

#### **Georgia Power Company**

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

Prepared by



engineers | scientists | innovators

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#### **CERTIFICATION STATEMENT**

This 2019 First Semiannual Groundwater Monitoring & Corrective Action Report, Georgia Power Company - Plant Hammond - Ash Pond 1 (AP-1) has been prepared in compliance with the United States Environmental Protection Agency coal combustion residual rule [40 Code of Federal Regulations (CFR) 257 Subpart D] and the Georgia Environmental Protection Division Rules for Solid Waste Management 391-3-4-.10 by a qualified groundwater scientist or engineer with Geosyntec Consultants.

PROFESSIONAL

Georgia I

No. 36641



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#### LIST OF ACRONYMS

ACM Assessment of Corrective Measures

AP ash pond

CCR coal combustion residuals
CFR Code of Federal Regulations

cm/sec centimeters per second

DO dissolved oxygen

ft AMSL feet above mean sea level

ft/day feet per day ft/ft feet per foot

GA EPD Georgia Environmental Protection Division

GPC Georgia Power Company

GWPS Groundwater Protection Standard
HAR Hydrogeologic Assessment Report
MCL Maximum Contaminant Level

mg/L milligram per liter

NELAP National Environmental Laboratory Accreditation Program

NTU Nephelometric turbidity units
ORP oxidation-reduction potential
Pace Analytical Pace Analytical Services, LLC.

PE professional engineer

QA/QC Quality Assurance/Quality Control SSI statistically significant increase SSL statistically significant level

s.u. standard unit

USEPA United States Environmental Protection Agency

#### 1.0 INTRODUCTION

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

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

#### 1.1 <u>Site Description and Background</u>

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

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

#### 1.2 Regional Geology & Hydrogeologic Setting

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

#### 1.2.1 Regional and Site Geology

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

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

#### 1.2.2 Hydrogeologic Setting

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

#### 1.3 Groundwater Monitoring Well Network

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

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

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

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

#### 2.0 GROUNDWATER MONITORING ACTIVITIES

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

#### 2.1 Monitoring Well Installation and Maintenance

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

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

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

#### 2.2 Assessment Monitoring

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

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

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

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

#### 2.3 Other Sampling

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

#### 3.0 SAMPLING METHODOLOGY & ANALYSES

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

#### 3.1 Groundwater Level Measurement

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

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

#### 3.2 Groundwater Gradient and Flow Velocity

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

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

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

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

where:

 $V = \text{Groundwater flow velocity } \left(\frac{feet}{day}\right)$   $K = \text{Hydraulic Conductivity } \left(\frac{feet}{day}\right)$   $i = \text{Horizontal hydraulic gradient } \left(\frac{feet}{feet}\right)$ 

 $n_e =$  Effective porosity

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

#### 3.3 Groundwater Sampling Procedures

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

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

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

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

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

#### 3.4 <u>Laboratory Analyses</u>

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

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

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

#### 3.5 Quality Assurance & Quality Control Summary

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

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

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

#### 4.0 STATISTICAL ANALYSIS

The following section presents a summary of the statistical approach applied to assess the 2019 groundwater analytical data in downgradient compliance wells relative to the available historical dataset. Groundwater monitoring data collected during the semiannual monitoring event in April 2019 were statically analyzed pursuant to 40 CFR 257.95 following the PE-certified statistical method. Appendix III detection monitoring parameters were statistically analyzed to determine if constituents have returned to background levels. Appendix IV assessment monitoring parameters were analyzed to determine if concentrations statistically exceeded the established GWPS. The following subsections provide an overview of the statistical methods used to evaluate Appendix III and IV parameters and statistical analyses results.

#### 4.1 <u>Statistical Methods</u>

The Sanitas<sup>TM</sup> groundwater statistical software was used to perform the statistical analyses. Sanitas<sup>TM</sup> is a decision-support software package, that incorporates the statistical tests required of Subtitle C and D facilities by USEPA regulations and guidance as recommended in the USEPA document *Statistical Analysis of Groundwater Data at RCRA Facilities Unified Guidance* (Unified Guidance) (USEPA, 2009).

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

#### **4.1.1** Appendix III Statistical Methods

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

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

#### 4.1.2 Appendix IV Statistical Methods

Appendix IV constituents detected during the March 2019 assessment monitoring event were sampled during the April 2019 semiannual sampling event. To statistically compare groundwater data to GWPS, confidence intervals are constructed for each of the detected Appendix IV parameters in each downgradient well. Those confidence intervals are compared to both the state and federal GWPS. Only when the entire confidence interval is above a GWPS is the well/constituent pair considered to exceed its GWPS. If there is an exceedance of the established standard, an SSL exceedance is identified.

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

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

- (1) The maximum contaminant level (MCL) established under 40 CFR 141.62 and 141.66.
- (2) Where an MCL has not been established:
  - (i) Cobalt 0.006 mg/L;
  - (ii) Lead 0.015 mg/L;
  - (iii) Lithium 0.040 mg/L; and
  - (iv) Molybdenum 0.100 mg/L.
- (3) Background levels for constituents where the background level is higher than the MCL or rule-specified GWPS.

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USEPA's updated GWPS have not yet been incorporated under GA EPD's CCR Rule. The GA EPD CCR Rule GWPS is:

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

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

#### 4.2 <u>Statistical Analyses Results</u>

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

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

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

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

#### AP-1 (Federal CCR Rule):

• Arsenic: HGWC-13;

• Molybdenum: HGWC-8

#### AP-1 (GA EPD CCR Rule):

• Arsenic: HGWC-13;

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

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



#### 5.0 MONITORING PROGRAM STATUS

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



#### 6.0 CONCLUSIONS & FUTURE ACTIONS

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

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

#### 7.0 REFERENCES

- Geosyntec Consultants, 2019a. 2018 Annual Groundwater Monitoring and Corrective Action Report Plant Hammond Ash Ponds 1 & 2 (AP-1 and AP-2). January 2019.
- Geosyntec Consultants, 2019b. Assessment of Corrective Measures Report Plant Hammond Ash Pond 1 (AP-1). June 2019.
- Golder Associates (2018). Geologic and Hydrogeologic Report Plant Hammond. November 2018.
- Sanitas<sup>TM</sup>: Groundwater Statistical Software, v. 9.6.05 (2018). Sanitas Technologies©, Boulder, CO.
- USEPA, 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance. Office of Resource Conservation and Recovery Program Implementation and Information Division. March 2009.
- USEPA, 2011. *Region* IV *Data Validation Standard Operating Procedures*. Science and Ecosystem Support Division. Region IV. Athens, GA. September 2011.
- USEPA, 2017. *National Functional Guidelines for Inorganic Superfund Methods Data Review*. Office of Superfund Remediation and Technology Innovation. OLEM 9355.0-135 [EPA-540-R-2017-001]. Washington, DC. January 2017.

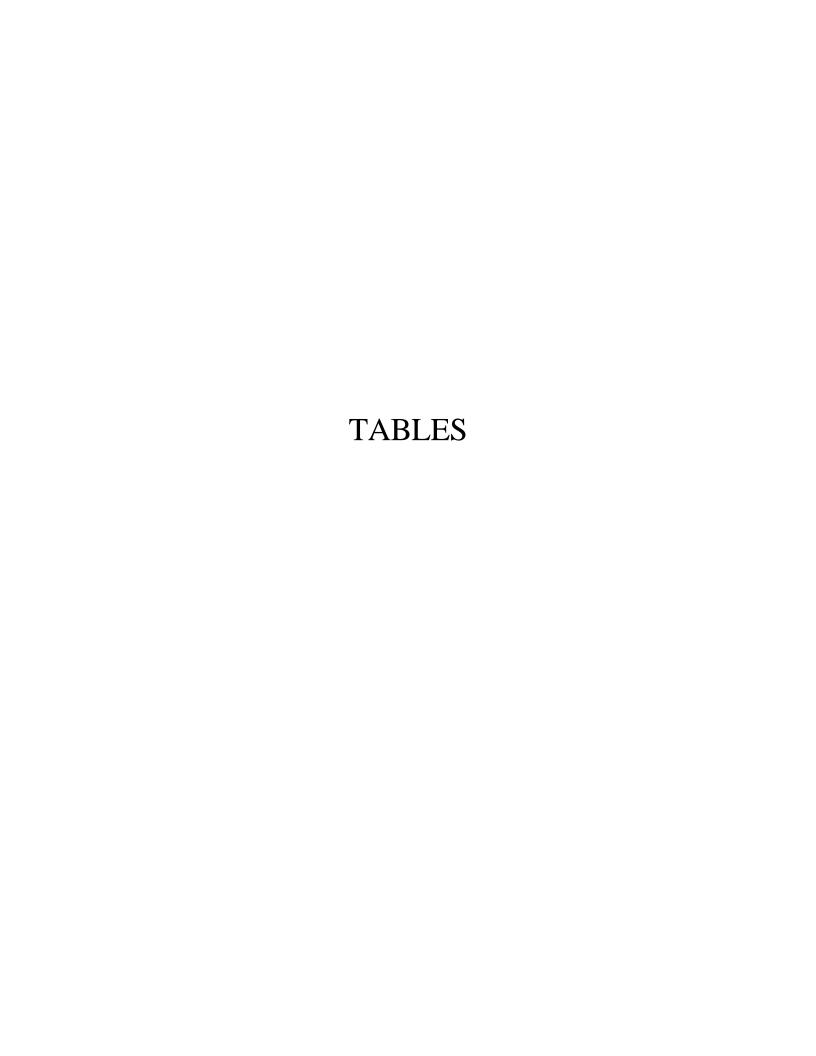


Table 1
Monitoring Well Network Summary
Plant Hammond AP-1, Floyd County, Georgia

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

Notes:

ft = feet

AMSL = above mean sea level

BTOC = below top of casing

- (1) Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet.
- (2) Total well depth accounts for sump if data provided on well construction logs.

1 of 1 July 2019

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

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

#### Notes:

S## = Full Appendix IV parameters scan event number

A## = Assessment monitoring event number

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

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

#### Notes:

-- = not applicable

ft AMSL = feet above mean sea level ft BTOC = feet below top of casing

1 of 1 July 2019

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

		Mar 1	1, 2019						
Flow Path Direction (1)	h <sub>1</sub> (ft)	h <sub>1</sub> (ft) h <sub>2</sub> (ft)		Δh/Δl (ft/ft)	h <sub>1</sub> (ft)  h <sub>2</sub> (ft)		Δl (ft) Δh/Δl (ft/ft)		Average Δh/Δl (ft/ft)
Southerly Flow Path	582	571.31	244	0.044	580	566.54	240	0.056	0.050
Easterly Flow Path	582	570.93	425	0.026	580	567.20	388	0.033	0.030

	Averaged for 2019					
Flow Path Direction (1)	Δh/Δl (ft/ft)	V (ft/d) <sup>(2)</sup>	V (ft/d) <sup>(3)</sup>			
Southerly Flow Path	11.82	0.15	0.050	3.9	3.2	
Easterly Flow Path	11.82	0.15	0.030	2.4	3.2	

Notes:

ft = feet

ft/d = feet per day

ft/ft = feet per foot

ft/yr = feet per year

 $h_1, h_2$  = point of interpreted groundwater elevation

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

K = hydraulic conductivity

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

n = effective porosity

V = groundwater flow velocity

- (1) Flow path direction relative to the orientation of AP-1 and illustrated on Figures 3 and 4 of associated report.
- (2) Groundwater flow velocity equation:  $V = [K * (\Delta h/\Delta l)] / n$
- (3) Average groundwater flow velocity for unit.

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

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

#### Notes:

<sup>-- =</sup> 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

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

<sup>(1)</sup> 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).

<sup>(2)</sup> 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.

<sup>(3)</sup> Appendix III parameters with a "\*" exhibited statistically significant increases (SSIs) over background concentrations during the October 2017 detection monitoring event. Similarly,

Appendix IV parameters with a "+" exhibited statistically significant levels (SSLs) over established Groundwater Protection Standards (GWPS) during the April 2019 assessment monitoring event.

<sup>(4)</sup> Well is designated a delineation monitoring well.

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

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

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

#### Notes:

<sup>-- =</sup> 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

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

<sup>(1)</sup> 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).

<sup>(2)</sup> 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.

<sup>(3)</sup> Appendix III parameters with a "\*" exhibited statistically significant increases (SSIs) over background concentrations during the October 2017 detection monitoring event. Similarly,

Appendix IV parameters with a "+" exhibited statistically significant levels (SSLs) over established Groundwater Protection Standards (GWPS) during the April 2019 assessment monitoring event.

<sup>(4)</sup> Well is designated a delineation monitoring well.

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

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

	Well ID:	MW-25D <sup>(4)</sup>	MW-25D	MW-26D <sup>(4)</sup>	MW-26	MW-27D <sup>(4)</sup>	MW-27D	MW-28D <sup>(4)</sup>	MW-28D	MW-29 <sup>(4)</sup>	MW-29	MW-30D <sup>(4)</sup>
	Sample Date:	3/14/2019	4/3/2019	3/13/2019	4/3/2019	3/13/2019	4/42019	3/12/2019	4/2/2019	3/12/2019	4/2/2019	7/8/2019
	Parameter (1,2,3)											
APPENDIX III	Boron*		0.37		1.5		$(0.12 \text{ J})^{(5)}$		0.17		1.2	
	Calcium*		25.4		122		26.3		64.6		131	
	Chloride*		32.0		90.6		26.9		44		80.9	
	Fluoride*	2.2	1.6	ND (0.052 J)	ND (0.044 J)	ND (0.28 J)	ND (0.26 J)	ND (0.24 J)	ND (0.18 J)	ND (0.07 J)	ND (0.045 J)	
PPE	рН*	7.67	7.56	7.40	7.25	7.78	7.63	7.46	7.40	7.20	6.91	8.07
[A	Sulfate*	-	53.0		131		11.8	-	67.7		151	-
	TDS*		ND (15.0 J)		493		203		350		548	
	Antimony	ND	ND	ND	ND	ND	ND (0.00016 J)	ND	ND	ND	ND	
	Arsenic <sup>+</sup>	ND (0.0019 J)	ND	ND	ND	ND	ND (0.0002 J)	ND	ND	ND	ND	-
	Barium	0.44	0.38	0.099	0.12	1.5	1.2	0.82	0.37	0.089	0.078	1
	Beryllium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
	Cadmium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
>	Chromium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
	Cobalt	ND	ND	ND	ND	ND	ND (0.000091 J)	ND	ND	ND (0.00057 J)	ND (0.00084 J)	-
<b>S</b>	Fluoride	2.2	1.6	ND (0.052 J)	ND (0.044 J)	ND (0.28 J)	ND (0.26 J)	ND (0.24 J)	ND (0.18 J)	ND (0.07 J)	ND (0.045 J)	-
APPENDIX IV	Lead	ND		ND		ND		ND		ND		-
A	Lithium	0.050	ND (0.047 J)	ND (0.0033 J)	ND (0.0034 J)	ND (0.0097 J)	ND (0.0069 J)	ND (0.011 J)	ND (0.0052 J)	ND (0.0024 J)	ND (0.0021 J)	-
	Mercury	ND		ND		ND		ND	-	ND		-
	Molybdenum <sup>+</sup>	ND (0.0022 J)	ND	ND	ND (0.0083 J)	ND	ND (0.0018 J)	0.013	0.028	ND (0.0038 J)	ND (0.0028 J)	0.022
	Comb. Radium 226/228	1.28 U	0.662 U	0.627 U	0.205 U	1.81	1.33	0.926 U	0.479 U	1.37	0.620 U	
	Selenium	ND	ND	ND	ND	ND	ND (0.00012 J)	ND	ND	ND	ND	
	Thallium	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)
- $\ensuremath{\text{ND}} = \ensuremath{\text{Indicates}}$  the parameter was not detected above the analytical MDL
- TDS = total dissolved solids
- U = Indicates the parameter was not detected above the analytical MDL (Specific to combined radium)
- (1) Appendix III/IV parameter per 40 CFR 257 Subpart D. Parameters are reported in units of milligrams per liter (mg/L), except for pH reported as s.u. (standard units) and combined radium reported as picocuries per liter (pCi/L).
- (2) Metals were analyzed by EPA Method 6020B, anions were analyzed by EPA Method 300.0, TDS was analyzed by SM2540C, and combined radium by
- EPA Methods 9315/9320. The pH value presented was recorded at the time of sample collection in the field.
- (3) Appendix III parameters with a "\*" exhibited statistically significant increases (SSIs) over background concentrations during the October 2017 detection monitoring event. Similarly,
- Appendix IV parameters with a "+" exhibited statistically significant levels (SSLs) over established Groundwater Protection Standards (GWPS) during the April 2019 assessment monitoring event.
- (4) Well is designated a delineation monitoring well.
- (5) Value J-flagged by laboratory due to an elevated dilution factor required to process the sample. The result is above the RL of 0.1 mg/L for a dilution factor of 1.

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

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

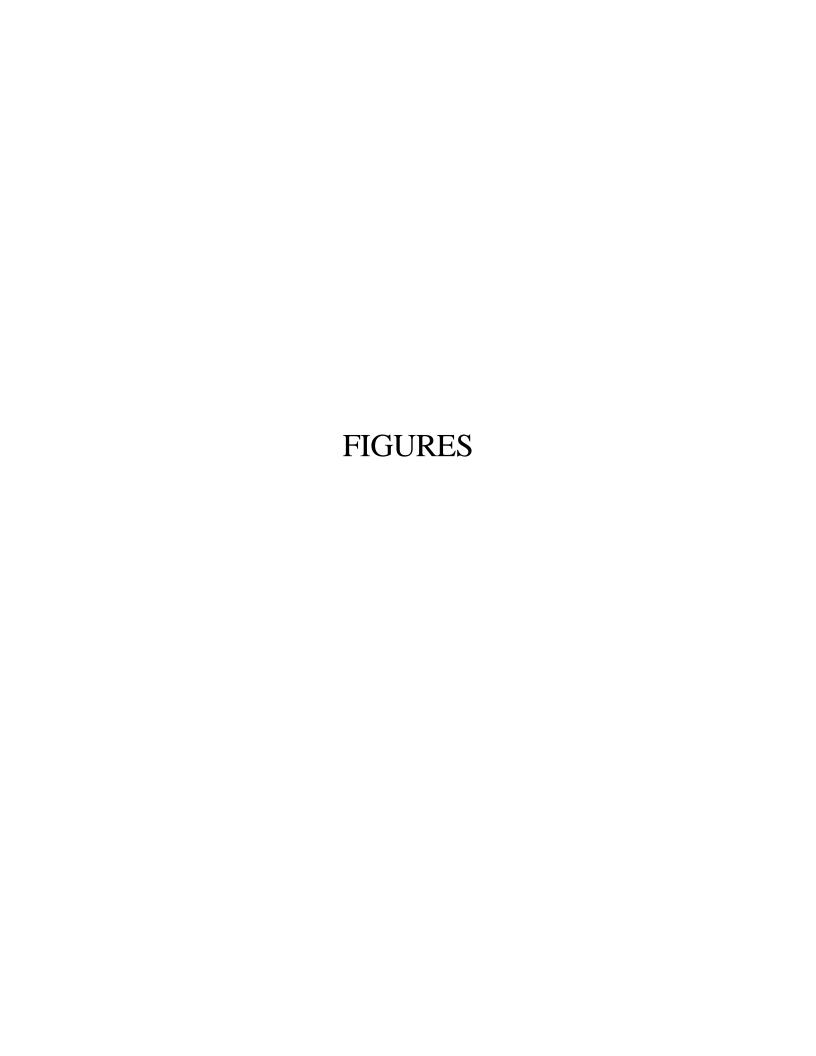
#### Notes:

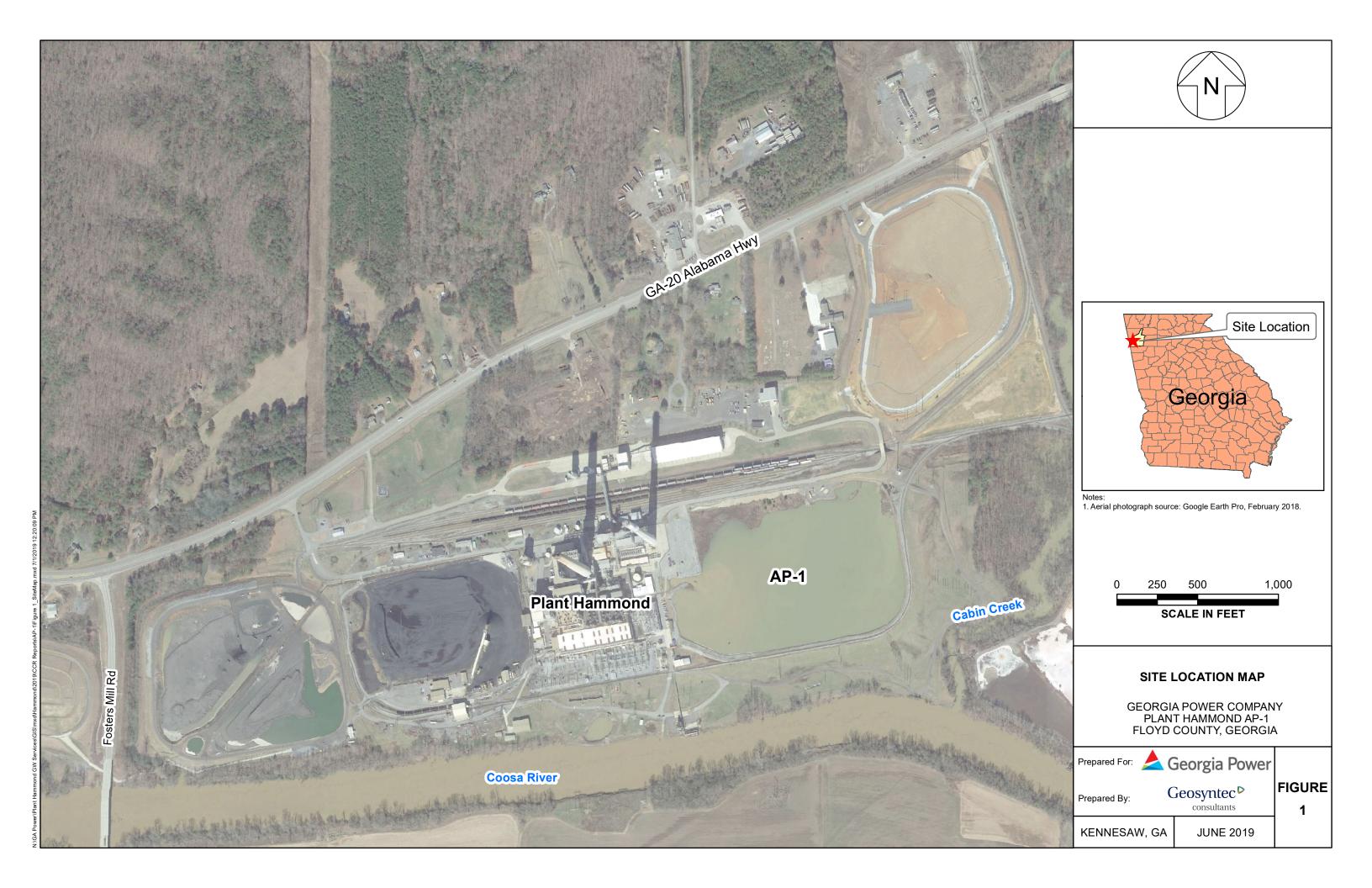
- 1. The background limits were used when determining the groundwater protection standard (GWPS) under 40 CFR \$257.95(h) and Georgia Environmental Protection Division (EPD) Rule 391-3-4-.10(6)(a).
- 2. Under 40 CFR §257.95(h)(1-3) the GWPS is: (i) the maximum contaminant level (MCL) established under 141.62 and 141.66 of this title; (ii) where an MCL has not been established a rule-specific GWPS or regional screen level (RSL) is used; or (iii) background concentrations for constituents 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.
- 4. Currently, there is no Environmental Protection Agency (EPA) MCL established for lead. The value listed as GWPS is the established EPA Action Level for drinking water.
- 5. The background tolerance limit (TL) used to evaluate GWPS for this analyte equals half the laboratory specified reporting limit (RL). Per the Statistical Analysis Plan (SAP), and in accordance with the Unified Guidance, a non-parametric TL approach was used since the data set contained greater than 50% non-detect (ND) results for this analyte. Under this approach, the TL equals the highest value reported, for which is the laboratory RL. Since a RL may be influenced due to sample matrix interference at the time of analysis, half the RL was applied in this select case.

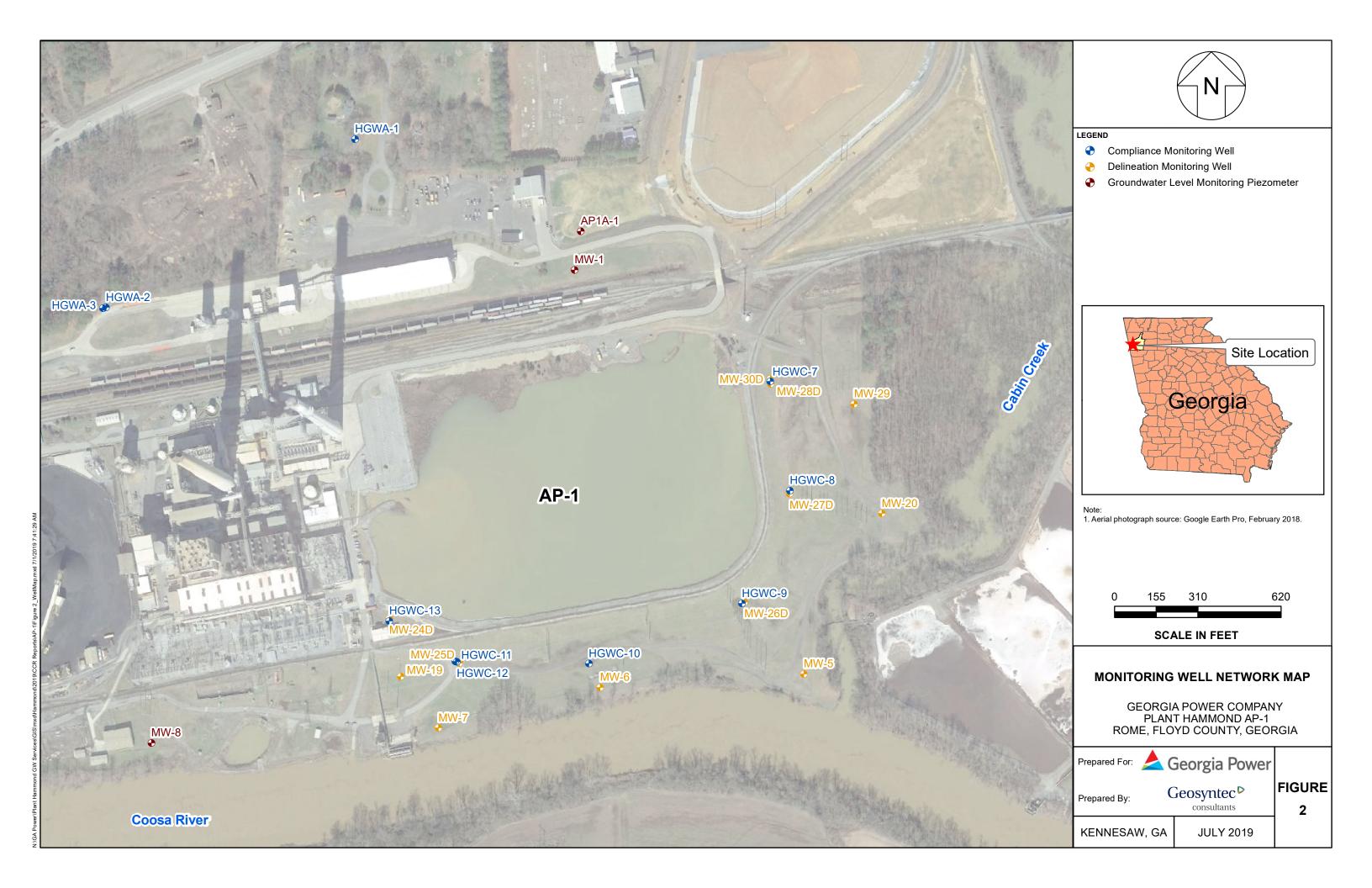
1 of 1

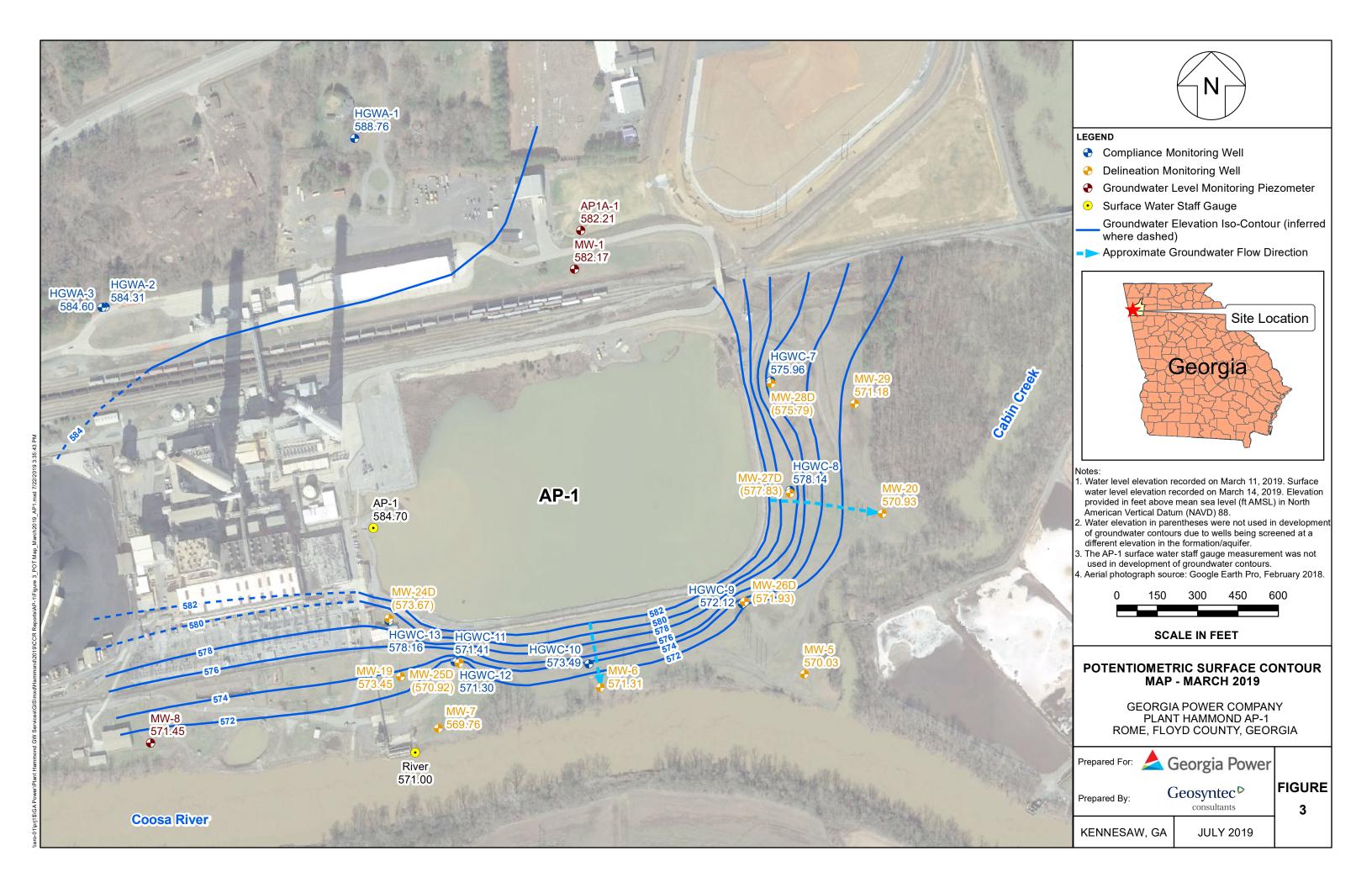
<sup>&</sup>quot;mg/L" = milligrams per liter

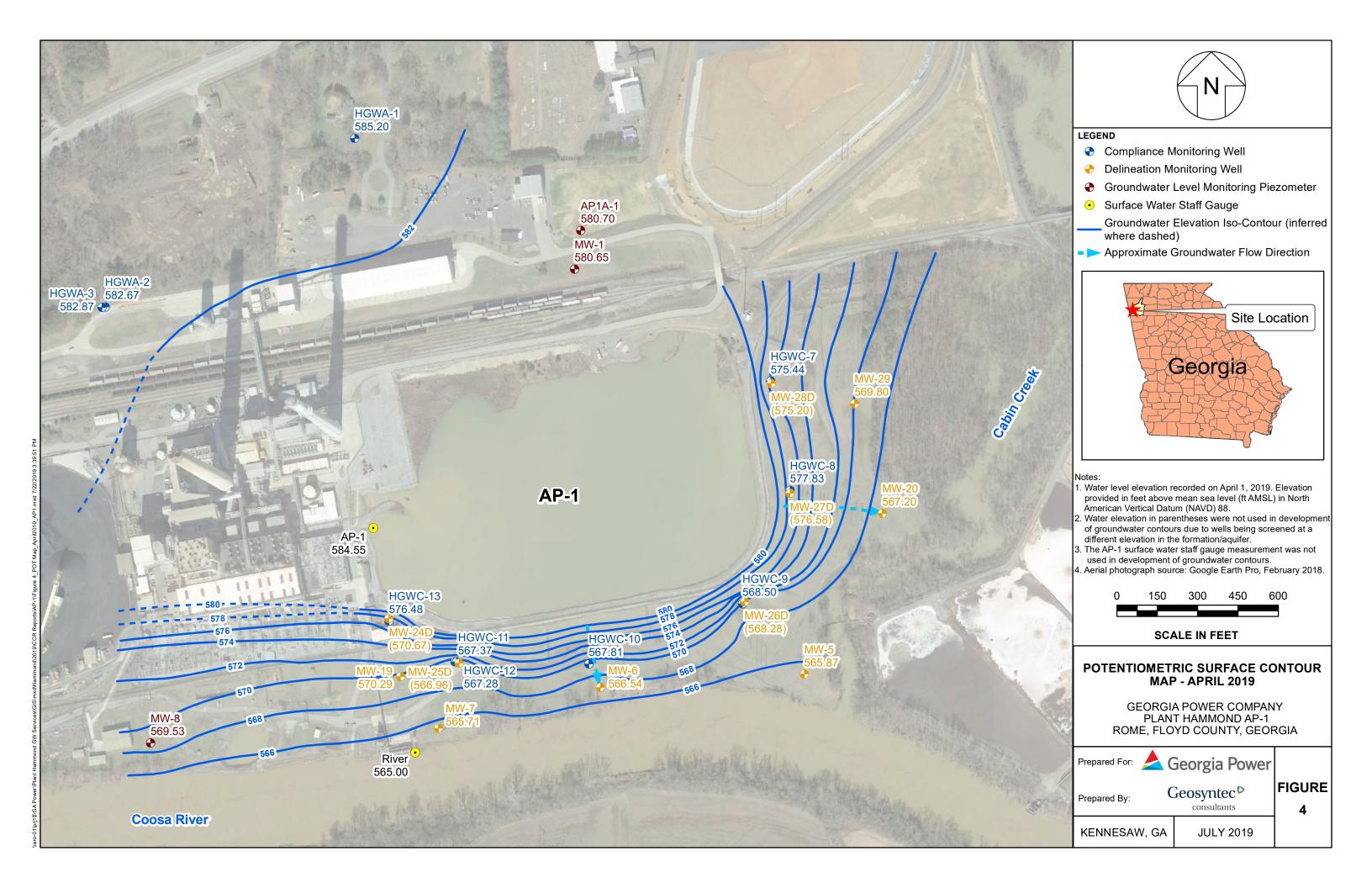
<sup>&</sup>quot;pCi/L" = picocuries per liter











## APPENDIX A

Boring and Well Construction Log MW-30D

	OSYT consu	ıltants 12 Ke	55 Robe	Consultants erts Boulevard , GA 30144	MONITOR	RING V	WELL MW30D PAGE 1 OF 3	
CLIEN	NT Sou	ıthern Company S	Services		PROJECT NAME Plant Hammond Well In	nstallation		
		JMBER GW658			PROJECT LOCATION Plant Hammond			-
		F <b>ED</b> 6/19/19		<b>COMPLETED</b> 6/20/19	NORTHING _1549530.24 ft	EASTING	1942319.6 ft	-
		ascade Drilling		<u> </u>	GROUND ELEVATION _576.56 ft		DIAMETER 6 in	-
		ETHOD Sonic			TOP OF CASING ELEVATION 578.96 ft		50 till 1210 <u>0 111</u>	-
		METHOD Core bar	rrel (4")		<del></del>			•
		Geoprobe 8140LC			GEOPHYSICAL CONTRACTOR	CHECKE	D. D.V I. Ivan avvalsi	-
		3COP10DC 0 140E0			LOGGED BY N.Tilahun	CHECKE	D BY J. Ivanowski	-
DEPTH (ft)	ELEVATION (ft msl)	REMARKS	GRAPHIC LOG	MATE	ERIAL DESCRIPTION	co	INSTRUCTION DIAGRAM	
				Hydro excavation (0-10') - No sar	mple			<del> </del> 0
5	- 575 			nydro excavation (0-10 ) - No sar	пріє		- Bentonite grout	- - - - 5 -
10 — - - - - 15 —	- 565 560			GRAVELLY CLAY, Yellowish be angular to subrounded gravel, me	prown to dark brown, trace silt and fine sa edium dense, wet, low to medium plasticity.	and,		10 - - - - - -15
- - 20 — - -	_ _ _ _ _ 555 _			CLAY, Pale to dark brown, with promoted moist, firm to stiff, trace rock frag	partially weathered rock, low to medium plasti yments.	city,	- Schedule 40 PVC 2"	- - -20 -
25 <del>-</del> - -	- - - 550 -			PARTIALLY WEATHERED ROWN white calcite, dry to moist, angula	CK (PWR), Pale gray to white limestone, to ar rock fragments, weathered and fractured.	race	- Bentonite 3/8" chips	25 - - -
30 — - -	- - - 545 -			LIMESTONE, Broken pieces due dark gray, slightly weathered.	e to sonic drilling, calcite veins, pale to white	and		-30 - - -
35 — - - - -	- - - 540 - -							- -35 - - -

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

	OSYN consul	ltants 125 Ken	5 Robe	c Consultants erts Boulevard 7, GA 30144	G WELL MW30D PAGE 2 OF 3
		hern Company Ser	vicos	PROJECT NAME Plant Hammond Well Installa	ation
		MBER GW6581B		PROJECT LOCATION Plant Hammond	ation
1100		<u>-                               </u>			
(#)	ELEVATION (ft msl)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
	-			LIMESTONE, Broken pieces due to sonic drilling, calcite veins, pale to white and dark gray, slightly weathered. (continued)	
-	— 535			dark gray, signily weathered. ( <i>continued)</i>	
-	_		Ш		
-			Ш		
5 —	-		Ш		
]	<del> 530</del>		H		
4	-		H		
+	-		H		
0 -	_		H		
4	525		$\Box$		- Bentonite 3/8"
	-				chips
]	-				
5 -	-				
-	-				
-	<del></del> 520				
$\exists$					
. †	_				
0 -	-				
	<del> 515</del>				
4	-		Ш		
+	-				
5 -			H		
-	<b>-</b> 510		H		
-	-		H		
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0 -	-				
+					
+	- 505 -				
+	-		Ш		
5 —	-		Ш		
٠ -	-		Щ		
+	<del> 500</del>		Щ		
+	-		Ш		
$\dashv$	_		H		
0 -	_		H		
_	<b></b> 495		H		
]	-		H		
	-		H		
5 -	-				

Ge	consu	ltants 12	255 Robe	Consultants Tts Boulevard  MONITORIN	G WEI	PAGE 3 OF 3	
	NT Sou	innovators thern Company Se		, GA 30144  PROJECT NAME Plant Hammond Well Install.	ation		
PROJ	ECT NU	MBER <u>GW6581</u> 1	В	PROJECT LOCATION Plant Hammond			_
DEPTH (ft)	ELEVATION (ft msl)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	CONSTR	RUCTION DIAGRAM	
90				LIMESTONE, Broken pieces due to sonic drilling, calcite veins, pale to white and dark gray, slightly weathered. (continued)  Bottom of borehole at 105.0 feet.		- 20/40 Silica Sand - 0.010 slot size, Schedule 40 PVC 2" screen	- - - - - - - - - - - - - - - - - - -
-	- - 470			Bottom of borehole at 105.0 feet.			
110 -	- 465						
110 —  115 —  120 —  125 —  130 —	- - - - - - - - - - - - - - - - - - -						
120	- - - - 455						
125	- 450 						

## APPENDIX B Laboratory Analytical and Field Sampling Reports

Appendix B1: Laboratory Analytical Data Packages and Data Validation Reports

Appendix B2: Field Data Sheets

## APPENDIX B1 Laboratory Analytical Data Packages and Data Validation Reports







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

Beton M Damil

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







### **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



### **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	



### **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



Project: Plant Hammond

Pace Project No.: 2616036

Date: 03/20/2019 03:29 PM

Sample: HGWA-1	Lab ID:	2616036001	Collecte	ed: 03/12/19	14:31	Received: 03/	13/19 14:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 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 Pre	paration Met	hod: EF	PA 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	



Project: Plant Hammond

Pace Project No.: 2616036

Date: 03/20/2019 03:29 PM

Sample: HGWA-2	Lab ID:	2616036002	Collecte	ed: 03/12/19	10:45	Received: 03/	13/19 14:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 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	В
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 Pre	paration Met	hod: EF	PA 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	



Project: Plant Hammond

Pace Project No.: 2616036

Date: 03/20/2019 03:29 PM

Sample: HGWA-3	Lab ID:	2616036003	Collecte	ed: 03/12/19	10:00	Received: 03/	13/19 14:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 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	В
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 Pre	paration Met	hod: EF	PA 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	



Project: Plant Hammond Pace Project No.: 2616036

Date: 03/20/2019 03:29 PM

Sample: FB-01	Lab ID:	2616036004	Collecte	ed: 03/12/19	19:15	Received: 03/	13/19 14:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 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 7	7470A Pre	paration Metl	hod: EF	PA 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 3	300.0						
Fluoride	ND	mg/L	0.30	0.029	1		03/16/19 07:59	16984-48-8	



Project: Plant Hammond Pace Project No.: 2616036

Date: 03/20/2019 03:29 PM

Sample: EB-01	Lab ID:	2616036005	Collecte	ed: 03/12/19	19:50	Received: 03/	13/19 14:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: Ef	PA 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 Pre	paration Met	hod: EF	PA 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	



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

Blank Result Reporting

Parameter

Units

Limit

MDL

Analyzed

Qualifiers

Mercury

mg/L

ND

0.00050

0.000036

03/15/19 17:12

LABORATORY CONTROL SAMPLE:

Parameter

109358

Spike Conc.

LCS Result

LCS % Rec % Rec Limits

Qualifiers

Mercury

Units

mg/L 0.0025 0.0025

100

80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

109378

MS MSD

MS

MSD Result

% Rec

MSD % Rec % Rec

Max Limits RPD

RPD

Qual

2615967001

Spike Spike Conc.

Result

109379

0.0026

75-125

20

Mercury

Date: 03/20/2019 03:29 PM

Parameter Units Result mg/L ND

Conc.

0.0025 0.0025

0.0025

100

MS

102

3

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.



Project: Plant Hammond

Pace Project No.: 2616036

Date: 03/20/2019 03:29 PM

QC Batch: 24312 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

Associated Lab Samples: 2616036001

METHOD BLANK: 108896 Matrix: Water

Associated Lab Samples: 2616036001

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

LABORATORY CONTROL SAMPLE:	108897					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% 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 S	PIKE DUPLIC	CATE: 10889	8		108899							
			MS	MSD								
		2616034004	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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	

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.



Project: Plant Hammond

Pace Project No.: 2616036

Date: 03/20/2019 03:29 PM

MATRIX SPIKE & MATRIX S	PIKE DUPLIC	ATE: 108898	B MS	MSD	108899							
Parameter	Units	2616034004 Result	Spike Conc.	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.



Project: Plant Hammond

Pace Project No.: 2616036

Selenium

Date: 03/20/2019 03:29 PM

Thallium

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

Dorometer	Units	Blank	Reporting	MDI	Analyzad	Ouglifiana
Parameter	Units	Result	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					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% 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	

0.1

0.1

mg/L

mg/L

MATRIX SPIKE & MATRIX S	SPIKE DUPLIC	CATE: 10937	6		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	

0.10

0.10

105

103

80-120

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.



Project: Plant Hammond

Pace Project No.: 2616036

Date: 03/20/2019 03:29 PM

MATRIX SPIKE & MATRIX S	PIKE DUPLIC	ATE: 10937	6 MS	MSD	109377							
Parameter	Units	2616039003 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
- arameter		_ <del></del>		COIIC.		- INGSUIL	70 INEC	/0 IXEC				— Quai
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.



Project: Plant Hammond

Pace Project No.: 2616036

Date: 03/20/2019 03:29 PM

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

Blank Reporting

Parameter Units Result Limit MDL Analyzed Qualifiers

Fluoride mg/L ND 0.30 0.029 03/15/19 20:10

LABORATORY CONTROL SAMPLE: 109497

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 109498 109499

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

MATRIX SPIKE SAMPLE: 109500 2616034002 Spike MS MS % Rec

ParameterUnitsResultConc.Result% RecLimitsQualifiersFluoridemg/L0.082J1010.110090-110

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.



### **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**

Date: 03/20/2019 03:29 PM

B Analyte was detected in the associated method blank.



### **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2616036

Date: 03/20/2019 03:29 PM

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		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

占

(N/A) Intact Samples (N/A) SAMPLE CONDITIONS Cooler palee State / Location Custody 10#:2616036 (N/A) 90| Received on ð Residual Chlorine (Y/N) Page: TEMP in C 11/2/14 14do 3/12/19/2205 7,13, PO 1944 1 TIME DATE DATE Signed: 3/12 2 2 0.005 yd etsilu2 Metals (As, B. Co, Mo) **822/922** muiba**9** belsy.mcdaniel@pacelabs.com. mon ACCEPTED BY / AFFILIATION Fluorida by 300.0 scsinvoices@southernco.com App. IV Metals 189T seavibnA Ñ٨ 327.4 (AP) or 328.5 (Huff) A SSEVS Muston Ne2S2O3 Preservatives HOBN Pace Quote:
Pace Project Manager:
Pace Profile #: 327.4 ( нсі Invoice Information: PRINT Name of SAMPLER: NOOLIA EONH Company Name SIGNATURE OF SAMPLER: NOULLA 3/17/19/19/5 H2804 Section C 943 Unpreserved SAMPLER NAME AND SIGNATURE # OF CONTAINERS 3/13/19 DATE SAMPLE TEMP AT COLLECTION किसियान १५१० अयान १५३१ ह Ę 8 DATE gas, the COLLECTED RELINDUSHED BY / AFFILIATION Joju Abraham / Lauren Petty ij. SCS10348606 Plant Hammond START Required Project Information: Mostia Off Geosyntec SAMPLE TYPE (G=GRAB C=COMP) Purchase Order #: MATRIX CODE (see valid codes to left) Project Name: Project #: Report To: Copy To: Section B MATRIX
Drinking Water
Water
Water
Water
Product
SolidSolid
Oli
Wipe
Alt
Chhor
Fissue Georgia Power - Coal Combustion Residuals Phone: (404)506-7239 Fax: Requested Due Date: Standouck THT ADDITIONAL COMMENTS One Character per box. (A-2, 0-9 / , -). Sample Ids must be unique Email: jabraham@southemco.com SAMPLE ID 2480 Maner Road Allanta, GA 30339 十つですー equired Client Information: -(e, Page 18 of 2 .6 'e| + ILEW #

Pace Analytical

1

# CHAIN-OF-CUSTODY / Analytical Request Document

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

Z

(N/A) Due Date: 03/20/19 ntact SAUPLE CONDITIONS (N/A) Cooler Sealed Custody MO#:2616036 State / Location Regulation Agency (N/Y) 80 Received on প্ত CLIENT: GAPower-CCR Residual Chlorine (Y/N) D rii GMBT 3/h | 1950 2/15/19/4 12 A TAKE 3/12/19 2005 Requested Analysis Filtered (Y/N) DATE Signed: 08/12/19 5,15,19 PATE Suffate by 300.0 Metals (As, B, Co, Mo) 3 betsy.modaniel@pacelabs.com, Radium 226/228 ACCEPTED BY JAFFILLATION Maclia Mushu <u>ス</u>マ man Fluoride by 300.0 ices@southemco.com alsteM VI .qqA Parce ŇĀ daoT seavionA Pace Project Manager. betsy modaniel@ Pace Profile #: 327.4 (AP) or 328.5 (Huff) Other Methanol Preservatives Ressos <u>ج</u> HOBN нсі Invoice Information EONH Company Name: 037DM 1950 Pace Quote: #OSZH 3/12/14 2205 5 943 Unpreserved SAMPLER NAME AND SIGNATURE # OF CONTAINERS PRINT Name of SAMPLER: 16/51/5 SIGNATURE of SAMPLER: DATE SAMPLE TEMP AT COLLECTION G-BOARM DOLD BRAND 10:45 1 TIME. S authorizatec DATE Small Valles/Georganies COLLECTED RELINGUISHED BY / AFFILIATION Report To: Joju Abraham / Lauren Petty  $\Gamma$ TIME Marian SCS10348606 START Plant Hammond DATE Required Project Information: Geosyntec (G=GRAB C=COMP) **34YT 3J4MA2** Medla Purchase Order #: Project Name: (see valid codes to left) **BCOD XINTAM** Copy To: Section B MATRIX
Distring Water
Water
Waste Woter
Wasse Woter
Product
Product
Qu
Wipe
Aur
Coher
Tissuo Georgia Power - Coal Combustion Residuals Phone: (404)506-7239 Fax: Requested Due Date: Standard TRT One Character per box. (A-Z, 0-9 /, -) Sample kds must be unique ADDITIONAL COMMENTS Atlanta, GA 30339
Email: jabraham@southemco.com SAMPLE ID 2480 Maner Road HCWA-2 Required Client Information: ompany. Page 19 of 2 9 9 . 10 # M3TI

CHAIN-OF-CUSTODY / Analytical Request Document

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

Due Date: 03/20/19 (N/A) ntact SAMPLE CONDITIONS (N/A) 4000 Cooler peleas WO# : 2616036 State / Location Cnarogy Regulatory Agency (N/Y) 60 Received on CLIENT: GAPower-CCR Residual Chlorine (Y/N) 7 Page: Dig 9MBT TIME 5460 13/19/1400 3/12/10 (450 5/12/19 5205 \*\* Requested Analysis Filtered (Y/N) 13,13,19 12 DATE 内屋している人工な 1 Sulfate by 300.0 03/ Metals (As, B, Co, Mo) DATE Signed: Z Radium 226/228 betsy.mcdaniel@pacelabs.com. Z ACCEPTED BY / AFFILIATION Pluoride by 300.0 scsinvoices@southernco.com て App. IV Metals NΆ JeeT sesyland Pace Quote:
Pace Project Manager. betsy.modaniel@g.
Pace Profile #: 327.4 (AP) or 328.5 (Huff) Methanol N92S2O3 Preservatives 各ちらみはい HOBN нсі Involce Information: Br S EONH стралу Nате: 3/14/5 1980 3/14/9/2/05 POSZH SAWPLER NAME AND SIGNATURE 943 Address: Unpreserved OF CONTAINERS 25 3/13/19 PRINT Name of SAMPLER: SAMPLE TEMP AT COLLECTION DATE SIGNATURE of SAMPLER: <u>5</u> 1/2/2 1980 \$.C 8 10% | Sept. ett lanteemte DATE COLLECTED RELINGUISHED BY / AFFILIATION Madia Menten Joju Abraham / Lauren Petty <u>3</u> 3/12/M1750 SCS10348606 START Plant Hammond Required Project Information: Copy To: Geosyntec ঠ ۹ 9 Purchase Order #: MATRIX CODE (see valid codes to left) Project Name: Section B MATRIX
Dirixing Water
Water
Water
Water
Product
SouvSoid
Oil
Wipe
Air
Cother
Cother Georgia Power - Coal Combustion Residuals ADDITIONAL COMMENTS One Character per box. (A-2, 0-9 /, -). Sample Ids must be unique Allanta, GA 30339
iabraham@southernco.com Phone: (404)506-7239 Fax: Requested Due Date: STANOADA SAMPLE ID 2480 Maner Road equired Client Information: SWIT TIMES 0-9 Page 20 of 2 Address: 6 . # Mati

Carried St.	Sampi	Condition	Opon Receipt		
Pace Analy	tical Client Name:	GLA 1	Power	Project #	
Tracking #:	x 🔲 UPS 🗍 USPS 🗍 Client			WO#: 26	16036
Custody Seal on C	poler/Box Present: yes	no Seals	intact:yes	PM: BM	Due Date: 03/20/
Packing Material:	│ │☐ Bubble Wrap │☐ Bubble Bag	S None	Other	CLIENT: GAPo	Rel-for
Thermometer Used	. A				ing process has begun
Cooler Temperatur	A A D:	•	is Frozen: Yes No	Date and Initials	of person/examining
Temp should be above	freezing to 6°C	ļ.,	Comments:	001101131	
Chain of Custody Po	esent:	Yes □No □N/A	1.		
Chain of Custody Fi	led Out:	Yes □No □N/A	2.		
Chain of Custody R	elinguished:	Yes □No □N/A	3.		
Sampler Name & Si	gnature on COC:	TES ONO ON/A	4.		
Samples Arrived wit	hin Hold Time:	Yes DNo DN/A	5.		
Short Hold Time A	nalysis (<72hr):	Yes DING DINA	6.		
Rush Turn Around	Time Requested:	YPS DING DN/A	7.		
Sufficient Volume:	ي	YES DNO DN/A	8.		
Correct Containers	Used:	TES DNO DN/A	9.		
-Pace Container	s Used:	Yes □No □N/A			
Containers Intact:	ع.	Yes Ono On/A	10.		
Filtered volume rec	eived for Dissolved tests	Yes □No ÆMTĀ	11.		
Sample Labels mat	h COC:	Hes □No □N/A	12.		
-Includes date/ti		$\mathcal{W}$			
All containers needing	reservation have been checked.	Nes □No □N/A	13.		
All containers needing compliance with EPA	preservation are found to be in ecommendation.	Mes Ono On/A	1-141-1	I state of ordered	
exceptions: VOA, colifor	m, TOC, O&G, WI-DRO (water)	Ives DNo	Initial when completed	Lot # of added preservative	
Samples checked for	or dechlorination:	lyes □No ĐN/A	14.		
Headspace in VOA	Vials ( >6mm):	iyes □No ÆNÃ	15.		
Trip Blank Present:		Ives □no ØNÃ	16.		
Trip Blank Custody	Seals Present	Tyes DNo -DN/A	1		
Pace Trip Blank Lo	# (if purchased):				
Client Notification	I Pasalution:			Field Data Required	? Y / N
	acted:	Date	Time:	Field Data Required	1 / 14
Comments/ Reso		- Date		<del> </del>	
Project Manage	r Review:			Date:	
	e is a discrepancy affecting North Caro			m will be sent to the Nort	n Carolina DEHNR

F-ALLC003rev.3, 11September 2006





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

Beton M Damil

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



(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



### **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



### **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



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	



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	



Project: Plant Hammond

Pace Project No.: 2616037

Sample: HGWA-3 PWS:	<b>Lab ID: 26160370</b> Site ID:	Collected: 03/12/19 10:00 Sample Type:	Received:	03/13/19 14:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.387 ± 0.232 (0.327) C:90% T:NA	pCi/L	03/25/19 08:33	3 13982-63-3	
Radium-228		0.626 ± 0.376 (0.699) C:78% T:84%	pCi/L	03/26/19 12:54	1 15262-20-1	
Total Radium	Total Radium Calculation	1.01 ± 0.608 (1.03)	pCi/L	03/27/19 11:32	2 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616037

Sample: FB-01 PWS:	<b>Lab ID: 26160370</b> Site ID:	O4 Collected: 03/12/19 19:15 Sample Type:	Received:	03/13/19 14:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.248 ± 0.204 (0.334) C:79% T:NA	pCi/L	03/25/19 08:34	13982-63-3	
Radium-228		0.111 ± 0.352 (0.792) C:76% T:82%	pCi/L	03/26/19 12:54	4 15262-20-1	
Total Radium	Total Radium Calculation	0.359 ± 0.556 (1.13)	pCi/L	03/27/19 11:32	2 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616037

Sample: EB-01 PWS:	<b>Lab ID: 26160370</b> Site ID:	Collected: 03/12/19 19:50 Sample Type:	Received:	03/13/19 14:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.160 ± 0.197 (0.405) C:82% T:NA	pCi/L	03/25/19 08:31	1 13982-63-3	
Radium-228	EPA 9320	0.386 ± 0.383 (0.790) C:76% T:78%	pCi/L	03/26/19 12:54	1 15262-20-1	
Total Radium	Total Radium Calculation	$0.546 \pm 0.580  (1.20)$	pCi/L	03/27/19 11:32	2 7440-14-4	



# **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.



# **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  $\pm$  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.



### **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**

Date: 03/29/2019 04:56 PM

PASI-PA Pace Analytical Services - Greensburg



# **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2616037

Date: 03/29/2019 04:56 PM

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

CHAIN-OF-COSTOD 1 / Atlany user Insert and Second Second accurately.

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

(N/A) เวยาน SAMPLECONDITIONS seigme2 Sinta / Location (N/A) Cooler pelee Regidetory Agoncy Custody (N/A) MO#:2616037 83 Received on Residual Chlorine (Y/N) Page: 1400 TIME したちゃ 3/12/19/2205 B A -- Requested Analysis Filtered (Y/N) 3,13,19 DATE 3 DATE Signed: 3/12 Sulfate by 300.0 SAMPLER NAME AND SHONATURE Metals (As, B, Co, Mo) man Radium 226/228 betsy.modernet@pacetabs.com ACCEPTED BY JAFFULATION 0.005 yd abitoul-Attention: <u>scsinvoices@southernco.com</u> Company Name: Address: App. IV Metals Analyses Test NIA Pace Quote: Pace Project Managar. betsy modernet@ Pace Profile ff. 327.4 (AP) or 328.5 (Huff) PRINT Name of SAMPLER: NOOLO MUSEUS lcnsrtieM SIGNATURE OF SAMPLER: WOULE MIMMON EOSSZ6N Preservatives HOBN НСІ Section C Invoice Information: EONH 1000 #OSZH 943 peaseadun SESMIATINOS TO 3/13/19 DATE SAMPLE TEMP AT COLLECTION जिस्तान भार श्रीयान प्राप्त HWE 읾 DATE Gas. the COLLECTED RELINGUISHED BY LAFFILLATION Required Project Information: Report To: Joju Abraham / Lauren Petty TIME SCS10348606 Plant Hammond START Martia Off Klass Copy To: Geosyntec (G=GRAB C=COMP) **34YT 3J9MA**8 Purchase Order #:
Project Name: Pr WATRIX CODE (see valid codes to leat) Section B MATRIX
Dinking Water
Wasse Water
Wasse Water
Pediod
Solu@bisd
Out
Wipe
Air
Other
Tissue repary: Georgia Power - Coal Combustion Residuals dess: 2480 Maner Road
Allanta, GA 30339
sai: jabraham@southem.co.com
core: (404)506-7239 Fax:
repressed Due Date\* Standard THT ADDITIONAL COMMENTS One Character per box. (A-Z, 0-9 /, -) Sample Ids must be unique SAMPLE ID ーきると quired Client Information: Page 14 of 17 4 6 6 ITEM #

Section B

CHAIN-OF-CUSTODY / Analytical Request Document

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

例从

A

Due Date: 04/10/19 (N/A) petin Samples 210/27 SAMPLE CONDITIONS (N/A) Cooler **Pel66** MO#:2616037 Rogulatory Agency State / Location poisu (N/A) 80 Received on CLIENT: GAPouer-CCR 12 Residual Chlorina (Y/V) TEMP in C 3/13/19/14/20 3/12 19 1950 24 TIME 3/11/11 2105 DATE Signed: 02/12/19 5.15.19 DATE Sulfate by 300.0 Metals (As, B, Co, Mo) betsy modaniel@pacelabs.com 8ZZ/9ZZ Wnipex Maclia M/ waters 7 Fluoride by 300.0 ACCEPTED BY JAFFILLATION man Attention: scsinvoices@southernco.com 2 Public IV Metals Parce NY jeeT eesylanA. Pace Quote:
Pocs Project Manager: betsy moderniel@
Pace Profile #: 327.4 (AP) or 328.5 (Huff) 2 lonshieM **Suturelly** Preservatives EOZSZBN HOPN PRINT Name of SAMPLER: Great Walte Section C Invoice Information: ЮН EONH Company Name: HSSON 03/2M 1950 3/12/14/22/05 943 4ddress: SAMPLER KAME AND SIGNATURE Unpreserved # OF CONTAINERS SAMPLE TEMP AT COLLECTION Law Bearington 3/13/19 SIGNATURE of SAMPLER: DATE IT CHENTAL DURAN IDLAY TIME END DATE COLLECTED man Valte / Georgotee RELINGUISHED BY LAFFILIATION Report To: Joju Abraham / Lauren Petty TIME SCS10348606 START Plant Hammond Required Project Information: Geosyntec (G=GRAB C=COMP) SAMPLE TYPE Modela Purchase Order #: MATRIX CODE (see valid codes to left) Project Name. Project # Copy To: MATRIX
Dirixing Water
Water
Water
Water
Water
Product
SoulSciid
Oid
Wive
Air
Chher
Tissue Georgia Power - Coal Combustion Residuals 2480 Maner Road TAT ADDITIONAL COMMENTS. (A-Z, 0-9 / , -) Sample kds must be unique Email: jabraham@southemco.com Phone (404)506-7239 Feet Requested Due Date: 574m/a/d One Character per box. SAMPLE ID Atlanta, GA 30339 HEWA-14 Required Client Information: ÷ ± Page 15 of 17 18 mg 4 6 Y . 8 9 ILEM #

Section B

# CHAIN-OF-CUSTODY / Analytical Request Document

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

**M** 

40

Due Date: 04/10/19 (N/A) seldmaS SAMPLE CONDITIONS (N/A) Sealed MO#:-2616037 Custody Regulatory Agency (N/A) ð Received on CLIENT: GAPONET-CCR Residual Chlorine (Y/N) TEMP in C 力もなっ 1400 150 acs TIME · Requested Analysis Filtered (Y/N 19/19 3/12/0 5/12/19 PH. 94 3,13,19 してしてしょうからなり DATE I Sulfate by 300.0 1 Metals (As, B. Co, Mo) DATE Signed: Radium 226/228 belsy moderiel@pacelabs con Parce S ン Pluoride by 300.0 > ACCEPTED BY (AFFILLATION Attention: scsinvoices@soulhernco.com Z stateM VI .qq/ NY jaeT seavisnA Pace Quote: Pace Project Manager: belsy moderial@ Pace Profile #: 327.4 (AP) or 328.5 (Huff) IcherteM Nathia Preservatives EOZSZBN 各古のよるい HOPN HCI Section C Invoice Information: ሊን EONH Сотралу Мате: 026/2/01/2 SAMPLER NAME AND SIGNATURE **†OSZH** 943 Address: THE pevieserdun # OF CONTAINERS Law Georntee 3/13/19 られば Х SIGNATURE of SAMPLER: SAMPLE TEMP AT COLLECTION DATE नीयान १९६० TIME 행사 DATE COLLECTED RELINDUISHED BY LAFFILLATION 12/2 5161 William Joju Abraham / Lauren Petty 4 3/12/PITSO SCS10348606 START Plani Hammond Required Project Information: dia m Geosyntec 3 <u>ی</u> 2] SAMPLE TYPE (G-GRAB C-COMP) Purchase Order #. Project Name: Serg **宏** MATRIX CODE (see valid codes to left) Copy To: 1 Project # MATRIX
Drinking Water
Water
Wase Water
Wase Water
Product
Solfocod
Oil
Wipo
Wipo
Au
Ohe
Tissue Georgia Power - Coal Combustion Residuals ADDITIONAL COMMENTS One Character per box. (A-2, 0-9 / , -) Sample Ids must be unique Atlanta, GA 30339 mail jabraham@southemco.com STALMORDA SAMPLE ID 2480 Maner Road rone: (404)506-7239 Requested Due Date: lequired Client Information: STAR STAR () 72 7 . 9 8 9 ÷ . 9 Page 16 of 17 # M3TI

1781/80

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						opon receipt			
Pace Analy	tical Client Name:		<u>G1</u>	A	-/	Power	F	Project#	
Tracking #:	x UPS USPS Client						-	40#:26	16037
Custody Seal on C	poler/Box Present: // yes	띡	no		Seals i	intact: yes	(	LIENT: GAPou	er-CCR
Packing Material:	☐ Bubble Wrap ☐ Bubble B	3ags	Z	No	one [	Other			
Thermometer Used	· · · · · · · · · · · · · · · · · · ·								ing process has begun
Cooler Temperatur					•	is Frozen: Yes No	1		of person/examining
Temp should be above						Comments:		contents:	
Chain of Custody P	resent:	Ø	. □	10	□N/A	1.			
Chain of Custody Fi	lled Out:	£29	s □n	<b>4</b> 0	□n/a	2.			
Chain of Custody R	elinquished:		s 🗆	No.	□n/a	3.		-	
Sampler Name & Si			E 01	٧o	□n/a	4.			
Samples Arrived wit	thin Hold Time:	-27	s 🗆	۷o	□n/a	5.			
Short Hold Time A	nalysis (<72hr):		ıs Dı	40	□n/A	6.			
Rush Turn Around	Time Requested:	ΠA	s Дн	10	□n/A	7.			
Sufficient Volume:		۳4.	ís 🗆	Vo.	□n/a	8.			
Correct Containers	Used:	, D	<u>ಪ</u> 🗆	No	□n/a	9.			
-Pace Container	s Used:	En	ãs □	No	□n/A				
Containers Intact:		-BY	s 🗆	No	□n/A	10.			
Filtered volume rec	eived for Dissolved tests	_/	es 🔲	No .	-₽N/A	11.			
Sample Labels mat	ch COC:	<u>, []</u>	s O	No	□n/a	12.			
-Includes date/ti	me/ID/Analysis Matrix:		L	$\mathcal{I}$	_				
All containers needing	preservation have been checked.	.0	es 🗆	No	□n/a	13.			
All containers needing	preservation are found to be in		<u> </u>	Na	□n/a				
compliance with EPA	recommendation.		U	NO	шил	Initial whom	+	Lot # of added	
exceptions: VOA, colifor	rm, TOC, O&G, WI-DRO (water)		es 🔎	No		Initial when completed		preservative	
Samples checked f	or dechlorination:	<u></u>	es 🗆	No	ÐN/A	14.		· <del></del>	
Headspace in VOA	Vials ( >6mm):		es 🗆	No	-DINIA	15.	_		
Trip Blank Present:			es 🗆	No	DNA	16.			
Trip Blank Custody	Seals Present		es 🛘	No	-EN/A				
Pace Trip Blank Lo	# (if purchased):	,							
Client Notification	/ Resolution:							Field Data Require	? Y / N
	tacted:				Date/	Time:		·	
	oution:								
							-		
							<u>l</u>		
Project Manage	r Review:							Date:	
	re is a discrepancy affecting North C le out of hold, incorrect preservative						m '	will be sent to the Nor	th Carolina DEHNR

F-ALLCO3rev.3, 11September2008 of 17





March 20, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616042

# Dear Joju Abraham:

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

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

Sincerely,

Betsy McDaniel

Beton M Damil

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







# **CERTIFICATIONS**

Project: Plant Hammond

Pace Project No.: 2616042

**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



# **SAMPLE SUMMARY**

Project: Plant Hammond

Pace Project No.: 2616042

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



# **SAMPLE ANALYTE COUNT**

Project: Plant Hammond

Pace Project No.: 2616042

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



# **ANALYTICAL RESULTS**

Project: Plant Hammond

Pace Project No.: 2616042

Date: 03/20/2019 03:23 PM

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



# **ANALYTICAL RESULTS**

Project: Plant Hammond

Pace Project No.: 2616042

Date: 03/20/2019 03:23 PM

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



# **ANALYTICAL RESULTS**

Project: Plant Hammond

Pace Project No.: 2616042

Date: 03/20/2019 03:23 PM

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



Project:

Plant Hammond

Pace Project No.:

2616042

QC Batch: QC Batch Method: 24399

Analysis Method:

EPA 7470A

EPA 7470A

Analysis Description:

7470 Mercury

Associated Lab Samples:

2616042001, 2616042002, 2616042003

METHOD BLANK: 109482

Matrix: Water Associated Lab Samples: 2616042001, 2616042002, 2616042003

Blank Result

Parameter

Units

Reporting Limit

MDL Analyzed Qualifiers

Mercury

mg/L

ND

0.00050

0.000036

03/15/19 14:51

LABORATORY CONTROL SAMPLE:

Parameter

109483

Spike Conc.

LCS Result

LCS % Rec % Rec Limits

Qualifiers

Mercury

Mercury

Units

mg/L

Units

mg/L

Result

109484

109485

0.0029

MSD

117

MSD

MS

% Rec

80-120

% Rec Limits

101

Max RPD

RPD

2616042001

Parameter

Date: 03/20/2019 03:23 PM

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

ND

MS MSD Spike Spike Conc. Conc.

0.0025

0.0025

MS Result 0.0025 0.0026

Result 0.0025

% Rec 105

75-125

Qual 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.



Project: Plant Hammond

Pace Project No.: 2616042

Thallium

Date: 03/20/2019 03:23 PM

QC Batch: 24384 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

Associated Lab Samples: 2616042001, 2616042002, 2616042003

METHOD BLANK: 109374 Matrix: Water

Associated Lab Samples: 2616042001, 2616042002, 2616042003

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

LABORATORY CONTROL SAMPLE:	109375					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% 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	

0.1

mg/L

MATRIX SPIKE & MATRIX SP	IKE DUPLIC	CATE: 10937	6		109377							
5		2616039003	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	0 1
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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	

0.10

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.



Project: Plant Hammond

Pace Project No.: 2616042

Date: 03/20/2019 03:23 PM

MATRIX SPIKE & MATRIX S	PIKE DUPLIC	ATE: 109370	6 MS	MSD	109377							
Parameter	Units	2616039003 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chromium	mg/L		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.



Project:

Plant Hammond

Pace Project No.:

2616042

QC Batch: QC Batch Method: 24522

Analysis Method:

EPA 300.0

EPA 300.0

Analysis Description:

300.0 IC Anions

Associated Lab Samples:

2616042001, 2616042002, 2616042003

METHOD BLANK: 110051

Matrix: Water

Associated Lab Samples:

2616042001, 2616042002, 2616042003

Blank

Reporting

Parameter

Units

Result

Limit

MDL

Analyzed

Qualifiers

Fluoride

mg/L

ND

0.30

0.029

03/18/19 21:29

LABORATORY CONTROL SAMPLE:

Parameter

110052

Units

mg/L

Spike Conc.

LCS Result

LCS % Rec % Rec Limits

Qualifiers

Fluoride

Fluoride

Fluoride

Units mg/L

2616039001

Result

0.035J

10

Spike

Conc.

9.8

110054

10.2

98

90-110

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

110053

Conc.

MS MSD

10

Spike

10

MS MSD Result Result

MS % Rec

102

MSD % Rec

103

102

% Rec Max Limits RPD

RPD 0 15

Qual

MATRIX SPIKE SAMPLE:

Date: 03/20/2019 03:23 PM

Parameter

110055

Parameter Units mg/L 2616039002 Result 0.079J

Spike Conc. 10

MS Result

10.3

10.3

MS % Rec

% Rec Limits

90-110

90-110

Qualifiers

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.



### **QUALIFIERS**

Project: Plant Hammond

Pace Project No.: 2616042

### **DEFINITIONS**

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

**DUP - Sample Duplicate** 

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

Date: 03/20/2019 03:23 PM



# **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2616042

Date: 03/20/2019 03:23 PM

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

CHAIN-OF-CUSTODY / Analytical Request Document

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

(N/A) utset Sambles SAMPLECONDITIONS (N/A) 13 Cooler Regulatory Agency WO#:2616042 Custody State / Location (A\N) ce Received on Residual Chlorine (Y/N) TEMP in C 3/14/m 1950 1400 3/14/105 449 0944 TIME らす ج **|| || || || ||** 261**6**042 4/13/19 DATE DATE Signed: 02/10 Sulfate by 300.0 Metals (As, B, Co, Mo) LICKATO 2 Radium 226/228 betsy.mcdaniel@pacelabs.com ACCEPTED BY ! AFFILIATION Fluoride by 300.0 nnan scsinvoices@southernco.com App. IV Metals Mackey whaten Perco NA JaoT sesyland, 327.4 (AP) or 328.5 (Huff) U tring Nethanol Preservatives Na2S2O3 HOBM Pace Project Manager. Pace Profile #: 327.4 PRINT NAME OF SAMPLER: PCH ML IN ЮН Invoice Information: EONH company Name 3-112/19-19-550 **₽Q\$ZH** Pace Quote: 310 3/12/19 2205 Section C Address: 215/201 - 1807-te 3/13/14 943 Devieseran SAMPLER NAME AND SIGNATURE # OF CONTAINERS DATE SIGNATURE of SAMPLER: SAMPLE TEMP AT COLLECTION HWE. 13.53 S DATE RELINOVISHED BY / AFRILATION COLLECTED Joju Abraham / Lauren Petty TIME Purchase Order #: SCS10348606 Project Name: Plant Hammond Project #: 0 START DATE Required Project Information: Modia m Geosyntec و (GHOD=0 8ARD=0) BYYT BJYMAS 17 MATRIX CODE (see valid codes to left) Report To: Copy To: Section B MATRIX
Dirithing Wares
Water
Waste Waste
Waste Waste
On Booksolid
Oil
Wipe
Au
Chter
Tissue Georgia Power - Coal Combustion Residuals ADOMICAMAL COMMENTS. One Character per box. (A-2, 0-9 /, -). Sample Ids must be unique Email: jabraham@southemco.com SAMPLE ID 3/23/19 2480 Maner Road Atlanta, GA 30339 MW-285 Required Client Information: Requested Oue Date: Page 14 of 17 . 6 10 # M311

# CHAIN-OF-CUSTODY / Analytical Request Document

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

Due Date: 03/20/19 (N/A) Intact Samples Sealed Cooler (Y/N) SAMPLE CONDITIONS 150 **MO#:2616042** State / Location. Regulatory Agency Costoo (N/A) CLIENT: GAPOWER-CCR 8 Received on Residual Chlorine (Y/N) Page: TEMP in C X THE 3/14/9 2205 3 relia 1950 3,13, 9 0944 Roquested Analysis Filtered (Y/N) DATE Signed: 03/12/19 ĺ DATE 0.005 yd etsilu2 Metals (As, B, Co, Mo) h betsy.mcdaniei@pacetabs.com Radium 226/228 ACCEPTED BY (AFFILIATION: O'00E yd ebnoul-NANAN IN Grant Walter Georgialed Bestated 1930 14 to De All without scsinvoices@southemco.com App. IV Metals Ñ/A Proce Pace Project Manager: betsy.mcdaniel@g Pace Profile #: 327.4 (AP) or 328.5 (Huff) JaoT agevianA tensitisM Preservatives Na2S203 SIGNATURE OF SAMPLER: ALT WOLLE 73tpm HOBN НСІ Invoice Information: EONH Company Name Address: Stept Pace Quote: H2SO4 SAWPLER NAME AND SIGNATURE अधीत कर Attention: 943 Devreserded SHENIATION TO S P 221 45.6 PRINT Name of SAMPLER: SAMPLE TEMP AT COLLECTION 3/13/19 DATE TIME O 2 DATE WIIGHUS 16:06 0272 RELINGUISHED BY LAFFILLATION COLLECTED Let Luw Geor to Report To: Joju Abraham / Lauren Petty TIME 경 SCS10348606 Morlia Marlow START Purchase Order #: SCS103486 Project Nama: Plant Hammond DATE Required Project Information: Geosyntec (G=GRAB C=COMP) 39YT 3J9MA8 MATRIX CODE (see valid codes to left) Copy To: MATRIX
Drinking Werer
Waste Wester
Waste Wester
Preduct
Soll/Sold
Oil
Wipe
Aur
Cheer
Tissue Georgia Power - Coal Combustion Residuals Email: jabraham@southernco.com Prone. (404)506-7239 Fax Requested Oue Date: Nandard TAT ADDITIONAL COMMENTS One Character per box. (A-Z, 0.9 f, -) Sample Ids must be unique SAMPLE ID HGWC 2480 Maner Road Required Client Information: Page 15 of 17 Address: 4 0 E ~ ... 2 ITEM #

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

なの

Due Date: 63/20/19 (N/A)hitact SAMPLECONDITIONS Regulatory Agency (N/A) **WO#:2616042** Cooler State / Location belse Custody (N/A) CLIENT: GAPower-CCR Received on Residual Chlorine (Y/N) Page: TEMP in C 41441 2005 13,19,19,14L 1186 11/2/19 14B OATE Sulfate by 300.0 2 Metals (As, 8, Co, Mo) DATE Signed: 2 Pace Quote:
Pace Project Manager: betsy modanist@pacelabs.com.
Pace Profile #: 327.4 (AP) or 328.5 (Huff) Radium 226/228 ACCEPTED BY / AFFLIATION 5 \*Inoride by 300.0 MAN Attention: scsinvoices@southernco.com چ لالا Pop. IV Metals Jaol seavienA 327.4 (AP) or 328.5 (Huff) NUSES tonsritely SIGNATURE OF SAMPLER: YOULS'A MINISON Preservatives ROZSZBN HORN 3/6/19 200 1/3/12 HCI Invoice Information: Noelia EONH Company Name: **₽**OSZH SAMPLER NAME AND SIGNATURE 413/19 943 Deviesered SHEWATHON HO PRINT Name of SAMPLER: SAMPLE TEMP AT COLLECTION DATE WC312191900 31219193 TME 8 DATE COLLECTED WB w Bagnte RELINGUISKED BY LAFFILIATION Report To: Joju Abraham / Lauren Petty TIME Medio Muber SCS10348606 START Plant Hammond DATE Required Project Information: Geosyntec (G=GRAB C=COMP) Purchase Order #: MATRIX CODE (see valid codes to left) Section B Copy To. MATRIX
Druking Warer
Wasta Wiczer
Wasta Wiczer
Product
Solufsocial
Oil
Wipe
Afr
Chre
Chre
Tissue Company: Georgia Power - Coal Combustion Residuals TEL -MW -D ADDITIONAL COMMENTS (A.Z. 0-9 /, -) Sample Ids must be unique jabraham@southernco.com Phone. (404)506-7239
Requested Due Date: **5-001.** One Character per box. SAMPLE ID 2480 Maner Road Atlanta GA 30339 Required Client Information: Page 16 of 17 8 **.** 9 Email: 9 ILEM #

3/12/19

and the same	Sample	Condition	Upon Receipt		
Face Analy	tical Client Name:	GIA 1	Power	Project #	
	x UPS USPS Client	Commercial	Pace Other	WO#:20	616042
Tracking #:	ooler/Box Present: yes	no Seals	intact: Vyes	PM: BM CLIENT: GRPc	Due Date: 03/20/ wer-CCR
Packing Material:	☐ Bubble Wrap ☐ Bubble Bags	None (	Other		"
Thermometer Use				Samples on ice, coo	ing process has begun
Cooler Temperatu	A A 5:		is Frozen: Yes No	Date and Initials	of person/examining
Temp should be above		_	Comments:	contents:	113/19 m2
Chain of Custody P	resent:	es DNo DN/A	1.		
Chain of Custody F	illed Out:	es DNo DN/A	2.		
Chain of Custody R	elinquished:	es 🗆 No 🗆 N/A	3.		
Sampler Name & S	gnature on COC:	S No N/A	4.		
Samples Arrived wi		es □No □N/A			
Short Hold Time A		es ONO ON/A			
	il ·	es DINO DN/A			
Sufficient Volume:		es 🗆 No 🗆 N/A			
Correct Containers		es DNo DN/A			
-Pace Container		es Ono On/A	<b>5</b> .		
Containers Intact:		es 🗆 No 🗆 N/A	10		
		es 🗆 No 🕳 🗖 NA		J	
Sample Labels mat		es DNo DN/A			
			12.		
-Includes date/ti All containers needing	preservation have been checked	es □No □N/A	40	<u>:</u>	
Att contains as an adimen		es UNO UNIA	13,		
compliance with EPA	preservation are found to be in recommendation.	es 🗆 No 🗆 N/A			
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			completed	preservative	
Samples checked f	İ.	es 🗆 No 🗖 N/A	<del></del>		
Headspace in VOA	ii i	es ONO ENTA			
Trip Blank Present:		es 🗆 No 🗷 NÃ	16. 		
Trip Blank Custody		es 🗆 No 🕹 N/A		1	
Pace Trip Blank Lo	# (if purchased):				
Client Notification	Resolution:			Field Data Required	? Y/N
Person Cont	acted:	Date/	Time:	<u> </u>	
	lution:				
		<del></del>			
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Project Manage	r Review:			Date:	
Note: Whenever the	e is a discrepancy affecting North Caroli	a compliance son	nnles a convint this for	m will he sent to the Norti	n Carolina DEHNR
	e out of hold, incorrect preservative, out			22 2011 (2 415 14011	
				F-ALLC00	3rev.3, 11September 2006 7 of 1





March 29, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616043

# Dear Joju Abraham:

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

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

Sincerely,

Betsy McDaniel

Beton M Damil

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



(770)734-4200



**CERTIFICATIONS** 

Project: Plant Hammond

Pace Project No.: 2616043

Pennsylvania Certification IDs

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

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

**Arkansas Certification** 

California Certification #: 04222CA Colorado Certification #: PA01547 Connecticut Certification #: PH-0694

**Delaware Certification** EPA Region 4 DW Rad

Florida/TNI Certification #: E87683 Georgia Certification #: C040

**Guam Certification** 

Hawaii Certification Idaho Certification Illinois Certification Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358 Kentucky Certification #: KY90133 KY WW Permit #: KY0098221 KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012 Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308 Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082 Nebraska Certification #: NE-OS-29-14 Nevada Certification #: PA014572018-1 New Hampshire/TNI Certification #: 297617 New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457 New York/TNI Certification #: 10888 North Carolina Certification #: 42706 North Dakota Certification #: R-190 Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

South Dakota Certification Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3 Utah/TNI Certification #: PA014572017-9 USDA Soil Permit #: P330-17-00091 Vermont Dept. of Health: ID# VT-0282 Virgin Island/PADEP Certification Virginia/VELAP Certification #: 9526 Washington Certification #: C868 West Virginia DEP Certification #: 143 West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad Wyoming Certification #: 8TMS-L



# **SAMPLE SUMMARY**

Project: Plant Hammond

Pace Project No.: 2616043

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



# **SAMPLE ANALYTE COUNT**

Project: Plant Hammond

Pace Project No.: 2616043

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



Project: Plant Hammond

Pace Project No.: 2616043

Sample: MW-28D PWS:	<b>Lab ID: 26160430</b> Site ID:	01 Collected: 03/12/19 17:25 Sample Type:	Received:	03/13/19 14:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.395 ± 0.214 (0.242) C:95% T:NA	pCi/L	03/25/19 10:08	13982-63-3	
Radium-228		0.531 ± 0.380 (0.742) C:73% T:88%	pCi/L	03/26/19 12:54	1 15262-20-1	
Total Radium	Total Radium Calculation	0.926 ± 0.594 (0.984)	pCi/L	03/27/19 11:32	2 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616043

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

PWS: Site ID: Sample Type:

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

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



Project: Plant Hammond

Pace Project No.: 2616043

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

PWS: Site ID: Sample Type:

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

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



### **QUALITY CONTROL - RADIOCHEMISTRY**

Project: Plant Hammond

Pace Project No.: 2616043

QC Batch: 334698 Analysis Method: EPA 9315

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

Associated Lab Samples: 2616043001, 2616043002, 2616043003

METHOD BLANK: 1628718 Matrix: Water

Associated Lab Samples: 2616043001, 2616043002, 2616043003

Parameter Act ± Unc (MDC) Carr Trac Units Analyzed Qualifiers

Radium-226 0.482 ± 0.254 (0.327) C:96% T:NA pCi/L 03/25/19 08:31

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



# **QUALITY CONTROL - RADIOCHEMISTRY**

Project: Plant Hammond

Pace Project No.: 2616043

QC Batch: 334688 Analysis Method: EPA 9320

QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616043001, 2616043002, 2616043003

METHOD BLANK: 1628693 Matrix: Water

Associated Lab Samples: 2616043001, 2616043002, 2616043003

Parameter Act ± Unc (MDC) Carr Trac Units Analyzed Qualifiers

Radium-228 0.978 ± 0.447 (0.755) C:76% T:82% pCi/L 03/26/19 12:53

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



### **QUALIFIERS**

Project: Plant Hammond
Pace Project No.: 2616043

### **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**

Date: 03/29/2019 04:55 PM

PASI-PA Pace Analytical Services - Greensburg



### **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2616043

Date: 03/29/2019 04:55 PM

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

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

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

(N/A) Samples SAMPLE CONDITIONS (N/A) B Safe / Location Cooler belse2 **JO#:2616043** Custod (N/A) Received on Residual Chlorina (Y/V) TEMP in C 1400 0861 17.50 अप्यात्र यळ TIME ج 3/11/19 5,18,18 4/2/19 TICKATE DATE Signed: 05/19 DATE Sulfate by 300.0 Metala (As, B. Co, Mo) 2 Pace Quote:
Pace Project Manager. — betsy.modarhek@pacelabs.com Redium 226/228 Fluoride by 300.0 ACCEPTED BY / AFFILLATION Section C
Invoice Information:
Attention: Scsirvoices@southernco.com App. IV Metals NÄ JeeT sesylenA Pace Profils #: 327.4 (AP) or 328.5 (Huff) पर्याष tensatieN Na2S203 Preservatives HOSN PRINT Name of SAMPLER: PLL IDU 114 ЮН EONH Company Name **POSZH** 3/12/19 2205 3/13/14 943 ddress: pavieserqu SAMPLER NAME/AND SIGNATURE # OF CONTAINERS SIGNATURE of SAMPLER: SAMPLE TEMP AT COLLECTION DATE TIME 7.15 S Kery. K. 7 DATE RELINGUISHED BY FAFFILM TON COLLECTED Report To: Joju Abraham / Lauren Petty TIME 30/10/10/11/20 Purchase Order #: SCS10348606 Project Name: Ptant Hammond START 1915/au DATE Required Project information: John 13 Geosymac 9 SAMPLE TYPE (G-GRAB C-COMP) 44 MATRIX CODE (see valid codes to left) Copy To: MATRIX
Dinking Water
Water
Water
Water
Product
Solu/Solid
Oil
Wipe
Air
Other
Tassee Georgia Power - Coal Combustion Residuals Phone. (404)506-7239 Fax.
Requested Due Date: AMANILD ADDITIONAL COMMENTS One Charactor per box. (A-2, 0-9 /, -). Sample ids must be unique iabraham@southernco.com SAMPLE ID P1/81/8 2/19 2480 Maner Road Allanta, GA 30339 MW-220D Required Client Information: 2 1 8 4 6 9 10 -Page 12 of 15 # MBTI

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

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

15

Due Date: 04/10/19 (N/Y) seldmeS SAMPLE CONDITIONS (N/A) Cooler Sinte? Location pelse2 **JOH: 2616043** Cnatogy Regulationy Agency (AVA) Received on ð CLIENT: GAPower-CCR Residual Chlorine (YW) TEMP in C 720 Y 920 TIME 1500 4460 DATE Signed: 03/12/19 3/12/19 3/14/9 3,13, 19 DATE Sulfate by 300.0 Metals (As. B. Co. Mo) 4 betsy mcdaniel@pacetabs.com. Radium 226/228 ACCEPTED BY ! AFFILIATION man Fluoride by 300.0 Chant Walter Georgiaec Beleville 1950 7/10 Sta Mulans scsinvoices@southernco.com App. IV Metals law 2000 N/X Analyses Test 327.4 (AP) or 328.5 (Huff) tonsitieM SIGNATURE OF SAMPLER: WIT WALK Preservatives Na2S2O3 Grant Volter HOSN Pace Project Manager. Pace Profile #: 327.4 ЮН Invoice information: EONH #OSZH Pace Quote त्रायान कर TIME 243 SAMPLER NÁME AND SIGNATURE nubleserved # OF CONTAINERS PRINT Name of SAMPLER: SAMPLE TEMP AT COLLECTION 3/13/19 DATE TIME 8 DATE GIANA 16:06 02/12 COLLECTED Low George to RELINGUISHED BY / AFFICIATION 3 Required Project Information: Report To: Joju Abraham / Lauren Petty TIME Norlia Mulan SCS10348606 Plant Hammond START DATE Geosyntec (9MOD=D BARD=D) SAMPLE TYPE Purchase Order #: Project Name: PI Project #: MATRIX CODE (see valid codes to left) Section B Copy To: MATRIX
Diriching Water
Water
Wasse Wicker
Product
SacRodict
Od
Wipe
My An
An
Tissue Georgia Power - Coal Combustion Residuals Phone: (404)506-7239 Fax: Requested Due Date: Tangond TAT One Character per box. (A-Z, 0-9 /, -) Sample Ids must be unique ADDITIONAL COMMENTS Atlanta, GA 30339
Email jabraham@southernco.com SAMPLE ID 2480 Mener Road ととと Required Cilent Information: Сопралу: Address: . 6 6. 7. 8 6 9 Page 13 of 15 3 7

CHAIN-OF-CUSTODY / Analytical Request Document

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

43 19

Due Date: 04/10/19 (N/A) กรอณ Samplas SAMPLE CONDITIONS (N/A) State / Location Custod) Sealed Cooler WO#:2616043 Regulatory Agone, (N/A) Received on CLIENT: GAPower-CCR Residual Chlorine (Y/N) TEMP in C 144 2200 8.13,99 194C 13/19/148 TIME 3/12/19 DATE Sulfate by 300.0 Metals (As, 8, Co, Mo) 2 DATE Signed: S Radium 226/228 Pace Project Manager. betsy.mcdantel@pacelabs.com 2 ACCEPTED BY! AFFILIATION man Q:005 yd abinou)-Attention: scsinvoices@southernco.com YN. aleteM VI .qqA ZUSES . 180T, coevisnA. 327.4 (AP) or 328.5 (Huff) 1918 dan lonsiteM SKGNATURE OF SAMPLER YOUL'A MUNICON Preservatives Ne2S2O3 HOBN PRINT Name of SAMPLER: NOCHIA НСІ Invoice information: EONH Company Name: 3/2/19 200 Address: Pace Quote: **≯OSZH** TIME 413/19 943 DeviesendaU SAMPLER NAME AND SIGNATURE OF CONTAINERS DATE SAMPLE TEMP AT COLLECTION G3 12 14 1800 3/12 14 18 13 TIME S DATE RELINDUÍSHED BY / AFFILIATION COLLECTED Wanter Bagnete Joju Abraham / Lauren Petty TWE Modia Muse Purchase Order #: SCS10348606 Project Name: Plani Hammond Project #. START DATE Required Project Information: Geosyntec SAMPLE TYPE (G=GRAB C=COMP) MATRIX CODE (see valid codes to left) Report To: Section B Copy To: MATRIX
Drinking Water
Water
Water
Water
Product
Soil/Sold
Oil
Wipe
Aur
Chter
Tissue Abbilliowal COMMENTS tequired Client information: company: Georgia Power - Coal Combustion Residuals MW-29 127 One Character per box. (A-Z, 0-9 /, -) Sample Ids must be unique jabraham@southernco.com Phone: (404)506-7239 Fax Requested Due Date: **5-041.4 ar.** SAMPLE ID 2480 Maner Road Atlanta, GA 30339 4ddress: 10 ... 6. 12 Page 14 of 15 . # WBIL

	Sample	: Condition	Upon Receipt		
Pace Anal	vtical Client Name:	GLA,	Power	Project #	
Tracking #:	x UPS USPS Client			WO# : 20	516043 Due Date: 04/10/
Custody Seal on C	ooler/Box Present: yes	no Seals	intact: / yes	CLIENT: GAP	uer-CCR
Packing Material:	☐ Bubble Wrap ☐ Bubble Bags	None	Other	<u> 194. –                                     </u>	
Thermometer Use	d <u>83</u> тур	e of Ice: Wet	Blue None	Samples on ice, coo	ling process has begun
Cooler Temperatu	li	•	is Frozen: Yes No	Date and Initial	s of person/examining
Temp should be abov	e freezing to 6°C		Comments:		
Chain of Custody P		es 🗆 No 🗆 N/A			
Chain of Custody F	lled Out:	es □No □N/A	2.		
Chain of Custody R	elinquished:	es 🗆 No 🗆 N/A	3.		
Sampler Name & S	ignature on COC:	es □no □n/A	4.		
Samples Arrived wi	thin Hold Time:	es □No □N/A	5.	: :	
Short Hold Time A	nalysis (<72hr):	es □Mo □N/A	6.		
Rush Turn Around	Time Requested:	es ☑Mo □N/A	7.		
Sufficient Volume:		es □No □N/A	8.		
Correct Containers	Used:	es □no □n/a	9.		
-Pace Container	s Used: - Ers	es □No □N/A			
Containers Intact:		es □No □N/A	10.		
Filtered volume rec	eived for Dissolved tests	es □No -□NA	11.		
Sample Labels mat	ch COC: اعطر	es □No □N/A	12.		
-Includes date/ti		$\omega$			
All containers needing	preservation have been checked.	es 🗆 No 🗆 N/A	13.		
All containers needing compliance with EPA	preservation are found to be in recommendation.	es 🗆 No 🗆 N/A		l la companya da c	
exceptions: VOA, colifor	m, TOC, O&G, WI-DRO (water)	es 🔎 No	Initial when completed	Lot # of added preservative	
Samples checked for	or dechlorination:	es 🗆 No 🗖 N/A	14.		
Headspace in VOA	Vials ( >6mm): □Y	es 🗆 No 🗗 🗖 Ä	15.		
Trip Blank Present:		es □No ØÑÃ	16.		
Trip Blank Custody	Seals Present	es 🗆 No 🗕 🗖 🗸			
Pace Trip Blank Lo	# (if purchased):				
Client Notification	/ Resolution:			Field Data Required	? Y / N
Person Cont		Date/	Гіme:	1 1010 Data Nequileu	. , ,
Comments/ Reso					
		<u>.</u>			
Project Manage	Review:			Date:	
,				<del></del>	
	e is a discrepancy affecting North Carolin out of hold, incorrect preservative, out			n will be sent to the North	Carolina DEHNR

F-ALLC003rev.3, 11September 2006





March 21, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616120

### Dear Joju Abraham:

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

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

Sincerely,

Betsy McDaniel

Beton M Damil

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







### **CERTIFICATIONS**

Project: Plant Hammond Pace Project No.: 2616120

**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



### **SAMPLE SUMMARY**

Project: Plant Hammond

Pace Project No.: 2616120

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



### **SAMPLE ANALYTE COUNT**

Project: Plant Hammond

Pace Project No.: 2616120

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

### **REPORT OF LABORATORY ANALYSIS**

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



### **SAMPLE ANALYTE COUNT**

Project: Plant Hammond

Pace Project No.: 2616120

Lab ID	Sample ID	Method	Analysts	Analytes Reported
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1



Project: Plant Hammond Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

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



Project: Plant Hammond

Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

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



Project: Plant Hammond

Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

Sample: HGWC-9	Lab ID:	2616120003	Collecte	ed: 03/13/19	11:46	Received: 03/	14/19 12:45 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	03/18/19 13:34	03/20/19 14:44	7440-36-0	
Arsenic	0.00075J	mg/L	0.0050	0.00057	1	03/18/19 13:34	03/20/19 14:44	7440-38-2	
Barium	0.10	mg/L	0.010	0.00078	1	03/18/19 13:34	03/20/19 14:44	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/18/19 13:34	03/20/19 14:44	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/18/19 13:34	03/20/19 14:44	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/18/19 13:34	03/20/19 14:44	7440-47-3	
Cobalt	0.00065J	mg/L	0.010	0.00052	1	03/18/19 13:34	03/20/19 14:44	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/18/19 13:34	03/20/19 14:44	7439-92-1	
Lithium	0.0040J	mg/L	0.050	0.00097	1	03/18/19 13:34	03/20/19 14:44	7439-93-2	
Molybdenum	0.028	mg/L	0.010	0.0019	1	03/18/19 13:34	03/20/19 14:44	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/18/19 13:34	03/20/19 14:44	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/18/19 13:34	03/20/19 14:44	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 14:53	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	0.14J	mg/L	0.30	0.029	1		03/19/19 03:35	16984-48-8	



Project: Plant Hammond

Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

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



Thallium

Date: 03/21/2019 01:57 PM

### **ANALYTICAL RESULTS**

Project: Plant Hammond Pace Project No.: 2616120

Sample: MW-6 Collected: 03/13/19 11:06 Lab ID: 2616120005 Received: 03/14/19 12:45 Matrix: Water Report Units MDL DF **Parameters** Results Limit Prepared CAS No. Analyzed Qual **6020B MET ICPMS** Analytical Method: EPA 6020B Preparation Method: EPA 3005A Antimony ND mg/L 0.0030 0.00078 03/18/19 13:34 03/20/19 14:55 7440-36-0 ND 0.0050 0.00057 03/20/19 14:55 7440-38-2 Arsenic mg/L 03/18/19 13:34 0.10 0.00078 03/20/19 14:55 7440-39-3 Barium mg/L 0.010 03/18/19 13:34 Beryllium ND mg/L 0.0030 0.000050 03/18/19 13:34 03/20/19 14:55 7440-41-7 1 0.0010 Cadmium ND mg/L 0.000093 03/18/19 13:34 03/20/19 14:55 7440-43-9 ND 0.010 03/20/19 14:55 7440-47-3 Chromium mg/L 0.0016 03/18/19 13:34 0.00055J 0.010 0.00052 03/20/19 14:55 7440-48-4 Cobalt mg/L 03/18/19 13:34 Lead ND mg/L 0.0050 0.00027 03/18/19 13:34 03/20/19 14:55 7439-92-1 Lithium ND mg/L 0.050 0.00097 03/18/19 13:34 03/20/19 14:55 7439-93-2 Molybdenum 0.0021J mg/L 0.010 0.0019 03/18/19 13:34 03/20/19 14:55 7439-98-7 Selenium ND mg/L 0.010 0.0014 03/18/19 13:34 03/20/19 14:55 7782-49-2

### **7470 Mercury** Analytical Method: EPA 7470A Preparation Method: EPA 7470A

mg/L

ND

Mercury ND mg/L 0.00050 0.000036 1 03/18/19 10:52 03/19/19 14:58 7439-97-6

0.0010

0.00014

03/18/19 13:34 03/20/19 14:55 7440-28-0

**300.0 IC Anions 28 Days** Analytical Method: EPA 300.0

Fluoride **0.19J** mg/L 0.30 0.029 1 03/19/19 04:43 16984-48-8



Project: Plant Hammond

Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

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



Project: Plant Hammond

Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

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



Project: Plant Hammond

Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

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



Project: Plant Hammond Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

Sample: FD-1	Lab ID:	2616120009	Collecte	ed: 03/13/19	00:00	Received: 03/	14/19 12:45 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL .	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	0.00088J	mg/L	0.0030	0.00078	1	03/18/19 13:34	03/20/19 15:50	7440-36-0	В
Arsenic	0.42	mg/L	0.0050	0.00057	1	03/18/19 13:34	03/20/19 15:50	7440-38-2	
Barium	0.099	mg/L	0.010	0.00078	1	03/18/19 13:34	03/20/19 15:50	7440-39-3	
Beryllium	0.000089J	mg/L	0.0030	0.000050	1	03/18/19 13:34	03/20/19 15:50	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/18/19 13:34	03/20/19 15:50	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/18/19 13:34	03/20/19 15:50	7440-47-3	
Cobalt	0.0023J	mg/L	0.010	0.00052	1	03/18/19 13:34	03/20/19 15:50	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/18/19 13:34	03/20/19 15:50	7439-92-1	
Lithium	0.029J	mg/L	0.050	0.00097	1	03/18/19 13:34	03/20/19 15:50	7439-93-2	
Molybdenum	0.033	mg/L	0.010	0.0019	1	03/18/19 13:34	03/20/19 15:50	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/18/19 13:34	03/20/19 15:50	7782-49-2	
Thallium	0.00043J	mg/L	0.0010	0.00014	1	03/18/19 13:34	03/20/19 15:50	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	7470A Pre	paration Metl	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 15:12	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	0.81	mg/L	0.30	0.029	1		03/19/19 06:15	16984-48-8	



Project: Plant Hammond

Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

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



Project: Plant Hammond

Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

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



Project: Plant Hammond

Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

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



Project: Plant Hammond

Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

Sample: HGWC-11	Lab ID:	2616120013	Collecte	ed: 03/13/19	17:34	Received: 03/	14/19 12:45 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	03/18/19 13:34	03/20/19 16:13	7440-36-0	
Arsenic	0.0024J	mg/L	0.0050	0.00057	1	03/18/19 13:34	03/20/19 16:13	7440-38-2	
Barium	0.024	mg/L	0.010	0.00078	1	03/18/19 13:34	03/20/19 16:13	7440-39-3	
Beryllium	0.00010J	mg/L	0.0030	0.000050	1	03/18/19 13:34	03/20/19 16:13	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/18/19 13:34	03/20/19 16:13	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/18/19 13:34	03/20/19 16:13	7440-47-3	
Cobalt	0.00098J	mg/L	0.010	0.00052	1	03/18/19 13:34	03/20/19 16:13	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/18/19 13:34	03/20/19 16:13	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/18/19 13:34	03/20/19 16:13	7439-93-2	
Molybdenum	0.012	mg/L	0.010	0.0019	1	03/18/19 13:34	03/20/19 16:13	7439-98-7	
Selenium	0.023	mg/L	0.010	0.0014	1	03/18/19 13:34	03/20/19 16:13	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/18/19 13:34	03/20/19 16:13	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 15:21	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	0.51	mg/L	0.30	0.029	1		03/19/19 09:18	16984-48-8	



Project: Plant Hammond

Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

QC Batch: 24464 Analysis Method: EPA 7470A QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury

2616120001, 2616120003, 2616120004, 2616120005, 2616120006, 2616120007, 2616120008, 2616120009, Associated Lab Samples:

2616120010, 2616120011, 2616120012, 2616120013

METHOD BLANK: 109864 Matrix: Water

2616120001, 2616120003, 2616120004, 2616120005, 2616120006, 2616120007, 2616120008, 2616120009, Associated Lab Samples:

2616120010, 2616120011, 2616120012, 2616120013

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

Blank

LABORATORY CONTROL SAMPLE: 109865

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 109866 109867 MS MSD 2616120001 Spike MS MSD MS MSD Spike % Rec Max RPD RPD Parameter Units Result Conc. % Rec % Rec Limits Conc. Result Result Qual Mercury mg/L ND 0.0025 0.0025 0.0025 0.0025 101 102 75-125 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.



Project: Plant Hammond

Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

QC Batch: 24639 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury

Associated Lab Samples: 2616120002

METHOD BLANK: 110677 Matrix: Water

Associated Lab Samples: 2616120002

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

Mercury mg/L ND 0.00050 0.000036 03/20/19 13:07

LABORATORY CONTROL SAMPLE: 110678

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 110679 110680

MS MSD

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

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.



Project: Plant Hammond

LABORATORY CONTROL CAMPLE

Date: 03/21/2019 01:57 PM

Pace Project No.: 2616120

QC Batch: 24489 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

Associated Lab Samples: 2616120001, 2616120002, 2616120003, 2616120004, 2616120005, 2616120006, 2616120007, 2616120008,

2616120009, 2616120010, 2616120011, 2616120012, 2616120013

METHOD BLANK: 109939 Matrix: Water

Associated Lab Samples: 2616120001, 2616120002, 2616120003, 2616120004, 2616120005, 2616120006, 2616120007, 2616120008,

2616120009, 2616120010, 2616120011, 2616120012, 2616120013

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

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

MATRIX SPIKE & MATRIX SPIR	KE DUPLIC	CATE: 10994	1		109942							
		2616120008	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD		Qual
Antimony	mg/L	ND	0.1	0.1	0.11	0.11	105	105	75-125		20	
Arsenic	mg/L	0.42	0.1	0.1	0.51	0.53	99	113	75-125	3	20	
Barium	mg/L	0.10	0.1	0.1	0.18	0.18	76	75	75-125	1	20	
Beryllium	mg/L	0.000062J	0.1	0.1	0.094	0.095	94	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.



Project: Plant Hammond

Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

MATRIX SPIKE & MATRIX S	SPIKE DUPLICA	NTE: 10994	1		109942							
Parameter	Units	2616120008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium	mg/L	ND	0.1	0.1	0.097	0.097	97	97	75-125		20	
Chromium	mg/L	ND	0.1	0.1	0.097	0.099	97	99	75-125	2	20	
Cobalt	mg/L	0.0022J	0.1	0.1	0.098	0.099	96	96	75-125	1	20	
Lead	mg/L	ND	0.1	0.1	0.093	0.096	93	96	75-125	3	20	
Lithium	mg/L	0.029J	0.1	0.1	0.12	0.12	92	94	75-125	2	20	
Molybdenum	mg/L	0.033	0.1	0.1	0.13	0.13	96	99	75-125	2	20	
Selenium	mg/L	ND	0.1	0.1	0.099	0.10	99	104	75-125	6	20	
Thallium	mg/L	0.00039J	0.1	0.1	0.095	0.096	94	96	75-125	1	20	

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.



Project: Plant Hammond

Pace Project No.: 2616120

Fluoride

Date: 03/21/2019 01:57 PM

QC Batch: 24522 Analysis Method: EPA 300.0 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions

mg/L

2616120001, 2616120002, 2616120003, 2616120004, 2616120005, 2616120006, 2616120007, 2616120008, Associated Lab Samples:

2616120009, 2616120010, 2616120011, 2616120012, 2616120013

METHOD BLANK: 110051			N	latrix: Wa	ter							
		2616120002, 2 2616120010, 2					6120006, 2	616120007	, 2616120	0008,		
		•	Blank	R	eporting							
Parameter		Units	Result	t	Limit	MDL		Analyzed	Qua	alifiers		
Fluoride		mg/L		ND	0.30	C	0.029 03/	18/19 21:29	)			
LABORATORY CONTROL SA	MPLE: 110	0052										
			Spike	LCS		LCS	% Red					
Parameter		Units	Conc.	Resu	ılt	% Rec	Limits	s Qι	ıalifiers			
Fluoride		mg/L	10		9.8	98	90	)-110				
MATRIX SPIKE & MATRIX SP	IKE DUPLIC	ATE: 11005	3		110054							
			MS	MSD								
		2616039001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Fluoride	mg/L	0.035J	10	10	10.2	10.3	102	102	90-110	0	15	
MATRIX SPIKE SAMPLE:	110	0055										
			261603	9002	Spike	MS	N	1S	% Rec			
Parameter		Units	Resi	ult	Conc.	Result	%	Rec	Limits		Qualif	iers

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.



### **QUALIFIERS**

Project: Plant Hammond Pace Project No.: 2616120

### **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**

Date: 03/21/2019 01:57 PM

B Analyte was detected in the associated method blank.



### **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2616120

Date: 03/21/2019 01:57 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytica Batch
2616120001	MW-7	EPA 3005A	24489	EPA 6020B	24530
2616120002	MW-26D	EPA 3005A	24489	EPA 6020B	24530
2616120003	HGWC-9	EPA 3005A	24489	EPA 6020B	24530
616120004	MW-27D	EPA 3005A	24489	EPA 6020B	24530
616120005	MW-6	EPA 3005A	24489	EPA 6020B	24530
616120006	HGWC-10	EPA 3005A	24489	EPA 6020B	24530
616120007	MW-24D	EPA 3005A	24489	EPA 6020B	24530
616120008	HGWC-13	EPA 3005A	24489	EPA 6020B	24530
616120009	FD-1	EPA 3005A	24489	EPA 6020B	24530
616120010	MW-20	EPA 3005A	24489	EPA 6020B	24530
616120011	MW-5	EPA 3005A	24489	EPA 6020B	24530
616120012	HGWC-7	EPA 3005A	24489	EPA 6020B	24530
616120013	HGWC-11	EPA 3005A	24489	EPA 6020B	24530
616120001	MW-7	EPA 7470A	24464	EPA 7470A	24540
616120002	MW-26D	EPA 7470A	24639	EPA 7470A	24703
616120003	HGWC-9	EPA 7470A	24464	EPA 7470A	24540
616120004	MW-27D	EPA 7470A	24464	EPA 7470A	24540
616120005	MW-6	EPA 7470A	24464	EPA 7470A	24540
616120006	HGWC-10	EPA 7470A	24464	EPA 7470A	24540
616120007	MW-24D	EPA 7470A	24464	EPA 7470A	24540
616120008	HGWC-13	EPA 7470A	24464	EPA 7470A	24540
616120009	FD-1	EPA 7470A	24464	EPA 7470A	24540
616120010	MW-20	EPA 7470A	24464	EPA 7470A	24540
616120011	MW-5	EPA 7470A	24464	EPA 7470A	24540
616120012	HGWC-7	EPA 7470A	24464	EPA 7470A	24540
616120013	HGWC-11	EPA 7470A	24464	EPA 7470A	24540
616120001	MW-7	EPA 300.0	24522		
616120002	MW-26D	EPA 300.0	24522		
616120003	HGWC-9	EPA 300.0	24522		
616120004	MW-27D	EPA 300.0	24522		
616120005	MW-6	EPA 300.0	24522		
616120006	HGWC-10	EPA 300.0	24522		
616120007	MW-24D	EPA 300.0	24522		
616120008	HGWC-13	EPA 300.0	24522		
616120009	FD-1	EPA 300.0	24522		
616120010	MW-20	EPA 300.0	24522		
616120011	MW-5	EPA 300.0	24522		
616120012	HGWC-7	EPA 300.0	24522		
616120013	HGWC-11	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.

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1 29	f 20								$\vdash$			-															l

((المستنوع يا	Sample	<b>Condition</b>	Upon Receipt		
Pace Analy	rtical Client Name:	GCA 1	Powere	Project #	
Tracking #:	x UPS USPS Client			WO#:26	16120 Due Date: 03/21/19
Custody Seal on C	ooler/Box Present:  yes	no Seals	intact:  yes	CLIENT: GAPON	er-CCR
Packing Material:	☐ Bubble Wrap ☐ Bubble Bags	None	Other	<u> </u>	•
Thermometer Used	<u>83</u> тур	e of Ice: Wet	Blue None	☐ Samples on ice, coo	ling process has begun
Cooler Temperatur	Bio	logical Tissue	is Frozen: Yes No	Date and Initial contents:	s of person examining
Temp should be above	freezing to 6°C	<del></del>	Comments:	contents.	114/19 MA
Chain of Custody P	resent:	BS □No □N/A	1.		
Chain of Custody Fi	led Out:	es ONo ON/A	2.		
Chain of Custody R	elinquished:	ES □No □N/A	3.		
Sampler Name & Si	gnature on COC: -	es □No □N/A	4.		
Samples Arrived wit	hin Hold Time: 427	es ONO ON/A	5.		
Short Hold Time A	nalysis (<72hr): □Y	es ENG ON/A	6.		
Rush Turn Around	Time Requested: □Y	es 🗖 No 🗆 N/A	7.		_
Sufficient Volume:	-81	193	8.		
Correct Containers	Used: -€⊒Y	es DNo DN/A	9.		
-Pace Containers	Used: •ETY	BS DNO DN/A			
Containers Intact:	BT	S DNo DN/A	10.		
Filtered volume rece	ved for Dissolved tests	es 🗆 No 🔎 N/A	11.		
Sample Labels mate	th COC:□¥	es □No □N/A	12.		
-Includes date/tir	ne/ID/Analysis Matrix:	$\omega$			
	reconstion have been checked	3 □No □N/A	13.		
All containers needing compliance with EPA i	preservation are found to be in	ēs □No □N/A			
exceptions: VOA. colifor	m, TOC, O&G, WI-DRO (water) □Y		Initial when completed	Lot # of added preservative	
Samples checked for	y roo, odo, m site (mater)	es 🗆 No 🗲 NA	· · · · · · · · · · · · · · · · · · ·	preservative	
Headspace in VOA		es ONO CONA			
Trip Blank Present:		es Ono ANA			
Trip Blank Custody		es Ono ENIA	10.		
Pace Trip Blank Lot					
race mp blank Lot	+ (ii purchased)				
Client Notification/	I .			Field Data Required	? Y / N
	acted:	Date/1	Time:		
Comments/ Resol	ution:				
Project Manager	Review:			Date:	
Nata . 1686 and	is a discrepancy affecting North Carolina	nomelianes es-	inlee a constat this for-	n will he cent to the Neeth	Carolina DEHNR
Certification Office ( i.e.	out of hold, incorrect preservative, out	of temp, incorrect	containers)	MANU DE SEUL IO MIE MOINT	Page 29 of 29
				F-ALLC00	Brev.3, 11September2008





April 01, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616121

### Dear Joju Abraham:

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

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

Sincerely,

Betsy McDaniel

Beton M Damil

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



(770)734-4200



### **CERTIFICATIONS**

Project: Plant Hammond

Pace Project No.: 2616121

### 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



# **SAMPLE SUMMARY**

Project: Plant Hammond

Pace Project No.: 2616121

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



# **SAMPLE ANALYTE COUNT**

Project: Plant Hammond

Pace Project No.: 2616121

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

# **REPORT OF LABORATORY ANALYSIS**

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# **SAMPLE ANALYTE COUNT**

Project: Plant Hammond

Pace Project No.: 2616121

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



Project: Plant Hammond

Pace Project No.: 2616121

Sample: MW-7 PWS:	<b>Lab ID: 26161210</b> Site ID:	O1 Collected: 03/13/19 17:46 Sample Type:	Received:	03/14/19 12:45	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.279 ± 0.224 (0.348) C:83% T:NA	pCi/L	03/27/19 09:28	13982-63-3	
Radium-228		0.947 ± 0.444 (0.758) C:76% T:84%	pCi/L	03/27/19 12:58	3 15262-20-1	
Total Radium	Total Radium Calculation	1.23 ± 0.668 (1.11)	pCi/L	03/28/19 15:33	3 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616121

Sample: MW-26D PWS:	<b>Lab ID: 26161210</b> Site ID:	OO2 Collected: 03/13/19 13:36 Sample Type:	Received:	03/14/19 12:45	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.322 ± 0.223 (0.355) C:84% T:NA	pCi/L	03/25/19 10:07	13982-63-3	
Radium-228		0.305 ± 0.363 (0.764) C:72% T:77%	pCi/L	03/26/19 14:39	15262-20-1	
Total Radium	Total Radium Calculation	0.627 ± 0.586 (1.12)	pCi/L	03/28/19 15:33	3 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616121

Sample: HGWC-9 PWS:	<b>Lab ID: 26161210</b> Site ID:	O3 Collected: 03/13/19 11:46 Sample Type:	Received:	03/14/19 12:45	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.276 ± 0.215 (0.363) C:84% T:NA	pCi/L	03/25/19 09:48	13982-63-3	
Radium-228		0.727 ± 0.437 (0.815) C:75% T:82%	pCi/L	03/26/19 16:04	15262-20-1	
Total Radium	Total Radium Calculation	1.00 ± 0.652 (1.18)	pCi/L	03/28/19 15:33	3 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616121

Sample: MW-27D PWS:	<b>Lab ID: 26161210</b> Site ID:	O4 Collected: 03/13/19 09:24 Sample Type:	Received:	03/14/19 12:45	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.588 ± 0.331 (0.516) C:82% T:NA	pCi/L	03/25/19 09:48	13982-63-3	
Radium-228		1.22 ± 0.457 (0.682) C:76% T:93%	pCi/L	03/26/19 16:04	15262-20-1	
Total Radium	Total Radium Calculation	1.81 ± 0.788 (1.20)	pCi/L	03/28/19 15:28	3 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616121

Sample: MW-6 PWS:	<b>Lab ID: 26161210</b> Site ID:	O5 Collected: 03/13/19 11:06 Sample Type:	Received:	03/14/19 12:45	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.840 ± 0.406 (0.563) C:66% T:NA	pCi/L	03/25/19 09:49	13982-63-3	
Radium-228		1.23 ± 0.526 (0.866) C:77% T:77%	pCi/L	03/26/19 16:04	15262-20-1	
Total Radium	Total Radium Calculation	2.07 ± 0.932 (1.43)	pCi/L	03/28/19 15:33	3 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616121

Sample: HGWC-10 PWS:	<b>Lab ID: 26161210</b> Site ID:	O6 Collected: 03/13/19 12:10 Sample Type:	Received:	03/14/19 12:45	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.105 ± 0.189 (0.430) C:82% T:NA	pCi/L	03/25/19 09:48	13982-63-3	
Radium-228		1.08 ± 0.472 (0.789) C:76% T:89%	pCi/L	03/26/19 16:05	5 15262-20-1	
Total Radium	Total Radium Calculation	1.19 ± 0.661 (1.22)	pCi/L	03/28/19 15:33	3 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616121

Sample: MW-24D PWS:	<b>Lab ID: 26161210</b> Site ID:	O7 Collected: 03/13/19 14:48 Sample Type:	Received:	03/14/19 12:45	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.0299 ± 0.156 (0.402) C:93% T:NA	pCi/L	03/25/19 10:07	13982-63-3	
Radium-228		0.281 ± 0.360 (0.763) C:71% T:84%	pCi/L	03/26/19 16:04	15262-20-1	
Total Radium	Total Radium Calculation	0.311 ± 0.516 (1.17)	pCi/L	03/28/19 15:33	3 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616121

Sample: HGWC-13 PWS:	<b>Lab ID: 26161210</b> Site ID:	O8 Collected: 03/13/19 15:40 Sample Type:	Received:	03/14/19 12:45	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.365 ± 0.227 (0.309) C:88% T:NA	pCi/L	03/25/19 10:07	7 13982-63-3	
Radium-228		0.0254 ± 0.267 (0.627) C:74% T:89%	pCi/L	03/26/19 16:04	15262-20-1	
Total Radium	Total Radium Calculation	$0.390 \pm 0.494  (0.936)$	pCi/L	03/28/19 15:33	3 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616121

Sample: FD-1 PWS:	<b>Lab ID: 26161210</b> Site ID:	O9 Collected: 03/13/19 00:00 Sample Type:	Received:	03/14/19 12:45	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.668 ± 0.300 (0.282) C:80% T:NA	pCi/L	03/25/19 09:48	13982-63-3	
Radium-228		1.02 ± 0.464 (0.778) C:76% T:83%	pCi/L	03/26/19 16:04	15262-20-1	
Total Radium	Total Radium Calculation	1.69 ± 0.764 (1.06)	pCi/L	03/28/19 15:28	3 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616121

Sample: MW-20 PWS:	<b>Lab ID: 26161210</b> Site ID:	10 Collected: 03/13/19 10:53 Sample Type:	Received:	03/14/19 12:45	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.315 ± 0.254 (0.460) C:83% T:NA	pCi/L	03/25/19 09:49	13982-63-3	
Radium-228		0.223 ± 0.386 (0.843) C:76% T:83%	pCi/L	03/26/19 16:04	15262-20-1	
Total Radium	Total Radium Calculation	0.538 ± 0.640 (1.30)	pCi/L	03/28/19 15:28	3 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616121

Sample: MW-5 PWS:	<b>Lab ID: 26161210</b> Site ID:	Collected: 03/13/19 12:33 Sample Type:	Received:	03/14/19 12:45	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.442 ± 0.247 (0.330) C:87% T:NA	pCi/L	03/25/19 10:07	7 13982-63-3	-
Radium-228	EPA 9320	0.179 ± 0.313 (0.684) C:73% T:85%	pCi/L	03/26/19 14:39	9 15262-20-1	
Total Radium		0.621 ± 0.560 (1.01)	pCi/L	03/28/19 15:33	3 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616121

Sample: HGWC-7 PWS:	<b>Lab ID: 26161210</b> Site ID:	Collected: 03/13/19 16:03 Sample Type:	Received:	03/14/19 12:45	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.210 ± 0.199 (0.367) C:79% T:NA	pCi/L	03/25/19 07:59	13982-63-3	
Radium-228		0.193 ± 0.292 (0.630) C:74% T:75%	pCi/L	03/26/19 14:39	15262-20-1	
Total Radium	Total Radium Calculation	0.403 ± 0.491 (0.997)	pCi/L	03/28/19 15:33	3 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616121

Sample: HGWC-11 PWS:	<b>Lab ID: 26161210</b> Site ID:	Collected: 03/13/19 17:34 Sample Type:	Received:	03/14/19 12:45	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.352 ± 0.225 (0.296) C:98% T:NA	pCi/L	03/27/19 09:28	3 13982-63-3	
Radium-228		0.232 ± 0.305 (0.647) C:77% T:78%	pCi/L	03/26/19 14:39	9 15262-20-1	
Total Radium	Total Radium Calculation	0.584 ± 0.530 (0.943)	pCi/L	03/28/19 15:33	3 7440-14-4	



### **QUALITY CONTROL - RADIOCHEMISTRY**

Project: Plant Hammond

Pace Project No.: 2616121

QC Batch: 334699 Analysis Method: EPA 9315

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

Associated Lab Samples: 2616121001, 2616121013

METHOD BLANK: 1628719 Matrix: Water

Associated Lab Samples: 2616121001, 2616121013

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-226
 0.248 ± 0.200 (0.320) C:97% T:NA
 pCi/L
 03/27/19 09:28

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



### **QUALITY CONTROL - RADIOCHEMISTRY**

Project: Plant Hammond

Pace Project No.: 2616121

QC Batch: 334689 Analysis Method: EPA 9320

QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616121001

METHOD BLANK: 1628695 Matrix: Water

Associated Lab Samples: 2616121001

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-228
 0.0633 ± 0.285 (0.651) C:77% T:86%
 pCi/L
 03/27/19 12:58

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



### **QUALIFIERS**

Project: Plant Hammond

Pace Project No.: 2616121

### **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**

Date: 04/01/2019 03:41 PM

PASI-PA Pace Analytical Services - Greensburg



# **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2616121

Date: 04/01/2019 03:41 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytica Batch
2616121001	MW-7	EPA 9315	334699	_	
2616121002	MW-26D	EPA 9315	334698		
2616121003	HGWC-9	EPA 9315	334698		
2616121004	MW-27D	EPA 9315	334698		
616121005	MW-6	EPA 9315	334698		
2616121006	HGWC-10	EPA 9315	334698		
616121007	MW-24D	EPA 9315	334698		
616121008	HGWC-13	EPA 9315	334698		
616121009	FD-1	EPA 9315	334698		
616121010	MW-20	EPA 9315	334698		
616121011	MW-5	EPA 9315	334698		
616121012	HGWC-7	EPA 9315	334698		
2616121013	HGWC-11	EPA 9315	334699		
2616121001	MW-7	EPA 9320	334689		
2616121002	MW-26D	EPA 9320	334688		
616121003	HGWC-9	EPA 9320	334688		
616121004	MW-27D	EPA 9320	334688		
616121005	MW-6	EPA 9320	334688		
616121006	HGWC-10	EPA 9320	334688		
616121007	MW-24D	EPA 9320	334688		
616121008	HGWC-13	EPA 9320	334688		
616121009	FD-1	EPA 9320	334688		
616121010	MW-20	EPA 9320	334688		
616121011	MW-5	EPA 9320	334688		
616121012	HGWC-7	EPA 9320	334688		
616121013	HGWC-11	EPA 9320	334688		
616121001	MW-7	Total Radium Calculation	335990		
2616121002	MW-26D	Total Radium Calculation	335990		
616121003	HGWC-9	Total Radium Calculation	335990		
616121004	MW-27D	Total Radium Calculation	335989		
616121005	MW-6	Total Radium Calculation	335990		
2616121006	HGWC-10	Total Radium Calculation	335990		
616121007	MW-24D	Total Radium Calculation	335990		
616121008	HGWC-13	Total Radium Calculation	335990		
2616121009	FD-1	Total Radium Calculation	335989		
2616121010	MW-20	Total Radium Calculation	335989		
2616121011	MW-5	Total Radium Calculation	335990		
616121012	HGWC-7	Total Radium Calculation	335990		
616121013	HGWC-11	Total Radium Calculation	335990		



# CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

3/15 1/15 1/15 1/15 1/15 1/15 1/15 1/15
RELINGUISHED BY (AFFILLATION)  (ATTACK CONTROLLATION)  (ATTACK CONTROLLATION)  SAMPLERYAME  SIGNATURE  SIGNATURE

# CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section C	Altention: scsinvolces@southernco.com	Company Name.			anager. betsy.mcdaniel@pacelabs.com.	Pace Profils #: 327.4 (AP) or 328.5 (Huff)	Processed Analysis Filtered (ViN)	`\	Preservatives > No No No No No No No No No No No No No		(0)	0. 8 0.	98 300 98 300 98	ol Meta Spy (As.	OF CO OF CO Inpress 12504 12504 12504 1201				7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	ゴー・アンノ	1 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7		411 3	1011-3646494	PM: BM Due Date: 04/11/19	: GPPower		THIRE SAMPLE CONDITIONS DATE THE SAMPLE CONDITIONS	1823 Nachia Mamen 3/13/19 1823	1	The state of the s	十 大 ス ス ス ス ス ス ス ス ス ス ス ス ス	MAQ Coman 3/14/9/2421 7 7 X	uo l	AP in Pin Pin Pin Pin Pin Pin Pin Pin Pin	La MATE Signed: ○S/13/19 中 200 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Section B	Report To: Joju Abraham / Lauren Petty	!!	-	9	Project Name: Plant Hammond			⊢	COLECTED	D=0	WW W	START END	) = aw	€ 5	KTRIX	DATE TIME DATE TIME	15/0 3/18 18:54 3/19 7.21 12	JAO 3/13 12 51 5/15 11 0/2 13	7:00	3/12, 111:27 5/17	21/2 12 3/1/2 C	m 1/2/1/2/2/20	15/13 - 15/13 - 19	1 63/18		V		RELINGUISHED BY / AFFILIATION DATE	1.1-110-100	1,000	M. V. Land Co.	Les Blow Committee 5/14/19		SAMPLER NAME AND SIGNATURE	PRINT Name of SAMPLER:	SIGNATURE of SAMPLER:
	Georgia Power - Coal Combustion Residuals		Atlanta, GA 30339			Requested Due Date Japanesed Tax			HELLY	Druking Water	Water Water Weste Water	SAMPLE ID SOUTSOIL		(A-Z, 0-9 / , -)	Sample Ids must be unique Tasse		0t2 37	J MM			7000	61 JON 1 2	7-0+3			10.		Appril Comments.						Pa	age 2	24 (

CHAIN-OF-CUSTODY / Analytical Request Document

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

(V/V) Due Date: 04/11/19 SAMPLE CONDITIONS (N/A) Cooler ŏ Custody State / Locallon Regulatory Agency (N/A) 3 MO#:2616121 Received on ð Σ Residual Chlorine (YM) Page: TEMP in C CLIENT: GAPower-CCR 124 3/8/19 20:18 7577 TIME 61/ Requested Analysis Filtered (Y/IA 41/4/12 विभार 5/13 DATE <u>\{ \{ \} \} \</u> 5 0.005 yd etsilu2 ξ 2 Metals (As, B. Co, Mo) DATE Signed: Radium 226/228 beisy modaniel@pacelabs.com, ACCEPTED BY I AFFILIATION Fluoride by 300.0 GESCHALE Park scsinvoices@southernco.com App. IV Metals 2027505 Analysea Test N/A 327.4 (AP) or 328.5 (Huff) Muton Methanol May 8 EOZSZEN Preservatives HOSN Pace Quote:
Pace Project Manager:
Pace Profile #: 327.4. нсі عوان ه Invoice information: orlia 6 ~ HINO3 Attention: SC Company Name POSZH 3018 Section C TIME 5/14/19/11 35 Unpreserved Address: SAMPLER NAME AND SIGNATURE WT 6/3/18/19 12-12/3/13/19/1233 129 4 SHEWATHON TO THE SE PRINT Name of SAMPLER: SIGNATURE of SAMPLER: W 6,2/13/19 1542 3/13/19 (603/63 SAMPLE TEMP AT COLLECTION Histk DATE G19/13/19/1032 3/13/19/1053 S DATE Kolin Martin/ (al surke COLLECTED RELINQUISHED BY / AFFILIATION Beer who Joju Abraham / Lauren Petty TIME SCS10348606 START Purchase Order # SCS103486 Project Name: Plant Hammond DATE Required Project Information: Copy To. Geosyntec (GMOD=D BARD=D) **BAYT BIRMAS** MATRIX CODE (see valid codes to left) Report To: Section B Project #: MATRIX
Denking Water
Water
Water
Water
Product
SourSond
ON
Wipe
Att
Chree Georgia Power - Coal Combustion Residuals 2480 Marter Road ADDITIONAL COMMENTS One Character per box. (A-Z, 0-9 /, -) Sample lds must be unique Email jabraham@southemco.com Phone (404)506-7239 Fax SAMPLE ID コーコのいな Haw C-7 MW-20 Atlanta, GA 30339 なぎっぴ Phone: (404)506-7239 Requested Due Date: Required Client Information: Pace Analytical 9 ما 10 1 Ξ 12 Page 25 of 26 ILEM #

Carried St.				<u> </u>	I
. Pace Anal	tical Client Name:	GCA 1	Powere	Project #	
•			<u>.</u>		16121
	x UPS USPS Client	Commercial	Pace Other	<u> WO# : 26</u>	
Tracking #:	ooler/Box Present:  yes [	no Seele	intact: yes	PM: BM CLIENT: GAPOI	Due Date: 04/11/
				CETEM!: GHEO!	
	☐ Bubble Wrap ☐ Bubble Bag	. ا			P
Thermometer Use	A . D:	re of Ice: Wet	is Frozen: Yes No		ling process has begun s of person examining
Cooler Temperatu Temp should be abov		diogical rissue	Comments:	contents:	114/19 mg
Chain of Custody P		Yes ONo ON/A	I		
Chain of Custody F		Yes □No □N/A	<del> </del>		
Chain of Custody R		Mes □No □N/A			
Sampler Name & S		Nes □No □N/A	4.		
Samples Arrived wi		Nes □No □N/A	5.		
Short Hold Time A	nalysis (<72hr):	Yes ⊉No □N/A	6.		
Rush Turn Around	Time Requested:	Yes No ON/A	7.		
Sufficient Volume:	-6	Nes □No □N/A	8.		
Correct Containers	Used: ·⁺□	Nes □No □N/A	9.		
-Pace Containe	s Used:	Nes ONO ON/A			
Containers Intact:		hes Ono On/A	10.		
Filtered volume rec	eived for Dissolved tests	ves DNo .EN/A	11.		
Sample Labels mat	ch COC:	Nes □No □N/A	12.		
-Includes date/ti		W			
All containers needing	treservation have been checked.	hes Ono On/A	13.		
	preservation are found to be in	Nes □No □N/A			
compliance with EPA			Initial when	Lot # of added	
exceptions: VOA, colifo	m, TOC, O&G, WI-DRO (water)	Ives 2140	completed	preservative	
Samples checked f	er dechlorination:	l es ONO ONIA	14.		
Headspace in VOA	Vials ( >6mm):	lYes □No <□N/A	15.		
Trip Blank Present:		]tes □No ÐNĀ	16.		
Trip Blank Custody		]Yes □No ⊕N/A			
Pace Trip Blank Lo	(# (if purchased):				
Client Notification	/ Resolution:			Field Data Require	e? Y/N
Person Conf	tacted:	Date/	Time:		
Comments/ Reso	ution:				
		1			
		+		<u>                                     </u>	
		1			
Project Manage	r Review:	1		Date:	
Note: Whenever the	ne is a discrepancy affecting North Caro	lina compliance sa	mples, a copy of this fo	rm will be sent to the Nor	h Carolina DEHNR
Ondification Office (	aut of hold incorrect procentative o	of tomp incorred	t containers)	I	1

F-ALLC003rev.3, 11September2006 Page 26 of 26





March 25, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616161

# Dear Joju Abraham:

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

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

Sincerely,

Betsy McDaniel

Beton M Damil

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







# **CERTIFICATIONS**

Project: Plant Hammond

Pace Project No.: 2616161

**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



# **SAMPLE SUMMARY**

Project: Plant Hammond

Pace Project No.: 2616161

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



# **SAMPLE ANALYTE COUNT**

Project: Plant Hammond

Pace Project No.: 2616161

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



# **ANALYTICAL RESULTS**

Project: Plant Hammond

Pace Project No.: 2616161

Date: 03/25/2019 08:21 AM

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



# **ANALYTICAL RESULTS**

Project: Plant Hammond

Pace Project No.: 2616161

Date: 03/25/2019 08:21 AM

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



# **ANALYTICAL RESULTS**

Project: Plant Hammond

Pace Project No.: 2616161

Date: 03/25/2019 08:21 AM

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



Project:

Plant Hammond

Pace Project No.:

2616161

QC Batch: QC Batch Method: 24464

Analysis Method:

EPA 7470A

EPA 7470A

Analysis Description:

ND

7470 Mercury

Associated Lab Samples:

2616161001, 2616161002, 2616161003

METHOD BLANK: 109864 Associated Lab Samples:

Matrix: Water 2616161001, 2616161002, 2616161003

Blank

Reporting

Parameter

Units mg/L Result

Limit

0.00050

MDL

102

0.000036

Analyzed 03/19/19 14:39 Qualifiers

LABORATORY CONTROL SAMPLE:

Parameter

Date: 03/25/2019 08:21 AM

Parameter

109865

Spike Conc.

0.0025

LCS Result

LCS % Rec % Rec Limits

80-120

Qualifiers

Mercury

Mercury

Units

mg/L

Units

mg/L

Result

109867

MS

0.0026

MS

MSD

MSD

MS % Rec

MSD % Rec % Rec Limits

Max RPD RPD

Qual 20

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

109866

ND

2616120001 Spike

Spike Conc. Conc. 0.0025 0.0025

Result Result 0.0025 0.0025

101

102

75-125

Mercury

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.



Project: Plant Hammond

Pace Project No.: 2616161

QC Batch: 24594 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

Associated Lab Samples: 2616161001, 2616161002, 2616161003

METHOD BLANK: 110479 Matrix: Water

Associated Lab Samples: 2616161001, 2616161002, 2616161003

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

LABORATORT CONTROL SAMILEL. 110400	LABORATORY	CONTROL	SAMPLE:	110480
------------------------------------	------------	---------	---------	--------

Date: 03/25/2019 08:21 AM

110400					
	Spike	LCS	LCS	% Rec	
Units	Conc.	Result	% Rec	Limits	Qualifiers
mg/L	0.1	0.11	106	80-120	
mg/L	0.1	0.10	101	80-120	
mg/L	0.1	0.097	97	80-120	
mg/L	0.1	0.10	100	80-120	
mg/L	0.1	0.10	100	80-120	
mg/L	0.1	0.10	102	80-120	
mg/L	0.1	0.10	100	80-120	
mg/L	0.1	0.096	96	80-120	
mg/L	0.1	0.10	101	80-120	
mg/L	0.1	0.098	98	80-120	
mg/L	0.1	0.10	101	80-120	
mg/L	0.1	0.096	96	80-120	
	Units  mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/	Units         Spike Conc.           mg/L         0.1           mg/L         0.1	Units         Spike Conc.         LCS Result           mg/L         0.1         0.11           mg/L         0.1         0.097           mg/L         0.1         0.097           mg/L         0.1         0.10           mg/L         0.1         0.10           mg/L         0.1         0.10           mg/L         0.1         0.096           mg/L         0.1         0.098           mg/L         0.1         0.098           mg/L         0.1         0.10	Units         Spike Conc.         LCS Result         LCS % Rec           mg/L         0.1         0.11         106           mg/L         0.1         0.10         101           mg/L         0.1         0.097         97           mg/L         0.1         0.10         100           mg/L         0.1         0.10         100           mg/L         0.1         0.10         102           mg/L         0.1         0.10         100           mg/L         0.1         0.096         96           mg/L         0.1         0.10         101           mg/L         0.1         0.098         98           mg/L         0.1         0.10         101           mg/L         0.1         0.10         101	Units         Spike Conc.         LCS Result         LCS % Rec         LCS Limits           mg/L         0.1         0.11         106         80-120           mg/L         0.1         0.10         101         80-120           mg/L         0.1         0.097         97         80-120           mg/L         0.1         0.10         100         80-120           mg/L         0.1         0.10         100         80-120           mg/L         0.1         0.10         102         80-120           mg/L         0.1         0.10         100         80-120           mg/L         0.1         0.10         100         80-120           mg/L         0.1         0.096         96         80-120           mg/L         0.1         0.10         101         80-120           mg/L         0.1         0.098         98         80-120           mg/L         0.1         0.098         98         80-120           mg/L         0.1         0.10         101         80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 110481 110482												
		2616160006	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	% Rec	RPD		Qual
		_ <del></del> -										
Antimony	mg/L	ND	0.1	0.1	0.10	0.10	102	103	75-125	1	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.099	100	99	75-125	2	20	
Barium	mg/L	0.026	0.1	0.1	0.11	0.11	86	85	75-125	1	20	
Beryllium	mg/L	0.00017J	0.1	0.1	0.093	0.090	93	90	75-125	4	20	
Cadmium	mg/L	0.00058J	0.1	0.1	0.096	0.097	96	96	75-125	1	20	

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.



Project: Plant Hammond

Pace Project No.: 2616161

Date: 03/25/2019 08:21 AM

MATRIX SPIKE & MATRIX S	SPIKE DUPLIC	ATE: 11048	1		110482							
Parameter	Units	2616160006 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	0.099	99	99	75-125	0	20	
Cobalt	mg/L	0.0099J	0.1	0.1	0.11	0.10	96	95	75-125	2	20	
Lead	mg/L	ND	0.1	0.1	0.091	0.091	91	91	75-125	0	20	
Lithium	mg/L	0.0061J	0.1	0.1	0.098	0.095	91	89	75-125	3	20	
Molybdenum	mg/L	ND	0.1	0.1	0.093	0.094	93	94	75-125	1	20	
Selenium	mg/L	ND	0.1	0.1	0.10	0.10	103	103	75-125	0	20	
Thallium	mg/L	ND	0.1	0.1	0.091	0.092	91	92	75-125	1	20	

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.



Project:

Plant Hammond

Pace Project No.:

2616161

QC Batch:

24743

Analysis Method:

EPA 300.0

QC Batch Method: EPA 300.0 Analysis Description:

300.0 IC Anions

Associated Lab Samples:

2616161001, 2616161002, 2616161003

METHOD BLANK: 111327

Matrix: Water

Associated Lab Samples:

2616161001, 2616161002, 2616161003

Blank Result Reporting

Parameter

Units

Limit

MDL Analyzed Qualifiers

Fluoride

Fluoride

Fluoride

Fluoride

mg/L

Units

mg/L

2616160010

Result

ND

0.30

0.029

03/21/19 21:46

LABORATORY CONTROL SAMPLE:

Parameter

Spike Conc.

MS

Spike

Conc.

10

LCS Result

MSD

Spike

Conc.

10

LCS % Rec % Rec Limits

MS

% Rec

115

Qualifiers

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

111329

ND

111330

10.4

MS

Result

11.5

MSD

Result

11.2

104

MSD

% Rec

120

112

90-110

% Rec

Max RPD RPD Qual

15 M1

MATRIX SPIKE SAMPLE:

Date: 03/25/2019 08:21 AM

Parameter

111331

Parameter Units mg/L

Units

mg/L

2616160011 Result 1.6

10

Spike Conc. 10

MS Result

13.6

MS % Rec % Rec Limits

Limits

90-110

Qualifiers

90-110 M1

2

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.



### **QUALIFIERS**

Project: Plant Hammond

Pace Project No.: 2616161

### **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**

Date: 03/25/2019 08:21 AM

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



# **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2616161

Date: 03/25/2019 08:21 AM

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

(N/A) SAMPLE CONDITIONS ... Samples Intact Cooler (Y/N) ŏ Regulatory Agency State / Cocation (N/A) Received on Residual Chlorine (Y/N) 2 4.5 S TEMP IN C 8481 61/h//E 1300 2016 TIME 3/15/19/1129 DATE Signed: 3 14/9 3/14/19 15/19 DATE Cultate by 300.0 Metals (As, B, Co, Mo) <u>></u> betsy.modaniel@pacelabs.com, Radium 226/228 AHMAN PACE 7 ACCEPTED BY AFFULATION Fluorida by 300.0 scsinvoices@southernco.com slateM VI .qqA Pace Project Manager. betsy modaniel@ N/X feeT seevienA Kusk Other Methanol Na2S2O3 Preservatives HOSN 7 CHAIN-OF-CUSTODY /, The Chain-of-Custody is a LEGAL DC ЮН Invoice Information: EONH company Name: 1 (5, co 2/14/19 1848 下午日 200 Pace Quote: **₱OSZH** Section C 3/15/19 1129 Unpreserved SAMPLER NAME AND SIGNATURE # OF CONTAINERS W. C. This was Pinio Butter ष्ट Muka (Georgia Hilly) PRINT Name of SAMPLER: SAMPLE TEMP AT COLLECTION DATE SIGNATURE of SAMPLER: M Golnia 1120 Plylia 1141 C 3/4/4 0135 3/14/19 0946 P T WE 8 DATE COLLECTED Gecgnited RELINCATION BY LAFFILLATION Report To: Joju Abraham / Lauren Petty 1 Purchase Order #: SCS10348606 Project Name: Plant Hammond Project #: START Required Project Information: SAMPLE TYPE Man Malla 15 (see Alliid codes to left) **BOOD XIRTAM** Section B Copy To: MATRIX
Drinking Water
Water
Waste Water
Product
Soutiscid
Oil
Wape
All
Tissue Georgia Power - Coal Combustion Residuals (404)506-7239, Fax: 9 Date: Steel ADDITIONAL COMMENTS. One Character per box. (A-Z, 0-9 /, -). Sample ids must be unique Email: jabraham@southernco.com SAMPLE ID 45WC-1 MW-19 Atlanta, GA 30339 Required Client Information: Requested Due Date: Page 14 of 15 . . . # MBTI

**WO#:2616161** 

			Sam	ıple	Cond	lition	Upon Re	ceipt		40#	∷26	316161	L
Pace Anal	vtical"	Client	Name:	GA	Po	يص	<u> دن</u>	R	F	M: BM	•	Due Date:	-
•					·				(	LIENT	GAPo	er-CCR	
Courier:  Fed I	x 🗌 UPS	S 🗌 USP:	S Client	ф	Comm	ercial	Pace (	Other				e Date:	
Custody Seal on (	ooler/Box	Present:	☐ yes	V	no no	Seals	intact:	] yes		no	Proj. Na	me:	
Packing Material:	Bubble	e Wrap	☐ Bubble I	Bags		lone	Other		!				
Thermometer Use	d	Ø83		Туре	of Ice:	Wet	Blue No	ne		Samples	on ice, co	ling process has b	egun
Cooler Temperatu	re —	4.5	<del>о</del> с.	Biolo	gical 1	Tissue	: is Frozen: `	Yes No		Date	and Initia	s of person exam	ining
Temp should be above							Comments	:		COF	itents: <u>/ S</u>	15/19 JW	
Chain of Custody F	resent:			□ es	i □No	□n/a	1.						
Chain of Custody F	illed Out:			<b>D</b> es	i □No	□n/a	2.						
Chain of Custody F	l Relinquished	d:		□ es	No	□n/a	3.						
Sampler Name & S	ignature on	COC:		□ es	i □No	□n/a	4.						
Samples Arrived w	thin Hold T	ime:		<b>□</b> es	s □No	□N/A	5.						
Short Hold Time	nalysis (<	72hr):		□Yes	s DANo	□n/a	6.						
Rush Turn Around	d Time Rec	quested:		□Yes	s <b>⊠</b> No	□n/a	7.						
Sufficient Volume:				□ res	s 🗆 No	□n/a	8.						
Correct Containers	Used:			SZ ves	s 🗆 No	□n/a	9.						
-Pace Containe	rs Used:			☐ Yes	s □No	□n/a							
Containers Intact:				Ø ve:	s 🗆 No	□n/a	10.						
Filtered volume red	eived for D	issolved te	ests	□Yes	s 🗆 No	ØÑ/A	11.		İ				
Sample Labels ma	ch COC:			☑ e:	s 🗆 No	□n/a	12.						
-Includes date/t	  me/ID/Anal	lysis I	Matrix:	wt									
All containers needing	preservation	have been	checked.	₽Ve	s 🗆 No	□n/a	13.						
All containers needin	g preservatio	on are found	d to be in	DV.	s □No	□N/A							
compliance with EPA	recommend	lation.					Initial when			1 01 # 06	nddod		
exceptions: VOA, colifo	m, TOC, O&G	G, WI-DRO (v	vater)	□re	s 122No		Initial when completed			Lot # of a preserva			
Samples checked	or dechlorin	nation:		□/e:	s 🗆 No	<b>⊠</b> Ñ/A	14.						
Headspace in VOA	Vials ( >6n	nm):		□ Ye:	s 🗆 No	<b>⊠</b> N/A	15.						
Trip Blank Present				□re	s 🗆 No	DZN/A	16.						
Trip Blank Custody	Seals Pres	sent		□Ye	s 🗆 No	DN/A	1						j
Pace Trip Blank Lo	t # (if purch	nased):		, .									
Client Notification	/ Resolution	on:								Field Da	ta Require	d? Y /	N
Person Con	ĺ					Date/	Time:						
Comments/ Reso									į.				
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	<u>                                     </u>			$\perp$	<del></del>	······································	····						
						····							
Project Manage	r Review:									_ [	Date:		
Alata, Mikasa are										940 L			
Note: Whenever the	re is a discre	pancy affer	cung North C	aroma	complia	ance sai	mpies, a copy	or this fol	m w	ur de sent	to the Not	ın Carolina DEHNF	ς

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





April 02, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616168

# Dear Joju Abraham:

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

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

Sincerely,

Betsy McDaniel

Beton M Damil

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



(770)734-4200



### **CERTIFICATIONS**

Project: Plant Hammond

Pace Project No.: 2616168

### Pennsylvania Certification IDs

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

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

**Arkansas Certification** 

California Certification #: 04222CA Colorado Certification #: PA01547 Connecticut Certification #: PH-0694

**Delaware Certification** EPA Region 4 DW Rad

Florida/TNI Certification #: E87683 Georgia Certification #: C040

**Guam Certification** Hawaii Certification Idaho Certification Illinois Certification Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133 KY WW Permit #: KY0098221 KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012 Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082 Nebraska Certification #: NE-OS-29-14 Nevada Certification #: PA014572018-1 New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051 New Mexico Certification #: PA01457 New York/TNI Certification #: 10888 North Carolina Certification #: 42706 North Dakota Certification #: R-190 Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

South Dakota Certification Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3 Utah/TNI Certification #: PA014572017-9 USDA Soil Permit #: P330-17-00091 Vermont Dept. of Health: ID# VT-0282 Virgin Island/PADEP Certification Virginia/VELAP Certification #: 9526 Washington Certification #: C868 West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad Wyoming Certification #: 8TMS-L



# **SAMPLE SUMMARY**

Project: Plant Hammond

Pace Project No.: 2616168

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



# **SAMPLE ANALYTE COUNT**

Project: Plant Hammond

Pace Project No.: 2616168

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



Project: Plant Hammond

Pace Project No.: 2616168

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

PWS: Site ID: Sample Type:

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

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



Project: Plant Hammond

Pace Project No.: 2616168

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

PWS: Site ID: Sample Type:

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

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



Project: Plant Hammond

Pace Project No.: 2616168

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

PWS: Site ID: Sample Type:

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

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



### **QUALITY CONTROL - RADIOCHEMISTRY**

Project: Plant Hammond

Pace Project No.: 2616168

QC Batch: 334699 Analysis Method: EPA 9315

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

Associated Lab Samples: 2616168001, 2616168002, 2616168003

METHOD BLANK: 1628719 Matrix: Water

Associated Lab Samples: 2616168001, 2616168002, 2616168003

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-226
 0.248 ± 0.200 (0.320) C:97% T:NA
 pCi/L
 03/27/19 09:28

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



### **QUALITY CONTROL - RADIOCHEMISTRY**

Project: Plant Hammond

Pace Project No.: 2616168

QC Batch: 334690 Analysis Method: EPA 9320

QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616168001, 2616168002, 2616168003

METHOD BLANK: 1628696 Matrix: Water

Associated Lab Samples: 2616168001, 2616168002, 2616168003

Parameter Act ± Unc (MDC) Carr Trac Units Analyzed Qualifiers

Radium-228 0.646 ± 0.338 (0.565) C:74% T:86% pCi/L 03/27/19 16:14

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



### **QUALIFIERS**

Project: Plant Hammond
Pace Project No.: 2616168

### **DEFINITIONS**

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

**DUP - Sample Duplicate** 

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### **LABORATORIES**

Date: 04/02/2019 05:08 PM

PASI-PA Pace Analytical Services - Greensburg



# **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2616168

Date: 04/02/2019 05:08 PM

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

The Chain-of-Custody is a LEGAL DOC

CHAIN-OF-CUSTODY / A

Attention: scsinvoices@southemco.com

Report To: Joju Abraham / Lauren Petty

Georgia Power - Coal Combustion Residuals

equired Cilent Information:

Required Project Information:

Section B

10 - W

WO#: 2616168 invoice information:

SAMPLE CONDITIONS Regulatory Agency. State / Location Residual Chlorine (Y/N) 7 2 3/14/10 1840 3/14/19 2026 THE 15/19/1129 Requested Analysis Filtered (Y/N) DATE Sulfate by 300.0 Metals (As. B. Co. Mo) betsy.mcdaniel@pacelabs.com, Redium 226/228 accenter AHMAN > ACCEPTED BY / AFFILIATION Martie report ÑÃ 120T ReavisnA 327.4 (AP) or 328.5 (Huff) tertio lonsitieM **Preservatives** Na2S2O3 HORN Pace Project Manager HCI EONH Company Name: 3 21 /Cres 3/14/19 (848) 200 Pace Quote H2SO4 TIME Address: 3/15/19 1129 Unpreserved 9 # OF CONTAINERS <u>a</u> Ċ SAMPLE TEMP AT COLLECTION Malla Meter (George Hiller DATE Simile State T. Ξ END 7/14/19 DATE COLLECTED RELINGUISHED BY LAFFILLATION Mon Geographic C DIMINATE 1 wt Galacha was WIC 3/MIGHTON Purchase Order #: SCS10348606 Project Name: Plant Hammond START DATE SAMPLE TYPE (G-GRAB C-COMP) MATRIX CODE (see valid codes to left) Copy To: MATRIX
Delixing Warter
Waste Wester
Waste Wester
Product
SourSould
Oil
Wape
Wape
Tissue Parker (404)506-7239, Farc (404)506-7239, Farc (404)506-7239, Farc (404)506-7239, Farc (404) One Character per box.
(A-Z, 0-91, -)
Sample Ids must be unique ADDITIONAL COMMENTS jabraham@southemco.com SAMPLE ID +6wc-12 4W-19 2480 Maner Road Atlanta, GA 30339 <u>z</u> 3 2 3 9 9 10 # MaTI

(N/A) Semples Intact

> (Y/N) pelses

(N/A) Received on

PATE Signed: 3 14 19

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SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER:

Page 12 of 1B

2

TEMP IN C

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1300

31151

PACE



	San	ple	Conc	lition	Upon Receipt		WO#	:2	<b>616168</b>	
Face Anal	vtical Client Name:	G	A Po	wes	-ccr	:	PM: BM CLIENT:		Due Date: 04/12	19
Courier: Fed E	x UPS USPS Clien	, ‡	Comm	ercial	Pace Other Courier	-	F	mj. Di	ie Date:	
Custody Seal on C	ooler/Box Present:	Q <sup>*</sup>	no	Seals	intact:		no 🗓	ioj. įve		
Packing Material:	☐ Bubble Wrap ☐ Bubble	Bags	<b>☑</b> N	lone	Other					
Thermometer Use	d <i>Ø</i> 83	Тур	e of Ice:	Wet	Blue None		Samples on	ice, co	oling process has begun	
Cooler Temperatu Temp should be abov		Biol	ogical 1	Tissue	is Frozen: Yes No Comments:				s of person examining	
Chain of Custody P		DV6	s 🗆 No	□n/a	ſ	<del> </del>				
Chain of Custody F			s 🗆 No		· · · · · · · · · · · · · · · · · · ·					
Chain of Custody R		$\neg \neg$	s 🗆 No							
Sampler Name & S			s 🗆 No							
Samples Arrived wi	thin Hold Time:		s 🗆 No							
Short Hold Time A	nalysis (<72hr):	□ve	s Dario	□n/a	6.					
Rush Turn Around	Time Requested:		s 🖾 No							
Sufficient Volume:			s 🗆 No	□n/a	8.	1				
Correct Containers	Used:	<b>⊠</b>	s 🗆 No	□n/a	9.					
-Pace Container	s Used:		s 🗆 No	□n/a		:				
Containers Intact:		<b>12</b> %	s 🗆 No	□n/a	10.					
Filtered volume rec	pived for Dissolved tests	□ve	s 🗆 No	ØÑ/A	11.					
Sample Labels mate	ch COC:	ŒΝe	s 🗆 No	□n/a	12.					
-Includes date/til	me/ID/Analysis Matrix:	<u> </u>								
All containers needing [	preservation have been checked.	<b>52</b> √e	s 🗆 No	□n/a	13.					
All containers needing compliance with EPA	preservation are found to be in ecommendation.	Ω⁄γ <sub>e</sub>	s 🗆 No					<u>.</u>		
exceptions: VOA, colifor	m, TOC, O&G, WI-DRO (water)	□Ye	s 12No		Initial when completed		Lot # of adde preservative			
Samples checked fo	r dechlorination:	□Ye	s 🗆 No	₩A	14.					
Headspace in VOA	Vials ( >6mm):	□Ye	s 🗆 No	<b>⊠</b> N/A	15.					
Trip Blank Present:			s 🗆 No	DEN/A	16.					
Trip Blank Custody	Seals Present		s 🗆 No	DA/A						
Pace Trip Blank Lot	# (if purchased):									
Client Notification	Resolution:						Field Data R	equired	? Y / N	
Person Conta	acted:			Date/1	Time:					
	ution:			-						
		_								
		_								
		$\dashv$	<del>_</del> .							
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		$\dashv$				-				
Project Manager	Review:						Date	e:		
Motor Mihanassa its	la adia and a second									
vote: vvnenever there Certification Office (i.e	is a discrepancy affecting North Ca out of hold, incorrect preservative,	rolina out of	compliar f temp, in	nce sam ncorrect	ples, a copy of this for containers)	n will	be sent to th	e North	Carolina DEHNR Page 13 of 1	lβ





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

Eben Bustanan

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







# **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





# **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



# **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



# **ANALYTICAL RESULTS**

Project: Plant Hammond

Pace Project No.: 2616230

Date: 03/25/2019 07:53 PM

Sample: FB-02	Lab ID:	2616230001	Collecte	ed: 03/15/19	14:50	Received: 03/	18/19 12:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 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 Pre	paration Met	hod: EF	PA 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	



Plant Hammond Project:

Pace Project No.: 2616230

METHOD BLANK: 112752

QC Batch: 24983 QC Batch Method:

EPA 7470A

Associated Lab Samples: 2616230001 Analysis Method:

EPA 7470A

Analysis Description:

7470 Mercury

Matrix: Water

ND

Associated Lab Samples: 2616230001

mg/L

Units

mg/L

Reporting

Blank Parameter Units Result

Limit 0.00050 MDL 0.000036

94

Analyzed

03/25/19 12:52

Qualifiers

LABORATORY CONTROL SAMPLE:

Parameter

Parameter

Date: 03/25/2019 07:53 PM

Spike Conc.

LCS Result

LCS % Rec % Rec Limits

Qualifiers

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

112754

112755

MS

0.0023

MS MSD

MSD Result

MSD % Rec % Rec

80-120

% Rec Limits

Max RPD

RPD

Spike

0.0025

Spike Conc.

Qual 20

Mercury

Mercury

Mercury

Units Result ND mg/L

2616228001

Conc. 0.0025 0.0025

Result 0.0023 0.0024

92

MS

95

75-125

3

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.



Project: Plant Hammond

Pace Project No.: 2616230

Date: 03/25/2019 07:53 PM

QC Batch: 24707 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

Associated Lab Samples: 2616230001

METHOD BLANK: 111121 Matrix: Water

Associated Lab Samples: 2616230001

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

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
ntimony	mg/L	0.1	0.11	107	80-120	
rsenic	mg/L	0.1	0.10	104	80-120	
arium	mg/L	0.1	0.10	103	80-120	
eryllium	mg/L	0.1	0.099	99	80-120	
oron	mg/L	1	1.0	100	80-120	
admium	mg/L	0.1	0.10	105	80-120	
hromium	mg/L	0.1	0.11	106	80-120	
obalt	mg/L	0.1	0.10	100	80-120	
ead	mg/L	0.1	0.10	101	80-120	
ithium	mg/L	0.1	0.10	101	80-120	
lolybdenum	mg/L	0.1	0.11	108	80-120	
elenium	mg/L	0.1	0.10	105	80-120	
hallium	mg/L	0.1	0.10	100	80-120	

MATRIX SPIKE & MATRIX S	SPIKE DUPLIC	CATE: 111123	3		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.



Project: Plant Hammond

Pace Project No.: 2616230

Date: 03/25/2019 07:53 PM

MATRIX SPIKE & MATRIX S	SPIKE DUPLICA	ATE: 111123	3		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.



Project:

Plant Hammond

Pace Project No.:

2616230

QC Batch:

24985

QC Batch Method:

EPA 300.0

Analysis Method:

EPA 300.0

Analysis Description:

Matrix: Water

300.0 IC Anions

Associated Lab Samples: METHOD BLANK: 112760

2616230001

Associated Lab Samples: 2616230001

Parameter

Blank Result Reporting

Limit

MDL

Analyzed

Qualifiers

Fluoride Sulfate

mg/L mg/L

Units

Units

ND ND 0.30 1.0 0.029 0.017 03/24/19 14:11 03/24/19 14:11

LABORATORY CONTROL SAMPLE:

Parameter

112761

Spike Conc.

LCS LCS Result % Rec % Rec Limits

Qualifiers

Fluoride Sulfate

mg/L mg/L

Units

mg/L

mg/L

10 10 9.9 9.4 99 94 90-110 90-110

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

112762

10

10

112763

28.9

95

72

Parameter

Fluoride

Sulfate

2616191001

ND

22.0

Result

MSD MS Spike Spike Conc. Conc.

10

10

MS Result

MSD Result 9.0 9.5

29.2

MS MSD % Rec % Rec 90

69

% Rec Limits 90-110

**RPD** RPD

5 15 90-110 15 M1

Max

Qual

Date: 03/25/2019 07:53 PM

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.



### **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**

Date: 03/25/2019 07:53 PM

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



# **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2616230

Date: 03/25/2019 07:53 PM

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.

Section A	· · · · · · · · · · · · · · · · · · ·	Section B	1	j	į				Š	Section C	j	į											;	-	.   7		Г	
Company	Georgia Power - Coal Combustion Residuals	-	j j	Abrahar	Join Abraham / Lauren Petty	n Petty			Į	Attention: Scsin	2 S	invoic	scsinvoices@southemco.com	outhe	188	Ę				_		2			5		]	
Address:	2480 Maner Road	1 1	8	Geosyntec					క	Company Name:	Мате																ſ	
									Αď	Address:										4	*	R	Regulatory Agency	YAgent				
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Custody Seal on	Cooler/Box Present: yes	no Seals	intact:	PM: BM  CLIENT: GAP	
Packing Material:	☐ Bubble Wrap ☐ Bubble Bag			1 0	
Thermometer Use		pe of Ice: Wet	Blue None	Samples on ice, co	pling process has begun
Cooler Temperati	ire 4.2 Bi	ological Tissue	is Frozen: Yes No		s of person examining
Temp should be abou	ve freezing to 6°C		Comments:	contents:	3/18/19 mg
Chain of Custody R	resent:	Yes □No □N/A	1.		
Chain of Custody F	filled Out:	Yes □No □N/A	2.		
Chain of Custody F		es □No □N/A	 [		
Sampler Name & S		es □No □N/A			
Samples Arrived w		res 🗆 No 🗆 N/A			
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Rush Turn Aroun	d Time Requested:	res Dino □n/A	7.		
Sufficient Volume:	B	res □no □n/A	8.		
Correct Containers	Used:	es □No □N/A	9.		
-Pace Containe	rs Used: +17	Yes □No □N/A			
Containers Intact:	,e	es □No □N/A	10.		
Filtered volume red	eived for Dissolved tests	′es □No ☑N/A	11.		
Sample Labels ma	tch COC:	reš □No □N/A	12.		
-Includes date/t		W			
All containers needing	preservation have been checked.	res □no □n/a	13.		
All containers needin	g preservation are found to be in recommendation.	res 🗆 No 🗆 N/A			
exceptions: VOA, colifo	ım, TOC, O&G, WI-DRO (water)	res 🗆 No	Initial when completed	Lot # of added preservative	
Samples checked t	for dechlorination:	Yes □No -21N/A	14.		
Headspace in VOA	Vials ( >6mm): □	Yes □No ,□N/Ā	15.		
Trip Blank Present		Yes □No ☑N/A	16.		
Trip Blank Custody	Seals Present	Yes ONO ANIA			
Pace Trip Blank Lo	t # (if purchased):				
Client Notification	/ Resolution:			Field Data Required	1? Y / N
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Project Manage	r Review:			Date:	
	re is a discrepancy affecting North Caroli be out of hold, incorrect preservative, ou			rm will be sent to the Nort	h Carolina DEHNR

F-ALLC003rev.3, 11September 2008 of 13





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

Beton M Damil

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



(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





# **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



# **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



Project: Plant Hammond

Pace Project No.: 2616231

Sample: FB-02 PWS:	<b>Lab ID: 26162310</b> Site ID:	O1 Collected: 03/15/19 14:50 Sample Type:	Received:	03/18/19 12:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.285 ± 0.233 (0.397) C:91% T:NA	pCi/L	03/27/19 08:15	13982-63-3	
Radium-228		0.313 ± 0.326 (0.671) C:70% T:84%	pCi/L	03/29/19 14:37	7 15262-20-1	
Total Radium	Total Radium Calculation	$0.598 \pm 0.559  (1.07)$	pCi/L	04/02/19 13:34	1 7440-14-4	



# **QUALITY CONTROL - RADIOCHEMISTRY**

EPA 9320

Project: Plant Hammond

Pace Project No.: 2616231

QC Batch: 334703

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

Analysis Method:

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.



### **QUALITY CONTROL - RADIOCHEMISTRY**

EPA 9315

Project: Plant Hammond

Pace Project No.: 2616231

QC Batch: 334701

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

Analysis Method:

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.



### **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**

Date: 04/10/2019 05:20 PM

PASI-PA Pace Analytical Services - Greensburg



# **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2616231

Date: 04/10/2019 05:20 PM

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.

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Company	Required Client Information: Company: Georgia Power - Coal Combustion Residuals	Report To:	ğ	Agra	ham / Le	Joju Abraham / Lauren Petty	E			Attention:	dion:	Scsin	voices	scsinvoices@southemco.com	therno	0.00			$ \  $	П								1	
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Page						SAM	RINT No	SAMPLER NAME AND SIGNATU PRINT Name of SAMPLER:	SIGNA	1948		aelia	2	936	Smasn	ر					32.23		MP in C	no bevied	N)	led heto		4	
10 of 1						S	KGNATU	SIGNATURE OF SAMPLER	MPLE	7	pelia		Markers	3		_	DATE	DATE Signed:		3115		0	(31		(A) (A)	208	162 Bird 1(Y)		
1										<b> </b>																			

Face Analy			Opon Receipt		
/ docreally	<i>rtical</i> Client Name:	GLA 1	ower	Project #	
Courier:  Fed E	Ex ☐ UPS ☐ USPS ☐ Client Æ	Commercial	☐ Pace Other		2616231
Custody Seal on C	Cooler/Box Present:  yes	no Seals i	intact: yes	PM: BM	Due Date: 04/15/1 APower-CCR
Packing Material:	☐ Bubble Wrap ☐ Bubble Bag	None [	Other	OLILITI. O	Hrower-Cor
Thermometer Use		e of Ice: Wel		□ Samples on i	ce, cooling process has begun
Cooler Temperatu	16.2	_	is Frozen: Yes No		Initials of person examining
Temp should be above			Comments:	conten	ts: 3/18/19 MD
Chain of Custody P	resent:	es No N/A	1.		
Chain of Custody F	illed Out:	es 🗆 No 🗆 N/A	2.		
Chain of Custody R	telinquished:	es □no □n/A	3.		
Sampler Name & S	ignature on COC:	es 🗆 No 🗆 N/A	4.		
Samples Arrived wi	Ithin Hold Time:	es 🗆 No 🗆 N/A	5.		
Short Hold Time A	nalysis (<72hr):	res ⊠No □N/A	6.		
Rush Turn Around	Time Requested:	Yes ☑No □N/A	7.		
Sufficient Volume:	<u>a</u>	es Ono On/A	8.		
Correct Containers	Used:	es 🗆 No 🗆 N/A	9.		
-Pace Container	់ rs Used: •ជីវ	Yes □No □N/A			
Containers Intact:	<del></del>	Yes □No □N/A	10.		
		res □No ☑N/A			
Sample Labels mat	-	res ⊡No ⊡N/A	12.		
-Includes date/ti		W			
	preservation have been checked	Yes □No □N/A	13.		
All containers needing	a presentation are found to be in	_			
compliance with EPA	T'	Yes □No □N/A		1	
exceptions: VOA, colife	rm, TOC, O&G, WI-DRO (water)	Yes UNo	Initial when completed	Lot # of add preservative	I E
Samples checked f		Yes □No ☑N/A	14.		
Headspace in VOA	Vials ( >6mm):	Yes □No ,□N/Ā	15.		
Trip Blank Present		Yes Ono ON/A			
Trip Blank Custody		Yes ONO DIVA			
Pace Trip Blank Lo	i				
			,		
Client Notification	I	0-1-	Ti	Field Data F	Required? Y / N
i	tacted:		Time:		
Comments/ Reso					
				i	
1					
				<b>D</b> -	<u></u>
Project Manag	er Review:			Dat	(e;
Note: Whenever the	re is a discrepancy affecting North Caro	ina compliance sa	mples, a copy of this f	orm will be sent to	the North Carolina DEHNR

F-ALLCO03rev.3, 11September2006 of 1





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

Beton M Damil

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







# **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





# **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



# **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



# **ANALYTICAL RESULTS**

Project: Plant Hammond

Pace Project No.: 2616885

Date: 04/09/2019 02:37 PM

Sample: HGWA-3	Lab ID:	2616885001	Collecte	ed: 04/01/19	17:25	Received: 04/	02/19 11:30 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 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 2	540C						
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



Project: Plant Hammond

Pace Project No.: 2616885

Parameter

Date: 04/09/2019 02:37 PM

Antimony

Units

mg/L

Result

ND

Conc.

0.1

QC Batch: 25905 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

Associated Lab Samples: 2616885001

METHOD BLANK: 116813 Matrix: Water

Associated Lab Samples: 2616885001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	04/08/19 18:23	
Arsenic	mg/L	ND	0.0050	0.00057	04/08/19 18:23	
Barium	mg/L	ND	0.010	0.00078	04/08/19 18:23	
Beryllium	mg/L	ND	0.0030	0.000050	04/08/19 18:23	
Boron	mg/L	ND	0.040	0.0039	04/08/19 18:23	
Cadmium	mg/L	ND	0.0010	0.000093	04/08/19 18:23	
Calcium	mg/L	ND	0.50	0.014	04/08/19 18:23	
Chromium	mg/L	ND	0.010	0.0016	04/08/19 18:23	
Cobalt	mg/L	ND	0.010	0.00052	04/08/19 18:23	
Lead	mg/L	ND	0.0050	0.00027	04/08/19 18:23	
Lithium	mg/L	ND	0.050	0.00097	04/08/19 18:23	
Molybdenum	mg/L	ND	0.010	0.0019	04/08/19 18:23	
Selenium	mg/L	ND	0.010	0.0014	04/08/19 18:23	
Thallium	mg/L	ND	0.0010	0.00014	04/08/19 18:23	

LABORATORY CONTROL SAMPLE:	116814	Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% 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 DU	PLICATE: 11681		116816 MSD	3		
	2616901004		Spike MS	MSD	MS MS	D % Rec M

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.

0.1

Result

0.11

Result

0.11

% Rec

110

% Rec

107

Limits

75-125

RPD RPD

3 20

Conc.

# **REPORT OF LABORATORY ANALYSIS**

Qual



Project: Plant Hammond

Pace Project No.: 2616885

Date: 04/09/2019 02:37 PM

MATRIX SPIKE & MATRIX S	SPIKE DUPLIC	ATE: 11681	5		116816							
			MS	MSD								
		2616901004	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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	

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.



Project:

Associated Lab Samples:

Plant Hammond

Pace Project No.:

2616885

QC Batch:

25772

QC Batch Method:

SM 2540C

2616885001

Analysis Method:

SM 2540C

Analysis Description:

2540C Total Dissolved Solids

LABORATORY CONTROL SAMPLE:

Parameter

Spike

LCS

LCS

% Rec

Limits

Qualifiers

**Total Dissolved Solids** 

Units mg/L Conc. 400 Result 403 % Rec 101

SAMPLE DUPLICATE: 116266

Units

2616783001 Result

Dup Result

RPD

Max RPD

84-108

Qualifiers

Parameter **Total Dissolved Solids** 

Date: 04/09/2019 02:37 PM

mg/L

87.0

115

28

10 D6

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



Project: Plant Hammond

Pace Project No.: 2616885

QC Batch: 25881 QC Batch Method: EPA 300.0

2171000.0

Analysis Method:

EPA 300.0

Analysis Description: 300.0 IC Anions

Associated Lab Samples: 2616885001

METHOD BLANK: 116727

Date: 04/09/2019 02:37 PM

Matrix: Water

Associated Lab Samples: 2616885001

		Blank	Reporting			
Parameter	Units	Result	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	

Chloride	mg/L	10	10.3	103	90-110	222/11010
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
		Spike	LCS	LCS	% Rec	
LABORATORY CONTROL SAMPLE:	116728					

Fluoride mg/L 10 10.3 103 90-110
Sulfate mg/L 10 10.1 101 90-110

MATRIX SPIKE & MATRIX SPI	KE DUPLIC	ATE: 116729	9		116730							
			MS	MSD								
		2616881001	Spike	Spike	MS	MSD	MS	MSD	% Rec	N	Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD R	≀PD	Qual
Chloride	mg/L	4.0	10	10	13.8	13.7	99	97	90-110	1	15	

Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qua
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						
		2616885001	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% 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.



### **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**

Date: 04/09/2019 02:37 PM

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.



# **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2616885

Date: 04/09/2019 02:37 PM

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		

Pace Anabrical

# CHAIN-OF-CUSTODY / Analytical Request Document

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

(V/V) Samples (N/A) ŏ Cooler Sealed (possng (N/A) MO#:2616885 80 B Received on Residual Chlorine (Y/V) TEMP in C 4/2/19/0930 9501 <u>a</u> I Radium 226/228 (200 DATE Signed: 108, Cl. F, SO4 betsy modaniel@pacetabs.com (O.80 & III .qqA) sisteM Mets (App. III, App. IV, D&O Parle Vetals (App. III & App. IV) deeT seavisnA **MIX** vuention: sosirvoices@southernco.com Company Name: 7 05 ENS 327 (AP) or 328 (Huff) lonerieM SIGNATURE OF SAMPLER: MELLIC MINN MAN Preservatives ROZSZEN HOBN Q Pace Quote:
Pace Project Manager:
Pace Profile #: 327 (4) HCI involce information: PRINT Name of SAMPLER: NOE / A <u>ন</u> EONH HS2O4 Section C 1036 Address: Unpreserved # OF CONTAINERS Q SAMPLE TEMP AT COLLECTION T 28 M/1/4851 TIME 2 DATE COLLECTED 500 TIME Lauren Petty, Geosyntec Purchase Order #: SC\$10348606 Project Name: Plant Hammond Project #: dia Muhn START <u>র</u> ই DATE Required Project Information: SAMPLE TYPE (G-GRAS C-COMP) andos MATRIX CODE (see valid codes to left) Report To: Copy To: Apoendik IV (1): Infimony, Amenic, Ban Benjimm, Codmium, Chromium, Cobalt, Hund MATRIX
Delinking Water
Points
Product
Product
Product
Out
Wips
Cut within , Moly Adenim , Selenium, Thalism Georgia Power - Coal Combustion Residuals 2480 Maner Road One Character per box.
(A-Z, 0-9 /, -)
Sample Ids must be unique Phone: (404)506-7239 Fax Requested Due Date: 2 And and SAMPLE ID Email: \_\_jabraham@southemco.com Required Client Information: ا ج ا Allanta, GA 30339 É Page 12 of 1B ITEM #

	Sample	≘ Conditio	n Upon Receipt		
Face Anal			Power	Project #	
· Courier:  Fed E Tracking #:	x UPS USPS Client [	· ·	•	WO# : 26	616885
Custody Seal on C	ooler/Box Present:	no Seals	s intact:  yes	PM: BM CLIENT: GAPOI	Due Date: 04/09/
Packing Material:	☐ Bubble Wrap ☐ Bubble Bags	None	Other	COLIENT: CAPO	ier-cck
Thermometer Use		e of Ice: We	Blue None	Samples on ice, coo	ling/process has begun
Cooler Temperatul Temp should be above		logical Tissue	is Frozen: Yes No Comments:	Date and Initial; contents:	of per≲on examining
Chain of Custody Pr	esent:	y es □no □n/a	1.		
Chain of Custody Fi		s DNo DN/A			
Chain of Custody Re	J	s 🗆 No 🗆 N/A	†		
Sampler Name & Si		S DNO DN/A	<del></del>		
Samples Arrived wit		s 🗆 No 🗆 N/A	† <del></del>		
Short Hold Time Ar		s ⊠No □N/A			
Rush Turn Around		s ONO ON/A			
Sufficient Volume:		S DNO DN/A			
Correct Containers (		s □No □N/A		<del>                                     </del>	
-Pace Containers		S DNo DN/A	J <del>5</del> .		
Containers Intact:		s ONO ON/A	10		
Filtered volume recei		s ONO PONIA			
Sample Labels matc		s DNo DN/A			
-Includes date/tim	-	$\ddot{\omega}$	12.		
All containers needing pr	eservation have been checked	P□No □N/A	40		
All containers needing poonpliance with EPA re	preservation are found to be in	NO DN/A	13.		
exceptions: VOA, coliform	, TOC, O&G, WI-DRO (water) □Ye	1 7 7 1	Initial when completed	Lot # of added preservative	
Samples checked for	dechlorination: □Ye	No DMA	14.		
Headspace in VOA V	ials ( >6mm): □Yer	□No DANA	15.		
Trip Blank Present:	□Ye	□No ÆN/A	16.		
Trip Blank Custody S	eals Present	□No ĐN/A			
Pace Trip Blank Lot #	(if purchased):				
Client Notification/	Resolution:			Field Date Barrier 40	
Person Contac		Date/T	ime <sup>.</sup>	Field Data Required?	Y / N
Comments/ Resolu	ion:				
Project Manager F	Review:			Date:	
Note: Whenever there i Certification Office ( i.e	s a discrepancy affecting North Carolina out of hold, incorrect preservative, out of	compliance sam temp, incorrect	ples, a copy of this form containers)	will be sent to the North C	arolina DEHNR





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

Beton M Damil

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



(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 Montana Certification #: Cert0082 Nebraska Certification #: NE-OS-29-14 Nevada Certification #: PA014572018-1 New Hampshire/TNI Certification #: 297617 New Jersey/TNI Certification #: PA051

New Jersey FNI Certification #: PA05 New Mexico Certification #: PA01457 New York/TNI Certification #: 10888 North Carolina Certification #: 42706 North Dakota Certification #: R-190 Ohio EPA Rad Approval: #41249

Missouri Certification #: 235

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





# **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



# **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	



# **ANALYTICAL RESULTS - RADIOCHEMISTRY**

Project: Plant Hammond Pace Project No.: 2616886

Calculation

<b>Sample: HGWA-3</b> PWS:	<b>Lab ID: 26168</b> Site ID:	86001 Collected: 04/01/19 17:25 Sample Type:	Received:	04/02/19 11:30	Matrix: Water	
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	4 13982-63-3	
Radium-228	EPA 9320	0.372 ± 0.422 (0.887) C:75% T:83%	pCi/L	04/16/19 16:2	1 15262-20-1	
Total Radium	Total Radium	0.760 ± 0.683 (1.27)	pCi/L	04/17/19 13:1	5 7440-14-4	



### **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.



### **QUALITY CONTROL - RADIOCHEMISTRY**

EPA 9315

Project: Plant Hammond

Pace Project No.: 2616886

QC Batch: 337391

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

Analysis Method:

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.



### **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**

Date: 04/25/2019 04:14 PM

PASI-PA Pace Analytical Services - Greensburg



# **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2616886

Date: 04/25/2019 04:14 PM

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		

Pace Analytical

# CHAIN-OF-CUSTODY / Analytical Request Document

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

(N/A) utsa Sambles Section ( Section ( ) Alberta ( ) (N/A) Cooler ŏ pelees Custody (N/A) WO#:2616886 Received on Residual Chlorine (Y/V) Page: TEMP IN C 20 4/2/19/09:30 950 6 119 T 120 Redium 226/228 DATE Signed: TDS, CI, F, SO4 (O&C & III .qqA) elstaM betsy.mcdaniel@pacelabs.com monn O&G ,VI .qqA ,III .qqA) staN Pere F(VI .qqA & III .qqA) sleteM ENK Jeel AesylenA Attention: scsinvoices@southernco.com Company Name: Plussus 327 (AP) or 328 (Huff) SIGNATURE OF SAMPLER: Madig My MIND lonshieM Preservatives ROSSZBN Q HOBN Pace Quote: Pace Project Manager: Pace Profile #: 327 (A ЮН Invoice Information: PRINT Name of SAMPLER: NOE / A A **ЕО**ИН HS204 でなっ Section C Address: B Devieserdau S OF CONTAINERS B 5/7/ SAMPLE TEMP AT COLLECTION 村 25 120 1/1/2 St 12/1/2 EN D DATE COLLECTED 200 : lahun/ (200 RELINDUSKED BY LAFFLUKTON TIME Report To: Joju Abraham Copy To: Lauren Petty, Geosyntec Purchase Order #. SCS10348606 man START Plant Hammond Required Project Information: Notia M arsox (G=GRAB C=COMP) **34YT 3J4MA2** 5 Project Name: Project #: 3 MATRIX CODE (see valid codes to left) Section B Beaglion, Codmium, Chromium, Cobalt, Hund Apoendik IV (1): Intimony, Arenic .Baw MATRIX
Direxing Water
Water
Waste Water
Waste Water
Product
SoluPoid
Oil
Wipe
Ant
Other
Tissue athiom, Holy Adenum, Selenium, Thalism Georgia Power - Coal Combustion Residuals TAT (A.Z, 0-9 /, -) Sample Ids must be unique One Character per box. Phone: (404)506-7239 Fax Requested Due Date: 3 and and SAMPLE ID Eneit | jabraham@southemoo.com 2480 Maner Road するのよ Required Client Information: Allanta, GA 30339 Page 10 of 1 # WBTI

	Jan	213	Contai	tion.	opon necespe	1		
Pace Analy	<i>rtical</i> Client Name:	:	611	4	Power		Project #	
Courier:  Fed E	x 🛘 UPS 🔲 USPS 🔲 Clier				•	-		<b>516886</b>
	poler/Box Present:		20 5	Saala	intact: yes		PM: BM CLIENT: GAP	Due Date: 04/30
	<del>-</del>				•	-	CETEMI: OHLO	Mer-con
Thermometer Use	☐ Bubble Wrap ☐ Bubble				,			
			•	•	Blue None is Frozen: Yes No			ing/process has begun
Temp should be above		Bigit	yicai ii	SSUE	Comments:		contents:	
Chain of Custody P		ZY es	. □No	□n/a		╁		
Chain of Custody Fi			No					
Chain of Custody R					· -			
Sampler Name & Si			? □No			Ħ		
Samples Arrived wi	hin Hold Time:		No			İ	·	
Short Hold Time A	nalysis (<72hr):		EN6 <sup>7</sup>					
Rush Turn Around	Time Requested:	□Yes	<u>□</u> 4√0	□n/a	7.			
Sufficient Volume:		-ETY :	□No	□n/a	8.		:	
Correct Containers	Jsed:	-EY65	□No	□n/a	9.		:	
-Pace Container	Used:	-EYE	□No	□n/a				
Containers Intact:		.⊒Yes	□No	□n/a	10.			
Filtered volume rece	ived for Dissolved tests	□Y∌s	□No -	EJN/A	11.		i	
Sample Labels mate	h COC:		□No	□n/a	12.			
-Includes date/tir	ne/ID/Analysis Matrix:		$\omega$					
All containers needing (	reservation have been checked.	ETY es	PONo.	□n/a	13.			
All containers needing compliance with EPA t	preservation are found to be in ecommendation.		□No	□n/a				
exceptions: VOA, colifor	n, TOC, O&G, WI-DRO (water)	□Yes	No		Initial when completed		Lot # of added preservative	
Samples checked for	r dechlorination:	□Yes	□No		14.		:	
Headspace in VOA	Vials ( >6mm):	□Yes	□No	DN/A	15.		İ	
Trip Blank Present:		□Yes	. □No .	ØN/A	16.			
Trip Blank Custody	Seals Present	□Yes	□No -	EN/A				]
Pace Trip Blank Lot	# (if purchased):							
Client Notification/	Resolution:					<del> </del>	Field Data Required	? Y / N
Person Conta	icted:			Date/	Time:			
Comments/ Resol	ution:							
				_		<u> </u>		
		-				<del> </del>		
						<del> </del>		
Project Manager	Review:						Date:	
Note: Whenever there	is a discrepancy affecting North C					n wi	· · · · · · · · · · · · · · · · · · ·	Carolina DEHNR

F-ALLC003rev.3, 11September2006 Page 11 of 11





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

Beton M Damil

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







# **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



# **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



# **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



Date: 04/10/2019 04:36 PM

# **ANALYTICAL RESULTS**

Project: Plant Hammond
Pace Project No.: 2616925

Sample: HGWA-1	Lab ID:	2616925001	Collecte	ed: 04/02/19	10:02	Received: 04/	03/19 11:10 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 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 2	540C						
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	



# **ANALYTICAL RESULTS**

Project: Plant Hammond

Pace Project No.: 2616925

Date: 04/10/2019 04:36 PM

Sample: HGWA-2	Lab ID:	2616925002	Collected: 04/02/19 13:40			Received: 04/03/19 11:10 Matrix: Water			
		Report							
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 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 2	540C						
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	



Project: Plant Hammond

Pace Project No.: 2616925

Antimony

Date: 04/10/2019 04:36 PM

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	Parameter Units		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		

_		Spike	LCS	LCS	% Rec		
Parameter	Units	Conc.	Result	% 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: 1168	15	116816				
		MS	MSD				
	2616901004	l Spike	Spike MS	MSD	MS MS	SD % Rec	Max
Parameter	Units Result	Conc.	Conc. Result	Result	% Rec % F	Rec Limits	RPD RPD

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.

0.1

0.11

0.11

110

107

75-125

3 20

ND

mg/L

0.1



Project: Plant Hammond

Pace Project No.: 2616925

Date: 04/10/2019 04:36 PM

MATRIX SPIKE & MATRIX S	SPIKE DUPLIC	ATE: 116815	5		116816							
			MS	MSD								
		2616901004	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Arsenic	mg/L	ND ND	0.1	0.1	0.10	0.10	103	102	75-125	1	20	
Barium	mg/L	0.027	0.1	0.1	0.13	0.13	105	100	75-125	4	20	
Beryllium	mg/L	0.00015J	0.1	0.1	0.10	0.10	100	100	75-125	0	20	
Boron	mg/L	0.63	1	1	1.6	1.6	102	101	75-125	0	20	
Cadmium	mg/L	ND	0.1	0.1	0.11	0.10	105	105	75-125	0	20	
Calcium	mg/L	11.9J	1	1	13.1J	17.2J	129	532	75-125	27	20	M6,R1
Chromium	mg/L	0.0030J	0.1	0.1	0.11	0.11	106	106	75-125	0	20	
Cobalt	mg/L	0.0022J	0.1	0.1	0.11	0.10	103	101	75-125	2	20	
Lead	mg/L	ND	0.1	0.1	0.10	0.10	102	101	75-125	0	20	
Lithium	mg/L	ND	0.1	0.1	0.10	0.10	102	100	75-125	2	20	
Molybdenum	mg/L	ND	0.1	0.1	0.11	0.10	107	103	75-125	4	20	
Selenium	mg/L	ND	0.1	0.1	0.10	0.10	101	100	75-125	1	20	
Thallium	mg/L	ND	0.1	0.1	0.10	0.10	103	102	75-125	1	20	

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



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: Parameter

Spike LCS

226

LCS

% Rec

Qualifiers

**Total Dissolved Solids** 

Units mg/L Conc. 400 Result 411 % Rec 103 Limits 84-108

SAMPLE DUPLICATE: 117378

Parameter

Units

mg/L

2617086001 Result

Dup Result

203

RPD

RPD

11

Max RPD

Qualifiers

**Total Dissolved Solids** SAMPLE DUPLICATE:

Date: 04/10/2019 04:36 PM

117379

2616901015

Dup Result

Max RPD

Qualifiers

Parameter Units **Total Dissolved Solids** mg/L

Result ND

13.0J

10

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.



Project:

Plant Hammond

Pace Project No.:

2616925

QC Batch:

25881

QC Batch Method:

Analysis Method:

EPA 300.0

EPA 300.0

Analysis Description:

Matrix: Water

300.0 IC Anions

Associated Lab Samples:

2616925001, 2616925002

METHOD BLANK: 116727

2616925001, 2616925002

Reporting

Associated Lab Samples:

Blank Result

Limit MDL

Analyzed Qualifiers

Chloride Fluoride Sulfate

Chloride

Fluoride

Sulfate

mg/L mg/L mg/L

Units

mg/L

0.069J ND 0.028J 0.25 0.30 1.0

04/05/19 23:23 0.029 04/05/19 23:23 04/05/19 23:23 0.017

LABORATORY CONTROL SAMPLE:

Spike LCS Result

10

LCS

% Rec

101

% Rec

Limits

90-110

0.024

Qualifiers

Parameter

Parameter

Units Conc. mg/L 10 10 mg/L

10.3 10.3 103 90-110 103 90-110

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

116729

116730

10.1

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		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	

Date: 04/10/2019 04:36 PM

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 N	<u></u> Л1
Fluoride	mg/L	0.029J	10	9.5	95	90-110	
Sulfate	mg/L	50.4	10	54.7	43	90-110 E	Ξ,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.



### **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**

Date: 04/10/2019 04:36 PM

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.



# **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2616925

Date: 04/10/2019 04:36 PM

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.

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Company	Georgia Power - Coal Combustion Residuals	Report To: Jou Abraham	ham			Attention:	<u>ğ</u>	scsinvoi	scsinvoices@southernco.com	themco.	moc												
Address			Lauren Petty, Geosyntec			Comp	Company Name	.; :					1										
Atlanta						Address:	188:								M		300	R. A. Carl	ion Mai	0.00	Regulation Abstract.	24,705	
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Pace Analytical

# CHAIN-OF-CUSTODY / Analytical Request Document

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

(N/A)nisct SeldmeS (Y/N) ŏ Regulatory Rights) paleas Custod WO#:2616925 (N/A) ð no bevieceЯ 20 Residual Chlorina (Y/N) TEMP In C 626 0 00 3441 6112H ave. 4/2/19 Radium 226/228 DATE SIGNY: TDS, CI, F, SO4 (Creeywall betsy.modanief@pacelabs.com, Motals (App. III & D&O) Mets (App. III, App. IV, D&O according (VI .qqA & III .qqA) sisteM ANX JeoT abaylanA Attention: scsinvoices@southernco.com 17:45 Moules Musher Anderson 327 (AP) or 328 (Huff) Methanol EOSSSBN Preservatives HOBN Pace Quote:
Pace Project Manager:
Pace Profile #: 327 (A ЮН Invoice Information: Company Name: EONH PRINT Name of SAMPLER: DA 1420 H52O4 75/40 250 Address: DevreserdaU  $\mathcal{D}$ \* OF CONTAINERS SIGNATURE of SAMPLER: SAMPLE TEMP AT COLLECTION Jathon Anderson (160) 1/1/19 Marken Mushmallansinh 412/19 41.5 MILIN TIME 200 DATE COLLECTED Come sette 01:51 11214 TIME Lauren Petty, Geosyntec Purchase Order #: SCS10348606 START Plant Hammond DATE Required Project Information: Joju Abraham D SAMPLE TYPE (G-GRAB C-COMP) MATRIX CODE (see valid codes to laft) Project Name: Project #: Copy To: Lithium, Melybdening, Zervillam Cadminm, Chramium, Copath 1): Antimony Arsenc, Baring MATRIX
Dinking Water
Waster
Waster
Waster
Product
Product
Out
Wipe
Out
Whipe
Chie Georgia Power - Coal Combustion Residuals 2480 Maner Road Phone: (404)506-7239 Fax
Requested Due Date: 3 true and 1787 Selenium Thalllum One Character per box. (A-Z, 0-9 /, -). Sample lds must be unique УæЭ SAMPLE ID finail jabraham@southernco.com おりとターと ead. Required Client Information: Fireride Manta, GA 30339 APPIU Company: ië s Page 14 of 15 # MaTi

	Sample	Condition	Ohou Keceibt	i	
Face Analy	tical Client Name:	BIA	Power	Project #	
Courier: Fed E	x UPS USPS Client		1	WO#:26	
I tacking m	ooler/Box Present: yes			PM: BM CLIENT: GRPow	Due Date: 04/10/1 er-CCR
Packing Material:	☐ Bubble Wrap ☐ Bubble Bags	None [	Other		
Thermometer Used		e of Ice: Well		Samples on ice, cool	ing process has begun
Cooler Temperatur		· *	is Frozen: Yes No	Date and Initials	of/person examining
Temp should be above			Comments:	contents: 4	73/19
Chain of Custody Pr	esent:	es 🗆 No 🗆 N/A	1.		
Chain of Custody Fi	lled Out:	es □No □N/A	2.		
Chain of Custody Re	elinguished:	es 🗆 No 🗆 N/A	3.	i	
Sampler Name & Si		es DNo DN/A			
Samples Arrived wit		es □No □N/A			
Short Hold Time A		es 12No ON/A			
Rush Turn Around		es DMG DN/A			
Sufficient Volume:		es DNo DN/A	<del></del>		
Correct Containers					
		s No N/A	l <sup>9.</sup>		
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Sample Labels mate	th COC: —====================================	es □no □n/a	12.	!	
-Includes date/tin	ne/ID/Analysis Matrix:	$\omega$			
All containers needing p	reservation have been checked.	es □No □N/A	13.		
All containers needing compliance with EPA r	preservation are found to be in ecommendation.	es □No □N/A			
exceptions: VOA, colifor	m, TOC, O&G, WI-DRO (water)	es _⊒M6	Initial when completed	Lot # of added preservative	
Samples checked for		es □No ☑MÃ			
Headspace in VOA		es 🗆 No 🔎 N7A			
Trip Blank Present:	<u> </u>	es ONO DINA			
Trip Blank Custody		es ONO DIMA			
Pace Trip Blank Lot		۱۱۰۸ هر		:	
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Client Notification/	[·]			Field Data Required	? Y / N
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Comments/ Resol	ution:				
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Project Manager	Review:			Date:	
-					
Note: Whenever there	e is a discrepancy affecting North Carolin	a compliance san	nples, a copy of this for	n will be sent to the North	Carolina DEHNR
Certification Office ( i.e	e out of hold, incorrect preservative, out	pr temp, incorrect	Containers	F-ALLC00	3rev.3, 11Septembe 2006 5 of 1





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

Beton M Damil

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



(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 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

Missouri Certification #: 235

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



# **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	



# **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



# **ANALYTICAL RESULTS - RADIOCHEMISTRY**

Project: Plant Hammond

Pace Project No.: 2616926

Sample: HGWA-1 PWS:	<b>Lab ID: 26169260</b> Site ID:	O1 Collected: 04/02/19 10:02 Sample Type:	Received:	04/03/19 11:10	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.426 ± 0.282 (0.418) C:85% T:NA	pCi/L	04/12/19 09:46	13982-63-3	
Radium-228		0.313 ± 0.501 (1.09) C:74% T:89%	pCi/L	04/16/19 19:38	3 15262-20-1	
Total Radium	Total Radium Calculation	0.739 ± 0.783 (1.51)	pCi/L	04/17/19 13:15	7440-14-4	



# **ANALYTICAL RESULTS - RADIOCHEMISTRY**

Project: Plant Hammond

Pace Project No.: 2616926

Sample: HGWA-2 PWS:	<b>Lab ID: 2616926</b> Site ID:	O02 Collected: 04/02/19 13:40 Sample Type:	Received:	04/03/19 11:10	Matrix: Water	
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	2 15262-20-1	
Total Radium	Total Radium Calculation	0.651 ± 0.740 (1.39)	pCi/L	04/17/19 13:1	5 7440-14-4	



### **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.



### **QUALITY CONTROL - RADIOCHEMISTRY**

Project: Plant Hammond

Pace Project No.: 2616926

QC Batch: 337342

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.



### **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**

Date: 04/25/2019 03:53 PM

PASI-PA Pace Analytical Services - Greensburg



# **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2616926

Date: 04/25/2019 03:53 PM

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.

(WW) utect gewbies (N/A) ŏ Sealed Cooler The state of the s (N/A) ð MO#:2616926 Received on Residual Chlorine (Y/N) TEMP in C Shel 29 54 1930 DATE Signed: 04/02/19 11214 72 George SZZ/SZZ WINDEX IDS, CI, F, SO4 betsy modaniel@pacelabs.com, (O.80 & III apA) sisteM Mets (App. III, App. IV, D&O anan (App. III & App. IV) alia Mouses MIX Visat seavish Attention: scsinvoices@southernco.com 327 (AP) or 328 (Huff) Methanol Grant Wolfer Preservatives edant walf N92S203 HOBN Pace Project Manager. Pace Profile #: 327 Invoice information: нсі 3 EONH Company Name Address: Pace Qunts: HS204 10954 1940 Grant Walter/Gersyntecograph 1745 Unpreserved # OF CONTAINERS SAMPLE TEMP AT COLLECTION 4/2/19 PRINT Name of SAMPLER: 100 1 modern (George 412/19 SIGNATURE of SAMPLER: (0:0) TIME S 20th 8 84:6 50 mg DATE COLLECTED TIME Willaw Gerrute Copy To: Lauren Petty, Geosyntec Purchase Order #. SCS10348606 Project Name: Plant Hammond Project #: START DATE Required Project Information: Report To: Joju Abraham (G=GRAB C=COMP) ø 39YT 3J9MA2 MATRIX CODE (see valid codes to left) 10 Section B MATROX
Drawing Water
Waster
Waster
Waster
Product
SourSchol
Ci
Wipe
Au
Obee
Tissue British Beryllivan, Calivian, Chronian Cobalt, Fluoride, Lord, Lithium, Mobile Season, Salerisan, Thellium App II (1): Antimony, Arraic, Georgia Power - Coal Combustion Residuals Prone: (404/506-7239 Fax Requested Due Date: Sewdand TPT One Character per box. (A-Z, 0-9 /, -) Sample lds must be unique SAMPLE ID Email: jabraham@southernco.com 2480 Maner Road Required Client Information: HGWA-Allenta, GA 30339 0 Page 11 of 1B # MaTI

# CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required ( Company:	Clent Information: Georgia Power - Coal Combustion Residuals	Section B Required Project Information: Report To: Joju Abrahan	Section C Invoice Information: Attention: scsinvoices@southernco.com	Page: 2 of 2
Address:	2480 Maner Road	Copy To: Lauren Petty, Geosyntec	Company Name:	
mail	Фзоитето сот	Purchase Order#: SCS10348606	Pace Quote:	Kendelör/Agansy.
Phone:	(404)506-7239 Fax:	Project Name: Plant Hammond	Pace Project Manager. betsy.mcdaniel@pacelabs.com.	
Seque	undard the	Project #:	(AP) or 328 (Huff)	
I			Extra Modules to d'Amay Sistement (YM)	
	MATRIX	S (Mel ot se	Preservatives	
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Page		PRINT Name of SAMPLER:	F. C. Lad. Andrews	Lo pe
12 c		SIGNATURE of SAMPLER:	June	TEMP (Y/N) Y/N) Sustodes Cooles Cooles Sample Hack Hack Hack Hack Hack Hack Hack Hack
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Face Analy	tical Client Name:	_	<u> G1</u>	A	Power	F	Project#	
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	ooler/Box Present: yes	٦,	סר	Seals	intact:yes	PI	: BM .IENT: GAPoue	Due Date: 05/01/19 r-CCR
Packing Material:	☐ Bubble Wrap ☐ Bubble B	Bags	/N	lone	Other			
Thermometer Use	<u> </u>	Туре	of Ice:	West	Blue None		Samples on ice, coo	ing process has begun
Cooler Temperatu	_			~	is Frozen: Yes No		Date and Initial	of person examining.
Temp should be above	e freezing to 6°C			-0.0	Comments:		contents: 17	13/19
Chain of Custody P	resent:	ØÝ#s	□No	□n/a	1.			
Chain of Custody Fi	lled Out:	ZZYES.	□No	□n/a	2.			
Chain of Custody R	elinquished:		□No	□n/a	3.			
Sampler Name & Si	gnature on COC:	ÆTY#S	□No	□n/a	4.			
Samples Arrived wit	nin Hold Time:	₽7 es	□No	□n/a	5.			
Short Hold Time A	nalysis (<72hr):	□Yes		□n/a	6.			
Rush Turn Around	Time Requested:	□Yes	Ū₩6	□n/a	7.		-	
Sufficient Volume:		.EVes	□No	□n/a	8.			
Correct Containers	Used:		□No	□n/a	9.			
-Pace Container	s Used:	ÆYES	□No	□n/a			i	
Containers Intact:		.₽∀es	□No	□n/a	10.		:	
Filtered volume rece	eved for Dissolved tests	□Yes	□No	DINTA	11.			
Sample Labels mate	ch COC:	ÆYes	□No	□n/a	12.			
-Includes date/tir	ne/ID/Analysis Matrix:	- 0	$\omega_{-}$	_			!	
All containers needing p	reservation have been checked.	Z Yes	□No	□n/a	13.			
All containers needing compliance with EPA	preservation are found to be in ecommendation.	<b>2</b> 778s	□No	□n/a				
exceptions: VOA, colifor	m, TOC, O&G, WI-DRO (water)	□Yes	<u></u> □ ₩6		Initial when completed		Lot # of added preservative	
Samples checked for	r dechlorination:	□Yes	□No	_⊒M/A	14.			
Headspace in VOA	Vials ( >6mm):	□Yes	□No	□N/A	15.			
Trip Blank Present:		□Yes	□No	ÆN/A	16.			
Trip Blank Custody	Seals Present	□Yes	□No					
Pace Trip Blank Lot	# (if purchased):							
Client Notification	Resolution:						Field Data Required	Y / N
Person Conta	11			Date/	Time:			
Comments/ Resol	ution:		*****	-			:	
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Project Manager	Review:						Date:	
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Note: Whenever there Certification Office (1)	is a discrepancy affecting North Ca	rolina d	omplia	nce san	nples, a copy of this for	h wil	l be sent to the North	Carolina DEHNR

F-ALLC003rev.3, 11September2006





April 10, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616933

# Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 03, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Betsy McDaniel

Beton M Damil

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







# **CERTIFICATIONS**

Project: Plant Hammond

Pace Project No.: 2616933

**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



# **SAMPLE SUMMARY**

Project: Plant Hammond

Pace Project No.: 2616933

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616933001	MW-29	Water	04/02/19 14:05	04/03/19 11:10
2616933002	MW-20	Water	04/02/19 15:54	04/03/19 11:10
2616933003	MW-28D	Water	04/02/19 16:30	04/03/19 11:10
2616933004	HGWC-7	Water	04/02/19 17:15	04/03/19 11:10



# **SAMPLE ANALYTE COUNT**

Project: Plant Hammond

Pace Project No.: 2616933

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2616933001	MW-29	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616933002	MW-20	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616933003	MW-28D	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616933004	HGWC-7	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3



Project: Plant Hammond

Pace Project No.: 2616933

Date: 04/10/2019 06:00 PM

Sample: MW-29	Lab ID:	2616933001	Collecte	ed: 04/02/19	14:05	Received: 04/	03/19 11:10 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 19:46	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 19:46	7440-38-2	
Barium	0.078	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 19:46	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 19:46	7440-41-7	
Boron	1.2	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 19:46	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 19:46	7440-43-9	
Calcium	131	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 19:51	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 19:46	7440-47-3	
Cobalt	0.00084J	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 19:46	7440-48-4	
Lithium	0.0021J	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 19:46	7439-93-2	
Molybdenum	0.0028J	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 19:46	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 19:46	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 19:46	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	548	mg/L	25.0	10.0	1		04/09/19 18:49		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	80.9	mg/L	2.5	0.24	10		04/08/19 18:53	16887-00-6	
Fluoride	0.045J	mg/L	0.30	0.029	1		04/05/19 20:15	16984-48-8	
Sulfate	151	mg/L	10.0	0.17	10		04/08/19 18:53	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2616933

Date: 04/10/2019 06:00 PM

Sample: MW-20	Lab ID:	2616933002	Collecte	ed: 04/02/19	15:54	Received: 04/	03/19 11:10 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020B MET ICPMS	Analytical I	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 19:57	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 19:57	7440-38-2	
Barium	0.080	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 19:57	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 19:57	7440-41-7	
Boron	0.11	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 19:57	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 19:57	7440-43-9	
Calcium	109	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 20:03	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 19:57	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 19:57	7440-48-4	
_ithium	0.0015J	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 19:57	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 19:57	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 19:57	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 19:57	7440-28-0	
2540C Total Dissolved Solids	Analytical I	Method: SM 2	540C						
Total Dissolved Solids	435	mg/L	25.0	10.0	1		04/09/19 18:49		
300.0 IC Anions 28 Days	Analytical I	Method: EPA	300.0						
Chloride	27.5	mg/L	0.25	0.024	1		04/05/19 22:17	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		04/05/19 22:17	16984-48-8	
Sulfate	122	mg/L	10.0	0.17	10		04/08/19 19:15	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2616933

Date: 04/10/2019 06:00 PM

Sample: MW-28D	Lab ID:	2616933003	Collecte	ed: 04/02/19	16:30	Received: 04/	03/19 11:10 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: Ef	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 20:08	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 20:08	7440-38-2	
Barium	0.37	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 20:08	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 20:08	7440-41-7	
Boron	0.17	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 20:08	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 20:08	7440-43-9	
Calcium	64.6	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 20:14	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 20:08	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 20:08	7440-48-4	
Lithium	0.0052J	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 20:08	7439-93-2	
Molybdenum	0.028	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 20:08	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 20:08	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 20:08	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	350	mg/L	25.0	10.0	1		04/09/19 18:49		
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Chloride	44.0	mg/L	0.25	0.024	1		04/05/19 22:42	16887-00-6	
Fluoride	0.18J	mg/L	0.30	0.029	1		04/05/19 22:42	16984-48-8	
Sulfate	67.7	mg/L	10.0	0.17	10		04/08/19 19:38	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2616933

Date: 04/10/2019 06:00 PM

Sample: HGWC-7	Lab ID:	2616933004	Collecte	ed: 04/02/19	7:15	Received: 04/	03/19 11:10 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: Ef	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 20:31	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 20:31	7440-38-2	
Barium	0.072	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 20:31	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 20:31	7440-41-7	
Boron	0.99	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 20:31	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 20:31	7440-43-9	
Calcium	101	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 20:37	7440-70-2	M6
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 20:31	7440-47-3	
Cobalt	0.00069J	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 20:31	7440-48-4	
Lithium	0.0020J	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 20:31	7439-93-2	
Molybdenum	0.041	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 20:31	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 20:31	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 20:31	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	428	mg/L	25.0	10.0	1		04/09/19 18:49		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	55.5	mg/L	2.5	0.24	10		04/06/19 04:05	16887-00-6	
Fluoride	0.097J	mg/L	0.30	0.029	1		04/05/19 23:31	16984-48-8	
Sulfate	127	mg/L	10.0	0.17	10		04/06/19 04:05	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2616933

Date: 04/10/2019 06:00 PM

QC Batch: 25906 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

Associated Lab Samples: 2616933001, 2616933002, 2616933003, 2616933004

METHOD BLANK: 116817 Matrix: Water
Associated Lab Samples: 2616933001, 2616933002, 2616933003, 2616933004

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND ND	0.0030	0.00078	04/09/19 18:14	
Arsenic	mg/L	ND	0.0050	0.00057	04/09/19 18:14	
Barium	mg/L	ND	0.010	0.00078	04/09/19 18:14	
Beryllium	mg/L	ND	0.0030	0.000050	04/09/19 18:14	
Boron	mg/L	ND	0.040	0.0039	04/09/19 18:14	
Cadmium	mg/L	ND	0.0010	0.000093	04/09/19 18:14	
Calcium	mg/L	ND	0.50	0.014	04/09/19 18:14	
Chromium	mg/L	ND	0.010	0.0016	04/09/19 18:14	
Cobalt	mg/L	ND	0.010	0.00052	04/09/19 18:14	
Lithium	mg/L	ND	0.050	0.00097	04/09/19 18:14	
Molybdenum	mg/L	ND	0.010	0.0019	04/09/19 18:14	
Selenium	mg/L	ND	0.010	0.0014	04/09/19 18:14	
Thallium	mg/L	ND	0.0010	0.00014	04/09/19 18:14	

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
ntimony	mg/L	0.1	0.10	102	80-120	
rsenic	mg/L	0.1	0.10	100	80-120	
arium	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	
ithium	mg/L	0.1	0.096	96	80-120	
1olybdenum	mg/L	0.1	0.10	102	80-120	
Selenium	mg/L	0.1	0.10	101	80-120	
hallium	mg/L	0.1	0.098	98	80-120	

MATRIX SPIKE & MATRIX SPIK	E DUPLIC	CATE: 116819	9		116820							
			MS	MSD								
		2616933004	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.11	0.10	108	105	75-125	3	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.10	102	102	75-125	0	20	
Barium	mg/L	0.072	0.1	0.1	0.18	0.18	109	105	75-125	2	20	

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.



Project: Plant Hammond

Pace Project No.: 2616933

Date: 04/10/2019 06:00 PM

MATRIX SPIKE & MATRIX S	SPIKE DUPLICA	ATE: 116819	9		116820							
Parameter	Units	2616933004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qua
Beryllium	mg/L	ND	0.1	0.1	0.092	0.092	92	92	75-125	1	20	
Boron	mg/L	0.99	1	1	1.9	2.0	92	96	75-125	2	20	
Cadmium	mg/L	ND	0.1	0.1	0.10	0.10	104	101	75-125	3	20	
Calcium	mg/L	101	1	1	140	115	3930	1380	75-125	20	20	M6
Chromium	mg/L	ND	0.1	0.1	0.11	0.10	105	103	75-125	2	20	
Cobalt	mg/L	0.00069J	0.1	0.1	0.10	0.10	102	100	75-125	2	20	
Lithium	mg/L	0.0020J	0.1	0.1	0.094	0.095	91	93	75-125	2	20	
Molybdenum	mg/L	0.041	0.1	0.1	0.15	0.15	112	110	75-125	1	20	
Selenium	mg/L	ND	0.1	0.1	0.11	0.10	105	102	75-125	3	20	
Thallium	mg/L	ND	0.1	0.1	0.097	0.096	97	95	75-125	2	20	

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.



Project:

Plant Hammond

Pace Project No.:

2616933

QC Batch:

26059

Analysis Method:

SM 2540C

QC Batch Method: SM 2540C Analysis Description:

2540C Total Dissolved Solids

Associated Lab Samples:

2616933001, 2616933002, 2616933003, 2616933004

LABORATORY CONTROL SAMPLE:

Parameter

Parameter

Spike

LCS

LCS

% Rec Limits

Qualifiers

**Total Dissolved Solids** 

Units mg/L

mg/L

Units

mg/L

Conc. 400 Result 407 % Rec 102

84-108

SAMPLE DUPLICATE: 117668

Units

2616931001 Result

540

728

Dup Result

670

766

RPD

21

5

Max RPD 10 D6

Qualifiers

SAMPLE DUPLICATE:

**Total Dissolved Solids** 

Date: 04/10/2019 06:00 PM

**Total Dissolved Solids** 

117669

Parameter

2617082006 Result

Dup Result

RPD

Max RPD

10

Qualifiers

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.



Project: Plant Hammond

Pace Project No.: 2616933

Date: 04/10/2019 06:00 PM

QC Batch: 25882 Analysis Method: EPA 300.0

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

Associated Lab Samples: 2616933001, 2616933002, 2616933003, 2616933004

METHOD BLANK: 116732 Matrix: Water
Associated Lab Samples: 2616933001, 2616933002, 2616933003, 2616933004

		Blank	Reporting			
Parameter	Units	Result	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					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% 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 SPIR	KE DUPLIC	CATE: 11673	4		116735							
		2616927001	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	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 N	<i>I</i> 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.



### **QUALIFIERS**

Project: Plant Hammond
Pace Project No.: 2616933

### **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**

Date: 04/10/2019 06:00 PM

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.



# **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2616933

Date: 04/10/2019 06:00 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616933001	MW-29	EPA 3005A	25906	EPA 6020B	 25928
2616933002	MW-20	EPA 3005A	25906	EPA 6020B	25928
2616933003	MW-28D	EPA 3005A	25906	EPA 6020B	25928
2616933004	HGWC-7	EPA 3005A	25906	EPA 6020B	25928
2616933001	MW-29	SM 2540C	26059		
2616933002	MW-20	SM 2540C	26059		
2616933003	MW-28D	SM 2540C	26059		
2616933004	HGWC-7	SM 2540C	26059		
2616933001	MW-29	EPA 300.0	25882		
2616933002	MW-20	EPA 300.0	25882		
2616933003	MW-28D	EPA 300.0	25882		
2616933004	HGWC-7	EPA 300.0	25882		

# 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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SAMPLE   Decision   Proposition   tlanta.								Ago	ress:									N. S. C.	1	FIRST	Haton	<b>John P</b>	100	100	24.50		
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# CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

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# CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

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Pace Anal	<i>ytical</i> Client Name	ə:	B	A	Power	Pro	oject#	
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	☐ Bubble Wrap ☐ Bubble					023		
Thermometer Use	\$ <i>\$</i>		-		Blue None	□ San	nnles on ice co	oling process has begun
Cooler Temperatu Temp should be above				~	e is Frozen: Yes No		Date and Initia	s of person examining
Chain of Custody P	resent:	.ZYes	□No	□n/A	1.	<b></b>		
Chain of Custody Fi	lled Out:	ZZYes	□No	□n/a	2.			
Chain of Custody R	elinquished:	,EYES	□No	□n/a	3.			
Sampler Name & Si	gnature on COC:			□n/a				
Samples Arrived wit	hin Hold Time:	₽₩s	□No	□n/a	5.	:		
Short Hold Time A	nalysis (<72hr):	□Yes	□No <sup>2</sup>	□N/A	6.			
Rush Turn Around	Time Requested:	□Yes	Ūw6	□n/A	7.			
Sufficient Volume:		. El Yes	□№	□n/a	8.			
Correct Containers t	Jsed:	.DY s	□No	□n/a	9.			
-Pace Containers	Used:	ÆY s	□No	□n/a			,	
Containers Intact:		₽ Tes	□No	□n/a	10.			
Filtered volume rece	ived for Dissolved tests	□Yes	□No	N/A	11.			
Sample Labels matc	h COC:	_EYes	□No	□n/a	12.			
-Includes date/tim	ne/ID/Analysis Matrix:		<u>W</u> _	_				
All containers needing p	reservation have been checked.	-UYes	□No	□N/A	13.	:		
All containers needing compliance with EPA re	preservation are found to be in ecommendation.	ÆY#s	□No	□n/a		:		
exceptions: VOA, coliform	, TOC, O&G, WI-DRO (water)	□Yes	<b>₽</b> ₩6		Initial when completed		of added	
Samples checked for	dechlorination:	□Yes	□No	_DMA	14.			
Headspace in VOA V	fials ( >6mm):	□Yes	□No	□N/A	15.	i		
Trip Blank Present:		□Yes	□No .	ÆN/A	16.		<del></del>	
Trip Blank Custody S	eals Present	□Yes	□No	DN/A				
Pace Trip Blank Lot #	(if purchased):	_						
Client Notification/	Resolution:					Field	Date Descripted	
Person Contac				Date/T	ime:	rielo	Data Required?	Y / N
Comments/ Resolu							_	
		[_						
	1							
Project Manager I	Review:						Date:	
Note: Whenever there i	s a discrepancy affecting North Ca	rolina co	mplian	ce sam	ples, a copy of this form	will be se	ent to the North	arolina DEHNR

Page 18 of 18 F-ALLC003rev.3, 11September2006





April 25, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616935

# Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 03, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Betsy McDaniel

Beton M Damil

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



(770)734-4200



### **CERTIFICATIONS**

Project: Plant Hammond

Pace Project No.: 2616935

### Pennsylvania Certification IDs

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

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

**Arkansas Certification** 

California Certification #: 04222CA Colorado Certification #: PA01547 Connecticut Certification #: PH-0694

Delaware Certification EPA Region 4 DW Rad

Florida/TNI Certification #: E87683 Georgia Certification #: C040 Florida: Cert E871149 SEKS WET

Guam Certification Hawaii Certification Idaho Certification Illinois Certification Indiana Certification Iowa Certification #: 391

Kansas/TNI Certification #: E-10358 Kentucky Certification #: KY90133 KY WW Permit #: KY0098221 KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012 Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991 Missouri Certification #: 235 Montana Certification #: Cert0082

North Dakota Certification #: R-190

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

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



# **SAMPLE SUMMARY**

Project: Plant Hammond

Pace Project No.: 2616935

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
2616935001	MW-29	Water	04/02/19 14:05	04/03/19 11:10	
2616935002	MW-20	Water	04/02/19 15:54	04/03/19 11:10	
2616935003	MW-28D	Water	04/02/19 16:30	04/03/19 11:10	
2616935004	HGWC-7	Water	04/02/19 17:15	04/03/19 11:10	



# **SAMPLE ANALYTE COUNT**

Project: Plant Hammond

Pace Project No.: 2616935

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2616935001	MW-29	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616935002	MW-20	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616935003	MW-28D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616935004	HGWC-7	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA



Project: Plant Hammond
Pace Project No.: 2616935

Calculation

Sample: MW-29 PWS:	<b>Lab ID: 26169350</b> 0 Site ID:	O1 Collected: 04/02/19 14:05 Sample Type:	Received:	04/03/19 11:10	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.218 ± 0.272 (0.567) C:86% T:NA	pCi/L	04/12/19 08:04	13982-63-3	
Radium-228		0.402 ± 0.408 (0.847) C:76% T:82%	pCi/L	04/16/19 16:2	1 15262-20-1	
Total Radium	Total Radium	0.620 ± 0.680 (1.41)	pCi/L	04/17/19 13:15	5 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616935

Sample: MW-20 PWS:	<b>Lab ID: 26169350</b> Site ID:	O2 Collected: 04/02/19 15:54 Sample Type:	Received:	04/03/19 11:10	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.780 ± 0.360 (0.385) C:89% T:NA	pCi/L	04/12/19 08:05	13982-63-3	
Radium-228		0.238 ± 0.422 (0.922) C:73% T:76%	pCi/L	04/16/19 16:2	1 15262-20-1	
Total Radium	Total Radium Calculation	1.02 ± 0.782 (1.31)	pCi/L	04/17/19 13:15	5 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616935

Sample: MW-28D PWS:	<b>Lab ID: 26169350</b> Site ID:	Collected: 04/02/19 16:30 Sample Type:	Received:	04/03/19 11:10	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.312 ± 0.266 (0.489) C:95% T:NA	pCi/L	04/12/19 08:07	7 13982-63-3	
Radium-228		0.167 ± 0.434 (0.966) C:70% T:88%	pCi/L	04/16/19 16:2	1 15262-20-1	
Total Radium	Total Radium Calculation	$0.479 \pm 0.700  (1.46)$	pCi/L	04/17/19 13:15	5 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616935

Sample: HGWC-7 PWS:	<b>Lab ID: 26169350</b> Site ID:	O4 Collected: 04/02/19 17:15 Sample Type:	Received:	04/03/19 11:10	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.445 ± 0.341 (0.626) C:88% T:NA	pCi/L	04/12/19 08:08	13982-63-3	
Radium-228		0.420 ± 0.405 (0.834) C:76% T:85%	pCi/L	04/16/19 16:22	2 15262-20-1	
Total Radium	Total Radium Calculation	0.865 ± 0.746 (1.46)	pCi/L	04/17/19 13:15	7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616935

QC Batch: 337392 Analysis Method: EPA 9315

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

Associated Lab Samples: 2616935003, 2616935004

METHOD BLANK: 1642069 Matrix: Water

Associated Lab Samples: 2616935003, 2616935004

Parameter Act  $\pm$  Unc (MDC) Carr Trac Units Analyzed Qualifiers

Radium-226 0.117  $\pm$  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.



Project: Plant Hammond

Pace Project No.: 2616935

QC Batch: 337341 Analysis Method: EPA 9320

QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616935001, 2616935002, 2616935003

METHOD BLANK: 1641952 Matrix: Water

Associated Lab Samples: 2616935001, 2616935002, 2616935003

Parameter Act ± Unc (MDC) Carr Trac Units Analyzed Qualifiers

Radium-228 0.438  $\pm$  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.



Project: Plant Hammond

Pace Project No.: 2616935

QC Batch: 337342 Analysis Method: EPA 9320

QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616935004

METHOD BLANK: 1641953 Matrix: Water

Associated Lab Samples: 2616935004

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-228
 -0.245 ± 0.294 (0.748) C:78% T:79%
 pCi/L
 04/16/19 16:22

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



Project: Plant Hammond

Pace Project No.: 2616935

QC Batch: 337391 Analysis Method: EPA 9315

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

Associated Lab Samples: 2616935001, 2616935002

METHOD BLANK: 1642068 Matrix: Water

Associated Lab Samples: 2616935001, 2616935002

Parameter Act ± Unc (MDC) Carr Trac Units Analyzed Qualifiers

Radium-226 0.148  $\pm$  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.



### **QUALIFIERS**

Project: Plant Hammond
Pace Project No.: 2616935

### **DEFINITIONS**

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

**DUP - Sample Duplicate** 

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### **LABORATORIES**

Date: 04/25/2019 03:53 PM

PASI-PA Pace Analytical Services - Greensburg



# **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2616935

Date: 04/25/2019 03:53 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616935001	MW-29	EPA 9315	337391		
2616935002	MW-20	EPA 9315	337391		
2616935003	MW-28D	EPA 9315	337392		
2616935004	HGWC-7	EPA 9315	337392		
2616935001	MW-29	EPA 9320	337341		
2616935002	MW-20	EPA 9320	337341		
2616935003	MW-28D	EPA 9320	337341		
2616935004	HGWC-7	EPA 9320	337342		
2616935001	MW-29	Total Radium Calculation	338683		
2616935002	MW-20	Total Radium Calculation	338683		
2616935003	MW-28D	Total Radium Calculation	338683		
2616935004	HGWC-7	Total Radium Calculation	338683		

# CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A		Section B	Section C	
Require	Clent Information:	21	Involce Information:	Page: 1 Of 3
Company	Georgia Power - Coal Combustion Residuals	Report To: Joju Abraham	Attention: scsinvoices@southernco.com	
Address	2480 Maner Road	py 10: Lauren Petty, Geosyntec	y Name:	
Attanta,				Regulate of Aperica
	papranamgsouthernco.com			
900	(404)506-7239   Pax	Project Name: Plant Hammond	anager: betsy, modaniel@pacelabs.com,	The Transport of the State of t
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Pace Analytical

# CHAIN-OF-CUSTODY / Analytical Request Document

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

 $(N/\lambda)$ h Due Date: 05/01/19 saidwas (Y/N) ŏ pelees (N/A)WO# : 2616935 Received on Residual Chlorine (YM) 1 Page: TEMP in C CLIENT: GAPower-CCR 19x9 2500 そさ 4/2/14 61/4 PH: BM DATE Signad: 119 LDS' CI' E' 204 (O.80 & III . qqA) sisteM betsy.mcdaniel@pacelabs.com 77 Mata (App. III, App. IV, D&O Gamphec Munpon Vetals (App. III & App. IV) Anderson NX Attention: scsinvoices@southernco.com 327 (AP) or 328 (Huff) Jeuno Methanol Preservatives Ne2S2O3 מהצום HÖBN Pace Project Manager: invoice information: ЮН EONH Q 3 PRINT Name of SAMPLER: Dalton Pace Profile #: Pace Quote: HS2O4 2-20-100)4/2/19 17:45 4240 Section C 75.67 beviesergnU SAMPLER WATER AND SIGNATURE AN # OF CONTAINERS SAMPLE TEMP AT COLLECTION SIGNATURE of SAMPLER: 412/19 4/2/19 200 DATE COLLECTED 19.00 19.00 EME Lauren Petty, Geosyntec Purchase Order #: SCS10348606.
Project Name: Plant Hammond
Project #: ) C START THE TO Required Project Information: DATE Report To: Joju Abraham Valle (G=GRAB C=COMP) SAMPLE TYPE MATRIX CODE (see valid codes to left) Copy To: Section B Cobout, Finant de, Lithium, Molyblande MATRIX
Denising Water
Water
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Chee APPIL (2) Antimony Arsent, Buchen Beentlinen Cadition, Chronism, Georgia Power - Coal Combustion Residuals 131 One Character per box. (A-2, 0-9 / , -) Sample Ids must be unique Seleptum, Thalling SAMPLE ID WM-28D jabraham@southernco.com 2480 Maner Road Requested Due Date: Manta, GA 30339 company: # MBTI Page 16 of 18

# CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

MATRIX  Water William  Project Name: Plant Hammo  Project # SCS1034  Project # SCS1034  Project # Project # SCS1034  Water WW WATER WW WAT	Contract   Contract	Participate   Participate	Section A Required Client Information:		Section B Required Project Information:	roject li	тотпа	<u>.</u>				ŠŠ	Section C Invoice in	Section C Invoice Information:	stion:										_		Paç	Page:	ا ط		of 3	)
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A SAMPLE TYPE  A SAMP			SAMPLEID	Drinking Water Water Waste Water Product SourSolid	www.sq		)*3 8489*9)	START	<del></del>	END	1 601 1 6010												9					(M/Y) en				
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LASIAN GONDALL WAS AND WAY ON SHARE WAS AND WAY ON SHARE WAS AND WAY ON SHARE WAS AND WAY ON SHARE WAS AND AND WAY ON SHARE WAS AND AND AND AND AND AND AND AND AND AND	MO#: 26:    Committee   Commit	MOH: 2616935  MOH: 2616935  Ph: BH Dee Date: 05/01/19  CLIENT: GROUP-CCR  L. LORING GOLDER  SHAT Name of SAMPLE: Nockie Muspus  PRINT Name of SAMPLE: Nockie Muspus  SHOWTURE OF SAMPLE: Nockie Muspus  SHOWTURE OF SAMPLE: Nockie	HGWC-7		;	-	7 4/2	100	K 4/2/	141 21	2	5		H	~					7	+	ļ	<b>\</b>									
WOT: 26.    WOT: 26.	MOH: 26.  Motic with burning 1/2/19 1972 University 1972  II. Lorginal burning 1/2/19 1972 University 1972  III. Lorginal burning 1/2/19 1972 University 1972  III. Lorginal burning 1/2/19 1973 University 1973  Sauth Burning 1/2/19 1973 University 1973 University 1973  Sauth Burning 1/2/19 1973 University 1973 University 1973  Sauth Burning 1/2/19 1973 University 1	WORK: 2616935  WORL: William Due Date: 05/01/19  Ph: BR Due: 05/01/19  Ph: BR Due: 05/01/19  Ph:																												,		
WOH: 26.    WOH: 26.   WOH: 26.   WOH: 26.   WOH: 26.   WOH: WAS CONTROL OF C	AND CLIENT GROWER WAS CONTRACTED TO CLIENT GROWER WAS CONTRACT	WORK 2616935  WORK WITH CONTROL WAS AND THE STATE OF THE									<del> </del>				_										$\vdash$	otag	+	1				
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AN TOTAL MAN MAN WAS CONSTRUCTION OF THE STATE OF THE STA	MO#: 26.  MO#: 2	WOTH: 2616935  Pri: Br Due Date: 05/01/19  Pri: Br Due Dat									-	<u> </u>		7	$\vdash$	7																
MO#: 261	ES REMOGRACION MINICAL MINICAL MARCHININA PRINCIPAL COLIENT: GAPOUNE COLIE	WO#: 2616935  Ph: Bh Due Date: 05/01/19  anim West: Willy 1970 anim to anim the print of the pri								<u>ر</u>	7	7	7	\																		
	CLIENT: GAPOLIER  SAMPLE Work of the William William Control of the Control of th	RELACIOSEED BY AFFECTION ROOM SAMPLER AND HE SIGNATURE OF						[2		ì					$\vdash$							-	2	#		Ü	7	Ċ	7			
	The sample of the same of the	The party of the p				#	$\parallel \setminus$	1	<u> </u>	<u>  </u>   -	<del> </del>	<u>                                     </u>		<del> </del>	-				İ							\$		Ď	B			
Action Works - William / Walter 1979 1970 William / Second 1970 1970 1970 1970 1970 1970 1970 1970	C. RELACCISION OF LATER WILLIAM CONTROL CONTRO	Animal Walter Marker State William State S		\ 																┝		בֿ כ					ă	Da	ţe:	05/6	31/1	6
25 RELIGIOSSE MATERIAL MATERIA	11. Col Time / Constitution   1970	April Martin Mar									<del> </del>											3			) 3	o Le	ပို	œ				
20,000 Martin State Marine 1/2/19 1990 CON LOS MARION MARINE 1/3/19 1990 CON LOS MARION MARINE 1/3/19 1990 CON LOS MARINE 1/3/19 00154 CON LOS MARINE 1/3/19 1/3/19 00154 CON LOS MARINE 1/3/19 1/10 1/0 7	11. 68 120 14 14 14 14 14 15 14 16 14 16 16 16 16 16 16 16 16 16 16 16 16 16	April - Water having the William of Sampler												_			_						_				_	-				5
11. 608/ms/Cocqueter 418/19 0954 College Coccontract 418/19 1980-	11. 608 Com / Georgia de 1/2/19 1930 CONSUL CONSULTE 1/2/19 1930 CONSULTA C	11. Lossins Hadro Vasion 1970 ansultanism 1970 ansultanis	Applied (All columns)			ON ES	COSTO	BY JAFFEL	NOT		TE S						100	19,00	TATE	oi y				OATE						g Copp	TOPIS	
11. 608/m2/6000puter 418/19 00154 2= ( Suce 43.00 00184 110 1.07	11, 6/8/m2/becquter 4/8/19 0954 = (2000 43.00 00.84 13	11, Lossian fragature of sampler: North Mushus Bate signed: 4/2/19 11/0 1:0 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	App. If (2) : Antonony, bosenic		w. 11/4	M.	· M		HIL	Le 4/2	61/	119	25.	,	6	70	3	13		7	2		14	11/2		930	1					
10 alman Hold 1110 1.07	70.101114 / Wannana / 1010 110 110 110 110 110 110 110 110	SAUPLERIARMENTO SAMPLER: NOORIG MUSEUS SIGNED: 4/2/19 11(10 1.0 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	, Cadi	miran Coballi			13	Acre A	اد ا	1/4	12/2		(V)	7	X1 /		$\  f \ $	/ -	Š	3	۰		- 1	r.S.	_	d	,\$					
1 Motalinan #15/19/10/10/7	Mohalman   Mohalman   Mohalman   Mohallo 1:0 +	SAMPLERATURE of SAMPLER: North Works   The Signed: 4/2/19   The Signed of Sampler   Signature of Sampler of Sampler   Signature of Sampler of Sampler of Sampler	I work , Lead, Lithium, Molybdenum,	Woden um,				$ \cdot $						F		(		7						-	1		`					
		Notia Mulma DATE Signed: 4/2/19	Seprism + thalism	•												3	7		N		1		4	(2)	61,	111	0	0.1	$\not$		- %	کر
Moekia Muskus									SIGNATU	RE of SA	MPLE	•	10	3	2	11/2	- <u>\$</u>	2		PA	TE Się	med:	ታ	1/2	119		-	N3T	80 J	snე	(XV)	Intac

and the same of th	Sample	e Condition	Opon Receipt		1
Face Analy	rtical Client Name:	BIA	Power	Project #	
Courier: Fed E	x 🗌 UPS 🗍 USPS 🗍 Client [	Commercial	Pace Other	WO#:26	16935
	ooler/Box Present: yes	no Seals	intact: yes	PM: BM CLIENT: GAPe	Due Date: 05/01/1
	☐ Bubble Wrap ☐ Bubble Bag	_		<u>-</u>	
Thermometer Use	ф <u>29</u> ту	e of Ice: Wet	Blue None	Samples on ice, coo	
Cooler Temperatu Temp should be abov		logical Tissue	is Frozen: Yes No Comments:	Date and Initial contents:	s of/person examining,
Chain of Custody P	resent:	yes □No □N/A	1		`
Chain of Custody F		yes □No □N/A	-		
Chain of Custody R	elinguished:	es ONO ON/A	3.	:	
Sampler Name & S		Yes □No □N/A		:	
Samples Arrived wi		es 🗆 No 🗆 N/A			
Short Hold Time A		mes 12Mo □N/A			
Rush Turn Around		res DM6 □N/A			
Sufficient Volume:		es □No □N/A			
Correct Containers		es □No □N/A			
-Pace Container	s Used: ∠	es □No □N/A			
Containers Intact:	<b>,</b> 2	Fes □No □N/A	10.		
Filtered volume reco	eived for Dissolved tests	res □No □NTĀ	11.		
Sample Labels mat	ch COC:	es □No □N/A	12.		
-Includes date/ti		$\omega$			
All containers needing	reservation have been checked.	ves □No □N/A	13.		
All containers needing compliance with EPA	preservation are found to be in ecommendation.	res □No □N/A			
exceptions: VOA, colifor	m, TOC. O&G. WI-DRO (water)	Yes _DINO	Initial when completed	Lot # of added preservative	
Samples checked for	or dechlorination:	nes □No □N/A	14.	- ::	
Headspace in VOA		mes □No □M/A			
Trip Blank Present:		mes □No ÆN/A	1		
Trip Blank Custody	Seals Present	Yes □No □NTA			
Pace Trip Blank Lot	# (if purchased):				
Client Notification	Pesalution			Field Date Device	
	acted:	Date/	Time:	Field Data Required	? Y / N
Comments/ Reso		Date	riirie.		
Project Manage	Review:			Date:	
Note: Whenever then	e is a discrepancy affecting North Caroli	a compliance sag	noles, a coov of this for	m will be sent to the North	Carolina DEHNR
Certification Office ( i.	out of hold, incorrect preservative, out	of temp, incorrect	t containers)	!	
				F-ALLC00	3rev.3, 11September 2006 8 of 18





April 11, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616997

# Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 04, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Betsy McDaniel

Beton M Damil

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







# **CERTIFICATIONS**

Project: Plant Hammond

Pace Project No.: 2616997

**Atlanta Certification IDs** 

110 Technology Parkway Peachtree Corners, GA 30092 Florida DOH Certification #: E87315 Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381 South Carolina Certification #: 98011001

Virginia Certification #: 460204



# **SAMPLE SUMMARY**

Project: Plant Hammond

Pace Project No.: 2616997

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616997001	HGWC-9	Water	04/03/19 10:05	04/04/19 11:00
2616997002	MW-26D	Water	04/03/19 11:38	04/04/19 11:00
2616997003	MW-19	Water	04/03/19 14:50	04/04/19 11:00
2616997004	MW-5	Water	04/03/19 13:12	04/04/19 11:00
2616997005	HGWC-8	Water	04/03/19 11:24	04/04/19 11:00
2616997006	HGWC-10	Water	04/03/19 13:38	04/04/19 11:00
2616997007	MW-6	Water	04/03/19 15:10	04/04/19 11:00
2616997008	MW-7	Water	04/03/19 10:45	04/04/19 11:00
2616997009	HGWC-11	Water	04/03/19 12:40	04/04/19 11:00
2616997010	HGWC-12	Water	04/03/19 14:20	04/04/19 11:00
2616997011	MW-25D	Water	04/03/19 16:15	04/04/19 11:00



# **SAMPLE ANALYTE COUNT**

Project: Plant Hammond

Pace Project No.: 2616997

2616997001       HGWC-9       EPA 6020B       CSW         SM 2540C       RLC         EPA 300.0       RLC         2616997002       MW-26D       EPA 6020B       CSW         SM 2540C       RLC         EPA 300.0       RLC         2616997003       MW-19       EPA 6020B       CSW         SM 2540C       RLC         EPA 300.0       RLC         2616997004       MW-5       EPA 6020B       CSW         SM 2540C       RLC         EPA 300.0       RLC         2616997005       HGWC-8       EPA 6020B       CSW         SM 2540C       RLC         EPA 300.0       RLC         2616997006       HGWC-10       EPA 6020B       CSW         SM 2540C       RLC         EPA 300.0       RLC         2616997007       MW-6       EPA 6020B       CSW         SM 2540C       RLC         EPA 300.0       RLC         2616997008       MW-7       EPA 6020B       CSW         SM 2540C       RLC         EPA 300.0       RLC         EPA 300.0       RLC         EPA 300.0       RLC         EPA 50	13 1 3 13 1 3 13 13
EPA 300.0 RLC  EPA 300.0 RLC  EPA 6020B CSW  SM 2540C RLC  EPA 300.0 RLC  EPA 300.0 RLC  EPA 300.0 RLC  EPA 300.0 RLC  EPA 300.0 RLC  EPA 6020B CSW  SM 2540C RLC  EPA 300.0 RLC  EPA 400.0 RLC  EPA 400.	3 13 1 3 13
2616997002       MW-26D       EPA 6020B       CSW         SM 2540C       RLC         EPA 300.0       RLC         2616997003       MW-19       EPA 6020B       CSW         SM 2540C       RLC         EPA 300.0       RLC         2616997004       MW-5       EPA 6020B       CSW         SM 2540C       RLC         EPA 300.0       RLC <td>13 1 3 13</td>	13 1 3 13
SM 2540C   RLC     EPA 300.0   RLC     EPA 6020B   CSW     SM 2540C   RLC     EPA 300.0   RLC     EPA 300.0   RLC     EPA 300.0   RLC     EPA 6020B   CSW     SM 2540C   RLC     EPA 300.0   RLC     EPA 300.0   RLC     EPA 300.0   RLC     EPA 300.0   RLC     EPA 6020B   CSW     SM 2540C   RLC     EPA 300.0     EPA 400.0	1 3 13
BPA 300.0   RLC	3 13
2616997003       MW-19       EPA 6020B       CSW         SM 2540C       RLC         EPA 300.0       RLC         2616997004       MW-5       EPA 6020B       CSW         SM 2540C       RLC         EPA 300.0       RLC         2616997005       HGWC-8       EPA 6020B       CSW         SM 2540C       RLC         EPA 300.0       RLC         EPA 300.0       RLC         2616997007       MW-6       EPA 6020B       CSW         SM 2540C       RLC         EPA 300.0       RLC         2616997008       MW-7       EPA 6020B       CSW         SM 2540C       RLC         EPA 6020B       CSW         SM 2540C       RLC         EPA 6020B       CSW         SM 2540C       RLC         EPA 6020B       CSW         SM 2540C       RLC         EPA 6020B       CSW         SM 2540C       RLC         EPA 6020B       CSW         EPA 6020B       CS	13
SM 2540C   RLC	
PA 300.0   RLC	1
2616997004       MW-5       EPA 6020B       CSW         SM 2540C       RLC         EPA 300.0       RLC         2616997005       HGWC-8       EPA 6020B       CSW         SM 2540C       RLC         EPA 300.0       RLC         EPA 6020B       CSW         SM 2540C       RLC         EPA 300.0       RLC         EPA 6020B       CSW         SM 2540C       RLC         EPA 300.0       RLC         EPA 300.0       RLC         EPA 6020B       CSW         SM 2540C       RLC         EPA 6020B       CSW         SM 2540C       RLC         EPA 6020B       CSW         SM 2540C       RLC         EPA 6020B       CSW         SM 2540C       RLC         EPA 6020B       CSW         SM 2540C       RLC         EPA 6020B       CSW	ı
SM 2540C   RLC     EPA 300.0   RLC     EPA 6020B   CSW     SM 2540C   RLC     EPA 300.0   RLC     EPA 300.0   RLC     EPA 300.0   RLC     EPA 6020B   CSW     SM 2540C   RLC     EPA 6020B   CSW     SM 2540C   RLC     EPA 300.0   RLC     EPA 300.0   RLC     EPA 6020B   CSW     SM 2540C   RLC     EPA 6020B   CSW     SM 2540C   RLC     EPA 300.0   RLC     EPA 300.0   RLC     EPA 6020B   CSW     SM 2540C   RLC     EPA 300.0   RLC     EPA 6020B   CSW     SM 2540C   RLC     EPA 6020B   CSW     SM 2540C   RLC     EPA 6020B   CSW     SM 2540C   RLC     EPA 6020B   CSW     SM 2540C   RLC     EPA 6020B   CSW     SM 2540C   RLC     EPA 6020B   CSW     SM 2540C   RLC     EPA 6020B   CSW     SM 2540C   RLC     EPA 6020B   CSW     SM 2540C   RLC     EPA 300.0   RLC     EPA 400.0   RLC	3
EPA 300.0   RLC	13
2616997005       HGWC-8       EPA 6020B       CSW         SM 2540C       RLC         EPA 300.0       RLC         2616997006       HGWC-10       EPA 6020B       CSW         SM 2540C       RLC         EPA 300.0       RLC         2616997007       MW-6       EPA 6020B       CSW         SM 2540C       RLC         EPA 300.0       RLC         2616997008       MW-7       EPA 6020B       CSW         SM 2540C       RLC         SM 2540C       RLC         EPA 300.0       RLC	1
SM 2540C   RLC	3
EPA 300.0   RLC	13
2616997006       HGWC-10       EPA 6020B       CSW         SM 2540C       RLC         EPA 300.0       RLC         2616997007       MW-6       EPA 6020B       CSW         SM 2540C       RLC         EPA 300.0       RLC         2616997008       MW-7       EPA 6020B       CSW         SM 2540C       RLC         EPA 300.0       RLC         EPA 300.0       RLC	1
SM 2540C RLC EPA 300.0 RLC  2616997007 MW-6 EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC  2616997008 MW-7 EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC EPA 300.0 RLC EPA 300.0 RLC RLC EPA 300.0 RLC	3
EPA 300.0 RLC  2616997007 MW-6 EPA 6020B CSW  SM 2540C RLC  EPA 300.0 RLC  2616997008 MW-7 EPA 6020B CSW  SM 2540C RLC  EPA 6020B CSW  SM 2540C RLC  EPA 300.0 RLC  EPA 300.0 RLC	13
2616997007 MW-6 EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC 2616997008 MW-7 EPA 6020B CSW SM 2540C RLC SM 2540C RLC EPA 300.0 RLC	1
SM 2540C RLC EPA 300.0 RLC 2616997008 MW-7 EPA 6020B CSW SM 2540C RLC EPA 300.0 RLC	3
EPA 300.0 RLC  2616997008 MW-7 EPA 6020B CSW  SM 2540C RLC  EPA 300.0 RLC	13
2616997008         MW-7         EPA 6020B         CSW           SM 2540C         RLC           EPA 300.0         RLC	1
SM 2540C RLC EPA 300.0 RLC	3
EPA 300.0 RLC	13
	1
<b>2616997009 HGWC-11</b> EPA 6020B CSW	3
	13
SM 2540C RLC	1
EPA 300.0 RLC	3
<b>2616997010 HGWC-12</b> EPA 6020B CSW	13
SM 2540C RLC	1
EPA 300.0 RLC	3
<b>2616997011 MW-25D</b> EPA 6020B CSW	13
SM 2540C RLC	1
EPA 300.0 RLC	3



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

Sample: HGWC-9	Lab ID:	2616997001	Collecte	ed: 04/03/19	10:05	Received: 04/	04/19 11:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: El	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 22:09	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 22:09	7440-38-2	
Barium	0.12	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 22:09	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 22:09	7440-41-7	
Boron	2.3	mg/L	2.0	0.20	50	04/05/19 15:23	04/09/19 22:14	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 22:09	7440-43-9	
Calcium	164	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 22:14	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 22:09	7440-47-3	
Cobalt	0.00069J	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 22:09	7440-48-4	
Lithium	0.0040J	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 22:09	7439-93-2	
Molybdenum	0.030	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 22:09	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 22:09	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 22:09	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM	2540C						
Total Dissolved Solids	673	mg/L	25.0	10.0	1		04/10/19 16:41		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	130	mg/L	2.5	0.24	10		04/05/19 20:32	16887-00-6	M1
Fluoride	0.14J	mg/L	0.30	0.029	1		04/05/19 14:08	16984-48-8	
Sulfate	214	mg/L	10.0	0.17	10		04/05/19 20:32	14808-79-8	M1



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

Sample: MW-26D	Lab ID:	2616997002	Collecte	ed: 04/03/19	11:38	Received: 04/	04/19 11:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 22:20	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 22:20	7440-38-2	
Barium	0.12	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 22:20	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 22:20	7440-41-7	
Boron	1.5	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 22:20	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 22:20	7440-43-9	
Calcium	122	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 22:26	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 22:20	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 22:20	7440-48-4	
Lithium	0.0034J	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 22:20	7439-93-2	
Molybdenum	0.0083J	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 22:20	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 22:20	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 22:20	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	493	mg/L	25.0	10.0	1		04/10/19 16:41		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	90.6	mg/L	2.5	0.24	10		04/11/19 13:12	16887-00-6	
Fluoride	0.044J	mg/L	0.30	0.029	1		04/05/19 15:12	16984-48-8	
Sulfate	131	mg/L	10.0	0.17	10		04/11/19 13:12		



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

Sample: MW-19	Lab ID:	2616997003	Collecte	ed: 04/03/19	14:50	Received: 04/	04/19 11:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 22:43	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 22:43	7440-38-2	
Barium	0.050	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 22:43	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 22:43	7440-41-7	
Boron	0.63	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 22:43	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 22:43	7440-43-9	
Calcium	74.9	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 22:49	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 22:43	7440-47-3	
Cobalt	0.036	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 22:43	7440-48-4	
Lithium	0.0061J	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 22:43	7439-93-2	
Molybdenum	0.040	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 22:43	7439-98-7	
Selenium	0.0070J	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 22:43	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 22:43	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	310	mg/L	25.0	10.0	1		04/10/19 16:41		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	19.5	mg/L	0.25	0.024	1		04/05/19 15:34	16887-00-6	
Fluoride	0.19J	mg/L	0.30	0.029	1		04/05/19 15:34	16984-48-8	
Sulfate	105	mg/L	10.0	0.17	10		04/11/19 13:34	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

Sample: MW-5	Lab ID:	2616997004	Collecte	ed: 04/03/19	3 13:12	Received: 04/	04/19 11:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 22:55	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 22:55	7440-38-2	
Barium	0.049	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 22:55	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 22:55	7440-41-7	
Boron	0.030J	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 22:55	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 22:55	7440-43-9	
Calcium	82.0	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 23:00	7440-70-2	
Chromium	0.0030J	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 22:55	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 22:55	7440-48-4	
Lithium	ND	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 22:55	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 22:55	7439-98-7	
Selenium	0.0027J	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 22:55	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 22:55	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	396	mg/L	25.0	10.0	1		04/10/19 16:42		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	1.8	mg/L	0.25	0.024	1		04/05/19 15:55	16887-00-6	
Fluoride	0.049J	mg/L	0.30	0.029	1		04/05/19 15:55	16984-48-8	
Sulfate	218	mg/L	10.0	0.17	10		04/11/19 13:57	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

Sample: HGWC-8	Lab ID:	2616997005	Collecte	ed: 04/03/19	9 11:24	Received: 04/	04/19 11:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	thod: El	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 23:06	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 23:06	7440-38-2	
Barium	0.066	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 23:06	7440-39-3	
Beryllium	0.000074J	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 23:06	7440-41-7	
Boron	2.8	mg/L	2.0	0.20	50	04/05/19 15:23	04/09/19 23:12	7440-42-8	
Cadmium	0.00032J	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 23:06	7440-43-9	
Calcium	125	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 23:12	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 23:06	7440-47-3	
Cobalt	0.0019J	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 23:06	7440-48-4	
Lithium	0.0025J	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 23:06	7439-93-2	
Molybdenum	0.50	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 23:06	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 23:06	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 23:06	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	543	mg/L	25.0	10.0	1		04/10/19 16:42		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	91.6	mg/L	2.5	0.24	10		04/05/19 20:53	16887-00-6	
Fluoride	0.63	mg/L	0.30	0.029	1		04/05/19 16:16	16984-48-8	
Sulfate	194	mg/L	10.0	0.17	10		04/05/19 20:53	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

Sample: HGWC-10	Lab ID:	2616997006	Collecte	ed: 04/03/19	13:38	Received: 04/	04/19 11:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 23:17	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 23:17	7440-38-2	
Barium	0.076	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 23:17	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 23:17	7440-41-7	
Boron	0.66	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 23:17	7440-42-8	
Cadmium	0.00010J	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 23:17	7440-43-9	
Calcium	137	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 23:23	7440-70-2	
Chromium	0.020	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 23:17	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 23:17	7440-48-4	
Lithium	ND	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 23:17	7439-93-2	
Molybdenum	0.0021J	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 23:17	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 23:17	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 23:17	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	525	mg/L	25.0	10.0	1		04/10/19 16:42		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	49.3	mg/L	0.25	0.024	1		04/05/19 16:37	16887-00-6	
Fluoride	0.082J	mg/L	0.30	0.029	1		04/05/19 16:37	16984-48-8	
Sulfate	159	mg/L	10.0	0.17	10		04/05/19 21:15		



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

Sample: MW-6	Lab ID:	2616997007	Collecte	ed: 04/03/19	15:10	Received: 04/	04/19 11:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:33	04/10/19 01:00	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/08/19 11:33	04/10/19 01:00	7440-38-2	
Barium	0.090	mg/L	0.010	0.00078	1	04/08/19 11:33	04/10/19 01:00	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/08/19 11:33	04/10/19 01:00	7440-41-7	
Boron	0.67	mg/L	0.040	0.0039	1	04/08/19 11:33	04/10/19 01:00	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/08/19 11:33	04/10/19 01:00	7440-43-9	
Calcium	178	mg/L	25.0	0.69	50	04/08/19 11:33	04/10/19 10:12	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/08/19 11:33	04/10/19 01:00	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	04/08/19 11:33	04/10/19 01:00	7440-48-4	
Lithium	ND	mg/L	0.050	0.00097	1	04/08/19 11:33	04/10/19 01:00	7439-93-2	
Molybdenum	0.0021J	mg/L	0.010	0.0019	1	04/08/19 11:33	04/10/19 01:00	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/08/19 11:33	04/10/19 01:00	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:33	04/10/19 01:00	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	2540C						
Total Dissolved Solids	437	mg/L	25.0	10.0	1		04/10/19 16:42		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	60.9	mg/L	2.5	0.24	10		04/11/19 14:20	16887-00-6	
Fluoride	0.15J	mg/L	0.30	0.029	1		04/05/19 16:59	16984-48-8	
Sulfate	228	mg/L	10.0	0.17	10		04/11/19 14:20	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

Sample: MW-7	Lab ID:	2616997008	Collecte	ed: 04/03/19	9 10:45	Received: 04/	04/19 11:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:33	04/10/19 01:23	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/08/19 11:33	04/10/19 01:23	7440-38-2	
Barium	0.058	mg/L	0.010	0.00078	1	04/08/19 11:33	04/10/19 01:23	7440-39-3	
Beryllium	0.000051J	mg/L	0.0030	0.000050	1	04/08/19 11:33	04/10/19 01:23	7440-41-7	
Boron	0.094	mg/L	0.040	0.0039	1	04/08/19 11:33	04/10/19 01:23	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/08/19 11:33	04/10/19 01:23	7440-43-9	
Calcium	50.2	mg/L	25.0	0.69	50	04/08/19 11:33	04/10/19 10:29	7440-70-2	
Chromium	0.0023J	mg/L	0.010	0.0016	1	04/08/19 11:33	04/10/19 01:23	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	04/08/19 11:33	04/10/19 01:23	7440-48-4	
Lithium	ND	mg/L	0.050	0.00097	1	04/08/19 11:33	04/10/19 01:23	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	04/08/19 11:33	04/10/19 01:23	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/08/19 11:33	04/10/19 01:23	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:33	04/10/19 01:23	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	2540C						
Total Dissolved Solids	213	mg/L	25.0	10.0	1		04/10/19 16:42		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	5.6	mg/L	0.25	0.024	1		04/05/19 17:20	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		04/05/19 17:20	16984-48-8	
Sulfate	75.3	mg/L	10.0	0.17	10		04/11/19 13:18	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

Sample: HGWC-11	Lab ID:	2616997009	Collecte	ed: 04/03/19	12:40	Received: 04/	04/19 11:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:33	04/10/19 01:29	7440-36-0	
Arsenic	0.00094J	mg/L	0.0050	0.00057	1	04/08/19 11:33	04/10/19 01:29	7440-38-2	
Barium	0.023	mg/L	0.010	0.00078	1	04/08/19 11:33	04/10/19 01:29	7440-39-3	
Beryllium	0.00017J	mg/L	0.0030	0.000050	1	04/08/19 11:33	04/10/19 01:29	7440-41-7	
Boron	0.23	mg/L	0.040	0.0039	1	04/08/19 11:33	04/10/19 01:29	7440-42-8	
Cadmium	0.000096J	mg/L	0.0010	0.000093	1	04/08/19 11:33	04/10/19 01:29	7440-43-9	
Calcium	112	mg/L	25.0	0.69	50	04/08/19 11:33	04/10/19 10:35	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/08/19 11:33	04/10/19 01:29	7440-47-3	
Cobalt	0.0018J	mg/L	0.010	0.00052	1	04/08/19 11:33	04/10/19 01:29	7440-48-4	
Lithium	ND	mg/L	0.050	0.00097	1	04/08/19 11:33	04/10/19 01:29	7439-93-2	
Molybdenum	0.010	mg/L	0.010	0.0019	1	04/08/19 11:33	04/10/19 01:29	7439-98-7	
Selenium	0.016	mg/L	0.010	0.0014	1	04/08/19 11:33	04/10/19 01:29	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:33	04/10/19 01:29	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	483	mg/L	25.0	10.0	1		04/10/19 16:42		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	4.6	mg/L	0.25	0.024	1		04/05/19 19:07	16887-00-6	
Fluoride	0.43	mg/L	0.30	0.029	1		04/05/19 19:07	16984-48-8	
Sulfate	298	mg/L	10.0	0.17	10		04/11/19 14:52	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

Sample: HGWC-12	Lab ID:	2616997010	Collecte	ed: 04/03/19	9 14:20	Received: 04/	04/19 11:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	thod: Ef	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:33	04/10/19 01:35	7440-36-0	
Arsenic	0.0022J	mg/L	0.0050	0.00057	1	04/08/19 11:33	04/10/19 01:35	7440-38-2	
Barium	0.077	mg/L	0.010	0.00078	1	04/08/19 11:33	04/10/19 01:35	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/08/19 11:33	04/10/19 01:35	7440-41-7	
Boron	1.8	mg/L	0.040	0.0039	1	04/08/19 11:33	04/10/19 01:35	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/08/19 11:33	04/10/19 01:35	7440-43-9	
Calcium	114	mg/L	25.0	0.69	50	04/08/19 11:33	04/10/19 10:40	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/08/19 11:33	04/10/19 01:35	7440-47-3	
Cobalt	0.0011J	mg/L	0.010	0.00052	1	04/08/19 11:33	04/10/19 01:35	7440-48-4	
Lithium	0.0066J	mg/L	0.050	0.00097	1	04/08/19 11:33	04/10/19 01:35	7439-93-2	
Molybdenum	0.049	mg/L	0.010	0.0019	1	04/08/19 11:33	04/10/19 01:35	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/08/19 11:33	04/10/19 01:35	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:33	04/10/19 01:35	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	462	mg/L	25.0	10.0	1		04/10/19 16:42		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	62.8	mg/L	1.2	0.12	5		04/05/19 21:57	16887-00-6	
Fluoride	0.30J	mg/L	0.30	0.029	1		04/05/19 19:28	16984-48-8	
Sulfate	176	mg/L	5.0	0.085	5		04/05/19 21:57	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

Sample: MW-25D	Lab ID:	2616997011	Collected: 04/03/19 16:15			Received: 04/04/19 11:00 Matrix: Water				
			Report							
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua	
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A				
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:33	04/10/19 01:41	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00057	1	04/08/19 11:33	04/10/19 01:41	7440-38-2		
Barium	0.38	mg/L	0.010	0.00078	1	04/08/19 11:33	04/10/19 01:41	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/08/19 11:33	04/10/19 01:41	7440-41-7		
Boron	0.37	mg/L	0.040	0.0039	1	04/08/19 11:33	04/10/19 01:41	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000093	1	04/08/19 11:33	04/10/19 01:41	7440-43-9		
Calcium	25.4	mg/L	25.0	0.69	50	04/08/19 11:33	04/10/19 10:46	7440-70-2		
Chromium	ND	mg/L	0.010	0.0016	1	04/08/19 11:33	04/10/19 01:41	7440-47-3		
Cobalt	ND	mg/L	0.010	0.00052	1	04/08/19 11:33	04/10/19 01:41	7440-48-4		
Lithium	0.047J	mg/L	0.050	0.00097	1	04/08/19 11:33	04/10/19 01:41	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.0019	1	04/08/19 11:33	04/10/19 01:41	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	04/08/19 11:33	04/10/19 01:41	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:33	04/10/19 01:41	7440-28-0		
2540C Total Dissolved Solids	Analytical Method: SM 2540C									
Total Dissolved Solids	15.0J	mg/L	25.0	10.0	1		04/10/19 16:42			
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0							
Chloride	32.0	mg/L	0.25	0.024	1		04/05/19 20:11	16887-00-6		
Fluoride	1.6	mg/L	0.30	0.029	1		04/05/19 20:11	16984-48-8		
Sulfate	53.0	mg/L	10.0	0.17	10		04/11/19 15:13	14808-79-8		



### **QUALITY CONTROL DATA**

Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

QC Batch: 25906 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

Associated Lab Samples: 2616997001, 2616997002, 2616997003, 2616997004, 2616997005, 2616997006

METHOD BLANK: 116817 Matrix: Water

Associated Lab Samples: 2616997001, 2616997002, 2616997003, 2616997004, 2616997005, 2616997006

		Blank	Reporting				
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers	
Antimony	mg/L	ND	0.0030	0.00078	04/09/19 18:14		
Arsenic	mg/L	ND	0.0050	0.00057	04/09/19 18:14		
Barium	mg/L	ND	0.010	0.00078	04/09/19 18:14		
Beryllium	mg/L	ND	0.0030	0.000050	04/09/19 18:14		
Boron	mg/L	ND	0.040	0.0039	04/09/19 18:14		
Cadmium	mg/L	ND	0.0010	0.000093	04/09/19 18:14		
Calcium	mg/L	ND	0.50	0.014	04/09/19 18:14		
Chromium	mg/L	ND	0.010	0.0016	04/09/19 18:14		
Cobalt	mg/L	ND	0.010	0.00052	04/09/19 18:14		
Lithium	mg/L	ND	0.050	0.00097	04/09/19 18:14		
Molybdenum	mg/L	ND	0.010	0.0019	04/09/19 18:14		
Selenium	mg/L	ND	0.010	0.0014	04/09/19 18:14		
Thallium	mg/L	ND	0.0010	0.00014	04/09/19 18:14		

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	mg/L	0.1	0.10	102	80-120	
Arsenic	mg/L	0.1	0.10	100	80-120	
Barium	mg/L	0.1	0.098	98	80-120	
Beryllium	mg/L	0.1	0.096	96	80-120	
Boron	mg/L	1	0.94	94	80-120	
Cadmium	mg/L	0.1	0.10	100	80-120	
Calcium	mg/L	1	0.97	97	80-120	
Chromium	mg/L	0.1	0.10	101	80-120	
Cobalt	mg/L	0.1	0.10	100	80-120	
Lithium	mg/L	0.1	0.096	96	80-120	
Molybdenum	mg/L	0.1	0.10	102	80-120	
Selenium	mg/L	0.1	0.10	101	80-120	
Thallium	mg/L	0.1	0.098	98	80-120	

MATRIX SPIKE & MATRIX SPIKE	CATE: 116819		116820									
			MS	MSD								
		2616933004	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.11	0.10	108	105	75-125	3	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.10	102	102	75-125	0	20	
Barium	mg/L	0.072	0.1	0.1	0.18	0.18	109	105	75-125	2	20	

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.



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

MATRIX SPIKE & MATRIX S	SPIKE DUPLIC	ATE: 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
Beryllium	mg/L	ND	0.1	0.1	0.092	0.092	92	92	75-125	1	20	
Boron	mg/L	0.99	1	1	1.9	2.0	92	96	75-125	2	20	
Cadmium	mg/L	ND	0.1	0.1	0.10	0.10	104	101	75-125	3	20	
Calcium	mg/L	101	1	1	140	115	3930	1380	75-125	20	20	M6
Chromium	mg/L	ND	0.1	0.1	0.11	0.10	105	103	75-125	2	20	
Cobalt	mg/L	0.00069J	0.1	0.1	0.10	0.10	102	100	75-125	2	20	
Lithium	mg/L	0.0020J	0.1	0.1	0.094	0.095	91	93	75-125	2	20	
Molybdenum	mg/L	0.041	0.1	0.1	0.15	0.15	112	110	75-125	1	20	
Selenium	mg/L	ND	0.1	0.1	0.11	0.10	105	102	75-125	3	20	
Thallium	mg/L	ND	0.1	0.1	0.097	0.096	97	95	75-125	2	20	

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.



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

 QC Batch:
 25997
 Analysis Method:
 EPA 6020B

 QC Batch Method:
 EPA 3005A
 Analysis Description:
 6020B MET

 Associated Lab Samples:
 2616997007, 2616997008, 2616997009, 2616997010, 2616997011

METHOD BLANK: 117367 Matrix: Water

Associated Lab Samples: 2616997007, 2616997008, 2616997009, 2616997010, 2616997011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L		0.0030	0.00078	04/09/19 23:46	
Arsenic	mg/L	ND	0.0050	0.00057	04/09/19 23:46	
Barium	mg/L	ND	0.010	0.00078	04/09/19 23:46	
Beryllium	mg/L	ND	0.0030	0.000050	04/09/19 23:46	
Boron	mg/L	ND	0.040	0.0039	04/09/19 23:46	
Cadmium	mg/L	ND	0.0010	0.000093	04/09/19 23:46	
Calcium	mg/L	ND	0.50	0.014	04/09/19 23:46	
Chromium	mg/L	ND	0.010	0.0016	04/09/19 23:46	
Cobalt	mg/L	ND	0.010	0.00052	04/09/19 23:46	
Lithium	mg/L	ND	0.050	0.00097	04/09/19 23:46	
Molybdenum	mg/L	ND	0.010	0.0019	04/09/19 23:46	
Selenium	mg/L	ND	0.010	0.0014	04/09/19 23:46	
Thallium	mg/L	ND	0.0010	0.00014	04/09/19 23:46	

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	mg/L	0.1	0.10	102	80-120	
Arsenic	mg/L	0.1	0.096	96	80-120	
Barium	mg/L	0.1	0.098	98	80-120	
Beryllium	mg/L	0.1	0.094	94	80-120	
Boron	mg/L	1	0.95	95	80-120	
Cadmium	mg/L	0.1	0.10	100	80-120	
Calcium	mg/L	1	0.98	98	80-120	
Chromium	mg/L	0.1	0.10	104	80-120	
Cobalt	mg/L	0.1	0.10	101	80-120	
Lithium	mg/L	0.1	0.094	94	80-120	
Molybdenum	mg/L	0.1	0.10	102	80-120	
Selenium	mg/L	0.1	0.097	97	80-120	
Thallium	mg/L	0.1	0.096	96	80-120	

MATRIX SPIKE & MATRIX S	PIKE DUPLIC	CATE: 117369	9		117370							
Parameter	Units	2616997007 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	102	102	75-125	0	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.099	100	99	75-125	1	20	
Barium	mg/L	0.090	0.1	0.1	0.18	0.18	90	93	75-125	1	20	

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.



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

MATRIX SPIKE & MATRIX S	SPIKE DUPLICA	ATE: 117369	9		117370							
Parameter	Units	2616997007 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	0.090	0.088	90	88	75-125	2	20	
Boron	mg/L	0.67	1	1	1.5	1.5	85	86	75-125	0	20	
Cadmium	mg/L	ND	0.1	0.1	0.099	0.099	99	99	75-125	0	20	
Calcium	mg/L	178	1	1	173	179	-513	1	75-125	3	20	
Chromium	mg/L	ND	0.1	0.1	0.099	0.10	99	102	75-125	3	20	
Cobalt	mg/L	ND	0.1	0.1	0.096	0.097	95	97	75-125	2	20	
Lithium	mg/L	ND	0.1	0.1	0.090	0.091	90	90	75-125	0	20	
Molybdenum	mg/L	0.0021J	0.1	0.1	0.10	0.11	103	104	75-125	1	20	
Selenium	mg/L	ND	0.1	0.1	0.097	0.10	97	100	75-125	3	20	
Thallium	mg/L	ND	0.1	0.1	0.092	0.094	92	94	75-125	2	20	

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.



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

QC Batch: 26129 Analysis Method: SM 2540C

QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 2616997001, 2616997002, 2616997003, 2616997004, 2616997005, 2616997006, 2616997007, 2616997008,

2616997009, 2616997010, 2616997011

LABORATORY CONTROL SAMPLE:	117954					
Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	412	103	84-108	
SAMPLE DUPLICATE: 118270						
		2616972001	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
otal Dissolved Solids	mg/L	29	30	3	4	10
AMPLE DUPLICATE: 118610						
		2616992002	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
Total Dissolved Solids	mg/L	369	9 35		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.



Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

QC Batch: 25883 Analysis Method: EPA 300.0

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

Associated Lab Samples: 2616997001, 2616997002, 2616997003, 2616997004, 2616997005, 2616997006, 2616997007, 2616997008,

2616997009, 2616997010, 2616997011

METHOD BLANK: 116739 Matrix: Water

Associated Lab Samples: 2616997001, 2616997002, 2616997003, 2616997004, 2616997005, 2616997006, 2616997007, 2616997008,

2616997009, 2616997010, 2616997011

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.057J	0.25	0.024	04/05/19 13:26	
Fluoride	mg/L	ND	0.30	0.029	04/05/19 13:26	
Sulfate	mg/L	0.026J	1.0	0.017	04/05/19 13:26	

LABORATORY CONTROL SAMPLE:	116740					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Chloride	mg/L	10	10.1	101	90-110	
Fluoride	mg/L	10	10.1	101	90-110	
Sulfate	mg/L	10	10.0	100	90-110	

MATRIX SPIKE & MATRIX SPIR	(E DUPLIC	CATE: 11674	1		116742							
			MS	MSD								
		2616997001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	130	10	10	111	111	-190	-190	90-110	0	15	E,M1
Fluoride	mg/L	0.14J	10	10	10.4	10.2	103	100	90-110	2	15	
Sulfate	mg/L	214	10	10	165	165	-494	-494	90-110	0	15	E,M1

MATRIX SPIKE SAMPLE:	116743						
		2616997002	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Chloride	mg/L	90.6	10	90.3	-2	90-110 E	
Fluoride	mg/L	0.044J	10	9.2	92	90-110	
Sulfate	mg/L	131	10	122	-98	90-110 E	Ī

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.



### **QUALIFIERS**

Project: Plant Hammond
Pace Project No.: 2616997

### **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**

Date: 04/11/2019 06:23 PM

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.



# **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2616997

Date: 04/11/2019 06:23 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616997001	HGWC-9	EPA 3005A	 25906	EPA 6020B	 25928
2616997002	MW-26D	EPA 3005A	25906	EPA 6020B	25928
2616997003	MW-19	EPA 3005A	25906	EPA 6020B	25928
2616997004	MW-5	EPA 3005A	25906	EPA 6020B	25928
2616997005	HGWC-8	EPA 3005A	25906	EPA 6020B	25928
2616997006	HGWC-10	EPA 3005A	25906	EPA 6020B	25928
2616997007	MW-6	EPA 3005A	25997	EPA 6020B	26011
2616997008	MW-7	EPA 3005A	25997	EPA 6020B	26011
2616997009	HGWC-11	EPA 3005A	25997	EPA 6020B	26011
2616997010	HGWC-12	EPA 3005A	25997	EPA 6020B	26011
2616997011	MW-25D	EPA 3005A	25997	EPA 6020B	26011
2616997001	HGWC-9	SM 2540C	26129		
2616997002	MW-26D	SM 2540C	26129		
2616997003	MW-19	SM 2540C	26129		
2616997004	MW-5	SM 2540C	26129		
2616997005	HGWC-8	SM 2540C	26129		
2616997006	HGWC-10	SM 2540C	26129		
2616997007	MW-6	SM 2540C	26129		
2616997008	MW-7	SM 2540C	26129		
2616997009	HGWC-11	SM 2540C	26129		
2616997010	HGWC-12	SM 2540C	26129		
2616997011	MW-25D	SM 2540C	26129		
2616997001	HGWC-9	EPA 300.0	25883		
2616997002	MW-26D	EPA 300.0	25883		
2616997003	MW-19	EPA 300.0	25883		
2616997004	MW-5	EPA 300.0	25883		
2616997005	HGWC-8	EPA 300.0	25883		
2616997006	HGWC-10	EPA 300.0	25883		
2616997007	MW-6	EPA 300.0	25883		
2616997008	MW-7	EPA 300.0	25883		
2616997009	HGWC-11	EPA 300.0	25883		
2616997010	HGWC-12	EPA 300.0	25883		
2616997011	MW-25D	EPA 300.0	25883		

Face 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	Cilent Information:	Section B Required Project Information:	lect Inf	ormation:				Sect	Section C	Section C Invoice Information:									I				ł	[,	
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Address:	2480 Maner Road		Lauren	Lauren Petty, Geosyntec	syntec			ဦ	Company Name:	E E				İ			İ	_							
Atlanta								Add	Address:												Norde A	Receiption Afterna		200	_
ig E	jabraham@southemco.com	Purchase Order #: SC310348608	#. Bu	SC3103	18606			- B	Pace Quoter					i											
Phone	(404)506-7239 Fax	Project Name:		Plant Hammond	, Jud			Pac	Projec	Pace Project Manager.	İ	betsy.modaniel@pacelabs.com,	daniel@	pacelab	S.COM.				1000		S. T. A. B.	State ( Location)			
Redue	1	Project #:						Pace	Pace Profile #:		327 (AP) or 328 (Huff)	r 328 (H	tuff)			•					β				
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	SAMPLE ID	M M M M	see valid codes		START	QX.						3	180)	(V) .qqA		<u> </u>	-	-			(N/A)				
ITEM #	One Character por box. Wise (A-Z, 0.9 /, -) Oher Sample Ids must be unique Tissue	8 4 4 5 5 5 T	) BOOD KINTON SAMPLE TYPE	DA IA	Ä	DATE	TIME	# OF CONTAINER	Unpreserved H2SO4	HINOS	NªOH HCI	Na2S2O3 IcranieM	onio	Metals (App. III, Ap	Metals (App. III	TDS, CI, F, SO4 Redium 226/228					Residual Chlorine				
	HGWC-9		سروا	26/65	9:43			SA	~	3	<u> </u>		$\vdash$	Σ	j	Σ					-				
2	MW-26D		9 100	203	5	Q	11:38	19 5	n	~			<u> </u>	>	1	<u> </u>	$\vdash$			Ė					
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4	App I (2): Antworn, Assovic, Berium,		12	Grant Welter	(Gessia	N	041031	لہ اا	1910	1/2	eilia	1	( Cashell	3	Geosyate		bl/6//	4	1810		_				
3	Beryllium, Cadorum, Chromium		Lin	Mh		Age.	4/3/19	_	1900	1/1/	Show	1-/	The second	7	16		1/5/14		900	Ļ	-	<u> </u>			
3	Coholt, Fluoride, Whiten.	7	a	1/2	le esizabe		4/4/19			M		J	9	, ,			2.3	1	000	L		$\vdash$	_		
Me	Molybolenum, Elevium, Thallium	_								Z	10	3		19	$ \vec{j} $	1	44	14	100	3.5	lι	8	5	>	
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ge 2	ac S				PRINT	PRINT Name of SAMPLER:	SAMPLE		Grand		Walte	١								9 in C	o bev			ea.	
4 of	M -4			_ <b></b>	SIGN	SIGNATURE of SAMPLER:	SAMPLE		A cost	1	Wie	K	١.	ă	DATE Signed:		04/03/19	2		TEM!	Recei	(Y/N) Custo	Sealer Coole (Y/N)	Samp Intact (Y/V)	
27	77																					1	1		

Pace Analytical

# CHAIN-OF-CUSTODY / Analytical Request Document

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

Due Date: 04/11/19 (N/A) Semples · Regulatory Ayancy (N/A) ŏ Coolar State Mocellan perces Custos MO#: 2616997  $(N/\lambda)$ 8 Received on CLIENT: GRPouer-CCR Residual Chlorine (Y/N) Page: is TEMP in C 2998 1000 450 4/2/19 119 112/16 É × Redium 226/228 DATE Signed: 7 TDS, CI, F, SO4 betsy.modaniet@pacelabs.com Metals (App. III & D&O) nexu Wats (App. III, App. IV, D&O rearente VI .qqA & III .qqA) alsteM ァ Pace EN/A dseT sesylanA Attention: scsinvoices@southernco.com Pace Project Manager: betsy modari Pace Profile #: 327 (AP) or 328 (Huff) Other Much Musius Methanol Nezszos SLAK HOBN ЮН nvoice information: ᡯ 4 EONH Company Name Noelia Nortia HS204 Section C Hadin representan tan Holla 1900 Address: Unpreserved 4 4/2/10 1318 4/2/10 133819 5 b # OF CONTAINERS 2 G 4/3/10/1450 4/3/19 1510 20 SAMPLE TEMP AT COLLECTION 学 PRINT Name of SAMPLER: SKGNATURE of SAMPLER: TO CALL 414/14 8 C 4/2/10 1054 4/2/10 DATE COLLECTED Comore contract Copy To: Lauren Petty, Geosyntec SCS10348606 Plant Hammond START Required Project Information: Joju Abraham SAMPLE TYPE (G-GRAB C-COMP) W. Jawol Purchase Order #: Project Name: p Project #: 3 7 MATRIX CODE (see valid codes to left) Section B Becyllium, Calmium, Chronium, Chall MATRUX
Drinking Water
Water
Waste Water
Waste Water
Product
SoarSould
Oil
Wape
Air
Other
Tissue Nos IV (2): Antimoughbrosenic, Barn worder, affirm, Maybalaum, Sale sice Georgia Power - Coal Combustion Residuals Profile: (404)506-7239 Fax. Requested Due Date: Standard TAT One Character per box. (A.Z. 0.9 / , .) Sample Ids must be unique SAMPLE ID HGWC-10 mail: jabraham@southernco.com HGWC-B 2480 Maner Road Required Client Information: MM-M Thallium ÷U. gE S Page 25 of 27 # Mati

# CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A	. <b>«</b>	Section B							•	Section C	Ç															l		ſ
Require	Required Client Information:	Required Project Information:	roject	Infon	mation:				_	nvolce	Infor	Involce Information:											Q.	Page:		് റ	ت ن	~
Company:		Report To:	함	Joju Abraham	ham				Ì	Attention:	Ë	SCSIAM	Dices@	scsinvoices@southernco.com	mco.cc	Ę					Г					l	ı	
Address	2480 Maner Road	Copy To:	Lau	ren Pe	Lauren Petty, Geosyntec	yntec				ошра	Nar	Ę.									_							
Atlanta, (	Atlanta, GA 30339								Ì	Address:	is.											Regulation Alleney		Regula				1
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Phone:	(404)506-7239 Fax	Project Name: P	ē	Ptan	Plant Hammond	Ę.			Ī	ace P	roject	Pace Project Manager:		betsy.n	nodani	betsy.modaniel@pacelabs.com	Selabs	Eg.				1000		State ( Location )	100 and	4		
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Face Anal	vtical Client Name: _	GA	Power	Project #	
Tracking #:	x UPS USPS Client	☐ Commercial	Pace Other	WO#:26	16997
Custody Seal on (	cooler/Box Present: yes	no Seals	intact: 🖵 Ves	PM: BM	Due Date: 04/11/19
	☐ Bubble Wrap ☐ Bubble Bag			CLIENT: GAPON	er-C¢R
Thermometer Use				 	
Cooler Temperatu	I.I	•	is Frozen: Yes No	Date and Initia	ling process/has begun
Temp should be abov			Comments:	contents:	+/4/19 M
Chain of Custody P	resent:	1 es □No □N/A	1.		<del>' '</del>
Chain of Custody F		es 🗆 No 🗆 N/A			
Chain of Custody R		es □No □N/A			
Sampler Name & S		es 🗆 No 🗆 N/A			
Samples Arrived wi		es 🗆 No 🗆 N/A			
Short Hold Time A		es DM6 □N/A			
Rush Turn Around		es ☑N⁄A			
Sufficient Volume:		ēs □No □N/A			
Correct Containers		ēs □No □N/A			
-Pace Container	Used:	? es □No □N/A			
Containers Intact:	25	es 🗆 No 🗆 N/A	10.		
Filtered volume rece	sived for Dissolved tests	es 🗆 No 🛨 N/A	11.		
Sample Labels mate	ch COC:	es □No □N/A	12.		
-Includes date/tir	ne/ID/Analysis Matrix:	$\omega$			
All containers needing p	reservation have been checked.	7 es □No □N/A	13.		
All containers needing compliance with EPA	preservation are found to be in ecommendation.	és □No □N/A			
exceptions: VOA, colifor	m, TOC, O&G, WI-DRO (water)	es ÆNO	Initial when completed	Lot # of added preservative	
Samples checked for		BS □NO □NTA			
Headspace in VOA		es 🗆 No 🔎 NÃ			
Trip Blank Present:		es 🗆 No 🗗 N/A			
Trip Blank Custody		es ONO ONA			
Pace Trip Blank Lot	# (if purchased):				
Client Notification/	Resolution				
	cted:	Date/1		Field Data Required	Y / N
Comments/ Resolu		Dater	inte.	<del>                                     </del>	
_					
Project Manager	Review:			Date:	
Note: Whenever there	is a discrepancy affecting North Carolina	compliance sam	ples, a copy of this forn	n will be sent to the North	Carolina DEHNR
Sertification Office (i.e	out of hold, incorrect preservative, out of	f temp, incorrect	containers)		
				F-ALLC003	rev.3, 11September2006





April 26, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2616998

# Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 04, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Betsy McDaniel

Beton M Damil

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



(770)734-4200



CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616998

### 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

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

Ohio EPA Rad Approval: #41249

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



# **SAMPLE SUMMARY**

Project: Plant Hammond

Pace Project No.: 2616998

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616998001	HGWC-9	Water	04/03/19 10:05	04/04/19 11:00
2616998002	MW-26D	Water	04/03/19 11:38	04/04/19 11:00
2616998003	MW-19	Water	04/03/19 14:50	04/04/19 11:00
2616998004	MW-5	Water	04/03/19 13:12	04/04/19 11:00
2616998005	HGWC-8	Water	04/03/19 11:24	04/04/19 11:00
2616998006	HGWC-10	Water	04/03/19 13:38	04/04/19 11:00
2616998007	MW-6	Water	04/03/19 15:10	04/04/19 11:00
2616998008	MW-7	Water	04/03/19 10:45	04/04/19 11:00
2616998009	HGWC-11	Water	04/03/19 12:40	04/04/19 11:00
2616998010	HGWC-12	Water	04/03/19 14:20	04/04/19 11:00
2616998011	MW-25D	Water	04/03/19 16:15	04/04/19 11:00



# **SAMPLE ANALYTE COUNT**

Project: Plant Hammond

Pace Project No.: 2616998

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2616998001	HGWC-9	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998002	MW-26D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998003	MW-19	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998004	MW-5	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998005	HGWC-8	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998006	HGWC-10	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998007	MW-6	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998008	MW-7	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998009	HGWC-11	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998010	HGWC-12	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998011	MW-25D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA



Project: Plant Hammond

Pace Project No.: 2616998

Sample: HGWC-9 PWS:	<b>Lab ID: 26169980</b> Site ID:	O1 Collected: 04/03/19 10:05 Sample Type:	Received:	04/04/19 11:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.147 ± 0.211 (0.452) C:86% T:NA	pCi/L	04/12/19 09:46	13982-63-3	
Radium-228		0.00881 ± 0.442 (1.03) C:76% T:82%	pCi/L	04/16/19 18:33	3 15262-20-1	
Total Radium	Total Radium Calculation	0.156 ± 0.653 (1.48)	pCi/L	04/17/19 13:15	7440-14-4	



Project: Plant Hammond

Calculation

Pace Project No.: 2616998

Sample: MW-26D PWS:	<b>Lab ID: 2616998</b> ( Site ID:	O02 Collected: 04/03/19 11:38 Sample Type:	Received:	04/04/19 11:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.205 ± 0.207 (0.378) C:94% T:NA	pCi/L	04/12/19 09:36	13982-63-3	
Radium-228	EPA 9320	-0.0700 ± 0.421 (1.00) C:77% T:80%	pCi/L	04/16/19 18:37	7 15262-20-1	
Total Radium	Total Radium	0.205 ± 0.628 (1.38)	pCi/L	04/17/19 13:15	5 7440-14-4	



Project: Plant Hammond Pace Project No.: 2616998

Sample: MW-19 Lab ID: 2616998003 Collected: 04/03/19 14:50 Received: 04/04/19 11:00 Matrix: Water

PWS:	Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.276 ± 0.229 (0.387) C:89% T:NA	pCi/L	04/12/19 09:49	13982-63-3	
Radium-228	EPA 9320	0.608 ± 0.805 (1.72) C:77% T:83%	pCi/L	04/16/19 21:13	15262-20-1	
Total Radium	Total Radium Calculation	0.884 ± 1.03 (2.11)	pCi/L	04/17/19 13:15	7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616998

Sample: MW-5 PWS:	<b>Lab ID: 26169980</b> Site ID:	O4 Collected: 04/03/19 13:12 Sample Type:	Received:	04/04/19 11:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.607 ± 0.360 (0.575) C:92% T:NA	pCi/L	04/12/19 09:37	7 13982-63-3	
Radium-228		0.325 ± 0.807 (1.79) C:79% T:83%	pCi/L	04/16/19 21:13	3 15262-20-1	
Total Radium	Total Radium Calculation	0.932 ± 1.17 (2.37)	pCi/L	04/17/19 13:1	5 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616998

Sample: HGWC-8 PWS:	<b>Lab ID: 26169980</b> Site ID:	O5 Collected: 04/03/19 11:24 Sample Type:	Received:	04/04/19 11:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.291 ± 0.241 (0.415) C:92% T:NA	pCi/L	04/12/19 09:46	13982-63-3	
Radium-228		0.594 ± 0.544 (1.11) C:77% T:79%	pCi/L	04/16/19 18:37	7 15262-20-1	
Total Radium	Total Radium Calculation	$0.885 \pm 0.785  (1.53)$	pCi/L	04/17/19 13:15	5 7440-14-4	



Project: Plant Hammond

Calculation

Pace Project No.: 2616998

Sample: HGWC-10 PWS:	<b>Lab ID: 261699</b> Site ID:	8006 Collected: 04/03/19 13:38 Sample Type:	Received:	04/04/19 11:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	1.80 ± 0.587 (0.524) C:83% T:NA	pCi/L	04/12/19 09:39	9 13982-63-3	
Radium-228	EPA 9320	0.0170 ± 0.700 (1.61) C:80% T:80%	pCi/L	04/16/19 21:13	3 15262-20-1	
Total Radium	Total Radium	1.82 ± 1.29 (2.13)	pCi/L	04/17/19 13:1	5 7440-14-4	



Project: Plant Hammond Pace Project No.: 2616998

Sample: MW-6 Lab ID: 2616998007 Collected: 04/03/19 15:10 Received: 04/04/19 11:00 Matrix: Water

PWS:	Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.789 ± 0.376 (0.497) C:91% T:NA	pCi/L	04/12/19 09:49	13982-63-3	
Radium-228	EPA 9320	0.0827 ± 0.817 (1.86) C:79% T:80%	pCi/L	04/16/19 21:13	15262-20-1	
Total Radium	Total Radium Calculation	0.872 ± 1.19 (2.36)	pCi/L	04/17/19 13:15	7440-14-4	



Project: Plant Hammond Pace Project No.: 2616998

Sample: MW-7 PWS:	<b>Lab ID: 26169980</b> Site ID:	O8 Collected: 04/03/19 10:45 Sample Type:	Received:	04/04/19 11:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.310 ± 0.233 (0.379) C:99% T:NA	pCi/L	04/12/19 09:46	13982-63-3	
Radium-228		0.741 ± 0.545 (1.07) C:75% T:84%	pCi/L	04/16/19 18:35	5 15262-20-1	
Total Radium	Total Radium Calculation	1.05 ± 0.778 (1.45)	pCi/L	04/17/19 13:15	7440-14-4	



Project: Plant Hammond

Pace Project No.: 2616998

Sample: HGWC-11 PWS:	<b>Lab ID: 26169980</b> Site ID:	O9 Collected: 04/03/19 12:40 Sample Type:	Received:	04/04/19 11:00	Matrix: Water		
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual	
Radium-226		0.302 ± 0.263 (0.475) C:90% T:NA	pCi/L	04/12/19 09:37	7 13982-63-3		
Radium-228		0.0575 ± 0.452 (1.04) C:79% T:82%	pCi/L	04/16/19 18:37	7 15262-20-1		
Total Radium	Total Radium Calculation	$0.360 \pm 0.715  (1.52)$	pCi/L	04/17/19 13:15	5 7440-14-4		



Project: Plant Hammond

Pace Project No.: 2616998

Sample: HGWC-12 PWS:	<b>Lab ID: 26169980</b> Site ID:	Collected: 04/03/19 14:20 Sample Type:	Received:	04/04/19 11:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.344 ± 0.249 (0.412) C:94% T:NA	pCi/L	04/12/19 09:49	13982-63-3	
Radium-228		0.390 ± 0.755 (1.66) C:76% T:83%	pCi/L	04/16/19 21:13	3 15262-20-1	
Total Radium	Total Radium Calculation	0.734 ± 1.00 (2.07)	pCi/L	04/17/19 13:15	7440-14-4	



Project: Plant Hammond

Calculation

Pace Project No.: 2616998

Sample: MW-25D PWS:	<b>Lab ID: 26169980</b> 1 Site ID:	Collected: 04/03/19 16:15 Sample Type:	Received:	04/04/19 11:00	Matrix: Water		
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual	
Radium-226		0.361 ± 0.333 (0.652) C:82% T:NA	pCi/L	04/12/19 09:49	13982-63-3		
Radium-228		0.301 ± 0.482 (1.05) C:74% T:77%	pCi/L	04/25/19 11:04	15262-20-1		
Total Radium		0.662 ± 0.815 (1.70)	pCi/L	04/26/19 09:32	2 7440-14-4		



Project: Plant Hammond

Pace Project No.: 2616998

QC Batch: 337393 Analysis Method: EPA 9315

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

Associated Lab Samples: 2616998003, 2616998004, 2616998006, 2616998007, 2616998009, 2616998010, 2616998011

METHOD BLANK: 1642070 Matrix: Water

Associated Lab Samples: 2616998003, 2616998004, 2616998006, 2616998007, 2616998009, 2616998010, 2616998011

Parameter Act ± Unc (MDC) Carr Trac Units Analyzed Qualifiers

Radium-226 0.123  $\pm$  0.274 (0.633) C:65% T:NA pCi/L 04/12/19 09:37

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



Project: Plant Hammond

Pace Project No.: 2616998

QC Batch: 337392 Analysis Method: EPA 9315

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

Associated Lab Samples: 2616998001, 2616998002, 2616998005, 2616998008

METHOD BLANK: 1642069 Matrix: Water

Associated Lab Samples: 2616998001, 2616998002, 2616998005, 2616998008

Parameter Act ± Unc (MDC) Carr Trac Units Analyzed Qualifiers

Radium-226 0.117  $\pm$  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.



Project: Plant Hammond

Pace Project No.: 2616998

QC Batch: 337342 Analysis Method: EPA 9320
QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616998001, 2616998002, 2616998003, 2616998004, 2616998005, 2616998006, 2616998007, 2616998008,

2616998009, 2616998010

METHOD BLANK: 1641953 Matrix: Water

Associated Lab Samples: 2616998001, 2616998002, 2616998003, 2616998004, 2616998005, 2616998006, 2616998007, 2616998008,

2616998009, 2616998010

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-228
 -0.245 ± 0.294 (0.748) C:78% T:79%
 pCi/L
 04/16/19 16:22

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



EPA 9320

Project: Plant Hammond

Pace Project No.: 2616998

QC Batch: 338745

QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616998011

METHOD BLANK: 1648702 Matrix: Water

Associated Lab Samples: 2616998011

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-228
 0.552 ± 0.362 (0.681) C:81% T:74%
 pCi/L
 04/25/19 11:04

Analysis Method:

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.



### **QUALIFIERS**

Project: Plant Hammond
Pace Project No.: 2616998

### **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**

Date: 04/26/2019 03:11 PM

PASI-PA Pace Analytical Services - Greensburg



# **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2616998

Date: 04/26/2019 03:11 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch	
2616998001	HGWC-9	EPA 9315	337392			
2616998002	MW-26D	EPA 9315	337392			
2616998003	MW-19	EPA 9315	337393			
2616998004	MW-5	EPA 9315	337393			
2616998005	HGWC-8	EPA 9315	337392			
2616998006	HGWC-10	EPA 9315	337393			
2616998007	MW-6	EPA 9315	337393			
2616998008	MW-7	EPA 9315	337392			
2616998009	HGWC-11	EPA 9315	337393			
2616998010	HGWC-12	EPA 9315	337393			
2616998011	MW-25D	EPA 9315	337393			
2616998001	HGWC-9	EPA 9320	337342			
2616998002	MW-26D	EPA 9320	337342			
2616998003	MW-19	EPA 9320	337342			
2616998004	MW-5	EPA 9320	337342			
2616998005	HGWC-8	EPA 9320	337342			
2616998006	HGWC-10	EPA 9320	337342			
2616998007	MW-6	EPA 9320	337342			
2616998008	MW-7	EPA 9320	337342			
2616998009	HGWC-11	EPA 9320	337342			
2616998010	HGWC-12	EPA 9320	337342			
2616998011	MW-25D	EPA 9320	338745			
2616998001	HGWC-9	Total Radium Calculation	338684			
2616998002	MW-26D	Total Radium Calculation	338684			
2616998003	MW-19	Total Radium Calculation	338684			
2616998004	MW-5	Total Radium Calculation	338684			
2616998005	HGWC-8	Total Radium Calculation	338684			
616998006	HGWC-10	Total Radium Calculation	338684			
616998007	MW-6	Total Radium Calculation	338684			
2616998008	MW-7	Total Radium Calculation	338684			
2616998009	HGWC-11	Total Radium Calculation	338684			
2616998010	HGWC-12	Total Radium Calculation	338684			
2616998011	MW-25D	Total Radium Calculation	340066			

Pace Analytical

# CHAIN-OF-CUSTODY / Analytical Request Document

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

State of the State of the State of Stat Regulation Against (N/A) 4 (N/A) ŏ Sealed Cooler Custo (N/A) **40# · 2616998** Received on Residual Chlorine (Y/N) • Page: TEMP IN C 4 2040 1900 1000 0181 4/2/19 6)'K'5 4/5/19 DATE Signed: O4/03/19 2616998 Radium 226/228 Geosyate D2' Cl' E' 204 betsy.mcdaniel@pacelabs.com, (OSC & III .qqA) sletsh Jan Synta OSO ,VI .qqA ,III .qqA) steM Metals (App. III & App. IV) NI ( company) Invoice Information: Attention: scsinvoices@southernco.com Pace Profile #: 327 (AP) or 328 (Huff) 1941O sout Wather lonariteM Preservatives EOSSZ6N Grand Weater HOBN Pace Project Manager: нсі M EONH 3 ~ Company Name 1010 Pace Quote: 452O4 Section C 1900 Address pevieserdun 4 S Ð S S # OF CONTAINERS SAMPLE WANTE AND SIGNATUR Marin Muha Kaewy. 4/3/19 WT 6 0463 14:27 04/09 14:50 19 G 0403 12:55 04/03 13:12 19 |SI| SE:11| EO/HO Grant Walter/Gerssafec 041031 2 PRINT Name of SAMPLER: SIGNATURE of SAMPLER: SAMPLE TEMP AT COLLECTION 4/4/16 SOS 8 ろ ろ DATE ones and some COLLECTED 1 extratec TEACH. 6 04/03 11:15 Copy To: Lauren Petty, Geosyntec START Required Project Information: Report To: Joju Abraham DATE 3 (GMOD=D 8ARD=D) BAYT BLAMAS 5 MATRIX CODE (see valid codes to left) Section B MATRUX
Drunking Water
Waste Water
Waste Water
Product
Soi/JSold
Oil
Wipe
Au
Other
Tissue Ap II (2): Antimony, Assenic, Barium, Slevium, Thallium Caelvium, chronium Georgia Power - Coal Combustion Residual Fluoride, [19thium. (A-Z, 0-9 / , -) Sample Ids must be unique Phone: (404)506-7239 Fac Requested Due Date: Standard SAMPLE ID One Character per box. 2480 Maner Road HGWC-9 092-MM MW-5 Required Client Information: MW-19 Molubolenum Berylium. Wanta, GA 30339 Address: 10 # MaTi Page 22 of 25

Pace Arabitical

# CHAIN-OF-CUSTODY / Analytical Request Document

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

(N/A) Due Date: 05/02/19 ISBIU And the State of Location Control of the Samples Cooter (Y/N) ð poleos Custod **JO#:2616998** (YW) g Received on Residuel Chlorine (Y/N) CLIENT: GAPower-CCR Ó TEMP IN C 1100 2995 1985 6112/10 14/19 44.19 DIE 4/2/19 PH: BH Radium 226/226 DATE Signed: 102' Cl' E' 204 betsy modaniel@pacelabs.com (O30 3 III cqA) stateM nen ACCEPTED BY JAFFILLATION Mets (App. III, App. IV, D&O Jersey J Metals (App. III & App. IV) ァ Paces NX Analyse TestienA Attention: scsinvoices@southernco.com Company Name: 327 (AP) or 328 (Huff) Musius tonsitioM ⋖ Preservatives Na2S203 Slow HOBN Pace Quote: Pace Project Manager: Invoice Information: нсі 4 4 EONH Noelia Pace Profile #: Nortia HSSO4 Dop. W. (2): Antimout, Brain, Buther setting returning / Jan 4/3/19 1700 4 Unpreserved p 6 4310 1310 4910 133919 5 # OF CONTAINERS 'n 121020 SAMPLE TEMP AT COLLECTION œ PRINT Name of SAMPLER: SIGNATURE of SAMPLER: 4/4/19 इं TIME END C 4/3/10/ 1054 4/3/10 G 4/3/10/1450 4/3/10 DATE COLLECTED م المعامد ، بعداد TIME Copy To: Lauren Petty, Geosyntec SCS10348606 START Plant Hammond Required Project Information: DATE Joju Abraham SAMPLE TYPE (G-GRAB C-COMP) Purchase Order #: (Rel at seboo bilay eas) SCOO XIRTAM Project Name: Project #: Section B Becyllium, Calmium, Chronium, Charle MATRUX
Denting Water
Water
Water
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Wipe
Tissue Georgia Power - Coal Combustion Residuals Phone: (404)505-7239 Fax Requested Due Date: Standard TAY One Character per box. (A-2, 0-9 / , -). Sample Ids must be unique SAMPLE ID HGWC-10 Email: jabraham@southernco.com Hawc-8 2480 Maner Road MW-G Required Client Information: Atlanta, GA 30339 Traffirm Сопралу: , 9 # MaTI Page 23 of 25

Pace Arethical

# CHAIN-OF-CUSTODY / Analytical Request Document

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

(N/A) Due Date: 05/02/19 peln saldmag (V/V) ŏ pelees (V/V) **JOH: 2616998** 8 Received on Residual Chlorine (Y/N) Раде: 6 CLIENT: GRPower-CCR TEMP IN C FOOT o/aj 9000 1100 4/19 Martin Member Galowater 413/19 4413 71/2/4 P. . HOCKNOW DATE SPOTS /19 825/955 muiba5 TDS, Cl. F, SO4 Metals (App. III & D&O) betsy modaniel@pacelabs.com Mets (App. III, App. IV, D&O man Pare (VI .qqA iš III .qqA) alisteM N/A Attention: scsinvoices@southernco.com 327 (AP) or 328 (Huff) lonsitieM Preservatives ROSSZBN HOBN Pace Project Manager: Pace Profile #: 327 ( ЮН Invoice Information: Dalton M M EONH ~ Company Name: HSSO4 Pace Quote: Anderson(60) 4/5/19/18:10 Address DevresendnU 7 64/3/A15:34/3/9/4:2965 541911.21. AKE 1910.12. 17. 1818 # OF CONTAINERS 5 6 4151 12:10 13 11 2:10 13 SIGNATURE of SAPLER: 413614 PRINT Name of SAMPLER: SAMPLE TEMP AT COLLECTION 31/4/4 641211 57:0 12/11/0:00 TIME T 200 usten (Georgiada) DATE ሄ COLLECTED Corsent. TIME Copy To: Lauren Petty, Geosyntec Purchase Order #: SCS10348506 Project Name: Plant Hammond Project #: 4 START DATE Required Project Information: Report To: Joju Abraham DAITED Notice and Morelow (G=GRAB C=COMP) **BAYT BJAMA2** 13 15 MATRIX CODE (see valid codes to left) Section B CODE WW WY OP P WW TS MATRIX
Dinking Water
Water
Water
Water
Water
Water
Product
SourSoled
Oa
Wipe
Au
Au
Cither
Trasse APP III + IX (2): Antimody, Ac scale Flueride, Lithium Malyboknum, Sedevium, Admin A Georgia Power - Coal Combustion Residuals E (A-Z, 0-9 / , -) Sample Ids must be unique **ゴラシロー17** NN-250 Backmy Berylling One Character per box. SAMPLE ID H COMIC. Phone: (404)505-7239 F mail: jabraham@southemco.com 2480 Maner Road Required Cllent Information: Cherrynians # age 24 of 25 Ulanta, GA 30339 Company: Address: # Mari

ومعصوب			Sample	: Co	nd	ition	Upon Receipt				1	
Pace Analy	rtical <sup>*</sup>	Client l	Name:	G	Æ	₹,	Power	F	Project	#		<del></del>
Courier: Fed E	x 🗌 UPS	USPS	Client [	] Cor	nme	ercial	Pace Other		#Ok	: 26	16998	
Custody Seal on C	ooler/Box	Present: _	yes [	no		Seals	intact:	11	M: BM		Due Date:	05/02/
Packing Material:		•					-		LIENT:	GAPo	er-CCR	
Thermometer Use		33	1.				Blue None	$t_{\Box}$	Samples o	n ice. co	ling process/has be	eaun
Cooler Temperatu	re	3.5				<	is Frozen: Yes No	1	Date a	nd Initia	s of person exami	ning
Temp should be abov		6°C	_				Comments:	<u> </u>	cont	ents:	7779	M
Chain of Custody P	resent:		<b>1</b> 25	es □	No	□N/A	1.					
Chain of Custody F	lled Out:		Æ	Ţ.es	No	□n/a	2.			:		
Chain of Custody R	elinquished	l:	Æ	és 🗆	No	□n/a	3.			:		
Sampler Name & S	gnature on	COC:	Ę.	es 🗆	No	□n/a	4.					
Samples Arrived wi	thin Hold Ti	me:	<b>1</b>	\ \&	No	□n/a	5.					
Short Hold Time A	nalysis (<7	/2hr):	,	es 📮	140	□n/a	6.					
Rush Turn Around	Time Req	uested:		es 📮	10	□n/a	7.					
Sufficient Volume:			<b>4</b>	es □	No	□n/a	8.					
Correct Containers	Used:		<b>4</b>	ēs □	No	□n/a	9.					
-Pace Container	s Used:		<b>₹</b>	Çes 🗆	No	□n/a		li				
Containers Intact:			<b>4</b>	\ \e	No	□n/A	10.	İ				
Filtered volume rec	eived for Di	ssolved tes	its 🗅	es 🗆	No	-DN/A	11.					
Sample Labels mat		vsis Ma	atrix:	es U		□n/a	12.					
All containers needing			ockad	 €s □	No	□N/A	13.					
All containers needing compliance with EPA			o be in	es 🗆		□N/A						
exceptions: VOA, colifor	m, TOC, O&G	, WI-DRO (wa	,	es 🔎			Initial when completed		Lot # of ac preservation			
Samples checked for	r dechlorin	ation:	ים	'es □	No	DHIA	14.	ļ		i		
Headspace in VOA	Vials ( >6m	nm):	ים	′es □	No	.⊒N/A	15.	<u> </u>				
Trip Blank Present:			ים	′es □	No	ÐN/A	16.					
Trip Blank Custody	Seals Pres	ent	ים	'es 🗆	No	-EIN/A						
Pace Trip Blank Lot	# (if purch	ased):				<del></del>		<u> </u>		İ		
Client Notification	Resolutio	n:							Field Data	Require	? Y / 1	<u>,                                      </u>
Person Cont	acted:					Date/	Time:					
Comments/ Reso	lution:								·			····
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Project Manage	r Review:								D	ate:		
			-		-				-			
Note: Whenever ther Certification Office ( i.							mples, a copy of this for t containers)	ţṁ wi	ill be sent to	the Nort	n Carolina DEHNR	

F-ALLC003rev.3, 11Septemberge085 of 25





May 01, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2617067

# Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 05, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This revised report replaces the one issued on 4/12/2019. The report has been revised to correct metals units per consultant request. No other changes have been made to this report.

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

Sincerely,

Betsy McDaniel

Beton Moamed

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





#### **CERTIFICATIONS**

Project: Plant Hammond

Pace Project No.: 2617067

**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





# **SAMPLE SUMMARY**

Project: Plant Hammond

Pace Project No.: 2617067

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617067001	MW-27D	Water	04/04/19 09:48	04/05/19 11:20



# **SAMPLE ANALYTE COUNT**

Project: Plant Hammond

Pace Project No.: 2617067

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory	
	<del>.</del>			<del>`</del>		•
2617067001	MW-27D	EPA 6020B	JMW1	13	PASI-A	
		SM 2540C	RLC	1	PASI-GA	
		EPA 300.0	RLC	3	PASI-GA	



# **ANALYTICAL RESULTS**

Project: Plant Hammond

Pace Project No.: 2617067

Date: 05/01/2019 03:10 PM

Sample: MW-27D	Lab ID:	2617067001	Collecte	ed: 04/04/19	9 09:48	Received: 04/	05/19 11:20 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020 MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	thod: EF	PA 3010A			
Antimony	0.00016J	mg/L	0.0030	0.00011	1	04/09/19 10:55	04/10/19 02:00	7440-36-0	
Arsenic	0.00020J	mg/L	0.0050	0.000060	1	04/09/19 10:55	04/10/19 02:00	7440-38-2	
Barium	1.2	mg/L	0.050	0.00030	5	04/09/19 10:55	04/11/19 01:16	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 10:55	04/10/19 02:00	7440-41-7	
Boron	0.12J	mg/L	0.20	0.0051	2	04/09/19 10:55	04/11/19 01:12	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 10:55	04/10/19 02:00	7440-43-9	
Calcium	26.3	mg/L	2.5	0.10	5	04/09/19 10:55	04/11/19 01:16	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 10:55	04/10/19 02:00	7440-47-3	
Cobalt	0.000091J	mg/L	0.010	0.000050	1	04/09/19 10:55	04/10/19 02:00	7440-48-4	
Lithium	0.0069J	mg/L	0.050	0.00042	1	04/09/19 10:55	04/10/19 02:00	7439-93-2	
Molybdenum	0.0018J	mg/L	0.010	0.00010	1	04/09/19 10:55	04/10/19 02:00	7439-98-7	
Selenium	0.00012J	mg/L	0.010	0.000080	1	04/09/19 10:55	04/10/19 02:00	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 10:55	04/10/19 02:00	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	203	mg/L	25.0	10.0	1		04/11/19 19:34		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	26.9	mg/L	0.25	0.024	1		04/09/19 09:48	16887-00-6	
Fluoride	0.26J	mg/L	0.30	0.029	1		04/09/19 09:48	16984-48-8	
Sulfate	11.8	mg/L	1.0	0.017	1		04/09/19 09:48	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2617067

Date: 05/01/2019 03:10 PM

QC Batch: 468126 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020 MET

Associated Lab Samples: 2617067001

METHOD BLANK: 2543175 Matrix: Water

Associated Lab Samples: 2617067001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00011	04/10/19 00:56	
Arsenic	mg/L	ND	0.0050	0.000060	04/11/19 00:58	
Barium	mg/L	ND	0.010	0.000060	04/11/19 00:58	
Beryllium	mg/L	ND	0.0030	0.000050	04/10/19 00:56	
Boron	mg/L	ND	0.10	0.0026	04/11/19 00:58	
Cadmium	mg/L	ND	0.0010	0.000070	04/11/19 00:58	
Calcium	mg/L	ND	0.50	0.021	04/11/19 00:58	
Chromium	mg/L	ND	0.010	0.00042	04/11/19 00:58	
Cobalt	mg/L	ND	0.010	0.000050	04/11/19 00:58	
Lithium	mg/L	ND	0.050	0.00042	04/11/19 00:58	
Molybdenum	mg/L	ND	0.010	0.00010	04/11/19 00:58	
Selenium	mg/L	ND	0.010	0.000080	04/11/19 00:58	
Thallium	mg/L	ND	0.0010	0.000060	04/11/19 00:58	

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	mg/L	0.1	0.10	100	80-120	
Arsenic	mg/L	0.01	0.0099	99	80-120	
Barium	mg/L	0.05	0.049	98	80-120	
Beryllium	mg/L	0.01	0.0095	95	80-120	
Boron	mg/L	0.05	0.047J	94	80-120	
Cadmium	mg/L	0.01	0.010	101	80-120	
Calcium	mg/L	0.62	0.63	101	80-120	
Chromium	mg/L	0.05	0.050	99	80-120	
Cobalt	mg/L	0.01	0.010J	100	80-120	
Lithium	mg/L	0.05	0.050J	100	80-120	
Molybdenum	mg/L	0.05	0.051	102	80-120	
Selenium	mg/L	0.05	0.050	99	80-120	
Thallium	mg/L	0.01	0.0099	99	80-120	

MATRIX SPIKE & MATRIX SPIK	E DUPLIC	CATE: 25431	77		2543178							
			MS	MSD								
		2617072001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.10	0.10	102	100	75-125	2	20	
Arsenic	mg/L	0.00017J	0.01	0.01	0.010	0.010	102	99	75-125	3	20	
Barium	mg/L	0.018	0.05	0.05	0.069	0.068	101	99	75-125	1	20	

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



Project: Plant Hammond

Pace Project No.: 2617067

Date: 05/01/2019 03:10 PM

MATRIX SPIKE & MATRIX S	SPIKE DUPLIC	ATE: 25431	77		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
Beryllium	mg/L	ND	0.01	0.01	0.0088	0.0084	87	84	75-125	4	20	
Boron	mg/L	2.3	0.05	0.05	2.4	2.4	205	248	75-125	1	20	M6
Cadmium	mg/L	0.0018	0.01	0.01	0.012	0.011	97	96	75-125	1	20	
Calcium	mg/L	214	0.62	0.62	218	216	575	271	75-125	1	20	M6
Chromium	mg/L	ND	0.05	0.05	0.050	0.049	99	98	75-125	1	20	
Cobalt	mg/L	0.035	0.01	0.01	0.044	0.044	97	94	75-125	1	20	
Lithium	mg/L	0.00090J	0.05	0.05	0.046J	0.045J	90	88	75-125	2	20	
Molybdenum	mg/L	ND	0.05	0.05	0.052	0.052	104	103	75-125	1	20	
Selenium	mg/L	0.00021J	0.05	0.05	0.050	0.049	99	97	75-125	2	20	
Thallium	mg/L	ND	0.01	0.01	0.010	0.010	104	102	75-125	1	20	

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.



Project: Plant Hammond

Pace Project No.: 2617067

QC Batch: 26251 Analysis Method: SM 2540C

QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 2617067001

LABORATORY CONTROL SAMPLE: 118507

Spike LCS LCS % Rec
Parameter Units Conc. Result % Rec Limits Qualifiers

Total Dissolved Solids mg/L 400 404 101 84-108

SAMPLE DUPLICATE: 118508

2617035009 Dup Max RPD RPD Units Qualifiers Parameter Result Result **Total Dissolved Solids** 85.0 50.0 52 10 D6 mg/L

SAMPLE DUPLICATE: 118509

Date: 05/01/2019 03:10 PM

2617069003 Dup Max Result RPD RPD Qualifiers Parameter Units Result 340 **Total Dissolved Solids** mg/L 341 0 10

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



Project: Plant Hammond

Pace Project No.: 2617067

QC Batch: 25956 QC Batch Method: EPA 300.0

Associated Lab Samples: 2617067001

Parameter

Analysis Method:

Analysis Description:

EPA 300.0

300.0 IC Anions

METHOD BLANK: 117263

Matrix: Water

Associated Lab Samples:

Date: 05/01/2019 03:10 PM

2617067001

Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
0.066J	0.25	0.024	04/08/19 22:43	

Chloride Fluoride Sulfate

Chloride Fluoride Sulfate

Units

mg/L

mg/L

mg/L

ND 0.30 0.045J 1.0

0.029 0.017 04/08/19 22:43

04/08/19 22:43

LABORATORY CONTROL SAMPLE: 117264

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
	mg/L	10	9.8	98	90-110	
	mg/L	10	9.7	97	90-110	
	mg/L	10	9.7	97	90-110	

MATRIX SPIKE & MATRIX SPIK	E DUPLIC	CATE: 11726	5		117266							
			MS	MSD								
		2617035001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	4.3	10	10	14.3	14.4	100	101	90-110	1	15	
Fluoride	mg/L	ND	10	10	9.7	9.8	97	98	90-110	1	15	
Sulfate	mg/L	8.5	10	10	17.6	17.7	91	92	90-110	0	15	

MATRIX SPIKE SAMPLE:	117267						
Parameter	Units	2617035002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	4.2	10	13.9	96	90-110	
Fluoride	mg/L	ND	10	9.3	93	90-110	
Sulfate	mg/L	2.1	10	11.2	91	90-110	

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.



#### **QUALIFIERS**

Project: Plant Hammond
Pace Project No.: 2617067

#### **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**

Date: 05/01/2019 03:10 PM

D6 The precision between the sample and sample duplicate exceeded laboratory control limits.

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.



# **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2617067

Date: 05/01/2019 03:10 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617067001	MW-27D	EPA 3010A	468126	EPA 6020B	468248
2617067001	MW-27D	SM 2540C	26251		
2617067001	MW-27D	EPA 300.0	25956		

Face Analytical

# CHAIN-OF-CUSTODY / Analytical Request Document

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

Samples Intact (V/V) Requistory Agency Cooler (V/V) ŏ Custod (N/A) **JOH: 261706**7 Received on Page: Residual Chiptine (Y/N) TEMP in C 0873 2/19 1/20 4-4-19 180H 4/4/10 45.19 DATE Radium 226/228 Garage DATE Signed: TDS, CI, F, SO4 betsy.mcdaniel@pacelabs.com, (O.80 & III. qqA) alateM Wets (App. III, App. IV, D&O MACMMAN Parce Metals (App. III & App. IV) NX TEST SESVIEUS scsinvoices@southernco.com Missos Pace Project Manager: betsy modarie Pace Profile #: 327 (AP) or 328 (Huff) Molia Messer ICUBUIÐM Preservatives EOZSZ<sub>P</sub>N HOBN Doelia нсі Involce information: HNO3 3 Company Name: 20933 Pace Quote: **H**S204 App-19 (12): Antimony, Associa, Borrow Walter Muchon Kausy 4/4/19 1804 Section C Address: Unpreserved J 5 # OF CONTAINERS G 4/4/19 0928 4/4/19 0948 18 SIGNATURE of SAMPLER: PRINT Name of SAMPLER: SAMPLE TEMP AT COLLECTION 4/5/19 DATE COLLECTED Cosypte TIME Lauren Petty, Geosyntec SCS10348606 START Purchase Order #: SCS103486 Project Name: Plant Hammond Project #: Required Project Information; DATE Joju Abraham Willow (G=GRAB C=COMP) SAMPLE TYPE MATRIX CODE (666 velid codes to left) Report To: Section B Copy To: Thorita , lithing , Adjetann, Stains Bacellism Cadenium, Chrosism, Capalle, Georgia Power - Coal Combustion Residuals +151 One Character per box. (A-Z, 0-9 /, -). Sample Ids must be unique Phone: (404)506-7239 Face Requested Due Date: Standard SAMPLE ID Allanta, GA 30339
Email: jabraham@southerrco.com 462 2480 Maner Road Required Client Information: 1 DAY Thelim Company: Address: 10 15 (4) 6 74 Page 12 of 1B # MaTI

	Sample	Condition	n Upon Receipt		
Pace Analy	<i>rtical</i> Client Name:	GCA	Powere	Project #	
	x 🗌 UPS 🗎 USPS 🗎 Client 🏾	Commercial .	Pace Other	WO#:26	17067
Tracking #:Custody Seal on C	ooler/Box Present: / yes	no Seals	s intact:	PM: BM	Due Date: 04/12/1 er-CCR
Packing Material:	Bubble Wrap Bubble Bags	None	Other		
Thermometer Used	<u> 83</u> тур	e of Ice: We	Blue None	Samples on ice, coo	ling process has begun
Cooler Temperatur	re		is Frozen: Yes No	Date and Initial	s of person examining
Temp should be above			Comments:	<u> </u>	
Chain of Custody Pr		es ONO ON/A			
Chain of Custody Fi		es □No □N/A	2		
Chain of Custody R		es □No □N/A	3.		
Sampler Name & Si	gnature on COC:	es □No □N/A	4.		
Samples Arrived wit	hin Hold Time:	es □No □N/A	5.		
Short Hold Time A	nalysis (<72hr): □Y	es ⊟no □n/A	6.		
Rush Turn Around	Time Requested:	es ☑No □N/A	7.		
Sufficient Volume:	ন্ত্রপ	os □No □N/A	8.		
Correct Containers	Jsed:	s □No □N/A	9.		
-Pace Containers		S □No □N/A			
Containers Intact:		s □No □N/A	·		<u> </u>
	,	s DNo DATA	i		
Sample Labels mate		S DNo DN/A	1		
-Includes date/tin			12.		
All containers needing p	reservation have been checked		<del> </del>		
		% □No □N/A	13.		
All containers needing compliance with EPA r	preservation are found to be in ecommendation.	s □No □N/A			
exceptions: VOA, coliforn	, TOC, O&G, WI-DRO (water)	s-⊟No	Initial when completed	Lot # of added preservative	
Samples checked fo	r dechlorination:	s □No •□N/A	14		
Headspace in VOA		s 🗆 No 🗝 🗖 🗸			
Trip Blank Present:	i	s □No □N/A			<del></del>
Trip Blank Custody \$		s DNo DNA	10.		
Pace Trip Blank Lot		3 LIND 2214/A	1		
T doo Trip Brain Lot	(ii parchasea)				
Client Notification/	Resolution:			Field Data Required	Y / N
Person Conta		Date/	Time:		
Comments/ Resolu	tion:				
				:	
<u> </u>					
Project Manager	Review:			Date:	
Note: Whenever there	is a discrepancy affecting North Carolina	compliance ser	nnles a conv of this form	will be sent to the North	Carolina DEHNR
	out of hold, incorrect preservative, out of			will be sent to the North	
				F-ALLC003	Page 13 of 13 rev.3, 11September2006





April 29, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2617068

# Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 05, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Betsy McDaniel

Beton M Damil

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



(770)734-4200



#### **CERTIFICATIONS**

Project: Plant Hammond

Pace Project No.: 2617068

#### Pennsylvania Certification IDs

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

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734 Arkansas Certification

California Certification #: 04222CA Colorado Certification #: PA01547 Connecticut Certification #: PH-0694

Delaware Certification EPA Region 4 DW Rad

Florida/TNI Certification #: E87683 Georgia Certification #: C040 Florida: Cert E871149 SEKS WET

Guam Certification Hawaii Certification Idaho Certification Illinois Certification Indiana Certification Iowa Certification #: 391

Kansas/TNI Certification #: E-10358 Kentucky Certification #: KY90133 KY WW Permit #: KY0098221 KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012 Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991 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

Missouri Certification #: 235

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





# **SAMPLE SUMMARY**

Project: Plant Hammond

Pace Project No.: 2617068

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
2617068001	MW-27D	Water	04/04/19 09:48	04/05/19 11:20	



# **SAMPLE ANALYTE COUNT**

Project: Plant Hammond

Pace Project No.: 2617068

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617068001	MW-27D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA



# **ANALYTICAL RESULTS - RADIOCHEMISTRY**

Project: Plant Hammond

Pace Project No.: 2617068

Sample: MW-27D PWS:	<b>Lab ID: 26170680</b> Site ID:	O1 Collected: 04/04/19 09:48 Sample Type:	Received:	04/05/19 11:20	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.983 ± 0.386 (0.350) C:98% T:NA	pCi/L	04/17/19 08:36	13982-63-3	
Radium-228		0.348 ± 0.348 (0.722) C:87% T:79%	pCi/L	04/18/19 12:29	15262-20-1	
Total Radium	Total Radium Calculation	1.33 ± 0.734 (1.07)	pCi/L	04/22/19 11:17	7440-14-4	



#### **QUALITY CONTROL - RADIOCHEMISTRY**

Project: Plant Hammond

Pace Project No.: 2617068

QC Batch: 337911 Analysis Method: EPA 9320

QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228

Associated Lab Samples: 2617068001

METHOD BLANK: 1644521 Matrix: Water

Associated Lab Samples: 2617068001

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-228
 0.526 ± 0.315 (0.569) C:87% T:76%
 pCi/L
 04/18/19 12:31

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



#### **QUALITY CONTROL - RADIOCHEMISTRY**

EPA 9315

9315 Total Radium

Project: Plant Hammond

Pace Project No.: 2617068

QC Batch: 337917

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

Associated Lab Samples: 2617068001

METHOD BLANK: 1644525 Matrix: Water

Associated Lab Samples: 2617068001

Parameter Act ± Unc (MDC) Carr Trac Qualifiers Units Analyzed 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.



#### **QUALIFIERS**

Project: Plant Hammond
Pace Project No.: 2617068

#### **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**

Date: 04/29/2019 03:31 PM

PASI-PA Pace Analytical Services - Greensburg



# **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2617068

Date: 04/29/2019 03:31 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617068001	MW-27D	EPA 9315	337917		
2617068001	MW-27D	EPA 9320	337911		
2617068001	MW-27D	Total Radium Calculation	339290		

Pace Arralytical

# CHAIN-OF-CUSTODY / Analytical Request Document

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

(N/A) Requisitory Apancy Samples (N/A) Cooler ö belse2 Custody (N/A) **40#:2617068** 8 Received on Residual Chlorine (Y/N) Page: TEMP in C 25,50 1120 H081 7 5/10 H-4-H **h/h** OATE でごらせ 10re3 ye 1 20 8SS/3SS muibe9 > DATE Signed: LD2' CI' E' 204 ACCEPTED BY / AFFILIATION ... betsy.mcdaniel@pacelabs.com. Metals (App. III & D&O) MACINAMAN Mets (App. III, App. IV, D&O Metals (App. III & App. IVX NX teeT seavisnA. Doelia Museus Altention: scsinvoices@southernco.com 327 (AP) or 328 (Huff) SIGNATURE OF SAMPLER: HORLIG MILESARON Methanol EOZSZBN HOPN Pace Project Manager Pace Profile #: 327 ЮН Invoice Information: 3 EONH Company Name: 22933 Pace Quote: #OSZH <del>1</del>804 Address: SAMPLER NAME AND SIGNATURES Unpreserved 7 S OF CONTAINERS PRINT Name of SAMPLER: 8 SAMPLE TEMP AT COLLECTION DATE 4/5/19 Madia Mulan Kaenga 4/4/19 2460 SNO G 4/4/19 0928 4/4/19 COLLECTED \* \* "FREINDUSHED BY / AFFLIATION Comme TIME Joju Abraham Lauren Petty, Geosyntec Purchase Order # SCS10348606. Project Name: Plant Hammond Project #: START Required Project Information: (GMOD=D BARD=D) 34YT 3J4MA8 (fiel of seboo biley eas) BOOD XIRTAM Report To: Copy To: Section B Doo. T. Co): Antimony, Associa, Barren MATRIX
Upinking Wester
Waster
Waste Water
Product
SoadSoled
Oul
Wape
Air
Other
Tissue Boughisms Codenism Chronism (Colodity Thoride, lithing, Adole Baum, Shaine Abbinoval contents Georgia Power - Coal Combustion Residuals 121 (A-Z, 0-9 / , -) Sample Ids must be unique Phone: (404)506-7239 Fax Requested Due Date: Storil and One Character per box. SAMPLE ID mail jabraham@southernco.com 452 2480 Maner Road Required Client Information: 138 Manta, GA 30339 .**..** . 10 1 ූල Page 10 of 1 # MBTI

· Andrew	Sampli	e Condition	ı Upon Receipt		
Pace Anal	vtical Client Name:	GCA	Powere	Project #	
Courier: Fed E	x UPS USPS Client	Commercial .	Pace Other	****	17068
Custody Seal on C	ooler/Box Present:yes	l no Seals	intact: Tyes	PM: BM	Due Date: 05/03/1
Packing Material:	☐ Bubble Wrap ☐ Bubble Bag	None	Other	CLIENT: GRP	er-CCR
Thermometer Use	# <u>83</u> Tyr	e of Ice: Wet	Blue None	Samples on ice, co	oling process has begun
Cooler Temperatu Temp should be above		logical Tissue	is Frozen: Yes No Comments:	Date and Initia contents:	s of person examining
Chain of Custody P	resent:	es 🗆 No 🗆 N/A	1.		
Chain of Custody Fi		es □No □N/A			
Chain of Custody R		es 🗆 No 🗆 N/A			
Sampler Name & Si		os □No □N/A			
Samples Arrived with		es 🗆 No 🗆 N/A			
Short Hold Time A		es GNO DN/A	<del></del>		
Rush Turn Around		es DINO DN/A			
Sufficient Volume:		es ONO ON/A			
Correct Containers		S ONO ON/A			
-Pace Containers		ES DNO DN/A	9.		
Containers Intact:		es ONO ON/A	40	:	
Sample Labels mate		es Ono Onia	· <del></del>		
			12.		
-Includes date/tin All containers needing p	reservation have been checked.			:	
All containers pooding	preservation are found to be in	∄ □No □N/A	13.	:	
compliance with EPA r		s □No □N/A			
excentions: VOA coliforn	n, TOC, O&G, WI-DRO (water)	₽S <del>- □</del> NO 1	Initial when completed	Lot # of added	
Samples checked for	,	es 🗆 No 🔎 N/A		preservative	
Headspace in VOA		es Ono AMA			
Trip Blank Present:		es Ono Data			
Trip Blank Custody S	<u></u>		10.		
Pace Trip Blank Lot		es □No ZHVA			
race Trip Blank Lot	# (ii purchased):				
Client Notification/				Field Data Required	? Y / N
Person Conta	·	Date/1	Гime:		
Comments/ Resolu	ution:				
				:	
		1-			
		- 1.5.4			
			A. A		
Project Manager	Review:			Date:	
Note: Whenever there	is a discrenancy affecting blooth Co	aamalia			O. I. BEING
Certification Office (i.e	is a discrepancy affecting North Carolina out of hold, incorrect preservative, out	f temp, incorrect	iples, a copy of this for containers)		
				F-ALLC00	Brev.3, 11September 2006





May 01, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2617146

# Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 08, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This revised report replaces the one issued on 4/15/2019. The report has been revised to correct metals units per consultant request. No other changes have been made to this report.

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

Sincerely,

Betsy McDaniel

Beton Moamed

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





#### **CERTIFICATIONS**

Project: Plant Hammond

Pace Project No.: 2617146

**Atlanta Certification IDs** 

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315 Georgia DW Inorganics Certification #: 812 Georgia DW Microbiology Certification #: 812 North Carolina Certification #: 381 South Carolina Certification #: 98011001

Virginia Certification #: 460204

**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





# **SAMPLE SUMMARY**

Project: Plant Hammond

Pace Project No.: 2617146

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617146001	HGWC-13	Water	04/05/19 16:03	04/08/19 15:30



# **SAMPLE ANALYTE COUNT**

Project: Plant Hammond

Pace Project No.: 2617146

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617146001	HGWC-13	EPA 6020B	JMW1	13	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA



Date: 05/01/2019 03:26 PM

# **ANALYTICAL RESULTS**

Project: Plant Hammond Pace Project No.: 2617146

Sample: HGWC-13	Lab ID:	2617146001	Collecte	ed: 04/05/19	16:03	Received: 04/	08/19 15:30 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020 MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3010A			
Antimony	0.00021J	mg/L	0.0030	0.00011	1	04/10/19 19:59	04/12/19 09:34	7440-36-0	
Arsenic	0.36	mg/L	0.0050	0.000060	1	04/10/19 19:59	04/12/19 09:34	7440-38-2	
Barium	0.079	mg/L	0.010	0.000060	1	04/10/19 19:59	04/12/19 09:34	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/10/19 19:59	04/12/19 09:34	7440-41-7	
Boron	0.86J	mg/L	2.0	0.051	20	04/10/19 19:59	04/11/19 23:20	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/10/19 19:59	04/12/19 09:34	7440-43-9	
Calcium	77.1	mg/L	10.0	0.41	20	04/10/19 19:59	04/11/19 23:20	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/10/19 19:59	04/12/19 09:34	7440-47-3	
Cobalt	0.0017J	mg/L	0.010	0.000050	1	04/10/19 19:59	04/12/19 09:34	7440-48-4	
Lithium	0.023J	mg/L	0.050	0.00042	1	04/10/19 19:59	04/12/19 09:34	7439-93-2	
Molybdenum	0.030	mg/L	0.010	0.00010	1	04/10/19 19:59	04/12/19 09:34	7439-98-7	
Selenium	0.00018J	mg/L	0.010	0.000080	1	04/10/19 19:59	04/12/19 09:34	7782-49-2	
Thallium	0.00034J	mg/L	0.0010	0.000060	1	04/10/19 19:59	04/12/19 09:34	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	331	mg/L	25.0	10.0	1		04/11/19 20:53		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	36.4	mg/L	0.25	0.024	1		04/10/19 09:10	16887-00-6	
Fluoride	0.83	mg/L	0.30	0.029	1		04/10/19 09:10	16984-48-8	
Sulfate	105	mg/L	10.0	0.17	10		04/10/19 13:29	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2617146

Date: 05/01/2019 03:26 PM

QC Batch: 468622 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020 MET

Associated Lab Samples: 2617146001

METHOD BLANK: 2545263 Matrix: Water

Associated Lab Samples: 2617146001

		Blank	Reporting			
Parameter	Units	Units Result		MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00011	04/11/19 20:42	
Arsenic	mg/L	ND	0.0050	0.000060	04/11/19 20:42	
Barium	mg/L	ND	0.010	0.000060	04/11/19 20:42	
Beryllium	mg/L	ND	0.0030	0.000050	04/11/19 20:42	
Boron	mg/L	ND	0.10	0.0026	04/11/19 20:42	
Cadmium	mg/L	ND	0.0010	0.000070	04/11/19 20:42	
Calcium	mg/L	ND	0.50	0.021	04/11/19 20:42	
Chromium	mg/L	ND	0.010	0.00042	04/11/19 20:42	
Cobalt	mg/L	ND	0.010	0.000050	04/11/19 20:42	
Lithium	mg/L	ND	0.050	0.00042	04/11/19 20:42	
Molybdenum	mg/L	ND	0.010	0.00010	04/11/19 20:42	
Selenium	mg/L	ND	0.010	0.000080	04/11/19 20:42	
Thallium	mg/L	ND	0.0010	0.000060	04/11/19 20:42	

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	mg/L	0.1	0.10	100	80-120	
Arsenic	mg/L	0.01	0.0099	99	80-120	
Barium	mg/L	0.05	0.049	99	80-120	
Beryllium	mg/L	0.01	0.010	104	80-120	
Boron	mg/L	0.05	0.052J	104	80-120	
Cadmium	mg/L	0.01	0.010	102	80-120	
Calcium	mg/L	0.62	0.64	102	80-120	
Chromium	mg/L	0.05	0.051	102	80-120	
Cobalt	mg/L	0.01	0.010	102	80-120	
Lithium	mg/L	0.05	0.050	100	80-120	
Molybdenum	mg/L	0.05	0.051	102	80-120	
Selenium	mg/L	0.05	0.051	101	80-120	
Thallium	mg/L	0.01	0.010	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2545265 2545266												
			MS	MSD								
		2617144001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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	

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.



Project: Plant Hammond

Pace Project No.: 2617146

Date: 05/01/2019 03:26 PM

MATRIX SPIKE & MATRIX S	SPIKE DUPLIC	ATE: 254526	65		2545266							
			MS	MSD								
		2617144001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Beryllium	mg/L		0.01	0.01	0.0086	0.0089	86	89	75-125	4	20	
Boron	mg/L	1010J ug/L	0.05	0.05	1.0J	1.0J	67	48	75-125	1	20	M6
Cadmium	mg/L		0.01	0.01	0.011	0.011	99	99	75-125	0	20	
Calcium	mg/L	70000 ug/L	0.62	0.62	71.3	74.8	207	759	75-125	5	20	M6
Chromium	mg/L		0.05	0.05	0.048	0.048	96	95	75-125	1	20	
Cobalt	mg/L		0.01	0.01	0.015	0.015	97	96	75-125	1	20	
Lithium	mg/L		0.05	0.05	0.043J	0.044J	82	85	75-125	3	20	
Molybdenum	mg/L		0.05	0.05	0.050	0.049	99	99	75-125	1	20	
Selenium	mg/L		0.05	0.05	0.044	0.044	89	88	75-125	1	20	
Thallium	mg/L		0.01	0.01	0.0096	0.0096	96	96	75-125	0	20	

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.



Project: Plant Hammond

Pace Project No.: 2617146

QC Batch: 26252 Analysis Method: SM 2540C

QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 2617146001

LABORATORY CONTROL SAMPLE: 118510

Spike LCS LCS % Rec
Parameter Units Conc. Result % Rec Limits Qualifiers

Total Dissolved Solids mg/L 400 408 102 84-108

SAMPLE DUPLICATE: 118512

Date: 05/01/2019 03:26 PM

2617150003 Dup Max RPD RPD Parameter Units Result Result Qualifiers **Total Dissolved Solids** 2310 2380 3 10 mg/L

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.



Project: Plant Hammond

Pace Project No.: 2617146

QC Batch: 26064 QC Batch Method: EPA 300.0

Analysis Description:

EPA 300.0

Associated Lab Samples:

Analysis Method:

300.0 IC Anions

METHOD BLANK: 117680

2617146001

Matrix: Water

Associated Lab Samples:

Date: 05/01/2019 03:26 PM

2617146001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	0.25	0.024	04/10/19 01:27	
Fluoride	mg/L	ND	0.30	0.029	04/10/19 01:27	
Sulfate	mg/L	ND	1.0	0.017	04/10/19 01:27	

LABORATORY CONTROL SAMPLE:	117681						
		Spike	LCS	LCS	% Rec		
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers	
Chloride	mg/L	10	10.1	101	90-110		
Fluoride	mg/L	10	10.2	102	90-110		
Sulfate	ma/L	10	10.1	101	90-110		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 117682 117683												
			MS	MSD								
		2617086001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	4.2	10	10	14.3	14.3	101	101	90-110	0	15	
Fluoride	mg/L	0.047J	10	10	10.4	10.4	103	103	90-110	0	15	
Sulfate	mg/L	10.8	10	10	19.6	19.6	89	88	90-110	0	15	M1

MATRIX SPIKE SAMPLE:	117684						
Parameter	Units	2617086002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	1.6	10	10.7	91	90-110	_
Fluoride	mg/L	ND	10	9.2	92	90-110	
Sulfate	mg/L	5.2	10	13.7	85	90-110 N	<i>I</i> 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.



#### **QUALIFIERS**

Project: Plant Hammond
Pace Project No.: 2617146

#### **DEFINITIONS**

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

**DUP - Sample Duplicate** 

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

#### **LABORATORIES**

PASI-A Pace Analytical Services - Asheville
PASI-GA Pace Analytical Services - Atlanta, GA

#### **ANALYTE QUALIFIERS**

Date: 05/01/2019 03:26 PM

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.



# **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2617146

Date: 05/01/2019 03:26 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617146001	HGWC-13	EPA 3010A	468622	EPA 6020B	468673
2617146001	HGWC-13	SM 2540C	26252		
2617146001	HGWC-13	EPA 300.0	26064		

Pace Arealytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Semples Intect (N/N) (N/A) ŏ Cooler Received on (Y/N) SHAN LOCAL 5 Residual Chlorine (YVI) TEMP in C 1530 1945 (u6 4/2/19 Salto 4/12/14 4.8.19 Ø Radium 226/228 ァ DATE Signed: 102' CI' E' 204 betsy.mcdaniel@pacetabs.com (O&G & III aqA) sisieM Mets (App. III, App. IV, D&O Caronte Part Matals (App. III & App. IV) EN/A ATRIVEOR TOST Attention: scsinvoices@southernco.com Company Name: Muskus 327 (AP) or 328 (Huff) Methanol N82S203 SIGNATURE OF SAMPLER, MOLICA AND WAY HOBN Pace Quote: Pace Project Manager: Invoice Information: ЮН Noelia EONH Pace Profile #: +OSZH Section C Address: 411 1945 Unpreserved # OF CONTAINERS 5 1603 20 PRINT Name of SAMPLER: SAMPLE TEMP AT COLLECTION 61/3/15 P 61/6/h TIME 욻 415/19 DATE unian locamin COLLECTED antheoryta 415/10 1553 TIME Report To: Joju Abraham Copy To: Lauren Petty, Geosyntec Purchase Order #: SCS10348606 Project Name: Plant Hammond START Required Project Information: S SAMPLE TYPE (G-GRAB C-COMP) MATRIX CODE (see valid codes to left) Project Name: Project #: Section B MATROX
Defining Wazer
Water
Waste Wazer
Product
SoluSoid
Oil
Wipe
Au
Other
Tissue Boxyllium, Cadmium, Chrosnium, Coball, Ilusid Dep. II(a); Antimony, Assenic, Burum athium, Molybdanum, Selenium, Thallium Georgia Power - Coal Combustion Residuals Phone: (404)506-7239 Fax Requested Due Date: Stoudord TPT One Character per box. (A-Z, 0-97, -) Sample Ids must be unique SAMPLE ID ) mail: jabraham@southernco.com 2480 Maner Road Required Client Information: W SH Atlanta, GA 30339 g , a Page 12 of 1B ITEM #

Courter: Fed Ex UPS USPS Client Commercial Pace Other Tracking #:  Custody Seal on Cooler/Box Present: Ves no Seals intact: Ves Packing Material: Bubble Wrap Bubble Bags None Other Thermometer Used Tryle of Ice: Wef Blue None Coler Temperature Type of Ice: Wef Blue None Biological Tissue is Frozen: Ves No Comments:  Chain of Custody Prised Out: Prosent: Prosent No Date and Initials of service examining Contents: Prosents No Date A 2.  Chain of Custody Resent: Prosent: Prose No Date A 3.  Samples Arrived within Hold Time: Prose No Date A 4.  Samples Arrived within Hold Time: Prose No Date A 5.  Short Hold Time Analysis (<72hr): Prose No Date A 8.  Sufficient Volume: Prosent No Date A 9.  Pace Containers Used: Prose No Date A 9.  Pace Containers Used: Prose No Date A 9.  Pace Containers Intact: Prosent No Date A 11.  Sample Labels match COC: Prose No Date A 11.  Sample Labels match COC	<b>S</b>	Sample	Condition	Opon Receipt		
Tracking 8:		tical Client Name:	GIA	power	Project #	
Custody Seal on Cooler/Box Present:		x 🗌 UPS 🗌 USPS 🗍 Client [	Commercial	Pace Other	WO# : 26	
Packing Material:   Bubble Wrap   Bubble Bag   None   Other   Thermometer Used   Tyre of Ice: Well Blad None   Date and initials of gerythn examining contents:   Date and initials of gerythn examining contents:   Date and initials of gerythn examining contents:   Date and initials of gerythn examining contents:   Date and initials of gerythn examining contents:   Date and initials of gerythn examining contents:   Date and initials of gerythn examining contents:   Date and initials of gerythn examining contents:   Date and initials of gerythn examining contents:   Date and initials of gerythn examining contents:   Date and initials of gerythn examining contents:   Date and initials of gerythn examining contents:   Date and initials of gerythn examining contents:   Date and initials of gerythn examining contents:   Date and a limital state   Date a		ooler/Box Present: Ves	no Seals	intact: yes		
Thermometer Used Cooler Temperature	Packing Material:	Bubble Wrap Bubble Bag	None	Other		
Cooler Temperature			,		Samples on ice. co	pling process has begun
Tongs should be above freezing to 6°C  Chain of Custody Pessent:  Chain of Custody Resinquished.  All on Chain of Custody Resinquished.  Sampler Name & Signature on COC:  All of Custody Resinquished.  All on Chain of Custody Resinquished.  All on Chain of Subday Resinquished.  All on Chain of Subday Resinquished.  All containers used:  In the Custody Resinquished (Park Subday S					Date and Initia	s of person examining
Chain of Custody Reinquished:	•	<del></del>			contents:	F/8/14 MR
Chain of Custody Retinquished:  Sampler Name & Spanture on COC:  Samples Arrived within Hold Time:  Prof. DNo DNA 5.  Short Hold Time Analysis (<72tr):  Dec DNG DNA 6.  Short Hold Time Analysis (<72tr):  Dec DNG DNA 8.  Sufficient Volume:  Dec DNG DNA 8.  Correct Containers Used:  Proce Containers Used:  Proce Containers Used:  Prof. DNO DNA 9.  Proce Containers Used:  Prof. DNO DNA 10.  International Time Containers Used:  Prof. DNO DNA 10.  International Time Containers Used:  Prof. DNO DNA 10.  International Time Containers Used:  Prof. DNO DNA 10.  International Time Containers Used:  Prof. DNO DNA 10.  International Time Containers Used:  Prof. DNO DNA 10.  International Time Containers Used:  Prof. DNO DNA 10.  International Time Containers Used:  Prof. DNO DNA 10.  International Time Containers Used:  Prof. DNO DNA 10.  International Time Containers Used:  Prof. DNO DNA 10.  International Time Containers Used:  Prof. DNO DNA 10.  International Time Containers Used:  Prof. DNO DNA 10.  International Time Containers Used:  Dotter Time:  Date: Time:  Date: Time:  Date: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR	Chain of Custody P	resent:	es □No □N/A	1.		
Chain of Custody Retinquished:  Sampler Name & Signature on COC:  Samples Arrived within Hold Time:  Property of the County of t	Chain of Custody F	illed Out:	es □No □N/A	2.		
Samples Arrived within Hold Time:    Pes   No   DNA   4.	Chain of Custody R		1	-		
Samples Arrived within Hold Time:			es DNo DN/A	4.		
Short Hold Time Analysis (<72hr):    Des   Der   DNA   6.     Rush Turn Around Time Requested:   Des   DNA   7.     Sufficient Volume:   Des   DNA   DNA   8.     Correct Containers Used:   Des   DNA   DNA   9.     Pace Containers Used:   Des   DNA   DN						
Rush Turn Around Time Requested:    Nos   Mo   NNA   8.						
Sufficient Volume:    Proceed Containers Used:   Proceed						
Correct Containers Used:  Pace Containers Use	Sufficient Volume:					
Containers Intact:    Pos   No   NiA   10.	Correct Containers					
Filtered volume received for Dissolved tests    Sample Labels match COC:	-Pace Container	S Used: -△□↑	es □No □N/A			
Filtered volume received for Dissolved tests    Sample Labels match COC:	Containers Intact:	æ	es □No □N/A	10.		
Sample Labels match COC:  -Includes date/Impe/ID/Analysis Matrix: All containers needing preservation have been checked.  All containers needing preservation are found to be in compliance with EPA (ecommendation.  All containers needing preservation are found to be in compliance with EPA (ecommendation.  All containers needing preservation are found to be in compliance with EPA (ecommendation.  All containers needing preservation are found to be in completed completed preservative	Filtered volume rec			1	:	
-Includes date/time/ID/Analysis Matrix:  All containers needing preservation have been checked.  All containers needing preservation have been checked.  All containers needing preservation are found to be in compliance with EPA recommendation.  All containers needing preservation are found to be in compliance with EPA recommendation.  All containers needing preservation are found to be in compliance with EPA recommendation.  All containers needing preservation are found to be in compliance with EPA recommendation.  All containers needing preservation are found to be in compliance with EPA recommendation.  All containers needing preservation are found to be in compliance with EPA recommendation.  All containers needing preservation are found to be in compliance samples, a copy of this form will be sent to the North Carolina DEHNR	Sample Labels mat					
All containers needing preservation are found to be in compliance with EPA recommendation.    Nes	-Includes date/tid	me/ID/Analysis Matrix:				
compliance with EPA ecommendation.    Second   S	All containers needing	reservation have been checked.	es □no □n/a	13.		
exceptions: VOA, coliform, TOC, 08G, WI-DRO (water)  Samples checked for dechlorination:    Yes   No   ZMA			es □No □N/A			
Samples checked for dechlorination:	exceptions: VOA, colifor	m, TOC, O&G, WI-DRO (water)	es 🗖 No			
Headspace in VOA Vials ( >6mm):		<u> </u>	es □No ☑N/A	14.		
Trip Blank Present:    Yes	Headspace in VOA					
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	Trip Blank Present:		es □No ØÑ/A	16.		
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	Trip Blank Custody	Seals Present	es 🗆 No 🗖 N/A			
Person Contacted:	Pace Trip Blank Lot		•			
Person Contacted:	Client Notification	Pagalutian			Field Data Bassina	12 V / N
Project Manager Review:  Date:  Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR			Date/	Time:	Field Data Require	I, I I
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			Dates			
Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR	Commonto, Made					
Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR						
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Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR						
Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR						
	Project Manage	Review:			Date:	
					m will be sent to the Nor	h Carolina DEHNR





May 01, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2617147

# Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 08, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Betsy McDaniel

Beton M Damil

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



(770)734-4200



**CERTIFICATIONS** 

Project: Plant Hammond

Pace Project No.: 2617147

#### Pennsylvania Certification IDs

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

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

**Arkansas Certification** 

California Certification #: 04222CA Colorado Certification #: PA01547 Connecticut Certification #: PH-0694

Delaware Certification EPA Region 4 DW Rad

Florida/TNI Certification #: E87683 Georgia Certification #: C040 Florida: Cert E871149 SEKS WET

Guam Certification Hawaii Certification Idaho Certification Illinois Certification Indiana Certification Iowa Certification #: 391

Kansas/TNI Certification #: E-10358 Kentucky Certification #: KY90133 KY WW Permit #: KY0098221 KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012 Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991 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

Missouri Certification #: 235

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





# **SAMPLE SUMMARY**

Project: Plant Hammond

Pace Project No.: 2617147

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
2617147001	HGWC-13	Water	04/05/19 16:03	04/08/19 15:30	



# **SAMPLE ANALYTE COUNT**

Project: Plant Hammond

Pace Project No.: 2617147

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617147001	HGWC-13	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA



# **ANALYTICAL RESULTS - RADIOCHEMISTRY**

Project: Plant Hammond

Pace Project No.: 2617147

Sample: HGWC-13 PWS:	<b>Lab ID: 26171470</b> Site ID:	O1 Collected: 04/05/19 16:03 Sample Type:	Received:	04/08/19 15:30	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.422 ± 0.319 (0.565) C:87% T:NA	pCi/L	04/18/19 08:06	13982-63-3	
Radium-228		-0.0205 ± 0.300 (0.711) C:85% T:69%	pCi/L	04/18/19 12:3	1 15262-20-1	
Total Radium	Total Radium Calculation	0.422 ± 0.619 (1.28)	pCi/L	04/22/19 11:27	7 7440-14-4	



# **QUALITY CONTROL - RADIOCHEMISTRY**

EPA 9320

Project: Plant Hammond

Pace Project No.: 2617147

QC Batch: 337915

QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228

Associated Lab Samples: 2617147001

METHOD BLANK: 1644524 Matrix: Water

Associated Lab Samples: 2617147001

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-228
 0.664 ± 0.303 (0.504) C:90% T:91%
 pCi/L
 04/18/19 12:31

Analysis Method:

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.



#### **QUALITY CONTROL - RADIOCHEMISTRY**

Project: Plant Hammond

Pace Project No.: 2617147

QC Batch: 337923

Analysis Method:

EPA 9315

QC Batch Method: EPA 9315

Analysis Description:

9315 Total Radium

Associated Lab Samples: 2617147001

METHOD BLANK: 1644541

Matrix: Water

Associated Lab Samples:

2617147001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

Radium-226

0.170 ± 0.213 (0.439) C:94% T:NA

pCi/L 04/18/19 08:05

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.



#### **QUALIFIERS**

Project: Plant Hammond
Pace Project No.: 2617147

#### **DEFINITIONS**

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

**DUP - Sample Duplicate** 

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

#### **LABORATORIES**

Date: 05/01/2019 02:10 PM

PASI-PA Pace Analytical Services - Greensburg



# **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2617147

Date: 05/01/2019 02:10 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617147001	HGWC-13	EPA 9315	337923		
2617147001	HGWC-13	EPA 9320	337915		
2617147001	HGWC-13	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.

(N/A) SAMPLE CONDITIONS losin' Samples (N/A) Cooter ŏ Del89 (poisno Regulatory Agency (N/A) GA Received on JO#:2617147 Residual Chlorine (V/N) Page:  $\overline{\cdot}$ TEMP in C 1530 TIME 1942 ii G Requested Analysis Filtered (Y/N 7119 611914 DATE 4.8.19 BH t 2617147 822/922 muibe DATE Signed: D2' CI' E' 204 ACCEPTED BY LAFFILIATION. betsy mcdaniel@pacelabs.com, (O30 8 III qqA) siste O&O ,VI qqA ,III ,qqA) ale zenyatec Part (VI .qqA & III .qqA) siste N/A set sesylenA Muskus Attention: scsinvoices@southernco.com Pace Project Manager: betsy modanii Pace Profile #: 327 (AP) or 328 (Huff) 16rt) lonsition 1928203 HOBI involce information: ICI Noglia lacia M EON in Address: Pace Quote: Company Name POSZ Tible 1945 11/4 ubtesetved N 5 SAMPLER NAME AND SIGNATURE OF CONTAINERS SIGNATURE OF SAMPLER: 3 MOLE TEMP AT COLLECTION PRINT Name of SAMPLER: "SK RELINGUISHED BY / AFFILIATION" 61/3/17 1603 4/2/19 읾 415/19 Lylan Hozonik 1405, 179 133 Lauren Petty, Geosyntec Purchase Order #, SCS10348606 STARI Plant Hammond 415/19 Required Project Information: Report To: Joju Abraham (G-GRAB C-COMP) **AMPLE TYPE** AATRIX CODE (see valid codes to left) Project Name: Project #: Copy To: Section B MATRIX
Draway Water
Wase Wase
Wase Wase
Product
Product
Sou'Soes
Od
Wipe
Aur
Cities
Tissue Boryllium, Carmium, Chromium, Coball, Ilusid Арритомы соийемть App. TE(2): Intimosy, Assenic, Buinn athium, Molybann, Selening, Thalling Required Client Information: Company: Georgia Power - Coal Combustion Residuals One Character per box. (A-2, 0-9 / , -) Sample Ids must be unique Requested Due Date: Standord SAMPLE ID Med: jatyraham@southernco.com 2460 Maner Road いろられ (404)506-7239 Atlanta, GA 30339 4 . 6 105 12 Ξ 3) # Mati Page 10 of 1

- June Marie	Sample	Condition	Upon Receipt	I	1
Pace Analy	tical Client Name:	GCA	Power	Project #	
.: Courier: ☐ Fed E	x UPS USPS Client		•	WO#:2	617147
Tracking #:			•	PM: BM	Due Date: 05/06/
	ooler/Box Present: Ves	no Seals i	intact: yes	CLIENT: GAP	•
Packing Material:	Bubble Wrap Bubble Bags	None [	Other	 	
Thermometer Used		e of Ice: Well			oling process has begun
Cooler Temperatus		-	is Frozen: Yes No	Date and Initia	s of person examining
Cooler Temperatur Temp should be above		~	Comments:	contents:	4/8/19 mg
Chain of Custody P		es □No □N/A	1.		7
Chain of Custody F		es 🗆 No 🗆 N/A			
		es □No □N/A			
Chain of Custody R		es ONO ON/A			
Sampler Name & S		es ONO ON/A			
Samples Arrived wi		es DNO DN/A			
Short Hold Time A		1			
		es DN6 DN/A		<u> </u>	
Sufficient Volume:		es Ono On/A			
Correct Containers		res □No □N/A	9.		
-Pace Container	· · · · · · · · · · · · · · · · · · ·	res □No □N/A			
Containers Intact:		es 🗆 No 🗆 N/A			
Filtered volume rec		res □No ☑MA		<u> </u>	
Sample Labels mat	ch COC: سرے	es 🗆 No 🗆 N/A	12.	:	
-Includes date/ti		$\omega$			
All containers needing	preservation have been checked.	res 🗆 no 🗆 n/a	13.		
All containers needing compliance with EPA	preservation are found to be in recommendation.	Yes □No □N/A			
overetiens: VOA solife	rm, TOC, O&G, WI-DRO (water)	Yes ANO	Initial when completed	Lot # of added preservative	
	Int. 100; 000; WI-BNO (Water)	Yes □No ☑N/A	<del> </del>	<u></u>	
Samples checked f		Yes □No □MA			
Headspace in VOA	, ,	Yes DNo DNA		<u>                                   </u>	
Trip Blank Present		_	1		
Trip Blank Custody		Yes □No ,□M/A			
Pace Trip Blank Lo	# (if purchased):				
Client Notification	/ Resolution:			Field Data Requir	ed? Y / N
Person Con	acted:	Date/	Time:		
Comments/ Reso	lution:			;	
				<u> </u>	
Project Manage	er Review:			Date:	
	re is a discrepancy affecting North Carolle out of hold, incorrect preservative, or			orm will be sent to the No	rth Carolina DEHNR
Certification Office (	ne out of hold, incollect preservative, of	у от тетр, итсолес	A Containers;	F-ALLC	  003rev.3, 11SeptemPbgr2006of 11





May 01, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2617205

# Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 09, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This revised report replaces the one issued on 4/16/2019. The report has been revised to correct metals units per consultant request. No other changes have been made to this report.

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

Sincerely,

Betsy McDaniel

Beton Moamel

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





#### **CERTIFICATIONS**

Project: Plant Hammond

Pace Project No.: 2617205

**Atlanta Certification IDs** 

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315 Georgia DW Inorganics Certification #: 812 Georgia DW Microbiology Certification #: 812 North Carolina Certification #: 381 South Carolina Certification #: 98011001

Virginia Certification #: 460204

**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





# **SAMPLE SUMMARY**

Project: Plant Hammond

Pace Project No.: 2617205

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617205001	MW-24D	Water	04/08/19 11:06	04/09/19 13:30



# **SAMPLE ANALYTE COUNT**

Project: Plant Hammond

Pace Project No.: 2617205

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617205001	MW-24D	EPA 6020B	JMW1	13	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA



# **ANALYTICAL RESULTS**

Project: Plant Hammond

Pace Project No.: 2617205

Date: 05/01/2019 03:12 PM

Sample: MW-24D	Lab ID:	2617205001	Collecte	ed: 04/08/19	11:06	Received: 04/	09/19 13:30 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020 MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: Ef	PA 3010A			
Antimony	ND	mg/L	0.0030	0.00011	1	04/10/19 19:59	04/12/19 09:41	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.000060	1	04/10/19 19:59	04/12/19 09:41	7440-38-2	
Barium	0.043	mg/L	0.010	0.000060	1	04/10/19 19:59	04/12/19 09:41	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/10/19 19:59	04/12/19 09:41	7440-41-7	
Boron	0.47J	mg/L	2.0	0.051	20	04/10/19 19:59	04/12/19 01:33	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/10/19 19:59	04/12/19 09:41	7440-43-9	
Calcium	83.0	mg/L	10.0	0.41	20	04/10/19 19:59	04/12/19 01:33	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/10/19 19:59	04/12/19 09:41	7440-47-3	
Cobalt	0.00025J	mg/L	0.010	0.000050	1	04/10/19 19:59	04/12/19 09:41	7440-48-4	
Lithium	0.0027J	mg/L	0.050	0.00042	1	04/10/19 19:59	04/12/19 09:41	7439-93-2	
Molybdenum	0.00027J	mg/L	0.010	0.00010	1	04/10/19 19:59	04/12/19 09:41	7439-98-7	
Selenium	ND	mg/L	0.010	0.000080	1	04/10/19 19:59	04/12/19 09:41	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000060	1	04/10/19 19:59	04/12/19 09:41	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	323	mg/L	25.0	10.0	1		04/11/19 20:54		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	43.3	mg/L	0.25	0.024	1		04/11/19 00:33	16887-00-6	
Fluoride	0.048J	mg/L	0.30	0.029	1		04/11/19 00:33	16984-48-8	
Sulfate	97.3	mg/L	10.0	0.17	10		04/15/19 23:14	14808-79-8	



#### **QUALITY CONTROL DATA**

Project: Plant Hammond

Pace Project No.: 2617205

Date: 05/01/2019 03:12 PM

QC Batch: 468622 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020 MET

Associated Lab Samples: 2617205001

METHOD BLANK: 2545263 Matrix: Water

Associated Lab Samples: 2617205001

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00011	04/11/19 20:42	
Arsenic	mg/L	ND	0.0050	0.000060	04/11/19 20:42	
Barium	mg/L	ND	0.010	0.000060	04/11/19 20:42	
Beryllium	mg/L	ND	0.0030	0.000050	04/11/19 20:42	
Boron	mg/L	ND	0.10	0.0026	04/11/19 20:42	
Cadmium	mg/L	ND	0.0010	0.000070	04/11/19 20:42	
Calcium	mg/L	ND	0.50	0.021	04/11/19 20:42	
Chromium	mg/L	ND	0.010	0.00042	04/11/19 20:42	
Cobalt	mg/L	ND	0.010	0.000050	04/11/19 20:42	
Lithium	mg/L	ND	0.050	0.00042	04/11/19 20:42	
Molybdenum	mg/L	ND	0.010	0.00010	04/11/19 20:42	
Selenium	mg/L	ND	0.010	0.000080	04/11/19 20:42	
Thallium	mg/L	ND	0.0010	0.000060	04/11/19 20:42	

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	mg/L	0.1	0.10	100	80-120	
Arsenic	mg/L	0.01	0.0099	99	80-120	
Barium	mg/L	0.05	0.049	99	80-120	
Beryllium	mg/L	0.01	0.010	104	80-120	
Boron	mg/L	0.05	0.052J	104	80-120	
Cadmium	mg/L	0.01	0.010	102	80-120	
Calcium	mg/L	0.62	0.64	102	80-120	
Chromium	mg/L	0.05	0.051	102	80-120	
Cobalt	mg/L	0.01	0.010	102	80-120	
Lithium	mg/L	0.05	0.050	100	80-120	
Molybdenum	mg/L	0.05	0.051	102	80-120	
Selenium	mg/L	0.05	0.051	101	80-120	
Thallium	mg/L	0.01	0.010	100	80-120	

MATRIX SPIKE & MATRIX SI	PIKE DUPLIC	CATE: 25452	65		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	

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.



# **QUALITY CONTROL DATA**

Project: Plant Hammond

Pace Project No.: 2617205

Date: 05/01/2019 03:12 PM

MATRIX SPIKE & MATRIX S	SPIKE DUPLIC	CATE: 254520	65		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
Beryllium	mg/L		0.01	0.01	0.0086	0.0089	86	89	75-125	4	20	
Boron	mg/L	1010J ug/L	0.05	0.05	1.0J	1.0J	67	48	75-125	1	20	M6
Cadmium	mg/L		0.01	0.01	0.011	0.011	99	99	75-125	0	20	
Calcium	mg/L	70000 ug/L	0.62	0.62	71.3	74.8	207	759	75-125	5	20	M6
Chromium	mg/L		0.05	0.05	0.048	0.048	96	95	75-125	1	20	
Cobalt	mg/L		0.01	0.01	0.015	0.015	97	96	75-125	1	20	
Lithium	mg/L		0.05	0.05	0.043J	0.044J	82	85	75-125	3	20	
Molybdenum	mg/L		0.05	0.05	0.050	0.049	99	99	75-125	1	20	
Selenium	mg/L		0.05	0.05	0.044	0.044	89	88	75-125	1	20	
Thallium	mg/L		0.01	0.01	0.0096	0.0096	96	96	75-125	0	20	

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.



#### **QUALITY CONTROL DATA**

Project: Plant Hammond

Pace Project No.: 2617205

QC Batch: 26252 Analysis Method: SM 2540C

QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 2617205001

LABORATORY CONTROL SAMPLE: 118510

Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers **Total Dissolved Solids** mg/L 400 408 102 84-108

SAMPLE DUPLICATE: 118512

Date: 05/01/2019 03:12 PM

2617150003 Dup Max RPD RPD Parameter Units Result Result Qualifiers **Total Dissolved Solids** 2310 2380 3 10 mg/L

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.

Qualifiers



#### **QUALITY CONTROL DATA**

Project: Plant Hammond

Pace Project No.: 2617205

QC Batch: 26135 QC Batch Method: EPA 300.0 Analysis Method: Analysis Description: EPA 300.0

300.0 IC Anions

Associated Lab Samples: 2617205001

METHOD BLANK: 117979

Matrix: Water

Associated Lab Samples:

Date: 05/01/2019 03:12 PM

2617205001

Blank Reporting Result Limit MDL

Parameter Units Analyzed 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 mg/L Sulfate 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.



#### **QUALIFIERS**

Project: Plant Hammond
Pace Project No.: 2617205

#### **DEFINITIONS**

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

**DUP - Sample Duplicate** 

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

#### **LABORATORIES**

PASI-A Pace Analytical Services - Asheville
PASI-GA Pace Analytical Services - Atlanta, GA

#### **ANALYTE QUALIFIERS**

Date: 05/01/2019 03:12 PM

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.



# **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2617205

Date: 05/01/2019 03:12 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617205001	MW-24D	EPA 3010A	468622	EPA 6020B	468673
2617205001	MW-24D	SM 2540C	26252		
2617205001	MW-24D	EPA 300.0	26135		

# CHAIN-OF-CUSTODY / Analytical Request Document

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

(YW) Samples Requision Against. (N/A) ŏ Cooler belse2 Custody . Stife Procellon (N/A) 8 MO#:2617205 Received on Residual Chlorine (Y/N) TEMP in C 19 1330 4.9.19 (127 720 61/8/h S TYO 61/89/1 2617205 Radium 226/228 DATE Signed: LOS' CI' L' 204 betsy modaniel@pacelabs.com, (O.80 & III aqqA) stateN Mets (App. III, App. IV, D&O man 2007 32.25 Metals (App. III & App. IV) IN. Annivees Teel Attention: scsinvoices@southernco.com Company Name: 327 (AP) or 328 (Huff) Noalia Auskus Methanol Moelin Muchon NORA Preservatives EOSSZBN 9 HOBN Pace Quote:
Pace Project Manager:
Pace Profile #: 327 (A Section C Invoice Information: HCI ЕОИН 3 HS2O4 2010 1127 Unpreserved h # OF CONTAINERS 2 PRINT Name of SAMPLER: SAMPLE TEMP AT COLLECTION 61/9/2 SIGNATURE of SAMPLER: 4/41/9 TIME 8 200 90km DATE COLLECTED Mocks Memberilaso chule You los TIME Copy To: Lauren Petty, Geosyntec SCS10348606 START Project Name: Plant Hammond Project #: DATE Required Project Information: Joju Abraham S SAMPLE TYPE (G-GRAB C-COMP) Purchase Order #: MATRIX CODE (see valid codes to left) Section B 000 WY WY WY WY S 20 W 8 F 50 51 MATRIX Drexang Water Wate Water Wate Water Product Product Oil Wipe Air Other Tissue whall, Avoribe, lead, lithium, Milyblerm Baiver, Benyllian, Cadusius, Chronium Arr TU (2): Andrinany, Arrenie Georgia Power - Coal Combustion Residuals Phone: (404)506-7239 Fex. Requested Due Date: Stauderst TRT 250 One Character per box. (A-2, 0-9 / . -) Sample Ids must be unique SAMPLE ID Skrium, thallium Atlonta, GA 30339 Email: jabraham@southernco.com 2480 Maner Road 3 Required Client Information: 9 4 6 6 2 F Page 12 of 18 # MBTI

2 maring the second	Sample	Condition	opon Keceipi	i	
Pace Analy	tical Client Name:	GIA	Power	Project #	
Courier:  Fed E	x UPS USPS Client	Commercial	Pace Other	WO#:26	
Custody Seal on C	cooler/Box Present: yes	no Seals	intact:yes	PM: BM CLIENT: GAPO	Due Date: 04/16/: wer-CCR
Packing Material:	Bubble Wrap Bubble Bags	None [	Other		
Thermometer Use	•	e of Ice: Wet	,	Samples on ice, coo	lingsprocess has begun
Cooler Temperatu			is Frozen: Yes No		s of person examining
Temp should be abov			Comments:	contents: /	<del>/ 1/19 M</del>
Chain of Custody P	resent:	es □No □N/A	1.		
Chain of Custody F	illed Out:	es □No □N/A	2.		
Chain of Custody R	elinquished:	es 🗆 No 🗆 N/A	3.		
Sampler Name & S	ignature on COC:	es □No □N/A	4.		
Samples Arrived wi		es 🗆 No 🗆 N/A	5.		
Short Hold Time A	nalysis (<72hr):	es ⊈n√o □n/a	6.		
		es ØNo □N/A	7.		
Sufficient Volume:		es □No □N/A			
Correct Containers		es 🗆 No 🗆 N/A			
-Pace Container	<u></u>	es 🗆 No 🗆 N/A	<b>.</b>		
Containers Intact:		es 🗆 No 🗆 N/A	10		
		es ONO DAVA			
Sample Labels mat		es DNo DN/A			
-Includes date/ti	_	W	12.		
	treservation have been checked	69 DNo DN/A	12		
All containers needing	presentation are found to be in	_	13.	•	
compliance with EPA		es 🗆 No 🗆 N/A			
exceptions: VOA, colifor	m. TOC, O&G, WI-DRO (water)	es 🗐 No	Initial when completed	Lot # of added preservative	
Samples checked f	or dechlorination:	es □No ₽N/A	14.		
Headspace in VOA	Vials ( >6mm):	es □No ÆÑÃ	15.		
Trip Blank Present:		es 🗆 No 🗷 N/A	16.		
Trip Blank Custody	Seals Present	es 🗆 No 🗘 MÁ	•		
Pace Trip Blank Lo	# (if purchased):				
Client Notification	Pasalution:	<u> </u>		Field Data Required	? Y / N
	acted:	Date/	Time:		
Comments/ Reso					
Project Manage	r Review:			Date:	
Note: Whenever the Certification Office ( i	re is a discrepancy affecting North Caroli e out of hold, incorrect preservative, ou	na compliance sar of temp, incorrec	mples, a copy of this fo t containers)	rm will be sent to the Nor	h Carolina DEHNR

F-ALLC003rev.3, 11September2006





May 01, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2617206

# Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 09, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Betsy McDaniel

Beton M Damil

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



(770)734-4200



#### **CERTIFICATIONS**

Project: Plant Hammond

Pace Project No.: 2617206

#### Pennsylvania Certification IDs

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

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

**Arkansas Certification** 

California Certification #: 04222CA Colorado Certification #: PA01547 Connecticut Certification #: PH-0694

Delaware Certification EPA Region 4 DW Rad

Florida/TNI Certification #: E87683 Georgia Certification #: C040 Florida: Cert E871149 SEKS WET

Guam Certification Hawaii Certification Idaho Certification Illinois Certification Indiana Certification Iowa Certification #: 391

Kansas/TNI Certification #: E-10358 Kentucky Certification #: KY90133 KY WW Permit #: KY0098221 KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012 Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991 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

Missouri Certification #: 235

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





# **SAMPLE SUMMARY**

Project: Plant Hammond

Pace Project No.: 2617206

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617206001	MW-24D	Water	04/08/19 11:06	04/09/19 13:30



# **SAMPLE ANALYTE COUNT**

Project: Plant Hammond

Pace Project No.: 2617206

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617206001	MW-24D	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA



# **ANALYTICAL RESULTS - RADIOCHEMISTRY**

Project: Plant Hammond

Pace Project No.: 2617206

Sample: MW-24D Lab ID: 2617206001 Collected: 04/08/19 11:06 Received: 04/09/19 13:30 Matrix: Water

PWS: Site ID: Sample Type:

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

Commonto: Campio conco	aon amo on contamoro acce	The material of the material material				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.127 ± 0.0949 (0.162) C:91% T:NA	pCi/L	04/22/19 21:19	13982-63-3	
Radium-228	EPA 9320	0.446 ± 0.375 (0.749) C:79% T:73%	pCi/L	04/25/19 14:16	15262-20-1	
Total Radium	Total Radium Calculation	0.573 ± 0.470 (0.911)	pCi/L	04/26/19 09:32	7440-14-4	



#### **QUALITY CONTROL - RADIOCHEMISTRY**

EPA 9315

Project: Plant Hammond

Pace Project No.: 2617206

QC Batch: 338631

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

Associated Lab Samples: 2617206001

METHOD BLANK: 1648339 Matrix: Water

Associated Lab Samples: 2617206001

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-226
 0.146 ± 0.0893 (0.139) C:90% T:NA
 pCi/L
 04/22/19 21:19

Analysis Method:

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.



#### **QUALITY CONTROL - RADIOCHEMISTRY**

EPA 9320

Project: Plant Hammond

Pace Project No.: 2617206

QC Batch: 338745

QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228

Associated Lab Samples: 2617206001

METHOD BLANK: 1648702 Matrix: Water

Associated Lab Samples: 2617206001

 Parameter
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 Qualifiers

 Radium-228
 0.552 ± 0.362 (0.681) C:81% T:74%
 pCi/L
 04/25/19 11:04

Analysis Method:

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.



#### **QUALIFIERS**

Project: Plant Hammond
Pace Project No.: 2617206

#### **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**

Date: 05/01/2019 02:20 PM

PASI-PA Pace Analytical Services - Greensburg



# **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2617206

Date: 05/01/2019 02:20 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617206001	MW-24D	EPA 9315	338631		
2617206001	MW-24D	EPA 9320	338745		
2617206001	MW-24D	Total Radium Calculation	340066		

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

(NVA) Samples (N/A) Subs/Location Cooler ŏ Custody - Regulatory Agency. (N/A) Received on JO#:2617206 Residual Chlorine (Y/N) Page: TEMP IN C 1330 4,9,19 (127 Sign DATE Signed: 4/6/19 7 61/89/1 2617206 SZZ/SZZ WINDEY D2' Cl' E' 204 (O30 3 III .cqA) siste betsy modaniel@pacelabs.com man O80 (Vi goA III gqA) alei 2023 Gennete (VI .qqA & III .qqA) sistel **ANX** 130T 808VIBNA Attention: scsirvoices@southernco.com Company Name: olher 327 (AP) or 328 (Huff) PRINT NAMES OF SAMPLER: NOBLICA MUSKUS ionsately Molin Mardon Preservatives 9 EOZSZB HOs Pace Project Manager. Pace Profile #: 327 ( D Section C Involce Information: EONE 3 Pace Quote: 5204 20102 127 paviasaidn 1 n OF CONTAINERS SANPLER WHAE OND SIGNATURE SIGNATURE of SAMPLER: 61/8/h 2 Dure AMPLE TEMP AT COLLECTION b1/6/h ğ - **88**/9 Mollie Medientho T. RELINGUISHED BY / AFFLUATION COLLECTE Contraction 4/2/4 195 Purchase Order # 3CS10348806-Project Name: Ptant Hammond Project #: Lauren Petty, Geosyntec START Required Project Information: Report To: Joju Abraham S CH Low APLE TYPE (G=GRA8 C=COMP) ATRIX CODE (see valid codes to left) Copy To: Section B MATRIX
Directory Water
Water
Waste Water
Waste Water
Product
Product
Product
Product
Product
Product
On
On
On
On
Trasse Copall, Avoide, lead, lithium, Malyblerm Basing, Benyllian, Cadusina, Chromian Aso TO (2). Antimony, Arreanic Georgia Power - Coal Combustion Residuals Post Additional Country in the Phone: (404)506-7239 Fax.
Requested Due Date: Stautional TRI 012-One Character per box. (A-Z, 0-91, -). Sample Ids must be unique SAMPLE ID Schenium, thallium Atlanta, GA 30339 Emeli: |abraham@southemco.com 3/4 2480 Maner Road Required Clent Information: 7 G G L , 10 E -# WB1 Page 10 of 1

Andrew States	Sample	Condition	Opon Receipt		
. Pace Analy	tical Client Name:	GIA	Power	Project #	
Courier:  Fed E	x 🗍 UPS 🗎 USPS 🗍 Client 🏻	Commercial	Pace Other	WO# : 26	
Tracking #: Custody Seal on C	ooler/Box Present: yes	no Seals i	intact: Ves	PM: BM CLIENT: GAPO	Due Date: 05/07/1 uer-CCR
	Bubble Wrap Bubble Bags	None	Other		
Thermometer Use	-6	e of Ice: Wet	,	Samples on ice. coo	lingiproce#s has begun
	Pie		s Frozen: Yes No	Date and Initial	s of person examining
Cooler Temperature Temp should be above			Comments:	contents: 7	19/19 M
Chain of Custody P		f es □No □N/A			
Chain of Custody F		es DNo DN/A			
Chain of Custody R		es 🗆 No 🗀 N/A			
Sampler Name & S		es ONo ON/A			
Samples Arrived wi		es 🗆 No 🗆 N/A			
Short Hold Time A		es QMO ON/A			
		es ZNo DN/A			
Sufficient Volume:		es DNo DN/A			
Correct Containers		es DNo DN/A			
-Pace Container		es □No □N/A	<b>5</b> .		
Containers Intact:		es 🗆 No 🗆 N/A	10		
		es 🗆 No 🖼 N/A			
Sample Labels mat	• · · · · · · · · · · · · · · · · · · ·	es ONO ON/A			
1			12.		
-Includes date/ti All containers needing	preservation have been checked	GP ON ON/A	12		
All containers needing	preservation are found to be in	I GS EINO EINA	13.		
compliance with EPA		res □no □n/A			
exceptions: VOA colifo	rm, TOC, O&G, WI-DRO (water)	res 🔲 No	initial when completed	Lot # of added preservative	
Samples checked f		res □No □N/A		procentation	
Headspace in VOA		res ONO ANA			
Trip Blank Present:		ves □No ZN/A			
Trip Blank Custody		res Ono OMA	ļ		
Pace Trip Blank Lo		ies and gain			
			1		
Client Notification				Field Data Require	d? Y / N
	acted:	Date/	Time:		
Comments/ Reso	Hution:				
Project Manage	r Review:			Date:	
	e is a discrepancy affecting North Caroli e out of hold, incorrect preservative, ou			rm will be sent to the Nor	th Carolina DEHNR

F-ALLC003rev.3, 11September2006





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

Beton Moamel

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





### **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

Virginia Certification #: 460204

North Carolina Certification #: 381

South Carolina Certification #: 98011001

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





# **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



# **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



# **ANALYTICAL RESULTS**

Project: Plant Hammond Pace Project No.: 2617148

Date: 05/01/2019 03:04 PM

Lab ID: 2617148001 Collected: 04/05/19 08:50 Received: 04/08/19 15:30 Matrix: Water									
		Report							
Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua	
Analytical	Method: EPA	6020B Pre	paration Met	thod: EF	PA 3010A				
ND	mg/L	0.0030	0.00011	1	04/16/19 07:51	04/16/19 18:55	7440-36-0		
ND	mg/L	0.0050	0.000060	1	04/16/19 07:51	04/16/19 18:55	7440-38-2		
0.000078J	mg/L	0.010	0.000060	1	04/16/19 07:51	04/16/19 18:55	7440-39-3		
ND	mg/L	0.0030	0.000050	1	04/16/19 07:51	04/16/19 18:55	7440-41-7		
ND	mg/L	0.10	0.0026	1	04/16/19 07:51	04/16/19 18:55	7440-42-8		
ND	mg/L	0.0010	0.000070	1	04/16/19 07:51	04/16/19 18:55	7440-43-9		
0.024J	mg/L	0.50	0.021	1	04/16/19 07:51	04/16/19 18:55	7440-70-2		
ND	mg/L	0.010	0.00042	1	04/16/19 07:51	04/16/19 18:55	7440-47-3		
ND	mg/L	0.010	0.000050	1	04/16/19 07:51	04/16/19 18:55	7440-48-4		
ND	-	0.025	0.00023	1	04/16/19 07:51	04/16/19 18:55	7440-50-8		
ND	mg/L	0.0050	0.000050	1	04/16/19 07:51	04/16/19 18:55	7439-92-1		
ND	mg/L	0.050	0.00042	1	04/16/19 07:51	04/16/19 18:55	7439-93-2		
ND	mg/L	0.010	0.00010	1	04/16/19 07:51	04/16/19 18:55	7439-98-7		
ND	mg/L	0.010	0.00011	1	04/16/19 07:51	04/16/19 18:55	7440-02-0		
ND	mg/L	0.010	0.000080	1	04/16/19 07:51	04/16/19 18:55	7782-49-2		
ND	-	0.010	0.000050	1	04/16/19 07:51	04/16/19 18:55	7440-22-4		
ND	•	0.0010	0.000060	1	04/16/19 07:51	04/16/19 18:55	7440-28-0		
ND	mg/L	0.010	0.00012	1	04/16/19 07:51	04/16/19 18:55	7440-62-2		
0.017	mg/L	0.010	0.0011	1	04/16/19 07:51	04/16/19 18:55	7440-66-6	C0	
Analytical	Method: EPA	7470A Pre	paration Met	thod: EF	PA 7470A				
ND	mg/L	0.00020	0.00010	1	04/11/19 21:25	04/15/19 18:37	7439-97-6		
Analytical	Method: SM 2	540C							
ND	mg/L	25.0	10.0	1		04/11/19 20:53			
Analytical	Method: EPA	300.0							
0 11 1	ma/l	0.25	0.024	1		04/10/19 22:29	16887-00-6	В	
	Ū							D	
	Ū								
•	Analytical  ND ND 0.000078J ND ND ND ND ND ND ND ND ND ND ND ND ND	Analytical Method: EPA 6  ND mg/L  ND mg/L  0.000078J mg/L  ND mg/L  Analytical Method: EPA 3  O.11J mg/L  ND mg/L  ND mg/L  Analytical Method: EPA 3	Results	Results	Results	Results	Results	Results	



Project: Plant Hammond

Pace Project No.: 2617148

Date: 05/01/2019 03:04 PM

QC Batch: 468895 Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury

Associated Lab Samples: 2617148001

METHOD BLANK: 2546716 Matrix: Water

Associated Lab Samples: 2617148001

Parameter Units Result Limit MDL Analyzed Qualifiers

Mercury mg/L ND 0.00020 0.00010 04/15/19 18:06

LABORATORY CONTROL SAMPLE: 2546717

Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers 83 Mercury mg/L 0.0025 0.0021 80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2546718 2546719 MS MSD 92424398001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD RPD Qual 0.0025 0.0025 0.0019 0.0019 77 75-125 0 25 Mercury mg/L ND 77

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.



Project: Plant Hammond

Pace Project No.: 2617148

Date: 05/01/2019 03:04 PM

QC Batch: 469500 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020 MET

Associated Lab Samples: 2617148001

METHOD BLANK: 2549697 Matrix: Water

Associated Lab Samples: 2617148001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony			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					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% 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	

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.



Project: Plant Hammond

Pace Project No.: 2617148

Date: 05/01/2019 03:04 PM

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 S	SPIKE DUPLIC	ATE: 25496	99		2549700							
			MS	MSD								
		2617148001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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	
√anadium	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.



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: Parameter

Parameter

Spike

LCS

LCS

% Rec

Qualifiers

**Total Dissolved Solids** 

Units mg/L

mg/L

Conc. 400 Result 408 % Rec 102 Limits 84-108

SAMPLE DUPLICATE: 118512

2617150003 Result

Dup Result

RPD

Max RPD

**Total Dissolved Solids** 

Date: 05/01/2019 03:04 PM

Units

2310

2380

3

Qualifiers

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.

Qualifiers



### **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:

Date: 05/01/2019 03:04 PM

2617148001

Blank Reporting

Parameter	Units	Result	Limit	MDL	Analyzed	(
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	

LABORATOR	V 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 SPI	117982											
			MS	MSD								
		2617207001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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	2647450004	Cnilco	MC	MC	0/ Doo	
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.



### **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**

Date: 05/01/2019 03:04 PM

B Analyte was detected in the associated method blank.

C0 Result confirmed by second analysis.



# **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2617148

Date: 05/01/2019 03:04 PM

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.

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Section A Required	Company:	Address:	Atlant	E E	Phone	Verding			ITEM #		8				9				0		C						Page	13 of

( Comments)	Sampl	e Condition	Upon Receipt		
Face Anal	<i>ytical</i> Client Name:	GTA	Power	Project #	
Courier: Fed E	x UPS USPS Client		·	WO#:2	617148  Due Date: 04/15/
Custody Seal on C	ooler/Box Present: Ves	no Seals	intact: yes	CLIENT: GAP	
Packing Material:	Bubble Wrap Bubble Bag	s None	Other		
Thermometer Use	<u>84</u> ту	pe of Ice: Wet	Blue None		oling process has begun
Cooler Temperatu			i <b>s Frozen</b> : Yes No	Date and Initia	ls of person examining
Temp should be abov		4	Comments:		
Chain of Custody P		res □No □N/A		<u> </u>	
Chain of Custody F		res □No □N/A			*****
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Sampler Name & S		es 🗆 No 🗆 N/A			
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Short Hold Time A		res □Mor □N/A			
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Sufficient Volume:		es Ono On/A			
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-Pace Container Containers Intact:		es ONO ON/A	40		
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-Includes date/til			12.		
	reservation have been checked	es DNo DN/A	12		
All containers needing compliance with EPA	preservation are found to be in	es DNo DN/A	13.		
exceptions: VOA, colifor	m, TOC, O&G, WI-DRO (water)	es DNo	Initial when completed	Lot # of added preservative	
Samples checked for	r dechlorination:	res 🗆 No 🗷 N/A			
Headspace in VOA		es □No □NA			
Trip Blank Present:		res □No ☑Ñ/Ā			
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Pace Trip Blank Lot	# (if purchased):			<u> </u>	
Client Notification	Resolution:			Field Data Require	d? Y / N
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Note: Mhanning the	io a diamental and a second				
Certification Office ( i.	is a discrepancy affecting North Carolin out of hold, incorrect preservative, out	na compliance san	nples, a copy of this fo	rm will be sent to the Nor	h Carolina DEHNR

F-ALLCO03rev.3, 11Septembe 2006 of 14





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

Beton M Damil

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



(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 Montana Certification #: Cert0082 Nebraska Certification #: NE-OS-29-14 Nevada Certification #: PA014572018-1 New Hampshire/TNI Certification #: 297617 New Jersey/TNI Certification #: PA051

New Jersey/TNI Certification #: PA05 New Mexico Certification #: PA01457 New York/TNI Certification #: 10888 North Carolina Certification #: 42706 North Dakota Certification #: R-190 Ohio EPA Rad Approval: #41249

Missouri Certification #: 235

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





# **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



# **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



# **ANALYTICAL RESULTS - RADIOCHEMISTRY**

Project: Plant Hammond

Pace Project No.: 2617149

Sample: FB-01 PWS:	<b>Lab ID: 26171490</b> Site ID:	O1 Collected: 04/05/19 08:50 Sample Type:	Received:	04/08/19 15:30	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.114 ± 0.161 (0.330) C:92% T:NA	pCi/L	04/18/19 08:2	13982-63-3	
Radium-228		0.160 ± 0.258 (0.561) C:88% T:76%	pCi/L	04/18/19 12:3	1 15262-20-1	
Total Radium	Total Radium Calculation	0.274 ± 0.419 (0.891)	pCi/L	04/22/19 11:27	7 7440-14-4	



# **QUALITY CONTROL - RADIOCHEMISTRY**

EPA 9320

Project: Plant Hammond

Pace Project No.: 2617149

QC Batch: 337915 Analysis Method:

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.



## **QUALITY CONTROL - RADIOCHEMISTRY**

Project: Plant Hammond

Pace Project No.: 2617149

QC Batch: 337923

QC Batch Method: EPA 9315

Analysis Description: 93

Analysis Method:

EPA 9315 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.



### **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**

Date: 05/01/2019 02:10 PM

PASI-PA Pace Analytical Services - Greensburg



# **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2617149

Date: 05/01/2019 02:10 PM

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.

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P. Companyor	Sample	Condition	Jpon Receipt		
. Face Analy	tical Client Name:	GTA	Power	Project #	
Courier:  Fed E	x UPS USPS Client	لر Commercial	Pace Other	WO#:2	617149
Tracking #:Custody Seal on C	poler/Box Present: Ves	no Seals i	ntact: yes	PM: BM CLIENT: GAP	Due Date: 05/06/ wer-CCR
Packing Material:	Bubble Wrap Bubble Bags	None [	Other		
Thermometer Used	84 туг	e of Ice: Well	Blue None		ling process has begun
Cooler Temperatur			s Frozen: Yes No	Date and Initia contents:	s of person examining
Temp should be above		(	Comments:	- Contonio	70,
Chain of Custody P	resent:	es □No □N/A	1.		
Chain of Custody F	lled Out:	es □No □N/A	2. ·		
Chain of Custody R	elinquished:	es 🗆 No 🗆 N/A	3.		
Sampler Name & S	gnature on COC:	es 🗆 No 🗆 N/A	4.		
Samples Arrived wi	المر hin Hold Time:	es □No □N/A	5.		
Short Hold Time A	nalysis (<72hr):	es □No □N/A	6.		
Rush Turn Around	Time Requested:	es DINO ON/A	7.		
Sufficient Volume:	\$	es 🗆 No 🗆 N/A	8.		
Correct Containers	Used:	res □No □N/A	9.		
-Pace Container	s Used:	res □No □N/A			
Containers Intact:	Z.	es 🗆 No 🗆 N/A	10.		
Filtered volume rec	eived for Dissolved tests	res □No ☑MA	11.		
Sample Labels mat		res □no □n/a			
-Includes date/ti	_	$\omega$			
	proceguation have been checked	res □no □n/a	13.		
All containers needing	procession are found to be in			:	
compliance with EPA		Yes □No □N/A			
exceptions: VOA, colifo	m, TOC, O&G, WI-DRO (water)	Yes 🗖 No	Initial when completed	Lot # of added preservative	
Samples checked f		Yes □No ØNÆ	14.	•	
Headspace in VOA		Yes □No □NA	15.	i	
Trip Blank Present:		Yes □No ☑Ñ/Ā			
Trip Blank Custody		Yes □No ☑N/A		1	
Pace Trip Blank Lo					
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Client Notification				Field Data Require	d? Y / N
	acted:	Date/	ıme:		
Comments/ Reso	lution:	· · ·	-		
	<u>                                     </u>				
Project Manage	r Review:			Date:	
Note: Whenever the	re is a discrepancy affecting North Carol	ina compliance sar	nples, a copy of this fo	orm will be sent to the No	rth Carolina DEHNR
	e out of hold, incorrect preservative, or				
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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

Beton Moamel

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





## **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 #: E87648

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40 South Carolina Certification #: 99030001 Virginia/VELAP Certification #: 460222





# **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



# **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



# **ANALYTICAL RESULTS**

Project: Plant Hammond

Pace Project No.: 2617207

Date: 05/03/2019 02:13 PM

Sample: FB-02	Lab ID:	2617207001	Collecte	ed: 04/08/19	9 17:45	Received: 04/	09/19 13:30 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020 MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	thod: EF	PA 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 Prej	paration Met	hod: EF	PA 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 2	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	В
Fluoride	ND	mg/L	0.30	0.029	1		04/11/19 00:54		-
Sulfate	0.13J	mg/L	1.0	0.017	1		04/11/19 00:54		



# **ANALYTICAL RESULTS**

Project: Plant Hammond

Pace Project No.: 2617207

Date: 05/03/2019 02:13 PM

Sample: EB-01	Lab ID:	2617207002	Collecte	ed: 04/08/19	9 18:00	Received: 04/	09/19 13:30 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020 MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	thod: Ef	PA 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 Prej	paration Met	thod: EF	PA 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 2	540C						
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	В
Fluoride	ND	mg/L	0.30	0.029	1		04/11/19 03:19	16984-48-8	_
Sulfate	0.38J	mg/L	1.0	0.023	1		04/11/19 03:19		



Project:

Plant Hammond

Pace Project No.:

2617207

QC Batch:

468895

QC Batch Method: EPA 7470A Analysis Method:

EPA 7470A

Analysis Description:

7470 Mercury

Associated Lab Samples:

2617207001, 2617207002

Matrix: Water

METHOD BLANK: 2546716 Associated Lab Samples:

2617207001, 2617207002

Blank

Reporting

Parameter

Units

Result

Limit

MDL Analyzed Qualifiers

Mercury

mg/L

ND

0.00020

0.00010

83

04/15/19 18:06

LABORATORY CONTROL SAMPLE:

Parameter

2546717

Spike Conc.

LCS Result

LCS % Rec % Rec Limits

Qualifiers

Mercury

Mercury

mg/L

92424398001

Result

Units

mg/L

Units

0.0025

2546719 MSD

0.0025

MS

0.0021

MSD

MS MSD

80-120

% Rec

Max RPD RPD

Parameter

Date: 05/03/2019 02:13 PM

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

2546718

ND

MS Spike

0.0025

Spike Conc. Conc.

Result Result 0.0019 0.0019 % Rec 77 % Rec 77 Limits 75-125

0 25

Qual

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.



Project: Plant Hammond

Pace Project No.: 2617207

Date: 05/03/2019 02:13 PM

QC Batch: 468622 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020 MET

Associated Lab Samples: 2617207001, 2617207002

METHOD BLANK: 2545263 Matrix: Water

Associated Lab Samples: 2617207001, 2617207002

		Blank	Reporting			
Parameter	Units	Result	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					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% 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	
_ead	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	

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.



Project: Plant Hammond

Pace Project No.: 2617207

Date: 05/03/2019 02:13 PM

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 S	SPIKE DUPLIC	ATE: 25452	65		2545266							
			MS	MSD								
		2617144001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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	

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.



Project:

Plant Hammond

Pace Project No.:

2617207

QC Batch:

26252

QC Batch Method:

Analysis Method:

SM 2540C

SM 2540C

Analysis Description:

2540C Total Dissolved Solids

Associated Lab Samples:

2617207001, 2617207002

LABORATORY CONTROL SAMPLE: Parameter

Spike LCS LCS

% Rec

Qualifiers

**Total Dissolved Solids** 

Units mg/L Conc. 400 Result

% Rec 408

Limits 84-108

SAMPLE DUPLICATE: 118512

2617150003 Result

Dup Result

RPD

102

Max RPD

Qualifiers

Parameter **Total Dissolved Solids** 

Date: 05/03/2019 02:13 PM

Units 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.



Project: Plant Hammond

Pace Project No.: 2617207

Date: 05/03/2019 02:13 PM

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					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% 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 SPI	KE DUPLIC	CATE: 11798 <sup>-</sup>	1		117982							
			MS	MSD								
		2617207001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	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
					/0 IXEC		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.



### **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**

Date: 05/03/2019 02:13 PM

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.



### **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2617207

Date: 05/03/2019 02:13 PM

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	4	Section B							Ø	Section C	o													L					-	Γ	
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<b>5</b>	Sampi	Contaition	Opon Receipt		
. Face Anal	rtical Client Name:	GIA	Power	Project #	
Tracking #:	x UPS USPS Client			W0#:26	17207 Due Date: 04/16/19
Custody Seal on C	ooler/Box Present: yes	no Seals	intact: Ves	CLIENT: GAPou	
Packing Material:	Bubble Wrap Bubble Bag	None [	Other		•
Thermometer Use	<u> </u>	e of Ice: Wet	,	Samples on ice. co	olingprocegs has begun
Cooler Temperatu	5.	· /	is Frozen: Yes No	Date and Initia	s of person examining
Temp should be abov			Comments:	contents:_7	19/19 M
Chain of Custody P	resent:	1 es □No □N/A	1.		
Chain of Custody F	lled Out:	es □No □N/A	2.		
Chain of Custody R	elinquished:	es 🗆 No 🗆 N/A	3.	:	
Sampler Name & S	gnature on COC:	es □No □N/A	4.		
Samples Arrived wi	thin Hold Time:	es □No □N/A	5.		
Short Hold Time A	nalysis (<72hr):	es ☑No □N/A	6.		
Rush Turn Around	Time Requested:	es ⊠No □N/A	7.		
Sufficient Volume:	Ø	es □No □N/A	8.		
Correct Containers		es 🗆 No 🗆 N/A			
-Pace Container	s Used:	es □No □N/A			
Containers Intact:	1	es □No □N/A	10.		
Filtered volume rec	eived for Dissolved tests	res □No ☑AN/A	11.	i	
Sample Labels mat	ch COC:	es □no □n/a	12.		
-Includes date/ti	me/ID/Analysis Matrix:	$\omega$			
	preservation have been checked	es □no □n/A	13.		
All containers needing compliance with EPA	preservation are found to be in	res □No □N/A			
exceptions: VOA. colifo	m. TOC. O&G, WI-DRO (water)	res 🔲 No	Initial when completed	Lot # of added preservative	
Samples checked f	or dechlorination:	Yes □No □NTA	14.		
Headspace in VOA	Vials ( >6mm): □	res □No ,□N/A	15.		
Trip Blank Present:		′es □No ØN/A	16.		
Trip Blank Custody	Seals Present	res 🗆 No 🗘 MA			
Pace Trip Blank Lo	# (if purchased):	-			
Client Notification	/ Pasalution:			Field Data Require	d? Y / N
Person Cont		Date/	Time <sup>.</sup>	Fleid Data Require	J: 1 , N
Comments/ Reso					
	:				
Project Manage	r Review:			Date:	
	e is a discrepancy affecting North Caroli e out of hold, incorrect preservative, ou			rm will be sent to the Nor	h Carolina DEHNR

F-ALLC003rev.3, 11September2006





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

Beton M Damil

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



(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 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

Missouri Certification #: 235

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



### **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



# **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



### **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	



### **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	



### **QUALITY CONTROL - RADIOCHEMISTRY**

EPA 9315

Project: Plant Hammond

Pace Project No.: 2617208

QC Batch: 338631 Analysis Method:

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.



### **QUALITY CONTROL - RADIOCHEMISTRY**

Project: Plant Hammond

Pace Project No.: 2617208

Radium-228

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

pCi/L

04/25/19 11:04

0.552 ± 0.362 (0.681) C:81% T:74%

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.



### **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**

Date: 05/01/2019 02:20 PM

PASI-PA Pace Analytical Services - Greensburg



### **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2617208

Date: 05/01/2019 02:20 PM

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		

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

(N/V) Requision Agency Samples SAMPLE CONDITIONS (N/Y) Cooler ŏ Custod State 1 State 7 Location 40#:2617208 (AVA) Received on Page: (N/V) enitoIn3 (Eubise) LEMP in C 133 CONTE TAME 245 49.19112 で//の/た Requested Analysis Filtered (Y/N) 41814 9ZZ/9ZZ wnipe ァ DATE Signed: 7 D2' CI' E' 204 ACCEPTED BY JAPPILIATION betsy.mcdaniel@pacelabs.com, (O.8G & III .qqA) elato ) nnan OSC (V) rqqA (III ,qqA) stel ァ etals (App. III & App. IV) bery mite Pearle NA Jast zesyland scsinvoices@southernco.com Pace Project Manager: betsy modani Pace Profile #: 327 (AP) or 328 (Huff) JOU) えぶんと condra icasma Preservatives 192S203 HOE IOI Section C Invoice Information: Noolia EQNI ~ SIGNATURE OF SAMPLER: MOLL'L Address: Pace Quote: 2010 , rine 7082 1127 Attention: bevieserdni 5 OF CONTAINERS S | <del>| 4</del>/8/14 6 MPLE TEMP AT COLLECTION 5 DATE PRINT NAME OF SAMPLER: 51/6/h 8 1310 PR/ OAC) 200 Nollia Musson laso 61/9/<sub>2</sub> | 5361 REINQUISHED BY / AFFILIATION Lary utte Lauren Petty, Geosyntec Purchase Order #: SCS10348606 Project Name: Plan Hammond START 4/8/14 4/8/19 Required Project Information: Report To: Joju Abraham 15 Tolow <u>ن</u> MPLE TYPE (G-GRAB C-COMP) ¥ \$ (see valid codes to left) Section B Copy To: Project #: MATRIX
Direking Water
Water
Waste Water
Product
SourSould
Out
Wipe
Au
Cither
Tissue Georgia Power - Coal Combustion Residuals One Character per box.
(A-Z, 0-9 /, -)
Sample Ids must be unique Phone: (404)506-7239 Fax Requested Due Date: **Characters** SAMPLE ID 20-0 2480 Maner Road Required Client Information: TO Manta, GA 30339 company. 8 8 5 t a ie e # Mati Page 11 of 12

Carlot and the second	Sample	Condition	Opon Receipt		
Pace Analy	tical Client Name:	GIA	Power	Project #	
	x 🗌 UPS 🗌 USPS 🗎 Client [	Commercial	Pace Other	WO#:2	617208
Tracking #: Custody Seal on C	ooler/Box Present: yes	no Seals	intact: Ves	PM: BM	Due Date: 05/07/1 wer-CCR
Packing Material: Thermometer Used	☐ Bubble Wrap ☐ Bubble Bags	None	_	Samples on ice, coo	lingthrocege has begun
					s of person examining
Cooler Temperatur Temp should be above		logical rissue	is Frozen: Yes No Comments:		19/19 MZ
Chain of Custody Pr		es 🗆 No 🗆 N/A			
Chain of Custody Fi		es □No □N/A			
Chain of Custody R		es □No □N/A			
Sampler Name & Si		es □No □N/A		<u> </u>	
Samples Arrived wit		es 🗆 No 🗆 N/A			
Short Hold Time A		es ☑n/o □n/a			
Rush Turn Around		es ØNo □N/A	7.		
Sufficient Volume:	.ex	es 🗆 No 🗆 N/A	8.		
Correct Containers	Used:	es 🗆 No 🗀 N/A	9.		
-Pace Container	S Used:	es □No □N/A			
Containers Intact:	47	es □No □N/A	10.		
Filtered volume rece	eived for Dissolved tests	es 🗆 No 🖼 N/A	11.		
Sample Labels mate	h COC: רבע	es DNo DN/A	12.		
-Includes date/tir	ne/ID/Analysis Matrix:	W			
	reservation have been checked	e9 □No □N/A	13.		
All containers needing compliance with EPA	preservation are found to be in ecommendation.	es □No □N/A			
exceptions: VOA, colifor	m, TOC, O&G, WI-DRO (water)	es 🗆 No	Initial when completed	preservative	
Samples checked for	or dechlorination:	es □No □N/A	14.		
Headspace in VOA	Vials ( >6mm): □	es ONO DNA	15.		
Trip Blank Present:		es 🗆 No 🗷 N/A	16.		
Trip Blank Custody	Seals Present	es □No □NA	ĺ	:	
Pace Trip Blank Lot	# (if purchased):				
Client Notification	Resolution:			Field Data Required	l? Y / N
	acted:	Date/	Time:		
Comments/ Reso	II.				
				:	
				<u> </u>	
				İ	
Project Manage	Review:			Date:	
	e is a discrepancy affecting North Carolin out of hold, incorrect preservative, out			m will be sent to the Nort	h Carolina DEHNR

F-ALLC003rev.3, 11September2006





July 10, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2620547

### Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on July 09, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Betsy McDaniel

Beton M Damil

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







### **CERTIFICATIONS**

Project: Plant Hammond

Pace Project No.: 2620547

**Atlanta Certification IDs** 

110 Technology Parkway Peachtree Corners, GA 30092 Florida DOH Certification #: E87315 Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381 South Carolina Certification #: 98011001

Virginia Certification #: 460204





### **SAMPLE SUMMARY**

Project: Plant Hammond

Pace Project No.: 2620547

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2620547001	MW-30D	Water	07/08/19 19:50	07/09/19 12:00



# **SAMPLE ANALYTE COUNT**

Project: Plant Hammond

Pace Project No.: 2620547

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2620547001	MW-30D	EPA 6020B	KLH	1



### **ANALYTICAL RESULTS**

Project: Plant Hammond

Pace Project No.: 2620547

Date: 07/10/2019 02:21 PM

Sample: MW-30D Lab ID: 2620547001 Collected: 07/08/19 19:50 Received: 07/09/19 12:00 Matrix: Water

Report

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

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

Molybdenum 0.022 mg/L 0.010 0.00095 1 07/10/19 06:49 07/10/19 12:22 7439-98-7



### **QUALITY CONTROL DATA**

Project: Plant Hammond

Pace Project No.: 2620547

Date: 07/10/2019 02:21 PM

QC Batch: 31548 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

Associated Lab Samples: 2620547001

METHOD BLANK: 141738 Matrix: Water

Associated Lab Samples: 2620547001

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

Molybdenum mg/L ND 0.010 0.00095 07/10/19 11:42

LABORATORY CONTROL SAMPLE: 141739

Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers Molybdenum mg/L 0.1 0.10 103 80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 141740 141741

MSD MS MSD MS MSD 2620544001 Spike Spike MS % Rec Max Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD RPD Qual Molybdenum 0.034 0.13 0.13 98 75-125 20 mg/L 0.1 0.1 100

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.



### **QUALIFIERS**

Project: Plant Hammond Pace Project No.: 2620547

### **DEFINITIONS**

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

**DUP - Sample Duplicate** 

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

Date: 07/10/2019 02:21 PM





### **QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2620547

Date: 07/10/2019 02:21 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2620547001	MW-30D	EPA 3005A	31548	EPA 6020B	31551



# 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				The second secon	Star (Location)	36			(N/Y) en	Residual Chlon	M						- - - -	<b></b>	]		SAMPLE CONDITIONS			2.7	N N	vo bev	TEMP Receipt (Y/N) Custo Seeted Coole (Y/N) Seeted Coole (Y/N)	
					#500 (\$1.00 m) 100	NS. COM,	Promote Analysis Theory (TNI)											<b>-</b> •	MO# - Z0ZW24/			ONI DOTE THE	19/19 1939	11 3/19/1900		did to the second secon		DATE Signed: 7/8/19	
1	Section C Invoice Information:	lion:	Company Name:	Address: Bone Oude		Pace Project Manager: betsy.modaniel@pacelabs.com.	5.7.2	Z NV	Preservatives		ELA ECIZO MON- MEGINERO MEGINERO MEGINERO HCI HNO3 HNO3 HNO3	× -											39 M. KAHMAN	Ma Uma			And	a Care Di	
	Section B Section B Section B Required Project Information:	Joju Abraham	Comp			Project Name: Plant Hammond Pace		(4)	COLLECTED	SYARTH COLLECTIO	SAMPLE TEMP E  TIME  OATH  TIME  OATH  TIME  OATH  TIME  TIM	19:45 71:419			67	11/9/1						TIDAR TANKE	500 (6x2) 7/9/19 G				SAUPLER MAME AND SKENATURE PRINT Mams of SAMPLER:	SIGNATURE OF SAMPLER:	
	section A Section B Section B Required Pr	- Coal Combustion Residuals	2480 Maner Road Copy To:	339	Ę	Phone. (404)506-7239 Fax Project Nam			MATRIX CODE	SAMPLE ID	t. Woo Ard Coner	MW-30D										- ADOTTOŅĀJ COM ĶĘPĪŢB	C						
	Section A Required Clie	отралу:	ddress:		mall: jabra	hone:	Requested Dr.	_			# M3TI	\ 	1000				K		6		77. 27.	Y					Page 9	of 1(	)

# Pace Analytical

# Sample Condition Upon Receipt

Tracking #:	e Bags .		lone	intact: yes (	PM: BM Due Date CLIENT: GAPouer-CCR	
Thermometer Used  Cooler Temperature  2 ' 2			Fissue	is Frozen: Yes No	Date and Initials of person examples on ice, cooling process has Date and Initials of person examples.	
Temp should be above freezing to 6°C				Comments:	/ '/ '	$\rightarrow$
Chain of Custody Present:	→ETYes →ETYes					
Chain of Custody Filled Out:						
Chain of Custody Relinquished:	- Per Ed				<u> </u>	
Sampler Name & Signature on COC:					•	
Samples Arrived within Hold Time:					· · · · · · · · · · · · · · · · · · ·	
Short Hold Time Analysis (<72hr):  Rush Turn Around Time Requested:	□Yes Yés			140-7	· TAT.	
Sufficient Volume:	-El Yes		□N/A	/		
Correct Containers Used:	-2√es					
-Pace Containers Used:	+□ Yes			9.		
Containers Intact:	Yes			10		
Filtered volume received for Dissolved tests			DAN/A			
	⊶ TYes					
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix:	_,,,,	W	)			
All containers needing preservation have been checked.	∠ElYes	□No	□n/A	13.		
All containers needing preservation are found to be in compliance with EPA recommendation.	→Pes					
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	□Yes	- <b>D</b> N6		Initial when completed	Lot # of added preservative	
Samples checked for dechlorination:	□Yes	□No	_EN/A			
Headspace in VOA Vials ( >6mm):	·		ÆÑA			
Trip Blank Present:			Æ NIA			
Trip Blank Custody Seals Present			DANIA			
Pace Trip Blank Lot # (if purchased):						
Client Notification/ Resolution:					Field Data Required? Y /	N
Person Contacted:  Comments/ Resolution:			_	Time:		
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



Final Review: JK Caprio 6/11/19



# 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

Page	3
	_

Laboratory ID	Client ID
2616121012	HGWC-7
2616121013	HGWC-11
2616161001	HGWC-12
2616161002	MW-25D
2616161003	MW-19
2616162001	HGWC-15
2616162002	FD-2
2616162003	HGWC-18
2616162004	MW-23D
2616162005	HGWC-14
2616168001	HGWC-12
2616168002	MW-25D
2616168003	MW-19
2616170001	HGWC-15
2616170002	FD-2

Laboratory ID	Client ID
2616170003	HGWC-18
2616170004	MW-23D
2616170005	HGWC-14
2616228001	MW-22
2616228002	HGWC-16
2616228003	MW-21D
2616228004	HGWC-17
2616229001	MW-22
2616229002	HGWC-16
2616229003	MW-21D
2616229004	HGWC-17
2616230001	FB-02
2616231001	FB-02

The samples were received within 0-6 degrees Celsius (°C). No sample preservation issues were noted by the laboratory.

The following issues were noted with the chain of custody (COC) forms:

- The relinquishing signature, date and time were missing for the final sample transfer on the COCs.
- 2616120, 2616121, 2616162 and 2616170: There were no times of collection listed on the COCs for the field duplicates, FD-01 and FD-02. The laboratory assigned collection times of 00:00.
- 2616042, 2616043, 2616120, 26166121, 2616162 and 2616170: The years were missing from the start and end collection times.
- 2616228: The collection start and end times were not listed on the COC for sample HGWC-17. The sample was logged in per the information on the sample container.
- 2616036, 2616037, 2616039, 2616040, 2616042 and 2616043: There were time discrepancies between the relinquished by times and received by times. The relinquished by times were documented as March 13, 2019 0943 and the received by times were documented as March 13, 2019 0944.

#### 1.0 **METALS**

The samples were analyzed by EPA methods 3005A/6020B (Mercury evaluated separately in Section 2.0, below).

Plant Hammond AP Site Data Validation 5 June 2019 Page 4

The areas of data review are listed below. A leading check mark  $(\checkmark)$  indicates an area of review in which the data were acceptable. A preceding crossed circle  $(\otimes)$  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

# 1.4 <u>Matrix Spike/Matrix Spike Duplicate (MS/MSD)</u>

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.

J- estimated concentration greater than the MDL and less than the RL

<sup>\*</sup> Validation qualifiers are defined in Attachment 1 at the end of this report

<sup>\*\*</sup>Reason codes are defined in Attachment 2 at the end of this report

Plant Hammond AP Site Data Validation 5 June 2019 Page 6

Boron was detected at an estimated concentration greater than the MDL and less than the RL in FB-02. Since boron was not reported for the associated samples, no qualifications were applied to the data.

# 1.8 Field Duplicate

Two field duplicate samples were collected with the sample sets, FD-01 and FD-02. Acceptable precision (RPD  $\leq$  20% or the difference between the concentrations < RL) was demonstrated between the field duplicates and the original samples HGWC-13 and HGWC-15, respectively.

# 1.9 **Sensitivity**

The samples were reported to the MDLs. Elevated nondetect results were not reported.

# 1.10 Electronic Data Deliverables (EDDs) Review

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. The laboratory flags D3, M6 and B used in the level II reports were not included in the EDDs. In addition, there were several laboratory report specific EDDs that included project data for samples from a different laboratory report or analytes were included in the EDDs that were not requested or reported in the laboratory report when the sample was used for laboratory batch QC (i.e. if the sample was used for the MS/MSD analyses). No other discrepancies were identified between the level II reports and the EDDs.

### 2.0 MERCURY

The samples were analyzed for mercury by EPA method 7470A.

The areas of data review are listed below. A leading check mark  $(\checkmark)$  indicates an area of review in which the data were acceptable. A preceding crossed circle  $(\otimes)$  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

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### ⊗ 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 <u>Holding Time</u>

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 <u>Laboratory Control Sample</u>

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.

### **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  $(\checkmark)$  indicates an area of review in which the data were acceptable. A preceding crossed circle  $(\otimes)$  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 <u>Matrix Spike/Matrix Spike Duplicate</u>

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 <u>Laboratory Control Sample</u>

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 <u>Sensitivity</u>

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  $(\checkmark)$  indicates an area of review in which the data were acceptable. A preceding crossed circle  $(\otimes)$  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 <u>Matrix Spike/Matrix Spike Duplicate</u>

MS/MSD pairs were not reported with the data.

# 4.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two LCSs and one LCS/LCS duplicate (LCSD) pair were reported for radium-226. Four LCS/LCSD pairs were reported for radium-228. The recovery and replicate error ratio (RER) [2 sigma (2 $\sigma$ )] results were within the laboratory and SOP specified acceptance criteria.

# 4.6 <u>Laboratory Duplicate</u>

Three sample set specific laboratory duplicates were reported for radium-226 using samples MW-29, HGWC-17 and MW-21D. The RER (2σ) results were within the laboratory and SOP specified acceptance criteria.

One batch laboratory duplicate was also reported for radium-226. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

# 4.7 Tracers and Carriers

Carriers were reported for the radium-226 and radium-228 analyses and a tracer was reported for the radium-228 analyses. The recovery results were within the laboratory and SOP specified acceptance criteria.

# 4.8 **Equipment Blank**

One equipment blank was collected with the sample sets, EB-01. Radium-226 and Radium-228 were not detected in the equipment blank above the MDCs.

# 4.9 Field Blank

Two field blanks were collected with the sample sets, FB-01 and FB-02. Radium-226 and Radium-228 were not detected in the field blanks above the MDCs.

# 4.10 Field Duplicate

Two field duplicate samples were collected with the sample sets, FD-01 and FD-02. Acceptable precision (RER  $(2\sigma)$  < 3) was demonstrated between the field duplicates and the original samples HGWC-13 and HGWC-15, respectively.

# 4.11 Sensitivity

The samples were reported to the MDCs. No elevated nondetect results were reported.

# **4.12** Electronic Data Deliverables Review

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II reports and the EDDs.

\* \* \* \* \*

# ATTACHMENT 1 DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY Assigned by Geosyntec's Data Validation Team per the SOP

# DATA QUALIFIER DEFINITIONS

- U\* This analyte should be considered "not-detected" because it was detected in an associated blank at a similar level.
- UJ The analyte was analyzed for, but was not detected above the level of the reported sample reporting/method detection limit. The reported method detection limit is approximate and may be inaccurate or imprecise.
- J The analyte was positively identified but the result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

# ATTACHMENT 2 DATA VALIDATION REASON CODES Assigned by Geosyntec's Data Validation Team per the SOP

Reason Code	Explanation
BL	Laboratory blank contamination. The result should be considered
	"not-detected."
L	LCS and LCSD recoveries outside acceptance limits, indeterminate
	bias
L-	LCS and/or LCSD recoveries outside of acceptance limits. The
	result may be biased low.
L+	LCS and/or LCSD recoveries outside of acceptance limits. The
	result may be biased high.
M-	MS and/or MSD recoveries outside of acceptance limits. The result
	may be biased low.



Final Review: JK Caprio 6/12/19



# 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  $(\checkmark)$  indicates an area of review in which the data were acceptable. A preceding crossed circle  $(\otimes)$  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 <u>Matrix Spike/Matrix Spike Duplicate (MS/MSD)</u>

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 <u>Laboratory Control Sample (LCS)</u>

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  $(\checkmark)$  indicates an area of review in which the data were acceptable. A preceding crossed circle  $(\otimes)$  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 <u>Matrix Spike/Matrix Spike Duplicate</u>

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 <u>Laboratory Control Sample</u>

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  $(\checkmark)$  indicates an area of review in which the data were acceptable. A preceding crossed circle  $(\otimes)$  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

# 3.4 <u>Matrix Spike/Matrix Spike Duplicate</u>

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

J- estimated concentration greater than the MDL and less than the RL

<sup>\*</sup> Validation qualifiers are defined in Attachment 1 at the end of this report

<sup>\*\*</sup>Reason codes are defined in Attachment 2 at the end of this report

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 <u>Laboratory Duplicate</u>

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.

Sai	mple	Analyte	Laboratory Result (mg/L)	Laboratory Flag	Validation Result (mg/L)	Validation Qualifier	Reason Code
MV	W-25D	TDS	15	J	15	U*	BE

mg/L- milligram per liter

# 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

J- estimated concentration greater than the MDL and less than the RL

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

# 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  $(\checkmark)$  indicates an area of review in which the data were acceptable. A preceding crossed circle  $(\otimes)$  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.

J- estimated concentration greater than the MDL and less than the RL

- ✓ 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 <u>Holding Times</u>

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 <u>Matrix Spike/Matrix Spike Duplicate</u>

MS/MSD pairs were not reported with the data.

# 4.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two LCSs and four LCS/LCS duplicate (LCSD) pairs were reported for radium-226. Five LCS/LCSD pairs were reported for radium-228. The recovery and replicate error ratio (RER) [2 sigma  $(2\sigma)$ ] results were within the laboratory and SOP specified acceptance criteria, with the following exception.

2616998: The recovery of radium-226 was high and outside the laboratory and SOP specified acceptance criteria in the LCS in batch 337393. Therefore, the radium-226 concentrations greater than the MDC in the associated samples were J qualified as estimated.

Sample	Analyte	Laboratory Result (pCi/L)	Laboratory Flag	Validation Result (pCi/L)	Validation Qualifier	Reason Code
MW-5	Radium-226	0.607	NA	0.607	J	L+
HGWC-10	Radium-226	1.80	NA	1.8	J	L+
MW-6	Radium-226	0.789	NA	0.789	J	L+

pCi/L- picocuries per liter

U-not detected at or above the MDC

NA-not applicable

# 4.6 <u>Laboratory Duplicate</u>

Three sample set specific laboratory duplicates were reported for radium-226 using samples HGWC-7, MW-5 and HGWC-11. The RER  $(2\sigma)$  results were within the laboratory and SOP specified acceptance criteria.

Three batch laboratory duplicates were also reported for radium-226. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

# 4.7 Tracers and Carriers

Carriers were reported for the radium-226 and radium-228 analyses and a tracer was reported for the radium-228 analyses. The recovery results were within the laboratory and SOP specified acceptance criteria.

# 4.8 **Equipment Blank**

One equipment blank was collected with the sample sets, EB-01. Radium-226 and Radium-228 were not detected in the equipment blank above the MDCs.

# 4.9 Field Blank

Two field blanks were collected with the sample sets, FB-01 and FB-02. Radium-226 and Radium-228 were not detected in the field blanks above the MDCs, with the following exception.

Radium-226 was detected at a concentration greater than the MDC in FB-02. Since the radium-226 concentration in FB-02 was U\* qualified due to method blank contamination, no additional qualifications were applied to the data, based on professional and technical judgment.

# 4.10 Field Duplicate

One field duplicate was collected but was not reported for the radiochemistry parameters.

# 4.11 **Sensitivity**

The samples were reported to the MDCs. No elevated non-detect results were reported.

# 4.12 <u>Electronic Data Deliverables Review</u>

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II reports and the EDDs.

\* \* \* \* \*

# ATTACHMENT 1 DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY Assigned by Geosyntec's Data Validation Team per the SOP

# DATA QUALIFIER DEFINITIONS

- U\* This analyte should be considered "not-detected" because it was detected in an associated blank at a similar level.
- UJ The analyte was analyzed for, but was not detected above the level of the reported sample reporting/method detection limit. The reported method detection limit is approximate and may be inaccurate or imprecise.
- J The analyte was positively identified but the result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

# ATTACHMENT 2 DATA VALIDATION REASON CODES Assigned by Geosyntec's Data Validation Team per the SOP

Reason Code	Explanation
BE	Equipment blank contamination. The result should be considered
	"not-detected."
BF	Field blank contamination. The result should be considered "not-
	detected."
BL	Laboratory blank contamination. The result should be considered
	"not-detected."
L	LCS and LCSD recoveries outside acceptance limits, indeterminate
	bias
L-	LCS and/or LCSD recoveries outside of acceptance limits. The
	result may be biased low.
L+	LCS and/or LCSD recoveries outside of acceptance limits. The
	result may be biased high.
M-	MS and/or MSD recoveries outside of acceptance limits. The result
	may be biased low.

# APPENDIX B2 Field Data Sheets

Date: 2019-03-12 14:41:33

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

**Tubing Type** 

Project Information:

**Operator Name** Noelia Muskus

Company Name **Geosyntec Consultants** Project Name **GP-Plant Hammond** 

Site Name Plant Hammond

Latitude 0° 0' 0" 0° 0' 0" Longitude Sonde SN 440279

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

Well Information:

Well ID HGWA-1 Well diameter 2 in Well Total Depth ft Screen Length 10 ft Depth to Water 6.86 ft

Pumping Information:

Final Pumping Rate 200 mL/min Total System Volume 0.485 L Calculated Sample Rate 300 sec Stabilization Drawdown 3.6 in **Total Volume Pumped** 7 L

QED MP50

0.17 in

ft

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	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

Date: 2019-03-12 10:27:42

Project Information:

Operator Name Grant Walter

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0" Longitude 0° 0' 0" Sonde SN 597519

Turbidity Make/Model LaMotte 2020we

Pump Information:
Pump Model/Type

Pump Model/Type QED MP50 Tubing Type polyethylene

Tubing Diameter 0.17 in Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID HGWA-2
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 3.46 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.485 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 22.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	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 (EPA 6020B/7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 28.42 ft.

**Grab Samples** 

HGWA-2 Grab

Date: 2019-03-12 10:27:50

Project Information:

Operator Name
Company Name
Project Name
Site Name
Benjamin Mejia-Tickner
Geosyntec Consultants
GP-Plant Hammond
Plant Hammond

 Latitude
 0° 0' 0"

 Longitude
 0° 0' 0"

 Sonde SN
 613179

Turbidity Make/Model LaMotte 2020we

Well Information:

Well ID HGWA-3
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 4.15 ft

Pump Information:

Pump Model/Type QED MP50
Tubing Type polyethylene
Tubing Diameter 0.17 in

ft

Tubing Diameter 0.17
Tubing Length ft

Pump placement from TOC

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.485 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 28.1 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS/cmTurb NTU		DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:32:56	309.11	16.38	7.24	465.78	1.08	4.16	0.15	26.29
Last 5	09:37:56	609.01	16.38	7.25	464.67	1.24	4.16	0.14	28.17
Last 5	09:42:56	909.01	16.47	7.27	463.57	1.09	4.16	0.15	15.14
Last 5	09:47:56	1209.00	16.55	7.28	462.80	0.68	4.16	0.14	11.62
Last 5	09:52:56	1509.00	16.47	7.29	463.79	0.78	4.16	0.15	7.59
Variance 0			0.09	0.02	-1.10			0.00	-13.03
Variance 1			0.08	0.01	-0.77			-0.01	-3.53
Variance 2			-0.07	0.01	0.99			0.00	-4.03

#### Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 45.25 ft.

Grab Samples HGWA-3

Date: 2019-03-13 16:00:50

Project Information:

Operator Name Noelia Muskus
Company Name Geosyntec Consultants

Project Name GP-Plant Hammond Site Name Plant Hammond

Latitude 0° 0' 0"

Longitude 0° 0' 0"

Sonde SN 440279

Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type QED MP50 Tubing Type polyethylene

Tubing Diameter 0.17 in Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID HGWC-7
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 3.38 ft

**Pumping Information:** 

Final Pumping Rate 200 mL/min
Total System Volume 0.485 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 17 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS	S/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	15:17:10	2999.95	18.58	7.26	825.64	7.00	3.47	0.07	66.43
Last 5	15:22:10	3299.94	18.69	7.27	821.46	6.27	3.47	0.07	66.49
Last 5	15:27:10	3599.93	18.52	7.26	826.64	5.21	3.47	0.11	66.57
Last 5	15:32:09	3899.93	18.44	7.27	826.65	5.13	3.47	0.18	66.41
Last 5	15:37:09	4199.92	18.45	7.27	826.48	4.79	3.47	0.12	66.31
Variance 0			-0.17	-0.00	5.18			0.03	0.08
Variance 1			-0.09	0.01	0.01			0.08	-0.16
Variance 2			0.01	0.00	-0.16			-0.06	-0.10

#### Notes

Four bottles: Two 1-L plastic bottles with 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 = 30.48 ft.

Grab Samples HGWC-7

Date: 2019-03-12 15:53:16

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

**Tubing Type** 

Project Information:

Operator Name Grant Walter

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0" Longitude 0° 0' 0" Sonde SN 597519

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

Well Information:

Well ID HGWC-8
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 1.66 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.485 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 16.5 L

QED MP50

0.17 in

ft

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS	/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	15:32:38	2099.97	18.62	6.92	921.61	8.67	1.67	1.12	120.06
Last 5	15:37:38	2399.96	18.54	6.92	917.54	5.93	1.67	0.83	119.91
Last 5	15:42:38	2699.96	18.48	6.91	920.89	5.32	1.67	1.04	115.86
Last 5	15:47:38	2999.94	18.53	6.91	926.43	3.84	1.67	0.98	114.24
Last 5	15:52:37	3299.92	18.52	6.91	853.94			0.85	113.23
Variance 0			-0.06	-0.00	3.35			0.21	-4.05
Variance 1			0.05	-0.00	5.54			-0.06	-1.62
Variance 2			-0.01	0.00	-72.49			-0.13	-1.00

#### Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 25.04 ft.

**Grab Samples** 

HGWC-8

Date: 2019-03-13 12:12:22

Project Information:

Operator Name
Company Name
Project Name
Site Name
Benjamin Mejia-Tickner
Geosyntec Consultants
GP-Plant Hammond
Plant Hammond

Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 613179

Turbidity Make/Model LaMotte 2020we

Well Information:

Well ID HGWC-9
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 6.80 ft

Pump Information:

Pump Model/Type QED MP50
Tubing Type polyethylene
Tubing Diameter 0.17 in

ft

Tubing Diameter 0.17
Tubing Length ft

Pump placement from TOC

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.485 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 31 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:53:59	3599.98	17.51	7.08	1165.91	6.64	6.85	0.24	113.68
Last 5	10:58:59	3899.98	17.41	7.07	1167.08	6.07	6.85	0.23	114.31
Last 5	11:03:59	4199.97	17.30	7.08	1171.26	5.85	6.85	0.32	114.68
Last 5	11:08:58	4499.96	17.50	7.07	1169.87	5.08	6.85	0.25	115.34
Last 5	11:13:58	4799.96	17.42	7.06	1169.26	4.46	6.85	0.20	116.19
Variance 0			-0.12	0.00	4.18			0.09	0.38
Variance 1			0.20	-0.00	-1.39			-0.08	0.66
Variance 2			-0.08	-0.01	-0.61			-0.04	0.85

#### Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 47.68 ft.

**Grab Samples** 

HGWC-9

Date: 2019-03-13 11:57:23

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

**Tubing Type** 

Project Information:

Operator Name Grant Walter

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0"
Longitude 0° 0' 0"

Sonde SN 597519

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

Well Information:

Well ID HGWC-10
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 5.73 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.1703416 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 7.5 L

Alexis

0.17 in

18 ft

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS	cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	11:43:48	300.04	16.23	6.75	453.31	3.64	5.78	3.29	71.30
Last 5	11:48:48	600.01	16.68	6.76	450.50	3.19	5.78	3.13	72.67
Last 5	11:53:48	900.00	16.78	6.77	450.26	2.57	5.78	3.05	74.59
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.45	0.01	-2.80			-0.16	1.37
Variance 2			0.10	0.01	-0.24			-0.07	1.92

#### Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 22.71 ft.

Grab Samples HGWC-10 Grab

Date: 2019-03-13 17:46:13

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

**Tubing Type** 

Project Information:

Operator Name Noelia Muskus

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0" Longitude 0° 0' 0" Sonde SN 440279

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

Well Information:

Well ID HGWC-11
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 7.70 ft

**Pumping Information:** 

Final Pumping Rate 200 mL/min
Total System Volume 0.09 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 5.5 L

Alexis

0.17 in

ft

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS	/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	16:48:08	300.06	17.09	5.87	808.38	4.45	7.82	3.77	57.84
Last 5	16:53:08	600.01	17.05	5.83	798.47	3.92	7.82	3.60	59.34
Last 5	16:58:08	900.00	17.09	5.86	763.26	2.49	7.82	3.49	60.49
Last 5	17:03:08	1199.99	17.20	5.91	754.29	2.17	7.82	3.30	62.16
Last 5	17:08:08	1499.98	17.24	5.92	735.18	1.74	7.82	3.22	63.38
Variance 0			0.04	0.02	-35.21			-0.10	1.15
Variance 1			0.11	0.05	-8.97			-0.20	1.67
Variance 2			0.04	0.01	-19.11			-0.08	1.23

#### Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 25.98 ft.

Grab Samples HGWC-11 Grab

Date: 2019-03-14 09:58:38

**Project Information:** 

Operator Name
Company Name
Project Name
Site Name

Benjamin Mejia-Tickner
Geosyntec Consultants
GP-Plant Hammond
Plant Hammond

Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 613179

Turbidity Make/Model LaMotte 2020we

Well Information:

Well ID HGWC-12
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 8.01 ft

Pump Information:

Pump Model/Type QED MP50
Tubing Type polyethylene

ft

Tubing Diameter 0.17 in Tubing Length ft

Pump placement from TOC

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.485 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 4 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS	cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:22:29	300.10	17.73	7.08	814.18	5.66	8.02	0.14	124.40
Last 5	09:27:29	600.02	17.81	7.09	813.85	4.45	8.02	0.13	125.39
Last 5	09:32:29	900.00	17.86	7.09	813.34	3.64	8.02	0.14	127.52
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.08	0.01	-0.33			-0.01	0.99
Variance 2			0.05	0.00	-0.51			0.01	2.13

#### Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 35.01 ft.

Grab Samples HGWC-12 Grab

Date: 2019-03-13 15:29:19

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

**Tubing Type** 

Project Information:

Operator Name Grant Walter

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0" Longitude 0° 0' 0" Sonde SN 597519

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

Well Information:

Well ID HGWC-13
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 16.12 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.485 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 8 L

QED MP50

0.17 in

ft

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS	/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	15:16:14	300.04	19.86	7.24	605.33	10.06	16.24	0.64	-13.08
Last 5	15:21:14	600.02	19.91	7.24	600.86	5.95	16.24	0.50	-16.50
Last 5	15:26:14	900.01	19.88	7.24	603.58	4.80	16.24	0.29	-19.16
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.04	0.00	-4.48			-0.14	-3.43
Variance 2			-0.02	-0.00	2.73			-0.21	-2.66

#### Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 45.54 ft.

Grab Samples HGWC-13 Grab

FD-1

HGWC-13 Dup Grab

Date: 2019-03-13 12:39:45

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

**Tubing Type** 

Project Information:

**Operator Name** Noelia Muskus

Company Name **Geosyntec Consultants** Project Name **GP-Plant Hammond** 

Site Name Plant Hammond

Latitude 0° 0' 0" 0° 0' 0" Longitude Sonde SN 440279

Turbidity Make/Model LaMotte 2020we Pump placement from TOC

Well Information:

Well ID MW-5 Well diameter 2 in Well Total Depth ft Screen Length 10 ft Depth to Water 8.83 ft Pumping Information:

Final Pumping Rate 200 mL/min Total System Volume 0.09 L Calculated Sample Rate 300 sec Stabilization Drawdown 3.6 in **Total Volume Pumped** 3.75 L

Alexis

0.17 in

ft

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH SpCond μS/cmTurb NTU		DTW ft	RDO mg/L	ORP mV	
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	11:57:34	300.05	17.54	6.21	690.85	1.03	9.00	1.50	49.10
Last 5	12:02:34	600.01	17.58	6.17	691.37	1.23	9.00	1.45	51.07
Last 5	12:07:34	900.00	17.59	6.16	691.06	1.02	8.99	1.42	53.01
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.04	-0.04	0.53			-0.05	1.97
Variance 2			0.01	-0.01	-0.32			-0.03	1.94

#### Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/ 7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 31.5 ft.

**Grab Samples** 

MW-5

Date: 2019-03-13 10:42:46

Project Information:

**Operator Name Grant Walter** 

Company Name **Geosyntec Consultants** Project Name **GP-Plant Hammond** 

Site Name Plant Hammond

Latitude 0° 0' 0" 0° 0' 0" Longitude Sonde SN 597519

LaMotte 2020we Turbidity Make/Model

Pump Information:

Pump Model/Type Alexis

**Tubing Type** polyethylene

ft

Tubing Diameter 0.17 in Tubing Length 28 ft

Pumping Information:

Pump placement from TOC

Final Pumping Rate 200 mL/min 0.2149758 L Total System Volume Calculated Sample Rate 300 sec 3.6 in Stabilization Drawdown **Total Volume Pumped** 9 L

Well Information:

Well ID MW-6 Well diameter 2 in Well Total Depth ft Screen Length 10 ft Depth to Water 9.14 ft

Low-Flow Sampling Stabilization Summary

LOW 1 10W Sai	Time	Elapsed	Temp C	рН	SpCond uS	cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization	Time	Liapsca	+/- 0.5	+/- 0.1	+/- 5%	+/- 10	DIWIC	+/- 10%	+/- 10
Last 5	10:24:24	300.04	18.50	6.85	991.16	7.98	9.18	1.22	25.80
Last 5	10:29:24	600.01	18.57	6.86	1062.01	6.28	9.18	1.23	25.71
Last 5	10:34:24	900.00	18.58	6.86	1064.96	5.07	9.18	1.11	24.74
Last 5	10:39:24	1199.99	18.79	6.86	1064.03	4.93	9.18	1.17	26.23
Last 5									
Variance 0			0.07	0.01	70.85			0.01	-0.09
Variance 1			0.01	0.00	2.95			-0.13	-0.97
Variance 2			0.21	0.00	-0.93			0.07	1.49

### Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA A 6020B/7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 32.93 ft.

**Grab Samples** 

MW-6

Date: 2019-03-13 17:48:33

Project Information:

Operator Name
Company Name
Project Name
Benjamin Mejia-Tickner
Geosyntec Consultants
GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0"

Longitude 0° 0' 0"

Sonde SN 613179

Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis

Tubing Type polyethylene

ft

Tubing Diameter 0.17 in Tubing Length ft

Pump placement from TOC

Well Information: Pumping Information:

Final Pumping Rate 200 mL/min Well ID MW-7 2 in Total System Volume 0.09 L Well diameter Calculated Sample Rate Well Total Depth ft 300 sec Screen Length 10 ft Stabilization Drawdown 3.6 in Depth to Water 5.63 ft **Total Volume Pumped** 31 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	S/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization	1		+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	17:02:13	8101.92	17.87	6.33	332.26	0.83	5.63	4.74	120.05
Last 5	17:07:13	8401.91	17.90	6.39	351.21	1.05	5.63	3.16	120.28
Last 5	17:12:13	8701.91	17.84	6.37	346.02	0.69	5.63	2.37	120.76
Last 5	17:17:13	9001.90	17.85	6.36	343.89	0.65	5.63	2.50	121.32
Last 5	17:22:13	9301.90	17.75	6.37	351.52	1.06	5.63	2.57	121.14
Variance 0			-0.06	-0.01	-5.19			-0.79	0.47
Variance 1			0.01	-0.01	-2.12			0.13	0.56
Variance 2			-0.10	0.01	7.63			0.07	-0.18

# Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 16.73 ft.

Grab Samples

MW-7

Date: 2019-03-14 14:30:23

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

**Tubing Type** 

Project Information:

Operator Name Benjamin Mejia-Tickner Company Name Geosyntec Consultants Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 613179

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

Alexis

0.17 in

ft

ft

polyethylene

Well Information: Pumping Information:

Final Pumping Rate 200 mL/min Well ID MW-19 2 in Total System Volume 0.09 L Well diameter Calculated Sample Rate 300 sec Well Total Depth ft Screen Length 10 ft Stabilization Drawdown 3.6 in Depth to Water 5.99 ft **Total Volume Pumped** 16.5 L

Low-Flow Sampling Stabilization Summary

LOW 110W 3a	mpining Stabilia	Zation Summar							
	Time	Elapsed	Temp C	рН	SpCond µS	cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	13:38:51	3600.99	18.33	6.47	506.67	8.09	6.61	0.32	53.74
Last 5	13:43:51	3900.99	18.61	6.48	504.62	7.03	6.61	0.30	55.62
Last 5	13:48:51	4200.98	18.66	6.48	504.06	5.46	6.61	0.26	56.93
Last 5	13:53:51	4500.98	18.61	6.47	505.36	4.96	6.61	0.24	58.39
Last 5	13:58:51	4800.98	18.61	6.48	499.80	4.67	6.61	0.21	59.92
Variance 0			0.04	0.00	-0.56			-0.04	1.31
Variance 1			-0.05	-0.02	1.30			-0.02	1.46
Variance 2			0.00	0.02	-5.56			-0.03	1.54

#### Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 29.47 ft.

Grab Samples MW-19

Date: 2019-03-13 11:01:11

Project Information:

Well Information:

Operator Name Noelia Muskus

Company Name **Geosyntec Consultants** Project Name **GP-Plant Hammond** 

Site Name Plant Hammond

Latitude 0° 0' 0" 0° 0' 0" Longitude Sonde SN 440279

Turbidity Make/Model LaMotte 2020we Pump Information: Pump Model/Type

Alexis

**Tubing Type** polyethylene

ft

Tubing Diameter 0.17 in Tubing Length ft

Well ID MW-20 Well diameter 2 in Well Total Depth ft Screen Length 10 ft Depth to Water 6.87 ft

Pump placement from TOC

Pumping Information:

Final Pumping Rate 200 mL/min Total System Volume 0.09 L Calculated Sample Rate 300 sec Stabilization Drawdown 3.6 in **Total Volume Pumped** 7.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	S/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization	1		+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:07:03	900.00	16.38	6.80	520.62	7.45	7.11	1.08	85.01
Last 5	10:12:03	1199.99	16.49	6.71	641.78	5.12	7.13	0.50	61.11
Last 5	10:17:03	1499.99	16.63	6.67	772.69	4.28	7.14	0.40	42.43
Last 5	10:22:03	1799.98	16.78	6.73	790.37	3.42	7.16	0.27	28.44
Last 5	10:27:03	2099.97	16.83	6.75	793.09	2.70	7.17	0.22	20.95
Variance 0			0.15	-0.04	130.90			-0.11	-18.68
Variance 1			0.15	0.05	17.68			-0.13	-14.00
Variance 2			0.05	0.02	2.72			-0.05	-7.49

#### Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/ 7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 34.37 ft.

**Grab Samples** MW-20

Date: 2019-03-13 14:22:40

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

**Tubing Type** 

Project Information:

Operator Name Grant Walter

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0" Longitude 0° 0' 0" Sonde SN 597519

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

Well Information:

Well ID MW-24D
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 19.65 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.3801225 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 11.5 L

Alexis

0.17 in

65 ft

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	, , ,		DTW ft	RDO mg/L	ORP mV	
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	14:09:25	300.02	20.30	7.58	537.75	4.68	19.74	0.32	49.06
Last 5	14:14:25	600.01	20.44	7.58	537.10	4.45	19.74	0.47	51.32
Last 5	14:19:25	900.01	20.38	7.58	537.93	3.80	19.74	0.55	45.70
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.14	-0.01	-0.65			0.15	2.27
Variance 2			-0.06	-0.00	0.84			0.08	-5.62

#### Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 72.81 ft.

Grab Samples MW-24D

Date: 2019-03-14 11:50:32

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

**Tubing Type** 

**Project Information:** 

Operator Name
Company Name
Project Name
Benjamin Mejia-Tickner
Geosyntec Consultants
GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 613179

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

Well Information:

Well ID MW-25D
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 7.57 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.09 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 8 L

Alexis

0.17 in

ft

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:57:07	1500.01	18.03	7.67	802.13	5.46	12.70	0.21	26.12
Last 5	11:02:07	1800.01	18.13	7.67	800.42	5.05	12.85	0.22	17.33
Last 5	11:07:07	2100.00	18.08	7.68	799.53	5.01	12.90	0.23	9.17
Last 5	11:12:07	2400.00	18.10	7.66	799.15	4.87	12.93	0.19	1.22
Last 5	11:17:07	2700.00	18.17	7.67	799.77	4.64	12.96	0.16	-6.79
Variance 0			-0.05	0.00	-0.88			0.01	-8.15
Variance 1			0.02	-0.01	-0.38			-0.03	-7.95
Variance 2			0.06	0.01	0.62			-0.03	-8.01

#### Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/ 7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 63.15 ft.

Grab Samples MW-25D

Date: 2019-03-13 13:37:29

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

**Tubing Type** 

**Project Information:** 

Operator Name
Company Name
Project Name
Benjamin Mejia-Tickner
Geosyntec Consultants
GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 613179

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

Well Information:

Well IDMW-26DWell diameter2 inWell Total DepthftScreen Length10 ftDepth to Water6.85 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.09 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 6 L

Alexis

0.17 in

ft

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS	cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	13:02:06	300.06	18.51	7.49	746.39	5.64	6.99	0.46	77.49
Last 5	13:07:06	600.02	18.63	7.43	745.27	4.70	6.99	0.61	77.32
Last 5	13:12:06	900.01	18.44	7.40	749.46	3.89	6.99	0.48	76.35
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.12	-0.07	-1.12			0.15	-0.17
Variance 2			-0.19	-0.02	4.19			-0.13	-0.97

# Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 77.97 ft.

Grab Samples MW-26D

Date: 2019-03-13 09:23:15

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

**Tubing Type** 

Project Information:

Operator Name Grant Walter

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 597519

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

Well Information:

Well IDMW-27DWell diameter2 inWell Total Depth63.04 ftScreen Length10 ftDepth to Water6.37 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.3354883 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 27 L

Alexis

0.17 in

55 ft

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS	/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5 Last 5 Last 5 Last 5 Last 5	09:20:20	300.06	17.23	7.78	407.17	2.44	16.66	1.60	39.90
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.00	0.00	0.00			0.00	0.00
Variance 2			0.00	0.00	0.00			0.00	0.00

# Notes

Prepurged 24h prior to sample. Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle w ith HNO3 for App. IV metals (EPA 6020B/ 7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 63.04 ft.

**Grab Samples** 

MW-27D

Date: 2019-03-12 17:49:27

Project Information:

Operator Name
Company Name
Project Name
Benjamin Mejia-Tickner
Geosyntec Consultants
GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0" Longitude 0° 0' 0" Sonde SN 613179

Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump placement from TOC

Pump Model/Type Alexis

Tubing Type polyethylene

ft

Tubing Diameter 0.17 in Tubing Length ft

Well Information: Pumping Information:

Final Pumping Rate 200 mL/min Well ID MW-28D 2 in Total System Volume 0.09 L Well diameter Calculated Sample Rate Well Total Depth ft 300 sec Screen Length 10 ft Stabilization Drawdown 3.6 in Depth to Water 3.75 ft **Total Volume Pumped** 7 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS	S/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	17:07:33	300.02	18.61	7.46	539.64	2.30	3.60	0.22	3.91
Last 5	17:12:33	600.02	18.66	7.45	539.33	2.29	3.60	0.21	-6.24
Last 5	17:17:33	900.01	18.68	7.46	541.80	2.05	3.60	0.21	-17.88
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.05	-0.00	-0.31			-0.01	-10.15
Variance 2			0.02	0.01	2.47			-0.00	-11.64

# Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 58.2 ft.

Grab Samples MW-28D

Date: 2019-03-12 18:34:33

Project Information:

Operator Name Noelia Muskus

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0" Longitude 0° 0' 0" Sonde SN 440279

Turbidity Make/Model LaMotte 2020we

Pump Information: Pump Model/Type

Pump Model/Type Alexis

Tubing Type polyethylene

Tubing Diameter 0.17 in Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID MW-29
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 3.44 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.09 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 5.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	17:44:38	321.06	16.38	7.22	1021.16	2.71	3.51	0.12	76.57
Last 5	17:49:38	621.01	16.52	7.21	1020.91	3.52	3.49	0.10	75.01
Last 5	17:54:38	921.00	16.56	7.20	1023.02	3.04	3.49	0.08	73.39
Last 5	17:59:38	1220.99	16.54	7.20	1021.29	3.05	3.49	0.08	72.02
Last 5									
Variance 0			0.13	-0.01	-0.25			-0.02	-1.56
Variance 1			0.04	-0.01	2.11			-0.01	-1.62
Variance 2			-0.02	0.00	-1.73			-0.01	-1.37

#### Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 28.23 ft.

Grab Samples MW-29

Date: 2019-04-02 09:46:15

Pump Information:

Tubing Diameter

Tubing Length

Project Information:

**Operator Name Grant Walter** 

Pump Model/Type Company Name **Geosyntec Consultants Tubing Type** 

Project Name **GP-Plant Hammond** Site Name Plant Hammond

Latitude 0° 0' 0"

0° 0' 0" Longitude Sonde SN 501336

Turbidity Make/Model LaMotte 2020we Pump placement from TOC 27.5 ft

Well Information:

Well ID HGWA-1 Well diameter 2 in Well Total Depth ft Screen Length 10 ft Depth to Water 10.44 ft

Pumping Information:

Final Pumping Rate 200 mL/min Total System Volume 0.09 L Calculated Sample Rate 300 sec Stabilization Drawdown 3.6 in

Alexis

0.17 in

ft

polyethylene

**Total Volume Pumped** 10.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS	S/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization	1		+/- 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), CI, 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

Date: 2019-04-02 13:40:26

Project Information:

Operator Name Dalton Anderson
Company Name Geosyntec Consultants
Project Name GP-Plant Hammond
Site Name Plant Hammond

Latitude 0° 0' 0"

Longitude 0° 0' 0"

Sonde SN 497259

Turbidity Make/Model LaMotte 2020we

Well Information:

Well ID HGWA-2
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 5.93 ft

Pump Information:

Pump Model/Type QED MP50
Tubing Type polyethylene
Tubing Diameter 0.17 in

ft

Tubing Diameter 0.17 in Tubing Length ft

Pump placement from TOC

**Pumping Information:** 

Final Pumping Rate 200 mL/min
Total System Volume 0.485 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 11.25 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	S/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization	n		+/- 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), CI, 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

Date: 2019-04-01 17:24:36

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

**Tubing Type** 

Project Information:

Operator Name Noelia Muskus

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0" Longitude 0° 0' 0" Sonde SN 364452

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

Well Information:

Well ID HGWA-3
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 5.30 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.485 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 8.5 L

QED MP50

0.17 in

ft

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	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), CI, 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

Date: 2019-04-02 17:16:00

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

**Tubing Type** 

QED MP50

0.17 in

ft

ft

polyethylene

Project Information:
Operator Name
Noelia Muskus

Operator Name

Company Name

Project Name

Noelia Muskus

Geosyntec Consultants

GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0" Longitude 0° 0' 0" Sonde SN 364452

Turbidity Make/Model LaMotte 2020we Pump placement from TOC

Well Information: Pumping Information:

Final Pumping Rate 200 mL/min Well ID HGWC-7 Total System Volume Well diameter 2 in 0.485 L Calculated Sample Rate Well Total Depth ft 300 sec Screen Length 10 ft Stabilization Drawdown 3.6 in Depth to Water **Total Volume Pumped** 71.5 L 4.13 ft

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS	cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	16:32:07	300.07	18.70	7.28	716.67	4.17	4.35	0.19	-18.20
Last 5	16:37:07	600.02	18.48	7.27	718.98	3.28	4.35	0.18	-20.55
Last 5	16:42:07	900.02	18.51	7.27	720.85	3.09	4.35	0.18	-21.92
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			-0.22	-0.01	2.31			-0.01	-2.35
Variance 2			0.03	-0.00	1.86			-0.00	-1.37

# Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 33.5 ft.

Grab Samples HGWC-7

Date: 2019-04-03 11:27:57

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

**Tubing Type** 

Project Information:

**Operator Name** Noelia Muskus Company Name **Geosyntec Consultants** Project Name **GP-Plant Hammond** 

Site Name Plant Hammond

Latitude 00 0' 0" 00 0' 0" Longitude Sonde SN 364452

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

Well Information:

Well ID HGWC-8 Well diameter 2 in Well Total Depth ft Screen Length 10 ft Depth to Water 3.38 ft

Pumping Information:

Final Pumping Rate 200 mL/min Total System Volume 0.485 L Calculated Sample Rate 300 sec Stabilization Drawdown 3.6 in **Total Volume Pumped** 10 L

QED MP50

0.17 in

ft

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:31:20	1500.02	17.63	6.87	943.74	19.50	3.42	0.12	-0.41
Last 5	10:36:20	1800.02	17.72	6.87	944.50	12.40	3.42	0.11	-1.66
Last 5	10:41:20	2100.02	17.77	6.87	943.78	9.45	3.42	0.12	-2.47
Last 5	10:46:20	2400.02	17.83	6.87	943.97	7.03	3.42	0.13	-3.52
Last 5	10:51:21	2700.44	17.84	6.85	942.35	4.80	3.42	0.11	-1.82
Variance 0			0.04	-0.00	-0.71			0.00	-0.81
Variance 1			0.07	-0.00	0.19			0.01	-1.05
Variance 2			0.01	-0.02	-1.62			-0.01	1.70

#### Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 24.9 ft.

**Grab Samples** 

HGWC-8 Grab

Date: 2019-04-03 09:38:33

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

**Tubing Type** 

Project Information:

Operator Name Grant Walter

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0" Longitude 0° 0' 0" Sonde SN 501336

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

41.98 ft

QED MP50

0.17 in

ft

polyethylene

Well Information:

Well ID HGWC-9
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 12.55 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.485 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 20.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:16:25	1500.01	17.98	6.88	1133.28	10.44	12.63	0.11	80.10
Last 5	09:21:25	1800.01	18.03	6.88	1133.92	7.11	12.64	0.11	79.78
Last 5	09:26:25	2100.01	18.07	6.88	1133.39	6.65	12.63	0.06	79.81
Last 5	09:31:25	2400.00	18.11	6.88	1131.77	5.92	12.64	0.09	79.47
Last 5	09:36:25	2700.00	18.15	6.88	1129.16	4.91	12.65	0.07	79.47
Variance 0			0.04	-0.00	-0.53			-0.05	0.03
Variance 1			0.03	-0.00	-1.63			0.03	-0.34
Variance 2			0.04	0.00	-2.61			-0.03	-0.01

#### Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 47.64

Grab Samples HGWC-9

Date: 2019-04-03 13:48:29

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

**Tubing Type** 

Project Information:

Depth to Water

Operator Name Noelia Muskus

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0" Longitude 0° 0' 0" Sonde SN 364452

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

**Total Volume Pumped** 

Alexis

0.17 in

ft

ft

4 L

polyethylene

Well Information: Pumping Information:

12.5 ft

Final Pumping Rate 200 mL/min Well ID HGWC-10 Total System Volume 0.09 L Well diameter 2 in Calculated Sample Rate Well Total Depth ft 300 sec Screen Length 10 ft Stabilization Drawdown 3.6 in

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS	S/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization	n		+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	12:59:09	300.08	18.19	6.57	867.75	1.10	12.53	0.22	-0.10
Last 5	13:04:09	600.02	18.52	6.56	870.88	0.11	12.54	0.18	-0.34
Last 5	13:09:09	900.02	18.50	6.56	873.62	0.47	12.54	0.14	-0.96
Last 5	13:14:09	1200.02	18.52	6.55	875.54	0.49	12.54	0.13	-1.69
Last 5									
Variance 0			0.33	-0.01	3.12			-0.04	-0.23
Variance 1			-0.02	-0.01	2.75			-0.03	-0.62
Variance 2			0.02	-0.01	1.92			-0.02	-0.73

#### Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 22.55 ft.

Grab Samples HGWC-10 Grab

Date: 2019-04-03 12:41:24

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

**Tubing Type** 

Project Information:

**Operator Name** Dalton Anderson

Company Name **Geosyntec Consultants** Project Name **GP-Plant Hammond** 

Site Name Plant Hammond

Latitude 0° 0' 0" 0° 0' 0" Longitude Sonde SN 497259

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC ft

Well Information:

Well ID HGWC-11 Well diameter 2 in Well Total Depth ft Screen Length 10 ft Depth to Water 14.06 ft

Pumping Information:

Final Pumping Rate 200 mL/min Total System Volume 0.09 L Calculated Sample Rate 300 sec Stabilization Drawdown 3.6 in **Total Volume Pumped** 9.5 L

Alexis

0.17 in

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS	/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	11:56:13	1199.99	17.53	5.45	799.73	8.20	14.19	3.76	107.43
Last 5	12:01:13	1499.98	17.48	5.51	788.45	5.57	14.20	3.72	106.40
Last 5	12:06:17	1803.97	17.51	5.60	756.53	4.46	14.20	3.65	104.86
Last 5	12:11:17	2103.96	17.54	5.66	741.70	3.65	14.20	3.56	104.29
Last 5	12:16:17	2403.95	17.54	5.69	727.31	3.23	14.20	3.84	103.46
Variance 0			0.03	0.09	-31.91			-0.07	-1.53
Variance 1			0.02	0.06	-14.84			-0.10	-0.58
Variance 2			0.01	0.03	-14.38			0.28	-0.82

#### Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 26.00

**Grab Samples** HGWC-11 Grab

Date: 2019-04-03 14:24:13

Project Information:

**Operator Name** Dalton Anderson Company Name **Geosyntec Consultants** Project Name **GP-Plant Hammond** Site Name Plant Hammond

Latitude 0° 0' 0" 0° 0' 0" Longitude Sonde SN 497259

Turbidity Make/Model LaMotte 2020we

Well Information:

Well ID HGWC-12 Well diameter 2 in Well Total Depth ft Screen Length 10 ft Depth to Water 14.32 ft

Pump Information:

Pump Model/Type QED MP50 **Tubing Type** polyethylene

ft

Tubing Diameter 0.17 in Tubing Length ft

Pump placement from TOC

Pumping Information: Final Pumping Rate 200 mL/min Total System Volume 0.485 L Calculated Sample Rate 300 sec Stabilization Drawdown 3.6 in **Total Volume Pumped** 6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS	S/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilizatio	n		+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	13:43:15	300.06	18.75	6.93	793.87	4.94	14.35	0.20	111.17
Last 5	13:48:15	600.01	18.82	6.94	795.52	3.67	14.35	0.16	109.97
Last 5	13:53:15	900.00	18.87	6.96	796.06	3.13	14.35	0.13	108.88
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.07	0.01	1.65			-0.04	-1.21
Variance 2			0.05	0.01	0.54			-0.02	-1.08

# Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth =35.02

**Grab Samples** HGWC-12 Grab

Date: 2019-04-05 16:30:57

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

**Tubing Type** 

Project Information:

**Operator Name** Noelia Muskus

Company Name **Geosyntec Consultants** Project Name **GP-Plant Hammond** Site Name Plant Hammond

Latitude 00 0' 0" 00 0' 0" Longitude Sonde SN 364452

Turbidity Make/Model LaMotte 2020we Pump placement from TOC

Well Information:

Well ID HGWC-13 Well diameter 2 in Well Total Depth ft Screen Length 10 ft Depth to Water 18.43 ft

Pumping Information:

Final Pumping Rate 150 mL/min Total System Volume 0.485 L Calculated Sample Rate 300 sec Stabilization Drawdown 3.6 in **Total Volume Pumped** 5.5 L

QED MP50

0.17 in

ft

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS	cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	15:29:45	900.02	19.97	7.27	575.15	2.95	18.52	1.18	-61.92
Last 5	15:34:45	1200.02	20.22	7.25	578.57	2.04	18.52	0.97	-62.77
Last 5	15:39:45	1500.02	20.26	7.25	578.40	2.16	18.52	0.69	-64.59
Last 5	15:44:45	1800.02	20.65	7.24	575.91	1.48	18.52	0.50	-65.62
Last 5	15:49:45	2100.02	20.13	7.24	578.02	1.29	18.52	0.43	-66.23
Variance 0			0.04	-0.01	-0.17			-0.28	-1.82
Variance 1			0.39	-0.01	-2.49			-0.18	-1.02
Variance 2			-0.52	0.00	2.11			-0.07	-0.61

#### Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 45.44 ft.

**Grab Samples** HGWC-13 Grab

Date: 2019-04-03 12:52:58

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

**Tubing Type** 

Project Information:

Operator Name Grant Walter

Company Name Geosyntec Consultants

Project Name GP-Plant Hammond Site Name Plant Hammond

Latitude 0° 0' 0" Longitude 0° 0' 0"

Sonde SN 501336

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

Well Information:

Well ID MW-5
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 15.67 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.2015856 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 8.5 L

Alexis

0.17 in

25 ft

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS	cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization	า		+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	12:36:16	300.04	19.11	6.00	566.45	1.22	15.88	2.16	53.37
Last 5	12:41:16	600.02	19.04	5.97	609.53	1.28	15.59	2.39	54.26
Last 5	12:46:16	900.02	19.20	5.95	609.35	0.57	15.89	2.49	55.53
Last 5	12:51:16	1200.02	19.09	5.96	611.09	0.33	15.89	2.39	55.95
Last 5									
Variance 0			-0.08	-0.03	43.08			0.23	0.89
Variance 1			0.16	-0.02	-0.19			0.10	1.28
Variance 2			-0.11	0.01	1.75			-0.10	0.42

#### Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 31.50

**Grab Samples** 

MW-5 Grab

Date: 2019-04-03 15:21:45

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

**Tubing Type** 

Project Information:

Operator Name Noelia Muskus

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0" Longitude 0° 0' 0" Sonde SN 364452

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC ft

Alexis

0.17 in

ft

polyethylene

Well Information:

Well ID MW-6
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 16.09 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.09 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	14:31:34	300.07	20.26	6.79	1034.40	3.55	16.15	0.18	-20.45
Last 5	14:36:34	600.02	20.35	6.78	1029.77	3.82	16.15	0.15	-21.82
Last 5	14:41:34	900.51	20.31	6.77	1027.02	3.69	16.15	0.14	-21.42
Last 5	14:46:34	1200.51	20.26	6.77	1028.69	3.88	16.15	0.14	-22.81
Last 5									
Variance 0			0.09	-0.01	-4.63			-0.02	-1.37
Variance 1			-0.04	-0.00	-2.75			-0.01	0.40
Variance 2			-0.04	-0.00	1.67			-0.00	-1.39

#### Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 32.81 ft.

**Grab Samples** 

MW-6

Date: 2019-04-03 10:19:15

Project Information:

Operator Name Dalton Anderson

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0" Longitude 0° 0' 0" Sonde SN 497259

Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis

Tubing Type polyethylene

ft

Tubing Diameter 0.17 in Tubing Length ft

Well Information:

Well ID MW-7
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 12.68 ft

Pump placement from TOC

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.09 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in

Stabilization Drawdown 3.6 ii Total Volume Pumped 13 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS/cm Turb NTU		DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:51:49	1499.98	16.75	6.11	301.77	2.38	12.75	2.42	93.86
Last 5	09:56:49	1799.97	16.91	6.14	318.17	2.00	12.76	2.45	94.02
Last 5	10:01:54	2104.96	17.09	6.17	322.23	1.27	12.76	2.39	93.82
Last 5	10:07:11	2421.95	17.14	6.19	329.88	0.89	12.76	2.18	94.59
Last 5	10:12:14	2724.94	17.22	6.19	327.20	1.14	12.76	2.18	95.49
Variance 0			0.18	0.03	4.06			-0.06	-0.20
Variance 1			0.06	0.02	7.66			-0.21	0.77
Variance 2			0.07	-0.01	-2.68			-0.00	0.91

#### Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 26.70

**Grab Samples** 

MW-7

Date: 2019-04-03 14:24:35

Pump Information:

Tubing Diameter

Tubing Length

Project Information:

**Operator Name Grant Walter** 

Pump Model/Type Company Name **Geosyntec Consultants Tubing Type** 

Project Name **GP-Plant Hammond** Site Name Plant Hammond

Latitude 0° 0' 0" 0° 0' 0" Longitude Sonde SN 501336

Turbidity Make/Model LaMotte 2020we Pump placement from TOC

Well Information:

Well ID MW-19 Well diameter 2 in Well Total Depth ft Screen Length 10 ft Depth to Water 10.80 ft Pumping Information:

Final Pumping Rate 200 mL/min Total System Volume 0.1837319 L Calculated Sample Rate 300 sec Stabilization Drawdown 3.6 in **Total Volume Pumped** 7.5 L

Alexis

0.17 in

21 ft

ft

polyethylene

Low-Flow Sampling Stabilization Summary

LOW 110W 3c	Time	Elapsed	Temp C	рН	SpCond μS/cmTurb NTU		DTW ft	RDO mg/L	ORP mV
Stabilization		·	+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	14:12:41	300.04	19.26	6.10	550.19	0.89	10.88	0.52	72.49
Last 5	14:17:40	600.02	19.18	6.11	551.56	1.16	10.89	0.56	73.38
Last 5	14:22:40	900.02	19.11	6.14	537.94	1.37	10.89	0.66	76.07
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			-0.07	0.01	1.37			0.04	0.89
Variance 2			-0.08	0.03	-13.62			0.10	2.69

#### Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), CI, 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 = 29.45

**Grab Samples** MW-19

Date: 2019-04-02 15:32:47

Project Information:

Operator Name Grant Walter

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0" Longitude 0° 0' 0" Sonde SN 501336

Turbidity Make/Model LaMotte 2020we

Well Information:

Well ID MW-20
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 12.23 ft

Pump Information:

Pump Model/Type Alexis

Tubing Type polyethylene

ft

Tubing Diameter 0.17 in Tubing Length 26 ft

Pumping Information:

Pump placement from TOC

Final Pumping Rate 200 mL/min
Total System Volume 0.206049 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 11.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS/cmTurb NTU		DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	15:11:27	1200.02	18.23	6.64	685.30	1.41	12.54	0.43	39.75
Last 5	15:16:27	1500.02	18.34	6.69	659.24	1.26	12.55	0.37	24.67
Last 5	15:21:27	1800.02	18.20	6.70	702.37	0.90	12.58	0.34	15.21
Last 5	15:26:27	2100.01	18.54	6.70	718.40	1.11	12.59	0.37	9.31
Last 5	15:31:27	2400.01	19.01	6.70	697.59	0.85	12.59	0.32	3.66
Variance 0			-0.13	0.02	43.14			-0.03	-9.46
Variance 1			0.34	-0.00	16.03			0.03	-5.89
Variance 2			0.47	0.00	-20.81			-0.05	-5.65

# Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 34.35

Grab Samples MW-20 Grab

Date: 2019-04-08 11:13:25

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

**Tubing Type** 

Project Information:

Operator Name Noelia Muskus

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0" Longitude 0° 0' 0" Sonde SN 364452

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

Well Information:

Well ID MW-24D
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 24.16 ft

Pumping Information:

Final Pumping Rate 100 mL/min
Total System Volume 0.09 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 4.75 L

Alexis

0.17 in

ft

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS/cmTurb NTU		DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:51:31	1500.07	19.09	7.49	552.93	7.39	24.18	0.57	5.29
Last 5	09:56:31	1800.03	19.15	7.49	553.65	6.21	24.18	0.61	3.98
Last 5	10:01:32	2100.62	19.20	7.49	553.86	5.34	24.18	0.54	2.95
Last 5	10:06:32	2400.62	19.41	7.47	554.01	4.34	24.18	0.56	2.62
Last 5	10:11:32	2700.62	19.47	7.47	553.72	3.42	24.18	0.56	2.98
Variance 0			0.05	0.00	0.21			-0.07	-1.04
Variance 1			0.22	-0.03	0.15			0.02	-0.33
Variance 2			0.06	0.01	-0.29			-0.00	0.35

#### Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 72.83 ft.

Grab Samples MW-24D

Date: 2019-04-05 17:09:57

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

**Tubing Type** 

Project Information:

Operator Name Aaron Reeder

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0" Longitude 0° 0' 0" Sonde SN 513028

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

67.0 ft

Alexis

0.17 in

68.0 ft

polyethylene

Well Information:

Well ID MW-24D
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 24.38 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.3935128 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 19 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS/cmTurb NTU		DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	16:40:26	4499.95	20.03	7.55	544.82	17.70	24.41	2.48	52.40
Last 5	16:45:26	4799.94	19.81	7.56	544.71	18.44	24.40	2.66	50.83
Last 5	16:50:26	5099.93	19.90	7.55	546.65	14.38	24.41	2.43	49.75
Last 5	16:55:26	5399.93	20.17	7.56	540.95	15.25	24.41	2.53	48.26
Last 5	17:00:26	5699.92	20.00	7.56	545.17	13.72	24.41	2.50	47.12
Variance 0			0.09	-0.01	1.95			-0.24	-1.08
Variance 1			0.26	0.01	-5.71			0.10	-1.49
Variance 2			-0.17	0.00	4.23			-0.02	-1.14

# Notes

or AP wells:

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 72.95. Stopped pumping due to Turbidity purged 1.5 HRS.

Grab Samples MW-24D Grab

Date: 2019-04-03 16:14:59

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

**Tubing Type** 

Project Information:

**Operator Name** Dalton Anderson

Company Name **Geosyntec Consultants** Project Name **GP-Plant Hammond** 

Site Name Plant Hammond

Latitude 0° 0' 0" 0° 0' 0" Longitude Sonde SN 497259

Turbidity Make/Model LaMotte 2020we Pump placement from TOC

Well Information:

Well ID MW-25D Well diameter 2 in Well Total Depth ft Screen Length 10 ft Depth to Water 14.25 ft

Pumping Information:

Final Pumping Rate 200 mL/min Total System Volume 0.09 L Calculated Sample Rate 300 sec Stabilization Drawdown 3.6 in **Total Volume Pumped** 5 L

Alexis

0.17 in

ft

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS/cmTurb NTU		DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	15:26:08	300.06	18.85	7.49	670.61	6.31	16.90	0.16	61.90
Last 5	15:31:08	600.01	18.87	7.53	646.72	5.39	17.77	0.16	56.77
Last 5	15:36:08	900.00	18.90	7.55	635.97	4.91	18.49	0.16	53.27
Last 5	15:41:09	1200.99	19.04	7.56	631.80	4.08	18.80	0.18	49.22
Last 5									
Variance 0			0.01	0.04	-23.89			0.01	-5.14
Variance 1			0.03	0.02	-10.75			-0.00	-3.50
Variance 2			0.15	0.02	-4.17			0.02	-4.05

#### Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 63.15

**Grab Samples** MW-25D

Date: 2019-04-03 11:12:40

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

**Tubing Type** 

Project Information:

Operator Name Grant Walter

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0" Longitude 0° 0' 0" Sonde SN 501336

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

Well Information:

Well ID MW-26D
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 12.72 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.4024396 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 11.5 L

Alexis

0.17 in

70 ft

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS/cmTurb NTU		DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:48:09	900.02	18.14	8.00	744.08	2.89	12.94	0.51	51.50
Last 5	10:53:09	1200.01	18.15	7.64	758.79	2.77	12.94	0.34	50.12
Last 5	10:58:09	1500.01	18.18	7.44	810.85	2.79	12.94	0.87	48.98
Last 5	11:03:09	1800.01	18.30	7.30	831.74	1.73	12.93	0.70	47.96
Last 5	11:08:09	2100.01	18.30	7.25	848.08	1.70	12.94	0.46	46.16
Variance 0			0.03	-0.20	52.07			0.54	-1.14
Variance 1			0.12	-0.14	20.89			-0.17	-1.02
Variance 2			-0.00	-0.06	16.33			-0.25	-1.80

#### Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), CI, 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 = 77.80

Grab Samples MW-26D

Date: 2019-04-03 09:36:52

Pump Information:

Project Information:
Operator Name
Noelia Muskus

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 364452

Turbidity Make/Model LaMotte 2020we Pump placement from TOC ft

Well Information: Pumping Information:

Final Pumping Rate 200 mL/min Well ID MW-27D Well diameter Total System Volume 0.09 L 2 in Calculated Sample Rate Well Total Depth 300 sec ft Stabilization Drawdown Screen Length 10 ft 3.6 in Depth to Water 3.26 ft **Total Volume Pumped** 5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS/cmTurb NTU		DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:12:19	900.02	16.19	7.59	394.43	0.73	7.11	0.48	37.65
Last 5	09:17:19	1200.02	15.57	7.62	393.54	0.50	7.69	0.54	21.78
Last 5	09:22:19	1500.47	15.52	7.63	392.58	0.48	8.20	0.59	13.55
Last 5	09:27:19	1800.47	15.61	7.65	392.68	0.41	8.77	0.66	9.27
Last 5	09:32:19	2100.47	15.89	7.65	393.41	0.82	9.33	0.82	7.60
Variance 0			-0.05	0.01	-0.96			0.05	-8.22
Variance 1			0.09	0.01	0.10			0.07	-4.28
Variance 2			0.27	0.00	0.74			0.16	-1.67

### Notes

Water level dropping too fast. Proceed to purge well dry and sample will be collected after 24h.

Date: 2019-04-04 11:04:16

RDO mg/L

ORP mV

Project Information:

Operator Name

Noelia Muskus

Pump Information:

Pump Model/Type

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 364452

Turbidity Make/Model LaMotte 2020we Pump placement from TOC ft

Well Information: Pumping Information:

Final Pumping Rate Well ID MW-27D 200 mL/min Total System Volume Well diameter 2 in 0.09 L Calculated Sample Rate 300 sec Well Total Depth ft Screen Length 10 ft Stabilization Drawdown 3.6 in

Screen Length 10 ft Stabilization Drawdown 3.6 in Depth to Water 5.32 ft Total Volume Pumped 1.75 L

Low-Flow Sampling Stabilization Summary

Time Elapsed Temp C pH SpCond μS/cmTurb NTU DTW ft

Stabilization +/- 0.5 +/- 0.2 +/- 5% +/- 10

+/- 10% +/- 10 Last 5 09:24:26 300.14 17.54 7.63 419.94 0.22 6.48 1.53 80.73 Last 5 Last 5 Last 5 Last 5 Variance 0 nan nan nan nan nan Variance 1 0.00 0.00 0.00 0.00 0.00 Variance 2 0.00 0.00 0.00 0.00 0.00

#### Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 63.11 ft.

Grab Samples MW-27D

Date: 2019-04-02 15:40:23

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

**Tubing Type** 

Project Information:

**Operator Name** Dalton Anderson

Company Name **Geosyntec Consultants** Project Name **GP-Plant Hammond** 

Site Name Plant Hammond

Latitude 0° 0' 0" 0° 0' 0" Longitude Sonde SN 497259

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC ft

Alexis

0.17 in

ft

polyethylene

Well Information:

Well ID MW-28D Well diameter 2 in Well Total Depth ft Screen Length 10 ft Depth to Water 4.07 ft

Pumping Information:

Final Pumping Rate 200 mL/min Total System Volume 0.09 L Calculated Sample Rate 300 sec Stabilization Drawdown 3.6 in **Total Volume Pumped** 5.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH SpCond μS/cmTurb NTU		/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	15:24:28	300.05	18.78	7.36	562.93	2.39	4.38	0.15	40.84
Last 5	15:29:28	600.01	19.18	7.39	560.78	2.40	4.42	0.13	38.57
Last 5	15:34:28	900.00	18.47	7.40	569.16	2.36	4.43	0.13	31.27
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.40	0.03	-2.15			-0.02	-2.27
Variance 2			-0.71	0.01	8.38			0.01	-7.29

#### Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth =58.20

**Grab Samples** MW-28D Grab

Date: 2019-04-02 13:48:32

Project Information:

Operator Name

Grant Walter

Pump Information:

Pump Model/Type

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 20 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:

Final Pumping Rate Well ID 200 mL/min MW-29 Total System Volume Well diameter 2 in 0.1792685 L Calculated Sample Rate Well Total Depth ft 300 sec Screen Length 10 ft Stabilization Drawdown 3.6 in Depth to Water 5.26 ft **Total Volume Pumped** 7.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS/cmTurb NTU		DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	13:36:30	300.04	17.28	6.87	898.83	2.81	5.37	0.51	53.90
Last 5	13:41:30	600.02	16.85	6.89	897.60	3.35	5.38	0.54	52.03
Last 5	13:46:30	900.02	16.79	6.91	899.57	3.27	5.38	0.19	51.14
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			-0.42	0.03	-1.23			0.03	-1.87
Variance 2			-0.06	0.01	1.97			-0.35	-0.89

# Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), CI, 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 = 28.21

Grab Samples MW-29

Date: 2019-07-08 20:27:07

**Project Information:** 

Operator Name Dalton Anderson
Company Name Geosyntec Consultants
Project Name GP-Plant Hammond
Site Name Plant Hammond

Latitude 0° 0' 0"

Longitude 0° 0' 0"

Sonde SN 597519

Turbidity Make/Model LaMotte 2020we

Well Information:

Well ID MW-30D
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 80.32 ft

Pump Information:

Pump Model/Type QED MP50
Tubing Type polyethylene
Tubing Diameter 0.17 in

ft

Tubing Diameter 0.17
Tubing Length ft

Pump placement from TOC

Pumping Information:

Final Pumping Rate 100 mL/min
Total System Volume 0.485 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 19 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS/cm Turb NTU		DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	19:19:04	4212.92	29.74	8.06	3139.53	7.22	80.40	1.20	169.78
Last 5	19:24:04	4512.91	29.20	8.07	3137.84	7.13	80.40	1.15	163.95
Last 5	19:29:20	4828.90	28.69	8.07	3136.99	7.09	80.41	1.13	156.69
Last 5	19:34:22	5130.90	28.12	8.07	3155.78	7.03	80.41	1.08	151.04
Last 5	19:39:22	5430.88	27.46	8.07	3126.10	7.14	80.42	1.03	145.99
Variance 0			-0.51	0.00	-0.85			-0.02	-7.26
Variance 1			-0.57	0.00	18.80			-0.05	-5.65
Variance 2			-0.67	-0.00	-29.68			-0.05	-5.05

Notes

Parameters to be analyzed: Molybdenum. Total depth = 107.2 ft

Grab Samples MW-30D

# APPENDIX C Statistical Analyses

# Detection Monitoring Program Statistical Analysis Package Plant Hammond Ash Pond 1 (AP-1) April 2019 event (AM 01)

**Table C-1**Detection Monitoring Prediction Limit Comparison
Plant Hammond AP-1, Floyd County, Georgia

Parameter	Well ID	Upper PL	Lower PL	Apr 1-8, 2019
Boron (mg/L)	HGWC-7	0.061	-	0.99
Boron (mg/L)	HGWC-8	0.061	-	2.8
Boron (mg/L)	HGWC-9	0.061	-	2.3
Boron (mg/L)	HGWC-10	0.061	-	0.66
Boron (mg/L)	HGWC-11	0.061	-	0.23
Boron (mg/L)	HGWC-12	0.061	-	1.8
Boron (mg/L)	HGWC-13	0.061	-	$0.86 \text{ J}^{(3)}$
Calcium (mg/L)	HGWC-7	138	-	101
Calcium (mg/L)	HGWC-8	138	-	125
Calcium (mg/L)	HGWC-9	138	-	164
Calcium (mg/L)	HGWC-10	138	-	137
Calcium (mg/L)	HGWC-11	138	-	112
Calcium (mg/L)	HGWC-12	138	-	114
Calcium (mg/L)	HGWC-13	138	-	77.1
Chloride (mg/L)	HGWC-7	20.3	-	55.5
Chloride (mg/L)	HGWC-8	20.3	-	91.6
Chloride (mg/L)	HGWC-9	20.3	-	130
Chloride (mg/L)	HGWC-10	20.3	-	49.3
Chloride (mg/L)	HGWC-11	20.3	-	4.6
Chloride (mg/L)	HGWC-12	20.3	-	62.8
Chloride (mg/L)	HGWC-13	20.3	-	36.4
Fluoride (mg/L)	HGWC-7	0.360	-	0.097 J
Fluoride (mg/L)	HGWC-8	0.360	-	0.63
Fluoride (mg/L)	HGWC-9	0.360	-	0.14 J
Fluoride (mg/L)	HGWC-10	0.360	-	0.082 J
Fluoride (mg/L)	HGWC-11	0.360	-	0.43
Fluoride (mg/L)	HGWC-12	0.360	-	0.3 J
Fluoride (mg/L)	HGWC-13	0.360	-	0.83
pH (s.u.)	HGWC-7	7.5	4.9	7.3
pH (s.u.)	HGWC-8	7.5	4.9	6.9
pH (s.u.)	HGWC-9	7.5	4.9	6.9
pH (s.u.)	HGWC-10	7.5	4.9	6.6
pH (s.u.)	HGWC-11	7.5	4.9	5.7
pH (s.u.)	HGWC-12	7.5	4.9	7.0
pH (s.u.)	HGWC-13	7.5	4.9	7.2
Sulfate (mg/L)	HGWC-7	84.3	-	127
Sulfate (mg/L)	HGWC-8	84.3	-	194
Sulfate (mg/L)	HGWC-9	84.3	-	214
Sulfate (mg/L)	HGWC-10	84.3	-	159
Sulfate (mg/L)	HGWC-11	84.3	-	298
Sulfate (mg/L)	HGWC-12	84.3	-	176
Sulfate (mg/L)	HGWC-13	84.3	-	105

1 of 2 July 2019

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

Parameter	Well ID	Upper PL	Lower PL	Apr 1-8, 2019
TDS (mg/L)	HGWC-7	469	-	428
TDS (mg/L)	HGWC-8	469	-	543
TDS (mg/L)	HGWC-9	469	-	673
TDS (mg/L)	HGWC-10	469	-	525
TDS (mg/L)	HGWC-11	469	-	483
TDS (mg/L)	HGWC-12	469	-	462
TDS (mg/L)	HGWC-13	469	-	331

# Notes:

- = Not applicable

J = Indicates that analyte was estimated and detected between the laboratory Method Detection Limit (MDL) and Reporting Limit (RL).

mg/L = milligrams per liter

ND = Indicates the parameter was not detected above the laboratory MDL.

PL = Prediction Limit

s.u. = standard unit

TDS = Total Dissolved Solids

- (1) Shaded values indicate an exceedance of the statistically derived PL.
- (2) The pH value presented was recorded at the time of sample collection in the field. This is the only parameter in which the field result is compared to both the upper and lower PL.
- (3) Value J-flagged by the laboratory as estimated with an elevated RL due to an elevated Dilution Factor. The concentration reported for the April 2019 event is consistent with historical data and therefore deemed an exceedance in spite of the assigned J-flag.

2 of 2 July 2019

# Interwell Prediction Limit - Significant Results

		Pla	nt Hammond	Client: Georgia	Power Com	pany Da	ta: Hammor	nd AP-1	Printed 7/21/201	9, 11:37 PM	
Constituent	<u>Well</u>	Upper Lim.	Lower Lim.	<u>Date</u>	Observ.	Sig.	Bg N	%NDs	Transform	<u>Alpha</u>	Method
Boron (mg/L)	HGWC-10	0.06061	n/a	4/3/2019	0.66	Yes	36	5.556	sqrt(x)	0.001075	Param Inter 1 of 2
Boron (mg/L)	HGWC-11	0.06061	n/a	4/3/2019	0.23	Yes	36	5.556	sqrt(x)	0.001075	Param Inter 1 of 2
Boron (mg/L)	HGWC-12	0.06061	n/a	4/3/2019	1.8	Yes	36	5.556	sqrt(x)	0.001075	Param Inter 1 of 2
Boron (mg/L)	HGWC-7	0.06061	n/a	4/2/2019	0.99	Yes	36	5.556	sqrt(x)	0.001075	Param Inter 1 of 2
Boron (mg/L)	HGWC-8	0.06061	n/a	4/3/2019	2.8	Yes	36	5.556	sqrt(x)	0.001075	Param Inter 1 of 2
Boron (mg/L)	HGWC-9	0.06061	n/a	4/3/2019	2.3	Yes	36	5.556	sqrt(x)	0.001075	Param Inter 1 of 2
Calcium (mg/L)	HGWC-9	138	n/a	4/3/2019	164	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-10	20.3	n/a	4/3/2019	49.3	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-12	20.3	n/a	4/3/2019	62.8	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-13	20.3	n/a	4/5/2019	36.4	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-7	20.3	n/a	4/2/2019	55.5	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-8	20.3	n/a	4/3/2019	91.6	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-9	20.3	n/a	4/3/2019	130	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-11	0.36	n/a	4/3/2019	0.43	Yes	42	28.57	n/a	0.001046	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-13	0.36	n/a	4/5/2019	0.83	Yes	42	28.57	n/a	0.001046	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-8	0.36	n/a	4/3/2019	0.63	Yes	42	28.57	n/a	0.001046	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-10	84.3	n/a	4/3/2019	159	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-11	84.3	n/a	4/3/2019	298	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-12	84.3	n/a	4/3/2019	176	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-13	84.3	n/a	4/5/2019	105	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-7	84.3	n/a	4/2/2019	127	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-8	84.3	n/a	4/3/2019	194	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-9	84.3	n/a	4/3/2019	214	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Total Dissolved Solids (mg/L)	HGWC-10	469.2	n/a	4/3/2019	525	Yes	36	0	No	0.001075	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-11	469.2	n/a	4/3/2019	483	Yes	36	0	No	0.001075	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-8	469.2	n/a	4/3/2019	543	Yes	36	0	No	0.001075	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-9	469.2	n/a	4/3/2019	673	Yes	36	0	No	0.001075	Param Inter 1 of 2

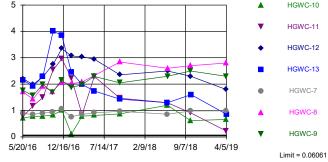
# Interwell Prediction Limit - All Results

		Pla	ant Hammond	Client: Georgia	a Power Com	pany Da	ta: Hammo	nd AP-1	Printed 7/21/201	9, 11:37 PM	
Constituent	<u>Well</u>	Upper Lim.	Lower Lim.	<u>Date</u>	Observ.	Sig.	Bg N	%NDs	<u>Transform</u>	<u>Alpha</u>	Method
Boron (mg/L)	HGWC-10	0.06061	n/a	4/3/2019	0.66	Yes	36	5.556	sqrt(x)	0.001075	Param Inter 1 of 2
Boron (mg/L)	HGWC-11	0.06061	n/a	4/3/2019	0.23	Yes	36	5.556	sqrt(x)	0.001075	Param Inter 1 of 2
Boron (mg/L)	HGWC-12	0.06061	n/a	4/3/2019	1.8	Yes	36	5.556	sqrt(x)	0.001075	Param Inter 1 of 2
Boron (mg/L)	HGWC-13	0.06061	n/a	4/5/2019	0.86	No	36	5.556	sqrt(x)	0.001075	Param Inter 1 of 2
Boron (mg/L)	HGWC-7	0.06061	n/a	4/2/2019	0.99	Yes	36	5.556	sqrt(x)	0.001075	Param Inter 1 of 2
Boron (mg/L)	HGWC-8	0.06061	n/a	4/3/2019	2.8	Yes	36	5.556	sqrt(x)	0.001075	Param Inter 1 of 2
Boron (mg/L)	HGWC-9	0.06061	n/a	4/3/2019	2.3	Yes	36	5.556	sqrt(x)	0.001075	Param Inter 1 of 2
Calcium (mg/L)	HGWC-10	138	n/a	4/3/2019	137	No	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-11	138	n/a	4/3/2019	112	No	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-12	138	n/a	4/3/2019	114	No	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-13	138	n/a	4/5/2019	77.1	No	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-7	138	n/a	4/2/2019	101	No	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-8	138	n/a	4/3/2019	125	No	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-9	138	n/a	4/3/2019	164	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-10	20.3	n/a	4/3/2019	49.3	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-11	20.3	n/a	4/3/2019	4.6	No	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-12	20.3	n/a	4/3/2019	62.8	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-13	20.3	n/a	4/5/2019	36.4	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-7	20.3	n/a	4/2/2019	55.5	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-8	20.3	n/a	4/3/2019	91.6	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-9	20.3	n/a	4/3/2019	130	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-10	0.36	n/a	4/3/2019	0.082	No	42	28.57	n/a	0.001046	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-10	0.36	n/a	4/3/2019	0.002	Yes	42	28.57	n/a	0.001046	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-12	0.36	n/a	4/3/2019	0.43	No	42	28.57	n/a	0.001046	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-12	0.36	n/a	4/5/2019 4/5/2019	0.83	Yes	42 42	28.57	n/a	0.001046	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-7	0.36	n/a	4/2/2019	0.097	No	42	28.57	n/a	0.001046	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-7	0.36	n/a	4/2/2019	0.63	Yes	42 42	28.57	n/a	0.001046	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-9	0.36	n/a	4/3/2019	0.03	No	42	28.57	n/a	0.001046	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-10	7.47	4.9	4/3/2019	6.55	No	42	0	n/a	0.002093	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-10	7.47	4.9	4/3/2019	5.69	No	42	0	n/a	0.002093	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-11	7.47	4.9	4/3/2019	6.96	No	42	0	n/a	0.002093	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-12	7.47	4.9	4/5/2019	7.24	No	42	0	n/a	0.002093	NP Inter (normality) 1 of 2
							42	0		0.002093	*
pH (s.u.)	HGWC-7 HGWC-8	7.47 7.47	4.9	4/2/2019 4/3/2019	7.27 6.85	No No	42	0	n/a n/a	0.002093	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-9	7.47	4.9 4.9	4/3/2019	6.88	No	42	0	n/a	0.002093	NP Inter (normality) 1 of 2 NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-9	84.3		4/3/2019 4/3/2019			36	0		0.002093	NP Inter (normality) 1 of 2
Sulfate (mg/L) Sulfate (mg/L)	HGWC-10	84.3	n/a n/a	4/3/2019	159 298	Yes Yes	36	0	n/a n/a	0.001377	NP Inter (normality) 1 of 2
. = :				4/3/2019	176		36	0	n/a	0.001377	,
Sulfate (mg/L)	HGWC-12 HGWC-13	84.3	n/a			Yes		•		0.001377	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-7	84.3	n/a	4/5/2019 4/2/2019	105 127	Yes	36 36	0 0	n/a	0.001377	NP Inter (normality) 1 of 2
Sulfate (mg/L) Sulfate (mg/L)	HGWC-7	84.3	n/a	4/2/2019		Yes			n/a	0.001377	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-9	84.3	n/a	4/3/2019	194	Yes	36 36	0	n/a n/a	0.001377	NP Inter (normality) 1 of 2 NP Inter (normality) 1 of 2
, , ,		84.3	n/a		214	Yes		0			` •
Total Dissolved Solids (mg/L)	HGWC-10	469.2	n/a	4/3/2019	525	Yes	36 36	0	No	0.001075	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-11	<b>469.2</b>	n/a	4/3/2019	<b>483</b>	Yes	<b>36</b>	0	No No	0.001075	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-12	469.2	n/a	4/3/2019	462	No	36 36	0	No	0.001075	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-13	469.2	n/a	4/5/2019	331	No	36 36	0	No	0.001075	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-7	469.2	n/a	4/2/2019	428 543	No Voc	36 36	0	No No	0.001075	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-8	469.2	n/a	4/3/2019	543	Yes	36 36	0	No	0.001075	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-9	469.2	n/a	4/3/2019	673	Yes	36	0	No	0.001075	Param Inter 1 of 2



Exceeds Limit: HGWC-10, HGWC-11, HGWC-12, HGWC-7, HGWC-8, HGWC-9

Prediction Limit Interwell Parametric

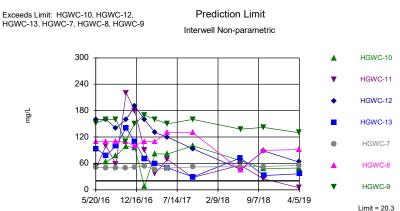


Background Data Summary (based on square root transformation): Mean=0.1482, Std. Dev.=0.04924, n=36, 5.556% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9421, critical = 0.912. Kappa = 1.99 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.001075. Comparing 7 points to limit.

Constituent: Boron Analysis Run 7/21/2019 11:36 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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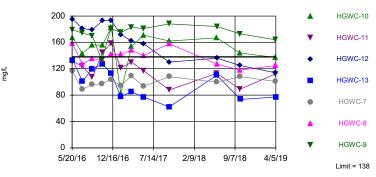


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 36 background values. Annual per-constituent alpha = 0.001377 (1 of 2). Comparing 7 points to limit.

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Exceeds Limit: HGWC-9

# Prediction Limit Interwell Non-parametric

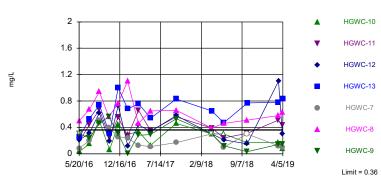


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 36 background values. Annual per-constituent alpha = 0.001317. Individual comparison alpha = 0.001377 (1 of 2). Comparing 7 points to limit.

Constituent: Calcium Analysis Run 7/21/2019 11:36 PM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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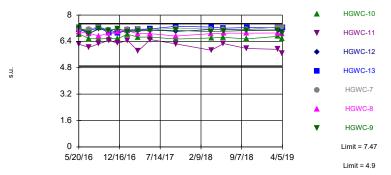
Exceeds Limit: HGWC-11, HGWC-13, Prediction Limit HGWC-8 Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 42 background values. 28.57% NDs. Annual perconstituent alpha = 0.01455. Individual comparison alpha = 0.001046 (1 of 2). Comparing 7 points to limit.

Within Limits

# Prediction Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limits are highest and lowest of 42 background values. Annual perconstituent alpha = 0.0291. Individual comparison alpha = 0.002093 (1 of 2). Comparing 7 points to limit.

Constituent: pH Analysis Run 7/21/2019 11:36 PM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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Prediction Limit Exceeds Limit: HGWC-10, HGWC-11, HGWC-8, HGWC-9 Interwell Parametric 2000 HGWC-10 HGWC-11 1600 HGWC-12 1200 HGWC-13 800 HGWC-7 400 HGWC-8 HGWC-9 5/20/16 12/16/16 7/14/17 2/9/18 9/7/18 4/5/19 Limit = 469.2

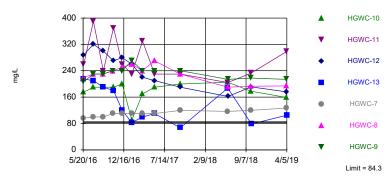
Background Data Summary: Mean=263.2, Std. Dev.=103.6, n=36. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9235, critical = 0.912. Kappa = 1.99 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.001075. Comparing 7 points to limit.

Constituent: Total Dissolved Solids Analysis Run 7/21/2019 11:36 PM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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Exceeds Limit: HGWC-10, HGWC-11, HGWC-12, HGWC-13, HGWC-7, HGWC-8,...

# Prediction Limit Interwell Non-parametric



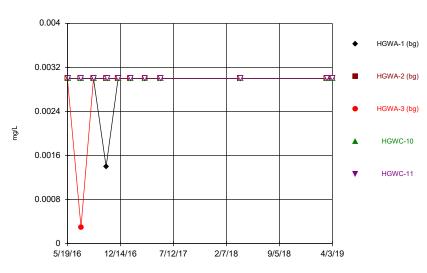
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 36 background values. Annual per-constituent alpha = 0.001377 (1 of 2). Comparing 7 points to limit.

Constituent: Sulfate Analysis Run 7/21/2019 11:36 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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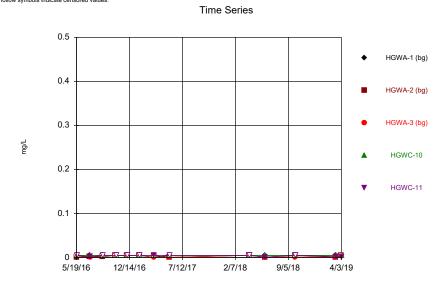




Constituent: Antimony Analysis Run 7/22/2019 12:44 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

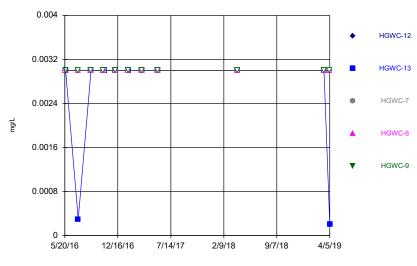
# Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG Hollow symbols indicate censored values.



Constituent: Arsenic Analysis Run 7/22/2019 12:44 AM

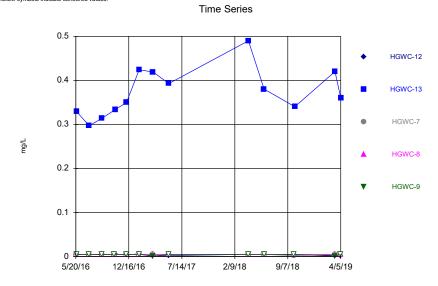
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

# Time Series



Constituent: Antimony Analysis Run 7/22/2019 12:44 AM

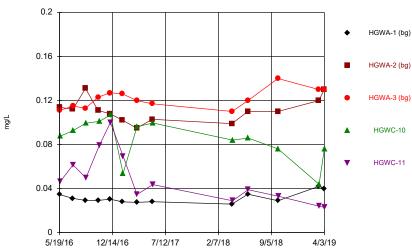
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Arsenic Analysis Run 7/22/2019 12:44 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

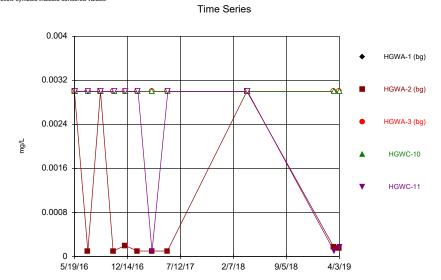




Constituent: Barium Analysis Run 7/22/2019 12:44 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

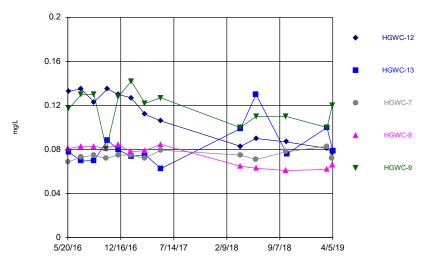
# Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG Hollow symbols indicate censored values.



Constituent: Beryllium Analysis Run 7/22/2019 12:44 AM

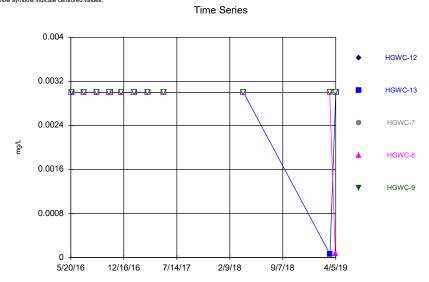
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

# Time Series



Constituent: Barium Analysis Run 7/22/2019 12:44 AM

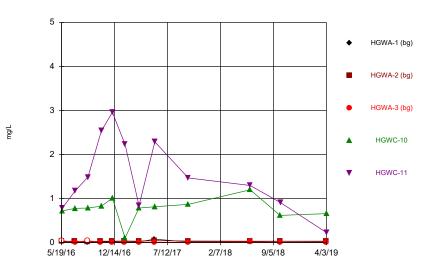
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Beryllium Analysis Run 7/22/2019 12:44 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

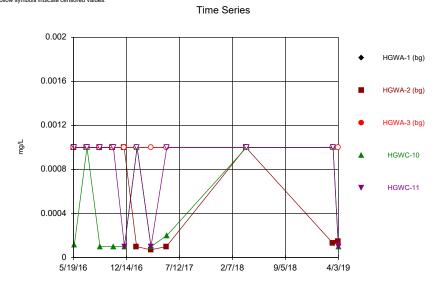




Constituent: Boron Analysis Run 7/22/2019 12:44 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

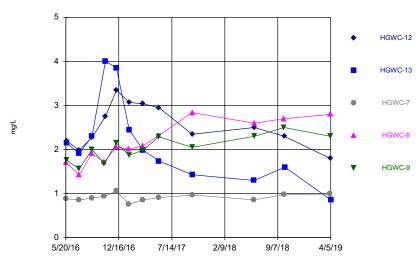
# Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG Hollow symbols indicate censored values.



Constituent: Cadmium Analysis Run 7/22/2019 12:44 AM

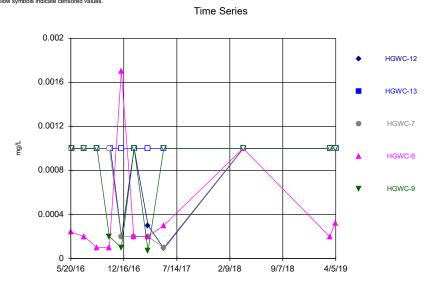
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

# Time Series



Constituent: Boron Analysis Run 7/22/2019 12:44 AM

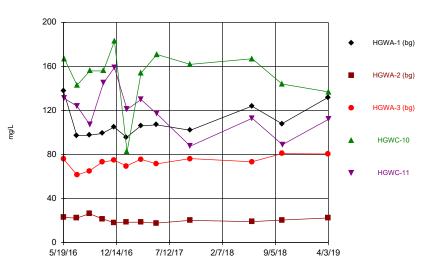
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Cadmium Analysis Run 7/22/2019 12:44 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

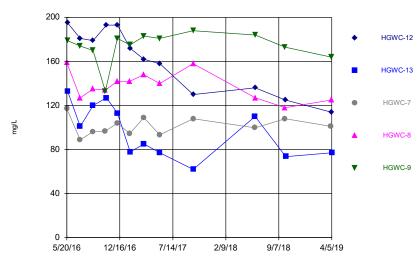




Constituent: Calcium Analysis Run 7/22/2019 12:44 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

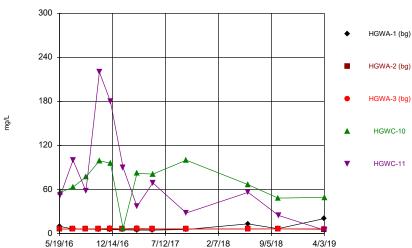
# Time Series



Constituent: Calcium Analysis Run 7/22/2019 12:44 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

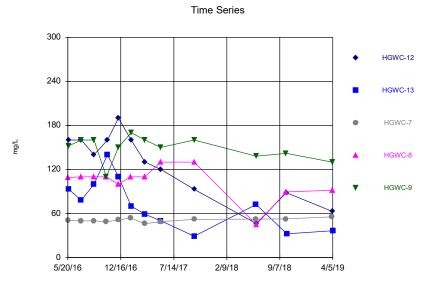
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# Time Series



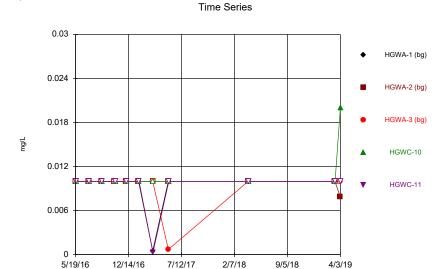
Constituent: Chloride Analysis Run 7/22/2019 12:44 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Chloride Analysis Run 7/22/2019 12:44 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

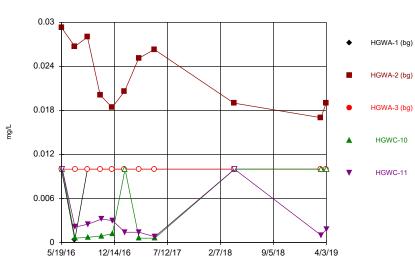


Constituent: Chromium Analysis Run 7/22/2019 12:44 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series

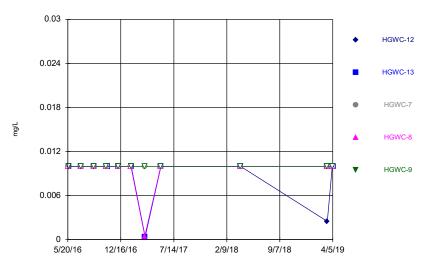
# Sanitas $^{\rm w}$ v.9.6.05 Software licensed to Geosyntec Consultants. UG Hollow symbols indicate censored values.



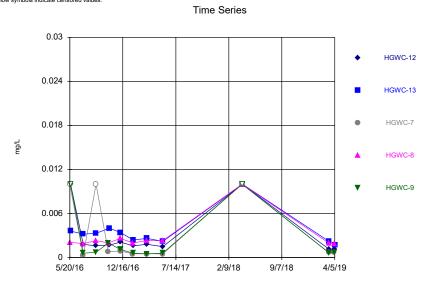
Constituent: Cobalt Analysis Run 7/22/2019 12:44 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1





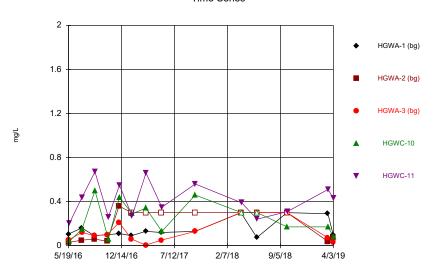
Constituent: Chromium Analysis Run 7/22/2019 12:44 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Cobalt Analysis Run 7/22/2019 12:44 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

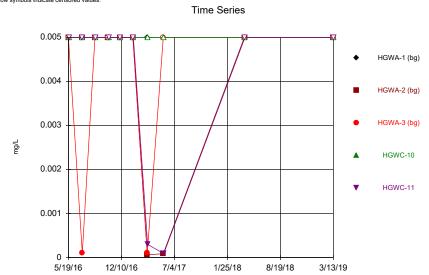




Constituent: Fluoride Analysis Run 7/22/2019 12:44 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

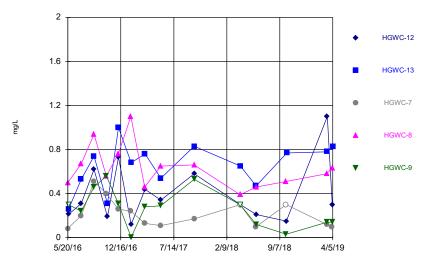
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Constituent: Lead Analysis Run 7/22/2019 12:44 AM

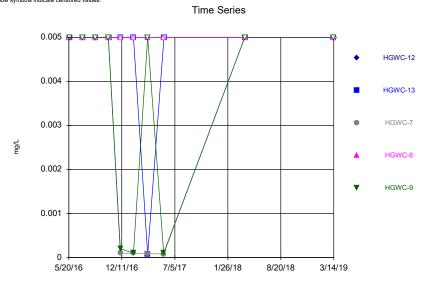
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

# Time Series



Constituent: Fluoride Analysis Run 7/22/2019 12:44 AM

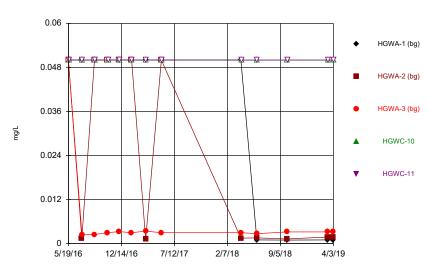
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Lead Analysis Run 7/22/2019 12:44 AM

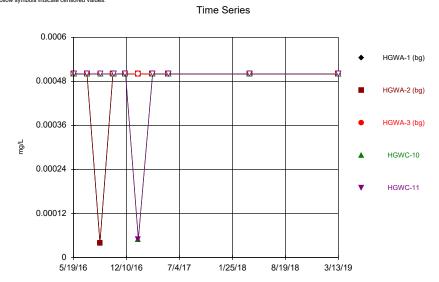
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1





Constituent: Lithium Analysis Run 7/22/2019 12:44 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

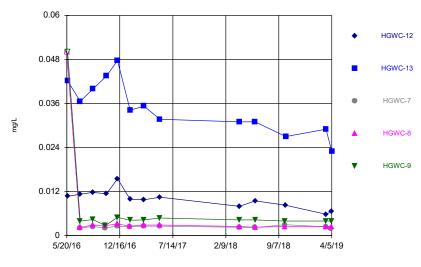
# Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG Hollow symbols indicate censored values.



Constituent: Mercury Analysis Run 7/22/2019 12:44 AM

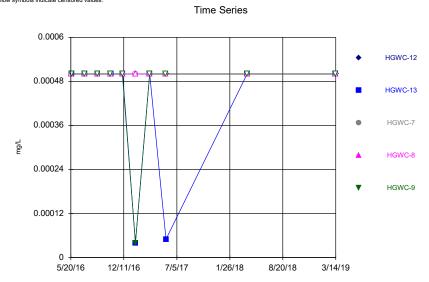
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

# Time Series



Constituent: Lithium Analysis Run 7/22/2019 12:44 AM

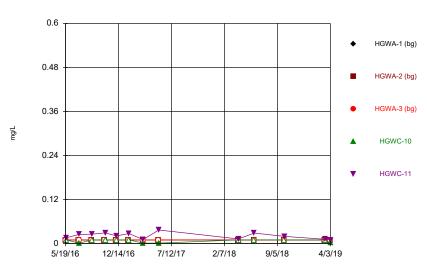
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Mercury Analysis Run 7/22/2019 12:44 AM

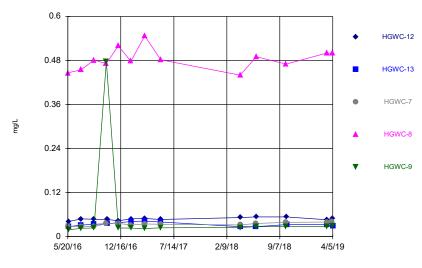
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1





Constituent: Molybdenum Analysis Run 7/22/2019 12:44 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

# Time Series

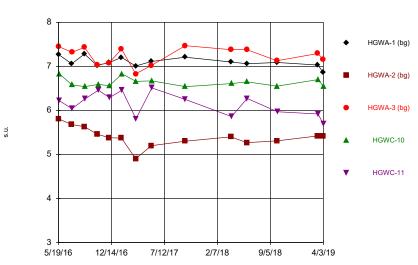


Constituent: Molybdenum Analysis Run 7/22/2019 12:44 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

# 

# Time Series

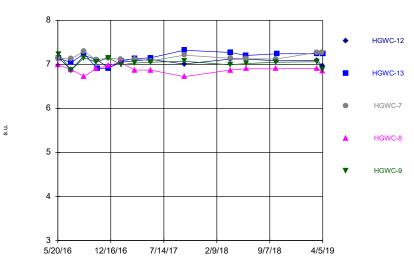


Constituent: pH Analysis Run 7/22/2019 12:44 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

# Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG

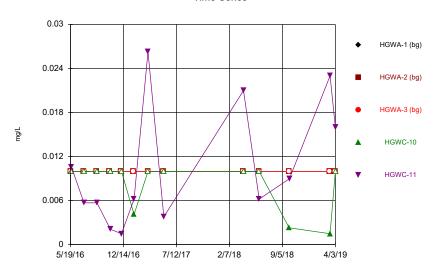
# Time Series



Constituent: pH Analysis Run 7/22/2019 12:44 AM

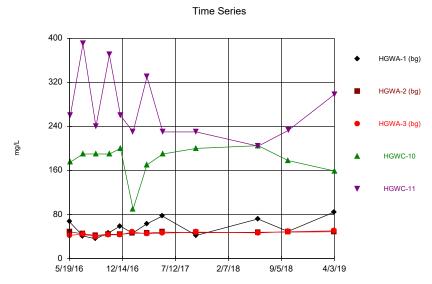
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

# Time Series



Constituent: Selenium Analysis Run 7/22/2019 12:44 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

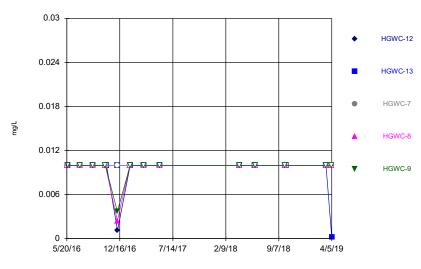
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Constituent: Sulfate Analysis Run 7/22/2019 12:44 AM

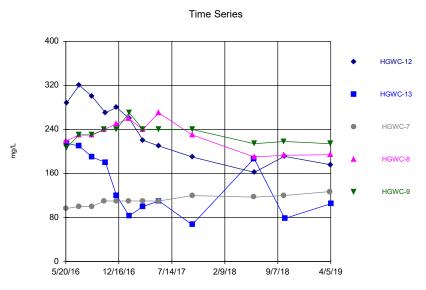
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

# Time Series



Constituent: Selenium Analysis Run 7/22/2019 12:44 AM

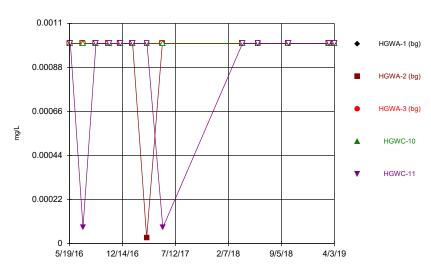
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Sulfate Analysis Run 7/22/2019 12:44 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

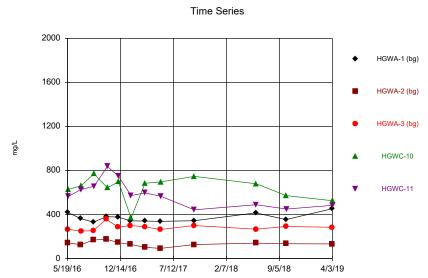




Constituent: Thallium Analysis Run 7/22/2019 12:44 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

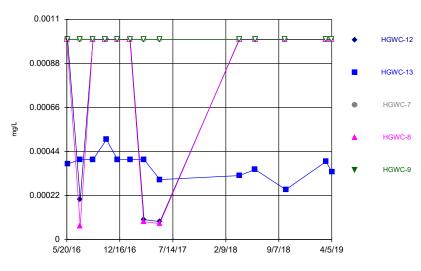
# 



Constituent: Total Dissolved Solids Analysis Run 7/22/2019 12:44 AM

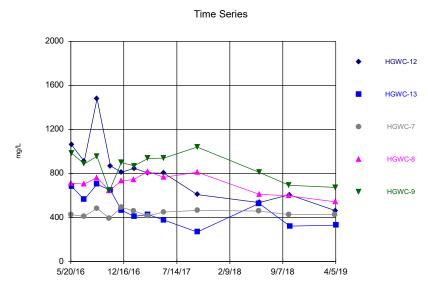
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

# Time Series



Constituent: Thallium Analysis Run 7/22/2019 12:44 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

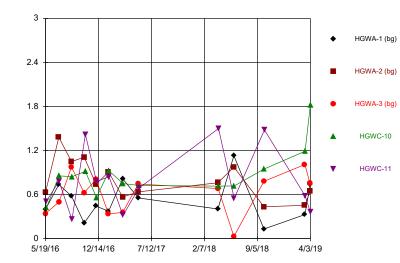


Constituent: Total Dissolved Solids Analysis Run 7/22/2019 12:44 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

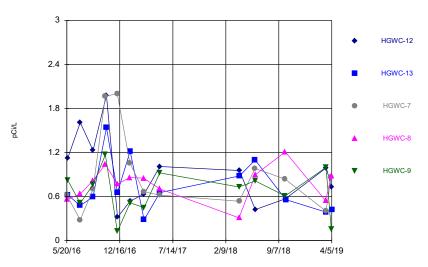
pCi/L





Constituent: Total Radium Analysis Run 7/22/2019 12:44 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

# Time Series



Constituent: Total Radium Analysis Run 7/22/2019 12:44 AM

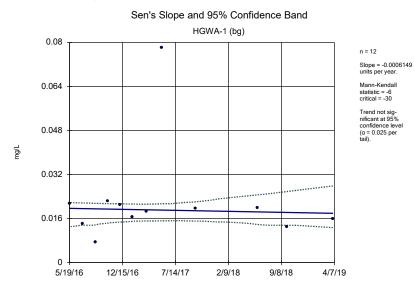
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

# Trend Test - Significant Results

	Plant F	Hammond	Client: Georgia Power	r Company	Data: Hammo	nd AP-1	Printed 7/2	1/2019, 10:18 A	M		
Constituent	Well	Slope	<u>Calc.</u>	Critical	Sig.	<u>N</u>	%NDs	Normality	<u>Xform</u>	<u>Alpha</u>	Method
Boron (mg/L)	HGWC-13	-0.528	-38	-30	Yes	12	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-8	0.4416	54	30	Yes	12	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-9	0.2743	45	30	Yes	12	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWA-3 (bg)	3.671	32	30	Yes	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWC-12	-42.85	-44	-30	Yes	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWC-13	-31.99	-36	-30	Yes	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWA-2 (bg)	1.418	34	30	Yes	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWA-3 (bg)	2.946	48	30	Yes	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-12	-57.93	-54	-30	Yes	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-13	-58.33	-38	-30	Yes	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-7	9.629	52	30	Yes	12	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWC-11	-77.23	-32	-30	Yes	12	0	n/a	n/a	0.05	NP

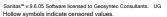
# Trend Test - All Results

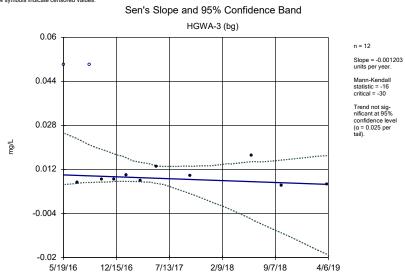
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	Plant H	lammond Client:	Georgia Power	Company	Data: Hammond	AP-1	Printed 7/24	I/2019, 10:18 AI	M		
Constituent	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u> <u>l</u>	<u>N</u>	%NDs	Normality	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Boron (mg/L)	HGWA-1 (bg)	-0.0006149	-6	-30	No	12	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWA-2 (bg)	0.001596	26	30	No	12	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWA-3 (bg)	-0.001203	-16	-30	No	12	16.67	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-10	0.04985	10	30	No	12	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-11	-0.2889	-12	-30	No	12	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-12	-0.1029	-4	-30	No	12	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-13	-0.528	-38	-30	Yes	12	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-7	0.03487	23	30	No	12	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-8	0.4416	54	30	Yes	12	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-9	0.2743	45	30	Yes	12	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWA-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)	HGWC-9	2.001	9	30	No	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWA-1 (bg)	-0.1046	-1	-30	No	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWA-2 (bg)	0	-4	-30	No	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWA-3 (bg)	0.09075	17	30	No	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWC-10	-4.164	-4	-30	No	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWC-12	-42.85	-44	-30	Yes	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWC-13	-31.99	-36	-30	Yes	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWC-7	1.212	26	30	No	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWC-8	0	-7	-30	No	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWC-9	-7.276	-19	-30	No	12	0	n/a	n/a	0.05	NP
Fluoride (mg/L)	HGWA-1 (bg)	0.02724	19	37	No	14	14.29	n/a	n/a	0.05	NP
Fluoride (mg/L)	HGWA-2 (bg)	0	14	37	No	14	50	n/a	n/a	0.05	NP
Fluoride (mg/L)	HGWA-3 (bg)	0.01182	10	37	No	14	21.43	n/a	n/a	0.05	NP
Fluoride (mg/L)	HGWC-11	0.01818	3	37	No	14	0	n/a	n/a	0.05	NP
Fluoride (mg/L)	HGWC-13	0.1038	34	37	No	14	0	n/a	n/a	0.05	NP
Fluoride (mg/L)	HGWC-8	-0.03376	-16	-37	No	14	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWA-1 (bg)	8.918	25	30	No	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWA-2 (bg)	1.418	34	30	Yes	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWA-3 (bg)	2.946	48	30	Yes	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-10	0	3	30	No	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-11	-23.41	-22	-30	No	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-12	-57.93	-54	-30	Yes	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-13	-58.33	-38	-30	Yes	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-7	9.629	52	30	Yes	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-8	-9.598	-6	-30	No	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-9	0	-2	-30	No	12	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWA-1 (bg)	6.354	4	30	No	12	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWA-2 (bg)	-5.334	-14	-30		12	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWA-3 (bg)	7.889	11	30	No	12	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWC-10	-18.8	-8	-30	No	12	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWC-11	-77.23	-32	-30		12	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWC-8	-45.4	-10	-30		12	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWC-9	-68.95	-18	-30	No	12	0	n/a	n/a	0.05	NP



Constituent: Boron Analysis Run 7/24/2019 10:14 AM

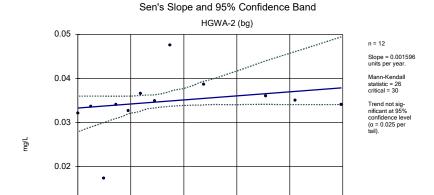
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1





Constituent: Boron Analysis Run 7/24/2019 10:14 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Boron Analysis Run 7/24/2019 10:14 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

2/9/18

7/14/17

4/7/19

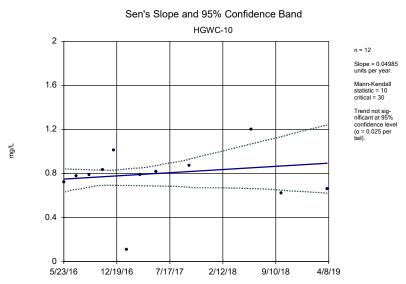
9/8/18

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5/19/16

12/15/16

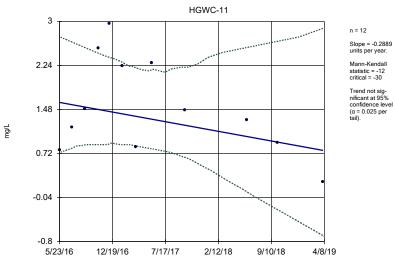
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Constituent: Boron Analysis Run 7/24/2019 10:14 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

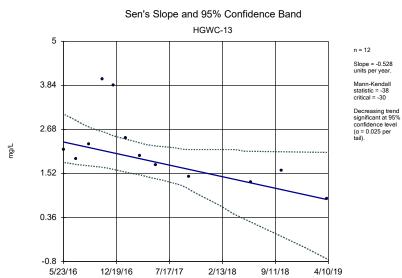
# Sen's Slope and 95% Confidence Band



Constituent: Boron Analysis Run 7/24/2019 10:14 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

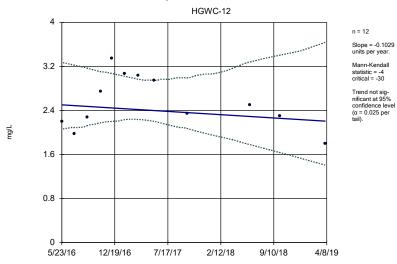
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Constituent: Boron Analysis Run 7/24/2019 10:14 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

# Sen's Slope and 95% Confidence Band



Constituent: Boron Analysis Run 7/24/2019 10:14 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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# Sen's Slope and 95% Confidence Band HGWC-7 n = 12 Slope = 0.03487 units per year. Mann-Kendall 1.6 critical = 30 Trend not sig-nificant at 95% confidence level $(\alpha = 0.025 \text{ per})$ mg/L 0.4 5/20/16 12/16/16 7/14/17 2/10/18 9/8/18 4/7/19

Constituent: Boron Analysis Run 7/24/2019 10:14 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

# Sen's Slope and 95% Confidence Band HGWC-8 n = 12 Slope = 0.4416 units per year. Mann-Kendall statistic = 54 critical = 30 Increasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Boron Analysis Run 7/24/2019 10:14 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

2/10/18

9/9/18

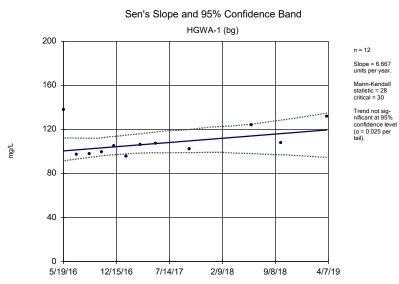
4/8/19

7/15/17

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5/20/16

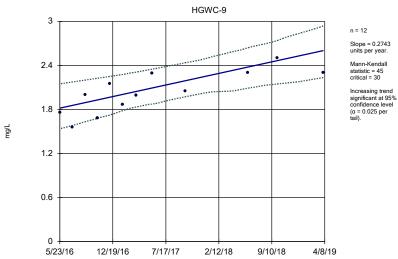
12/16/16



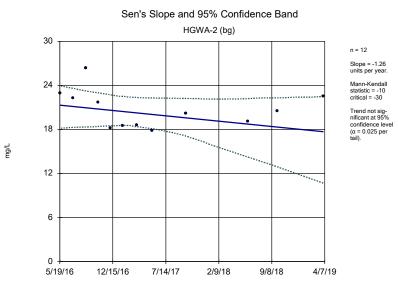
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Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

# Sen's Slope and 95% Confidence Band

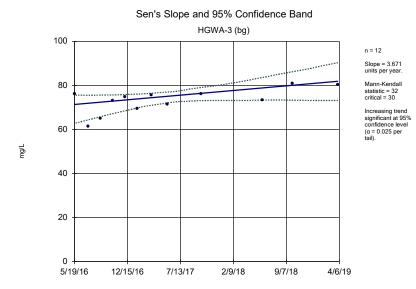


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Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



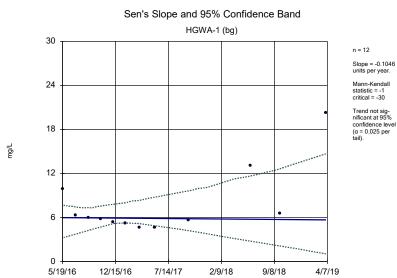
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Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Calcium Analysis Run 7/24/2019 10:14 AM

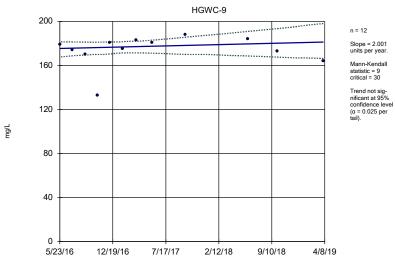
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Chloride Analysis Run 7/24/2019 10:14 AM

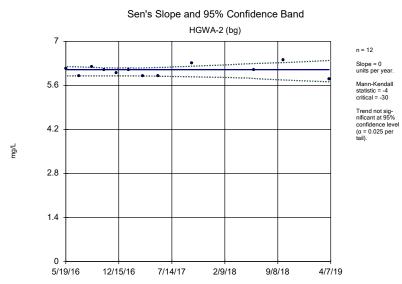
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# Sen's Slope and 95% Confidence Band



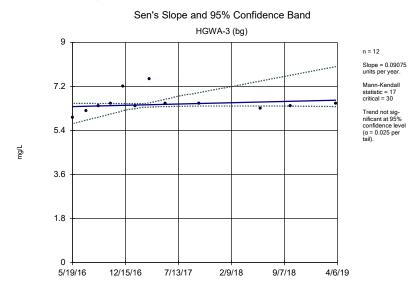
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Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



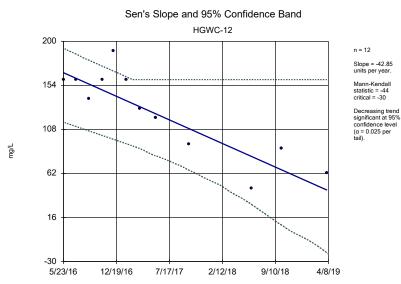
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Constituent: Chloride Analysis Run 7/24/2019 10:14 AM

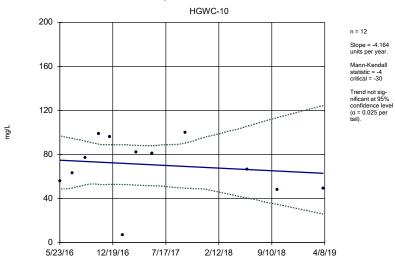
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Constituent: Chloride Analysis Run 7/24/2019 10:14 AM

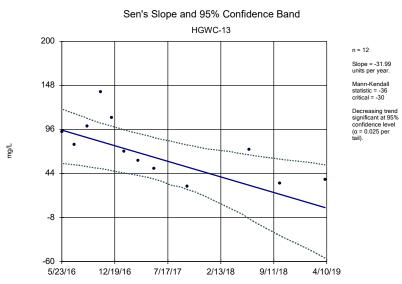
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

# Sen's Slope and 95% Confidence Band



Constituent: Chloride Analysis Run 7/24/2019 10:14 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Chloride Analysis Run 7/24/2019 10:14 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

60

48

36

24

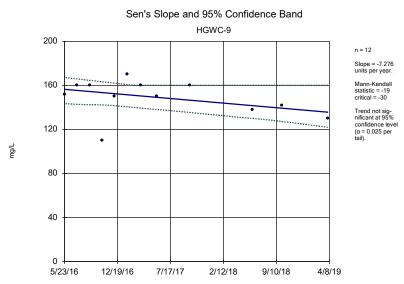
mg/L

# Sen's Slope and 95% Confidence Band HGWC-7 Slope = 1.212 units per year Mann-Kendal statistic = 26 critical = 30 Trend not sig-nificant at 95% confidence level (α = 0.025 per tail).

12 5/20/16 4/7/19 12/16/16 7/14/17 2/10/18 9/8/18 Constituent: Chloride Analysis Run 7/24/2019 10:14 AM

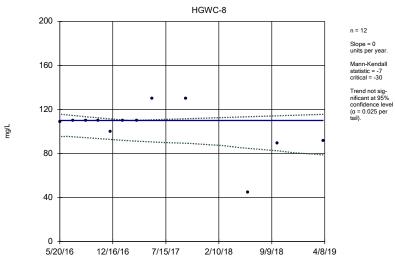
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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Constituent: Chloride Analysis Run 7/24/2019 10:14 AM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

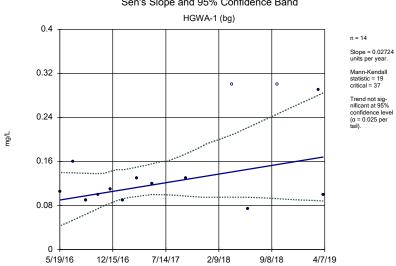
# Sen's Slope and 95% Confidence Band



Constituent: Chloride Analysis Run 7/24/2019 10:14 AM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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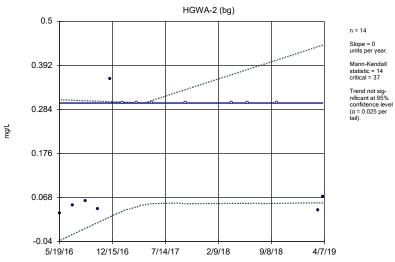
# Sen's Slope and 95% Confidence Band



Constituent: Fluoride Analysis Run 7/24/2019 10:14 AM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Hollow symbols indicate censored values.

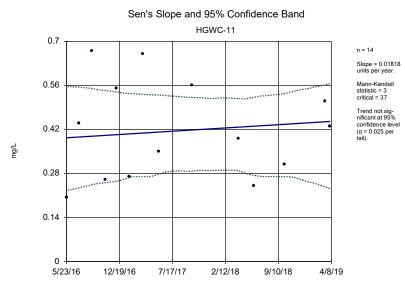




Constituent: Fluoride Analysis Run 7/24/2019 10:14 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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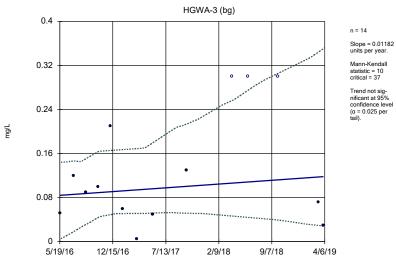


Constituent: Fluoride Analysis Run 7/24/2019 10:14 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

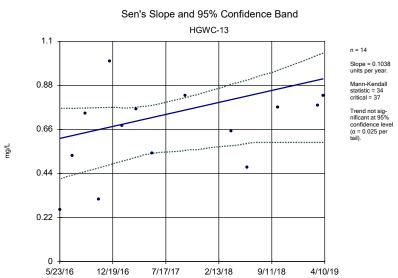
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# Sen's Slope and 95% Confidence Band



Constituent: Fluoride Analysis Run 7/24/2019 10:14 AM

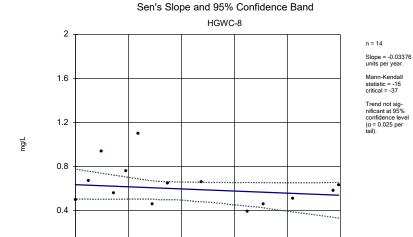
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Fluoride Analysis Run 7/24/2019 10:14 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

mg/L



Constituent: Fluoride Analysis Run 7/24/2019 10:15 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

2/10/18

9/9/18

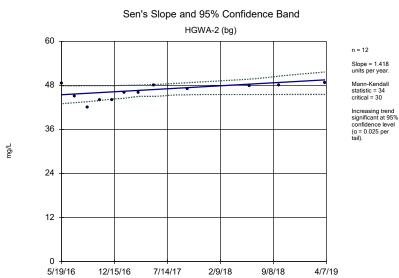
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7/15/17

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5/20/16

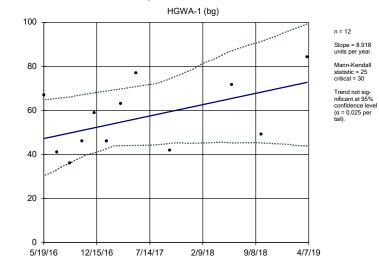
12/16/16



Constituent: Sulfate Analysis Run 7/24/2019 10:15 AM

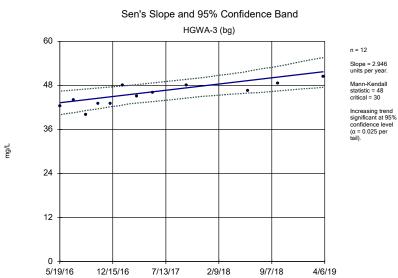
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# Sen's Slope and 95% Confidence Band



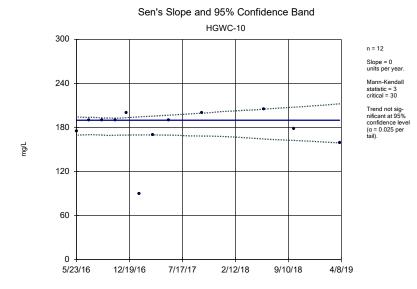
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Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



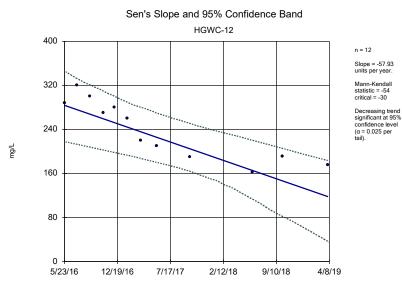
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Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



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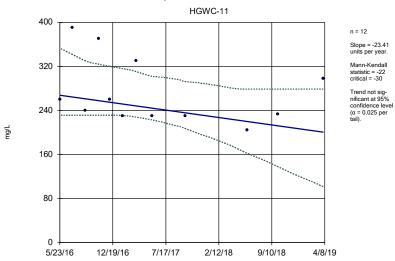
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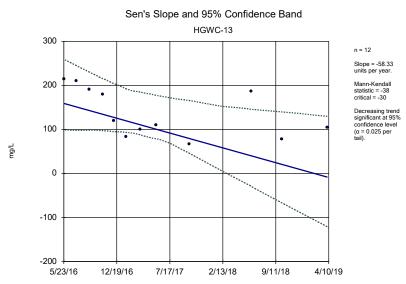
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# Sen's Slope and 95% Confidence Band



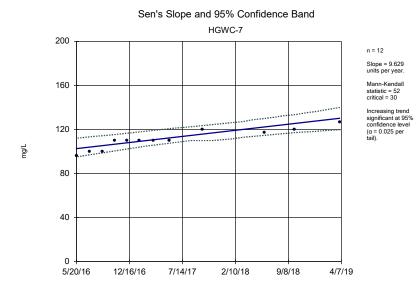
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Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



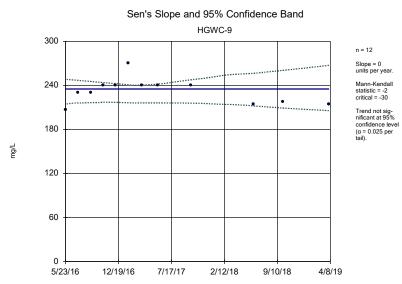
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Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Sulfate Analysis Run 7/24/2019 10:15 AM

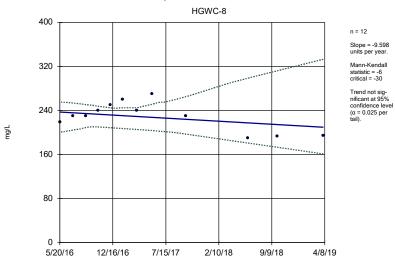
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Sulfate Analysis Run 7/24/2019 10:15 AM

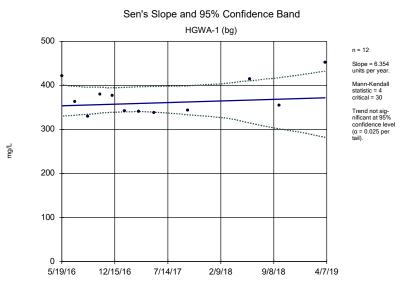
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# Sen's Slope and 95% Confidence Band



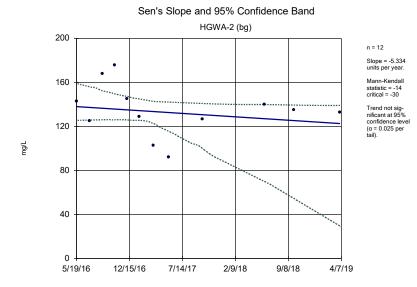
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Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



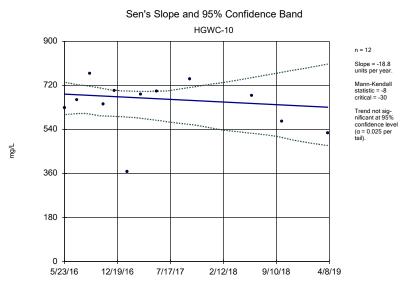
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Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Total Dissolved Solids Analysis Run 7/24/2019 10:15 AM

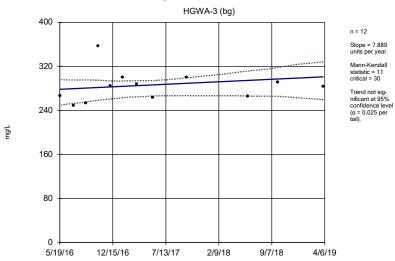
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Constituent: Total Dissolved Solids Analysis Run 7/24/2019 10:15 AM

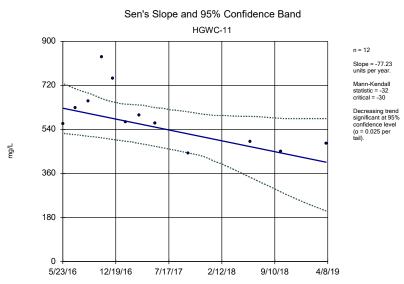
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

# Sen's Slope and 95% Confidence Band



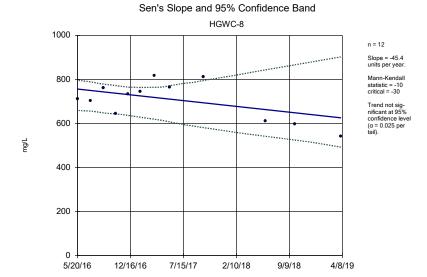
Constituent: Total Dissolved Solids Analysis Run 7/24/2019 10:15 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Total Dissolved Solids Analysis Run 7/24/2019 10:15 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



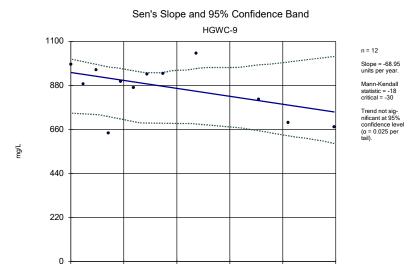
Constituent: Total Dissolved Solids Analysis Run 7/24/2019 10:15 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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5/23/16

12/19/16



Constituent: Total Dissolved Solids Analysis Run 7/24/2019 10:15 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

2/12/18

9/10/18

4/8/19

7/17/17

# Assessment Monitoring Program Statistical Analysis Package Plant Hammond Ash Pond 1 (AP-1) April 2019 event (AM 01)

# GA EPD Based Groundwater Protection Standards Statistical Analysis Package AM 01

# Tolerance Limit

	Plant Hammor	nd Client: Georgia	Power Company	/ Data: Hamr	mond AP	-1 Pri	nted 7/22/20	)19, 12:24 AM		
Constituent	Well	Upper Lim.	<u>Date</u>	Observ.	Sig.	Bg N	%NDs	<u>Transform</u>	<u>Alpha</u>	Method
Antimony (mg/L)	n/a	0.003	n/a	n/a	n/a	33	93.94	n/a	0.184	NP Inter(NDs)
Arsenic (mg/L)	n/a	0.005	n/a	n/a	n/a	39	66.67	n/a	0.1353	NP Inter(NDs)
Barium (mg/L)	n/a	0.14	n/a	n/a	n/a	39	0	n/a	0.1353	NP Inter(normal
Beryllium (mg/L)	n/a	0.003	n/a	n/a	n/a	33	75.76	n/a	0.184	NP Inter(NDs)
Cadmium (mg/L)	n/a	0.001	n/a	n/a	n/a	33	84.85	n/a	0.184	NP Inter(NDs)
Chromium (mg/L)	n/a	0.01	n/a	n/a	n/a	33	90.91	n/a	0.184	NP Inter(NDs)
Cobalt (mg/L)	n/a	0.0293	n/a	n/a	n/a	33	63.64	n/a	0.184	NP Inter(NDs)
Fluoride (mg/L)	n/a	0.36	n/a	n/a	n/a	42	28.57	n/a	0.116	NP Inter(normal
Lead (mg/L)	n/a	0.005	n/a	n/a	n/a	30	86.67	n/a	0.2146	NP Inter(NDs)
Lithium (mg/L)	n/a	0.05	n/a	n/a	n/a	39	41.03	n/a	0.1353	NP Inter(normal
Mercury (mg/L)	n/a	0.0005	n/a	n/a	n/a	30	93.33	n/a	0.2146	NP Inter(NDs)
Molybdenum (mg/L)	n/a	0.01	n/a	n/a	n/a	39	100	n/a	0.1353	NP Inter(NDs)
Selenium (mg/L)	n/a	0.01	n/a	n/a	n/a	39	100	n/a	0.1353	NP Inter(NDs)
Thallium (mg/L)	n/a	0.001	n/a	n/a	n/a	39	97.44	n/a	0.1353	NP Inter(NDs)
Total Radium (pCi/L)	n/a	1.341	n/a	n/a	n/a	39	0	No	0.01	Inter

# Table C-2 EPD Based Groundwater Protection Standards Plant Hammond - Ash Pond 1 Floyd County, Georgia

Constituent	CAS	Units	EPA MCL	Statistically Derived Upper Tolerance Limits for Background	GWPS <sup>1</sup>
Antimony	7440-36-0	mg/L	0.006	0.003	0.006
Arsenic	7440-38-2	mg/L	0.01	0.005	0.01
Barium	7440-39-3	mg/L	2	0.14	2
Beryllium	7440-41-7	mg/L	0.004	0.003	0.004
Cadmium	7440-43-9	mg/L	0.005	0.001	0.005
Chromium	7440-47-3	mg/L	0.1	0.01	0.1
Cobalt <sup>2</sup>	7440-48-4	mg/L	N/A	0.0293	0.0293
Fluoride	16984-48-8	mg/L	4	0.36	4
Lead <sup>2</sup>	7439-92-1	mg/L	N/A	0.005	0.005
Lithium <sup>2</sup>	7439-93-2	mg/L	N/A	0.05	0.05
Mercury	7439-97-6	mg/L	0.002	0.0005	0.002
Molybdenum <sup>2</sup>	7439-98-7	mg/L	N/A	0.01	0.01
Selenium	7782-49-2	mg/L	0.05	0.01	0.05
Thallium	7440-28-0	mg/L	0.002	0.001	0.002
Total Radium	7440-14-4	pCi/L	5	1.341	5

#### Notes:

EPA MCL - U.S. Environmental Protection Agency, Maximum Contaminant Level

**GWPS** - Groundwater Protection Standards

mg/L -  $milligram\ per\ liter$ 

N/A - Not Available

pCi/L - Picocuries per liter

<sup>&</sup>lt;sup>1</sup>GWPS selected as the greater value between the EPA MCL and the background Upper Tolerance Limit.

<sup>&</sup>lt;sup>2</sup>Constituent without established EPA MCL.

## Confidence Interval - Significant Results

	Р	lant Hammond Cl	lient: Georgia Powe	r Company D	ata: Har	nmond AF	P-1 Printed	d 7/22/2019, 12:35 AM		
Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	<u>N</u>	%NDs	<u>Transform</u>	<u>Alpha</u>	Method
Arsenic (mg/L)	HGWC-13	0.4136	0.3326	0.01	Yes	13	0	No	0.01	Param.
Molybdenum (mg/L)	HGWC-11	0.02769	0.01502	0.01	Yes	13	0	No	0.01	Param.
Molybdenum (mg/L)	HGWC-12	0.05099	0.04548	0.01	Yes	13	0	No	0.01	Param.
Molybdenum (mg/L)	HGWC-13	0.0378	0.02978	0.01	Yes	13	0	No	0.01	Param.
Molybdenum (mg/L)	HGWC-7	0.03754	0.03063	0.01	Yes	13	0	No	0.01	Param.
Molybdenum (mg/L)	HGWC-8	0.5051	0.4612	0.01	Yes	13	0	No	0.01	Param.
Molybdenum (mg/L)	HGWC-9	0.03	0.0219	0.01	Yes	13	0	No	0.01	NP (normality)

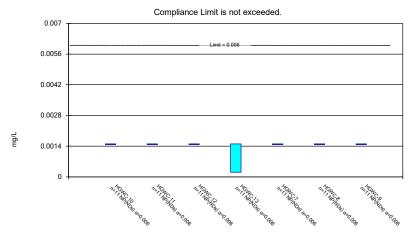
## Confidence Interval - All Results

	PI	ant Hammond C	Client: Georgia Powe	r Company D	ata: Har	nmond Af	P-1 Printed	d 7/22/2019, 12:35 AM		
Constituent	<u>Well</u>	Upper Lim.	Lower Lim.	Compliance	Sig.	<u>N</u>	%NDs	<u>Transform</u>	<u>Alpha</u>	Method
Antimony (mg/L)	HGWC-10	0.0015	0.0015	0.006	No	11	100	No	0.006	NP (NDs)
Antimony (mg/L)	HGWC-11	0.0015	0.0015	0.006	No	11	100	No	0.006	NP (NDs)
Antimony (mg/L)	HGWC-12	0.0015	0.0015	0.006	No	11	100	No	0.006	NP (NDs)
Antimony (mg/L)	HGWC-13	0.0015	0.00021	0.006	No	11	81.82	No	0.006	NP (NDs)
Antimony (mg/L)	HGWC-7	0.0015	0.0015	0.006	No	11	100	No	0.006	NP (NDs)
Antimony (mg/L)	HGWC-8	0.0015	0.0015	0.006	No	11	100	No	0.006	NP (NDs)
Antimony (mg/L)	HGWC-9	0.0015	0.0015	0.006	No	11	100	No	0.006	NP (NDs)
Arsenic (mg/L)	HGWC-10	0.0025	0.0025	0.01	No	13	100	No	0.01	NP (NDs)
Arsenic (mg/L)	HGWC-11	0.0053	0.0012	0.01	No	13	61.54	No	0.01	NP (NDs)
Arsenic (mg/L)	HGWC-12	0.004408	0.002577	0.01	No	13	15.38	No	0.01	Param.
Arsenic (mg/L)	HGWC-13	0.4136	0.3326	0.01	Yes	13	0	No	0.01	Param.
Arsenic (mg/L)	HGWC-7	0.0025	0.0019	0.01	No	13	92.31	No	0.01	NP (NDs)
Arsenic (mg/L)	HGWC-8	0.0025	0.0025	0.01	No	13	100	No	0.01	NP (NDs)
Arsenic (mg/L)	HGWC-9	0.0025	0.0008	0.01	No	13	84.62	No	0.01	NP (NDs)
Barium (mg/L)	HGWC-10	0.09873	0.07101	2	No	13	0	No	0.01	Param.
Barium (mg/L)	HGWC-11	0.06589	0.03153	2	No	13	0	No	0.01	Param.
Barium (mg/L)	HGWC-12	0.1261	0.0922	2	No	13	0	No	0.01	Param.
Barium (mg/L)	HGWC-13	0.0964	0.07	2	No	13	0	No	0.01	Param.
Barium (mg/L)	HGWC-7	0.07738	0.0717	2	No	13	0	No	0.01	Param.
Barium (mg/L)	HGWC-8	0.08184	0.06803	2	No	13	0	x^2	0.01	Param.
Barium (mg/L)	HGWC-9	0.1288	0.1045	2	No	13	0	No	0.01	Param.
Beryllium (mg/L)	HGWC-10	0.0015	0.0015	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	HGWC-11	0.0015	0.00009	0.004	No	11	72.73	No	0.006	NP (NDs)
Beryllium (mg/L)	HGWC-12	0.0015	0.0015	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	HGWC-13	0.0015	0.000062	0.004	No	11	90.91	No	0.006	NP (NDs)
Beryllium (mg/L)	HGWC-7	0.0015	0.0015	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	HGWC-8	0.0015	0.000074	0.004	No	11	90.91	No	0.006	NP (NDs)
Beryllium (mg/L)	HGWC-9	0.0015	0.0015	0.004	No	11	100	No	0.006	NP (NDs)
Cadmium (mg/L)	HGWC-10	0.0005	0.0001	0.005	No	11	36.36	No	0.006	NP (normality)
Cadmium (mg/L)	HGWC-11	0.0005	0.000096	0.005	No	11	72.73	No	0.006	NP (NDs)
Cadmium (mg/L)	HGWC-12	0.0005	0.00009	0.005	No	11	72.73	No	0.006	NP (NDs)
Cadmium (mg/L)	HGWC-13	0.0005	0.0005	0.005	No	11	100	No	0.006	NP (NDs)
Cadmium (mg/L)	HGWC-7	0.0005	0.0001	0.005	No	11	63.64	No	0.006	NP (NDs)
Cadmium (mg/L)	HGWC-8	0.0004919	0.0001335	0.005	No	11	9.091	ln(x)	0.01	Param.
Cadmium (mg/L)	HGWC-9	0.0005	0.00007	0.005	No	11	72.73	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-10	0.005	0.005	0.1	No	11	90.91	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-11	0.005	0.0003	0.1	No	11	90.91	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-12	0.005	0.0004	0.1	No	11	81.82	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-13	0.005	0.0004	0.1	No	11	90.91	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-7	0.005	0.005	0.1	No	11	100	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-8	0.005	0.0005	0.1	No	11	90.91	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-9	0.005	0.005	0.1	No	11	100	No	0.006	NP (NDs)
Cobalt (mg/L)	HGWC-10	0.005	0.0006	0.0293	No	11	45.45	No	0.006	NP (normality)
Cobalt (mg/L)	HGWC-11	0.002567	0.001137	0.0293	No	11	18.18	No	0.01	Param.
Cobalt (mg/L)	HGWC-12	0.001767	0.001211	0.0293	No	11	18.18	In(x)	0.01	Param.
Cobalt (mg/L)	HGWC-13	0.003851	0.00226	0.0293	No	11	9.091	No	0.01	Param.
Cobalt (mg/L)	HGWC-7	0.0007331	0.0003532	0.0293	No	11	27.27	In(x)	0.01	Param.
Cobalt (mg/L)	HGWC-8	0.0026	0.0019	0.0293	No	11	9.091	No	0.006	NP (normality)
Cobalt (mg/L)	HGWC-9	0.005	0.0005	0.0293	No	11	18.18	No	0.006	NP (normality)
Fluoride (mg/L)	HGWC-10	0.3328	0.1145	4	No	14	14.29	No	0.01	Param.

## Confidence Interval - All Results

	Pla	nt Hammond Clie	ent: Georgia Power	Company Da	ata: Ham	mond AP	-1 Printed	7/22/2019, 12:35 AM		
Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	<u>N</u>	%NDs	<u>Transform</u>	<u>Alpha</u>	Method
Fluoride (mg/L)	HGWC-11	0.5268	0.3079	4	No	14	0	No	0.01	Param.
Fluoride (mg/L)	HGWC-12	0.5879	0.191	4	No	14	7.143	No	0.01	Param.
Fluoride (mg/L)	HGWC-13	0.8014	0.5055	4	No	14	0	No	0.01	Param.
Fluoride (mg/L)	HGWC-7	0.2628	0.1122	4	No	14	14.29	sqrt(x)	0.01	Param.
Fluoride (mg/L)	HGWC-8	0.7712	0.4958	4	No	14	0	No	0.01	Param.
Fluoride (mg/L)	HGWC-9	0.3665	0.1199	4	No	14	14.29	No	0.01	Param.
Lithium (mg/L)	HGWC-10	0.025	0.025	0.05	No	13	100	No	0.01	NP (NDs)
Lithium (mg/L)	HGWC-11	0.025	0.025	0.05	No	13	100	No	0.01	NP (NDs)
Lithium (mg/L)	HGWC-12	0.01178	0.008082	0.05	No	13	0	No	0.01	Param.
Lithium (mg/L)	HGWC-13	0.04004	0.02953	0.05	No	13	0	No	0.01	Param.
Lithium (mg/L)	HGWC-7	0.003	0.0021	0.05	No	13	7.692	No	0.01	NP (normality)
Lithium (mg/L)	HGWC-8	0.0032	0.0023	0.05	No	13	7.692	No	0.01	NP (normality)
Lithium (mg/L)	HGWC-9	0.005	0.004	0.05	No	13	7.692	No	0.01	NP (normality)
Molybdenum (mg/L)	HGWC-10	0.005	0.0014	0.01	No	13	69.23	No	0.01	NP (NDs)
Molybdenum (mg/L)	HGWC-11	0.02769	0.01502	0.01	Yes	13	0	No	0.01	Param.
Molybdenum (mg/L)	HGWC-12	0.05099	0.04548	0.01	Yes	13	0	No	0.01	Param.
Molybdenum (mg/L)	HGWC-13	0.0378	0.02978	0.01	Yes	13	0	No	0.01	Param.
Molybdenum (mg/L)	HGWC-7	0.03754	0.03063	0.01	Yes	13	0	No	0.01	Param.
Molybdenum (mg/L)	HGWC-8	0.5051	0.4612	0.01	Yes	13	0	No	0.01	Param.
Molybdenum (mg/L)	HGWC-9	0.03	0.0219	0.01	Yes	13	0	No	0.01	NP (normality)
Selenium (mg/L)	HGWC-10	0.005	0.0023	0.05	No	13	76.92	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-11	0.01672	0.004369	0.05	No	13	0	No	0.01	Param.
Selenium (mg/L)	HGWC-12	0.005	0.0011	0.05	No	13	92.31	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-13	0.005	0.00018	0.05	No	13	92.31	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-7	0.005	0.005	0.05	No	13	100	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-8	0.005	0.0024	0.05	No	13	92.31	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-9	0.005	0.0037	0.05	No	13	92.31	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-10	0.0005	0.0005	0.002	No	13	100	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-11	0.0005	0.00008	0.002	No	13	84.62	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-12	0.0005	0.0001	0.002	No	13	76.92	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-13	0.0004169	0.0003259	0.002	No	13	0	No	0.01	Param.
Thallium (mg/L)	HGWC-7	0.0005	0.0005	0.002	No	13	100	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-8	0.0005	0.00008	0.002	No	13	76.92	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-9	0.0005	0.0005	0.002	No	13	100	No	0.01	NP (NDs)
Total Radium (pCi/L)	HGWC-10	1.129	0.6216	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-11	1.097	0.4527	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-12	1.288	0.5771	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-13	0.9949	0.4523	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-7	1.284	0.493	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-8	0.9476	0.6041	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-9	0.8905	0.432	5	No	13	0	No	0.01	Param.

#### Non-Parametric Confidence Interval

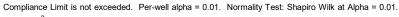


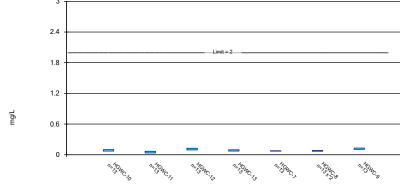
Constituent: Antimony Analysis Run 7/22/2019 12:33 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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#### Parametric Confidence Interval



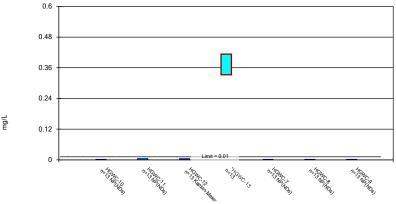


Constituent: Barium Analysis Run 7/22/2019 12:33 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

#### Parametric and Non-Parametric (NP) Confidence Interval

Compliance limit is exceeded.\* Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.

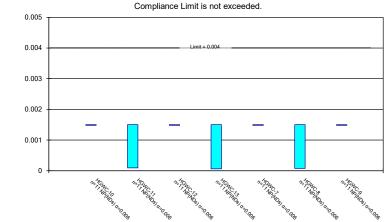


Constituent: Arsenic Analysis Run 7/22/2019 12:33 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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#### Non-Parametric Confidence Interval



Constituent: Antimony (mg/L) Analysis Run 7/22/2019 12:35 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.003	<0.003	
5/23/2016	<0.003	<0.003	<0.003	<0.003			<0.003
7/12/2016	<0.003	<0.003	<0.003	0.0003 (J)	<0.003	<0.003	<0.003
9/1/2016	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
10/20/2016					<0.003	<0.003	<0.003
10/24/2016	<0.003	<0.003	<0.003	<0.003			
12/6/2016					<0.003	<0.003	<0.003
12/7/2016	<0.003	<0.003	<0.003	<0.003			
1/25/2017					<0.003	<0.003	
1/26/2017	<0.003	<0.003	<0.003	<0.003			<0.003
3/21/2017					<0.003	<0.003	
3/22/2017	<0.003	<0.003	<0.003	<0.003			<0.003
5/23/2017					<0.003	<0.003	<0.003
5/24/2017	<0.003	<0.003	<0.003	<0.003			
4/3/2018					<0.003	<0.003	<0.003
4/4/2018	<0.003	<0.003	<0.003	<0.003			
3/12/2019						<0.003	
3/13/2019	<0.003	<0.003		<0.003	<0.003		<0.003
3/14/2019			<0.003				
4/2/2019					<0.003		
4/3/2019	<0.003	<0.003	<0.003			<0.003	<0.003
4/5/2019				0.00021 (J)			
Mean	0.0015	0.0015	0.0015	0.001274	0.0015	0.0015	0.0015
Std. Dev.	0	0	0	0.000504	0	0	0
Upper Lim.	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Lower Lim.	0.0015	0.0015	0.0015	0.00021	0.0015	0.0015	0.0015

Constituent: Arsenic (mg/L) Analysis Run 7/22/2019 12:35 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.005	<0.005	
5/23/2016	<0.005	<0.005	0.0046 (J)	0.329			<0.005
7/12/2016	<0.005	0.0015 (J)	0.005	0.297	<0.005	<0.005	<0.005
9/1/2016	<0.005	<0.005	0.0043 (J)	0.314	<0.005	<0.005	<0.005
10/20/2016			. ,		<0.005	<0.005	<0.005
10/24/2016	<0.005	<0.005	0.0049 (J)	0.334			
12/6/2016					<0.005	<0.005	<0.005
12/7/2016	<0.005	<0.005	0.0046 (J)	0.35			
1/25/2017					<0.005	<0.005	
1/26/2017	<0.005	<0.005	<0.005	0.424			<0.005
3/21/2017					<0.005	<0.005	
3/22/2017	<0.005	0.0053	0.0019 (J)	0.419			0.0008 (J)
5/23/2017					<0.005	<0.005	<0.005
5/24/2017	<0.005	<0.005	0.0022 (J)	0.393			
4/3/2018					<0.005	<0.005	<0.005
4/4/2018	<0.005	<0.005	<0.005	0.49			
6/5/2018	<0.005	0.0012 (J)		0.38	<0.005		
6/6/2018			0.0048 (J)			<0.005	<0.005
10/2/2018	<0.005				0.0019 (J)	<0.005	<0.005
10/3/2018		<0.005	0.0037 (J)				
10/5/2018				0.34			
3/12/2019						<0.005	
3/13/2019	<0.005	0.0024 (J)		0.42	<0.005		0.00075 (J)
3/14/2019			0.0026 (J)				
4/2/2019					<0.005		
4/3/2019	<0.005	0.00094 (J)	0.0022 (J)			<0.005	<0.005
4/5/2019				0.36			
Mean	0.0025	0.002411	0.003523	0.3731	0.002454	0.0025	0.002235
Std. Dev.	0	0.001036	0.001216	0.05444	0.0001664	0	0.0006479
Upper Lim.	0.0025	0.0053	0.004408	0.4136	0.0025	0.0025	0.0025
Lower Lim.	0.0025	0.0012	0.002577	0.3326	0.0019	0.0025	0.0008

Constituent: Barium (mg/L) Analysis Run 7/22/2019 12:35 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					0.0687	0.0808	
5/23/2016	0.0877	0.0466	0.133	0.0779			0.117
7/12/2016	0.0926	0.0616	0.135	0.0697	0.0731	0.083	0.13
9/1/2016	0.0994	0.0497	0.123	0.07	0.0747	0.0829	0.13
10/20/2016					0.072	0.0811	0.0806
10/24/2016	0.101	0.0794	0.135	0.0882			
12/6/2016					0.0752	0.0845	0.128
12/7/2016	0.107	0.1	0.13	0.0798			
1/25/2017					0.0747	0.078	
1/26/2017	0.0538	0.0696	0.127	0.0738			0.142
3/21/2017					0.0722	0.0791	
3/22/2017	0.0962	0.0346	0.112	0.0755			0.122
5/23/2017					0.0794	0.0846	0.127
5/24/2017	0.0996	0.0437	0.106	0.0627			
4/3/2018					0.075	0.065	0.1
4/4/2018	0.084	0.029	0.083	0.099			
6/5/2018	0.086	0.039		0.13	0.071		
6/6/2018			0.09			0.063	0.11
10/2/2018	0.076				0.078	0.061	0.11
10/3/2018		0.033	0.087				
10/5/2018				0.076			
3/12/2019						0.062	
3/13/2019	0.044	0.024		0.1	0.083		0.1
3/14/2019			0.081				
4/2/2019					0.072		
4/3/2019	0.076	0.023	0.077			0.066	0.12
4/5/2019				0.079			
Mean	0.08487	0.04871	0.1092	0.0832	0.07454	0.07469	0.1167
Std. Dev.	0.01864	0.0231	0.0228	0.01775	0.003818	0.009549	0.01637
Upper Lim.	0.09873	0.06589	0.1261	0.0964	0.07738	0.08184	0.1288
Lower Lim.	0.07101	0.03153	0.0922	0.07	0.0717	0.06803	0.1045

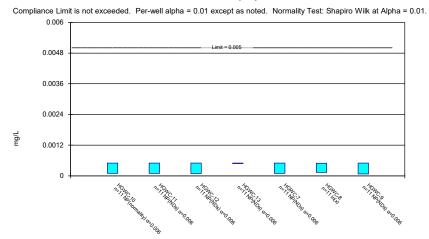
Constituent: Beryllium (mg/L) Analysis Run 7/22/2019 12:35 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.003	<0.003	
5/23/2016	<0.003	<0.003	<0.003	<0.003			<0.003
7/12/2016	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
9/1/2016	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
10/20/2016					<0.003	<0.003	<0.003
10/24/2016	<0.003	<0.003	<0.003	<0.003			
12/6/2016					<0.003	<0.003	<0.003
12/7/2016	<0.003	<0.003	<0.003	<0.003			
1/25/2017					<0.003	<0.003	
1/26/2017	<0.003	<0.003	<0.003	<0.003			<0.003
3/21/2017					<0.003	<0.003	
3/22/2017	<0.003	9E-05 (J)	<0.003	<0.003			<0.003
5/23/2017					<0.003	<0.003	<0.003
5/24/2017	<0.003	<0.003	<0.003	<0.003			
4/3/2018					<0.003	<0.003	<0.003
4/4/2018	<0.003	<0.003	<0.003	<0.003			
3/12/2019						<0.003	
3/13/2019	<0.003	0.0001 (J)		6.2E-05 (J)	<0.003		<0.003
3/14/2019			<0.003				
4/2/2019					<0.003		
4/3/2019	<0.003	0.00017 (J)	<0.003			7.4E-05 (J)	<0.003
4/5/2019				<0.003			
Mean	0.0015	0.001124	0.0015	0.001369	0.0015	0.00137	0.0015
Std. Dev.	0	0.0006449	0	0.0004336	0	0.00043	0
Upper Lim.	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Lower Lim.	0.0015	9E-05	0.0015	6.2E-05	0.0015	7.4E-05	0.0015

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#### Parametric and Non-Parametric (NP) Confidence Interval



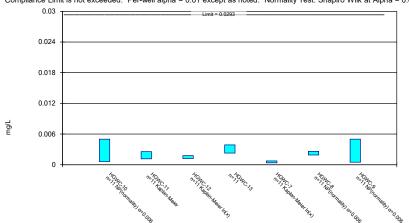
Constituent: Cadmium Analysis Run 7/22/2019 12:33 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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#### Parametric and Non-Parametric (NP) Confidence Interval

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

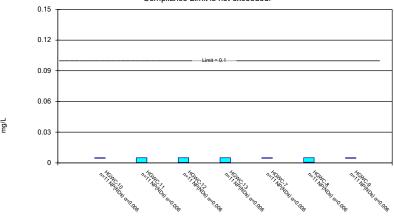


Constituent: Cobalt Analysis Run 7/22/2019 12:34 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

#### Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



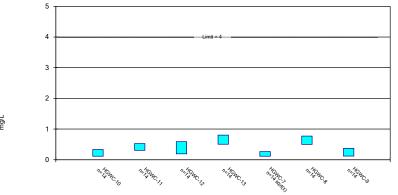
Constituent: Chromium Analysis Run 7/22/2019 12:34 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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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: Cadmium (mg/L) Analysis Run 7/22/2019 12:35 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.001	0.00024 (J)	
5/23/2016	0.000115 (J)	<0.001	<0.001	<0.001			<0.001
7/12/2016	<0.001	<0.001	<0.001	<0.001	<0.001	0.0002 (J)	<0.001
9/1/2016	0.0001 (J)	<0.001	<0.001	<0.001	<0.001	0.0001 (J)	<0.001
10/20/2016					<0.001	0.0001 (J)	0.0002 (J)
10/24/2016	0.0001 (J)	<0.001	<0.001	<0.001			
12/6/2016					0.0002 (J)	0.0017	0.0001 (J)
12/7/2016	0.0001 (J)	0.0001 (J)	0.0002 (J)	<0.001			
1/25/2017					0.0002 (J)	0.0002 (J)	
1/26/2017	<0.001	<0.001	<0.001	<0.001			<0.001
3/21/2017					0.0002 (J)	0.0002 (J)	
3/22/2017	0.0001 (J)	0.0001 (J)	0.0003 (J)	<0.001			7E-05 (J)
5/23/2017					0.0001 (J)	0.0003 (J)	<0.001
5/24/2017	0.0002 (J)	<0.001	9E-05 (J)	<0.001			
4/3/2018					<0.001	<0.001	<0.001
4/4/2018	<0.001	<0.001	<0.001	<0.001			
3/12/2019						0.0002 (J)	
3/13/2019	<0.001	<0.001		<0.001	<0.001		<0.001
3/14/2019			<0.001				
4/2/2019					<0.001		
4/3/2019	0.0001 (J)	9.6E-05 (J)	<0.001			0.00032 (J)	<0.001
4/5/2019				<0.001			
Mean	0.0002559	0.0003905	0.0004173	0.0005	0.0003818	0.0003691	0.0003973
Std. Dev.	0.0001957	0.0001875	0.0001493	0	0.0001662	0.0004551	0.0001786
Upper Lim.	0.0005	0.0005	0.0005	0.0005	0.0005	0.0004919	0.0005
Lower Lim.	0.0001	9.6E-05	9E-05	0.0005	0.0001	0.0001335	7E-05

Constituent: Chromium (mg/L) Analysis Run 7/22/2019 12:35 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.01	<0.01	
5/23/2016	<0.01	<0.01	<0.01	<0.01			<0.01
7/12/2016	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
9/1/2016	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
10/20/2016					<0.01	<0.01	<0.01
10/24/2016	<0.01	<0.01	<0.01	<0.01			
12/6/2016					<0.01	<0.01	<0.01
12/7/2016	<0.01	<0.01	<0.01	<0.01			
1/25/2017					<0.01	<0.01	
1/26/2017	<0.01	<0.01	<0.01	<0.01			<0.01
3/21/2017					<0.01	0.0005 (J)	
3/22/2017	<0.01	0.0003 (J)	0.0004 (J)	0.0004 (J)			<0.01
5/23/2017					<0.01	<0.01	<0.01
5/24/2017	<0.01	<0.01	<0.01	<0.01			
4/3/2018					<0.01	<0.01	<0.01
4/4/2018	<0.01	<0.01	<0.01	<0.01			
3/12/2019						<0.01	
3/13/2019	<0.01	<0.01		<0.01	<0.01		<0.01
3/14/2019			0.0025 (J)				
4/2/2019					<0.01		
4/3/2019	0.02	<0.01	<0.01			<0.01	<0.01
4/5/2019				<0.01			
Mean	0.006364	0.004573	0.004355	0.004582	0.005	0.004591	0.005
Std. Dev.	0.004523	0.001417	0.001511	0.001387	0	0.001357	0
Upper Lim.	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Lower Lim.	0.005	0.0003	0.0004	0.0004	0.005	0.0005	0.005

Constituent: Cobalt (mg/L) Analysis Run 7/22/2019 12:35 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

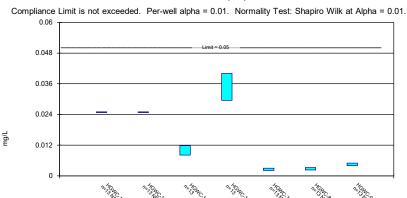
	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.01	0.00207 (J)	
5/23/2016	<0.01	<0.01	<0.01	0.00361 (J)			<0.01
7/12/2016	0.0006 (J)	0.0021 (J)	0.0018 (J)	0.0032 (J)	0.0003 (J)	0.0019 (J)	0.0006 (J)
9/1/2016	0.0007 (J)	0.0025 (J)	0.0016 (J)	0.0033 (J)	<0.01	0.0023 (J)	0.0007 (J)
10/20/2016					0.0008 (J)	0.002 (J)	0.002 (J)
10/24/2016	0.0009 (J)	0.0032 (J)	0.0017 (J)	0.004 (J)			
12/6/2016					0.0009 (J)	0.0026 (J)	0.0011 (J)
12/7/2016	0.0012 (J)	0.003 (J)	0.0021 (J)	0.0034 (J)			
1/25/2017					0.0005 (J)	0.002 (J)	
1/26/2017	<0.01	0.0014 (J)	0.0016 (J)	0.0024 (J)			0.0006 (J)
3/21/2017					0.0005 (J)	0.0023 (J)	
3/22/2017	0.0006 (J)	0.0014 (J)	0.0018 (J)	0.0026 (J)			0.0005 (J)
5/23/2017					0.0005 (J)	0.0023 (J)	0.0006 (J)
5/24/2017	0.0006 (J)	0.0008 (J)	0.0015 (J)	0.0022 (J)			
4/3/2018					<0.01	<0.01	<0.01
4/4/2018	<0.01	<0.01	<0.01	<0.01			
3/12/2019						0.002 (J)	
3/13/2019	<0.01	0.00098 (J)		0.0022 (J)	0.00067 (J)		0.00065 (J)
3/14/2019			0.0011 (J)				
4/2/2019					0.00069 (J)		
4/3/2019	<0.01	0.0018 (J)	0.0011 (J)			0.0019 (J)	0.00069 (J)
4/5/2019				0.0017 (J)			
Mean	0.002691	0.002471	0.002209	0.003055	0.001805	0.002397	0.001585
Std. Dev.	0.002217	0.001466	0.00141	0.0009549	0.002058	0.0008899	0.00174
Upper Lim.	0.005	0.002567	0.001767	0.003851	0.0007331	0.0026	0.005
Lower Lim.	0.0006	0.001137	0.001211	0.00226	0.0003532	0.0019	0.0005

Constituent: Fluoride (mg/L) Analysis Run 7/22/2019 12:35 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					0.0828 (J)	0.499	
5/23/2016	0.0394 (J)	0.203 (J)	0.212 (J)	0.2587 (J)			<0.3
7/12/2016	0.15 (J)	0.44	0.31	0.53	0.2 (J)	0.67	0.24 (J)
9/1/2016	0.5	0.67	0.62	0.74	0.51	0.94	0.46
10/20/2016					0.4	0.56	0.56
10/24/2016	0.06 (J)	0.26 (J)	0.19 (J)	0.31			
12/6/2016					0.26 (J)	0.76	0.31
12/7/2016	0.44	0.55	0.73	1			
1/25/2017					0.24 (J)	1.1	
1/26/2017	0.29 (J)	0.27 (J)	0.12 (J)	0.68			0.004 (J)
3/21/2017					0.13 (J)	0.46	
3/22/2017	0.34	0.66	0.44	0.76			0.28 (J)
5/23/2017					0.11 (J)	0.65	0.29 (J)
5/24/2017	0.13 (J)	0.35	0.34	0.54			
10/3/2017	0.46	0.56	0.58	0.83	0.17 (J)	0.66	0.53
4/3/2018					<0.3	0.39	<0.3
4/4/2018	<0.3	0.39	<0.3	0.65			
6/5/2018	<0.3	0.24 (J)		0.47	0.099 (J)		
6/6/2018			0.21 (J)			0.46	0.12 (J)
10/2/2018	0.17 (J)				<0.3	0.51	0.031 (J)
10/3/2018		0.31	0.15 (J)				
10/5/2018				0.77			
3/12/2019						0.58	
3/13/2019	0.17 (J)	0.51		0.78	0.12 (J)		0.14 (J)
3/14/2019			1.1				
4/2/2019					0.097 (J)		
4/3/2019	0.082 (J)	0.43	0.3 (J)			0.63	0.14 (J)
4/5/2019				0.83			
Mean	0.2237	0.4174	0.3894	0.6535	0.1942	0.6335	0.2432
Std. Dev.	0.1541	0.1546	0.2802	0.2089	0.1242	0.1943	0.174
Upper Lim.	0.3328	0.5268	0.5879	0.8014	0.2628	0.7712	0.3665
Lower Lim.	0.1145	0.3079	0.191	0.5055	0.1122	0.4958	0.1199

#### Parametric and Non-Parametric (NP) Confidence Interval

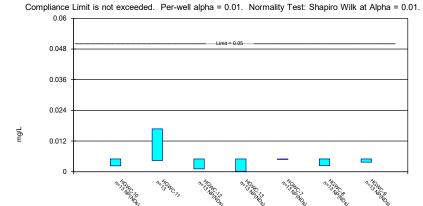


Constituent: Lithium Analysis Run 7/22/2019 12:34 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

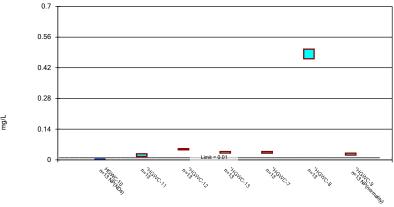
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#### Parametric and Non-Parametric (NP) Confidence Interval



#### Parametric and Non-Parametric (NP) Confidence Interval

Compliance limit is exceeded.\* Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.

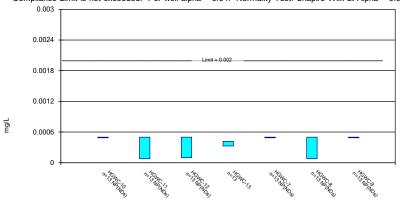


Constituent: Molybdenum Analysis Run 7/22/2019 12:34 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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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: Lithium (mg/L) Analysis Run 7/22/2019 12:35 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.05	<0.05	
5/23/2016	<0.05	<0.05	0.0107 (J)	0.0422 (J)			<0.05
7/12/2016	<0.05	<0.05	0.0113 (J)	0.0366 (J)	0.0021 (J)	0.0023 (J)	0.004 (J)
9/1/2016	<0.05	<0.05	0.0118 (J)	0.04 (J)	0.0025 (J)	0.0029 (J)	0.0044 (J)
10/20/2016					0.0021 (J)	0.0027 (J)	0.0027 (J)
10/24/2016	<0.05	<0.05	0.0114 (J)	0.0435 (J)			
12/6/2016					0.0026 (J)	0.0032 (J)	0.005 (J)
12/7/2016	<0.05	<0.05	0.0155 (J)	0.0477 (J)			
1/25/2017					0.0024 (J)	0.0026 (J)	
1/26/2017	<0.05	<0.05	0.0099 (J)	0.0342 (J)			0.0042 (J)
3/21/2017					0.0026 (J)	0.0029 (J)	
3/22/2017	<0.05	<0.05	0.0098 (J)	0.0353 (J)			0.0043 (J)
5/23/2017					0.0026 (J)	0.0029 (J)	0.0048 (J)
5/24/2017	<0.05	<0.05	0.0105 (J)	0.0317 (J)			
4/3/2018					0.0023 (J)	0.0025 (J)	0.0043 (J)
4/4/2018	<0.05	<0.05	0.008 (J)	0.031 (J)			
6/5/2018	<0.05	<0.05		0.031 (J)	0.0022 (J)		
6/6/2018			0.0095 (J)			0.0023 (J)	0.0043 (J)
10/2/2018	<0.05				0.003 (J)	0.0025 (J)	0.004 (J)
10/3/2018		<0.05	0.0083 (J)				
10/5/2018				0.027 (J)			
3/12/2019						0.0025 (J)	
3/13/2019	<0.05	<0.05		0.029 (J)	0.0024 (J)		0.004 (J)
3/14/2019			0.0058 (J)				
4/2/2019					0.002 (J)		
4/3/2019	<0.05	<0.05	0.0066 (J)			0.0025 (J)	0.004 (J)
4/5/2019				0.023 (J)			
Mean	0.025	0.025	0.009931	0.03478	0.004138	0.004369	0.005769
Std. Dev.	0	0	0.002487	0.007071	0.006274	0.006204	0.005803
Upper Lim.	0.025	0.025	0.01178	0.04004	0.003	0.0032	0.005
Lower Lim.	0.025	0.025	0.008082	0.02953	0.0021	0.0023	0.004

Constituent: Molybdenum (mg/L) Analysis Run 7/22/2019 12:35 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					0.028	0.446	
5/23/2016	<0.01	0.0164	0.0413 (J)	0.027			0.0187
7/12/2016	0.0013 (J)	0.0251	0.0484	0.0316	0.0273	0.455	0.0229
9/1/2016	<0.01	0.0259	0.0474	0.0336	0.0274	0.481	0.0239
10/20/2016					0.036	0.472	0.477
10/24/2016	<0.01	0.0293	0.047	0.0352			
12/6/2016					0.0365	0.52	0.0236
12/7/2016	<0.01	0.0209	0.0432	0.0383			
1/25/2017					0.0317	0.478	
1/26/2017	<0.01	0.0277	0.0484	0.041			0.0234
3/21/2017					0.0346	0.547	
3/22/2017	0.0013 (J)	0.011	0.0494	0.0426			0.0219
5/23/2017					0.0336	0.482	0.0242
5/24/2017	0.0014 (J)	0.0373	0.047	0.04			
4/3/2018					0.032	0.44	0.025
4/4/2018	<0.01	0.013	0.052	0.027			
6/5/2018	<0.01	0.029		0.027	0.036		
6/6/2018			0.054			0.49	0.027
10/2/2018	<0.01				0.039	0.47	0.028
10/3/2018		0.02	0.054				
10/5/2018				0.033			
3/12/2019						0.5	
3/13/2019	<0.01	0.012		0.033	0.04		0.028
3/14/2019			0.046				
4/2/2019					0.041		
4/3/2019	0.0021 (J)	0.01	0.049			0.5	0.03
4/5/2019				0.03			
Mean	0.003931	0.02135	0.04824	0.03379	0.03408	0.4832	0.05951
Std. Dev.	0.00168	0.008519	0.003706	0.005395	0.004641	0.02946	0.1255
Upper Lim.	0.005	0.02769	0.05099	0.0378	0.03754	0.5051	0.03
Lower Lim.	0.0014	0.01502	0.04548	0.02978	0.03063	0.4612	0.0219

Constituent: Selenium (mg/L) Analysis Run 7/22/2019 12:35 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.01	<0.01	
5/23/2016	<0.01	0.0106	<0.01	<0.01			<0.01
7/12/2016	<0.01	0.0057 (J)	<0.01	<0.01	<0.01	<0.01	<0.01
9/1/2016	<0.01	0.0057 (J)	<0.01	<0.01	<0.01	<0.01	<0.01
10/20/2016					<0.01	<0.01	<0.01
10/24/2016	<0.01	0.0021 (J)	<0.01	<0.01			
12/6/2016					<0.01	0.0024 (J)	0.0037 (J)
12/7/2016	<0.01	0.0015 (J)	0.0011 (J)	<0.01			
1/25/2017					<0.01	<0.01	
1/26/2017	0.0041 (J)	0.0062 (J)	<0.01	<0.01			<0.01
3/21/2017					<0.01	<0.01	
3/22/2017	<0.01	0.0263	<0.01	<0.01			<0.01
5/23/2017					<0.01	<0.01	<0.01
5/24/2017	<0.01	0.0038 (J)	<0.01	<0.01			
4/3/2018					<0.01	<0.01	<0.01
4/4/2018	<0.01	0.021	<0.01	<0.01			
6/5/2018	<0.01	0.0062 (J)		<0.01	<0.01		
6/6/2018			<0.01			<0.01	<0.01
10/2/2018	0.0023 (J)				<0.01	<0.01	<0.01
10/3/2018		0.009 (J)	<0.01				
10/5/2018				<0.01			
3/12/2019						<0.01	
3/13/2019	0.0015 (J)	0.023		<0.01	<0.01		<0.01
3/14/2019			<0.01				
4/2/2019					<0.01		
4/3/2019	<0.01	0.016	<0.01			<0.01	<0.01
4/5/2019				0.00018 (J)			
Mean	0.004454	0.01055	0.0047	0.004629	0.005	0.0048	0.0049
Std. Dev.	0.001172	0.008307	0.001082	0.001337	0	0.0007211	0.0003606
Upper Lim.	0.005	0.01672	0.005	0.005	0.005	0.005	0.005
Lower Lim.	0.0023	0.004369	0.0011	0.00018	0.005	0.0024	0.0037

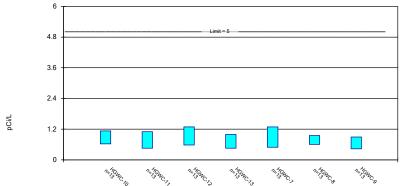
Constituent: Thallium (mg/L) Analysis Run 7/22/2019 12:35 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.001	<0.001	
5/23/2016	<0.001	<0.001	<0.001	0.000378 (J)			<0.001
7/12/2016	<0.001	8E-05 (J)	0.0002 (J)	0.0004 (J)	<0.001	7E-05 (J)	<0.001
9/1/2016	<0.001	<0.001	<0.001	0.0004 (J)	<0.001	<0.001	<0.001
10/20/2016					<0.001	<0.001	<0.001
10/24/2016	<0.001	<0.001	<0.001	0.0005 (J)			
12/6/2016					<0.001	<0.001	<0.001
12/7/2016	<0.001	<0.001	<0.001	0.0004 (J)			
1/25/2017					<0.001	<0.001	
1/26/2017	<0.001	<0.001	<0.001	0.0004 (J)			<0.001
3/21/2017					<0.001	9E-05 (J)	
3/22/2017	<0.001	<0.001	0.0001 (J)	0.0004 (J)			<0.001
5/23/2017					<0.001	8E-05 (J)	<0.001
5/24/2017	<0.001	8E-05 (J)	9E-05 (J)	0.0003 (J)			
4/3/2018					<0.001	<0.001	<0.001
4/4/2018	<0.001	<0.001	<0.001	0.00032 (J)			
6/5/2018	<0.001	<0.001		0.00035 (J)	<0.001		
6/6/2018			<0.001			<0.001	<0.001
10/2/2018	<0.001				<0.001	<0.001	<0.001
10/3/2018		<0.001	<0.001				
10/5/2018				0.00025 (J)			
3/12/2019						<0.001	
3/13/2019	<0.001	<0.001		0.00039 (J)	<0.001		<0.001
3/14/2019			<0.001				
4/2/2019					<0.001		
4/3/2019	<0.001	<0.001	<0.001			<0.001	<0.001
4/5/2019				0.00034 (J)			
Mean	0.0005	0.0004354	0.0004146	0.0003714	0.0005	0.0004031	0.0005
Std. Dev.	0	0.0001577	0.0001641	6.12E-05	0	0.0001842	0
Upper Lim.	0.0005	0.0005	0.0005	0.0004169	0.0005	0.0005	0.0005
Lower Lim.	0.0005	8E-05	0.0001	0.0003259	0.0005	8E-05	0.0005

#### Parametric Confidence Interval

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



Constituent: Total Radium Analysis Run 7/22/2019 12:35 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Constituent: Total Radium (pCi/L) Analysis Run 7/22/2019 12:36 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					0.62 (U)	0.56 (U)	
5/23/2016	0.419 (U)	0.509 (U)	1.12	0.625 (U)			0.826 (U)
7/12/2016	0.855	0.784 (U)	1.61	0.478 (U)	0.283 (U)	0.636 (U)	0.511 (U)
9/1/2016	0.844 (U)	0.261 (U)	1.23	0.595 (U)	0.703 (U)	0.818 (U)	0.762 (U)
10/20/2016					1.97	1.04 (U)	1.17
10/24/2016	0.917 (U)	1.42	1.98	1.54			
12/6/2016					2	0.771 (U)	0.126 (U)
12/7/2016	0.558 (U)	0.781 (U)	0.319 (U)	0.657 (U)			
1/25/2017					1.06 (U)	0.859 (U)	
1/26/2017	0.922 (U)	0.842 (U)	0.54 (U)	1.22			0.515 (U)
3/21/2017					0.668 (U)	0.851 (U)	
3/22/2017	0.751 (U)	0.318 (U)	0.635 (U)	0.285 (U)			0.451 (U)
5/23/2017					0.621 (U)	0.705 (U)	0.924 (U)
5/24/2017	0.725 (U)	0.687 (U)	1.01	0.655 (U)			
4/3/2018					0.538 (U)	0.311 (U)	0.732 (U)
4/4/2018	0.715 (U)	1.5	0.956	0.882 (U)			
6/5/2018	0.718 (U)	0.549 (U)		1.1 (U)	0.985 (U)		
6/6/2018			0.424 (U)			0.896 (U)	0.813 (U)
10/2/2018	0.948				0.837 (U)	1.21	0.61 (U)
10/3/2018		1.48	0.57 (U)				
10/5/2018				0.558 (U)			
3/12/2019						0.544 (U)	
3/13/2019	1.19 (U)	0.584 (U)		0.39 (U)	0.403 (U)		1 (U)
3/14/2019			0.992 (U)				
4/2/2019					0.865 (U)		
4/3/2019	1.82 (U)	0.36 (U)	0.734 (U)			0.885 (U)	0.156 (U)
4/5/2019				0.422 (U)			
Mean	0.8755	0.775	0.9323	0.7236	0.8887	0.7758	0.6612
Std. Dev.	0.3415	0.4335	0.4777	0.3649	0.5322	0.2309	0.3083
Upper Lim.	1.129	1.097	1.288	0.9949	1.284	0.9476	0.8905
Lower Lim.	0.6216	0.4527	0.5771	0.4523	0.493	0.6041	0.432

## USEPA Based Groundwater Protection Standards Statistical Analysis Package AM 01

## **Tolerance Limit**

	Plant Hammon	d Client: Georgia	Power Compan	y Data: Hamr	mond AF	'-1 Pri	inted 7/22/20	019, 1:01 AM		
Constituent	Well	Upper Lim.	<u>Date</u>	Observ.	Sig.	Bg N	%NDs	<u>Transform</u>	<u>Alpha</u>	Method
Antimony (mg/L)	n/a	0.003	n/a	n/a	n/a	33	93.94	n/a	0.184	NP Inter(NDs)
Arsenic (mg/L)	n/a	0.005	n/a	n/a	n/a	39	66.67	n/a	0.1353	NP Inter(NDs)
Barium (mg/L)	n/a	0.14	n/a	n/a	n/a	39	0	n/a	0.1353	NP Inter(normal
Beryllium (mg/L)	n/a	0.003	n/a	n/a	n/a	33	75.76	n/a	0.184	NP Inter(NDs)
Cadmium (mg/L)	n/a	0.001	n/a	n/a	n/a	33	84.85	n/a	0.184	NP Inter(NDs)
Chromium (mg/L)	n/a	0.01	n/a	n/a	n/a	33	90.91	n/a	0.184	NP Inter(NDs)
Cobalt (mg/L)	n/a	0.0293	n/a	n/a	n/a	33	63.64	n/a	0.184	NP Inter(NDs)
Fluoride (mg/L)	n/a	0.36	n/a	n/a	n/a	42	28.57	n/a	0.116	NP Inter(normal
Lead (mg/L)	n/a	0.005	n/a	n/a	n/a	30	86.67	n/a	0.2146	NP Inter(NDs)
Lithium (mg/L)	n/a	0.025	n/a	n/a	n/a	39	41.03	n/a	0.1353	NP Inter(normal
Mercury (mg/L)	n/a	0.0005	n/a	n/a	n/a	30	93.33	n/a	0.2146	NP Inter(NDs)
Molybdenum (mg/L)	n/a	0.01	n/a	n/a	n/a	39	100	n/a	0.1353	NP Inter(NDs)
Selenium (mg/L)	n/a	0.01	n/a	n/a	n/a	39	100	n/a	0.1353	NP Inter(NDs)
Thallium (mg/L)	n/a	0.001	n/a	n/a	n/a	39	97.44	n/a	0.1353	NP Inter(NDs)
Total Radium (pCi/L)	n/a	1.341	n/a	n/a	n/a	39	0	No	0.01	Inter

## Table C-2 USEPA Based Groundwater Protection Standards Plant Hammond - Ash Pond 1 Floyd County, Georgia

Constituent	CAS	Units	EPA MCL	Statistically Derived Upper Tolerance Limits for Background	GWPS <sup>1</sup>
Antimony	7440-36-0	mg/L	0.006	0.003	0.006
Arsenic	7440-38-2	mg/L	0.01	0.005	0.01
Barium	7440-39-3	mg/L	2	0.14	2
Beryllium	7440-41-7	mg/L	0.004	0.003	0.004
Cadmium	7440-43-9	mg/L	0.005	0.001	0.005
Chromium	7440-47-3	mg/L	0.1	0.01	0.1
Cobalt <sup>2</sup>	7440-48-4	mg/L	0.006	0.0293	0.0293
Fluoride	16984-48-8	mg/L	4	0.36	4
Lead <sup>3</sup>	7439-92-1	mg/L	0.015	0.005	0.015
Lithium <sup>2</sup>	7439-93-2	mg/L	0.04	0.025	0.04
Mercury	7439-97-6	mg/L	0.002	0.0005	0.002
Molybdenum <sup>2</sup>	7439-98-7	mg/L	0.1	0.01	0.1
Selenium	7782-49-2	mg/L	0.05	0.01	0.05
Thallium	7440-28-0	mg/L	0.002	0.001	0.002
Total Radium	7440-14-4	pCi/L	5	1.341	5

#### **Notes:**

EPA MCL - U.S. Environmental Protection Agency, Maximum Contaminant Level

**GWPS** - Groundwater Protection Standards

mg/L - milligram per liter

N/A - Not Available

pCi/L - Picocuries per liter

<sup>&</sup>lt;sup>1</sup>GWPS selected as the greater value between the EPA MCL and the background Upper Tolerance Limit.

<sup>&</sup>lt;sup>2</sup>Regional Screening Level applied for constituent per CCR Rule Ammendment, July 30, 2018.

<sup>&</sup>lt;sup>3</sup>Currently, there is no EPA MCL established for lead. The value listed is the established EPA Action Level for drinking water.

## Confidence Interval - Significant Results

	Pla	ant Hammond Cl	ient: Georgia Power	Company Da	ata: Han	nmond AF	2-1 Printed	7/22/2019, 1:16 AM		
Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	Method
Arsenic (mg/L)	HGWC-13	0.4136	0.3326	0.01	Yes	13	0	No	0.01	Param.
Molybdenum (mg/L)	HGWC-8	0.5051	0.4612	0.1	Yes	13	0	No	0.01	Param.

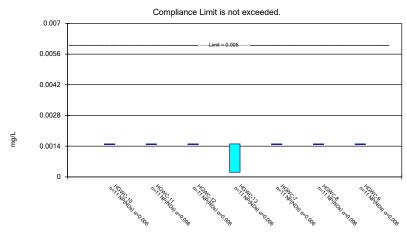
## Confidence Interval - All Results

	Р	lant Hammond	Client: Georgia Powe	er Company	Data: Ha	mmond A	P-1 Printe	d 7/22/2019, 1:16 AM		
Constituent	Well	Upper Lim.	Lower Lim.	<u>Compliance</u>	Sig.	<u>N</u>	%NDs	<u>Transform</u>	<u>Alpha</u>	Method
Antimony (mg/L)	HGWC-10	0.0015	0.0015	0.006	No	11	100	No	0.006	NP (NDs)
Antimony (mg/L)	HGWC-11	0.0015	0.0015	0.006	No	11	100	No	0.006	NP (NDs)
Antimony (mg/L)	HGWC-12	0.0015	0.0015	0.006	No	11	100	No	0.006	NP (NDs)
Antimony (mg/L)	HGWC-13	0.0015	0.00021	0.006	No	11	81.82	No	0.006	NP (NDs)
Antimony (mg/L)	HGWC-7	0.0015	0.0015	0.006	No	11	100	No	0.006	NP (NDs)
Antimony (mg/L)	HGWC-8	0.0015	0.0015	0.006	No	11	100	No	0.006	NP (NDs)
Antimony (mg/L)	HGWC-9	0.0015	0.0015	0.006	No	11	100	No	0.006	NP (NDs)
Arsenic (mg/L)	HGWC-10	0.0025	0.0025	0.01	No	13	100	No	0.01	NP (NDs)
Arsenic (mg/L)	HGWC-11	0.0053	0.0012	0.01	No	13	61.54	No	0.01	NP (NDs)
Arsenic (mg/L)	HGWC-12	0.004408	0.002577	0.01	No	13	15.38	No	0.01	Param.
Arsenic (mg/L)	HGWC-13	0.4136	0.3326	0.01	Yes	13	0	No	0.01	Param.
Arsenic (mg/L)	HGWC-7	0.0025	0.0019	0.01	No	13	92.31	No	0.01	NP (NDs)
Arsenic (mg/L)	HGWC-8	0.0025	0.0025	0.01	No	13	100	No	0.01	NP (NDs)
Arsenic (mg/L)	HGWC-9	0.0025	0.0008	0.01	No	13	84.62	No	0.01	NP (NDs)
Barium (mg/L)	HGWC-10	0.09873	0.07101	2	No	13	0	No	0.01	Param.
Barium (mg/L)	HGWC-11	0.06589	0.03153	2	No	13	0	No	0.01	Param.
Barium (mg/L)	HGWC-12	0.1261	0.0922	2	No	13	0	No	0.01	Param.
Barium (mg/L)	HGWC-13	0.0964	0.07	2	No	13	0	No	0.01	Param.
Barium (mg/L)	HGWC-7	0.07738	0.0717	2	No	13	0	No	0.01	Param.
Barium (mg/L)	HGWC-8	0.08184	0.06803	2	No	13	0	x^2	0.01	Param.
Barium (mg/L)	HGWC-9	0.1288	0.1045	2	No	13	0	No	0.01	Param.
Beryllium (mg/L)	HGWC-10	0.0015	0.0015	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	HGWC-11	0.0015	0.00009	0.004	No	11	72.73	No	0.006	NP (NDs)
Beryllium (mg/L)	HGWC-12	0.0015	0.0015	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	HGWC-13	0.0015	0.000062	0.004	No	11	90.91	No	0.006	NP (NDs)
Beryllium (mg/L)	HGWC-7	0.0015	0.0015	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	HGWC-8	0.0015	0.000074	0.004	No	11	90.91	No	0.006	NP (NDs)
Beryllium (mg/L)	HGWC-9	0.0015	0.0015	0.004	No	11	100	No	0.006	NP (NDs)
Cadmium (mg/L)	HGWC-10	0.0005	0.0001	0.005	No	11	36.36	No	0.006	NP (normality)
Cadmium (mg/L)	HGWC-11	0.0005	0.000096	0.005	No	11	72.73	No	0.006	NP (NDs)
Cadmium (mg/L)	HGWC-12	0.0005	0.00009	0.005	No	11	72.73	No	0.006	NP (NDs)
Cadmium (mg/L)	HGWC-13	0.0005	0.0005	0.005	No	11	100	No	0.006	NP (NDs)
Cadmium (mg/L)	HGWC-7	0.0005	0.0001	0.005	No	11	63.64	No	0.006	NP (NDs)
Cadmium (mg/L)	HGWC-8	0.0004919	0.0001335	0.005	No	11	9.091	ln(x)	0.01	Param.
Cadmium (mg/L)	HGWC-9	0.0005	0.00007	0.005	No	11	72.73	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-10	0.005	0.005	0.1	No	11	90.91	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-11	0.005	0.0003	0.1	No	11	90.91	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-12	0.005	0.0004	0.1	No	11	81.82	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-13	0.005	0.0004	0.1	No	11	90.91	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-7	0.005	0.005	0.1	No	11	100	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-8	0.005	0.0005	0.1	No	11	90.91	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-9	0.005	0.005	0.1	No	11	100	No	0.006	NP (NDs)
Cobalt (mg/L)	HGWC-10	0.005	0.0006	0.0293	No	11	45.45	No	0.006	NP (normality)
Cobalt (mg/L)	HGWC-11	0.002567	0.001137	0.0293	No	11	18.18	No	0.01	Param.
Cobalt (mg/L)	HGWC-12	0.001767	0.001211	0.0293	No	11	18.18	In(x)	0.01	Param.
Cobalt (mg/L)	HGWC-13	0.003851	0.00226	0.0293	No	11	9.091	No	0.01	Param.
Cobalt (mg/L)	HGWC-7	0.0007331	0.0003532	0.0293	No	11	27.27	ln(x)	0.01	Param.
Cobalt (mg/L)	HGWC-8	0.0026	0.0019	0.0293	No	11	9.091	No	0.006	NP (normality)
Cobalt (mg/L)	HGWC-9	0.005	0.0005	0.0293	No	11	18.18	No	0.006	NP (normality)
Fluoride (mg/L)	HGWC-10	0.3328	0.1145	4	No	14	14.29	No	0.01	Param.

## Confidence Interval - All Results

	į	Plant Hammond	Client: Georgia Por	wer Company I	Data: Ha	mmond A	AP-1 Printe	ed 7/22/2019, 1:16 AM		
Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	<u>N</u>	%NDs	<u>Transform</u>	<u>Alpha</u>	Method
Fluoride (mg/L)	HGWC-11	0.5268	0.3079	4	No	14	0	No	0.01	Param.
Fluoride (mg/L)	HGWC-12	0.5879	0.191	4	No	14	7.143	No	0.01	Param.
Fluoride (mg/L)	HGWC-13	0.8014	0.5055	4	No	14	0	No	0.01	Param.
Fluoride (mg/L)	HGWC-7	0.2628	0.1122	4	No	14	14.29	sqrt(x)	0.01	Param.
Fluoride (mg/L)	HGWC-8	0.7712	0.4958	4	No	14	0	No	0.01	Param.
Fluoride (mg/L)	HGWC-9	0.3665	0.1199	4	No	14	14.29	No	0.01	Param.
Lithium (mg/L)	HGWC-10	0.0125	0.0125	0.04	No	13	100	No	0.01	NP (NDs)
Lithium (mg/L)	HGWC-11	0.0125	0.0125	0.04	No	13	100	No	0.01	NP (NDs)
Lithium (mg/L)	HGWC-12	0.01178	0.008082	0.04	No	13	0	No	0.01	Param.
Lithium (mg/L)	HGWC-13	0.04004	0.02953	0.04	No	13	0	No	0.01	Param.
Lithium (mg/L)	HGWC-7	0.003	0.0021	0.04	No	13	7.692	No	0.01	NP (normality)
Lithium (mg/L)	HGWC-8	0.0032	0.0023	0.04	No	13	7.692	No	0.01	NP (normality)
Lithium (mg/L)	HGWC-9	0.005	0.004	0.04	No	13	7.692	No	0.01	NP (normality)
Molybdenum (mg/L)	HGWC-10	0.005	0.0014	0.1	No	13	69.23	No	0.01	NP (NDs)
Molybdenum (mg/L)	HGWC-11	0.02769	0.01502	0.1	No	13	0	No	0.01	Param.
Molybdenum (mg/L)	HGWC-12	0.05099	0.04548	0.1	No	13	0	No	0.01	Param.
Molybdenum (mg/L)	HGWC-13	0.0378	0.02978	0.1	No	13	0	No	0.01	Param.
Molybdenum (mg/L)	HGWC-7	0.03754	0.03063	0.1	No	13	0	No	0.01	Param.
Molybdenum (mg/L)	HGWC-8	0.5051	0.4612	0.1	Yes	13	0	No	0.01	Param.
Molybdenum (mg/L)	HGWC-9	0.03	0.0219	0.1	No	13	0	No	0.01	NP (normality)
Selenium (mg/L)	HGWC-10	0.005	0.0023	0.05	No	13	76.92	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-11	0.01672	0.004369	0.05	No	13	0	No	0.01	Param.
Selenium (mg/L)	HGWC-12	0.005	0.0011	0.05	No	13	92.31	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-13	0.005	0.00018	0.05	No	13	92.31	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-7	0.005	0.005	0.05	No	13	100	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-8	0.005	0.0024	0.05	No	13	92.31	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-9	0.005	0.0037	0.05	No	13	92.31	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-10	0.0005	0.0005	0.002	No	13	100	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-11	0.0005	0.00008	0.002	No	13	84.62	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-12	0.0005	0.0001	0.002	No	13	76.92	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-13	0.0004169	0.0003259	0.002	No	13	0	No	0.01	Param.
Thallium (mg/L)	HGWC-7	0.0005	0.0005	0.002	No	13	100	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-8	0.0005	0.00008	0.002	No	13	76.92	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-9	0.0005	0.0005	0.002	No	13	100	No	0.01	NP (NDs)
Total Radium (pCi/L)	HGWC-10	1.129	0.6216	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-11	1.097	0.4527	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-12	1.288	0.5771	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-13	0.9949	0.4523	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-7	1.284	0.493	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-8	0.9476	0.6041	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-9	0.8905	0.432	5	No	13	0	No	0.01	Param.

#### Non-Parametric Confidence Interval



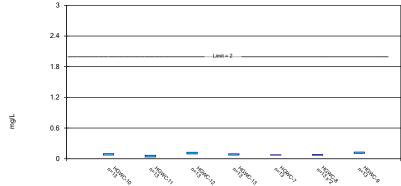
Constituent: Antimony Analysis Run 7/22/2019 1:15 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

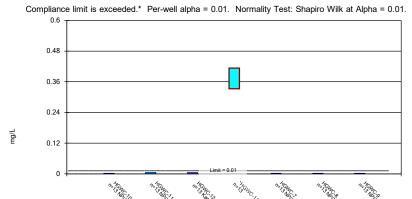
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#### Parametric Confidence Interval





#### Parametric and Non-Parametric (NP) Confidence Interval

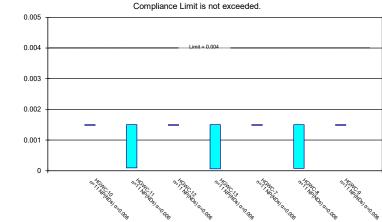


Constituent: Arsenic Analysis Run 7/22/2019 1:15 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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#### Non-Parametric Confidence Interval



Constituent: Antimony (mg/L) Analysis Run 7/22/2019 1:16 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.003	<0.003	
5/23/2016	<0.003	<0.003	<0.003	<0.003			<0.003
7/12/2016	<0.003	<0.003	<0.003	0.0003 (J)	<0.003	<0.003	<0.003
9/1/2016	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
10/20/2016					<0.003	<0.003	<0.003
10/24/2016	<0.003	<0.003	<0.003	<0.003			
12/6/2016					<0.003	<0.003	<0.003
12/7/2016	<0.003	<0.003	<0.003	<0.003			
1/25/2017					<0.003	<0.003	
1/26/2017	<0.003	<0.003	<0.003	<0.003			<0.003
3/21/2017					<0.003	<0.003	
3/22/2017	<0.003	<0.003	<0.003	<0.003			<0.003
5/23/2017					<0.003	<0.003	<0.003
5/24/2017	<0.003	<0.003	<0.003	<0.003			
4/3/2018					<0.003	<0.003	<0.003
4/4/2018	<0.003	<0.003	<0.003	<0.003			
3/12/2019						<0.003	
3/13/2019	<0.003	<0.003		<0.003	<0.003		<0.003
3/14/2019			<0.003				
4/2/2019					<0.003		
4/3/2019	<0.003	<0.003	<0.003			<0.003	<0.003
4/5/2019				0.00021 (J)			
Mean	0.0015	0.0015	0.0015	0.001274	0.0015	0.0015	0.0015
Std. Dev.	0	0	0	0.000504	0	0	0
Upper Lim.	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Lower Lim.	0.0015	0.0015	0.0015	0.00021	0.0015	0.0015	0.0015

Constituent: Arsenic (mg/L) Analysis Run 7/22/2019 1:16 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.005	<0.005	
5/23/2016	<0.005	<0.005	0.0046 (J)	0.329			<0.005
7/12/2016	<0.005	0.0015 (J)	0.005	0.297	<0.005	<0.005	<0.005
9/1/2016	<0.005	<0.005	0.0043 (J)	0.314	<0.005	<0.005	<0.005
10/20/2016					<0.005	<0.005	<0.005
10/24/2016	<0.005	<0.005	0.0049 (J)	0.334			
12/6/2016					<0.005	<0.005	<0.005
12/7/2016	<0.005	<0.005	0.0046 (J)	0.35			
1/25/2017					<0.005	<0.005	
1/26/2017	<0.005	<0.005	<0.005	0.424			<0.005
3/21/2017					<0.005	<0.005	
3/22/2017	<0.005	0.0053	0.0019 (J)	0.419			0.0008 (J)
5/23/2017					<0.005	<0.005	<0.005
5/24/2017	<0.005	<0.005	0.0022 (J)	0.393			
4/3/2018					<0.005	<0.005	<0.005
4/4/2018	<0.005	<0.005	<0.005	0.49			
6/5/2018	<0.005	0.0012 (J)		0.38	<0.005		
6/6/2018			0.0048 (J)			<0.005	<0.005
10/2/2018	<0.005				0.0019 (J)	<0.005	<0.005
10/3/2018		<0.005	0.0037 (J)				
10/5/2018				0.34			
3/12/2019						<0.005	
3/13/2019	<0.005	0.0024 (J)		0.42	<0.005		0.00075 (J)
3/14/2019			0.0026 (J)				
4/2/2019					<0.005		
4/3/2019	<0.005	0.00094 (J)	0.0022 (J)			<0.005	<0.005
4/5/2019				0.36			
Mean	0.0025	0.002411	0.003523	0.3731	0.002454	0.0025	0.002235
Std. Dev.	0	0.001036	0.001216	0.05444	0.0001664	0	0.0006479
Upper Lim.	0.0025	0.0053	0.004408	0.4136	0.0025	0.0025	0.0025
Lower Lim.	0.0025	0.0012	0.002577	0.3326	0.0019	0.0025	0.0008

Constituent: Barium (mg/L) Analysis Run 7/22/2019 1:16 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

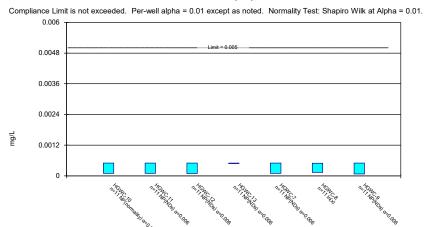
	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					0.0687	0.0808	
5/23/2016	0.0877	0.0466	0.133	0.0779			0.117
7/12/2016	0.0926	0.0616	0.135	0.0697	0.0731	0.083	0.13
9/1/2016	0.0994	0.0497	0.123	0.07	0.0747	0.0829	0.13
10/20/2016					0.072	0.0811	0.0806
10/24/2016	0.101	0.0794	0.135	0.0882			
12/6/2016					0.0752	0.0845	0.128
12/7/2016	0.107	0.1	0.13	0.0798			
1/25/2017					0.0747	0.078	
1/26/2017	0.0538	0.0696	0.127	0.0738			0.142
3/21/2017					0.0722	0.0791	
3/22/2017	0.0962	0.0346	0.112	0.0755			0.122
5/23/2017					0.0794	0.0846	0.127
5/24/2017	0.0996	0.0437	0.106	0.0627			
4/3/2018					0.075	0.065	0.1
4/4/2018	0.084	0.029	0.083	0.099			
6/5/2018	0.086	0.039		0.13	0.071		
6/6/2018			0.09			0.063	0.11
10/2/2018	0.076				0.078	0.061	0.11
10/3/2018		0.033	0.087				
10/5/2018				0.076			
3/12/2019						0.062	
3/13/2019	0.044	0.024		0.1	0.083		0.1
3/14/2019			0.081				
4/2/2019					0.072		
4/3/2019	0.076	0.023	0.077			0.066	0.12
4/5/2019				0.079			
Mean	0.08487	0.04871	0.1092	0.0832	0.07454	0.07469	0.1167
Std. Dev.	0.01864	0.0231	0.0228	0.01775	0.003818	0.009549	0.01637
Upper Lim.	0.09873	0.06589	0.1261	0.0964	0.07738	0.08184	0.1288
Lower Lim.	0.07101	0.03153	0.0922	0.07	0.0717	0.06803	0.1045

Constituent: Beryllium (mg/L) Analysis Run 7/22/2019 1:16 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.003	<0.003	
5/23/2016	<0.003	<0.003	<0.003	<0.003			<0.003
7/12/2016	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
9/1/2016	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
10/20/2016					<0.003	<0.003	<0.003
10/24/2016	<0.003	<0.003	<0.003	<0.003			
12/6/2016					<0.003	<0.003	<0.003
12/7/2016	<0.003	<0.003	<0.003	<0.003			
1/25/2017					<0.003	<0.003	
1/26/2017	<0.003	<0.003	<0.003	<0.003			<0.003
3/21/2017					<0.003	<0.003	
3/22/2017	<0.003	9E-05 (J)	<0.003	<0.003			<0.003
5/23/2017					<0.003	<0.003	<0.003
5/24/2017	<0.003	<0.003	<0.003	<0.003			
4/3/2018					<0.003	<0.003	<0.003
4/4/2018	<0.003	<0.003	<0.003	<0.003			
3/12/2019						<0.003	
3/13/2019	<0.003	0.0001 (J)		6.2E-05 (J)	<0.003		<0.003
3/14/2019			<0.003				
4/2/2019					<0.003		
4/3/2019	<0.003	0.00017 (J)	<0.003			7.4E-05 (J)	<0.003
4/5/2019				<0.003			
Mean	0.0015	0.001124	0.0015	0.001369	0.0015	0.00137	0.0015
Std. Dev.	0	0.0006449	0	0.0004336	0	0.00043	0
Upper Lim.	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Lower Lim.	0.0015	9E-05	0.0015	6.2E-05	0.0015	7.4E-05	0.0015

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#### Parametric and Non-Parametric (NP) Confidence Interval



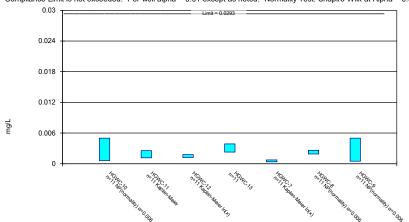
Constituent: Cadmium Analysis Run 7/22/2019 1:15 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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#### Parametric and Non-Parametric (NP) Confidence Interval

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

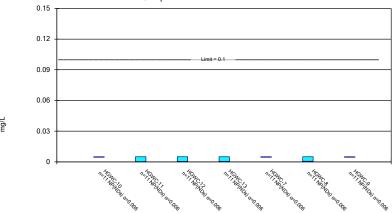


Constituent: Cobalt Analysis Run 7/22/2019 1:15 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

#### Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

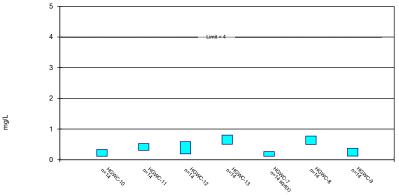


Constituent: Chromium Analysis Run 7/22/2019 1:15 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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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: Cadmium (mg/L) Analysis Run 7/22/2019 1:16 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.001	0.00024 (J)	
5/23/2016	0.000115 (J)	<0.001	<0.001	<0.001			<0.001
7/12/2016	<0.001	<0.001	<0.001	<0.001	<0.001	0.0002 (J)	<0.001
9/1/2016	0.0001 (J)	<0.001	<0.001	<0.001	<0.001	0.0001 (J)	<0.001
10/20/2016					<0.001	0.0001 (J)	0.0002 (J)
10/24/2016	0.0001 (J)	<0.001	<0.001	<0.001			
12/6/2016					0.0002 (J)	0.0017	0.0001 (J)
12/7/2016	0.0001 (J)	0.0001 (J)	0.0002 (J)	<0.001			
1/25/2017					0.0002 (J)	0.0002 (J)	
1/26/2017	<0.001	<0.001	<0.001	<0.001			<0.001
3/21/2017					0.0002 (J)	0.0002 (J)	
3/22/2017	0.0001 (J)	0.0001 (J)	0.0003 (J)	<0.001			7E-05 (J)
5/23/2017					0.0001 (J)	0.0003 (J)	<0.001
5/24/2017	0.0002 (J)	<0.001	9E-05 (J)	<0.001			
4/3/2018					<0.001	<0.001	<0.001
4/4/2018	<0.001	<0.001	<0.001	<0.001			
3/12/2019						0.0002 (J)	
3/13/2019	<0.001	<0.001		<0.001	<0.001		<0.001
3/14/2019			<0.001				
4/2/2019					<0.001		
4/3/2019	0.0001 (J)	9.6E-05 (J)	<0.001			0.00032 (J)	<0.001
4/5/2019				<0.001			
Mean	0.0002559	0.0003905	0.0004173	0.0005	0.0003818	0.0003691	0.0003973
Std. Dev.	0.0001957	0.0001875	0.0001493	0	0.0001662	0.0004551	0.0001786
Upper Lim.	0.0005	0.0005	0.0005	0.0005	0.0005	0.0004919	0.0005
Lower Lim.	0.0001	9.6E-05	9E-05	0.0005	0.0001	0.0001335	7E-05

Constituent: Chromium (mg/L) Analysis Run 7/22/2019 1:16 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.01	<0.01	
5/23/2016	<0.01	<0.01	<0.01	<0.01			<0.01
7/12/2016	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
9/1/2016	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
10/20/2016					<0.01	<0.01	<0.01
10/24/2016	<0.01	<0.01	<0.01	<0.01			
12/6/2016					<0.01	<0.01	<0.01
12/7/2016	<0.01	<0.01	<0.01	<0.01			
1/25/2017					<0.01	<0.01	
1/26/2017	<0.01	<0.01	<0.01	<0.01			<0.01
3/21/2017					<0.01	0.0005 (J)	
3/22/2017	<0.01	0.0003 (J)	0.0004 (J)	0.0004 (J)			<0.01
5/23/2017					<0.01	<0.01	<0.01
5/24/2017	<0.01	<0.01	<0.01	<0.01			
4/3/2018					<0.01	<0.01	<0.01
4/4/2018	<0.01	<0.01	<0.01	<0.01			
3/12/2019						<0.01	
3/13/2019	<0.01	<0.01		<0.01	<0.01		<0.01
3/14/2019			0.0025 (J)				
4/2/2019					<0.01		
4/3/2019	0.02	<0.01	<0.01			<0.01	<0.01
4/5/2019				<0.01			
Mean	0.006364	0.004573	0.004355	0.004582	0.005	0.004591	0.005
Std. Dev.	0.004523	0.001417	0.001511	0.001387	0	0.001357	0
Upper Lim.	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Lower Lim.	0.005	0.0003	0.0004	0.0004	0.005	0.0005	0.005

Constituent: Cobalt (mg/L) Analysis Run 7/22/2019 1:16 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

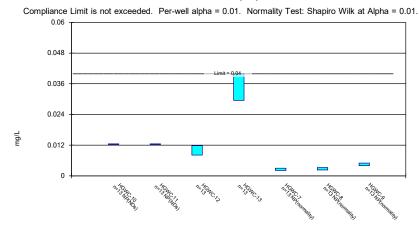
	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.01	0.00207 (J)	
5/23/2016	<0.01	<0.01	<0.01	0.00361 (J)			<0.01
7/12/2016	0.0006 (J)	0.0021 (J)	0.0018 (J)	0.0032 (J)	0.0003 (J)	0.0019 (J)	0.0006 (J)
9/1/2016	0.0007 (J)	0.0025 (J)	0.0016 (J)	0.0033 (J)	<0.01	0.0023 (J)	0.0007 (J)
10/20/2016					0.0008 (J)	0.002 (J)	0.002 (J)
10/24/2016	0.0009 (J)	0.0032 (J)	0.0017 (J)	0.004 (J)			
12/6/2016					0.0009 (J)	0.0026 (J)	0.0011 (J)
12/7/2016	0.0012 (J)	0.003 (J)	0.0021 (J)	0.0034 (J)			
1/25/2017					0.0005 (J)	0.002 (J)	
1/26/2017	<0.01	0.0014 (J)	0.0016 (J)	0.0024 (J)			0.0006 (J)
3/21/2017					0.0005 (J)	0.0023 (J)	
3/22/2017	0.0006 (J)	0.0014 (J)	0.0018 (J)	0.0026 (J)			0.0005 (J)
5/23/2017					0.0005 (J)	0.0023 (J)	0.0006 (J)
5/24/2017	0.0006 (J)	0.0008 (J)	0.0015 (J)	0.0022 (J)			
4/3/2018					<0.01	<0.01	<0.01
4/4/2018	<0.01	<0.01	<0.01	<0.01			
3/12/2019						0.002 (J)	
3/13/2019	<0.01	0.00098 (J)		0.0022 (J)	0.00067 (J)		0.00065 (J)
3/14/2019			0.0011 (J)				
4/2/2019					0.00069 (J)		
4/3/2019	<0.01	0.0018 (J)	0.0011 (J)			0.0019 (J)	0.00069 (J)
4/5/2019				0.0017 (J)			
Mean	0.002691	0.002471	0.002209	0.003055	0.001805	0.002397	0.001585
Std. Dev.	0.002217	0.001466	0.00141	0.0009549	0.002058	0.0008899	0.00174
Upper Lim.	0.005	0.002567	0.001767	0.003851	0.0007331	0.0026	0.005
Lower Lim.	0.0006	0.001137	0.001211	0.00226	0.0003532	0.0019	0.0005

Constituent: Fluoride (mg/L) Analysis Run 7/22/2019 1:16 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					0.0828 (J)	0.499	
5/23/2016	0.0394 (J)	0.203 (J)	0.212 (J)	0.2587 (J)			<0.3
7/12/2016	0.15 (J)	0.44	0.31	0.53	0.2 (J)	0.67	0.24 (J)
9/1/2016	0.5	0.67	0.62	0.74	0.51	0.94	0.46
10/20/2016					0.4	0.56	0.56
10/24/2016	0.06 (J)	0.26 (J)	0.19 (J)	0.31			
12/6/2016					0.26 (J)	0.76	0.31
12/7/2016	0.44	0.55	0.73	1			
1/25/2017					0.24 (J)	1.1	
1/26/2017	0.29 (J)	0.27 (J)	0.12 (J)	0.68			0.004 (J)
3/21/2017					0.13 (J)	0.46	
3/22/2017	0.34	0.66	0.44	0.76			0.28 (J)
5/23/2017					0.11 (J)	0.65	0.29 (J)
5/24/2017	0.13 (J)	0.35	0.34	0.54			
10/3/2017	0.46	0.56	0.58	0.83	0.17 (J)	0.66	0.53
4/3/2018					<0.3	0.39	<0.3
4/4/2018	<0.3	0.39	<0.3	0.65			
6/5/2018	<0.3	0.24 (J)		0.47	0.099 (J)		
6/6/2018			0.21 (J)			0.46	0.12 (J)
10/2/2018	0.17 (J)				<0.3	0.51	0.031 (J)
10/3/2018		0.31	0.15 (J)				
10/5/2018				0.77			
3/12/2019						0.58	
3/13/2019	0.17 (J)	0.51		0.78	0.12 (J)		0.14 (J)
3/14/2019			1.1				
4/2/2019					0.097 (J)		
4/3/2019	0.082 (J)	0.43	0.3 (J)			0.63	0.14 (J)
4/5/2019				0.83			
Mean	0.2237	0.4174	0.3894	0.6535	0.1942	0.6335	0.2432
Std. Dev.	0.1541	0.1546	0.2802	0.2089	0.1242	0.1943	0.174
Upper Lim.	0.3328	0.5268	0.5879	0.8014	0.2628	0.7712	0.3665
Lower Lim.	0.1145	0.3079	0.191	0.5055	0.1122	0.4958	0.1199

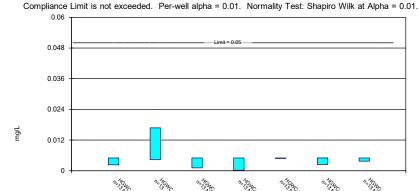
## Parametric and Non-Parametric (NP) Confidence Interval



Constituent: Lithium Analysis Run 7/22/2019 1:15 AM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

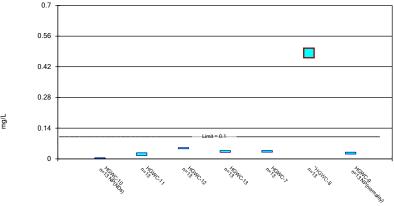
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## Parametric and Non-Parametric (NP) Confidence Interval



#### Parametric and Non-Parametric (NP) Confidence Interval

Compliance limit is exceeded.\* Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.

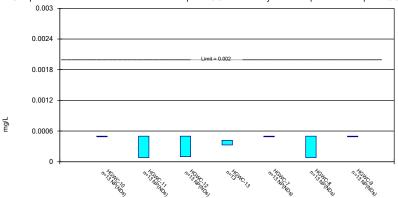


Constituent: Molybdenum Analysis Run 7/22/2019 1:15 AM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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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: Lithium (mg/L) Analysis Run 7/22/2019 1:16 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.025	<0.025	
5/23/2016	<0.025	<0.025	0.0107 (J)	0.0422 (J)			<0.025
7/12/2016	<0.025	<0.025	0.0113 (J)	0.0366 (J)	0.0021 (J)	0.0023 (J)	0.004 (J)
9/1/2016	<0.025	<0.025	0.0118 (J)	0.04 (J)	0.0025 (J)	0.0029 (J)	0.0044 (J)
10/20/2016					0.0021 (J)	0.0027 (J)	0.0027 (J)
10/24/2016	<0.025	<0.025	0.0114 (J)	0.0435 (J)			
12/6/2016					0.0026 (J)	0.0032 (J)	0.005 (J)
12/7/2016	<0.025	<0.025	0.0155 (J)	0.0477 (J)			
1/25/2017					0.0024 (J)	0.0026 (J)	
1/26/2017	<0.025	<0.025	0.0099 (J)	0.0342 (J)			0.0042 (J)
3/21/2017					0.0026 (J)	0.0029 (J)	
3/22/2017	<0.025	<0.025	0.0098 (J)	0.0353 (J)			0.0043 (J)
5/23/2017					0.0026 (J)	0.0029 (J)	0.0048 (J)
5/24/2017	<0.025	<0.025	0.0105 (J)	0.0317 (J)			
4/3/2018					0.0023 (J)	0.0025 (J)	0.0043 (J)
4/4/2018	<0.025	<0.025	0.008 (J)	0.031 (J)			
6/5/2018	<0.025	<0.025		0.031 (J)	0.0022 (J)		
6/6/2018			0.0095 (J)			0.0023 (J)	0.0043 (J)
10/2/2018	<0.025				0.003 (J)	0.0025 (J)	0.004 (J)
10/3/2018		<0.025	0.0083 (J)				
10/5/2018				0.027 (J)			
3/12/2019						0.0025 (J)	
3/13/2019	<0.025	<0.025		0.029 (J)	0.0024 (J)		0.004 (J)
3/14/2019			0.0058 (J)				
4/2/2019					0.002 (J)		
4/3/2019	<0.025	<0.025	0.0066 (J)			0.0025 (J)	0.004 (J)
4/5/2019				0.023 (J)			
Mean	0.0125	0.0125	0.009931	0.03478	0.003177	0.003408	0.004808
Std. Dev.	0	0	0.002487	0.007071	0.002814	0.002745	0.002373
Upper Lim.	0.0125	0.0125	0.01178	0.04004	0.003	0.0032	0.005
Lower Lim.	0.0125	0.0125	0.008082	0.02953	0.0021	0.0023	0.004

Constituent: Molybdenum (mg/L) Analysis Run 7/22/2019 1:16 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					0.028	0.446	
5/23/2016	<0.01	0.0164	0.0413 (J)	0.027			0.0187
7/12/2016	0.0013 (J)	0.0251	0.0484	0.0316	0.0273	0.455	0.0229
9/1/2016	<0.01	0.0259	0.0474	0.0336	0.0274	0.481	0.0239
10/20/2016					0.036	0.472	0.477
10/24/2016	<0.01	0.0293	0.047	0.0352			
12/6/2016					0.0365	0.52	0.0236
12/7/2016	<0.01	0.0209	0.0432	0.0383			
1/25/2017					0.0317	0.478	
1/26/2017	<0.01	0.0277	0.0484	0.041			0.0234
3/21/2017					0.0346	0.547	
3/22/2017	0.0013 (J)	0.011	0.0494	0.0426			0.0219
5/23/2017					0.0336	0.482	0.0242
5/24/2017	0.0014 (J)	0.0373	0.047	0.04			
4/3/2018					0.032	0.44	0.025
4/4/2018	<0.01	0.013	0.052	0.027			
6/5/2018	<0.01	0.029		0.027	0.036		
6/6/2018			0.054			0.49	0.027
10/2/2018	<0.01				0.039	0.47	0.028
10/3/2018		0.02	0.054				
10/5/2018				0.033			
3/12/2019						0.5	
3/13/2019	<0.01	0.012		0.033	0.04		0.028
3/14/2019			0.046				
4/2/2019					0.041		
4/3/2019	0.0021 (J)	0.01	0.049			0.5	0.03
4/5/2019				0.03			
Mean	0.003931	0.02135	0.04824	0.03379	0.03408	0.4832	0.05951
Std. Dev.	0.00168	0.008519	0.003706	0.005395	0.004641	0.02946	0.1255
Upper Lim.	0.005	0.02769	0.05099	0.0378	0.03754	0.5051	0.03
Lower Lim.	0.0014	0.01502	0.04548	0.02978	0.03063	0.4612	0.0219

Constituent: Selenium (mg/L) Analysis Run 7/22/2019 1:16 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.01	<0.01	
5/23/2016	<0.01	0.0106	<0.01	<0.01			<0.01
7/12/2016	<0.01	0.0057 (J)	<0.01	<0.01	<0.01	<0.01	<0.01
9/1/2016	<0.01	0.0057 (J)	<0.01	<0.01	<0.01	<0.01	<0.01
10/20/2016					<0.01	<0.01	<0.01
10/24/2016	<0.01	0.0021 (J)	<0.01	<0.01			
12/6/2016					<0.01	0.0024 (J)	0.0037 (J)
12/7/2016	<0.01	0.0015 (J)	0.0011 (J)	<0.01			
1/25/2017					<0.01	<0.01	
1/26/2017	0.0041 (J)	0.0062 (J)	<0.01	<0.01			<0.01
3/21/2017					<0.01	<0.01	
3/22/2017	<0.01	0.0263	<0.01	<0.01			<0.01
5/23/2017					<0.01	<0.01	<0.01
5/24/2017	<0.01	0.0038 (J)	<0.01	<0.01			
4/3/2018					<0.01	<0.01	<0.01
4/4/2018	<0.01	0.021	<0.01	<0.01			
6/5/2018	<0.01	0.0062 (J)		<0.01	<0.01		
6/6/2018			<0.01			<0.01	<0.01
10/2/2018	0.0023 (J)				<0.01	<0.01	<0.01
10/3/2018		0.009 (J)	<0.01				
10/5/2018				<0.01			
3/12/2019						<0.01	
3/13/2019	0.0015 (J)	0.023		<0.01	<0.01		<0.01
3/14/2019			<0.01				
4/2/2019					<0.01		
4/3/2019	<0.01	0.016	<0.01			<0.01	<0.01
4/5/2019				0.00018 (J)			
Mean	0.004454	0.01055	0.0047	0.004629	0.005	0.0048	0.0049
Std. Dev.	0.001172	0.008307	0.001082	0.001337	0	0.0007211	0.0003606
Upper Lim.	0.005	0.01672	0.005	0.005	0.005	0.005	0.005
Lower Lim.	0.0023	0.004369	0.0011	0.00018	0.005	0.0024	0.0037

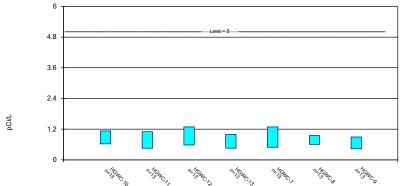
Constituent: Thallium (mg/L) Analysis Run 7/22/2019 1:16 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.001	<0.001	
5/23/2016	<0.001	<0.001	<0.001	0.000378 (J)			<0.001
7/12/2016	<0.001	8E-05 (J)	0.0002 (J)	0.0004 (J)	<0.001	7E-05 (J)	<0.001
9/1/2016	<0.001	<0.001	<0.001	0.0004 (J)	<0.001	<0.001	<0.001
10/20/2016					<0.001	<0.001	<0.001
10/24/2016	<0.001	<0.001	<0.001	0.0005 (J)			
12/6/2016					<0.001	<0.001	<0.001
12/7/2016	<0.001	<0.001	<0.001	0.0004 (J)			
1/25/2017					<0.001	<0.001	
1/26/2017	<0.001	<0.001	<0.001	0.0004 (J)			<0.001
3/21/2017					<0.001	9E-05 (J)	
3/22/2017	<0.001	<0.001	0.0001 (J)	0.0004 (J)			<0.001
5/23/2017					<0.001	8E-05 (J)	<0.001
5/24/2017	<0.001	8E-05 (J)	9E-05 (J)	0.0003 (J)			
4/3/2018					<0.001	<0.001	<0.001
4/4/2018	<0.001	<0.001	<0.001	0.00032 (J)			
6/5/2018	<0.001	<0.001		0.00035 (J)	<0.001		
6/6/2018			<0.001			<0.001	<0.001
10/2/2018	<0.001				<0.001	<0.001	<0.001
10/3/2018		<0.001	<0.001				
10/5/2018				0.00025 (J)			
3/12/2019						<0.001	
3/13/2019	<0.001	<0.001		0.00039 (J)	<0.001		<0.001
3/14/2019			<0.001				
4/2/2019					<0.001		
4/3/2019	<0.001	<0.001	<0.001			<0.001	<0.001
4/5/2019				0.00034 (J)			
Mean	0.0005	0.0004354	0.0004146	0.0003714	0.0005	0.0004031	0.0005
Std. Dev.	0	0.0001577	0.0001641	6.12E-05	0	0.0001842	0
Upper Lim.	0.0005	0.0005	0.0005	0.0004169	0.0005	0.0005	0.0005
Lower Lim.	0.0005	8E-05	0.0001	0.0003259	0.0005	8E-05	0.0005

## Parametric Confidence Interval

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



Constituent: Total Radium Analysis Run 7/22/2019 1:15 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Constituent: Total Radium (pCi/L) Analysis Run 7/22/2019 1:16 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					0.62 (U)	0.56 (U)	
5/23/2016	0.419 (U)	0.509 (U)	1.12	0.625 (U)			0.826 (U)
7/12/2016	0.855	0.784 (U)	1.61	0.478 (U)	0.283 (U)	0.636 (U)	0.511 (U)
9/1/2016	0.844 (U)	0.261 (U)	1.23	0.595 (U)	0.703 (U)	0.818 (U)	0.762 (U)
10/20/2016					1.97	1.04 (U)	1.17
10/24/2016	0.917 (U)	1.42	1.98	1.54			
12/6/2016					2	0.771 (U)	0.126 (U)
12/7/2016	0.558 (U)	0.781 (U)	0.319 (U)	0.657 (U)			
1/25/2017					1.06 (U)	0.859 (U)	
1/26/2017	0.922 (U)	0.842 (U)	0.54 (U)	1.22			0.515 (U)
3/21/2017					0.668 (U)	0.851 (U)	
3/22/2017	0.751 (U)	0.318 (U)	0.635 (U)	0.285 (U)			0.451 (U)
5/23/2017					0.621 (U)	0.705 (U)	0.924 (U)
5/24/2017	0.725 (U)	0.687 (U)	1.01	0.655 (U)			
4/3/2018					0.538 (U)	0.311 (U)	0.732 (U)
4/4/2018	0.715 (U)	1.5	0.956	0.882 (U)			
6/5/2018	0.718 (U)	0.549 (U)		1.1 (U)	0.985 (U)		
6/6/2018			0.424 (U)			0.896 (U)	0.813 (U)
10/2/2018	0.948				0.837 (U)	1.21	0.61 (U)
10/3/2018		1.48	0.57 (U)				
10/5/2018				0.558 (U)			
3/12/2019						0.544 (U)	
3/13/2019	1.19 (U)	0.584 (U)		0.39 (U)	0.403 (U)		1 (U)
3/14/2019			0.992 (U)				
4/2/2019					0.865 (U)		
4/3/2019	1.82 (U)	0.36 (U)	0.734 (U)			0.885 (U)	0.156 (U)
4/5/2019				0.422 (U)			
Mean	0.8755	0.775	0.9323	0.7236	0.8887	0.7758	0.6612
Std. Dev.	0.3415	0.4335	0.4777	0.3649	0.5322	0.2309	0.3083
Upper Lim.	1.129	1.097	1.288	0.9949	1.284	0.9476	0.8905
Lower Lim.	0.6216	0.4527	0.5771	0.4523	0.493	0.6041	0.432

# Outlier Analysis - Significant Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1 Printed 7/21/2019, 10:31 PM

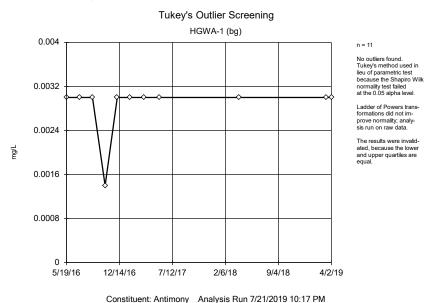
Constituent Name	Well	Outlier Foun	<u>id Outlier Value(s)</u>	Date(s)	Method	<u>Alpha</u>	<u>N</u>	<u>Mean</u>	Standard Deviation	<u>n Distributio</u>	<u>Normality Test</u>
Boron (mg/L)	HGWA-1 (bg)	Yes	0.0782	5/22/2017	NP	NaN	12	0.02239	0.01809	In(x)	ShapiroWilk
Boron (mg/L)	HGWA-2 (bg)	Yes	0.0173,0.0475	8/30/2016,5/22/2017	NP	NaN	12	0.03436	0.006732	x^2	ShapiroWilk
Chloride (mg/L)	HGWA-3 (bg)	Yes	7.2,7.5	12/6/2016,3/21/2017	NP (nrm)	NaN	12	6.528	0.4227	unknown	ShapiroWilk
Lithium (mg/L)	HGWA-3 (bg)	Yes	0.05	5/19/2016	NP	NaN	13	0.006608	0.01304	In(x)	ShapiroWilk

## Outlier Analysis - All Results

Data: Hammond AP-1 Plant Hammond Client: Georgia Power Company Printed 7/21/2019, 10:31 PM Constituent Name Well Outlier Found Outlier Value(s) Method Standard Deviation Distribution Normality Test Date(s) Alpha N Mean 0.002855 0.0004824 Antimony (mg/L) HGWA-1 (bg) n/a n/a n/a NP (nrm) NaN 11 unknown ShapiroWilk NP (nrm) Antimony (mg/L) HGWA-2 (bg) n/a n/a NaN 11 0.003 0 unknown ShapiroWilk n/a n/a NP (nrm) NaN 11 0.002755 0.0008141 Antimony (mg/L) HGWA-3 (bg) n/a n/a unknown ShapiroWilk Arsenic (mg/L) HGWA-1 (bg) n/a n/a n/a NP (nrm) NaN 13 0.004654 0.001248 unknown ShapiroWilk unknown Arsenic (mg/L) HGWA-2 (bg) No n/a n/a NP (nrm) NaN 13 0.003242 0.002011 ShapiroWilk Arsenic (mg/L) HGWA-3 (ba) No n/a n/a NP (nrm) NaN 13 0.003048 0.002197 unknown ShapiroWilk Barium (mg/L) HGWA-1 (bg) No n/a n/a NP NaN 13 0.03156 0.00493 In(x) ShapiroWilk NP Barium (mg/L) HGWA-2 (bg) No n/a n/a NaN 13 0.1112 0.01083 In(x) ShapiroWilk Barium (mg/L) HGWA-3 (ba) No n/a NP NaN 13 0.1217 0.00876 In(x) ShapiroWilk n/a Beryllium (mg/L) HGWA-1 (bg) n/a n/a NP (nrm) NaN 11 0.003 unknown ShapiroWilk n/a HGWA-2 (bg) 0.0009109 0.001342 Beryllium (mg/L) No n/a n/a NP (nrm) NaN 11 unknown ShapiroWilk Beryllium (mg/L) HGWA-3 (bg) n/a NP (nrm) NaN 11 0.003 0 unknown ShapiroWilk n/a n/a Boron (mg/L) HGWA-1 (bg) Yes 0.0782 5/22/2017 NΡ NaN 12 0.02239 0.01809 In(x) **ShapiroWilk** 0.0173,0.0475 8/30/2016.5/22/2017 NP NaN 12 0.03436 0.006732 x^2 ShapiroWilk Boron (mg/L) HGWA-2 (bg) Yes NP (nrm) Boron (mg/L) HGWA-3 (bg) No n/a n/a NaN 12 0.01623 0.01605 unknown ShapiroWilk Cadmium (mg/L) HGWA-1 (bg) n/a NP (nrm) NaN 11 0.001 0 unknown ShapiroWilk n/a n/a NP (nrm) Cadmium (mg/L) HGWA-2 (bg) No n/a n/a NaN 11 0.0005955 0.0004652 unknown ShapiroWilk Cadmium (mg/L) HGWA-3 (bg) n/a NP (nrm) NaN 11 0.001 0 unknown ShapiroWilk n/a n/a Calcium (mg/L) 12 109.3 HGWA-1 (bg) No n/a n/a NP (nrm) NaN 14.2 unknown ShapiroWilk Calcium (mg/L) HGWA-2 (bg) No n/a n/a NP NaN 12 20.73 2 538 In(x) ShapiroWilk Calcium (mg/L) HGWA-3 (bg) No n/a n/a NP NaN 12 73.23 5.71 x^5 ShapiroWilk n/a NP NaN 12 7.787 4.648 ShapiroWilk Chloride (mg/L) HGWA-1 (bg) No n/a In(x) Chloride (mg/L) HGWA-2 (bg) No n/a n/a NP NaN 12 6.07 0.1786 In(x) ShapiroWilk Chloride (mg/L) HGWA-3 (bg) Yes 7.2,7.5 12/6/2016,3/21/2017 NP (nrm) NaN 12 6.528 0.4227 unknown ShapiroWilk Chromium (ma/L) HGWA-1 (ba) n/a NP (nrm) NaN 11 0.009136 0.002864 unknown ShapiroWilk n/a n/a Chromium (mg/L) HGWA-2 (bg) n/a n/a n/a NP (nrm) NaN 11 0.009809 0.0006332 unknown ShapiroWilk Chromium (mg/L) HGWA-3 (bg) n/a n/a n/a NP (nrm) NaN 11 0.009155 0.002804 unknown ShapiroWilk Cobalt (mg/L) HGWA-1 (bg) n/a NP (nrm) NaN 11 0.009127 0.002895 unknown ShapiroWilk n/a n/a Cobalt (mg/L) HGWA-2 (bg) n/a NP NaN 11 0.02268 0.004426 In(x) ShapiroWilk No n/a NP (nrm) 0.01 n Cobalt (mg/L) HGWA-3 (bg) n/a n/a n/a NaN 11 unknown ShapiroWilk n/a NaN 0.1499 0.08228 ShapiroWilk Fluoride (mg/L) HGWA-1 (bg) No NP (nrm) 14 unknown n/a Fluoride (mg/L) HGWA-2 (bg) No n/a n/a NP (nrm) NaN 14 0.1964 0.1344 unknown ShapiroWilk n/a NP NaN 14 0.1298 0.1047 x^(1/3) ShapiroWilk Fluoride (mg/L) HGWA-3 (bg) No n/a Lead (mg/L) HGWA-1 (bg) n/a n/a n/a NP (nrm) NaN 10 0.005 0 unknown ShapiroWilk Lead (mg/L) HGWA-2 (bg) No n/a n/a NP (nrm) NaN 10 0.004015 0.002077 unknown ShapiroWilk Lead (mg/L) HGWA-3 (bg) No n/a n/a NP (nrm) NaN 10 0.00402 0.002066 unknown ShapiroWilk Lithium (mg/L) HGWA-1 (bg) No n/a n/a NP (nrm) NaN 13 0.03492 0.02354 unknown ShapiroWilk NP (nrm) NaN 0.02516 Lithium (mg/L) HGWA-2 (bg) No n/a n/a 13 0.02389 unknown ShapiroWilk Lithium (mg/L) HGWA-3 (bg) Yes 0.05 5/19/2016 NP NaN 13 0.006608 0.01304 In(x) ShapiroWilk Mercury (mg/L) HGWA-1 (bg) n/a n/a NP (nrm) NaN 10 0.000454 0.0001455 unknown ShapiroWilk n/a Mercury (mg/L) HGWA-2 (bg) n/a n/a n/a NP (nrm) NaN 10 0.000454 0.0001455 unknown ShapiroWilk Mercury (mg/L) HGWA-3 (bg) n/a n/a n/a NP (nrm) NaN 10 0.0005 0 unknown ShapiroWilk Molybdenum (mg/L) HGWA-1 (bg) n/a n/a n/a NP (nrm) NaN 13 0.01 0 unknown ShapiroWilk Molybdenum (mg/L) HGWA-2 (bg) NP (nrm) NaN 13 0.01 0 ShapiroWilk n/a n/a n/a unknown Molybdenum (mg/L) HGWA-3 (bg) n/a n/a n/a NP (nrm) NaN 13 0.01 0 unknown ShapiroWilk NP x^3 pH (s.u.) HGWA-1 (bg) No n/a n/a NaN 14 7.099 0.1123 ShapiroWilk pH (s.u.) HGWA-2 (bg) No n/a n/a NP NaN 14 5.396 0.2201 x^3 ShapiroWilk pH (s.u.) HGWA-3 (bg) No n/a n/a NΡ NaN 14 7.24 0.1978 x^6 ShapiroWilk NP (nrm) NaN n/a 13 0.01 n ShapiroWilk Selenium (mg/L) HGWA-1 (bg) n/a n/a unknown Selenium (mg/L) n/a NP (nrm) NaN 13 0.01 0 HGWA-2 (bg) n/a unknown ShapiroWilk n/a

# Outlier Analysis - All Results

Client: Georgia Power Company Data: Hammond AP-1 Printed 7/21/2019, 10:31 PM Constituent Name Well Outlier Found Outlier Value(s) Date(s) Method Alpha N Mean Standard Deviation Distribution Normality Test Selenium (mg/L) HGWA-3 (bg) n/a NP (nrm) NaN 13 0.01 0 unknown ShapiroWilk n/a n/a NP NaN 12 56.84 15.75 Sulfate (mg/L) HGWA-1 (bg) No n/a n/a In(x) ShapiroWilk Sulfate (mg/L) HGWA-2 (bg) No n/a n/a NP NaN 12 46.27 2.15 x^6 ShapiroWilk Sulfate (mg/L) HGWA-3 (bg) NP NaN 12 45.41 3.06 x^2 ShapiroWilk No n/a n/a Thallium (mg/L) HGWA-1 (bg) NP (nrm) NaN 13 0.001 0 unknown ShapiroWilk n/a n/a n/a Thallium (mg/L) HGWA-2 (bg) n/a n/a n/a NP (nrm) NaN 13 0.0009254 0.000269 unknown ShapiroWilk NaN 13 0.001 ShapiroWilk Thallium (mg/L) HGWA-3 (bg) n/a n/a n/a NP (nrm) 0 unknown Total Dissolved Solids (mg/L) HGWA-1 (bg) NP NaN 12 371.3 ShapiroWilk No n/a n/a 39.11 ln(x) Total Dissolved Solids (mg/L) HGWA-2 (bg) No n/a n/a NP NaN 12 134.7 23.42 normal ShapiroWilk Total Dissolved Solids (mg/L) HGWA-3 (bg) No n/a n/a NP NaN 12 283.7 28.74 In(x) ShapiroWilk Total Radium (pCi/L) NP 0.2734 ShapiroWilk HGWA-1 (bg) n/a NaN 13 0.5268 sqrt(x) No n/a Total Radium (pCi/L) NP NaN 13 0.792 0.2781 ShapiroWilk HGWA-2 (bg) No n/a n/a In(x) Total Radium (pCi/L) HGWA-3 (bg) No n/a n/a NP NaN 13 0.6115 0.284 normal ShapiroWilk



## HGWA-2 (bg) 1.1 n = 11 No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level. 0.88 Data were square root best W statistic (graph shown in original units) 0.66 The results were invalidated, because the lower mg/L and upper quartiles are equal. 0.44 0.22 4/2/19 5/19/16 12/14/16 7/12/17 2/6/18 9/4/18

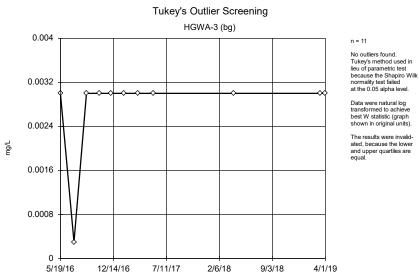
Tukey's Outlier Screening

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Constituent: Antimony Analysis Run 7/21/2019 10:17 PM

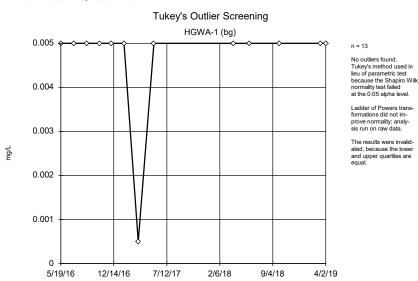
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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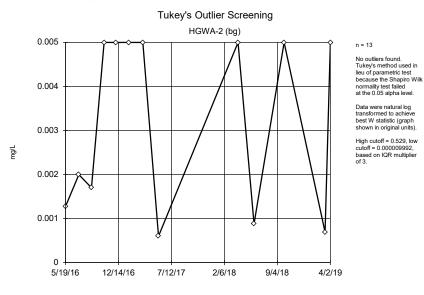
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Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



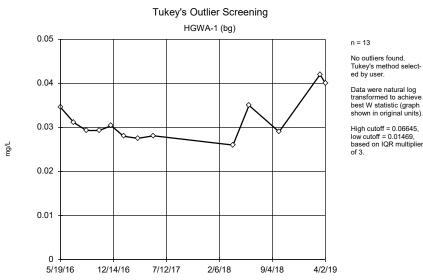
Constituent: Arsenic Analysis Run 7/21/2019 10:17 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



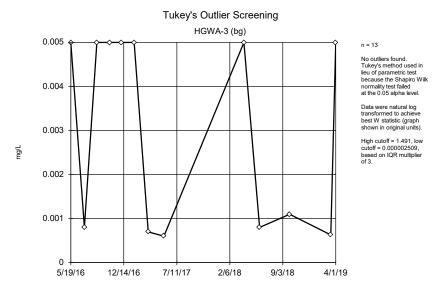
Constituent: Arsenic Analysis Run 7/21/2019 10:17 PM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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Constituent: Barium Analysis Run 7/21/2019 10:17 PM

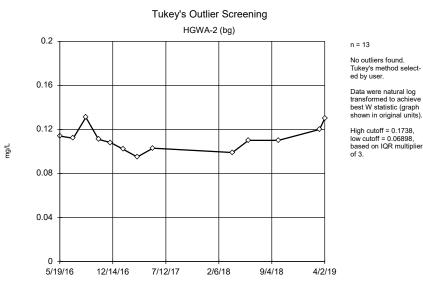
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



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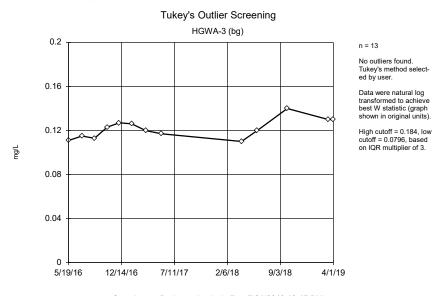
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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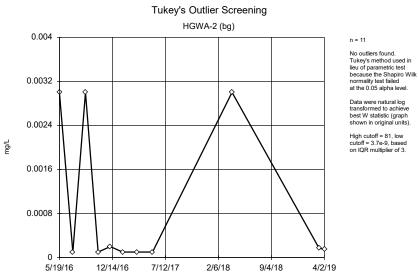
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Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



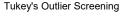
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Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

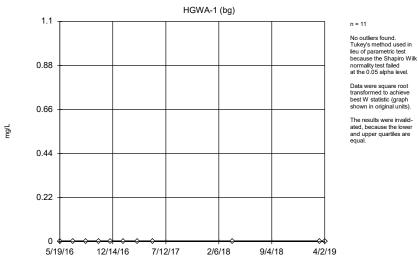
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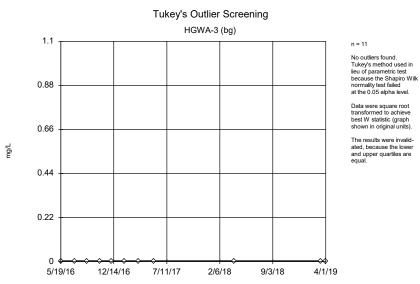
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1





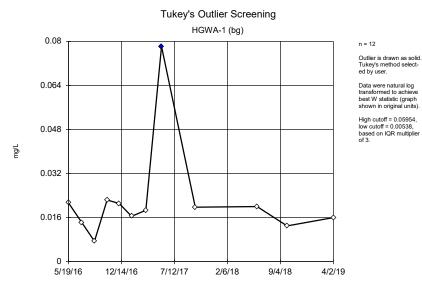
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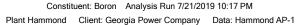
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

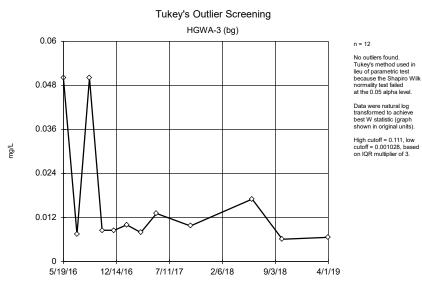


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Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

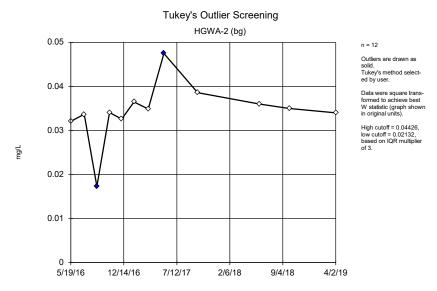






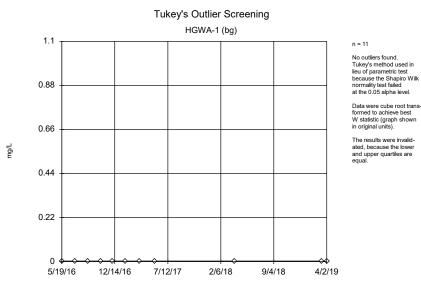
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Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



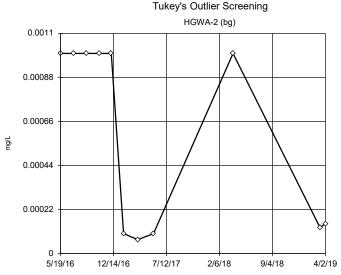
Constituent: Boron Analysis Run 7/21/2019 10:17 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Cadmium Analysis Run 7/21/2019 10:17 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



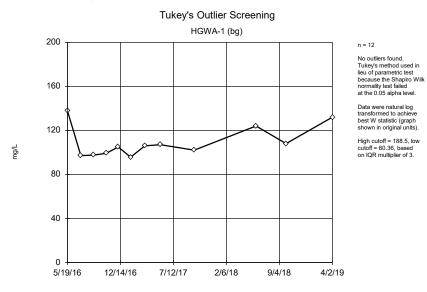
No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.

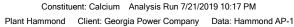
n = 11

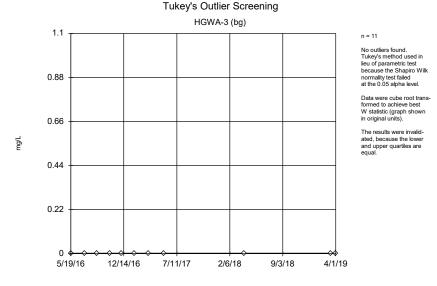
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 1, low cutoff = 1.0e-7, based on IQR multiplier of 3.

Constituent: Cadmium Analysis Run 7/21/2019 10:17 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

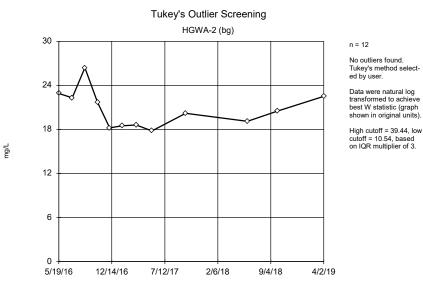




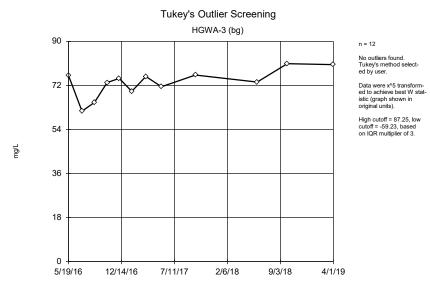


Constituent: Cadmium Analysis Run 7/21/2019 10:17 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

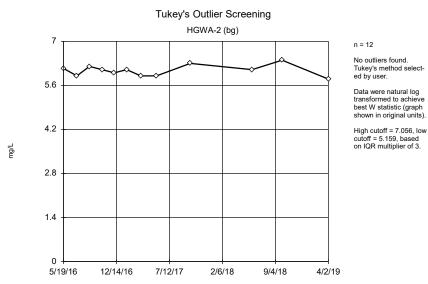




Constituent: Calcium Analysis Run 7/21/2019 10:17 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

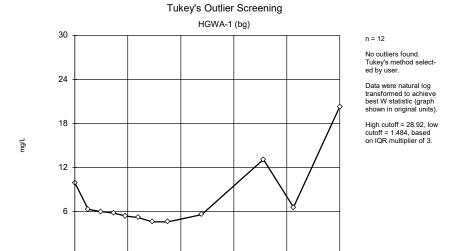


Constituent: Calcium Analysis Run 7/21/2019 10:17 PM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Chloride Analysis Run 7/21/2019 10:17 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Chloride Analysis Run 7/21/2019 10:17 PM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

2/6/18

7/12/17

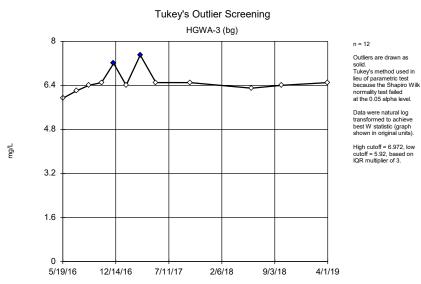
4/2/19

9/4/18

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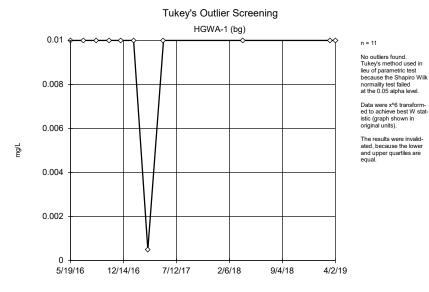
5/19/16

12/14/16

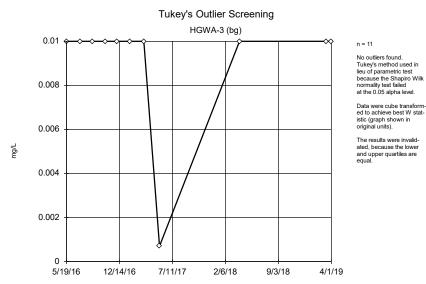


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Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

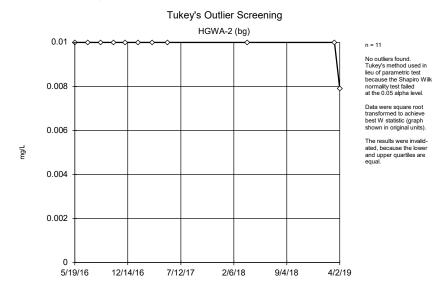


Constituent: Chromium Analysis Run 7/21/2019 10:17 PM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



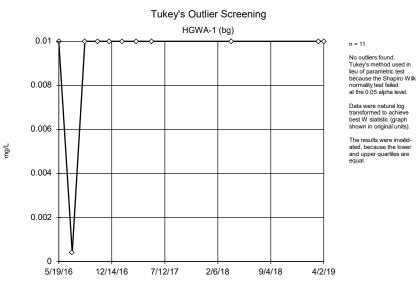
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Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



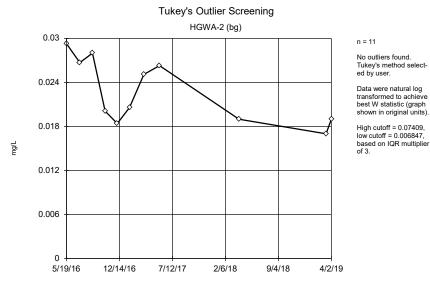
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Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



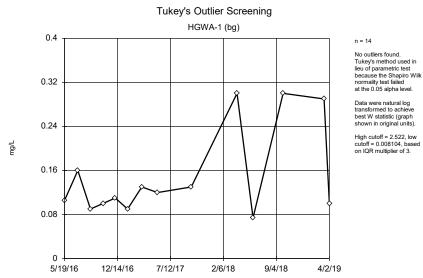
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Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



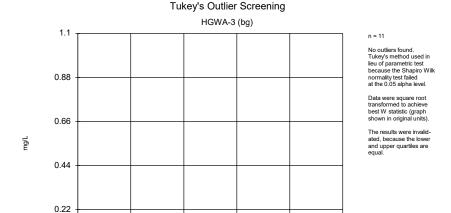
Constituent: Cobalt Analysis Run 7/21/2019 10:17 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Fluoride Analysis Run 7/21/2019 10:17 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Cobalt Analysis Run 7/21/2019 10:17 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

2/6/18

7/11/17

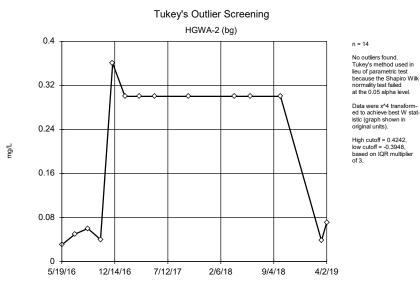
4/1/19

9/3/18

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5/19/16

12/14/16



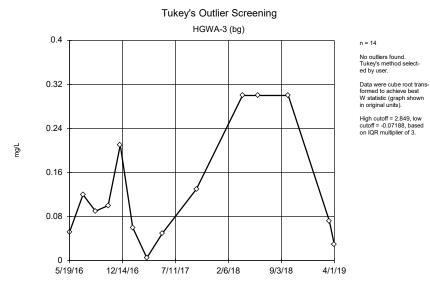
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Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

5/19/16

12/10/16

7/3/17



Constituent: Fluoride Analysis Run 7/21/2019 10:17 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

## Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG Tukey's Outlier Screening HGWA-2 (bg) 0.005 n = 10 No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk 0.004 normality test failed at the 0.05 alpha level Data were natural log transformed to achieve best W statistic (graph shown in original units). 0.003 High cutoff = 2.07, low cutoff = 0.00000162, based on IQR multiplier of 3. 0.002 0.001

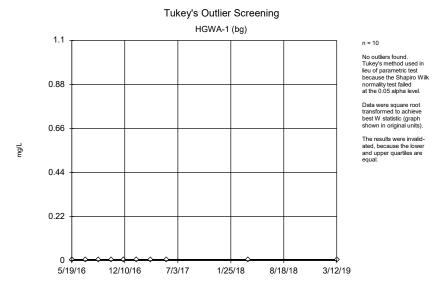
Constituent: Lead Analysis Run 7/21/2019 10:17 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

8/18/18

3/12/19

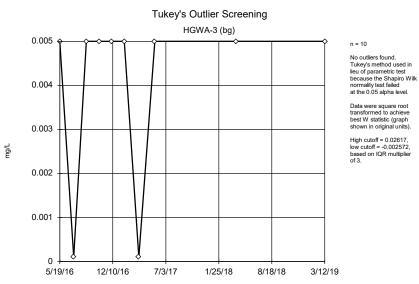
1/25/18



Constituent: Lead Analysis Run 7/21/2019 10:17 PM

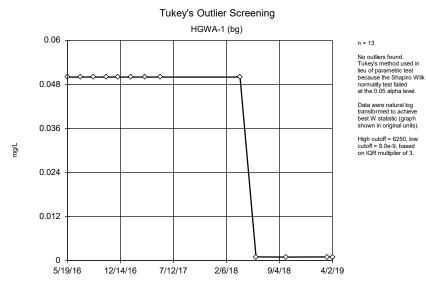
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1





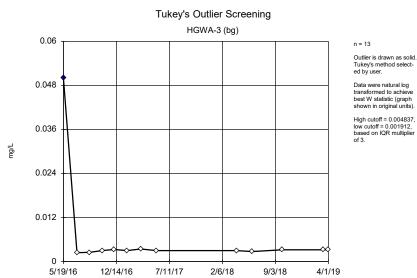
Constituent: Lead Analysis Run 7/21/2019 10:17 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Lithium Analysis Run 7/21/2019 10:17 PM

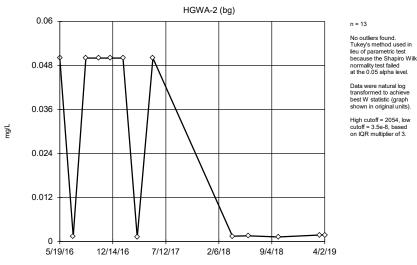
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Lithium Analysis Run 7/21/2019 10:17 PM

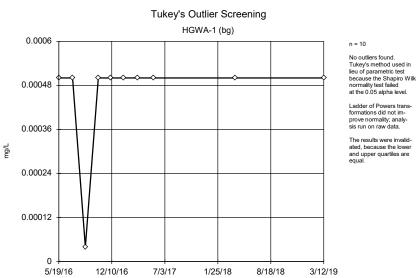
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

## Tukey's Outlier Screening



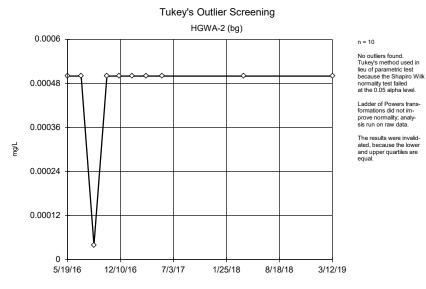
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Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

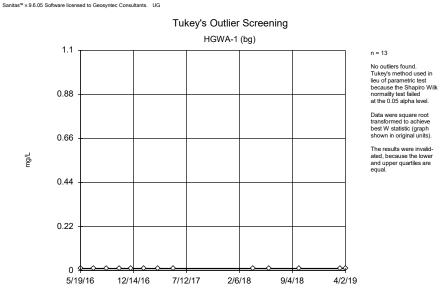


Constituent: Mercury Analysis Run 7/21/2019 10:17 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

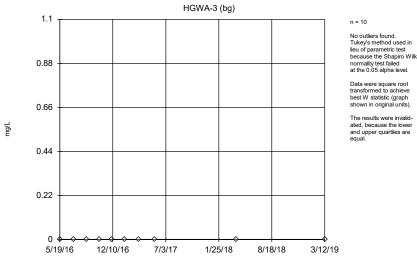


Constituent: Mercury Analysis Run 7/21/2019 10:18 PM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



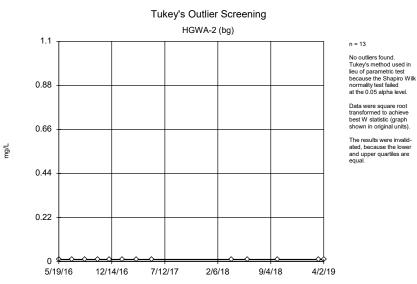
Constituent: Molybdenum Analysis Run 7/21/2019 10:18 PM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

## Tukey's Outlier Screening

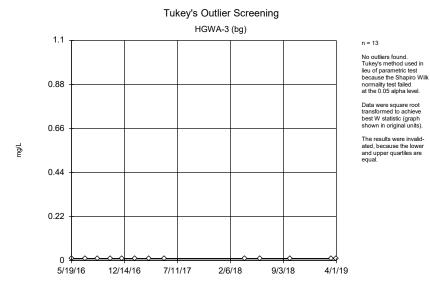


Constituent: Mercury Analysis Run 7/21/2019 10:18 PM

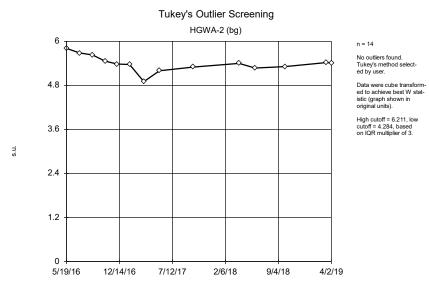
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Molybdenum Analysis Run 7/21/2019 10:18 PM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

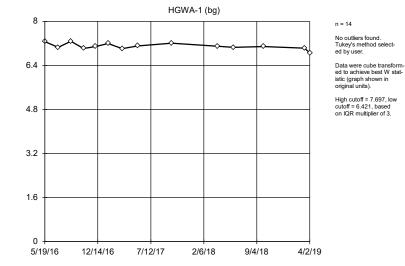


Constituent: Molybdenum Analysis Run 7/21/2019 10:18 PM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

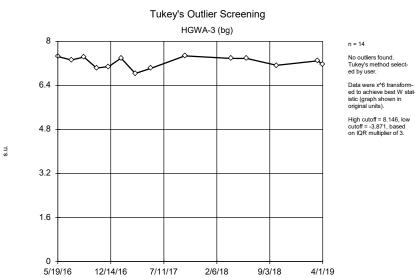


Constituent: pH Analysis Run 7/21/2019 10:18 PM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

## Tukey's Outlier Screening

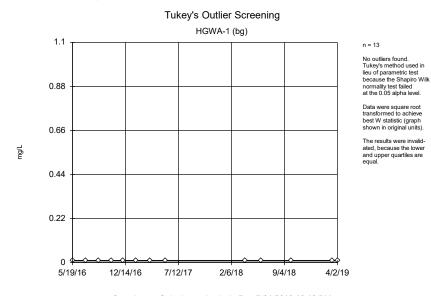


Constituent: pH Analysis Run 7/21/2019 10:18 PM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

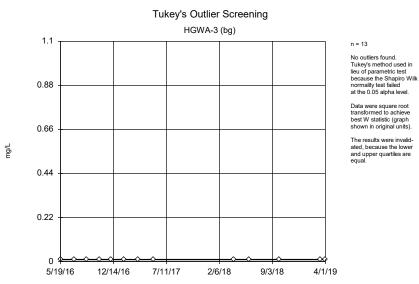


Constituent: pH Analysis Run 7/21/2019 10:18 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

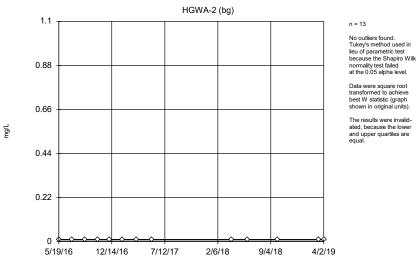


Constituent: Selenium Analysis Run 7/21/2019 10:18 PM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



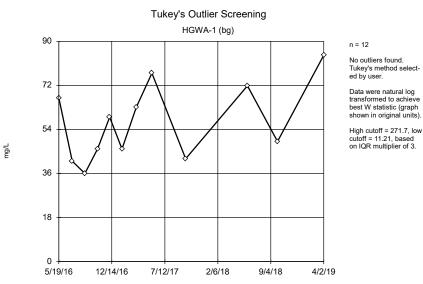
Constituent: Selenium Analysis Run 7/21/2019 10:18 PM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

## Tukey's Outlier Screening



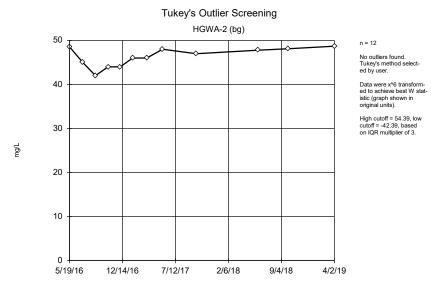
Constituent: Selenium Analysis Run 7/21/2019 10:18 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

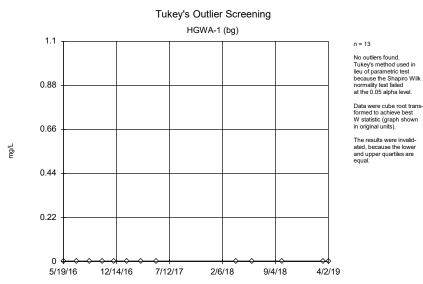


Constituent: Sulfate Analysis Run 7/21/2019 10:18 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

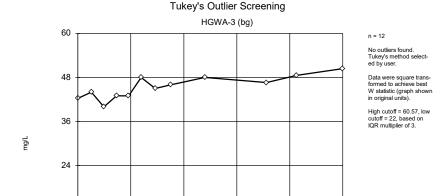


Constituent: Sulfate Analysis Run 7/21/2019 10:18 PM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Thallium Analysis Run 7/21/2019 10:18 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Sulfate Analysis Run 7/21/2019 10:18 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

2/6/18

9/3/18

4/1/19

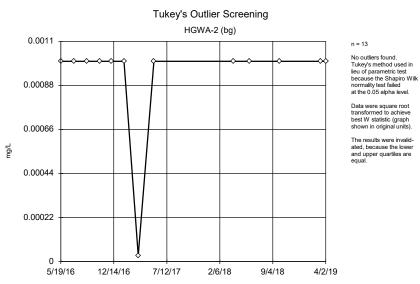
7/11/17

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12

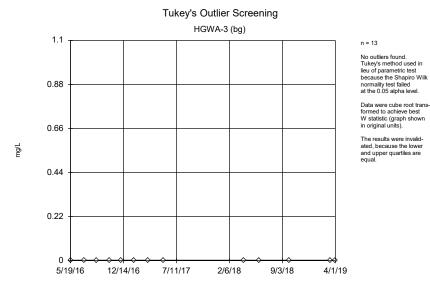
5/19/16

12/14/16



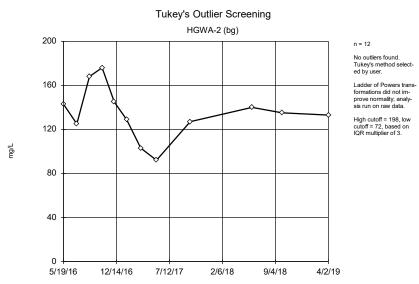
Constituent: Thallium Analysis Run 7/21/2019 10:18 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Thallium Analysis Run 7/21/2019 10:18 PM

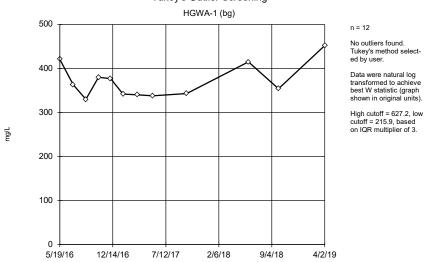
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Total Dissolved Solids Analysis Run 7/21/2019 10:18 PM

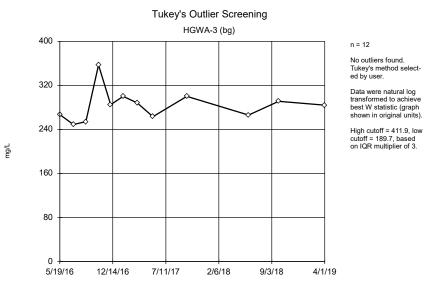
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

## Tukey's Outlier Screening



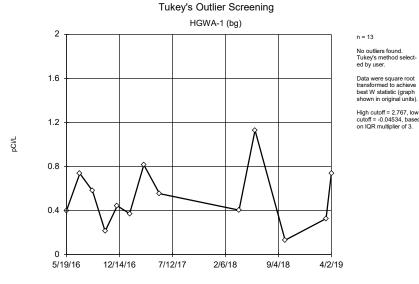
Constituent: Total Dissolved Solids Analysis Run 7/21/2019 10:18 PM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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Constituent: Total Dissolved Solids Analysis Run 7/21/2019 10:18 PM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1





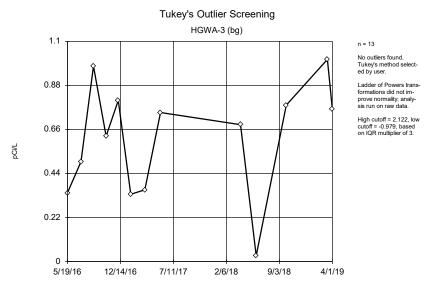
Constituent: Total Radium Analysis Run 7/21/2019 10:18 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

shown in original units).

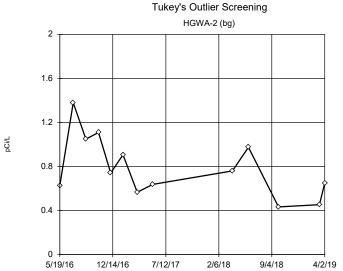
High cutoff = 2.767, low cutoff = -0.04534, based

on IQR multiplier of 3.

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Constituent: Total Radium Analysis Run 7/21/2019 10:18 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Total Radium Analysis Run 7/21/2019 10:18 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

n = 13

No outliers found. Tukey's method selected by user.

Data were natural log transformed to achieve

best W statistic (graph shown in original units).

High cutoff = 4.944, low cutoff = 0.122, based on IQR multiplier of 3.

# Trend Test - Significant Results

	Plant Ham	mond Client: Ge	orgia Power Co	ompany Data:	Hammon	d AP-1	Printed 7/21	2019, 10:52 PM			
Constituent	Well	<u>Slope</u>	Calc.	<u>Critical</u>	Sig.	<u>N</u>	%NDs	Normality	<u>Xform</u>	<u>Alpha</u>	Method
Calcium (mg/L)	HGWA-3 (bg)	3.671	32	30	Yes	12	0	n/a	n/a	0.05	NP
Cobalt (mg/L)	HGWA-2 (bg)	-0.003001	-28	-27	Yes	11	0	n/a	n/a	0.05	NP
Lithium (mg/L)	HGWA-1 (bg)	0	-35	-34	Yes	13	69.23	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWA-2 (bg)	1.418	34	30	Yes	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWA-3 (bg)	2.946	48	30	Yes	12	0	n/a	n/a	0.05	NP

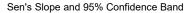
# Trend Test - All Results

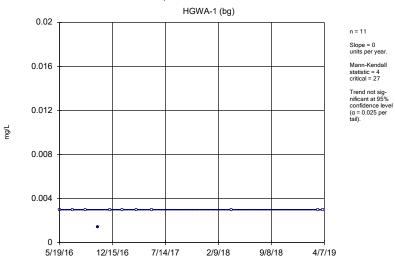
	Plant Ha	mmond Client:	Georgia Power	Company	Data: Hammo	nd AP-1	Printed 7/2	1/2019, 10:52 PI	М		
Constituent	<u>Well</u>	Slope	Calc.	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	%NDs	Normality	<u>Xform</u>	<u>Alpha</u>	Method
Antimony (mg/L)	HGWA-1 (bg)	0	4	27	No	11	90.91	n/a	n/a	0.05	NP
Antimony (mg/L)	HGWA-2 (bg)	0	0	27	No	11	100	n/a	n/a	0.05	NP
Antimony (mg/L)	HGWA-3 (bg)	0	8	27	No	11	90.91	n/a	n/a	0.05	NP
Arsenic (mg/L)	HGWA-1 (bg)	0	0	34	No	13	92.31	n/a	n/a	0.05	NP
Arsenic (mg/L)	HGWA-2 (bg)	0	5	34	No	13	53.85	n/a	n/a	0.05	NP
Arsenic (mg/L)	HGWA-3 (bg)	0	-16	-34	No	13	53.85	n/a	n/a	0.05	NP
Barium (mg/L)	HGWA-1 (bg)	0.00009786	1	34	No	13	0	n/a	n/a	0.05	NP
Barium (mg/L)	HGWA-2 (bg)	-0.0005641	-5	-34	No	13	0	n/a	n/a	0.05	NP
Barium (mg/L)	HGWA-3 (bg)	0.00557	32	34	No	13	0	n/a	n/a	0.05	NP
Beryllium (mg/L)	HGWA-1 (bg)	0	0	27	No	11	100	n/a	n/a	0.05	NP
Beryllium (mg/L)	HGWA-2 (bg)	0	-4	-27	No	11	27.27	n/a	n/a	0.05	NP
Beryllium (mg/L)	HGWA-3 (bg)	0	0	27	No	11	100	n/a	n/a	0.05	NP
Boron (mg/L)	HGWA-1 (bg)	-0.0006149	-6	-30	No	12	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWA-2 (bg)	0.001596	26	30	No	12	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWA-3 (bg)	-0.001203	-16	-30	No	12	16.67	n/a	n/a	0.05	NP
Cadmium (mg/L)	HGWA-1 (bg)	0	0	27	No	11	100	n/a	n/a	0.05	NP
Cadmium (mg/L)	HGWA-2 (bg)	-0.0001955	-17	-27	No	11	54.55	n/a	n/a	0.05	NP
Cadmium (mg/L)	HGWA-3 (bg)	0	0	27	No	11	100	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWA-1 (bg)	6.667	28	30	No	12	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWA-2 (bg)	-1.26	-10	-30	No	12	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWA-3 (bg)	3.671	32	30	Yes	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
Chromium (mg/L)	HGWA-1 (bg)	0	-2	-27	No	11	90.91	n/a	n/a	0.05	NP
Chromium (mg/L)	HGWA-2 (bg)	0	-10	-27	No	11	90.91	n/a	n/a	0.05	NP
Chromium (mg/L)	HGWA-3 (bg)	0	-4	-27	No	11	90.91	n/a	n/a	0.05	NP
Cobalt (mg/L)	HGWA-1 (bg)	0	8	27	No	11	90.91	n/a	n/a	0.05	NP
Cobalt (mg/L)	HGWA-2 (bg)	-0.003001	-28	-27	Yes	11	0	n/a	n/a	0.05	NP
Cobalt (mg/L)	HGWA-3 (bg)	0	0	27	No	11	100	n/a	n/a	0.05	NP
Fluoride (mg/L)	HGWA-1 (bg)	0.02724	19	37	No	14	14.29	n/a	n/a	0.05	NP
Fluoride (mg/L)	HGWA-2 (bg)	0	14	37	No	14	50	n/a	n/a	0.05	NP
Fluoride (mg/L)	HGWA-3 (bg)	0.01182	10	37	No	14	21.43	n/a	n/a	0.05	NP
Lead (mg/L)	HGWA-1 (bg)	0	0	23	No	10	100	n/a	n/a	0.05	NP
Lead (mg/L)	HGWA-2 (bg)	0	-7	-23	No	10	80	n/a	n/a	0.05	NP
Lead (mg/L)	HGWA-3 (bg)	0	4	23	No	10	80	n/a	n/a	0.05	NP
Lithium (mg/L)	HGWA-1 (bg)	0 0004007	-35	-34	Yes	13	69.23	n/a	n/a	0.05	NP
Lithium (mg/L)	HGWA-2 (bg)	-0.0001667	-18	-34	No	13	46.15	n/a	n/a	0.05	NP
Lithium (mg/L) Mercury (mg/L)	HGWA-3 (bg) HGWA-1 (bg)	0.00008259	11	34 23	No No	13	7.692 90	n/a n/a	n/a	0.05 0.05	NP NP
Mercury (mg/L)		0	5			10	90		n/a		NP NP
	HGWA-2 (bg) HGWA-3 (bg)	0	5	23 23	No No	10		n/a	n/a	0.05	NP NP
Mercury (mg/L) Molybdenum (mg/L)	HGWA-3 (bg) HGWA-1 (bg)	0 0	0 0	23 34	No No	10 13	100 100	n/a	n/a	0.05 0.05	NP NP
Molybdenum (mg/L) Molybdenum (mg/L)	HGWA-1 (bg) HGWA-2 (bg)	0	0	34 34	No No	13	100	n/a n/a	n/a n/a	0.05	NP NP
Molybdenum (mg/L) Molybdenum (mg/L)	HGWA-2 (bg)	0	0	34 34	No	13	100	n/a n/a	n/a n/a	0.05	NP NP
	HGWA-3 (bg)	-0.07213	-31	-37	No No	14	0	n/a n/a	n/a n/a	0.05	NP NP
pH (s.u.) pH (s.u.)	HGWA-1 (bg) HGWA-2 (bg)	-0.07213 -0.1014	-31 -31	-37 -37	No	14	0	n/a n/a	n/a n/a	0.05	NP NP
рп (s.u.) pH (s.u.)	HGWA-2 (bg)	-0.1014 -0.03425	-31 -14	-37 -37	No	14	0	n/a n/a	n/a n/a	0.05	NP NP
рп (s.u.) Selenium (mg/L)	HGWA-3 (bg)	0.03425	0	-3 <i>1</i> 34	No	13	100	n/a n/a	n/a n/a	0.05	NP NP
Selenium (mg/L) Selenium (mg/L)	HGWA-1 (bg) HGWA-2 (bg)	0	0	34 34	No	13	100	n/a n/a	n/a n/a	0.05	NP NP
Gelenium (mg/L)	110VVA-2 (bg)	U	U	J <del>-1</del>	INU	13	100	11/a	II/a	0.00	INF

# Trend Test - All Results

	Plant F	Hammond	Client: Georgia Power	Company	Data: Hammo	nd AP-1	Printed 7/2	1/2019, 10:52 P	M		
Constituent	Well	Slope	<u>Calc.</u>	<u>Critical</u>	Sig.	<u>N</u>	%NDs	Normality	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Selenium (mg/L)	HGWA-3 (bg)	0	0	34	No	13	100	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWA-1 (bg)	8.918	25	30	No	12	0	n/a	n/a	0.05	NP
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
Thallium (mg/L)	HGWA-1 (bg)	0	0	34	No	13	100	n/a	n/a	0.05	NP
Thallium (mg/L)	HGWA-2 (bg)	0	0	34	No	13	92.31	n/a	n/a	0.05	NP
Thallium (mg/L)	HGWA-3 (bg)	0	0	34	No	13	100	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWA-1 (bg)	6.354	4	30	No	12	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWA-2 (bg)	-5.334	-14	-30	No	12	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWA-3 (bg)	7.889	11	30	No	12	0	n/a	n/a	0.05	NP
Total Radium (pCi/L)	HGWA-1 (bg)	-0.0106	62 0	34	No	13	0	n/a	n/a	0.05	NP
Total Radium (pCi/L)	HGWA-2 (bg)	-0.152	-28	-34	No	13	0	n/a	n/a	0.05	NP
Total Radium (pCi/L)	HGWA-3 (bg)	0.08502	2 16	34	No	13	0	n/a	n/a	0.05	NP

Hollow symbols indicate censored values.





Constituent: Antimony Analysis Run 7/21/2019 10:50 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Slope = 0

units per year.

Mann-Kendall

Trend not sig-nificant at 95%

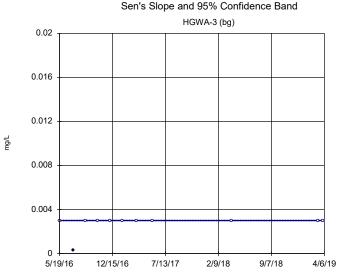
confidence level

 $(\alpha = 0.025 \text{ per}$ 

critical = 27

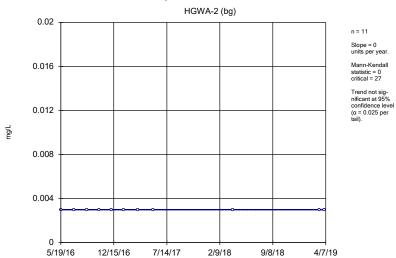
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Hollow symbols indicate censored values.



Constituent: Antimony Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1 Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG Hollow symbols indicate censored values.

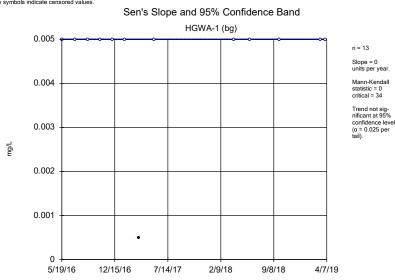
## Sen's Slope and 95% Confidence Band



Constituent: Antimony Analysis Run 7/21/2019 10:50 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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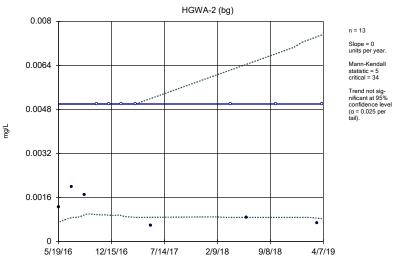
Hollow symbols indicate censored values.



Constituent: Arsenic Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

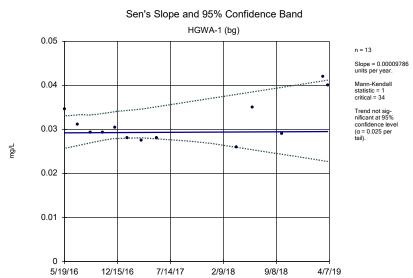
Hollow symbols indicate censored values.





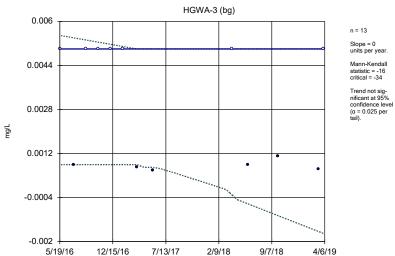
Constituent: Arsenic Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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Constituent: Barium Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1 Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG Hollow symbols indicate censored values.

## Sen's Slope and 95% Confidence Band



Constituent: Arsenic Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG

## Sen's Slope and 95% Confidence Band HGWA-2 (bg) 0.2 Slope = -0.0005641 units per year. Mann-Kendall 0.16 statistic = -5 critical = -34 Trend not sig-nificant at 95% confidence level 0.12 $(\alpha = 0.025 \text{ per})$ mg/L 0.08 0.04 5/19/16 12/15/16 7/14/17 2/9/18 9/8/18 4/7/19

Constituent: Barium Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

## Sen's Slope and 95% Confidence Band HGWA-3 (bg) 0.2 Slope = 0.00557 units per year. Mann-Kendall 0.16 statistic = 32 critical = 34 Trend not sig-nificant at 95% confidence level 0.12 (α = 0.025 per tail). mg/L 0.08 0.04 5/19/16

Constituent: Barium Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

2/9/18

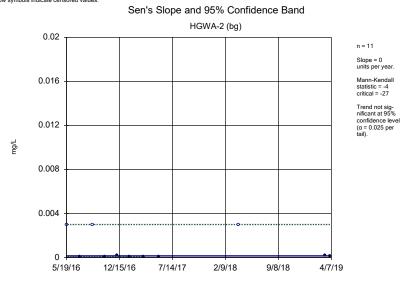
9/7/18

4/6/19

7/13/17

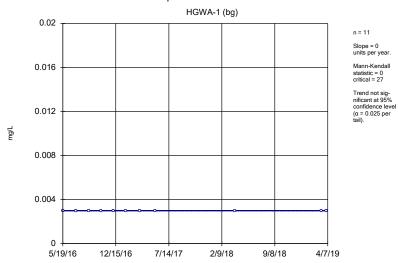
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12/15/16



Constituent: Beryllium Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

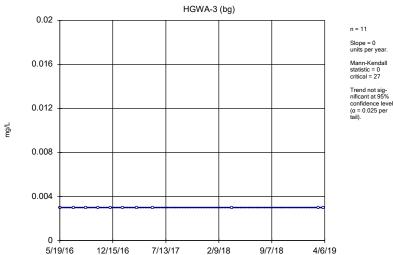
## Sen's Slope and 95% Confidence Band



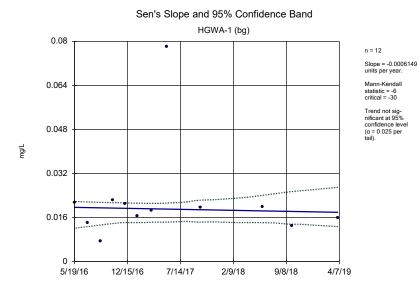
Constituent: Beryllium Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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

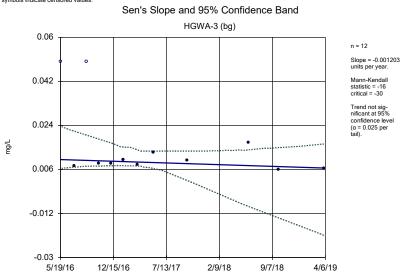


Constituent: Beryllium Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Boron Analysis Run 7/21/2019 10:51 PM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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Constituent: Boron Analysis Run 7/21/2019 10:51 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

# HGWA-2 (bg) 0.048 0.048 0.036 0.036 0.024

Sen's Slope and 95% Confidence Band

Constituent: Boron Analysis Run 7/21/2019 10:51 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

2/9/18

7/14/17

4/7/19

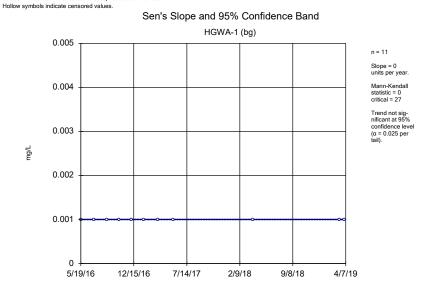
9/8/18

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5/19/16

12/15/16

0.012

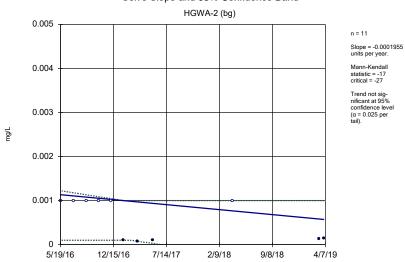


Constituent: Cadmium Analysis Run 7/21/2019 10:51 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Hollow symbols indicate censored values.

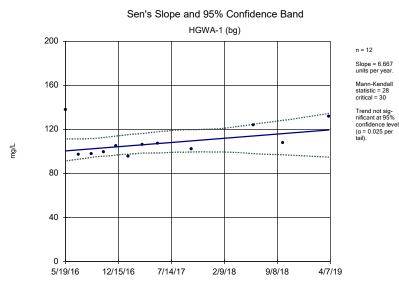




Constituent: Cadmium Analysis Run 7/21/2019 10:51 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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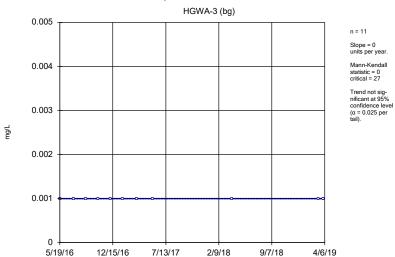


Constituent: Calcium Analysis Run 7/21/2019 10:51 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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## Sen's Slope and 95% Confidence Band

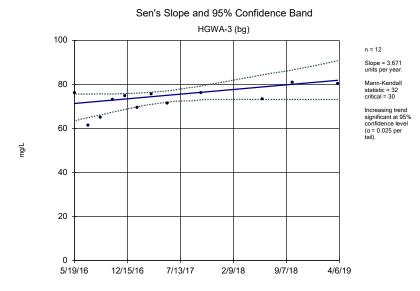


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Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

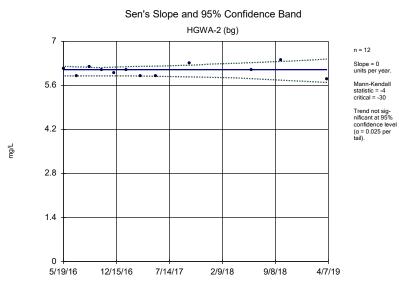
Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG

## Sen's Slope and 95% Confidence Band HGWA-2 (bg) 30 n = 12 Slope = -1.26 units per year. Mann-Kendall 24 statistic = -10 critical = -30 Trend not sig-nificant at 95% confidence level 18 $(\alpha = 0.025 \text{ per})$ mg/L 12 6 5/19/16 12/15/16 7/14/17 2/9/18 9/8/18 4/7/19

Constituent: Calcium Analysis Run 7/21/2019 10:51 PM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

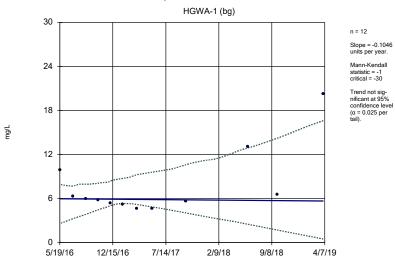


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Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

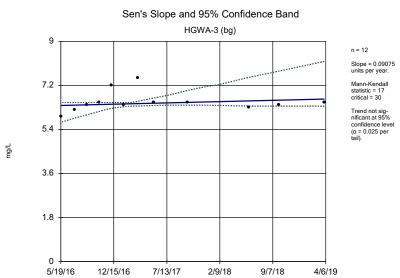


Constituent: Chloride Analysis Run 7/21/2019 10:51 PM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1





Constituent: Chloride Analysis Run 7/21/2019 10:51 PM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

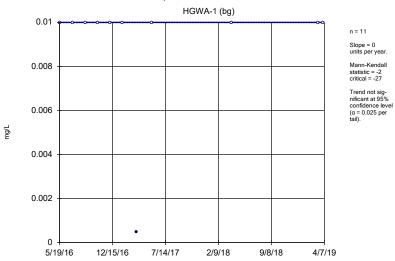


Constituent: Chloride Analysis Run 7/21/2019 10:51 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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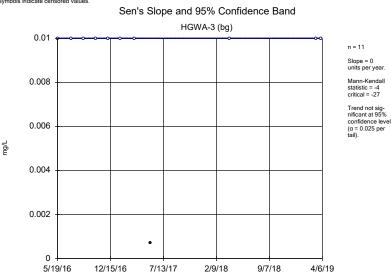


Constituent: Chromium Analysis Run 7/21/2019 10:51 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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Hollow symbols indicate censored values.

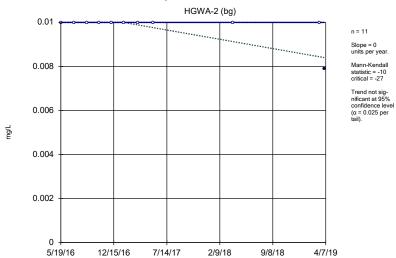


Constituent: Chromium Analysis Run 7/21/2019 10:51 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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## Sen's Slope and 95% Confidence Band

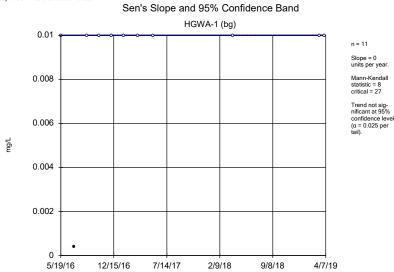


Constituent: Chromium Analysis Run 7/21/2019 10:51 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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Hollow symbols indicate censored values.



Constituent: Cobalt Analysis Run 7/21/2019 10:51 PM

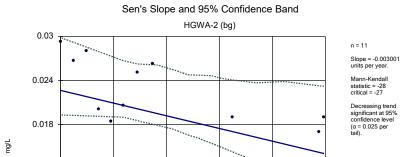
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

0.012

0.006

5/19/16

12/15/16



Constituent: Cobalt Analysis Run 7/21/2019 10:51 PM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

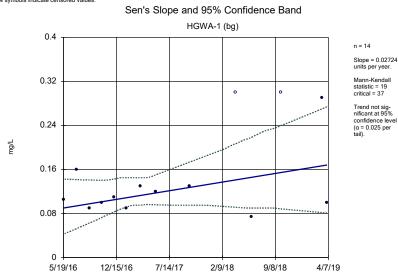
2/9/18

7/14/17

4/7/19

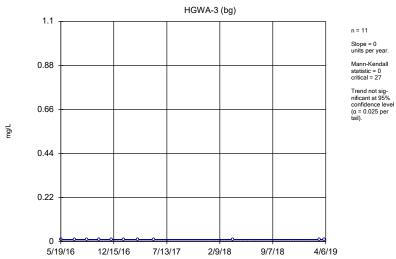
9/8/18

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Constituent: Fluoride Analysis Run 7/21/2019 10:51 PM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

## Sen's Slope and 95% Confidence Band



Constituent: Cobalt Analysis Run 7/21/2019 10:51 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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5/19/16

12/15/16

## Sen's Slope and 95% Confidence Band HGWA-2 (bg) 0.6 n = 14 Slope = 0 units per year. Mann-Kendall 0.472 statistic = 14 critical = 37 Trend not sig-nificant at 95% confidence level 0.344 $(\alpha = 0.025 \text{ per})$ mg/L 0.216 0.088 -0.04

Constituent: Fluoride Analysis Run 7/21/2019 10:51 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

2/9/18

9/8/18

4/7/19

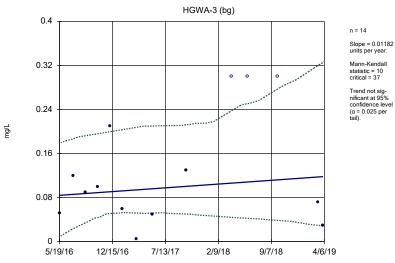
7/14/17

Hollow symbols indicate censored values.



Slope = 0.01182

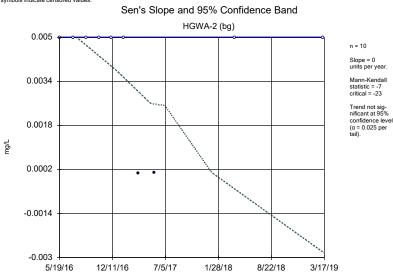
Mann-Kendal



Constituent: Fluoride Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

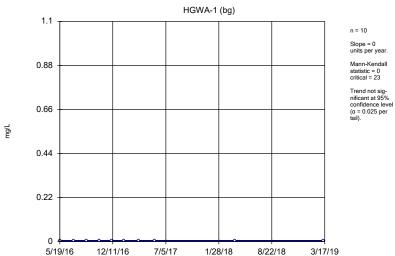
Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG

Hollow symbols indicate censored values.



Constituent: Lead Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1 Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG

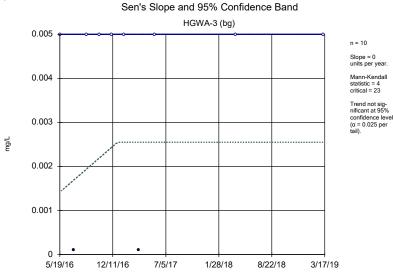
## Sen's Slope and 95% Confidence Band



Constituent: Lead Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG Hollow symbols indicate censored values.

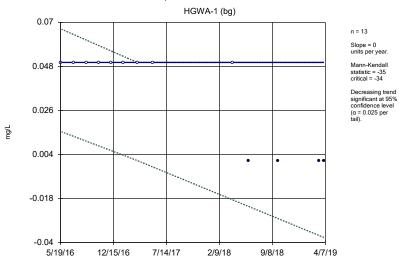




Constituent: Lead Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Hollow symbols indicate censored values.

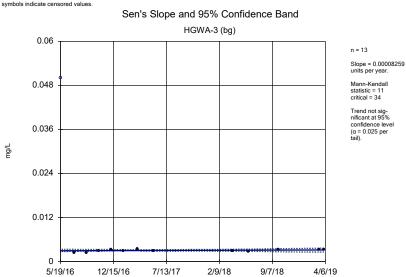




Constituent: Lithium Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

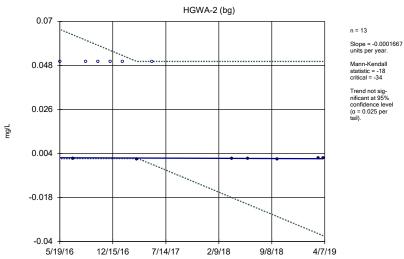
Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG

Hollow symbols indicate censored values.



Constituent: Lithium Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1 Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG Hollow symbols indicate censored values.

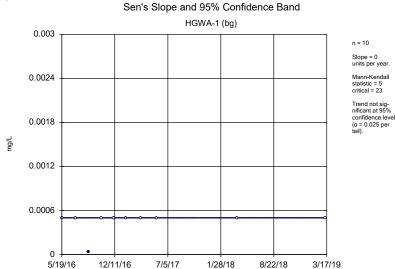
## Sen's Slope and 95% Confidence Band



Constituent: Lithium Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG

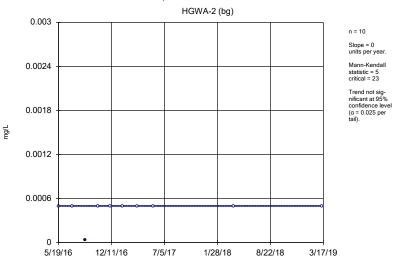
Hollow symbols indicate censored values.



Constituent: Mercury Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Hollow symbols indicate censored values.

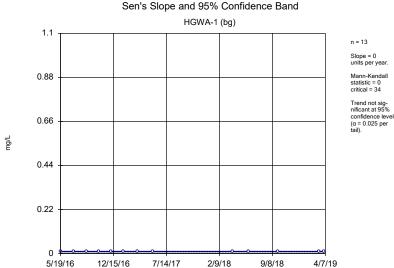




Constituent: Mercury Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

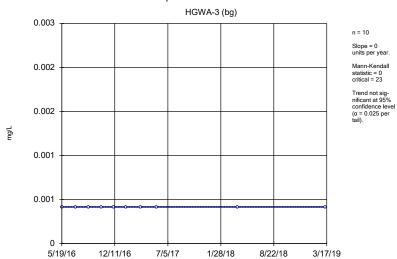
Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG

Hollow symbols indicate censored values.



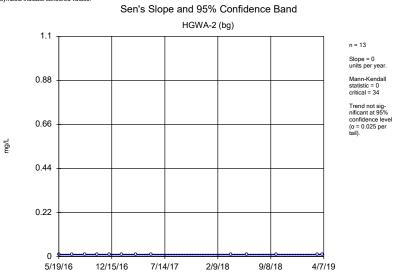
Constituent: Molybdenum Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1 Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG Hollow symbols indicate censored values.

## Sen's Slope and 95% Confidence Band



Constituent: Mercury Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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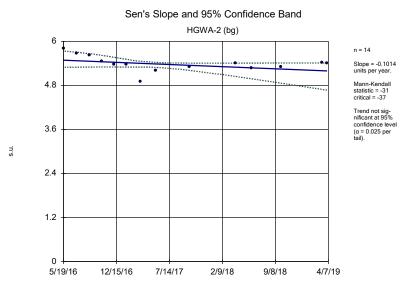


Constituent: Molybdenum Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



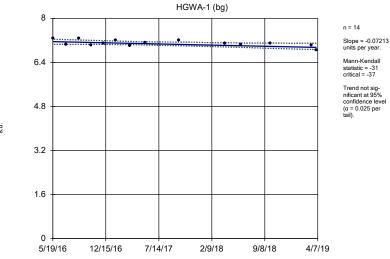


Constituent: Molybdenum Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: pH Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

# Sen's Slope and 95% Confidence Band



Constituent: pH Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

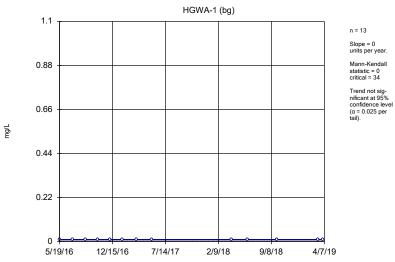
#### Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG

## Sen's Slope and 95% Confidence Band HGWA-3 (bg) n = 14 Slope = -0.03425 units per year. Mann-Kendall 6.4 statistic = -14 critical = -37 Trend not sig-nificant at 95% confidence level 4.8 $(\alpha = 0.025 \text{ per})$ s.u. 3.2 1.6 5/19/16 12/15/16 7/13/17 2/9/18 9/7/18 4/6/19

Constituent: pH Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Hollow symbols indicate censored values.

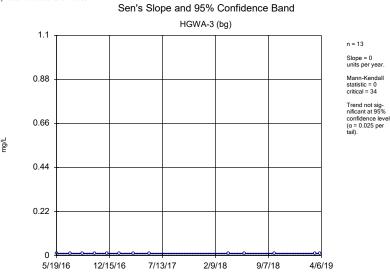




Constituent: Selenium Analysis Run 7/21/2019 10:51 PM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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Hollow symbols indicate censored values.

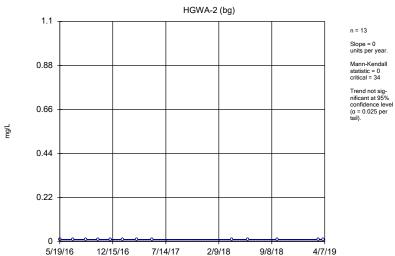


Constituent: Selenium Analysis Run 7/21/2019 10:51 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

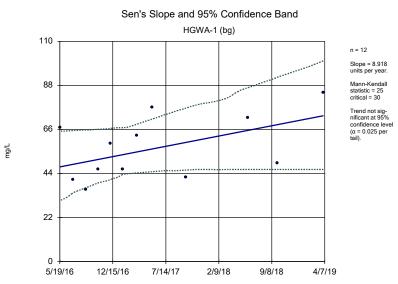
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## Sen's Slope and 95% Confidence Band



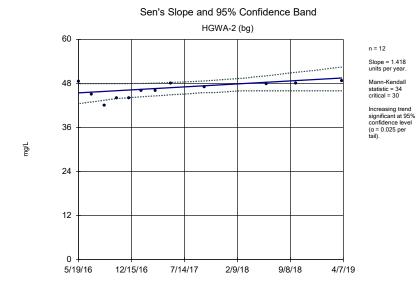
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Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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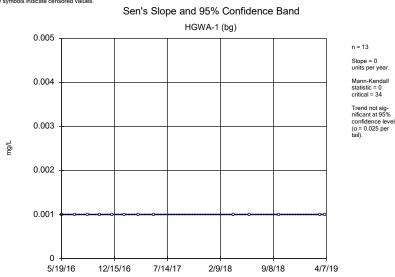
Constituent: Sulfate Analysis Run 7/21/2019 10:51 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



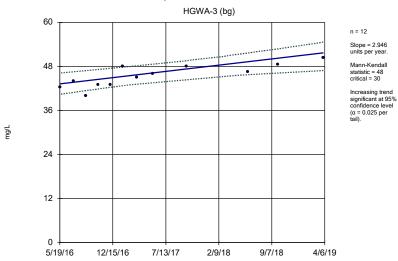
Constituent: Sulfate Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

#### Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG Hollow symbols indicate censored values.



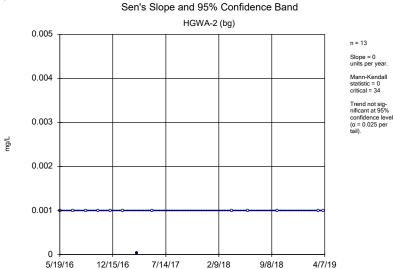
Constituent: Thallium Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

## Sen's Slope and 95% Confidence Band



Constituent: Sulfate Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

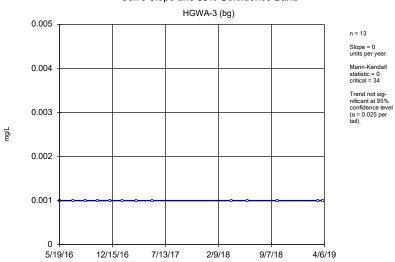
#### Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG Hollow symbols indicate censored values.



Constituent: Thallium Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Hollow symbols indicate censored values.



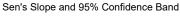


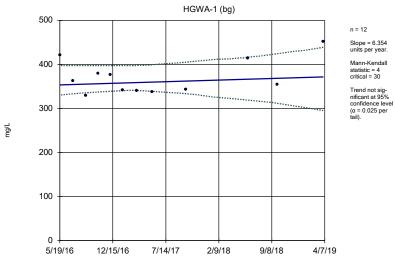
Constituent: Thallium Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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## Sen's Slope and 95% Confidence Band HGWA-2 (bg) 200 n = 12 Slope = -5.334 units per year. Mann-Kendall 160 critical = -30 Trend not sig-nificant at 95% confidence level 120 $(\alpha = 0.025 \text{ per}$ 80 40 5/19/16 12/15/16 7/14/17 2/9/18 9/8/18 4/7/19

Constituent: Total Dissolved Solids Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1 Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG



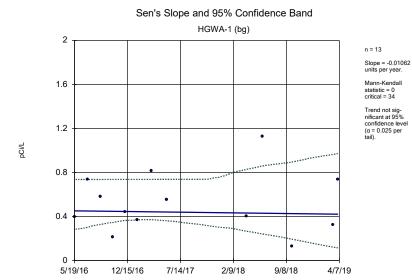


Constituent: Total Dissolved Solids Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sanitas™ v.9.6.05 Software licensed to Geosyntec Consultants. UG

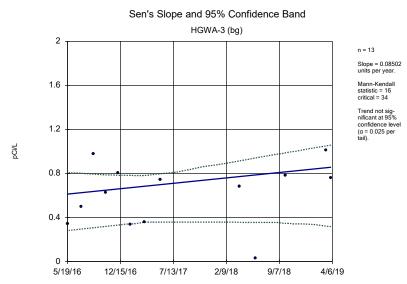
## Sen's Slope and 95% Confidence Band HGWA-3 (bg) 400 n = 12 Slope = 7.889 units per year. Mann-Kendall 320 statistic = 11 critical = 30 Trend not sig-nificant at 95% confidence level 240 $(\alpha = 0.025 \text{ per})$ mg/L 160 80 5/19/16 12/15/16 7/13/17 2/9/18 9/7/18 4/6/19

Constituent: Total Dissolved Solids Analysis Run 7/21/2019 10:51 PM Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



Constituent: Total Radium Analysis Run 7/21/2019 10:51 PM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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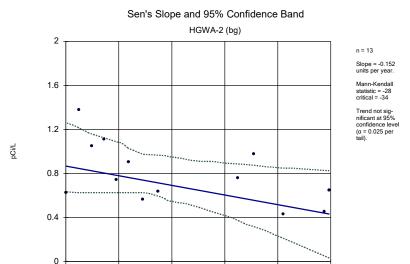


Constituent: Total Radium Analysis Run 7/21/2019 10:51 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

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5/19/16



Constituent: Total Radium Analysis Run 7/21/2019 10:51 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

2/9/18

9/8/18

4/7/19

7/14/17

12/15/16