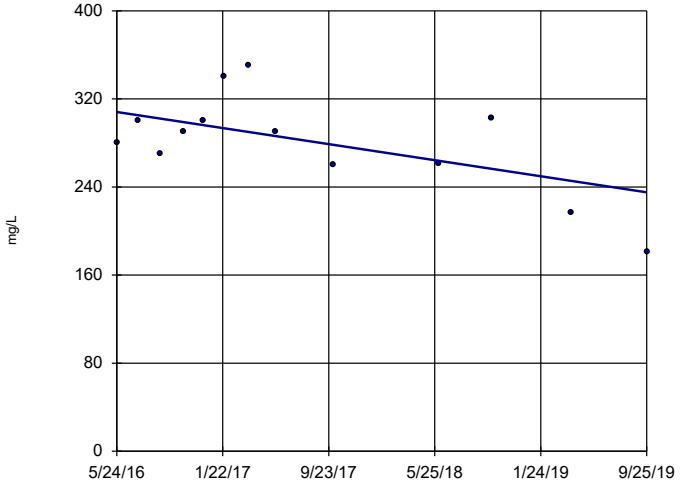
Constituent: Chloride Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Sen's Slope Estimator

HGWC-18



n = 13

Slope = -21.85 units per year.

Mann-Kendall statistic = -20 critical = -43

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Chloride Analysis Run 12/16/2019 5:24 PM

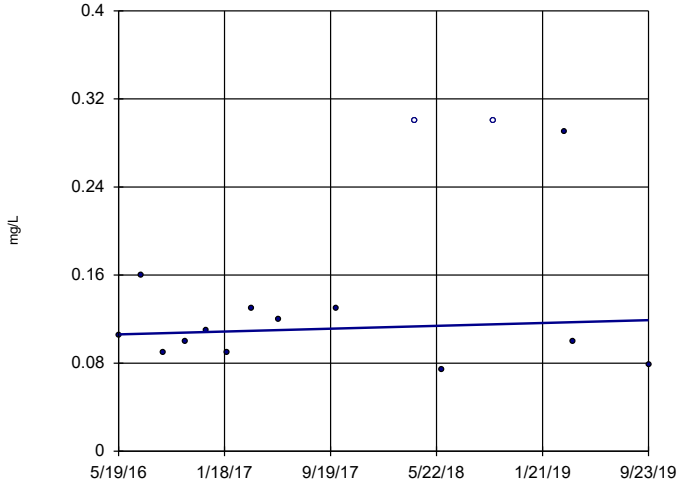
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWA-1 (bg)



n = 15

Slope = 0.003862 units per year.

Mann-Kendall statistic = 7 critical = 53

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Fluoride Analysis Run 12/16/2019 5:24 PM

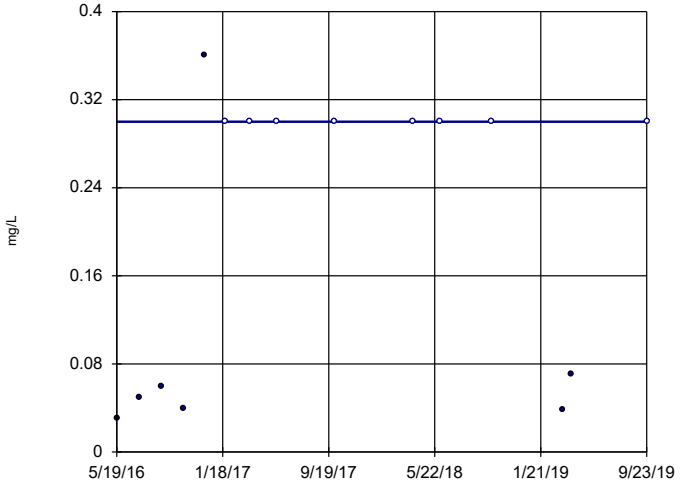
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWA-2 (bg)



n = 15

Slope = 0 units per year.

Mann-Kendall statistic = 19 critical = 53

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Fluoride Analysis Run 12/16/2019 5:24 PM

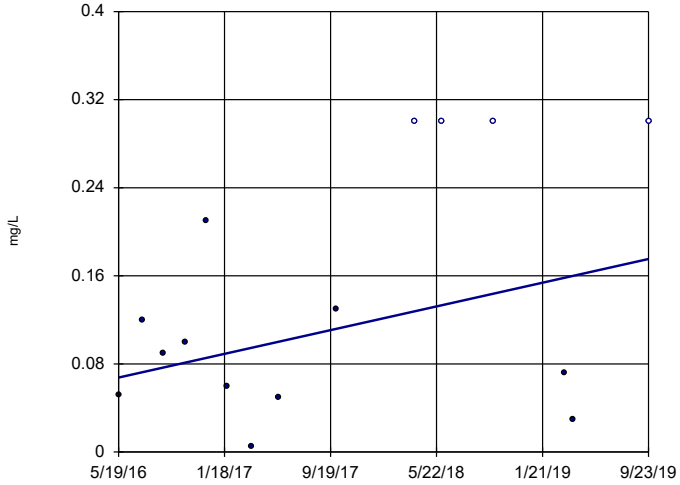
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWA-3 (bg)



n = 15

Slope = 0.03217 units per year.

Mann-Kendall statistic = 21 critical = 53

Trend not significant at 99% confidence level (α = 0.005 per tail).

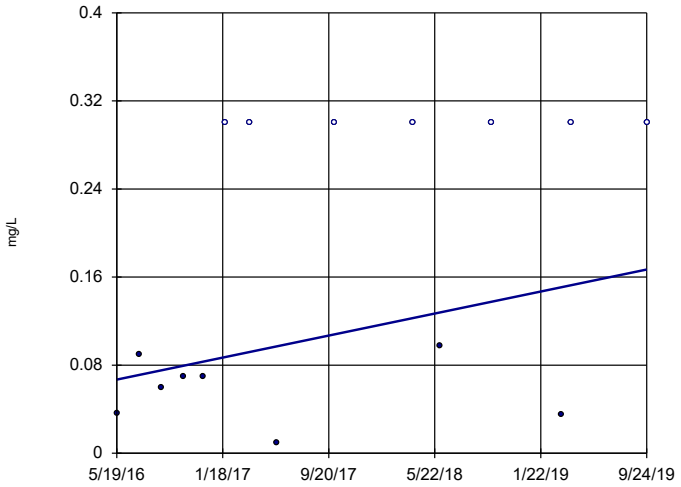
Constituent: Fluoride Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWA-4 (bg)



n = 15

Slope = 0.02985 units per year.

Mann-Kendall statistic = 33
critical = 53

Trend not significant at 99% confidence level (α = 0.005 per tail).

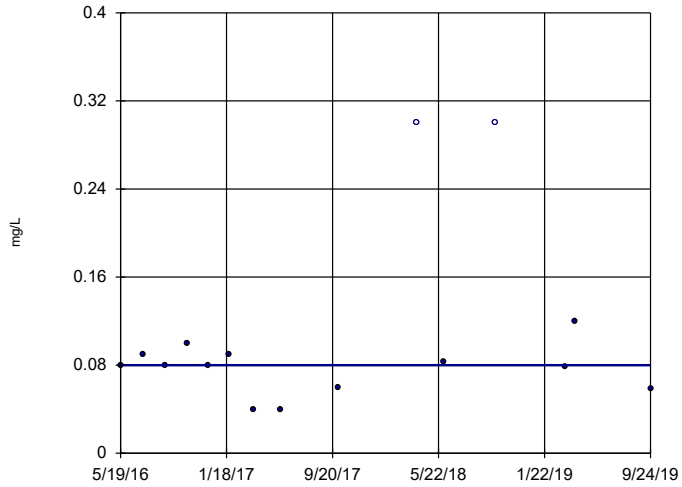
Constituent: Fluoride Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWA-5 (bg)



n = 15

Slope = 0 units per year.

Mann-Kendall statistic = 1
critical = 53

Trend not significant at 99% confidence level (α = 0.005 per tail).

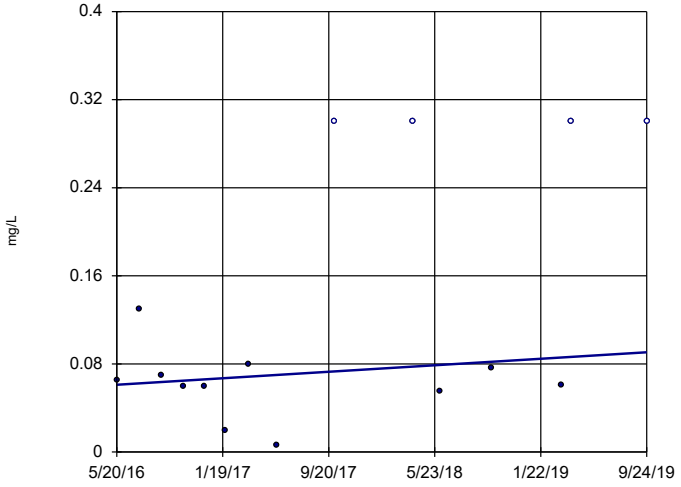
Constituent: Fluoride Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWA-6 (bg)



n = 15

Slope = 0.008808 units per year.

Mann-Kendall statistic = 20
critical = 53

Trend not significant at 99% confidence level (α = 0.005 per tail).

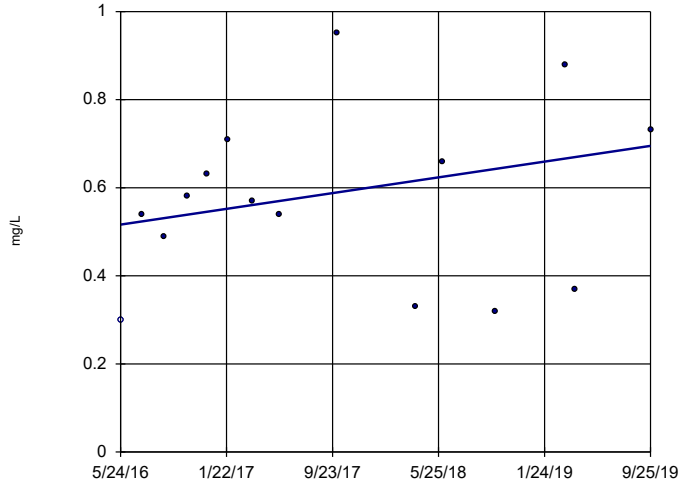
Constituent: Fluoride Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWC-18



n = 15

Slope = 0.05356 units per year.

Mann-Kendall statistic = 22
critical = 53

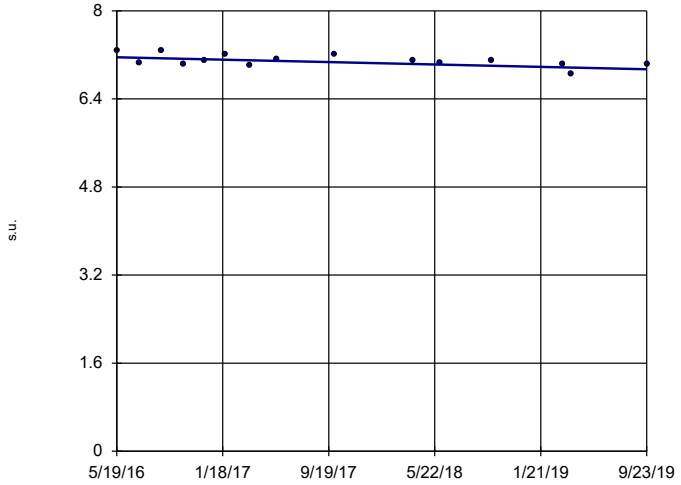
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Fluoride Analysis Run 12/16/2019 5:24 PM

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

Sen's Slope Estimator

HGWA-1 (bg)



n = 15

Slope = -0.06525 units per year.

Mann-Kendall statistic = -40 critical = -53

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: pH Analysis Run 12/16/2019 5:24 PM

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

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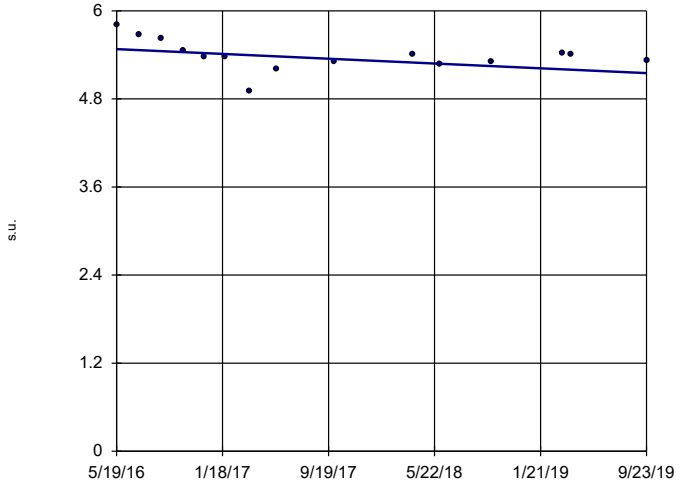
Sen's Slope Estimator

HGWA-2 (bg)



n = 15

Slope = -0.09743 units per year.

Mann-Kendall statistic = -35 critical = -53

Trend not significant at 99% confidence level (α = 0.005 per tail).

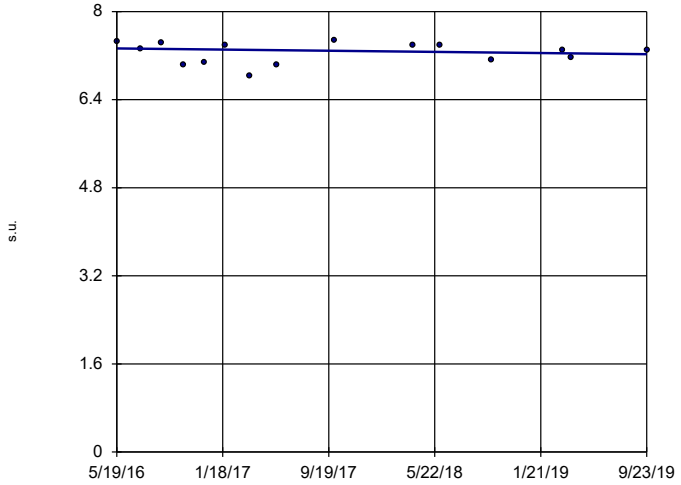
Constituent: pH Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Sen's Slope Estimator

HGWA-3 (bg)



n = 15

Slope = -0.03141 units per year.

Mann-Kendall statistic = -14 critical = -53

Trend not significant at 99% confidence level (α = 0.005 per tail).

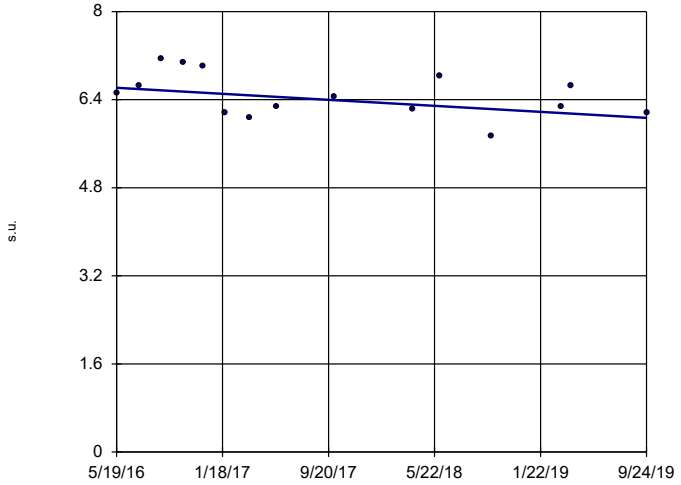
Constituent: pH Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Sen's Slope Estimator

HGWA-4 (bg)



n = 15

Slope = -0.1626 units per year.

Mann-Kendall statistic = -32 critical = -53

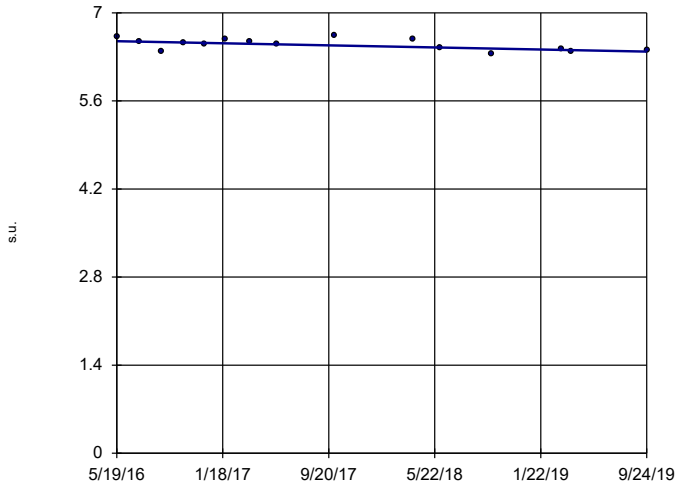
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: pH Analysis Run 12/16/2019 5:24 PM

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

Sen's Slope Estimator

HGWA-5 (bg)



n = 15

Slope = -0.04924 units per year.

Mann-Kendall statistic = -38
critical = -53

Trend not significant at 99% confidence level (α = 0.005 per tail).

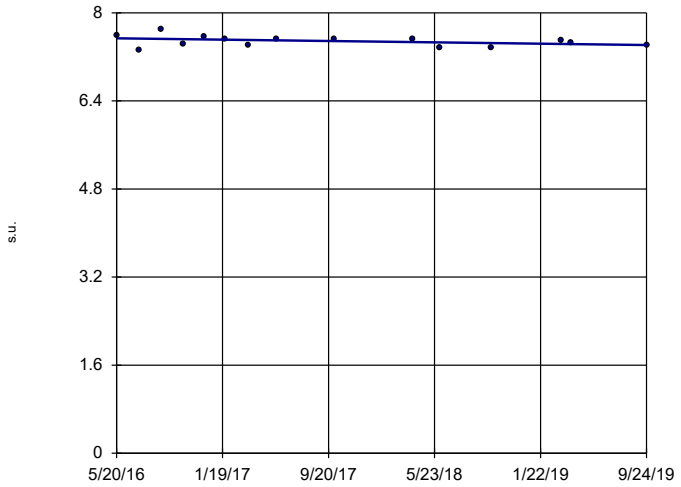
Constituent: pH Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Sen's Slope Estimator

HGWA-6 (bg)



n = 15

Slope = -0.03588 units per year.

Mann-Kendall statistic = -32
critical = -53

Trend not significant at 99% confidence level (α = 0.005 per tail).

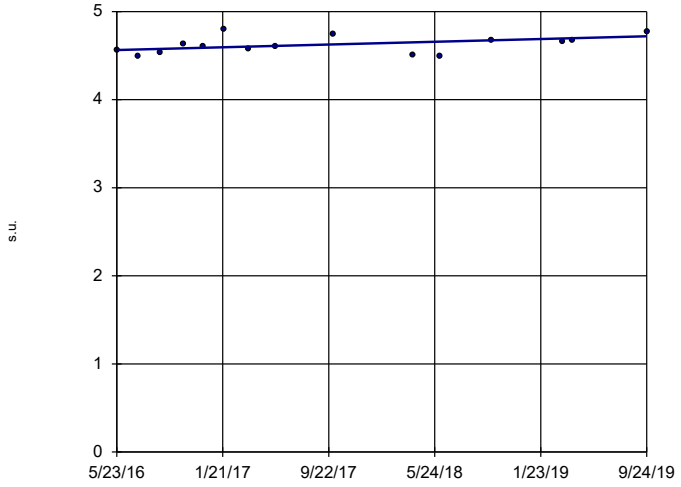
Constituent: pH Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Sen's Slope Estimator

HGWC-14



n = 15

Slope = 0.04652 units per year.

Mann-Kendall statistic = 35
critical = 53

Trend not significant at 99% confidence level (α = 0.005 per tail).

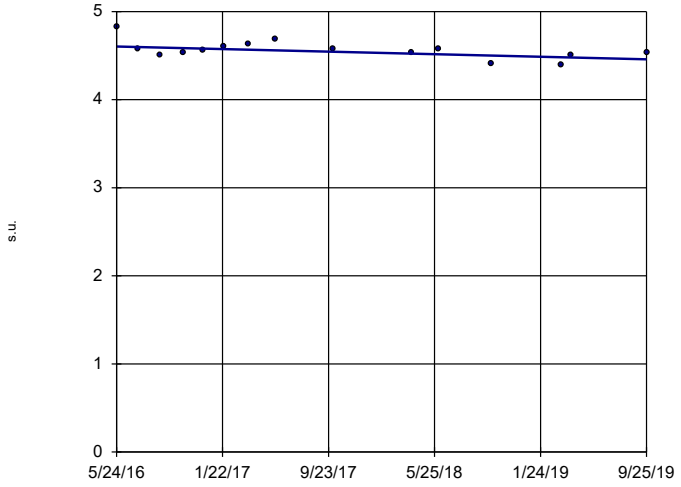
Constituent: pH Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Sen's Slope Estimator

HGWC-18



n = 15

Slope = -0.04363 units per year.

Mann-Kendall statistic = -35
critical = -53

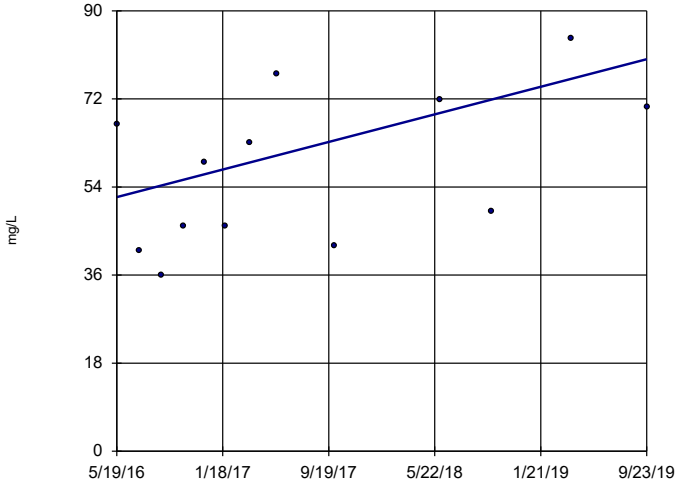
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: pH Analysis Run 12/16/2019 5:24 PM

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

Sen's Slope Estimator

HGWA-1 (bg)



n = 13

Slope = 8.418 units per year.

Mann-Kendall statistic = 31
critical = 43

Trend not significant at 99% confidence level (α = 0.005 per tail).

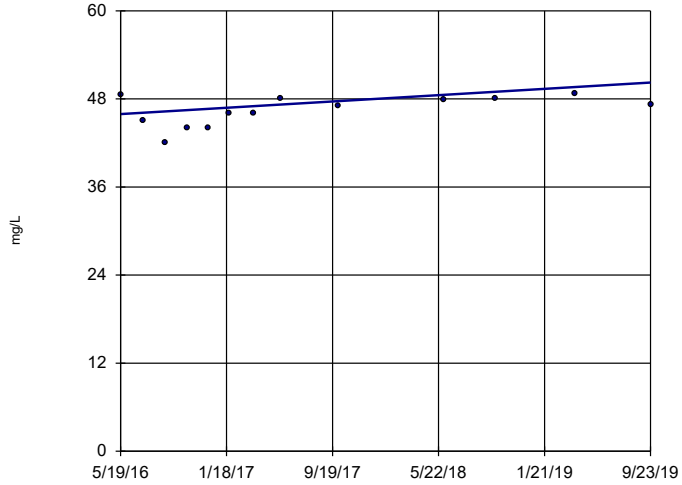
Constituent: Sulfate Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Sen's Slope Estimator

HGWA-2 (bg)



n = 13

Slope = 1.285 units per year.

Mann-Kendall statistic = 36
critical = 43

Trend not significant at 99% confidence level (α = 0.005 per tail).

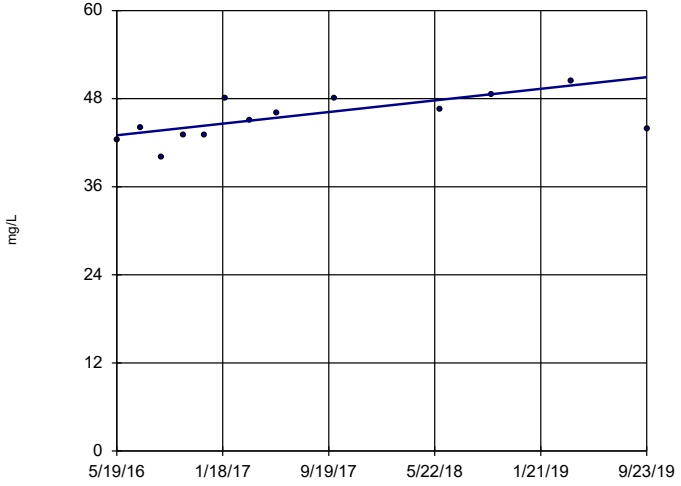
Constituent: Sulfate Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Sen's Slope Estimator

HGWA-3 (bg)



n = 13

Slope = 2.359 units per year.

Mann-Kendall statistic = 44
critical = 43

Increasing trend significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 12/16/2019 5:24 PM

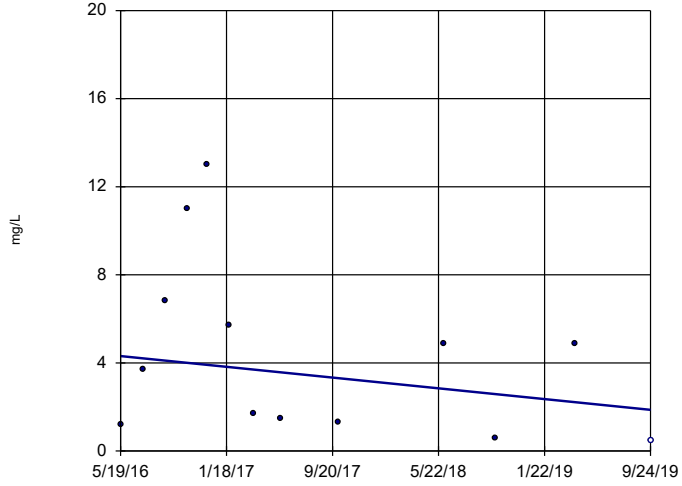
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWA-4 (bg)



n = 13

Slope = -0.7293 units per year.

Mann-Kendall statistic = -25
critical = -43

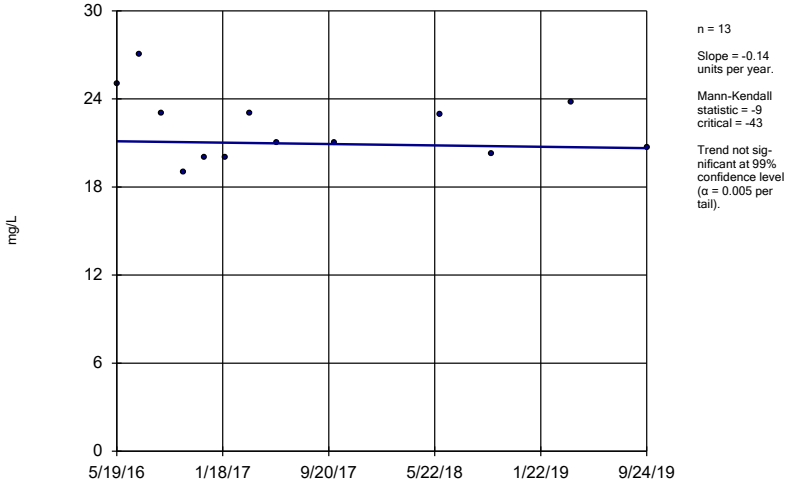
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 12/16/2019 5:24 PM

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

Sen's Slope Estimator

HGWA-5 (bg)



n = 13

Slope = -0.14 units per year.

Mann-Kendall statistic = -9 critical = -43

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 12/16/2019 5:24 PM

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

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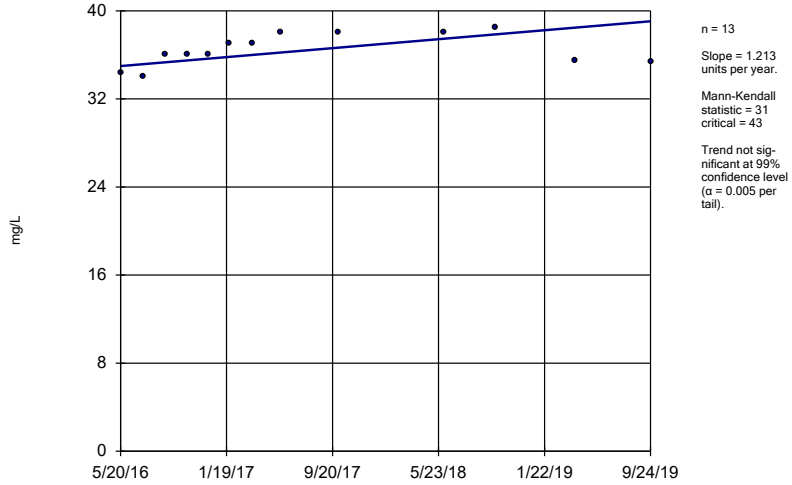
Sen's Slope Estimator

HGWA-6 (bg)



n = 13

Slope = 1.213 units per year.

Mann-Kendall statistic = 31 critical = 43

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 12/16/2019 5:24 PM

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

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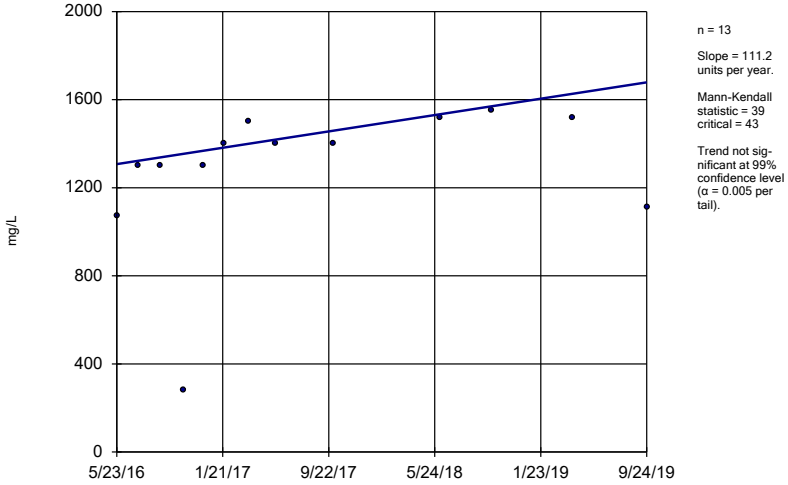
Sen's Slope Estimator

HGWC-14



n = 13

Slope = 111.2 units per year.

Mann-Kendall statistic = 39 critical = 43

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 12/16/2019 5:24 PM

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

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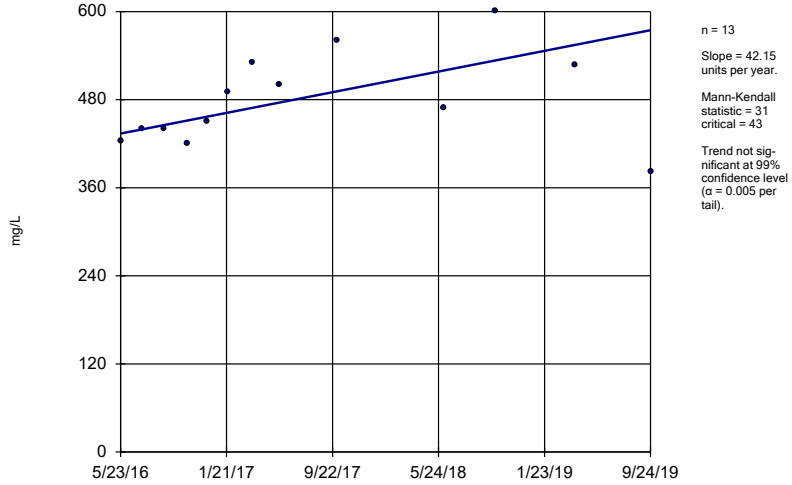
Sen's Slope Estimator

HGWC-15



n = 13

Slope = 42.15 units per year.

Mann-Kendall statistic = 31 critical = 43

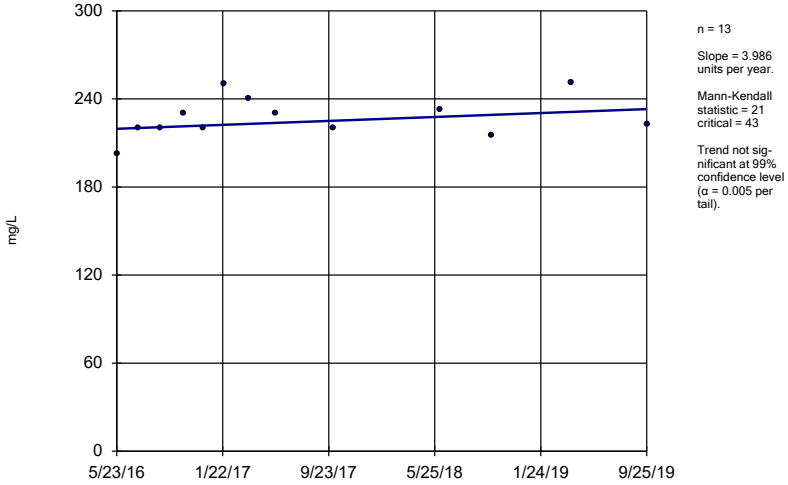
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 12/16/2019 5:24 PM

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

Sen's Slope Estimator

HGWC-16



n = 13

Slope = 3.986 units per year.

Mann-Kendall statistic = 21 critical = 43

Trend not significant at 99% confidence level (α = 0.005 per tail).

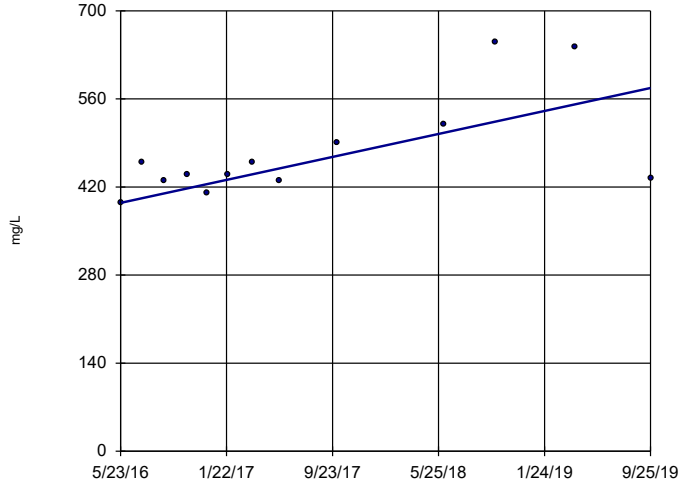
Constituent: Sulfate Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Sen's Slope Estimator

HGWC-17



n = 13

Slope = 54.62 units per year.

Mann-Kendall statistic = 37 critical = 43

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 12/16/2019 5:24 PM

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

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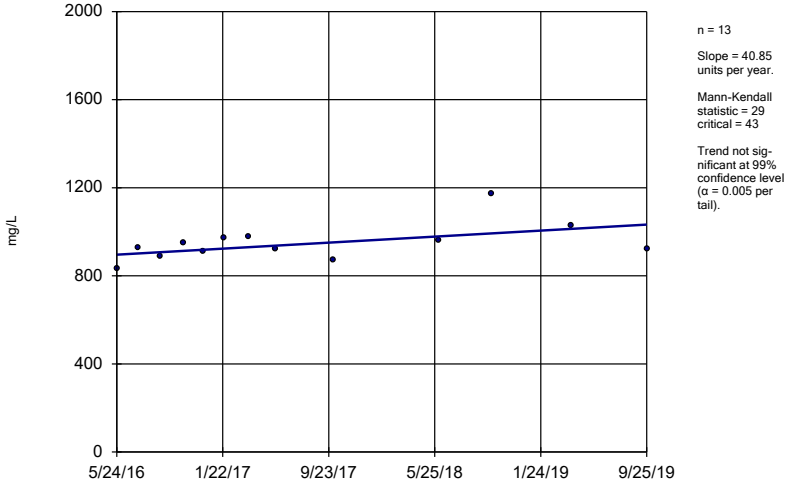
Sen's Slope Estimator

HGWC-18



n = 13

Slope = 40.85 units per year.

Mann-Kendall statistic = 29 critical = 43

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 12/16/2019 5:24 PM

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

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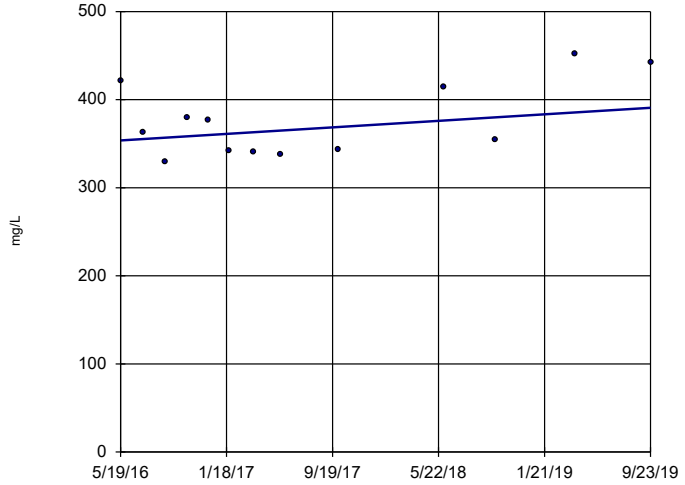
Sen's Slope Estimator

HGWA-1 (bg)



n = 13

Slope = 11.04 units per year.

Mann-Kendall statistic = 14 critical = 43

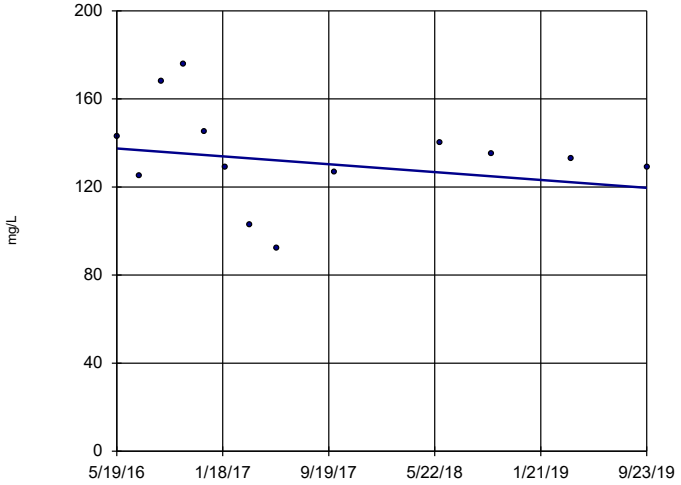
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Dissolved Solids Analysis Run 12/16/2019 5:24 PM

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

Sen's Slope Estimator

HGWA-2 (bg)



n = 13

Slope = -5.334 units per year.

Mann-Kendall statistic = -17
critical = -43

Trend not significant at 99% confidence level (α = 0.005 per tail).

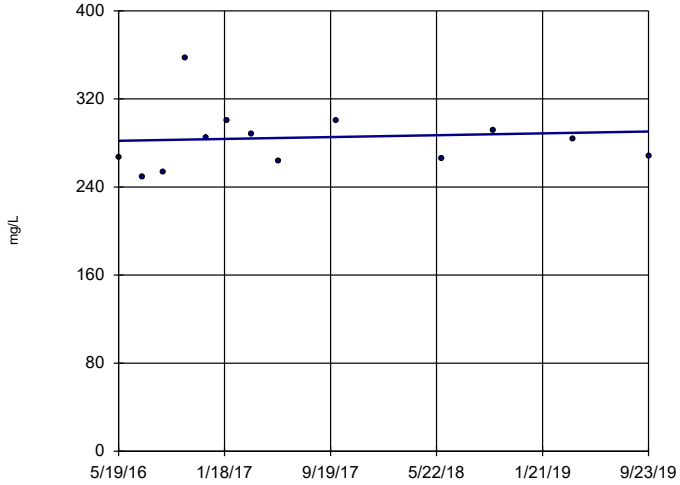
Constituent: Total Dissolved Solids Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Sen's Slope Estimator

HGWA-3 (bg)



n = 13

Slope = 2.517 units per year.

Mann-Kendall statistic = 9
critical = 43

Trend not significant at 99% confidence level (α = 0.005 per tail).

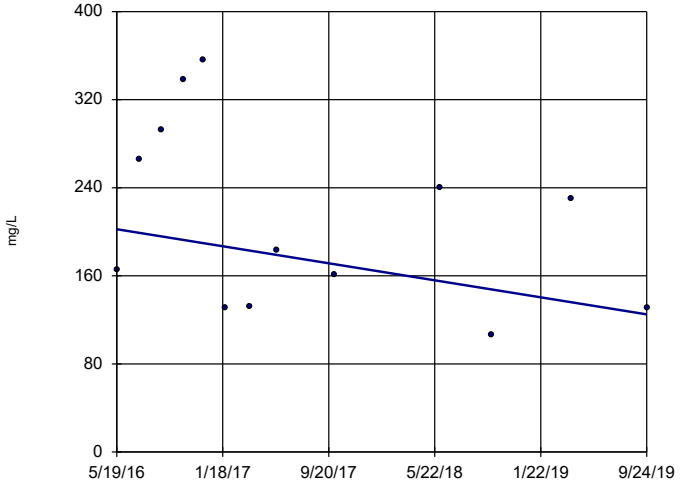
Constituent: Total Dissolved Solids Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Sen's Slope Estimator

HGWA-4 (bg)



n = 13

Slope = -23.09 units per year.

Mann-Kendall statistic = -21
critical = -43

Trend not significant at 99% confidence level (α = 0.005 per tail).

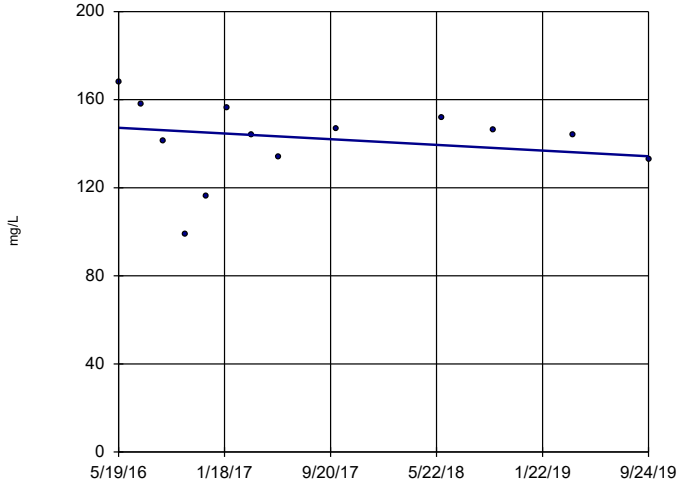
Constituent: Total Dissolved Solids Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Sen's Slope Estimator

HGWA-5 (bg)



n = 13

Slope = -3.858 units per year.

Mann-Kendall statistic = -15
critical = -43

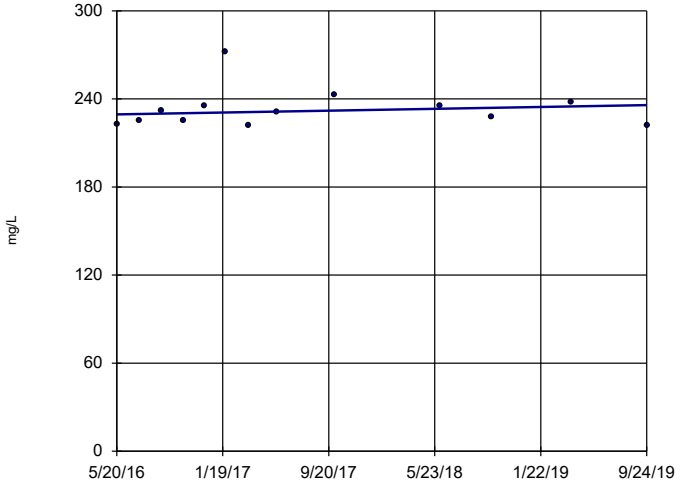
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Dissolved Solids Analysis Run 12/16/2019 5:24 PM

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

Sen's Slope Estimator

HGWA-6 (bg)



n = 13

Slope = 1.905 units per year.

Mann-Kendall statistic = 11 critical = 43

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Dissolved Solids Analysis Run 12/16/2019 5:24 PM

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

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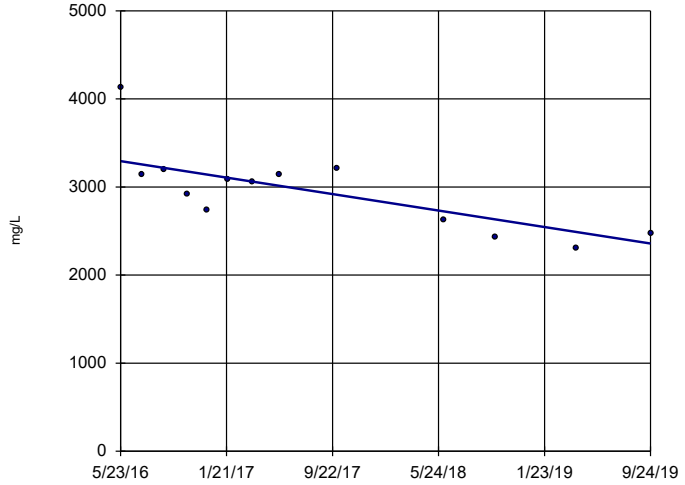
Sen's Slope Estimator

HGWC-14



n = 13

Slope = -280.1 units per year.

Mann-Kendall statistic = -41 critical = -43

Trend not significant at 99% confidence level (α = 0.005 per tail).

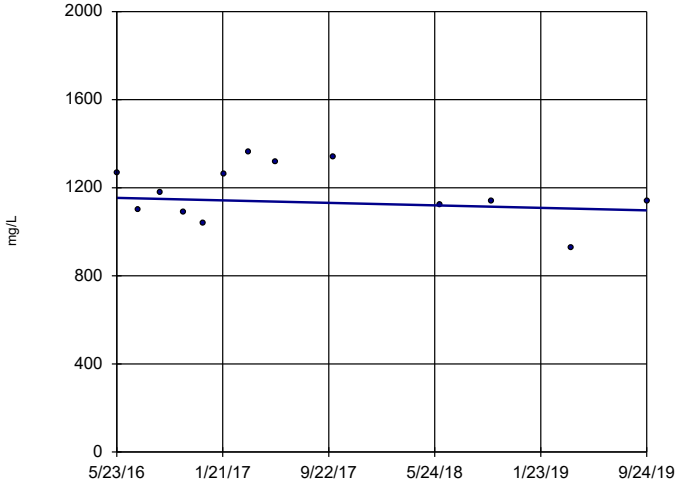
Constituent: Total Dissolved Solids Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Sen's Slope Estimator

HGWC-15



n = 13

Slope = -16.94 units per year.

Mann-Kendall statistic = -5 critical = -43

Trend not significant at 99% confidence level (α = 0.005 per tail).

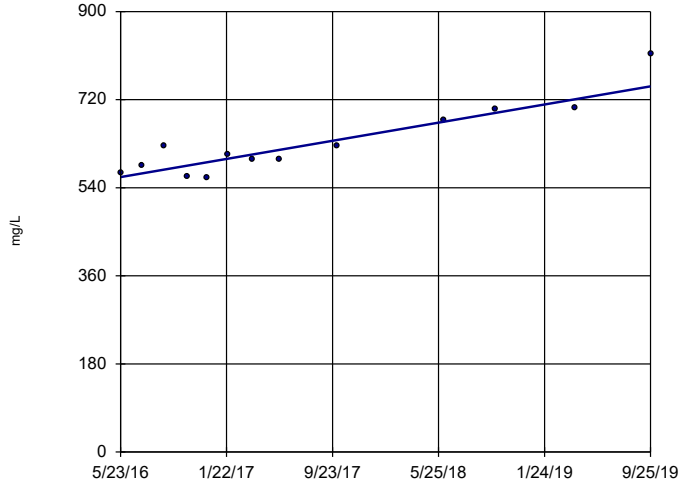
Constituent: Total Dissolved Solids Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Sen's Slope Estimator

HGWC-16



n = 13

Slope = 55.46 units per year.

Mann-Kendall statistic = 52 critical = 43

Increasing trend significant at 99% confidence level (α = 0.005 per tail).

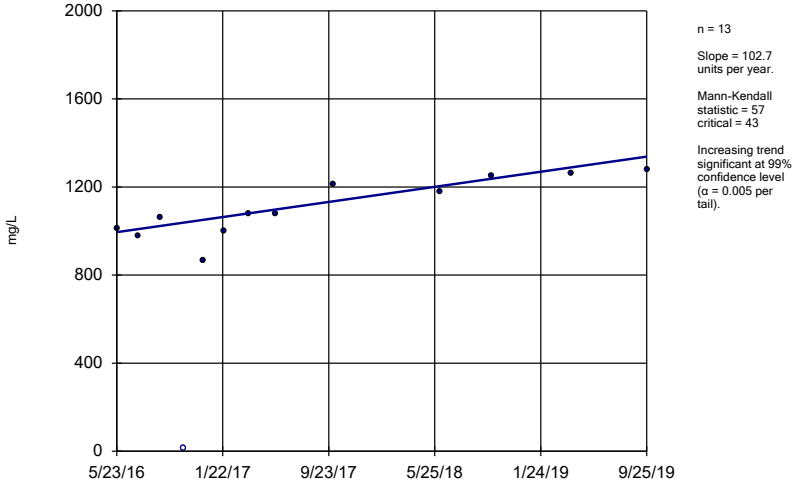
Constituent: Total Dissolved Solids Analysis Run 12/16/2019 5:24 PM

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

Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWC-17



n = 13

Slope = 102.7 units per year.

Mann-Kendall statistic = 57
critical = 43

Increasing trend significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Dissolved Solids Analysis Run 12/16/2019 5:24 PM

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

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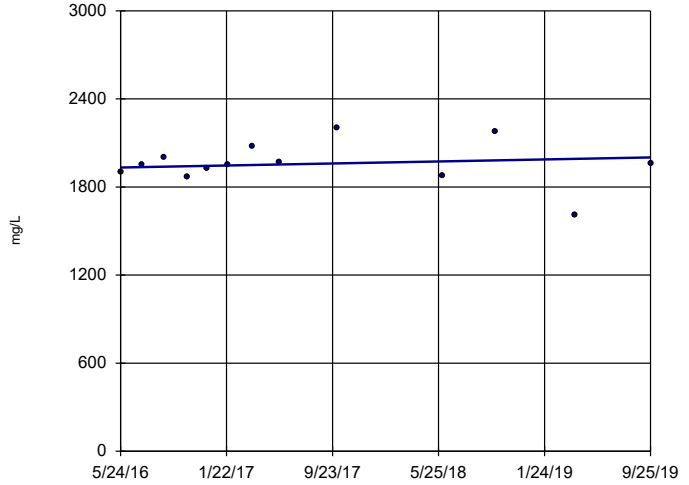
Sen's Slope Estimator

HGWC-18



n = 13

Slope = 20.5 units per year.

Mann-Kendall statistic = 11
critical = 43

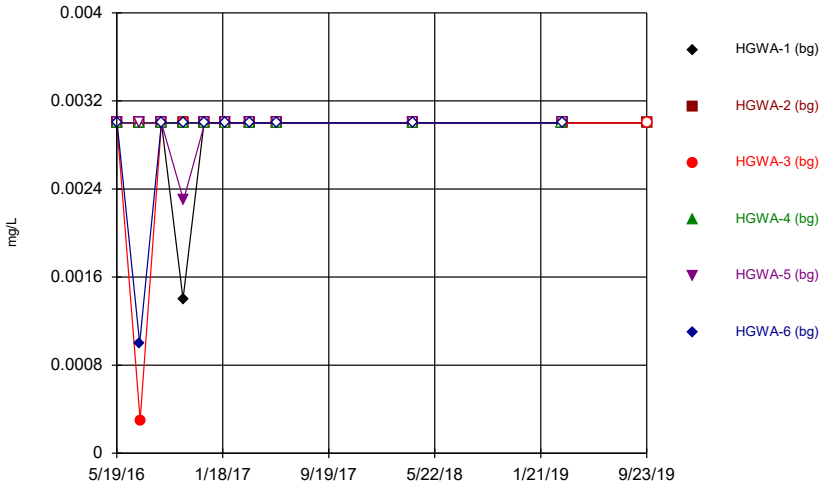
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Dissolved Solids Analysis Run 12/16/2019 5:24 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

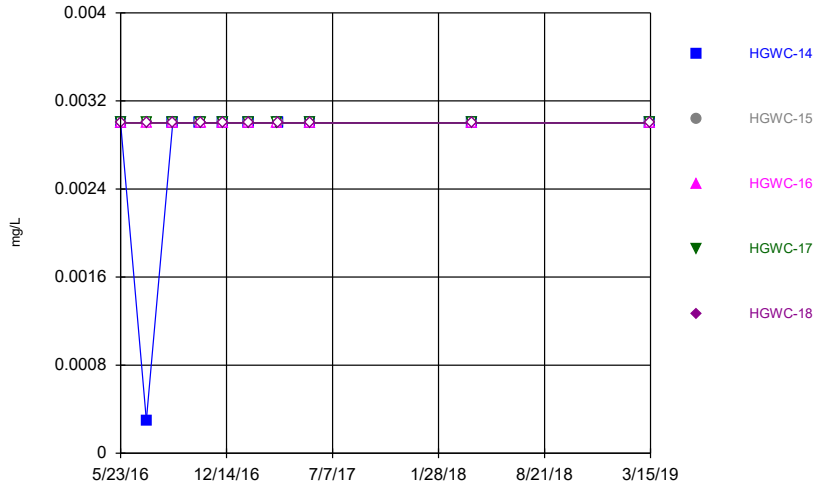
Time Series



Constituent: Antimony Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

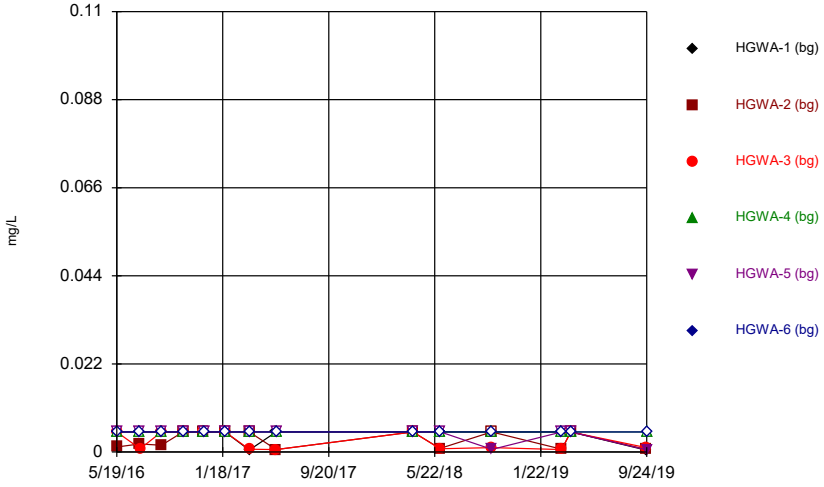
Time Series



Constituent: Antimony Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

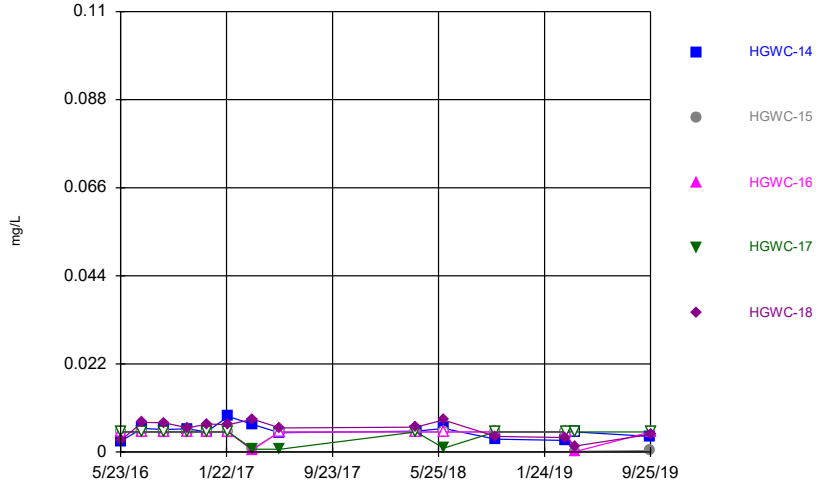
Time Series



Constituent: Arsenic Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

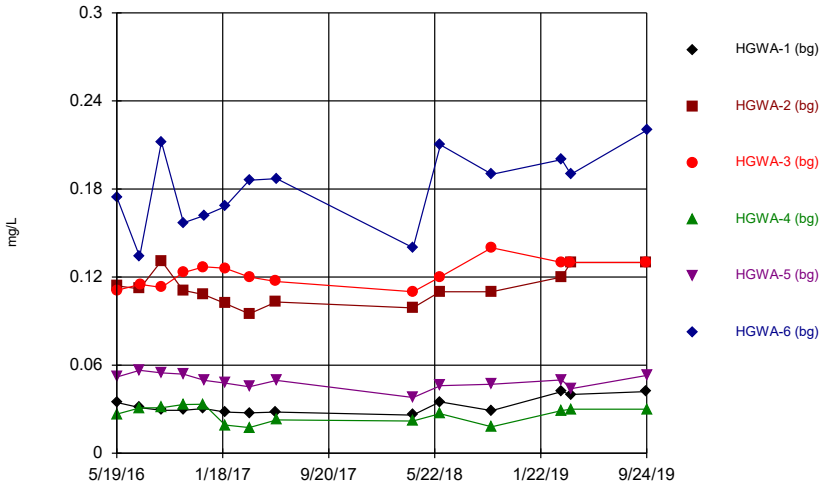
Time Series



Constituent: Arsenic Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Time Series



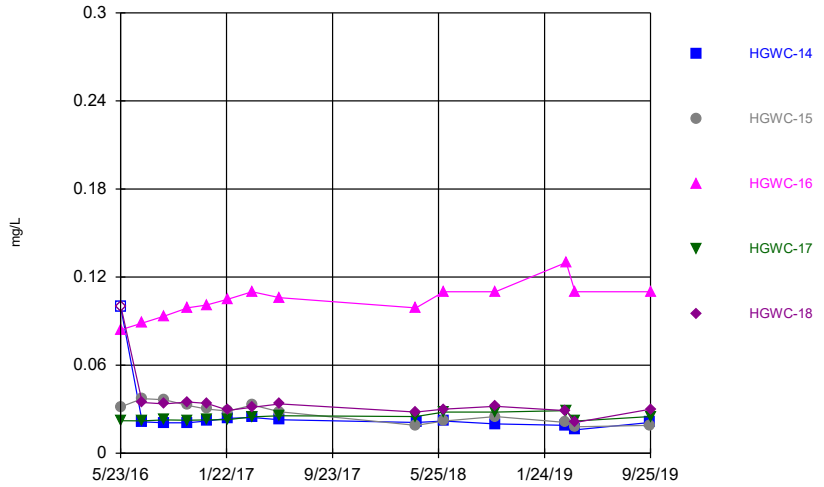
Constituent: Barium Analysis Run 12/16/2019 6:27 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Hollow symbols indicate censored values.

Time Series



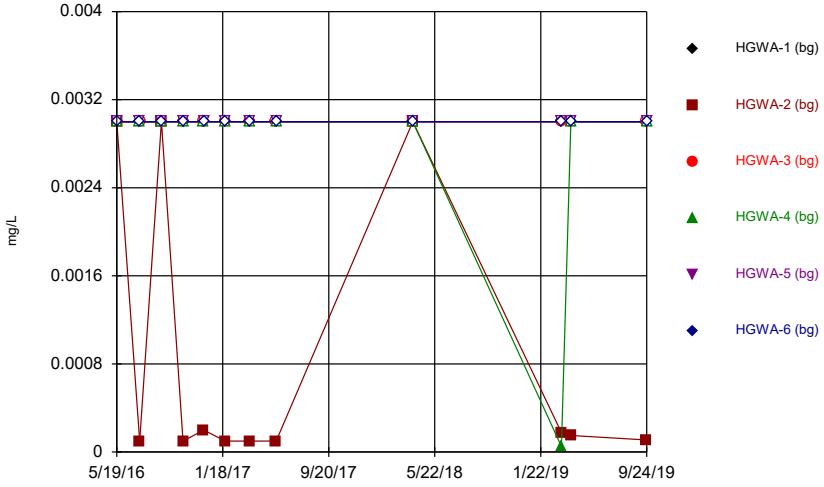
Constituent: Barium Analysis Run 12/16/2019 6:27 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Hollow symbols indicate censored values.

Time Series



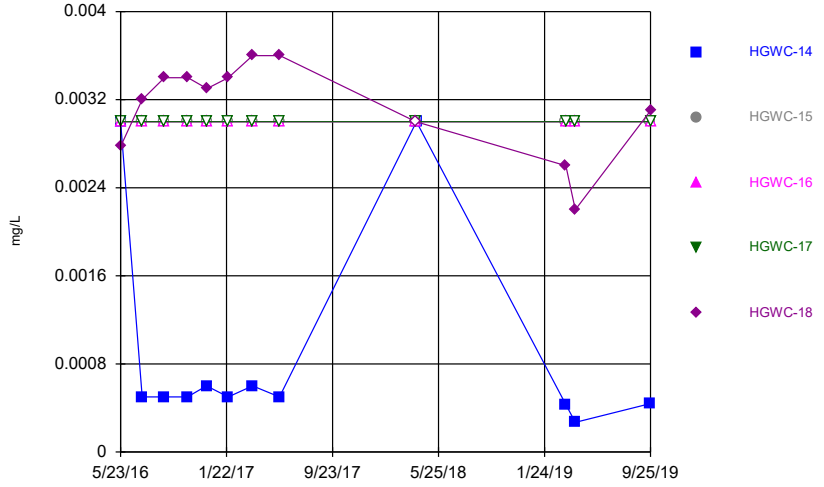
Constituent: Beryllium Analysis Run 12/16/2019 6:27 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Hollow symbols indicate censored values.

Time Series

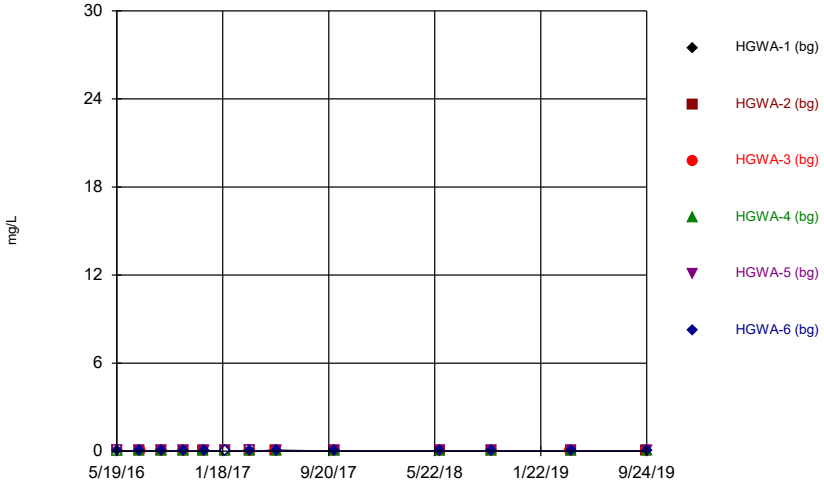


Constituent: Beryllium Analysis Run 12/16/2019 6:27 PM

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

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

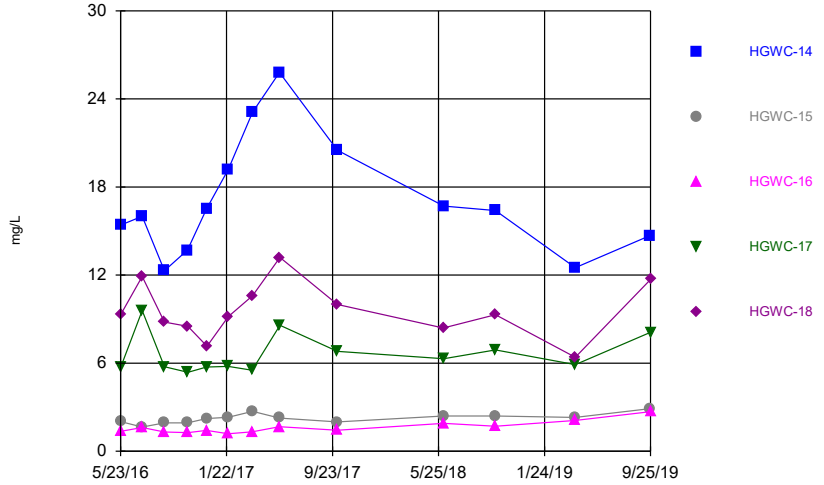
Time Series



Constituent: Boron Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

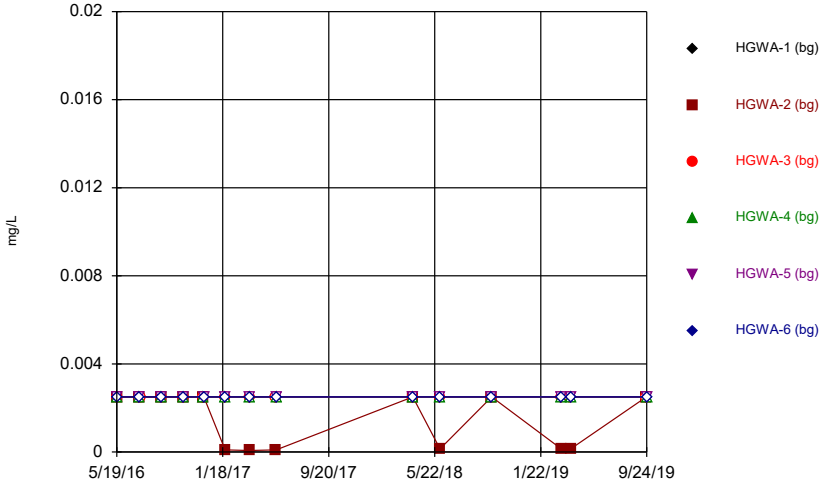
Time Series



Constituent: Boron Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

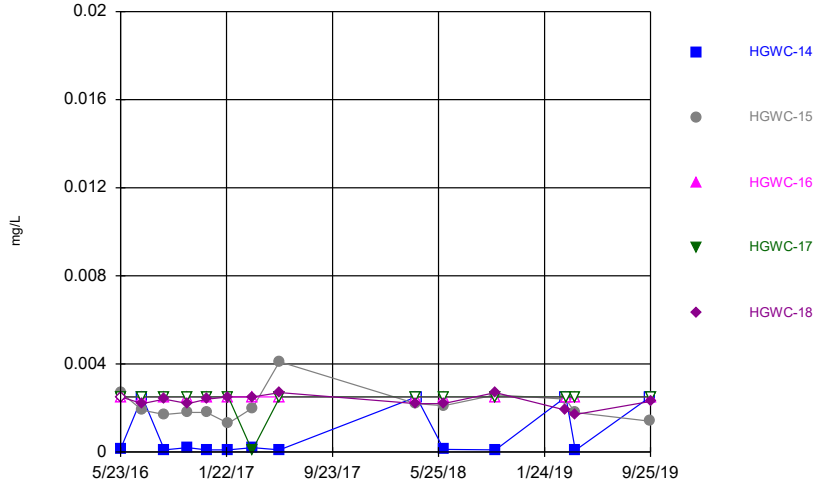
Time Series



Constituent: Cadmium Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

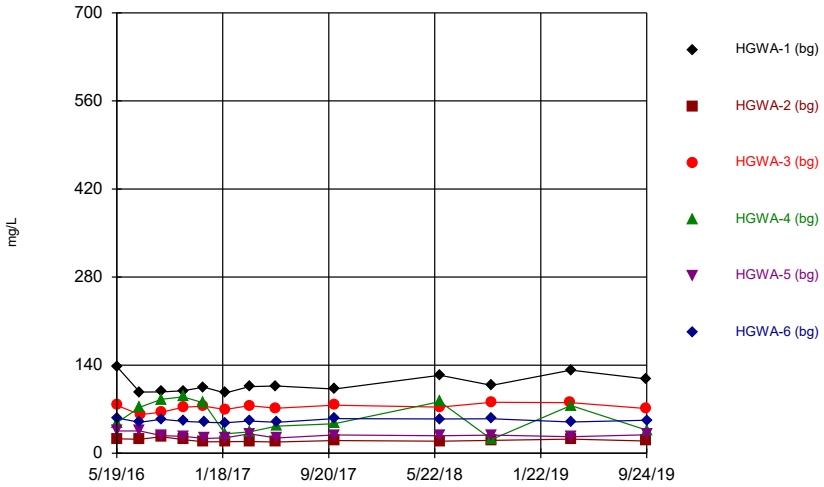
Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Cadmium Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

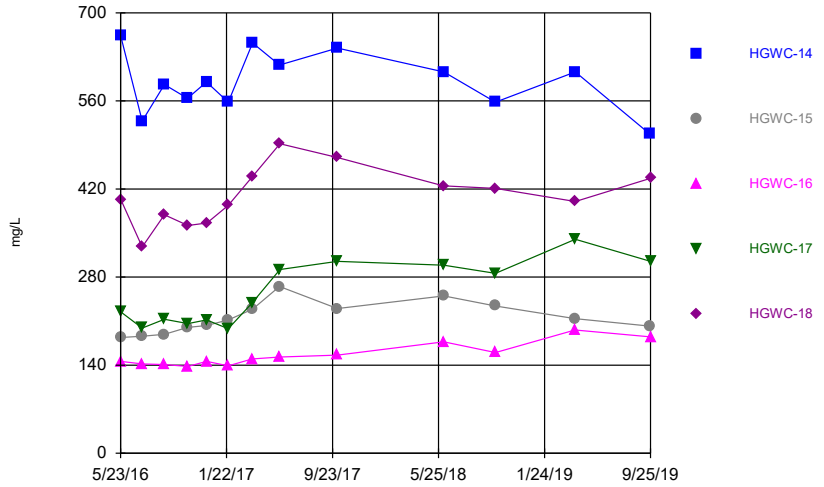
Time Series



Constituent: Calcium Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

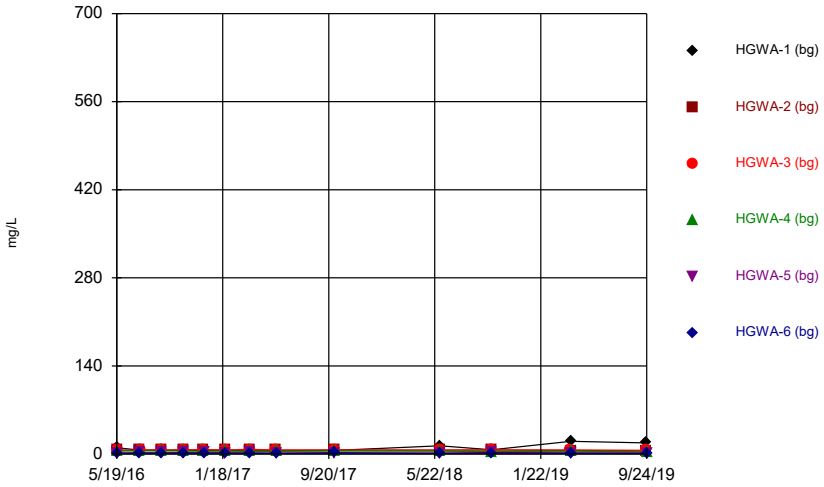
Time Series



Constituent: Calcium Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

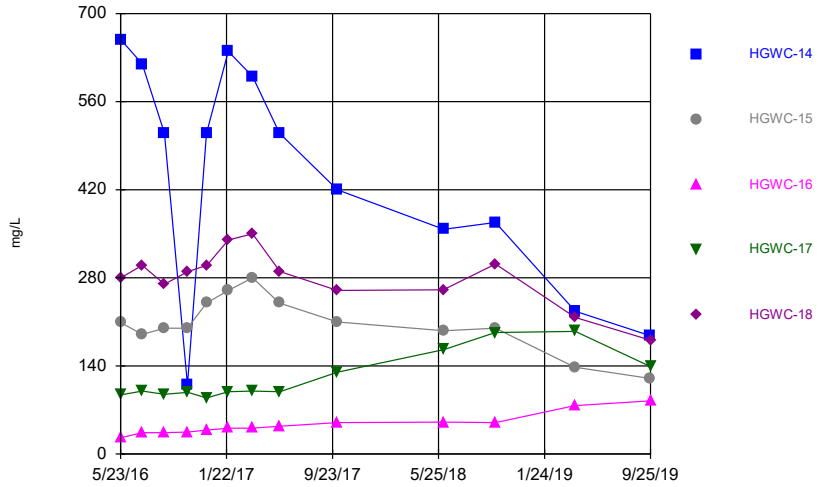
Time Series



Constituent: Chloride Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

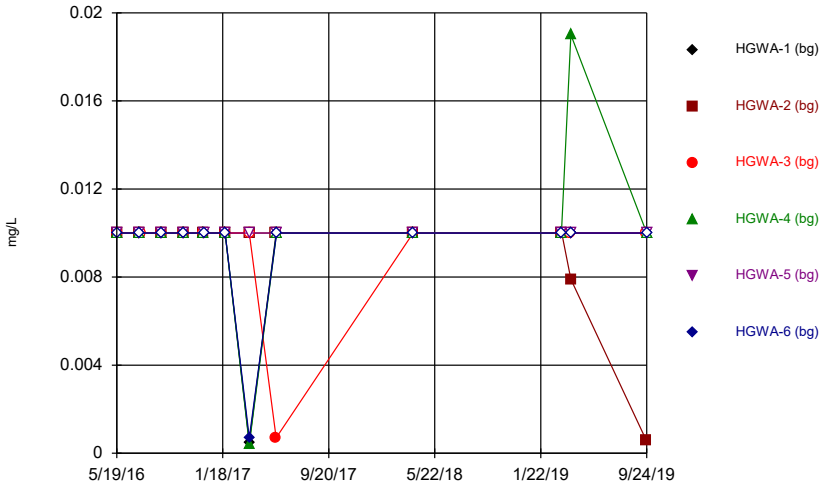
Time Series



Constituent: Chloride Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

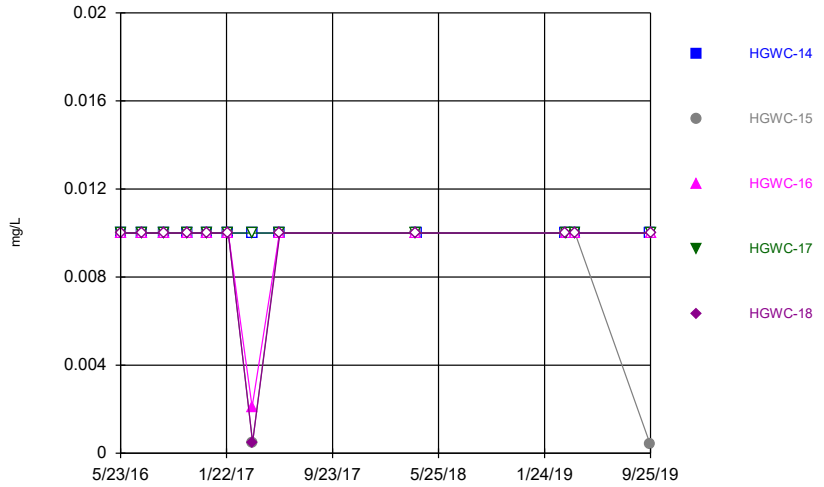
Time Series



Constituent: Chromium Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

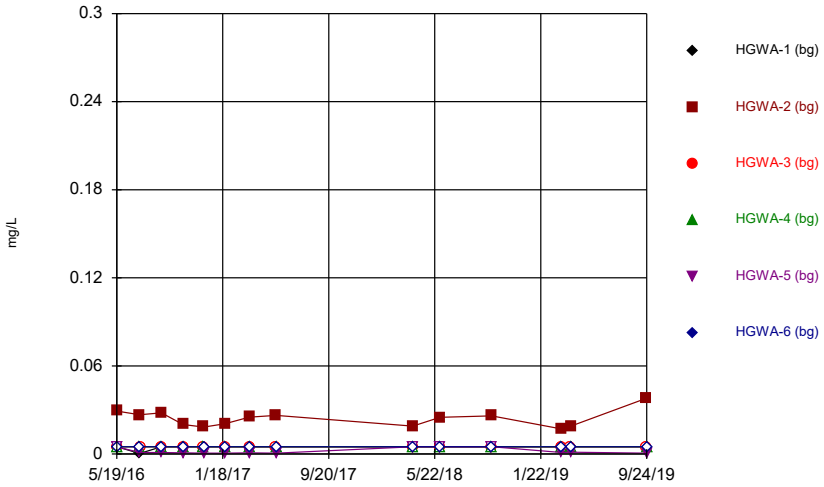
Time Series



Constituent: Chromium Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

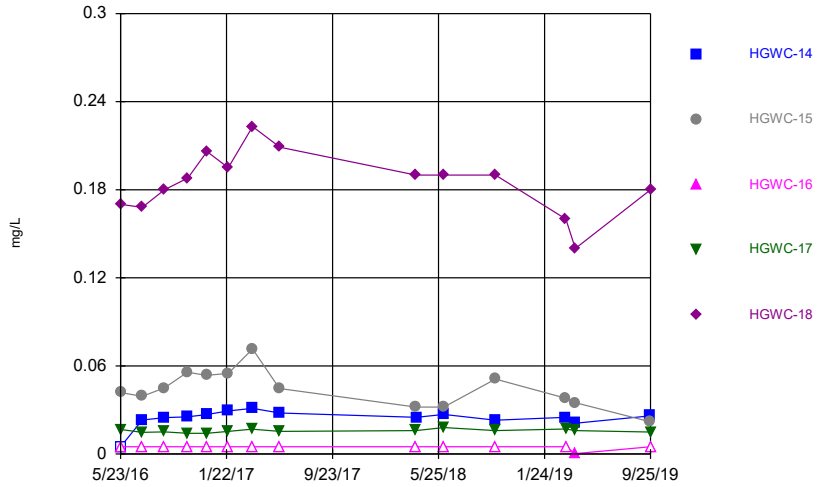
Time Series



Constituent: Cobalt Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

Time Series



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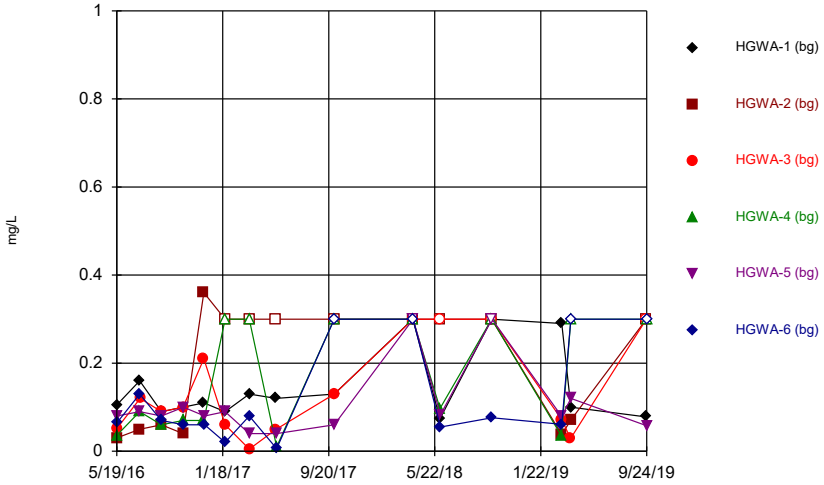
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

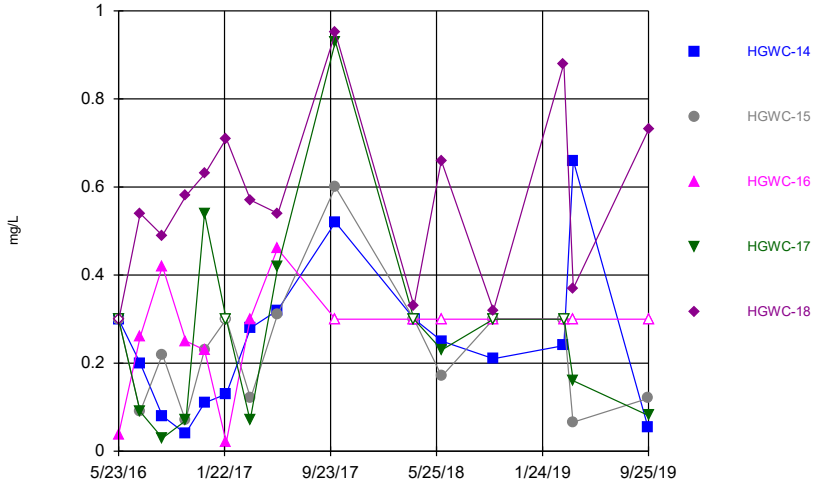
Time Series



Constituent: Fluoride Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

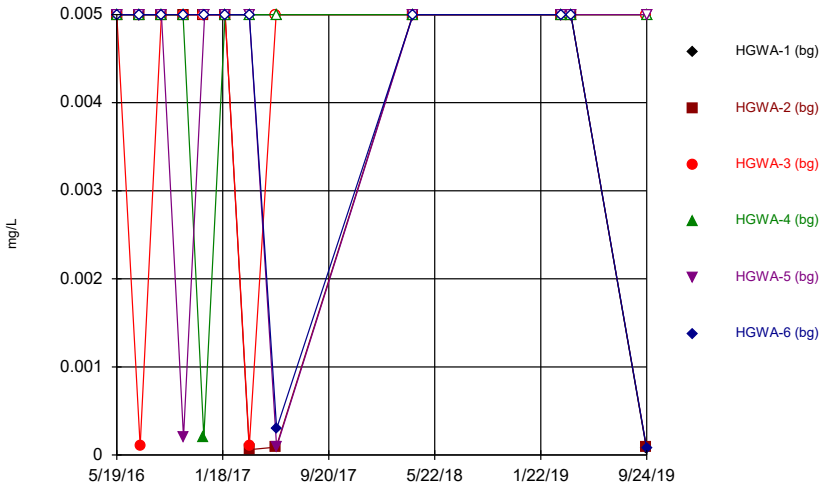
Time Series



Constituent: Fluoride Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

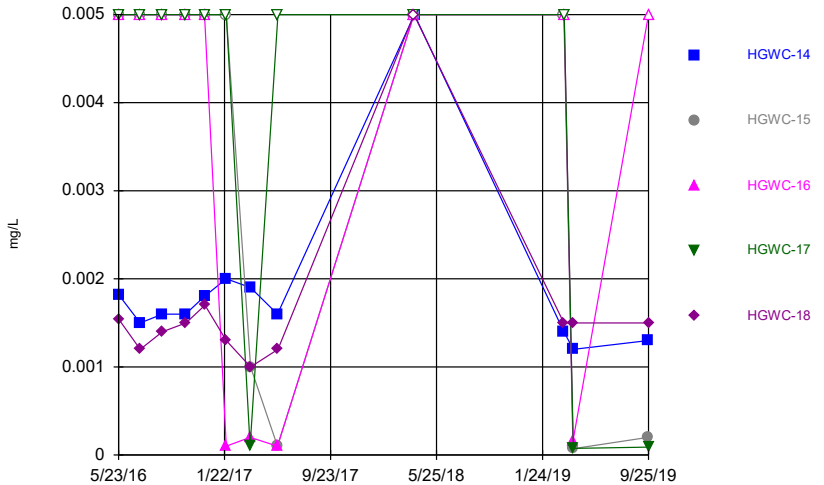
Time Series



Constituent: Lead Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

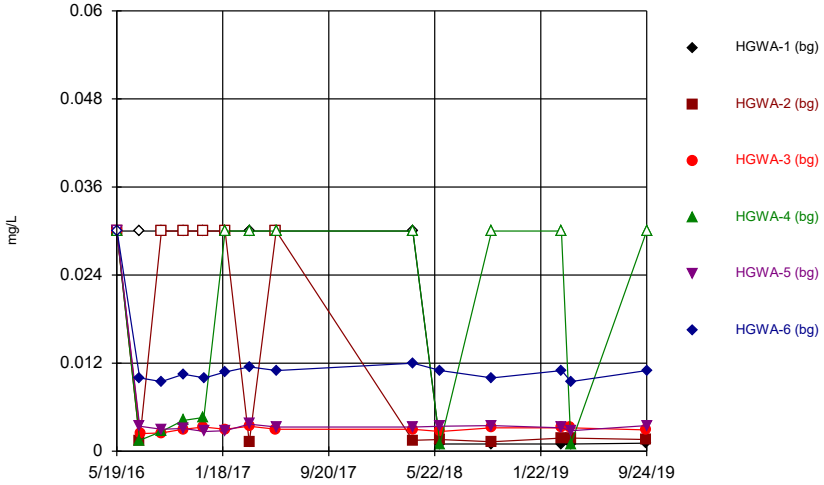
Time Series



Constituent: Lead Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

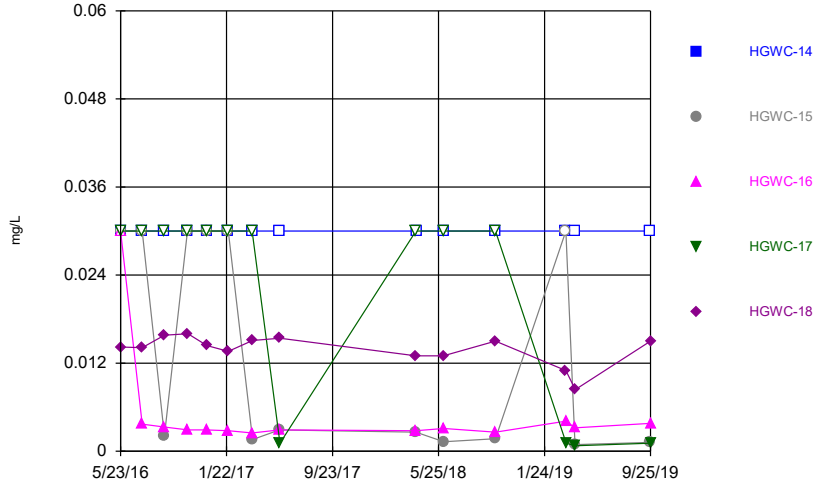
Time Series



Constituent: Lithium Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

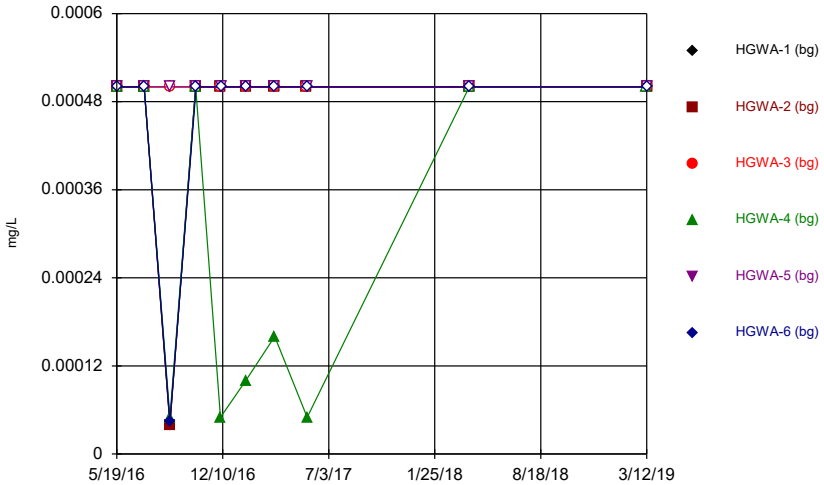
Time Series



Constituent: Lithium Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

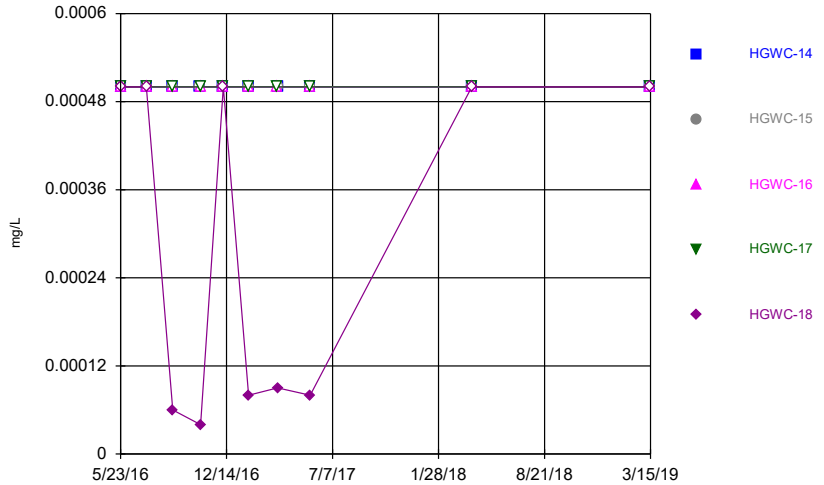
Time Series



Constituent: Mercury Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

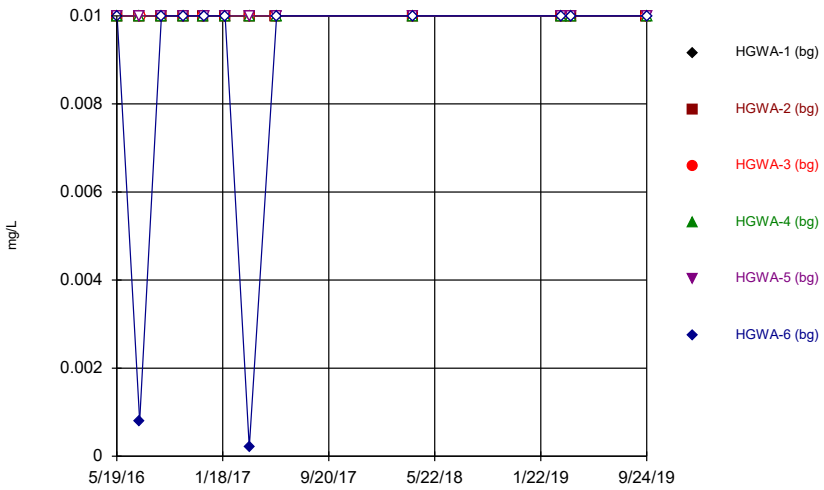
Time Series



Constituent: Mercury Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

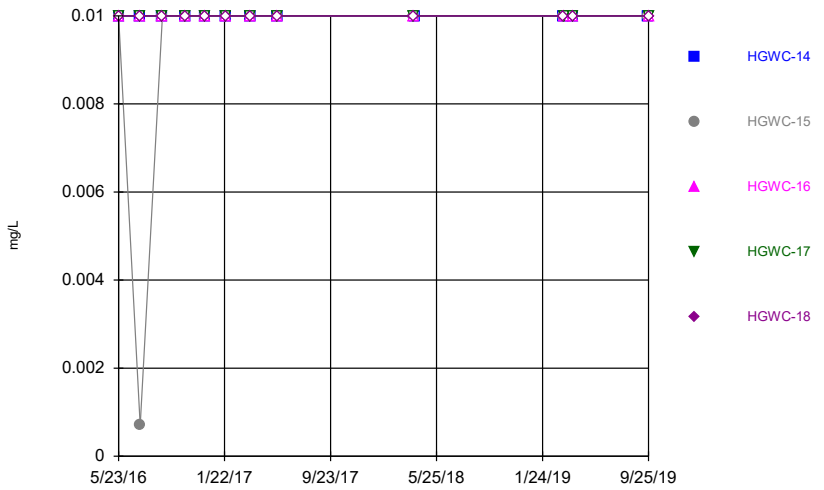
Time Series



Constituent: Molybdenum Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

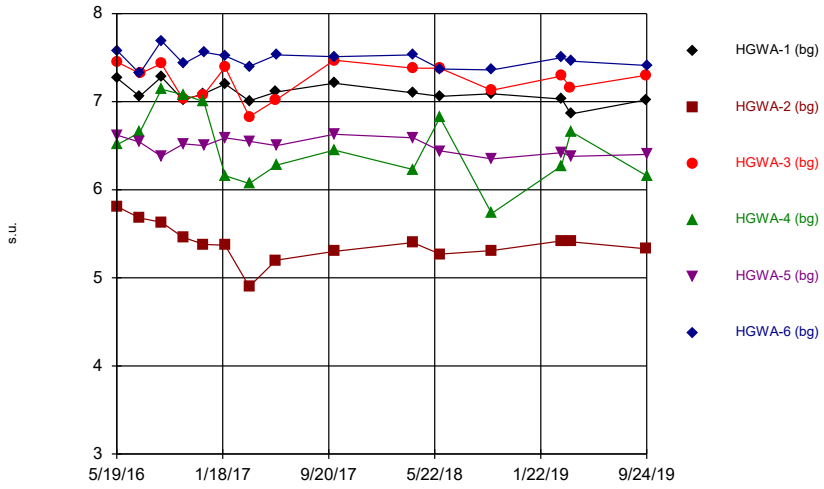
Time Series



Constituent: Molybdenum Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

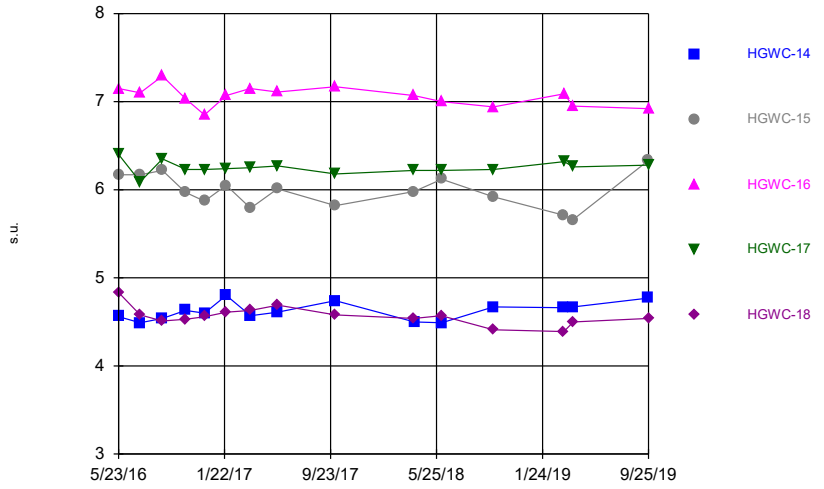
Time Series



Constituent: pH Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

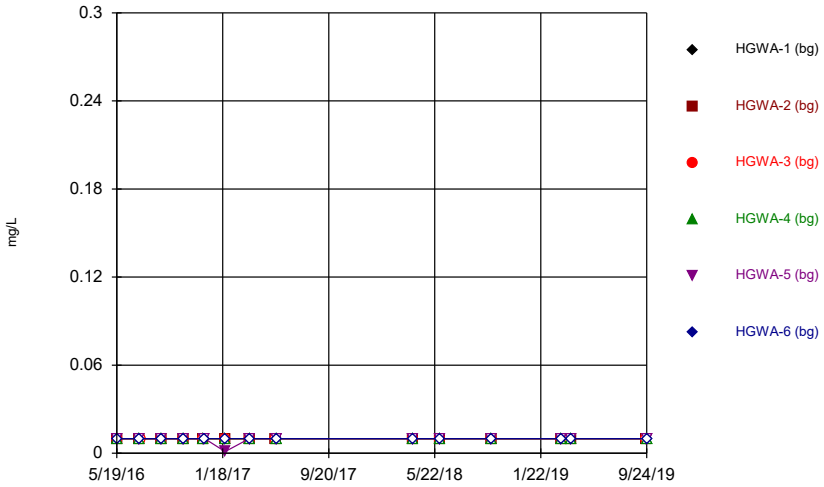
Time Series



Constituent: pH Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

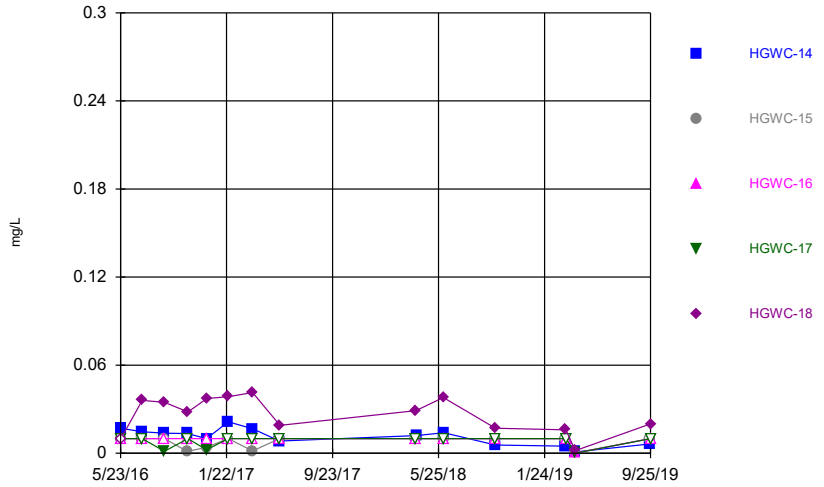
Time Series



Constituent: Selenium Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

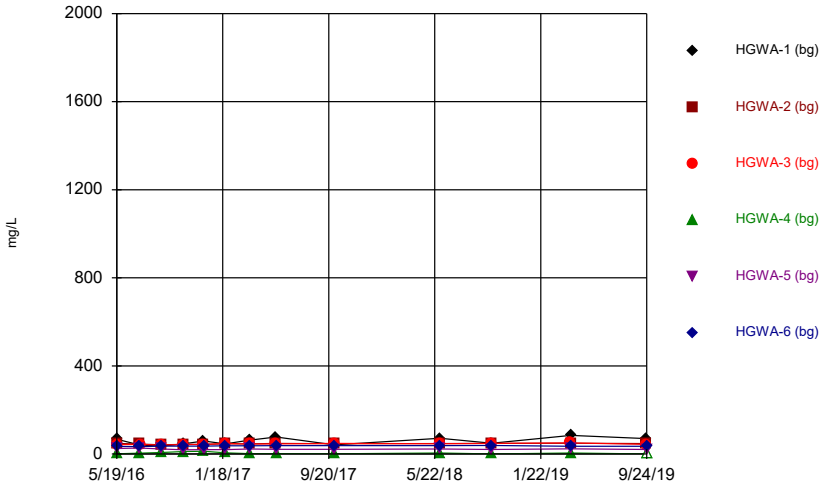
Time Series



Constituent: Selenium Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

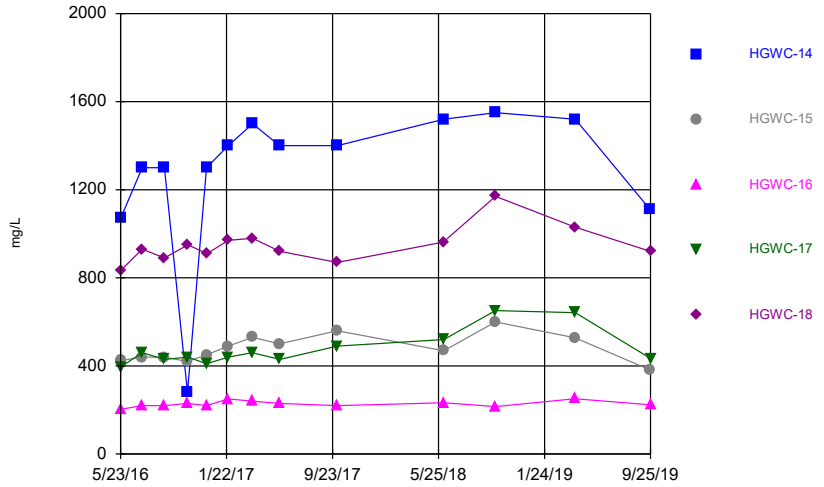
Time Series



Constituent: Sulfate Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

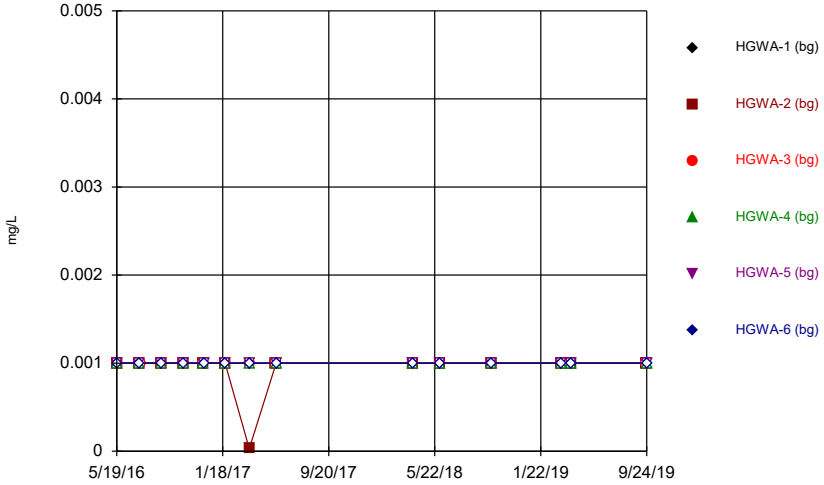
Time Series



Constituent: Sulfate Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

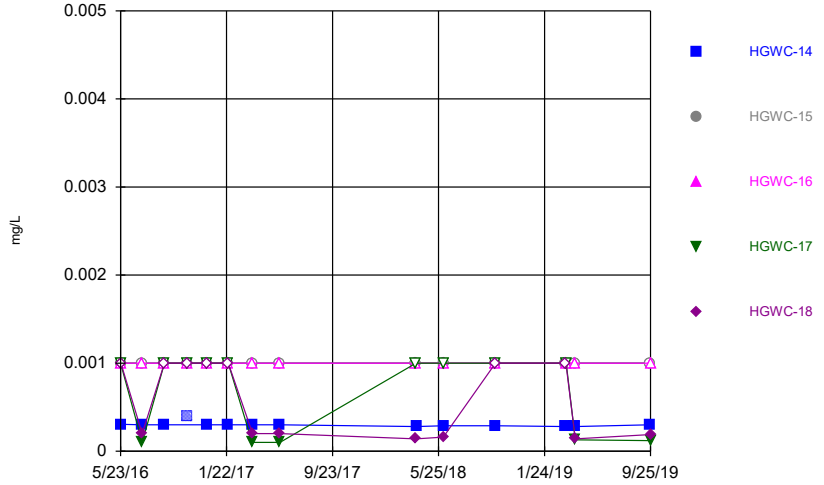
Time Series



Constituent: Thallium Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

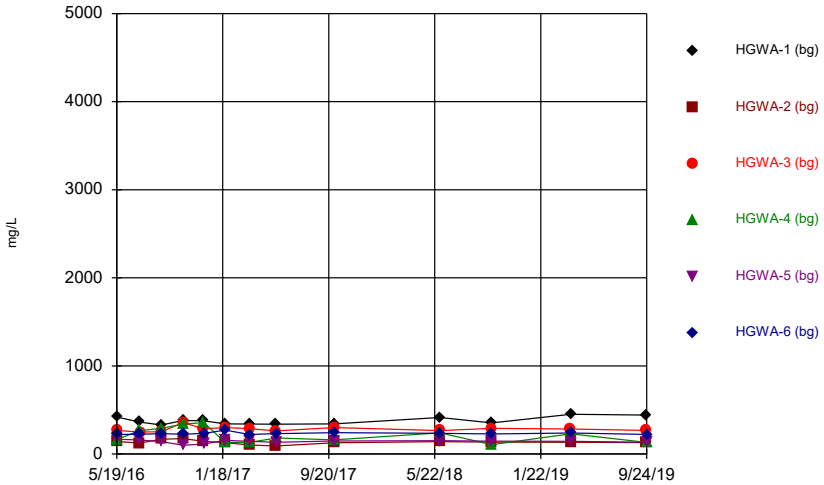
Time Series



Constituent: Thallium Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

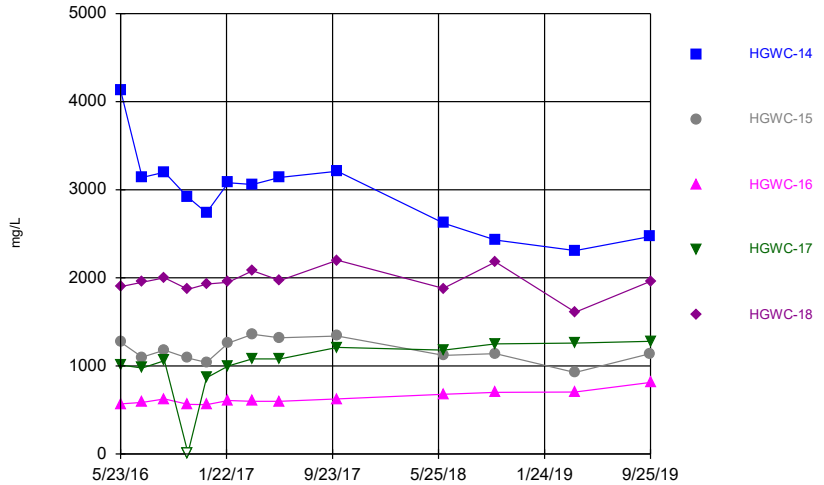
Time Series



Constituent: Total Dissolved Solids Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

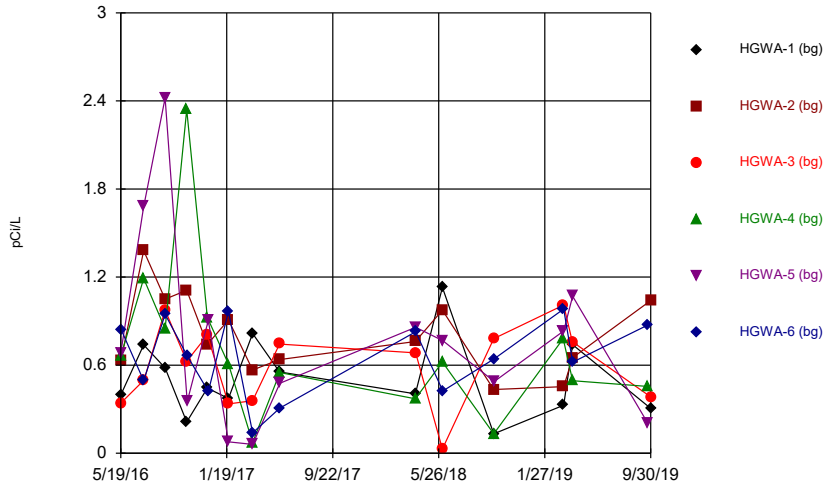
Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Total Dissolved Solids Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

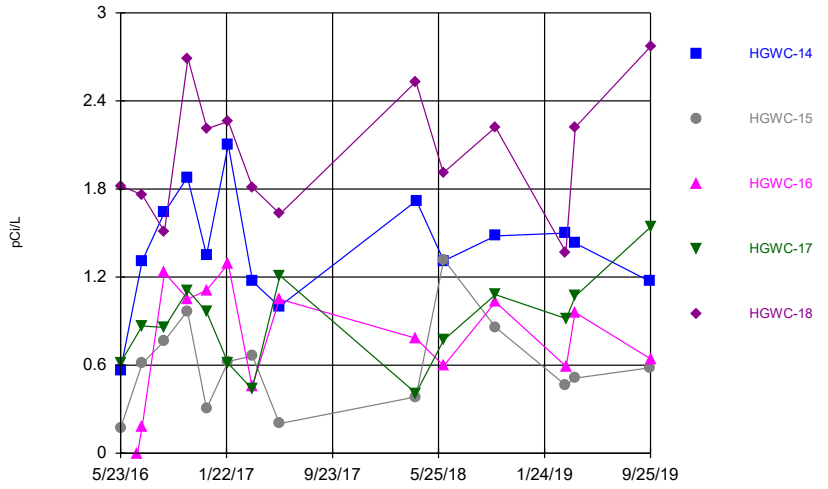
Time Series



Constituent: Total Radium Analysis Run 12/16/2019 6:27 PM
Hammond AP Client: Georgia Power Data: Hammond AP-2

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Time Series



Constituent: Total Radium Analysis Run 12/16/2019 6:28 PM
Hammond AP Client: Georgia Power 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 (EPD)

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2 Printed 7/22/2019, 2:50 AM

Constituent	Well	Upper Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
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 F-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	0.21	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	0.029	0.029
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

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

[2]Constituent without established EPA MCL.

Confidence Interval (EPD) - Significant Results

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

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
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 (EPD) - All Results

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

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
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)

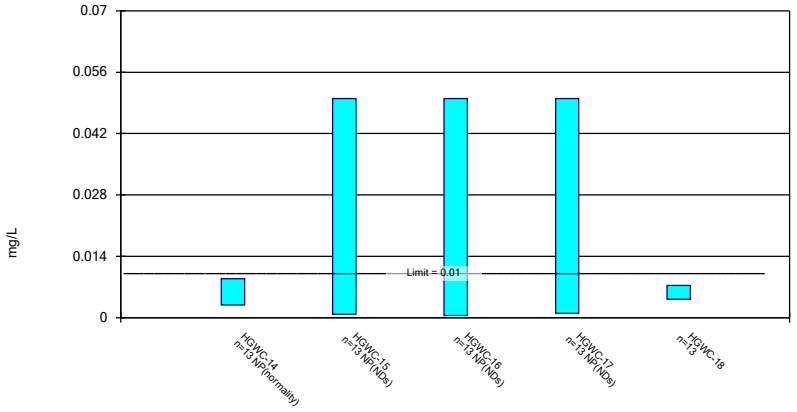
Confidence Interval (EPD) - All Results

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

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
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.

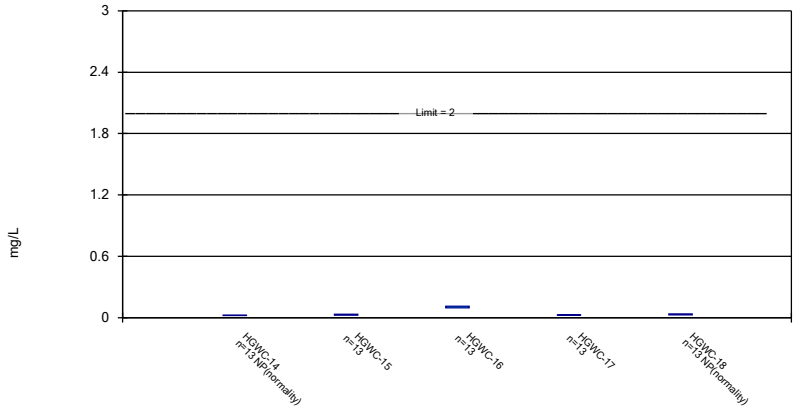


Constituent: Arsenic Analysis Run 7/22/2019 2:54 AM

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.

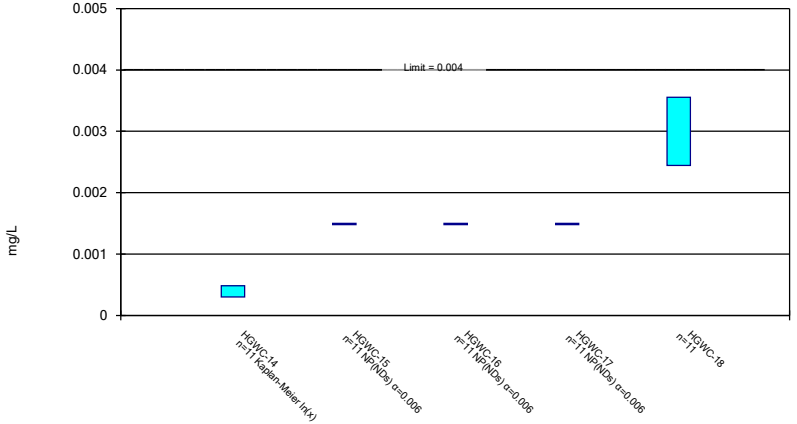


Constituent: Barium Analysis Run 7/22/2019 2:54 AM

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.

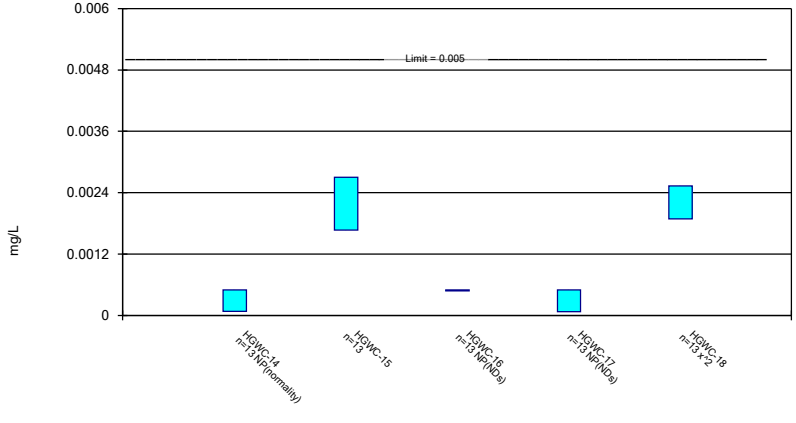


Constituent: Beryllium Analysis Run 7/22/2019 2:54 AM

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

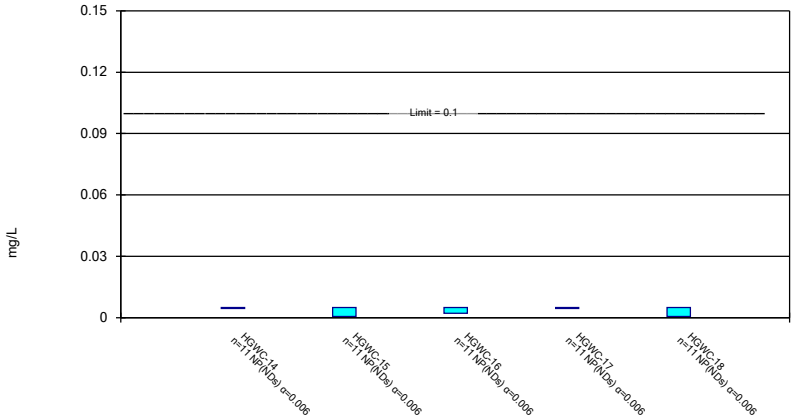
Constituent: Cadmium (mg/L) Analysis Run 7/22/2019 2:56 AM

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.

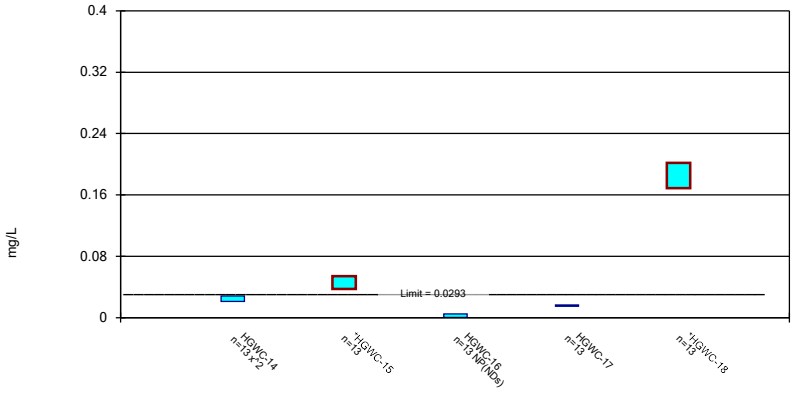


Constituent: Chromium Analysis Run 7/22/2019 2:54 AM

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.

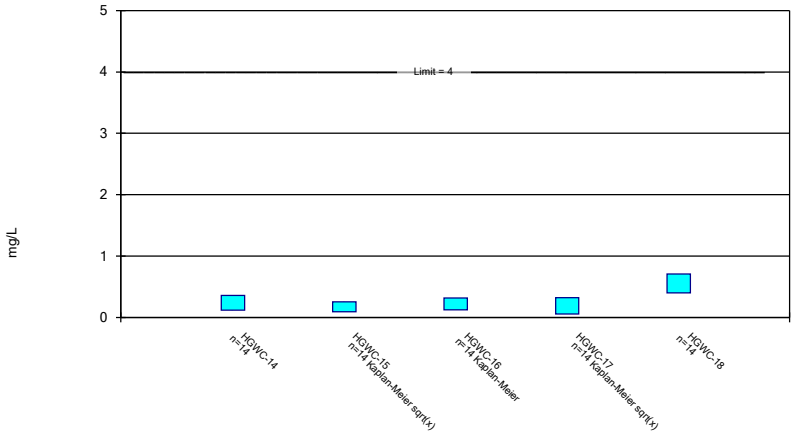


Constituent: Cobalt Analysis Run 7/22/2019 2:54 AM

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.

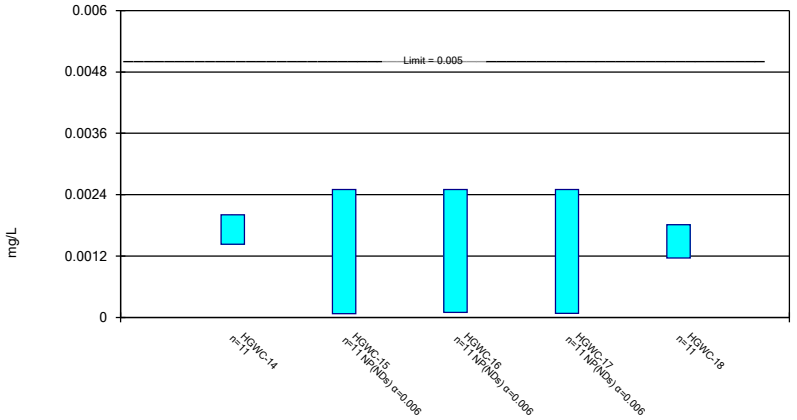


Constituent: Fluoride Analysis Run 7/22/2019 2:54 AM

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

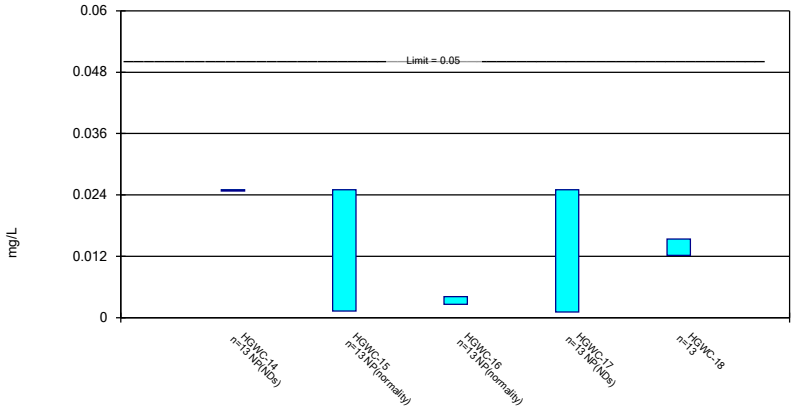
Constituent: Lead (mg/L) Analysis Run 7/22/2019 2:56 AM

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.

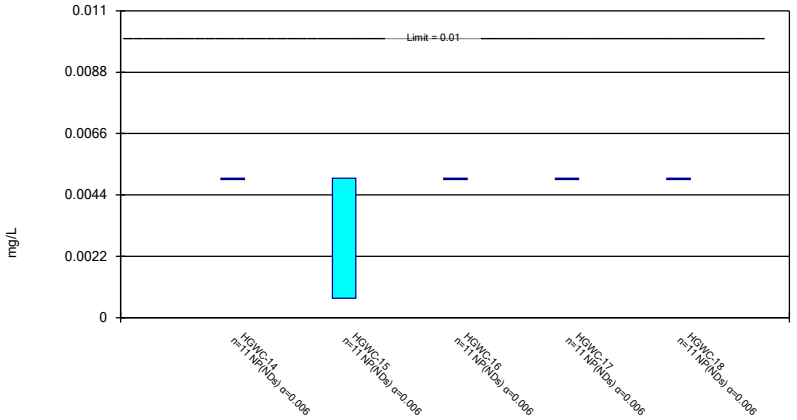


Constituent: Lithium Analysis Run 7/22/2019 2:54 AM

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

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

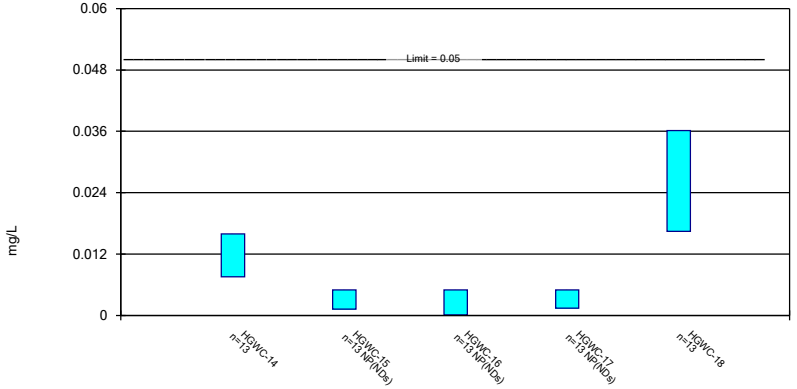


Constituent: Molybdenum Analysis Run 7/22/2019 2:54 AM

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.

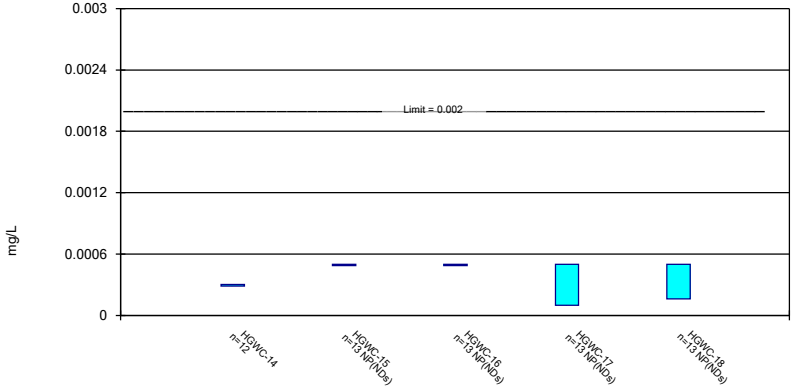


Constituent: Selenium Analysis Run 7/22/2019 2:54 AM

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

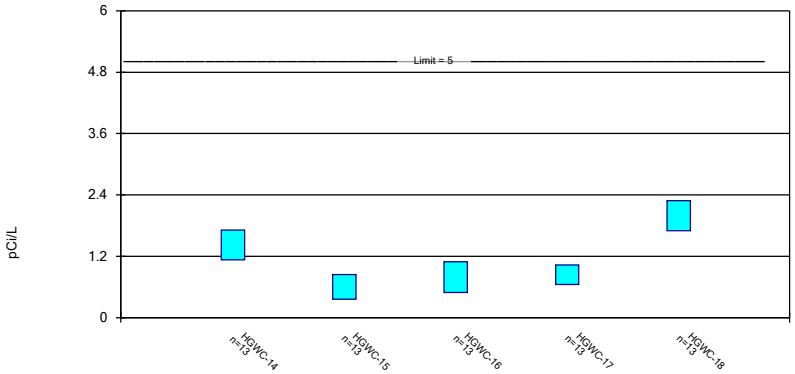
Constituent: Thallium (mg/L) Analysis Run 7/22/2019 2:56 AM

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 (USEPA)

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2 Printed 7/22/2019, 3:16 AM

Constituent	Well	Upper Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
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 F-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	0.21	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	0.029	0.029
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

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

[2]Regional Screening Level applied for constituent per CCR Rule Ammendment, July 30, 2018.

[3]Currently, there is no EPA MCL established for lead. The value listed is the established EPA Action Level for drinking water.

Confidence Interval (USEPA) - Significant Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2 Printed 7/22/2019, 3:24 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
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 (USEPA) - All Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2 Printed 7/22/2019, 3:24 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
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)

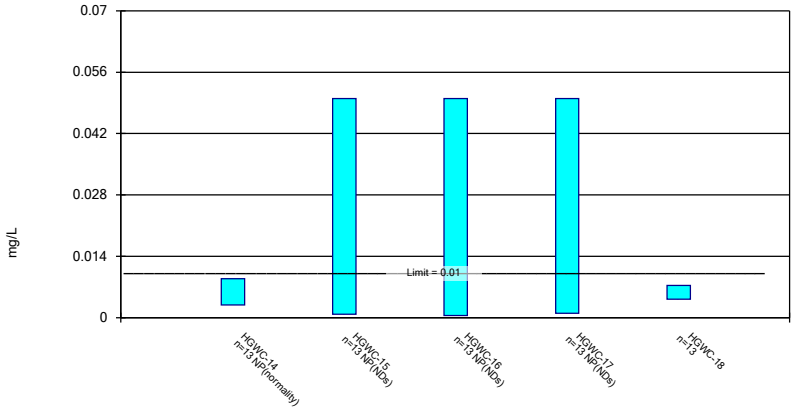
Confidence Interval (USEPA) - All Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2 Printed 7/22/2019, 3:24 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
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.

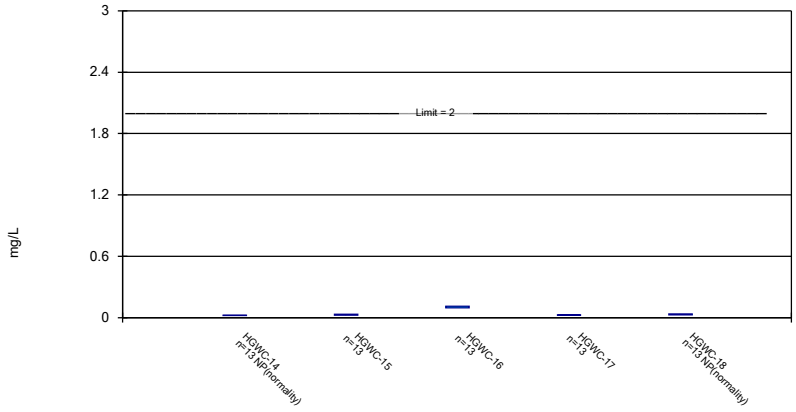


Constituent: Arsenic Analysis Run 7/22/2019 3:22 AM

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.

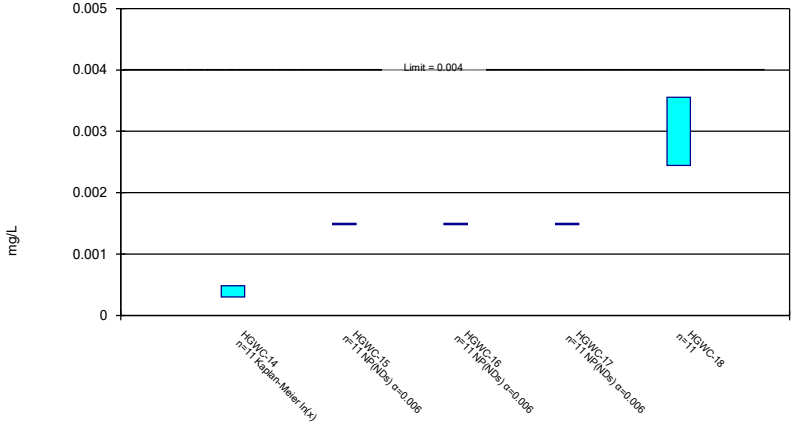


Constituent: Barium Analysis Run 7/22/2019 3:22 AM

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.

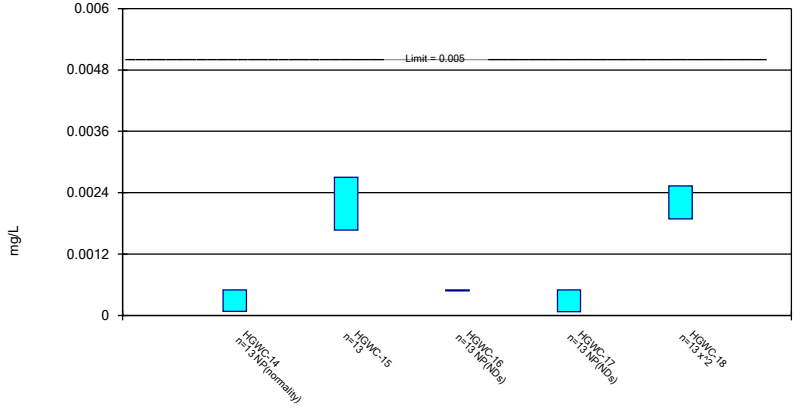


Constituent: Beryllium Analysis Run 7/22/2019 3:22 AM

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

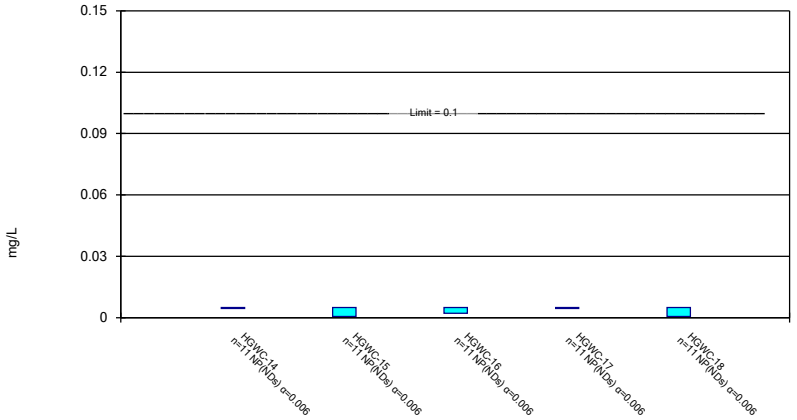
Constituent: Cadmium (mg/L) Analysis Run 7/22/2019 3:24 AM

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.

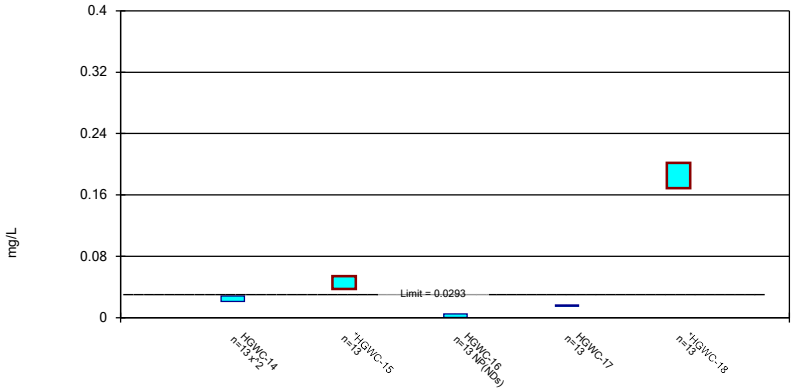


Constituent: Chromium Analysis Run 7/22/2019 3:23 AM

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.

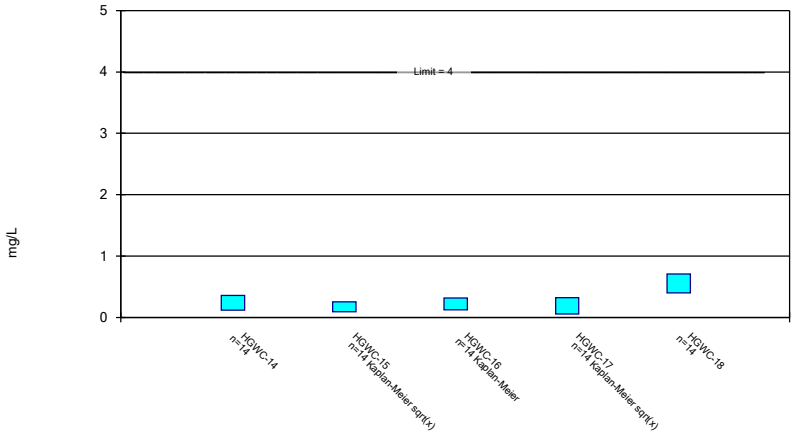


Constituent: Cobalt Analysis Run 7/22/2019 3:23 AM

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.

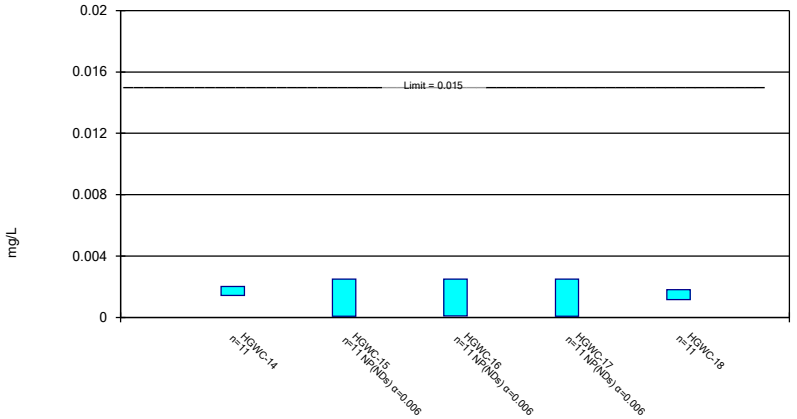


Constituent: Fluoride Analysis Run 7/22/2019 3:23 AM

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

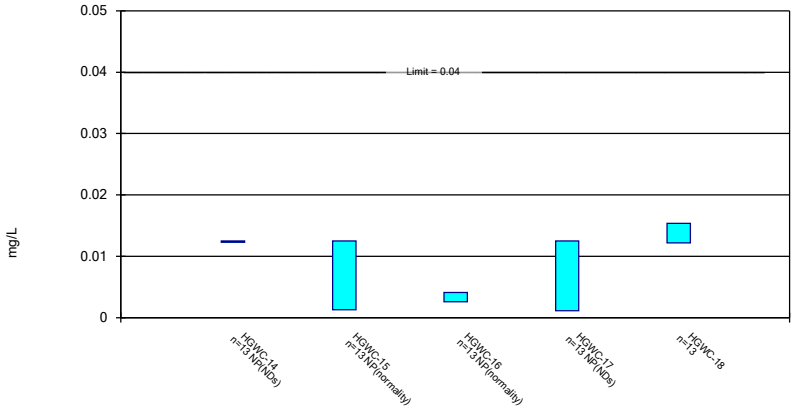
Constituent: Lead (mg/L) Analysis Run 7/22/2019 3:24 AM

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.

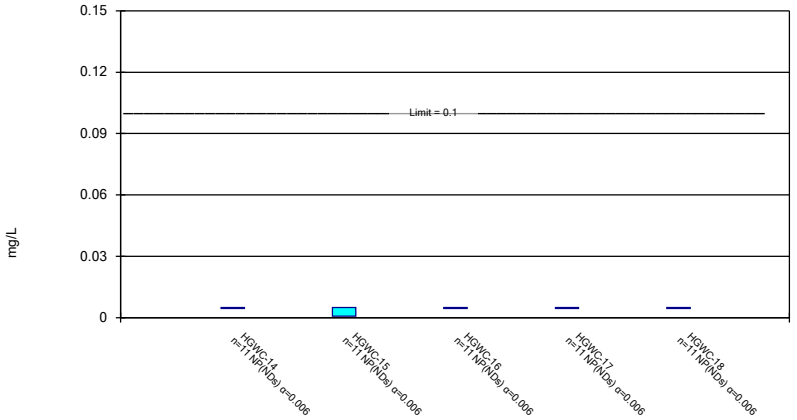


Constituent: Lithium Analysis Run 7/22/2019 3:23 AM

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

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

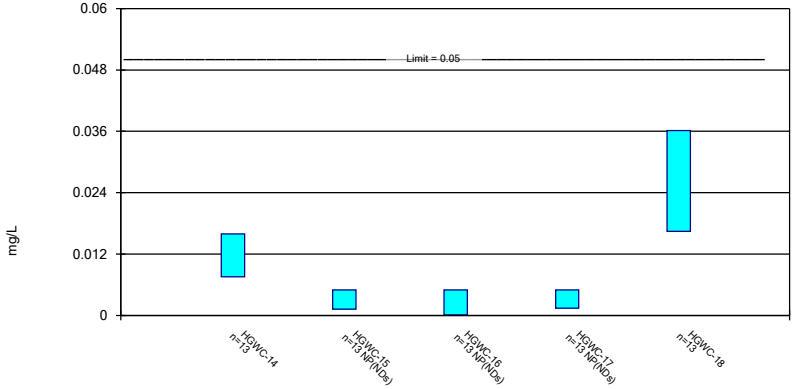


Constituent: Molybdenum Analysis Run 7/22/2019 3:23 AM

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.

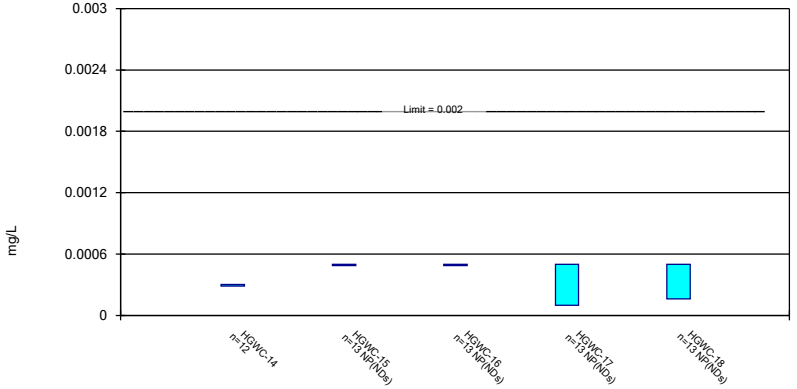


Constituent: Selenium Analysis Run 7/22/2019 3:23 AM

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

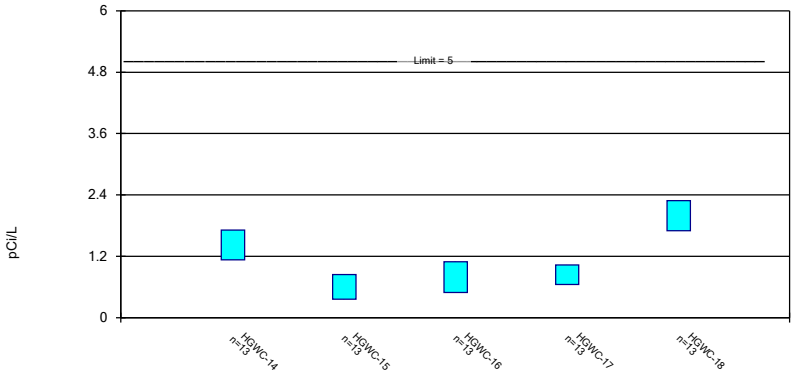
Constituent: Thallium (mg/L) Analysis Run 7/22/2019 3:24 AM

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

September 2019 event (AM 02)

GA EPD Based Groundwater Protection Standards Statistical Analysis Package

AM 02

Tolerance Limit (USEPA)

Hammond AP Client: Georgia Power Data: Hammond AP-2 Printed 12/16/2019, 5:31 PM

Constituent	Well	Upper Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Antimony (mg/L)	n/a	0.003	n/a	n/a	n/a	63	93.65	n/a	0.0395	NP Inter(NDs)
Arsenic (mg/L)	n/a	0.005	n/a	n/a	n/a	84	78.57	n/a	0.01345	NP Inter(NDs)
Barium (mg/L)	n/a	0.22	n/a	n/a	n/a	84	0	n/a	0.01345	NP Inter(normality)
Beryllium (mg/L)	n/a	0.003	n/a	n/a	n/a	72	86.11	n/a	0.02489	NP Inter(NDs)
Cadmium (mg/L)	n/a	0.0025	n/a	n/a	n/a	84	92.86	n/a	0.01345	NP Inter(NDs)
Chromium (mg/L)	n/a	0.019	n/a	n/a	n/a	72	90.28	n/a	0.02489	NP Inter(NDs)
Cobalt (mg/L)	n/a	0.038	n/a	n/a	n/a	84	70.24	n/a	0.01345	NP Inter(NDs)
Fluoride (mg/L)	n/a	0.36	n/a	n/a	n/a	90	30	n/a	0.009888	NP Inter(normality)
Lead (mg/L)	n/a	0.005	n/a	n/a	n/a	72	84.72	n/a	0.02489	NP Inter(NDs)
Lithium (mg/L)	n/a	0.03	n/a	n/a	n/a	84	30.95	n/a	0.01345	NP Inter(normality)
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	72	97.22	n/a	0.02489	NP Inter(NDs)
Selenium (mg/L)	n/a	0.01	n/a	n/a	n/a	84	98.81	n/a	0.01345	NP Inter(NDs)
Thallium (mg/L)	n/a	0.001	n/a	n/a	n/a	84	98.81	n/a	0.01345	NP Inter(NDs)
Total Radium (pCi/L)	n/a	2.42	n/a	n/a	n/a	84	0	n/a	0.01345	NP Inter(normality)

Table F-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	0.22	2
Beryllium	7440-41-7	mg/L	0.004	0.003	0.004
Cadmium	7440-43-9	mg/L	0.005	0.003	0.005
Chromium (III+VI)	7440-47-3	mg/L	0.1	0.019	0.1
Cobalt[2]	7440-48-4	mg/L	N/A	0.038	0.038
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	0.03	0.03
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

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

[2]Constituent without established EPA MCL.

Confidence Interval (EPD) - Significant Results

Hammond AP Client: Georgia Power Data: Hammond AP-2 Printed 12/16/2019, 5:38 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Cobalt (mg/L)	**HGWC-18**	**0.2**	**0.1699**	**0.038**	**Yes**	**14**	**0**	**No**	**0.01**	**Param.**

Confidence Interval (EPD) - All Results

Hammond AP Client: Georgia Power Data: Hammond AP-2 Printed 12/16/2019, 5:38 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Arsenic (mg/L)	HGWC-14	0.006292	0.003948	0.01	No	14	14.29	No	0.01	Param.
Arsenic (mg/L)	HGWC-15	0.005	0.0008	0.01	No	14	78.57	No	0.01	NP (NDs)
Arsenic (mg/L)	HGWC-16	0.005	0.0005	0.01	No	14	85.71	No	0.01	NP (NDs)
Arsenic (mg/L)	HGWC-17	0.005	0.00097	0.01	No	14	78.57	No	0.01	NP (NDs)
Arsenic (mg/L)	HGWC-18	0.007116	0.004204	0.01	No	14	0	No	0.01	Param.
Barium (mg/L)	HGWC-14	0.0238	0.02	2	No	14	7.143	No	0.01	NP (normality)
Barium (mg/L)	HGWC-15	0.03194	0.02259	2	No	14	0	No	0.01	Param.
Barium (mg/L)	HGWC-16	0.112	0.096	2	No	14	0	No	0.01	Param.
Barium (mg/L)	HGWC-17	0.02618	0.02274	2	No	14	0	No	0.01	Param.
Barium (mg/L)	HGWC-18	0.0346	0.029	2	No	14	7.143	No	0.01	NP (normality)
Beryllium (mg/L)	HGWC-14	0.003	0.00043	0.004	No	12	16.67	No	0.01	NP (normality)
Beryllium (mg/L)	HGWC-15	0.003	0.003	0.004	No	12	100	No	0.01	NP (NDs)
Beryllium (mg/L)	HGWC-16	0.003	0.003	0.004	No	12	100	No	0.01	NP (NDs)
Beryllium (mg/L)	HGWC-17	0.003	0.003	0.004	No	12	100	No	0.01	NP (NDs)
Beryllium (mg/L)	HGWC-18	0.003465	0.002799	0.004	No	12	8.333	No	0.01	Param.
Cadmium (mg/L)	HGWC-14	0.0025	0.0001	0.005	No	14	28.57	No	0.01	NP (normality)
Cadmium (mg/L)	HGWC-15	0.002623	0.001635	0.005	No	14	0	No	0.01	Param.
Cadmium (mg/L)	HGWC-16	0.0025	0.0025	0.005	No	14	100	No	0.01	NP (NDs)
Cadmium (mg/L)	HGWC-17	0.0025	0.00007	0.005	No	14	92.86	No	0.01	NP (NDs)
Cadmium (mg/L)	HGWC-18	0.002512	0.002116	0.005	No	14	7.143	No	0.01	Param.
Chromium (mg/L)	HGWC-14	0.01	0.01	0.1	No	12	100	No	0.01	NP (NDs)
Chromium (mg/L)	HGWC-15	0.01	0.0005	0.1	No	12	83.33	No	0.01	NP (NDs)
Chromium (mg/L)	HGWC-16	0.01	0.0021	0.1	No	12	91.67	No	0.01	NP (NDs)
Chromium (mg/L)	HGWC-17	0.01	0.01	0.1	No	12	100	No	0.01	NP (NDs)
Chromium (mg/L)	HGWC-18	0.01	0.0005	0.1	No	12	91.67	No	0.01	NP (NDs)
Cobalt (mg/L)	HGWC-14	0.02798	0.0217	0.038	No	14	7.143	x^2	0.01	Param.
Cobalt (mg/L)	HGWC-15	0.05299	0.0351	0.038	No	14	0	No	0.01	Param.
Cobalt (mg/L)	HGWC-16	0.005	0.00028	0.038	No	14	92.86	No	0.01	NP (NDs)
Cobalt (mg/L)	HGWC-17	0.01655	0.01495	0.038	No	14	0	No	0.01	Param.
Cobalt (mg/L)	**HGWC-18**	**0.2**	**0.1699**	**0.038**	**Yes**	**14**	**0**	**No**	**0.01**	**Param.**
Fluoride (mg/L)	HGWC-14	0.361	0.1314	4	No	15	13.33	No	0.01	Param.
Fluoride (mg/L)	HGWC-15	0.2656	0.08135	4	No	15	33.33	No	0.01	Param.
Fluoride (mg/L)	HGWC-16	0.3256	0.1585	4	No	15	46.67	x^2	0.01	Param.
Fluoride (mg/L)	HGWC-17	0.2972	0.05861	4	No	15	33.33	sqrt(x)	0.01	Param.
Fluoride (mg/L)	HGWC-18	0.7062	0.4404	4	No	15	6.667	No	0.01	Param.
Lead (mg/L)	HGWC-14	0.002	0.0013	0.005	No	12	8.333	No	0.01	NP (normality)
Lead (mg/L)	HGWC-15	0.005	0.0001	0.005	No	12	66.67	No	0.01	NP (NDs)
Lead (mg/L)	HGWC-16	0.005	0.0001	0.005	No	12	66.67	No	0.01	NP (NDs)
Lead (mg/L)	HGWC-17	0.005	0.000089	0.005	No	12	75	No	0.01	NP (NDs)
Lead (mg/L)	HGWC-18	0.0017	0.0012	0.005	No	12	8.333	No	0.01	NP (normality)
Lithium (mg/L)	HGWC-14	0.03	0.03	0.03	No	14	100	No	0.01	NP (NDs)
Lithium (mg/L)	HGWC-15	0.03	0.0013	0.03	No	14	42.86	No	0.01	NP (normality)
Lithium (mg/L)	HGWC-16	0.0038	0.0026	0.03	No	14	7.143	No	0.01	NP (normality)
Lithium (mg/L)	HGWC-17	0.03	0.0011	0.03	No	14	71.43	No	0.01	NP (NDs)
Lithium (mg/L)	HGWC-18	0.01531	0.0124	0.03	No	14	0	No	0.01	Param.
Mercury (mg/L)	HGWC-14	0.0005	0.0005	0.002	No	10	100	No	0.011	NP (NDs)
Mercury (mg/L)	HGWC-15	0.0005	0.0005	0.002	No	10	100	No	0.011	NP (NDs)
Mercury (mg/L)	HGWC-16	0.0005	0.0005	0.002	No	10	100	No	0.011	NP (NDs)
Mercury (mg/L)	HGWC-17	0.0005	0.0005	0.002	No	10	100	No	0.011	NP (NDs)
Mercury (mg/L)	HGWC-18	0.0005	0.00006	0.002	No	10	50	No	0.011	NP (normality)

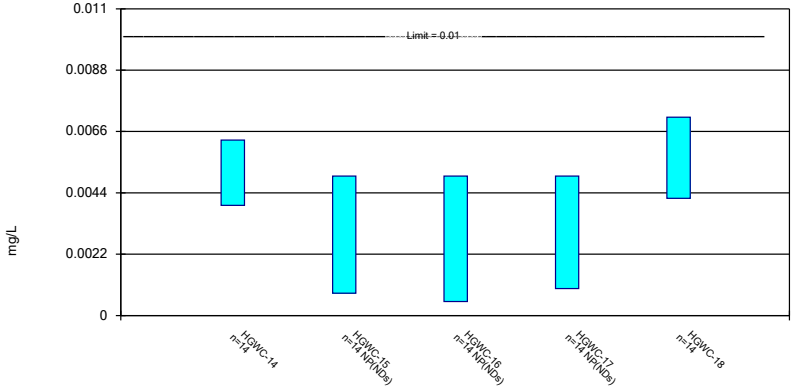
Confidence Interval (EPD) - All Results

Hammond AP Client: Georgia Power Data: Hammond AP-2 Printed 12/16/2019, 5:38 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Molybdenum (mg/L)	HGWC-14	0.01	0.01	0.01	No	12	100	No	0.01	NP (NDs)
Molybdenum (mg/L)	HGWC-15	0.01	0.0007	0.01	No	12	91.67	No	0.01	NP (NDs)
Molybdenum (mg/L)	HGWC-16	0.01	0.01	0.01	No	12	100	No	0.01	NP (NDs)
Molybdenum (mg/L)	HGWC-17	0.01	0.01	0.01	No	12	100	No	0.01	NP (NDs)
Molybdenum (mg/L)	HGWC-18	0.01	0.01	0.01	No	12	100	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-14	0.01533	0.007371	0.05	No	14	0	No	0.01	Param.
Selenium (mg/L)	HGWC-15	0.01	0.0016	0.05	No	14	71.43	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-16	0.01	0.000089	0.05	No	14	92.86	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-17	0.01	0.0023	0.05	No	14	78.57	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-18	0.03491	0.01751	0.05	No	14	7.143	No	0.01	Param.
Thallium (mg/L)	HGWC-14	0.000306	0.00028	0.002	No	13	0	No	0.01	NP (normality)
Thallium (mg/L)	HGWC-15	0.001	0.001	0.002	No	14	100	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-16	0.001	0.001	0.002	No	14	100	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-17	0.001	0.0001	0.002	No	14	64.29	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-18	0.001	0.00016	0.002	No	14	50	No	0.01	NP (normality)
Total Radium (pCi/L)	HGWC-14	1.671	1.133	5	No	14	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-15	0.8223	0.3816	5	No	14	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-16	1.059	0.5074	5	No	14	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-17	1.11	0.6705	5	No	14	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-18	2.357	1.744	5	No	14	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.

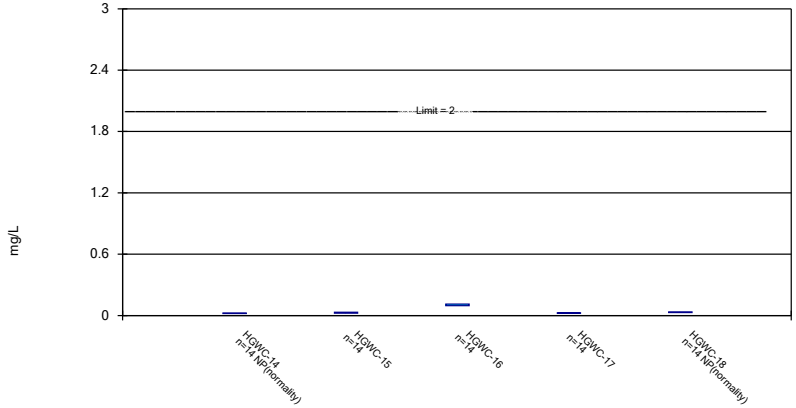


Constituent: Arsenic Analysis Run 12/16/2019 5:35 PM

Hammond AP Client: Georgia Power 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.

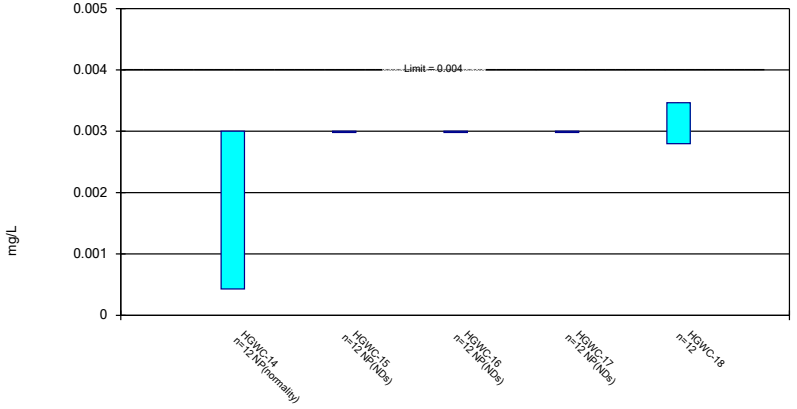


Constituent: Barium Analysis Run 12/16/2019 5:36 PM

Hammond AP Client: Georgia Power 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.

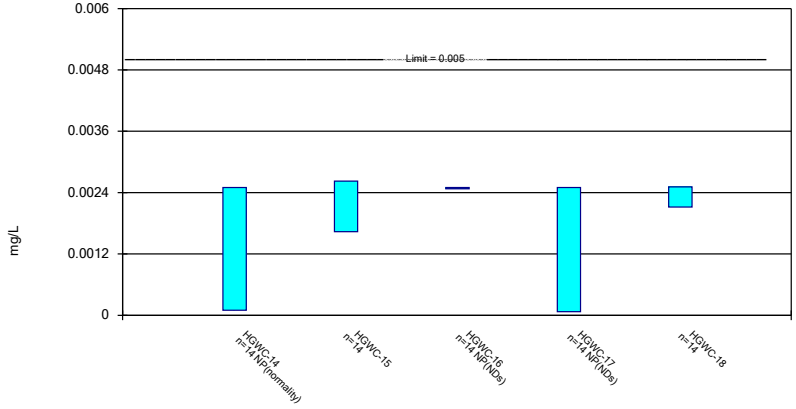


Constituent: Beryllium Analysis Run 12/16/2019 5:36 PM

Hammond AP Client: Georgia Power 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 12/16/2019 5:36 PM

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

Confidence Interval

Constituent: Arsenic (mg/L) Analysis Run 12/16/2019 5:38 PM

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

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	0.00268 (J)	<0.005	<0.005	<0.005	
5/24/2016					0.00294 (J)
7/12/2016	0.0059	<0.005	<0.005	<0.005	0.0074
9/1/2016	0.0056	<0.005	<0.005	<0.005	0.0073
10/24/2016	0.0058	<0.005			
10/25/2016			<0.005	<0.005	0.006
12/7/2016	<0.005	<0.005	<0.005	<0.005	
12/8/2016					0.007
1/26/2017	0.0089	<0.005	<0.005	<0.005	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)	<0.005	<0.005		
5/25/2017				0.0007 (J)	0.006
4/3/2018		<0.005	<0.005	<0.005	0.0062
4/4/2018	0.0052				
6/5/2018					0.008
6/6/2018	0.0059	<0.005	<0.005	0.00097 (J)	
10/3/2018	0.0032 (J)	<0.005	<0.005	<0.005	0.0039 (J)
3/14/2019	0.0029 (J)	<0.005			0.0036 (J)
3/15/2019			<0.005	<0.005	
4/4/2019		0.00017 (J)	0.0001 (J)		
4/5/2019	<0.005			<0.005	0.0015 (J)
9/24/2019	0.0039 (J)	0.00037 (J)			
9/25/2019			<0.005	<0.005	0.0044 (J)
Mean	0.00512	0.004024	0.004329	0.004098	0.00566
Std. Dev.	0.001654	0.001943	0.001709	0.001794	0.002055
Upper Lim.	0.006292	0.005	0.005	0.005	0.007116
Lower Lim.	0.003948	0.0008	0.0005	0.00097	0.004204

Confidence Interval

Constituent: Barium (mg/L) Analysis Run 12/16/2019 5:38 PM

Hammond AP Client: Georgia Power 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
9/24/2019	0.021	0.019			
9/25/2019			0.11	0.025	0.03
Mean	0.02679	0.02726	0.104	0.02446	0.0358
Std. Dev.	0.02117	0.006599	0.01132	0.002428	0.01883
Upper Lim.	0.0238	0.03194	0.112	0.02618	0.0346
Lower Lim.	0.02	0.02259	0.096	0.02274	0.029

Confidence Interval

Constituent: Beryllium (mg/L) Analysis Run 12/16/2019 5:38 PM

Hammond AP Client: Georgia Power 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)
9/24/2019	0.00044 (J)	<0.003			
9/25/2019			<0.003	<0.003	0.0031
Mean	0.0009033	0.003	0.003	0.003	0.003132
Std. Dev.	0.000983	0	0	0	0.0004243
Upper Lim.	0.003	0.003	0.003	0.003	0.003465
Lower Lim.	0.00043	0.003	0.003	0.003	0.002799

Confidence Interval

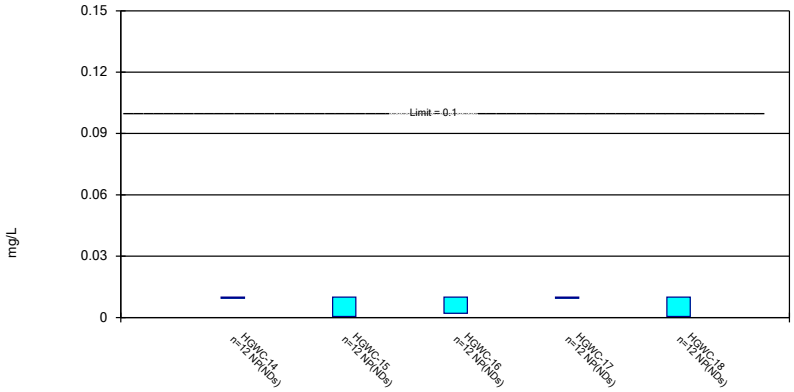
Constituent: Cadmium (mg/L) Analysis Run 12/16/2019 5:38 PM

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

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	0.000139 (J)	0.00271 (J)	<0.0025	<0.0025	
5/24/2016					<0.0025
7/12/2016	<0.0025	0.0019	<0.0025	<0.0025	0.0022
9/1/2016	0.0001 (J)	0.0017	<0.0025	<0.0025	0.0024
10/24/2016	0.0002 (J)	0.0018			
10/25/2016			<0.0025	<0.0025	0.0022
12/7/2016	0.0001 (J)	0.0018	<0.0025	<0.0025	
12/8/2016					0.0024
1/26/2017	0.0001 (J)	0.0013	<0.0025	<0.0025	0.0025
3/22/2017			<0.0025	7E-05 (J)	
3/23/2017	0.0002 (J)	0.002			0.0025
5/24/2017	0.0001 (J)	0.0041	<0.0025		
5/25/2017				<0.0025	0.0027
4/3/2018		0.0022	<0.0025	<0.0025	0.0022
4/4/2018	<0.0025				
6/5/2018					0.0022
6/6/2018	0.00012 (J)	0.0021	<0.0025	<0.0025	
10/3/2018	0.0001 (J)	0.0026	<0.0025	<0.0025	0.0027
3/14/2019	<0.0025	0.0024			0.0019
3/15/2019			<0.0025	<0.0025	
4/4/2019		0.0018	<0.0025		
4/5/2019	7.9E-05 (J)			<0.0025	0.0017
9/24/2019	<0.0025	0.0014 (J)			
9/25/2019			<0.0025	<0.0025	0.0023 (J)
Mean	0.0008027	0.002129	0.0025	0.002326	0.002314
Std. Dev.	0.001115	0.0006973	0	0.0006494	0.0002797
Upper Lim.	0.0025	0.002623	0.0025	0.0025	0.002512
Lower Lim.	0.0001	0.001635	0.0025	7E-05	0.002116

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01.

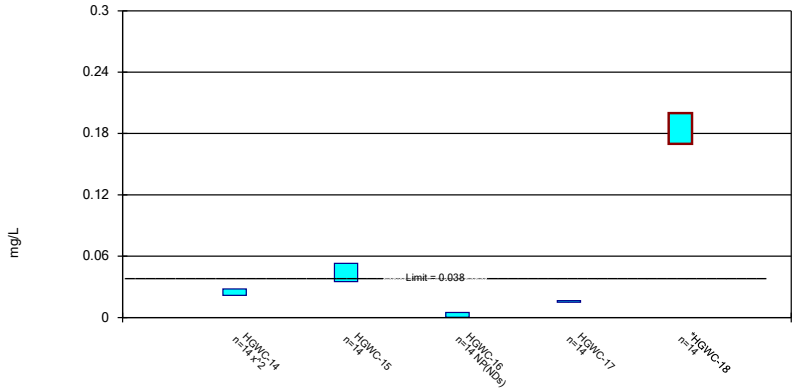


Constituent: Chromium Analysis Run 12/16/2019 5:36 PM

Hammond AP Client: Georgia Power 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.

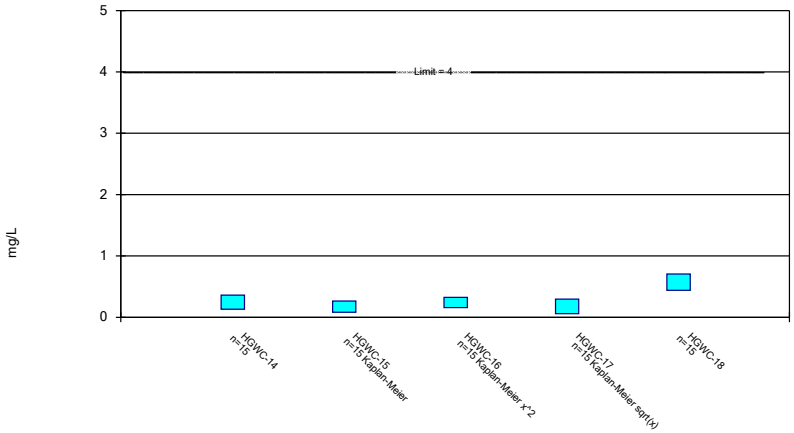


Constituent: Cobalt Analysis Run 12/16/2019 5:36 PM

Hammond AP Client: Georgia Power 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.

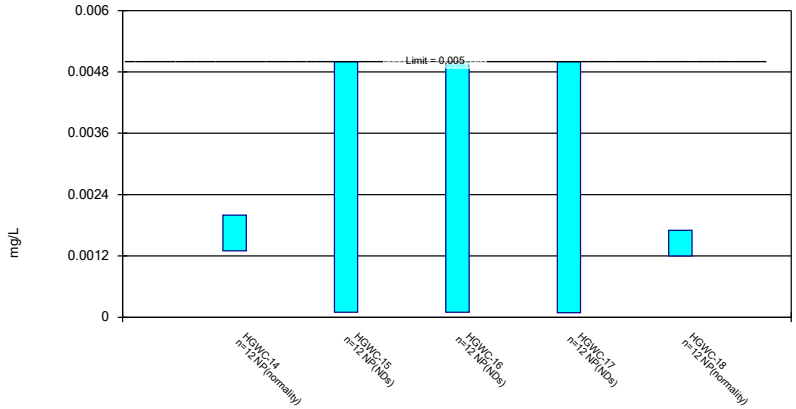


Constituent: Fluoride Analysis Run 12/16/2019 5:36 PM

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

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Lead Analysis Run 12/16/2019 5:36 PM

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

Confidence Interval

Constituent: Chromium (mg/L) Analysis Run 12/16/2019 5:38 PM

Hammond AP Client: Georgia Power 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
9/24/2019	<0.01	0.00041 (J)			
9/25/2019			<0.01	<0.01	<0.01
Mean	0.01	0.008409	0.009342	0.01	0.009208
Std. Dev.	0	0.003715	0.002281	0	0.002742
Upper Lim.	0.01	0.01	0.01	0.01	0.01
Lower Lim.	0.01	0.0005	0.0021	0.01	0.0005

Confidence Interval

Constituent: Cobalt (mg/L) Analysis Run 12/16/2019 5:38 PM

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

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	<0.005	0.0419 (J)	<0.005	0.0167	
5/24/2016					0.17 (J)
7/12/2016	0.0232	0.0393	<0.005	0.0148	0.168
9/1/2016	0.0248	0.045	<0.005	0.0151	0.18
10/24/2016	0.0253	0.0557			
10/25/2016			<0.005	0.0141	0.188
12/7/2016	0.0269	0.0536	<0.005	0.0141	
12/8/2016					0.206
1/26/2017	0.0294	0.055	<0.005	0.0154	0.195
3/22/2017			<0.005	0.0169	
3/23/2017	0.0311	0.0715			0.223
5/24/2017	0.0279	0.0446	<0.005		
5/25/2017				0.0154	0.209
4/3/2018		0.032	<0.005	0.016	0.19
4/4/2018	0.025				
6/5/2018					0.19
6/6/2018	0.027	0.032	<0.005	0.018	
10/3/2018	0.023	0.051	<0.005	0.016	0.19
3/14/2019	0.025	0.038			0.16
3/15/2019			<0.005	0.017	
4/4/2019		0.035	0.00028 (J)		
4/5/2019	0.021			0.016	0.14
9/24/2019	0.026	0.022			
9/25/2019			<0.005	0.015	0.18
Mean	0.02433	0.04404	0.004663	0.01575	0.1849
Std. Dev.	0.006143	0.01263	0.001261	0.001131	0.02123
Upper Lim.	0.02798	0.05299	0.005	0.01655	0.2
Lower Lim.	0.0217	0.0351	0.00028	0.01495	0.1699

Confidence Interval

Constituent: Fluoride (mg/L) Analysis Run 12/16/2019 5:38 PM

Hammond AP Client: Georgia Power 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
9/24/2019	0.053 (J)	0.12 (J)			
9/25/2019			<0.3	0.081 (J)	0.73
Mean	0.2462	0.2331	0.2719	0.2747	0.5733
Std. Dev.	0.1694	0.1383	0.1147	0.2322	0.1961
Upper Lim.	0.361	0.2656	0.3256	0.2972	0.7062
Lower Lim.	0.1314	0.08135	0.1585	0.05861	0.4404

Confidence Interval

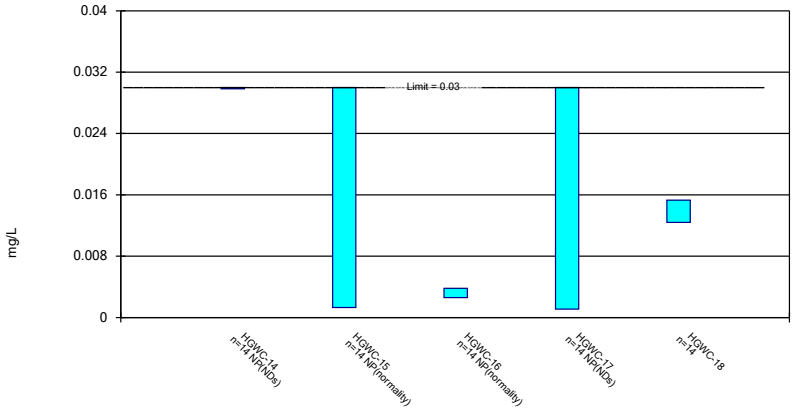
Constituent: Lead (mg/L) Analysis Run 12/16/2019 5:38 PM

Hammond AP Client: Georgia Power 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)
9/24/2019	0.0013 (J)	0.0002 (J)			
9/25/2019			<0.005	8.9E-05 (J)	0.0015 (J)
Mean	0.001893	0.003448	0.00338	0.003772	0.001695
Std. Dev.	0.001008	0.002305	0.002393	0.002221	0.001058
Upper Lim.	0.002	0.005	0.005	0.005	0.0017
Lower Lim.	0.0013	0.0001	0.0001	8.9E-05	0.0012

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.

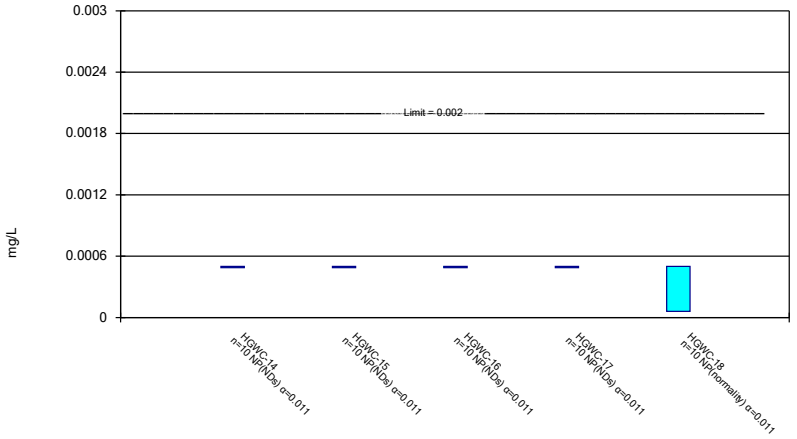


Constituent: Lithium Analysis Run 12/16/2019 5:37 PM

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

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

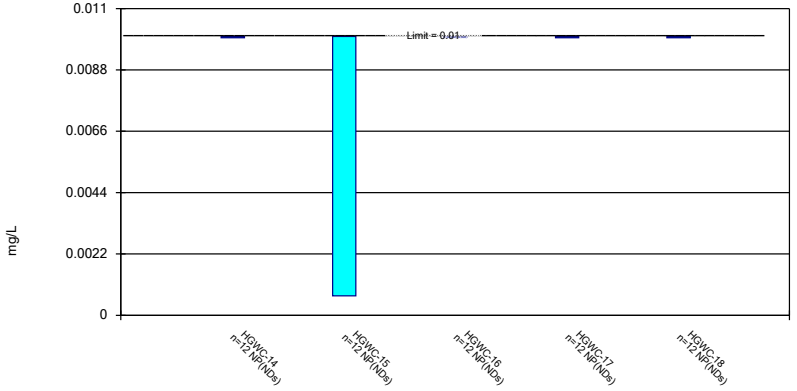


Constituent: Mercury Analysis Run 12/16/2019 5:37 PM

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

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01.

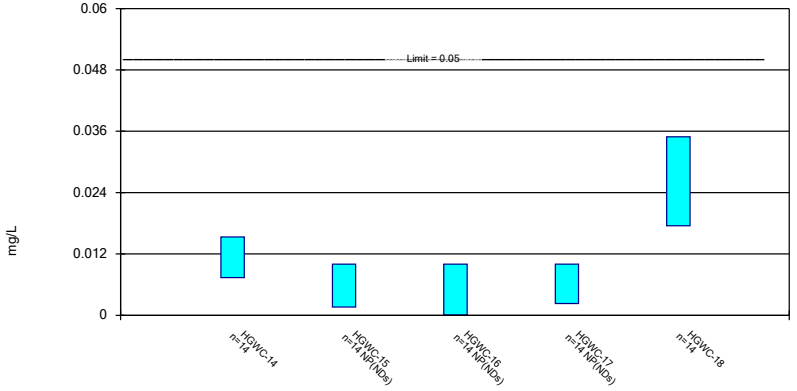


Constituent: Molybdenum Analysis Run 12/16/2019 5:37 PM

Hammond AP Client: Georgia Power 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 12/16/2019 5:37 PM

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

Confidence Interval

Constituent: Lithium (mg/L) Analysis Run 12/16/2019 5:38 PM

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

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	<0.03	<0.03	<0.03	<0.03	
5/24/2016					0.0142 (J)
7/12/2016	<0.03	<0.03	0.0037 (J)	<0.03	0.0141 (J)
9/1/2016	<0.03	0.0021 (J)	0.0033 (J)	<0.03	0.0158 (J)
10/24/2016	<0.03	<0.03			
10/25/2016			0.0029 (J)	<0.03	0.016 (J)
12/7/2016	<0.03	<0.03	0.0029 (J)	<0.03	
12/8/2016					0.0144 (J)
1/26/2017	<0.03	<0.03	0.0028 (J)	<0.03	0.0136 (J)
3/22/2017			0.0025 (J)	<0.03	
3/23/2017	<0.03	0.0016 (J)			0.0151 (J)
5/24/2017	<0.03	0.0029 (J)	0.0029 (J)		
5/25/2017				0.0011 (J)	0.0154 (J)
4/3/2018		0.0026 (J)	0.0028 (J)	<0.03	0.013 (J)
4/4/2018	<0.03				
6/5/2018					0.013 (J)
6/6/2018	<0.03	0.0013 (J)	0.0031 (J)	<0.03	
10/3/2018	<0.03	0.0017 (J)	0.0026 (J)	<0.03	0.015 (J)
3/14/2019	<0.03	<0.03			0.011 (J)
3/15/2019			0.0041 (J)	0.0011 (J)	
4/4/2019		0.0009 (J)	0.0032 (J)		
4/5/2019	<0.03			0.00074 (J)	0.0084 (J)
9/24/2019	<0.03	0.0012 (J)			
9/25/2019			0.0038 (J)	0.0011 (J)	0.015
Mean	0.03	0.01388	0.005043	0.02172	0.01386
Std. Dev.	0	0.0145	0.007198	0.01359	0.002054
Upper Lim.	0.03	0.03	0.0038	0.03	0.01531
Lower Lim.	0.03	0.0013	0.0026	0.0011	0.0124

Confidence Interval

Constituent: Mercury (mg/L) Analysis Run 12/16/2019 5:38 PM

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

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	<0.0005	<0.0005	<0.0005	<0.0005	
5/24/2016					<0.0005
7/12/2016	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
9/1/2016	<0.0005	<0.0005	<0.0005	<0.0005	6E-05 (J)
10/24/2016	<0.0005	<0.0005			
10/25/2016			<0.0005	<0.0005	4E-05 (J)
12/7/2016	<0.0005	<0.0005	<0.0005	<0.0005	
12/8/2016					<0.0005
1/26/2017	<0.0005	<0.0005	<0.0005	<0.0005	8E-05 (J)
3/22/2017			<0.0005	<0.0005	
3/23/2017	<0.0005	<0.0005			9E-05 (J)
5/24/2017	<0.0005	<0.0005	<0.0005		
5/25/2017				<0.0005	8E-05 (J)
4/3/2018		<0.0005	<0.0005	<0.0005	<0.0005
4/4/2018	<0.0005				
3/14/2019	<0.0005	<0.0005			<0.0005
3/15/2019			<0.0005	<0.0005	
Mean	0.0005	0.0005	0.0005	0.0005	0.000285
Std. Dev.	0	0	0	0	0.000227
Upper Lim.	0.0005	0.0005	0.0005	0.0005	0.0005
Lower Lim.	0.0005	0.0005	0.0005	0.0005	6E-05

Confidence Interval

Constituent: Molybdenum (mg/L) Analysis Run 12/16/2019 5:38 PM

Hammond AP Client: Georgia Power 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
9/24/2019	<0.01	<0.01			
9/25/2019			<0.01	<0.01	<0.01
Mean	0.01	0.009225	0.01	0.01	0.01
Std. Dev.	0	0.002685	0	0	0
Upper Lim.	0.01	0.01	0.01	0.01	0.01
Lower Lim.	0.01	0.0007	0.01	0.01	0.01

Confidence Interval

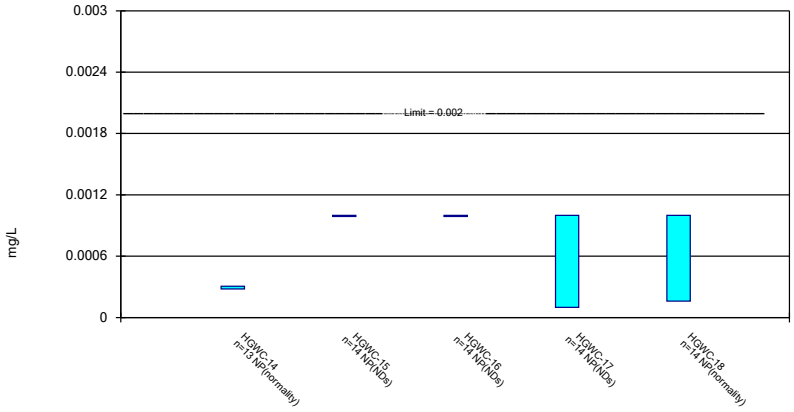
Constituent: Selenium (mg/L) Analysis Run 12/16/2019 5:38 PM

Hammond AP Client: Georgia Power 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)
9/24/2019	0.0064 (J)	<0.01			
9/25/2019			<0.01	<0.01	0.02
Mean	0.01135	0.007651	0.009292	0.008128	0.02621
Std. Dev.	0.005618	0.003936	0.002649	0.003745	0.01228
Upper Lim.	0.01533	0.01	0.01	0.01	0.03491
Lower Lim.	0.007371	0.0016	8.9E-05	0.0023	0.01751

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Thallium Analysis Run 12/16/2019 5:37 PM

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

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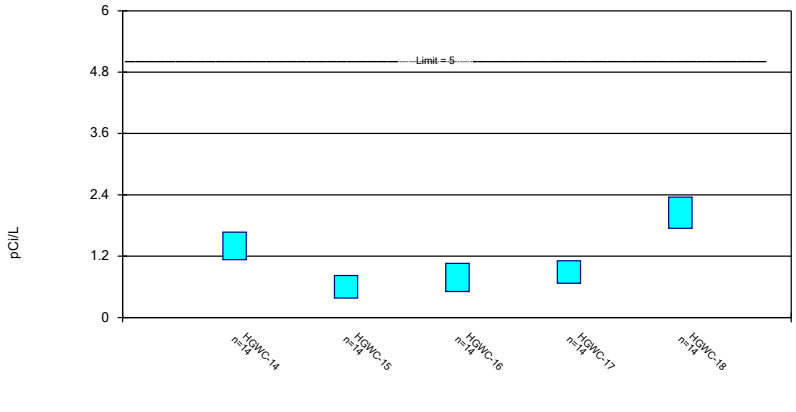
Parametric Confidence Interval

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



Constituent: Total Radium Analysis Run 12/16/2019 5:37 PM

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

Confidence Interval

Constituent: Thallium (mg/L) Analysis Run 12/16/2019 5:38 PM

Hammond AP Client: Georgia Power 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)
9/24/2019	0.0003 (J)	<0.001			
9/25/2019			<0.001	0.00012 (J)	0.00019 (J)
Mean	0.0002943	0.001	0.001	0.0006821	0.0005879
Std. Dev.	9.196E-06	0	0	0.0004426	0.0004281
Upper Lim.	0.000306	0.001	0.001	0.001	0.001
Lower Lim.	0.00028	0.001	0.001	0.0001	0.00016

Confidence Interval

Constituent: Total Radium (pCi/L) Analysis Run 12/16/2019 5:38 PM

Hammond AP Client: Georgia Power 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
9/24/2019	1.17	0.582 (U)			
9/25/2019			0.643 (U)	1.54	2.77
Mean	1.402	0.6019	0.7834	0.8902	2.051
Std. Dev.	0.3797	0.3111	0.3896	0.3103	0.4324
Upper Lim.	1.671	0.8223	1.059	1.11	2.357
Lower Lim.	1.133	0.3816	0.5074	0.6705	1.744

USEPA Based Groundwater Protection Standards Statistical Analysis Package

AM 02

Tolerance Limit (USEPA)

Hammond AP Client: Georgia Power Data: Hammond AP-2 Printed 12/16/2019, 5:53 PM

Constituent	Well	Upper Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Antimony (mg/L)	n/a	0.003	n/a	n/a	n/a	63	93.65	n/a	0.0395	NP Inter(NDs)
Arsenic (mg/L)	n/a	0.005	n/a	n/a	n/a	84	78.57	n/a	0.01345	NP Inter(NDs)
Barium (mg/L)	n/a	0.22	n/a	n/a	n/a	84	0	n/a	0.01345	NP Inter(normality)
Beryllium (mg/L)	n/a	0.003	n/a	n/a	n/a	72	86.11	n/a	0.02489	NP Inter(NDs)
Cadmium (mg/L)	n/a	0.0025	n/a	n/a	n/a	84	92.86	n/a	0.01345	NP Inter(NDs)
Chromium (mg/L)	n/a	0.019	n/a	n/a	n/a	72	90.28	n/a	0.02489	NP Inter(NDs)
Cobalt (mg/L)	n/a	0.038	n/a	n/a	n/a	84	70.24	n/a	0.01345	NP Inter(NDs)
Fluoride (mg/L)	n/a	0.36	n/a	n/a	n/a	90	30	n/a	0.009888	NP Inter(normality)
Lead (mg/L)	n/a	0.005	n/a	n/a	n/a	72	84.72	n/a	0.02489	NP Inter(NDs)
Lithium (mg/L)	n/a	0.03	n/a	n/a	n/a	84	30.95	n/a	0.01345	NP Inter(normality)
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	72	97.22	n/a	0.02489	NP Inter(NDs)
Selenium (mg/L)	n/a	0.01	n/a	n/a	n/a	84	98.81	n/a	0.01345	NP Inter(NDs)
Thallium (mg/L)	n/a	0.001	n/a	n/a	n/a	84	98.81	n/a	0.01345	NP Inter(NDs)
Total Radium (pCi/L)	n/a	2.42	n/a	n/a	n/a	84	0	n/a	0.01345	NP Inter(normality)

Table F-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	0.22	2
Beryllium	7440-41-7	mg/L	0.004	0.003	0.004
Cadmium	7440-43-9	mg/L	0.005	0.0025	0.005
Chromium (III+VI)	7440-47-3	mg/L	0.1	0.019	0.1
Cobalt[2]	7440-48-4	mg/L	0.006	0.038	0.038
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	0.03	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
[1]GWPS selected as the greater value between the EPA MCL and the background Upper Tolerance Limit.
[2]Regional Screening Level applied for constituent per CCR Rule Ammendment, July 30, 2018.
[3]Currently, there is no EPA MCL established for lead. The value listed is the established EPA Action Level for drinking water.

Confidence Interval (USEPA) - Significant Results

Hammond AP Client: Georgia Power Data: Hammond AP-2 Printed 12/16/2019, 6:01 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Cobalt (mg/L)	**HGWC-18**	**0.2**	**0.1699**	**0.038**	**Yes**	**14**	**0**	**No**	**0.01**	**Param.**

Confidence Interval (USEPA) - All Results

Hammond AP Client: Georgia Power Data: Hammond AP-2 Printed 12/16/2019, 6:01 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Arsenic (mg/L)	HGWC-14	0.006292	0.003948	0.01	No	14	14.29	No	0.01	Param.
Arsenic (mg/L)	HGWC-15	0.005	0.0008	0.01	No	14	78.57	No	0.01	NP (NDs)
Arsenic (mg/L)	HGWC-16	0.005	0.0005	0.01	No	14	85.71	No	0.01	NP (NDs)
Arsenic (mg/L)	HGWC-17	0.005	0.00097	0.01	No	14	78.57	No	0.01	NP (NDs)
Arsenic (mg/L)	HGWC-18	0.007116	0.004204	0.01	No	14	0	No	0.01	Param.
Barium (mg/L)	HGWC-14	0.0238	0.02	2	No	14	7.143	No	0.01	NP (normality)
Barium (mg/L)	HGWC-15	0.03194	0.02259	2	No	14	0	No	0.01	Param.
Barium (mg/L)	HGWC-16	0.112	0.096	2	No	14	0	No	0.01	Param.
Barium (mg/L)	HGWC-17	0.02618	0.02274	2	No	14	0	No	0.01	Param.
Barium (mg/L)	HGWC-18	0.0346	0.029	2	No	14	7.143	No	0.01	NP (normality)
Beryllium (mg/L)	HGWC-14	0.003	0.00043	0.004	No	12	16.67	No	0.01	NP (normality)
Beryllium (mg/L)	HGWC-15	0.003	0.003	0.004	No	12	100	No	0.01	NP (NDs)
Beryllium (mg/L)	HGWC-16	0.003	0.003	0.004	No	12	100	No	0.01	NP (NDs)
Beryllium (mg/L)	HGWC-17	0.003	0.003	0.004	No	12	100	No	0.01	NP (NDs)
Beryllium (mg/L)	HGWC-18	0.003465	0.002799	0.004	No	12	8.333	No	0.01	Param.
Cadmium (mg/L)	HGWC-14	0.0025	0.0001	0.005	No	14	28.57	No	0.01	NP (normality)
Cadmium (mg/L)	HGWC-15	0.002623	0.001635	0.005	No	14	0	No	0.01	Param.
Cadmium (mg/L)	HGWC-16	0.0025	0.0025	0.005	No	14	100	No	0.01	NP (NDs)
Cadmium (mg/L)	HGWC-17	0.0025	0.00007	0.005	No	14	92.86	No	0.01	NP (NDs)
Cadmium (mg/L)	HGWC-18	0.002512	0.002116	0.005	No	14	7.143	No	0.01	Param.
Chromium (mg/L)	HGWC-14	0.01	0.01	0.1	No	12	100	No	0.01	NP (NDs)
Chromium (mg/L)	HGWC-15	0.01	0.0005	0.1	No	12	83.33	No	0.01	NP (NDs)
Chromium (mg/L)	HGWC-16	0.01	0.0021	0.1	No	12	91.67	No	0.01	NP (NDs)
Chromium (mg/L)	HGWC-17	0.01	0.01	0.1	No	12	100	No	0.01	NP (NDs)
Chromium (mg/L)	HGWC-18	0.01	0.0005	0.1	No	12	91.67	No	0.01	NP (NDs)
Cobalt (mg/L)	HGWC-14	0.02798	0.0217	0.038	No	14	7.143	x^2	0.01	Param.
Cobalt (mg/L)	HGWC-15	0.05299	0.0351	0.038	No	14	0	No	0.01	Param.
Cobalt (mg/L)	HGWC-16	0.005	0.00028	0.038	No	14	92.86	No	0.01	NP (NDs)
Cobalt (mg/L)	HGWC-17	0.01655	0.01495	0.038	No	14	0	No	0.01	Param.
Cobalt (mg/L)	**HGWC-18**	**0.2**	**0.1699**	**0.038**	**Yes**	**14**	**0**	**No**	**0.01**	**Param.**
Fluoride (mg/L)	HGWC-14	0.361	0.1314	4	No	15	13.33	No	0.01	Param.
Fluoride (mg/L)	HGWC-15	0.2656	0.08135	4	No	15	33.33	No	0.01	Param.
Fluoride (mg/L)	HGWC-16	0.3256	0.1585	4	No	15	46.67	x^2	0.01	Param.
Fluoride (mg/L)	HGWC-17	0.2972	0.05861	4	No	15	33.33	sqrt(x)	0.01	Param.
Fluoride (mg/L)	HGWC-18	0.7062	0.4404	4	No	15	6.667	No	0.01	Param.
Lead (mg/L)	HGWC-14	0.002	0.0013	0.015	No	12	8.333	No	0.01	NP (normality)
Lead (mg/L)	HGWC-15	0.005	0.0001	0.015	No	12	66.67	No	0.01	NP (NDs)
Lead (mg/L)	HGWC-16	0.005	0.0001	0.015	No	12	66.67	No	0.01	NP (NDs)
Lead (mg/L)	HGWC-17	0.005	0.000089	0.015	No	12	75	No	0.01	NP (NDs)
Lead (mg/L)	HGWC-18	0.0017	0.0012	0.015	No	12	8.333	No	0.01	NP (normality)
Lithium (mg/L)	HGWC-14	0.03	0.03	0.04	No	14	100	No	0.01	NP (NDs)
Lithium (mg/L)	HGWC-15	0.03	0.0013	0.04	No	14	42.86	No	0.01	NP (normality)
Lithium (mg/L)	HGWC-16	0.0038	0.0026	0.04	No	14	7.143	No	0.01	NP (normality)
Lithium (mg/L)	HGWC-17	0.03	0.0011	0.04	No	14	71.43	No	0.01	NP (NDs)
Lithium (mg/L)	HGWC-18	0.01531	0.0124	0.04	No	14	0	No	0.01	Param.
Mercury (mg/L)	HGWC-14	0.0005	0.0005	0.002	No	10	100	No	0.011	NP (NDs)
Mercury (mg/L)	HGWC-15	0.0005	0.0005	0.002	No	10	100	No	0.011	NP (NDs)
Mercury (mg/L)	HGWC-16	0.0005	0.0005	0.002	No	10	100	No	0.011	NP (NDs)
Mercury (mg/L)	HGWC-17	0.0005	0.0005	0.002	No	10	100	No	0.011	NP (NDs)
Mercury (mg/L)	HGWC-18	0.0005	0.00006	0.002	No	10	50	No	0.011	NP (normality)

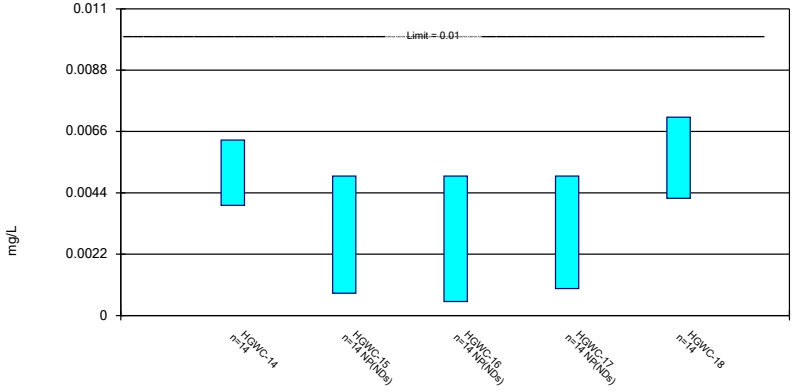
Confidence Interval (USEPA) - All Results

Hammond AP Client: Georgia Power Data: Hammond AP-2 Printed 12/16/2019, 6:01 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Molybdenum (mg/L)	HGWC-14	0.01	0.01	0.1	No	12	100	No	0.01	NP (NDs)
Molybdenum (mg/L)	HGWC-15	0.01	0.0007	0.1	No	12	91.67	No	0.01	NP (NDs)
Molybdenum (mg/L)	HGWC-16	0.01	0.01	0.1	No	12	100	No	0.01	NP (NDs)
Molybdenum (mg/L)	HGWC-17	0.01	0.01	0.1	No	12	100	No	0.01	NP (NDs)
Molybdenum (mg/L)	HGWC-18	0.01	0.01	0.1	No	12	100	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-14	0.01533	0.007371	0.05	No	14	0	No	0.01	Param.
Selenium (mg/L)	HGWC-15	0.01	0.0016	0.05	No	14	71.43	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-16	0.01	0.000089	0.05	No	14	92.86	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-17	0.01	0.0023	0.05	No	14	78.57	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-18	0.03491	0.01751	0.05	No	14	7.143	No	0.01	Param.
Thallium (mg/L)	HGWC-14	0.000306	0.00028	0.002	No	13	0	No	0.01	NP (normality)
Thallium (mg/L)	HGWC-15	0.001	0.001	0.002	No	14	100	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-16	0.001	0.001	0.002	No	14	100	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-17	0.001	0.0001	0.002	No	14	64.29	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-18	0.001	0.00016	0.002	No	14	50	No	0.01	NP (normality)
Total Radium (pCi/L)	HGWC-14	1.671	1.133	5	No	14	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-15	0.8223	0.3816	5	No	14	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-16	1.059	0.5074	5	No	14	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-17	1.11	0.6705	5	No	14	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-18	2.357	1.744	5	No	14	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 12/16/2019 5:59 PM

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

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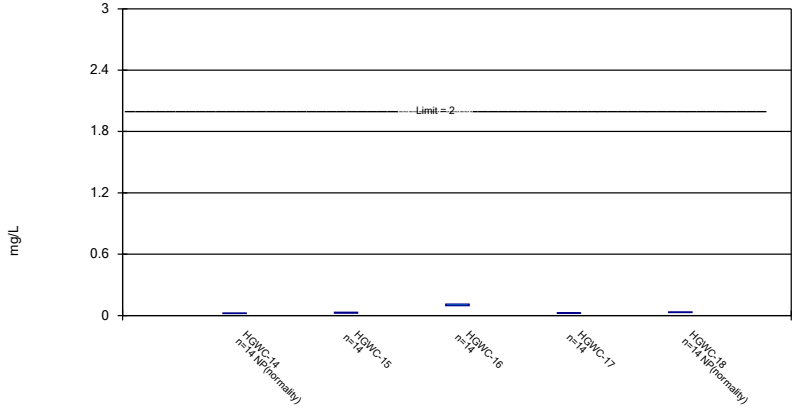
Parametric and Non-Parametric (NP) Confidence Interval

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



Constituent: Barium Analysis Run 12/16/2019 5:59 PM

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

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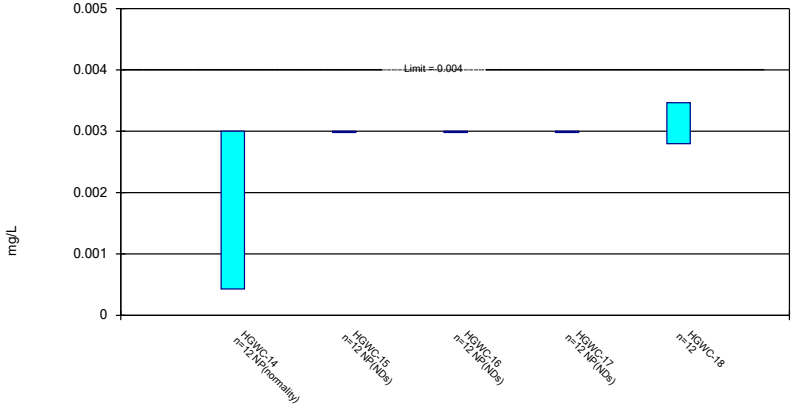
Parametric and Non-Parametric (NP) Confidence Interval

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



Constituent: Beryllium Analysis Run 12/16/2019 5:59 PM

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

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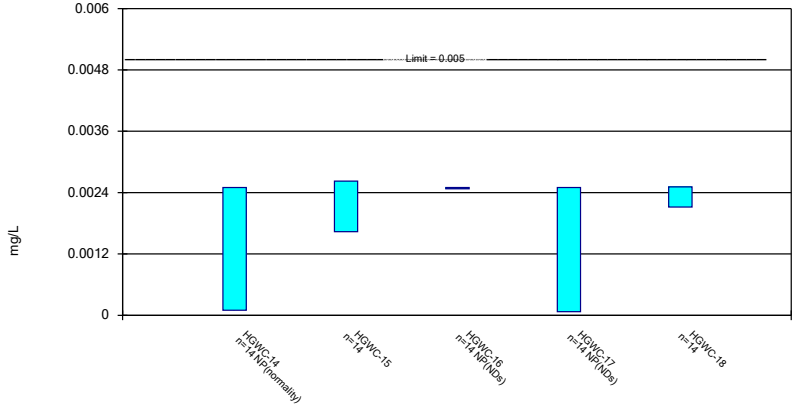
Parametric and Non-Parametric (NP) Confidence Interval

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



Constituent: Cadmium Analysis Run 12/16/2019 5:59 PM

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

Confidence Interval

Constituent: Arsenic (mg/L) Analysis Run 12/16/2019 6:01 PM

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

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	0.00268 (J)	<0.005	<0.005	<0.005	
5/24/2016					0.00294 (J)
7/12/2016	0.0059	<0.005	<0.005	<0.005	0.0074
9/1/2016	0.0056	<0.005	<0.005	<0.005	0.0073
10/24/2016	0.0058	<0.005			
10/25/2016			<0.005	<0.005	0.006
12/7/2016	<0.005	<0.005	<0.005	<0.005	
12/8/2016					0.007
1/26/2017	0.0089	<0.005	<0.005	<0.005	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)	<0.005	<0.005		
5/25/2017				0.0007 (J)	0.006
4/3/2018		<0.005	<0.005	<0.005	0.0062
4/4/2018	0.0052				
6/5/2018					0.008
6/6/2018	0.0059	<0.005	<0.005	0.00097 (J)	
10/3/2018	0.0032 (J)	<0.005	<0.005	<0.005	0.0039 (J)
3/14/2019	0.0029 (J)	<0.005			0.0036 (J)
3/15/2019			<0.005	<0.005	
4/4/2019		0.00017 (J)	0.0001 (J)		
4/5/2019	<0.005			<0.005	0.0015 (J)
9/24/2019	0.0039 (J)	0.00037 (J)			
9/25/2019			<0.005	<0.005	0.0044 (J)
Mean	0.00512	0.004024	0.004329	0.004098	0.00566
Std. Dev.	0.001654	0.001943	0.001709	0.001794	0.002055
Upper Lim.	0.006292	0.005	0.005	0.005	0.007116
Lower Lim.	0.003948	0.0008	0.0005	0.00097	0.004204

Confidence Interval

Constituent: Barium (mg/L) Analysis Run 12/16/2019 6:01 PM

Hammond AP Client: Georgia Power 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
9/24/2019	0.021	0.019			
9/25/2019			0.11	0.025	0.03
Mean	0.02679	0.02726	0.104	0.02446	0.0358
Std. Dev.	0.02117	0.006599	0.01132	0.002428	0.01883
Upper Lim.	0.0238	0.03194	0.112	0.02618	0.0346
Lower Lim.	0.02	0.02259	0.096	0.02274	0.029

Confidence Interval

Constituent: Beryllium (mg/L) Analysis Run 12/16/2019 6:01 PM

Hammond AP Client: Georgia Power 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)
9/24/2019	0.00044 (J)	<0.003			
9/25/2019			<0.003	<0.003	0.0031
Mean	0.0009033	0.003	0.003	0.003	0.003132
Std. Dev.	0.000983	0	0	0	0.0004243
Upper Lim.	0.003	0.003	0.003	0.003	0.003465
Lower Lim.	0.00043	0.003	0.003	0.003	0.002799

Confidence Interval

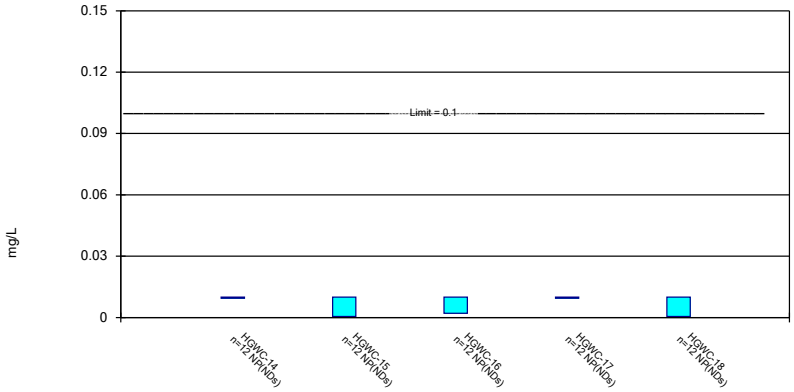
Constituent: Cadmium (mg/L) Analysis Run 12/16/2019 6:01 PM

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

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	0.000139 (J)	0.00271 (J)	<0.0025	<0.0025	
5/24/2016					<0.0025
7/12/2016	<0.0025	0.0019	<0.0025	<0.0025	0.0022
9/1/2016	0.0001 (J)	0.0017	<0.0025	<0.0025	0.0024
10/24/2016	0.0002 (J)	0.0018			
10/25/2016			<0.0025	<0.0025	0.0022
12/7/2016	0.0001 (J)	0.0018	<0.0025	<0.0025	
12/8/2016					0.0024
1/26/2017	0.0001 (J)	0.0013	<0.0025	<0.0025	0.0025
3/22/2017			<0.0025	7E-05 (J)	
3/23/2017	0.0002 (J)	0.002			0.0025
5/24/2017	0.0001 (J)	0.0041	<0.0025		
5/25/2017				<0.0025	0.0027
4/3/2018		0.0022	<0.0025	<0.0025	0.0022
4/4/2018	<0.0025				
6/5/2018					0.0022
6/6/2018	0.00012 (J)	0.0021	<0.0025	<0.0025	
10/3/2018	0.0001 (J)	0.0026	<0.0025	<0.0025	0.0027
3/14/2019	<0.0025	0.0024			0.0019
3/15/2019			<0.0025	<0.0025	
4/4/2019		0.0018	<0.0025		
4/5/2019	7.9E-05 (J)			<0.0025	0.0017
9/24/2019	<0.0025	0.0014 (J)			
9/25/2019			<0.0025	<0.0025	0.0023 (J)
Mean	0.0008027	0.002129	0.0025	0.002326	0.002314
Std. Dev.	0.001115	0.0006973	0	0.0006494	0.0002797
Upper Lim.	0.0025	0.002623	0.0025	0.0025	0.002512
Lower Lim.	0.0001	0.001635	0.0025	7E-05	0.002116

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01.

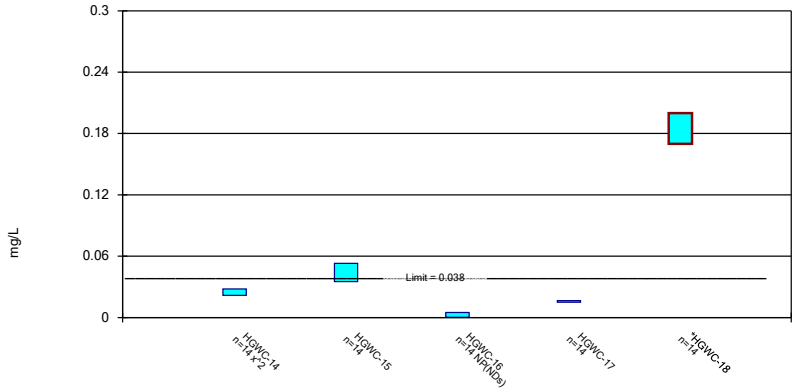


Constituent: Chromium Analysis Run 12/16/2019 6:00 PM

Hammond AP Client: Georgia Power 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.

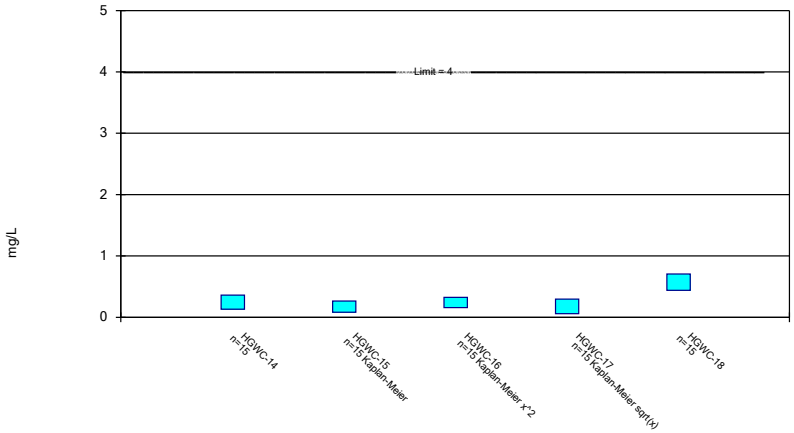


Constituent: Cobalt Analysis Run 12/16/2019 6:00 PM

Hammond AP Client: Georgia Power 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.

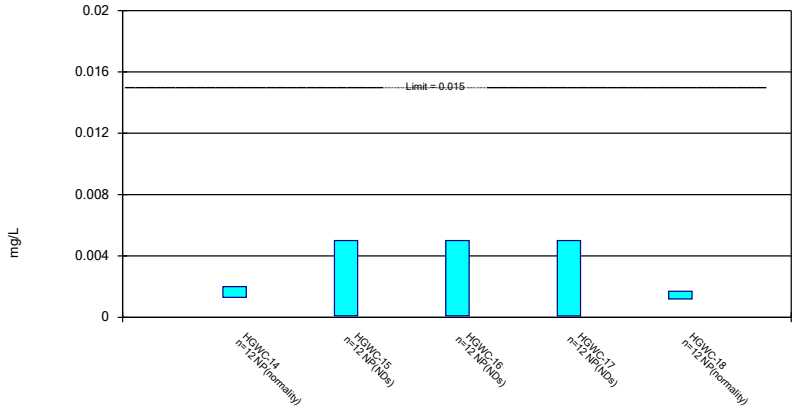


Constituent: Fluoride Analysis Run 12/16/2019 6:00 PM

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

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Lead Analysis Run 12/16/2019 6:00 PM

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

Confidence Interval

Constituent: Chromium (mg/L) Analysis Run 12/16/2019 6:01 PM

Hammond AP Client: Georgia Power 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
9/24/2019	<0.01	0.00041 (J)			
9/25/2019			<0.01	<0.01	<0.01
Mean	0.01	0.008409	0.009342	0.01	0.009208
Std. Dev.	0	0.003715	0.002281	0	0.002742
Upper Lim.	0.01	0.01	0.01	0.01	0.01
Lower Lim.	0.01	0.0005	0.0021	0.01	0.0005

Confidence Interval

Constituent: Cobalt (mg/L) Analysis Run 12/16/2019 6:01 PM

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

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	<0.005	0.0419 (J)	<0.005	0.0167	
5/24/2016					0.17 (J)
7/12/2016	0.0232	0.0393	<0.005	0.0148	0.168
9/1/2016	0.0248	0.045	<0.005	0.0151	0.18
10/24/2016	0.0253	0.0557			
10/25/2016			<0.005	0.0141	0.188
12/7/2016	0.0269	0.0536	<0.005	0.0141	
12/8/2016					0.206
1/26/2017	0.0294	0.055	<0.005	0.0154	0.195
3/22/2017			<0.005	0.0169	
3/23/2017	0.0311	0.0715			0.223
5/24/2017	0.0279	0.0446	<0.005		
5/25/2017				0.0154	0.209
4/3/2018		0.032	<0.005	0.016	0.19
4/4/2018	0.025				
6/5/2018					0.19
6/6/2018	0.027	0.032	<0.005	0.018	
10/3/2018	0.023	0.051	<0.005	0.016	0.19
3/14/2019	0.025	0.038			0.16
3/15/2019			<0.005	0.017	
4/4/2019		0.035	0.00028 (J)		
4/5/2019	0.021			0.016	0.14
9/24/2019	0.026	0.022			
9/25/2019			<0.005	0.015	0.18
Mean	0.02433	0.04404	0.004663	0.01575	0.1849
Std. Dev.	0.006143	0.01263	0.001261	0.001131	0.02123
Upper Lim.	0.02798	0.05299	0.005	0.01655	0.2
Lower Lim.	0.0217	0.0351	0.00028	0.01495	0.1699

Confidence Interval

Constituent: Fluoride (mg/L) Analysis Run 12/16/2019 6:01 PM

Hammond AP Client: Georgia Power 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
9/24/2019	0.053 (J)	0.12 (J)			
9/25/2019			<0.3	0.081 (J)	0.73
Mean	0.2462	0.2331	0.2719	0.2747	0.5733
Std. Dev.	0.1694	0.1383	0.1147	0.2322	0.1961
Upper Lim.	0.361	0.2656	0.3256	0.2972	0.7062
Lower Lim.	0.1314	0.08135	0.1585	0.05861	0.4404

Confidence Interval

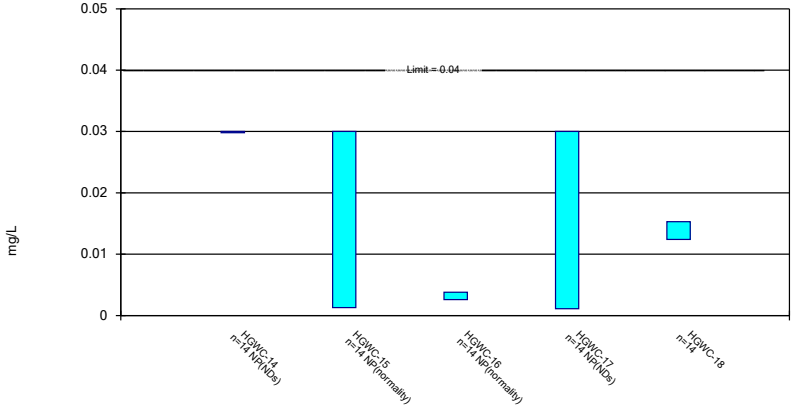
Constituent: Lead (mg/L) Analysis Run 12/16/2019 6:01 PM

Hammond AP Client: Georgia Power 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)
9/24/2019	0.0013 (J)	0.0002 (J)			
9/25/2019			<0.005	8.9E-05 (J)	0.0015 (J)
Mean	0.001893	0.003448	0.00338	0.003772	0.001695
Std. Dev.	0.001008	0.002305	0.002393	0.002221	0.001058
Upper Lim.	0.002	0.005	0.005	0.005	0.0017
Lower Lim.	0.0013	0.0001	0.0001	8.9E-05	0.0012

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.

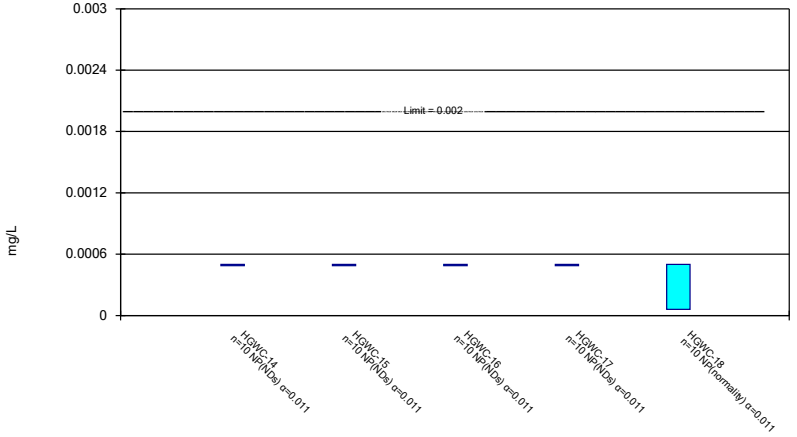


Constituent: Lithium Analysis Run 12/16/2019 6:00 PM

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

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

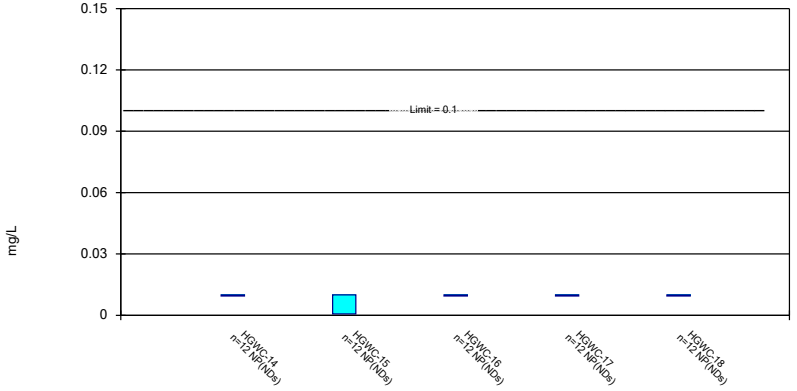


Constituent: Mercury Analysis Run 12/16/2019 6:00 PM

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

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01.

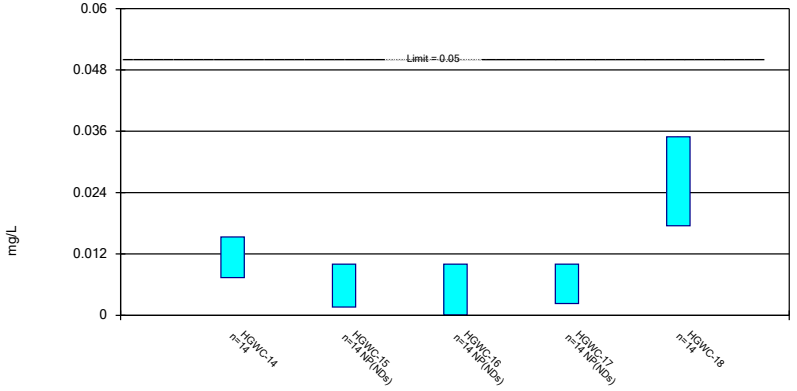


Constituent: Molybdenum Analysis Run 12/16/2019 6:00 PM

Hammond AP Client: Georgia Power 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 12/16/2019 6:00 PM

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

Confidence Interval

Constituent: Lithium (mg/L) Analysis Run 12/16/2019 6:01 PM

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

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	<0.03	<0.03	<0.03	<0.03	
5/24/2016					0.0142 (J)
7/12/2016	<0.03	<0.03	0.0037 (J)	<0.03	0.0141 (J)
9/1/2016	<0.03	0.0021 (J)	0.0033 (J)	<0.03	0.0158 (J)
10/24/2016	<0.03	<0.03			
10/25/2016			0.0029 (J)	<0.03	0.016 (J)
12/7/2016	<0.03	<0.03	0.0029 (J)	<0.03	
12/8/2016					0.0144 (J)
1/26/2017	<0.03	<0.03	0.0028 (J)	<0.03	0.0136 (J)
3/22/2017			0.0025 (J)	<0.03	
3/23/2017	<0.03	0.0016 (J)			0.0151 (J)
5/24/2017	<0.03	0.0029 (J)	0.0029 (J)		
5/25/2017				0.0011 (J)	0.0154 (J)
4/3/2018		0.0026 (J)	0.0028 (J)	<0.03	0.013 (J)
4/4/2018	<0.03				
6/5/2018					0.013 (J)
6/6/2018	<0.03	0.0013 (J)	0.0031 (J)	<0.03	
10/3/2018	<0.03	0.0017 (J)	0.0026 (J)	<0.03	0.015 (J)
3/14/2019	<0.03	<0.03			0.011 (J)
3/15/2019			0.0041 (J)	0.0011 (J)	
4/4/2019		0.0009 (J)	0.0032 (J)		
4/5/2019	<0.03			0.00074 (J)	0.0084 (J)
9/24/2019	<0.03	0.0012 (J)			
9/25/2019			0.0038 (J)	0.0011 (J)	0.015
Mean	0.03	0.01388	0.005043	0.02172	0.01386
Std. Dev.	0	0.0145	0.007198	0.01359	0.002054
Upper Lim.	0.03	0.03	0.0038	0.03	0.01531
Lower Lim.	0.03	0.0013	0.0026	0.0011	0.0124

Confidence Interval

Constituent: Mercury (mg/L) Analysis Run 12/16/2019 6:01 PM

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

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	<0.0005	<0.0005	<0.0005	<0.0005	
5/24/2016					<0.0005
7/12/2016	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
9/1/2016	<0.0005	<0.0005	<0.0005	<0.0005	6E-05 (J)
10/24/2016	<0.0005	<0.0005			
10/25/2016			<0.0005	<0.0005	4E-05 (J)
12/7/2016	<0.0005	<0.0005	<0.0005	<0.0005	
12/8/2016					<0.0005
1/26/2017	<0.0005	<0.0005	<0.0005	<0.0005	8E-05 (J)
3/22/2017			<0.0005	<0.0005	
3/23/2017	<0.0005	<0.0005			9E-05 (J)
5/24/2017	<0.0005	<0.0005	<0.0005		
5/25/2017				<0.0005	8E-05 (J)
4/3/2018		<0.0005	<0.0005	<0.0005	<0.0005
4/4/2018	<0.0005				
3/14/2019	<0.0005	<0.0005			<0.0005
3/15/2019			<0.0005	<0.0005	
Mean	0.0005	0.0005	0.0005	0.0005	0.000285
Std. Dev.	0	0	0	0	0.000227
Upper Lim.	0.0005	0.0005	0.0005	0.0005	0.0005
Lower Lim.	0.0005	0.0005	0.0005	0.0005	6E-05

Confidence Interval

Constituent: Molybdenum (mg/L) Analysis Run 12/16/2019 6:01 PM

Hammond AP Client: Georgia Power 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
9/24/2019	<0.01	<0.01			
9/25/2019			<0.01	<0.01	<0.01
Mean	0.01	0.009225	0.01	0.01	0.01
Std. Dev.	0	0.002685	0	0	0
Upper Lim.	0.01	0.01	0.01	0.01	0.01
Lower Lim.	0.01	0.0007	0.01	0.01	0.01

Confidence Interval

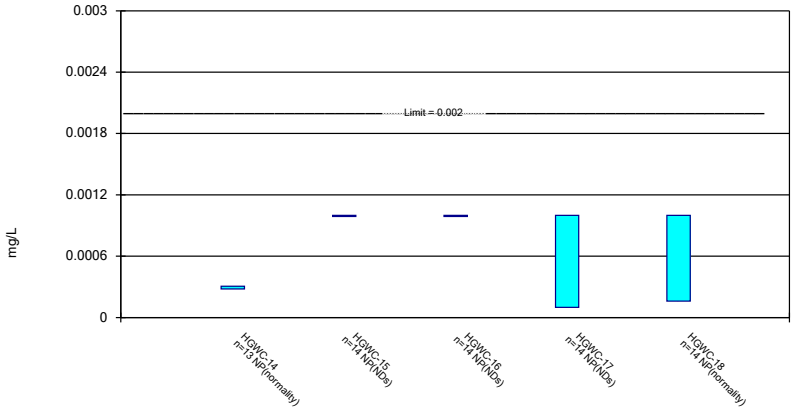
Constituent: Selenium (mg/L) Analysis Run 12/16/2019 6:01 PM

Hammond AP Client: Georgia Power 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)
9/24/2019	0.0064 (J)	<0.01			
9/25/2019			<0.01	<0.01	0.02
Mean	0.01135	0.007651	0.009292	0.008128	0.02621
Std. Dev.	0.005618	0.003936	0.002649	0.003745	0.01228
Upper Lim.	0.01533	0.01	0.01	0.01	0.03491
Lower Lim.	0.007371	0.0016	8.9E-05	0.0023	0.01751

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01.



Constituent: Thallium Analysis Run 12/16/2019 6:00 PM

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

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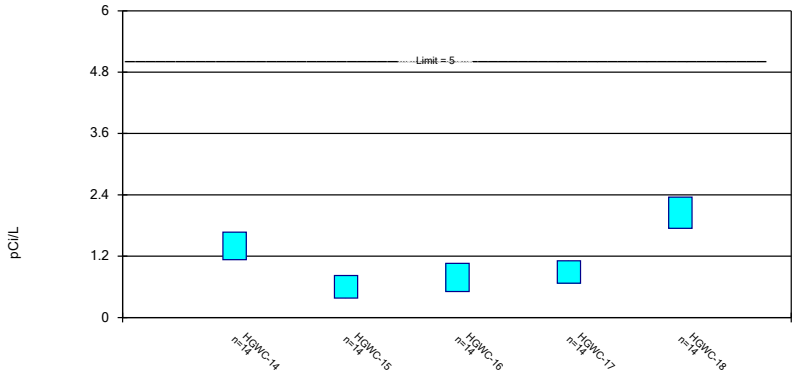
Parametric Confidence Interval

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



Constituent: Total Radium Analysis Run 12/16/2019 6:00 PM

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

Confidence Interval

Constituent: Thallium (mg/L) Analysis Run 12/16/2019 6:01 PM

Hammond AP Client: Georgia Power 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)
9/24/2019	0.0003 (J)	<0.001			
9/25/2019			<0.001	0.00012 (J)	0.00019 (J)
Mean	0.0002943	0.001	0.001	0.0006821	0.0005879
Std. Dev.	9.196E-06	0	0	0.0004426	0.0004281
Upper Lim.	0.000306	0.001	0.001	0.001	0.001
Lower Lim.	0.00028	0.001	0.001	0.0001	0.00016

Confidence Interval

Constituent: Total Radium (pCi/L) Analysis Run 12/16/2019 6:01 PM

Hammond AP Client: Georgia Power 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
9/24/2019	1.17	0.582 (U)			
9/25/2019			0.643 (U)	1.54	2.77
Mean	1.402	0.6019	0.7834	0.8902	2.051
Std. Dev.	0.3797	0.3111	0.3896	0.3103	0.4324
Upper Lim.	1.671	0.8223	1.059	1.11	2.357
Lower Lim.	1.133	0.3816	0.5074	0.6705	1.744