Prepared for

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

2019 SEMIANNUAL GROUNDWATER MONITORING & CORRECTIVE ACTION REPORT – REVISION 01

GEORGIA POWER COMPANY
PLANT HAMMOND ASH POND 4 (AP-4)

Prepared by

engineers | scientists | innovators

1255 Roberts Boulevard, Suite 200
Kennesaw, Georgia 30144

Project Number GW6581

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Geosyntec
consultants

CERTIFICATION STATEMENT

This *2019 Semiannual Groundwater Monitoring & Corrective Action Report, Georgia Power Company - Plant Hammond – Ash Pond 4 (AP-4)* 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.

March 13, 2020

Whitney Law
Georgia Professional Engineer No. 36641

Date

Geosyntec consultants

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LIST OF ACRONYMS

AP	ash pond
CCR	coal combustion residuals
CFR	Code of Federal Regulations
cm/sec	centimeters per second
DO	dissolved oxygen
ft MSL	feet above mean sea level
ft/day	feet per day
ft/ft	feet per foot
GA EPD	Georgia Environmental Protection Division
GCL	geosynthetic clay liner
GPC	Georgia Power Company
GWPS	Groundwater Protection Standard
HAR	Hydrogeologic Assessment Report
K_h	horizontal hydraulic conductivity
mg/L	milligram per liter
NELAP	National Environmental Laboratory Accreditation Program
NTU	Nephelometric turbidity units
Pace Analytical	Pace Analytical Services, LLC.
PL	prediction limit
QA/QC	Quality Assurance/Quality Control
SCS	Southern Company Services
SSI	statistically significant increase
s.u.	standard unit
TDS	total dissolved solids
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 (Geosyntec) has prepared this *2019 Semiannual Groundwater Monitoring & Corrective Action Report* to document groundwater monitoring activities conducted at Georgia Power Company (GPC) Plant Hammond (Site) Ash Pond 4 (AP-4).

Groundwater monitoring and reporting for the CCR unit is performed in accordance with the monitoring requirements of 40 CFR § 257.90 through 257.95 of the Federal CCR rule, and GA EPD Rules for Solid Waste Management 391-3-4-.10(6). To specify groundwater monitoring requirements, GA EPD rule 391-3-4-.10(6)(a) incorporates by reference the USEPA CCR Rule. For ease of reference, the USEPA CCR rules are cited within this report.

AP-4 was closed in 2012; therefore, AP-4 is not subject to the Federal monitoring requirements. A permit application for AP-4 was submitted to GA EPD in November 2018 and is currently under review. Groundwater monitoring has been initiated in order to meet the GA EPD CCR requirements. This report documents groundwater monitoring activities completed for AP-4 from August 2019 through December 2019. This report includes the results of the initial annual monitoring event for Appendix IV of 40 CFR § 257 conducted in August 2019 and the semiannual monitoring event conducted in October 2019.

1.1 Site Description and Background

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

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

AP-4 was commissioned in 1986 as a surface impoundment with a corresponding surface area of approximately 54 acres. Dry ash stacking operations in AP-4 began in 1994 and

continued until 2010; AP-4 received both fly ash and bottom ash during this period. AP-4 was capped in place in 2011-2012 in accordance with the GA EPD regulations regarding landfill closures. AP-4 was graded, engineered with drainage, and capped with a geosynthetic clay liner (GCL) and soil cover.

1.2 Regional Geology & Hydrogeologic Setting

The following section summarizes the geologic and hydrogeologic conditions at AP-4 as described in the Hydrogeologic Assessment Report (HAR) submitted to GA EPD as supporting documents for the closure permit application.

1.2.1 Regional and Site Geology

The Site is located within the Great Valley District of the Valley and Ridge Physiographic Province (Valley and Ridge) in northwest Georgia, which is characterized by Paleozoic sedimentary rocks that have been folded and faulted into the ridges and valleys that gave this region its name. Geologic mapping performed at the Site by Petrologic Solutions, Inc. under the direction of Golder (Golder, 2018) indicates that AP-4 is underlain by the lower units of the Cambrian age Conasauga Formation, consisting of mostly calcareous shale. Based on review of subsurface investigations, the bedrock underneath AP-4 was described as predominantly shale. AP-4 is underlain primarily by five lithologic units: (i) terrace alluvium, (ii) colluvium, (iii) residuum, (iv) partially weathered shale bedrock, and (v) unweathered shale bedrock.

Based on subsurface investigations, the alluvial deposits generally grade from a silt and silty clay to a clayey sand and silty sand to a sand and gravelly sand at depth. The colluvium consists of silty sand, silty clay with the presence of angular fragments of rocks/materials not expected in the lower units of the Conasauga, such as chert, sandstone, limestone, or coal. Residual or native soils have been derived from the in-place weathering of the shale bedrock. The residuum is generally described as brown to yellow brown firm clayey silt with weathered shale fragments. The partially weathered shale zone occurs as an intermediate weathering stage between the residuum and the unweathered shale bedrock. The weathered material is described as black to dark gray to dark red hard, fissile shale and claystone. The unweathered shale bedrock was not encountered or directly observed in the historical borings advanced at AP-4. However, based on geologic conditions in the region, weathering, fracturing and jointing decreases with depth and the weathered rock material grades into competent bedrock.

1.2.2 Hydrogeologic Setting

The uppermost aquifer at AP-4 is a regional groundwater aquifer that occurs primarily in the alluvium, colluvium, and residuum, but also to some degree within the weathered and fractured bedrock. Based on observations of alluvium, colluvium, and residuum soil types and horizontal conductivity values, the movement of groundwater in the soil can be characterized as low-to moderate permeability, porous media flow. The groundwater flow in the shallow underlying bedrock is characterized as fracture flow, and due to the preponderance of shale beneath AP-4, is expected to be very low permeability. Groundwater flow direction is generally from north to south.

1.3 Groundwater Monitoring Well Network

In accordance with 40 CFR § 257.91, a groundwater monitoring system was installed at AP-4 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 compliance monitoring well network for AP-4 consists of eleven monitoring wells. A network of piezometers has been installed at the Site that are used to gauge water levels to define groundwater flow direction and gradients. The locations of the compliance monitoring well network and groundwater level monitoring piezometers associated with AP-4 are shown on **Figure 2**; well construction details are listed in **Table 1**.

After the initial Appendix IV assessment monitoring event, GPC reclassified groundwater level monitoring piezometer GWC-2 as compliance monitoring well HGWC-102. The reclassification was done in support of a recommendation issued by GA EPD to refine the ability to monitor groundwater quality conditions between the southern boundary of AP-4 and the Coosa River. HGWC-102 was sampled for the first background monitoring event in October 2019.

2.0 GROUNDWATER MONITORING ACTIVITIES

In accordance with 40 CFR § 257.90(e), the following describes groundwater monitoring-related activities performed for AP-4 during the second semiannual period of 2019. All groundwater sampling was performed in accordance with 40 CFR § 257.93.

2.1 Monitoring Well Installation and Maintenance

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

In addition to completing routine maintenance of the well network in 2019, dedicated QED bladder pumps were installed by Geosyntec at wells HGWA-111, HGWA-112, HGWA-113, HGWC-101, HGWC-103, HGWC-105, HGWC-107, HGWC-109, HGWC-117, and HGWC-118 in September 2019.

2.2 Assessment Monitoring

Appendix III constituents exhibited statistically significant increases (SSIs) over background during the first detection monitoring event conducted in April 2019. Analytical results and statistical evaluation of those results were provided in the *2019 Annual Groundwater and Corrective Action Monitoring Report* (Geosyntec, 2019). An Assessment Monitoring Program Notification was prepared for AP-4 on November 13, 2019, pursuant to 40 CFR § 257.94(e)(3) and placed in the Operating Records of the ash pond as required by 40 CFR § 257.105(h)(5).

Pursuant to 40 CFR § 257.95(b), the compliance monitoring well network (**Figure 2**) was sampled for the full suite of Appendix IV parameters in August 2019, within 90 days of initiating the assessment monitoring program. Pursuant to 40 CFR §257.95(d)(1), the AP-4 compliance wells were resampled within 90 days of receiving the August 2019 data, occurring October 2019. The groundwater samples were analyzed for Appendix III parameters and the following Appendix IV constituents that were detected during the August 2019 event: arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, and combined radium 226/228. The October 2019 sampling event served as the first semiannual groundwater assessment monitoring event, as required by 40 CFR

§257.95(d)(1). Pursuant to 40 CFR § 257.90(e)(3), laboratory and field data reports for the August and October 2019 sampling events are included in **Appendix B**. The number of AP-4 groundwater samples collected for analysis and the sample collection dates are summarized in **Table 2**.

3.0 SAMPLING METHODOLOGY & ANALYSES

Two monitoring events were conducted during this monitoring period: (1) an initial assessment monitoring event was conducted in August 2019 as a result of statistical exceedances during the first detection monitoring event, and (2) the subsequent assessment event conducted in October 2019, which served as the semiannual compliance monitoring event for the year. The following sections describe the methods used to conduct groundwater monitoring at the Site.

3.1 Groundwater Level Measurement

Prior to each sampling event, a synoptic round of depth-to-groundwater level measurements were recorded from the AP-4 wells and piezometers and used to calculate the groundwater elevations. The calculated groundwater elevations for the August and October 2019 sampling events are presented in **Table 3**. The groundwater elevations for the August event ranged from 583.94 feet (ft) (referenced to the North American Vertical Datum of 1988) in well GWA-14 to 564.27 ft in well HGWC-107. The groundwater elevations for the October 2019 event ranged from 583.30 ft in piezometer GWA-14 to 562.04 ft in piezometer HGWC-105. The elevations reported for these two events are representative of the prior monitoring events.

The groundwater elevation data were used to prepare potentiometric surface contour maps for the August and October 2019 events, which are presented on **Figures 3** and **4**, respectively. Groundwater in the AP-4 area flows under the influence of topography from slightly higher ground surface elevations on the northern side of AP-4 towards lower elevations to the south of AP-4 along the Coosa River.

3.2 Groundwater Gradient and Flow Velocity

The representative groundwater hydraulic gradients within the uppermost aquifer beneath AP-4 were calculated using the August and October 2019 groundwater elevation data. Given the surface area covered by AP-4, hydraulic gradients were calculated along the eastern, central, and western portions of the unit. The well pairs correlating to these flow areas are, respectively: GWA-14 and HGWC-118; HGWA-113 and HGWC-103; HGWA-111 and HGWC-107. The calculated gradients from the three portions were averaged for the August and October 2019 sampling events to provide a representative gradient of 0.014 feet per foot (ft/ft) across AP-4.

The approximate horizontal flow velocity associated with AP-4 groundwater was calculated using the following derivative of Darcy's Law.

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

where:

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

K = Average hydraulic conductivity $\left(\frac{feet}{day}\right)$

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

n_e = Effective porosity

Aquifer testing was conducted by Southern Company Services (SCS) in 2013 to evaluate hydraulic conditions in the vicinity of AP-4. Results of these field events are discussed in detail in the HAR. Horizontal hydraulic conductivity (K_h) was estimated for units above the top of bedrock by performing slug tests. The tests were conducted at wells screened in the terrace alluvium or colluvial material; a geometric mean for K_h of 5.86 x 10^{-4} centimeters per second (cm/sec) [1.67 feet per day (ft/day)] was calculated from the slug test data for the two units. Since majority of the wells are screened in either alluvial or alluvial/colluvial materials, no hydraulic conductivity testing was conducted on the residuum, weathered shale, or unweathered shale.

The groundwater flow velocity calculation is performed using the geometric mean for K_h of 1.67 ft/day. An estimated effective porosity of 0.15 is used to represent average conditions for the silty clay alluvium/colluvium, derived based on review of literature, observed site lithology, and professional judgement. With these variables determined, and accounting for the representative hydraulic gradient discussed above, the representative groundwater flow velocity underneath AP-4 was calculated to be 0.16 ft/day.

3.3 Groundwater Sampling Procedures

Groundwater samples were collected from the compliance monitoring network using low-flow sampling procedures in accordance with 40 CFR § 257.93(a). For the August 2019 event, the wells were purged and sampled using a peristaltic pump equipped with new disposable polyethylene tubing. For the October 2019 event, a dedicated bladder

pump equipped with dedicated tubing was used to sample the compliance wells, except for newly reclassified well HGWC-102, which was sampled using a peristaltic pump. 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 listed below during well purging to verify stabilization prior to sampling. Turbidity was measured using a LaMotte 2020we® portable turbidimeter. Groundwater samples were collected when the following stabilization criteria were met:

- pH ± 0.1 Standard Units (s.u.).
- Conductivity ± 5%.
- ±0.2 milligrams per liter (mg/L) or ±10%, whichever is greater for dissolved oxygen (DO) > 0.5 mg/L. No criterion applies if DO < 0.5 mg/L, record only.
- Turbidity measured less than 10 nephelometric turbidity units (NTU).

Following purging, and once stabilization was achieved, samples were collected into appropriately preserved laboratory-supplied sample containers. Sample bottles were placed in ice-packed coolers and submitted to Pace Analytical Services, LLC. in Norcross, Georgia following chain-of-custody protocol. The field sampling forms generated during the monitoring events conducted in August and October 2019 are provided in **Appendix B**.

3.4 Laboratory Analyses

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

The groundwater analytical results from the August 2019 and October 2019 monitoring events are summarized in **Table 5**. The associated Pace Analytical laboratory reports are provided in **Appendix B**.

3.5 Quality Assurance & Quality Control Summary

Quality assurance/quality control (QA/QC) samples were collected during the groundwater monitoring events 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, 2001, 2011, and 2017). The associated data validation report is provided in **Appendix B** with the laboratory reports.

4.0 STATISTICAL ANALYSIS

The following section summarizes the statistical analysis of Appendix III groundwater monitoring data performed pursuant to 40 CFR § 257.93. Pursuant to 40 CFR § 257.95(d)(2), GPC will establish groundwater protection standards for the Appendix IV monitoring parameters and complete statistical analysis of the Appendix IV groundwater monitoring data obtained during the first semiannual assessment monitoring event within 90 days of obtaining the results. GPC will complete the assessment monitoring and statistical analysis in accordance with 40 CFR § 257.95 and report the results in the Annual Groundwater Monitoring and Corrective Action Report, due August 1, 2020.

4.1 Statistical Method

Based on guidance from GA EPD, 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 PLs pool upgradient well data from wells HGWA-111, HGWA-112, and HGWA-113 to establish a background limit for an individual constituent. The most recent sample from each downgradient well is compared to the background limit to determine whether there are SSIs. The most recent sample from the same well is compared to its respective background. An "initial exceedance" occurs when any downgradient well data exceed the PL.

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

Time series plots generated by Sanitas are used to identify suspected outliers, or extreme values that would result in limits that are not representative of the current background data population. Suspected outliers at all wells for Appendix III 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.

Newly reclassified well HGWC-102 was not included in the statistical analyses given that October 2019 was the first background sampling event. Following the Unified Guidance recommendation, the well should be sampled a minimum of four times before performing a statistical analysis of its data.

4.2 Appendix III Statistical Analyses Results

Statistical analysis of the October 2019 groundwater data was performed to determine if Appendix III constituents have returned to background levels. **Table C-1** in **Appendix C** presents a summarized comparison of the interwell PLs to the October 2019 semiannual monitoring data.

No newly suspected outliers or extreme trending data were identified in the dataset for Appendix III constituents during this reporting period. Based on review of the Appendix III statistical analysis presented in **Appendix C**, the following parameters represent SSIs over background interwell PLs:

- Boron: HGWC-101, HGWC-103, HGWC-105, HGWC-107, HGWC-109, HGWC-117, HGWC-118;
- Calcium: HGWC-103, HGWC-105, HGWC-117, HGWC-118;
- Chloride: HGWC-103, HGWC-117;
- pH: HGWC-101;
- Sulfate: HGWC-101, HGWC-103, HGWC-105, HGWC-107, HGWC-109, HGWC-117, HGWC-118;
- TDS: HGWC-103, HGWC-105, HGWC-107, HGWC-117, HGWC-118.

The October 2019 statistical evaluation results are overall consistent with the *2019 Annual Groundwater and Corrective Action Monitoring Report* (Geosyntec, 2019) statistical results, with the following exceptions:

- New SSIs of chloride at HGWC-103 and HGWC-117.
- No SSIs of fluoride were identified at AP-4.

4.3 Appendix IV Statistical Analyses Results

Pursuant to 40 CFR § 257.95 and Georgia EPD rule 391-3-4-.10(6)(a), Appendix IV groundwater quality data will be statistically analyzed and compared to groundwater protection standards within 90 days of receiving data from the first (October 2019) semiannual assessment monitoring event. GPC will complete the assessment monitoring and statistical analysis in accordance with 40 CFR § 257.95 and report the results in the Annual Groundwater Monitoring and Corrective Action Report, due August 1, 2020.

5.0 MONITORING PROGRAM STATUS

Based on the statistical evaluation results presented, SSIs of Appendix III parameters have not returned to background levels. Pursuant to 40 CFR § 257.94(e), GPC will continue to monitor groundwater at AP-4 in accordance with the assessment monitoring program regulations of 40 CFR § 257.95. As part of the initial phases of the assessment monitoring program, GPC is currently evaluating Appendix IV data collected from AP-4 compliance wells to statistically establish GWPS for these constituents pursuant to 40 CFR § 257.95.

6.0 CONCLUSIONS & FUTURE ACTIONS

This *2019 Semiannual Groundwater Monitoring & Corrective Action Report* for GPC's Plant Hammond AP-4 was prepared to fulfill the requirements of GA EPD Rules for Solid Waste Management 391-3-4-.10, and indirectly by reference the USEPA's CCR Rule. Statistical evaluations of the October 2019 groundwater monitoring data identified SSIs of Appendix III groundwater monitoring parameters in each of the seven established downgradient compliance wells (i.e., excluding HGWC-102).

GPC initiated assessment monitoring in accordance with the requirements of 40 CFR § 257.95. The next scheduled sampling event for AP-4 is scheduled for March 2020. During the next semiannual reporting period of 2020, GPC will establish groundwater protection standards for Appendix IV constituents in accordance with 40 CFR § 257.95 and report the results in the Annual Groundwater Monitoring and Corrective Action Report, due August 1, 2020.

7.0 REFERENCES

Geosyntec Consultants, 2019. *2019 Annual Groundwater Monitoring & Corrective Action Report – Georgia Power Company, Plant Hammond Ash Pond 4 (AP-4)*. July 2019.

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TABLES

Table 1
Monitoring Well Network Summary
Plant Hammond AP-4, Floyd County, Georgia

Well ID	Hydraulic Location	Installation Date	Northing [1]	Easting [1]	Top of Casing Elevation [2] (ft NAVD88)	Top of Screen Elevation (ft NAVD88)	Bottom of Screen Elevation (ft NAVD88)	Well Depth (ft BTOC) [3]	Screen Interval Length
Compliance Monitoring Well									
HGWA-111	Upgradient	8/21/2012	1548832.95	1935222.98	592.24	558.97	548.97	43.67	10
HGWA-112	Upgradient	8/21/2012	1548884.32	1935647.24	596.75	567.00	557.00	40.15	10
HGWA-113	Upgradient	10/2/2012	1548943.20	1935990.30	595.13	569.00	559.00	36.53	10
HGWC-101	Downgradient	8/7/2012	1547726.28	1936368.99	579.26	551.72	541.72	37.94	10
HGWC-102	Downgradient	8/7/2012	1547714.61	1936033.63	577.91	550.88	540.88	37.43	10
HGWC-103	Downgradient	8/8/2012	1547849.94	1935733.30	581.16	553.88	543.88	37.68	10
HGWC-105	Downgradient	8/8/2012	1547856.65	1935110.32	582.46	548.09	538.09	44.67	10
HGWC-107	Downgradient	8/8/2012	1547911.01	1934442.88	579.76	551.96	541.96	38.20	10
HGWC-109	Downgradient	8/15/2012	1548626.80	1934361.54	577.33	556.37	546.37	31.36	10
HGWC-117	Downgradient	8/14/2012	1548099.53	1937180.31	582.32	552.46	542.46	40.26	10
HGWC-118	Downgradient	10/1/2012	1547981.61	1936946.80	579.48	548.58	538.58	40.90	10
Groundwater Level Monitoring Piezometer									
MW-12	Downgradient	10/21/2014	1547862.70	1937521.75	584.33	556.90	546.90	37.83	10
GWC-4	Downgradient	8/8/2012	1547899.28	1935398.50	581.02	543.84	533.84	47.58	10
GWC-6	Downgradient	8/13/2012	1547844.88	1934800.39	582.01	554.28	544.28	38.13	10
GWC-8	Downgradient	8/9/2012	1548167.13	1934344.12	580.50	549.98	539.98	40.92	10
GWA-14	Upgradient	10/2/2012	1548981.33	1936642.14	592.58	562.10	552.10	40.88	10
GWA-15	Upgradient	8/22/2012	1548765.12	1936807.85	592.03	571.91	561.91	30.52	10
GWA-16	Upgradient	8/21/2012	1548591.94	1937209.89	583.04	570.43	560.43	23.01	10
GWC-19	Upgradient	8/14/2012	1547893.59	1936571.97	581.31	555.52	545.52	36.19	10

Notes:

ft = feet

ft BTOC = feet below top of casing

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

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

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

Table 2
Groundwater Sampling Event Summary
Plant Hammond AP-4, Floyd County, Georgia

Well ID	Hydraulic Location	Aug 21-23, 2019	Oct 21-23, 2019	Status of Monitoring Well
Purpose of Sampling Event:		Initial App. IV Annual	Assessment	
HGWA-111	Upgradient	S01	A01	Assessment
HGWA-112	Upgradient	S01	A01	Assessment
HGWA-113	Upgradient	S01	A01	Assessment
HGWC-101	Downgradient	S01	A01	Assessment
HGWC-102	Downgradient	--	BG01	Assessment
HGWC-103	Downgradient	S01	A01	Assessment
HGWC-105	Downgradient	S01	A01	Assessment
HGWC-107	Downgradient	S01	A01	Assessment
HGWC-109	Downgradient	S01	A01	Assessment
HGWC-117	Downgradient	S01	A01	Assessment
HGWC-118	Downgradient	S01	A01	Assessment

Notes:

-- = Not applicable

BG## = Background monitoring event number

S## = Initial annual Appendix IV sampling event number since initiation of the assessment monitoring program.

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

Table 3

Summary of Groundwater Elevations

Plant Hammond AP-4, Floyd County, Georgia

Well ID	Top of Casing Elevation [1] (ft NAVD88)	Aug 21, 2019		Oct 21, 2019	
		Depth to Water (ft BTOC)	Groundwater Elevations (ft NAVD88)	Depth to Water (ft BTOC)	Groundwater Elevations (ft NAVD88)
Compliance Monitoring Well					
HGWA-111	592.24	14.61	577.63	15.95	576.29
HGWA-112	596.75	15.18	581.57	16.90	579.85
HGWA-113	595.13	12.45	582.68	14.05	581.08
HGWC-101	579.26	13.70	565.56	15.23	564.03
HGWC-102	577.91	13.31	564.60	15.56	562.35
HGWC-103	581.16	14.41	566.75	15.64	565.52
HGWC-105	582.46	18.18	564.28	20.42	562.04
HGWC-107	579.76	15.49	564.27	17.60	562.16
HGWC-109	577.33	10.06	567.27	11.45	565.88
HGWC-117	582.32	17.00	565.32	18.89	563.43
HGWC-118	579.48	13.85	565.63	15.54	563.94
Groundwater Level Monitoring Piezometer					
MW-12	584.33	18.97	565.36	20.72	563.61
GWC-4	581.02	14.21	566.81	16.41	564.61
GWC-6	582.01	17.62	564.39	19.68	562.33
GWC-8	580.50	15.05	565.45	16.25	564.25
GWA-14	592.58	8.64	583.94	9.28	583.30
GWA-15	592.03	11.27	580.76	11.25	580.78
GWA-16	583.04	5.32	577.72	(dry)	-
GWC-19	581.31	13.74	567.57	15.05	566.26

Notes:

ft = feet

ft BTOC = feet below top of casing

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

Table 4

Groundwater Gradient and Flow Velocity Calculations

Plant Hammond AP-4, Floyd County, Georgia

	Hydraulic Gradient - August 21, 2019 Data					Hydraulic Gradient - October 21, 2019 Data				
Flow Path Direction [(1)]	**h_1 (ft)**	**h_2 (ft)**	**Δl (ft)**	**Δh/Δl (ft/ft)**	**Avg Δh/Δl (ft/ft)**	**h_1 (ft)**	**h_2 (ft)**	**Δl (ft)**	**Δh/Δl (ft/ft)**	**Avg Δh/Δl (ft/ft)**
Eastern Flow Path (GWA-14 to HGWC-118)	583.94	565.63	1,050	0.017	0.014	583.30	563.94	1,050	0.018	0.014
Central Flow Path (HGWA-113 to HGWC-103)	582.68	566.75	1,110	0.014		581.08	565.52	1,110	0.014	
Western Flow Path (HGWA-111 to HGWC-107)	577.63	564.27	1,250	0.011		576.29	562.16	1,250	0.011	

			Averaged for Fall 2019	
Flow Path Direction [(1)]	**K (ft/d)**	**n**	**Δh/Δl (ft/ft)**	**V (ft/d)[(2)]**
Eastern Flow Path (GWA-14 to HGWC-118)	1.67	0.15	0.014	0.16
Central Flow Path (HGWA-113 to HGWC-103)				
Western Flow Path (HGWA-111 to HGWC-107)				

Notes:

ft = feet

ft/d = feet per day

ft/ft = feet per foot

h_1, h_2 = groundwater elevation for identified location

Δh/Δl = hydraulic gradient

K = hydraulic conductivity

Δl = distance between identified location 1 and 2

n = effective porosity

V = groundwater flow velocity

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

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

Table 5

Summary of Groundwater Analytical Data

Plant Hammond AP-4, Floyd County, Georgia

	Well ID:	HGWA-111	HGWA-111	HGWA-112	HGWA-112	HGWA-113	HGWA-113	HGWC-101	HGWC-101	HGWC-102	HGWC-103	HGWC-103
	Sample Date:	8/21/2019	10/21/2019	8/21/2019	10/22/2019	8/21/2019	10/22/2019	8/22/2019	10/23/2019	10/23/2019	8/22/2019	10/23/2019
	Parameter [1,2]											
APPENDIX III	Boron	--	ND (0.0097 J)	--	ND (0.016 J)	--	ND (0.010 J)	--	0.10	3.1	--	2.3
	Calcium	--	51.0	--	6.3	--	7.2	--	21.9	136	--	86.5
	Chloride	--	3.9	--	5.5	--	1.9	--	5.5	7.9	--	6.1
	Fluoride	ND (0.048 J)	ND (0.12 J)	ND	ND (0.050 J)	ND (0.11 J)	ND (0.18 J)	ND	ND	ND (0.22 J)	ND	ND
	pH [3]	6.60	7.02	5.80	5.70	6.05	5.98	5.39	5.33	5.68	5.55	5.49
	Sulfate	--	1.8	--	ND (0.60 J)	--	6.8	--	101	ND	--	248
	TDS	--	187	--	81.0	--	95	--	221	736	--	507
APPENDIX IV	Antimony	ND	--	ND	--	ND	--	ND	--	ND	ND	--
	Arsenic	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Barium	0.029	0.033	0.027	0.028	0.027	0.027	0.043	0.043	0.037	0.036	0.039
	Beryllium	ND	ND	ND	ND	ND	ND	ND	ND (0.000075 J)	ND	ND	ND
	Cadmium	ND	ND	ND	ND	ND	ND	ND (0.00014 J)	ND (0.00020 J)	ND (0.00026 J)	ND (0.00080 J)	ND (0.00091 J)
	Chromium	ND (0.00061 J)	ND (0.0012 J)	ND (0.0039 J)	ND (0.0040 J)	ND (0.0022 J)	ND (0.0023 J)	ND (0.00064 J)	ND	ND	ND (0.00063 J)	ND (0.0015 J)
	Cobalt	ND	ND	ND	ND	ND	ND	ND	ND (0.0023 J)	ND (0.0018 J)	ND (0.0019 J)	ND (0.0021 J)
	Fluoride	ND (0.048 J)	ND (0.12 J)	ND	ND (0.050 J)	ND (0.11 J)	ND (0.18 J)	ND	ND	ND (0.22 J)	ND	ND
	Lead	ND	ND (0.00016 J)	ND	ND	ND (0.000071 J)	ND (0.000073 J)	ND	ND	ND	ND	ND (0.00043 J)
	Lithium	ND (0.0018 J)	ND (0.0026 J)	ND	ND	ND (0.0011 J)	ND (0.0011 J)	ND	ND	ND (0.0012 J)	ND (0.0015 J)	ND (0.0020 J)
	Mercury	ND	--	ND	--	ND	--	ND	--	ND	ND	--
	Molybdenum	ND	--	ND	--	ND	--	ND	--	ND	ND	--
	Radium	0.553 U	0.351 U	0.514 U	0.828 U	0.492 U	0.523 U	0.474 U	0.776 U	0.858 U	0.946 U	0.571 U
	Selenium	ND	--	ND	--	ND (0.0025 J)	--	ND	--	ND	ND	--
	Thallium	ND	--	ND	--	ND	--	ND	--	ND	ND	--

Notes:

-- = Parameter was not analyzed

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

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

TDS = Total dissolved solids

U = Indicates the parameter was not detected above the minimum detection concentration (MDC, 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.

(3) The pH value presented was recorded at the time of sample collection in the field.

Table 5

Summary of Groundwater Analytical Data

Plant Hammond AP-4, Floyd County, Georgia

	Well ID:	HGWC-105	HGWC-105	HGWC-107	HGWC-107	HGWC-109	HGWC-109	HGWC-117	HGWC-117	HGWC-118	HGWC-118
	Sample Date:	8/22/2019	10/23/2019	8/23/2019	10/22/2019	8/23/2019	10/22/2019	8/22/2019	10/22/2019	8/22/2019	10/22/2019
	Parameter [1,2]										
APPENDIX III	Boron	--	1.3	--	0.91	--	0.32	--	1.0	--	0.65
	Calcium	--	89.4	--	58.1	--	42.6	--	70.9	--	84.2
	Chloride	--	3.6	--	3.6	--	4.6	--	12.1	--	4.5
	Fluoride	ND	ND	ND	ND (0.047 J)	ND (0.034 J)	ND (0.099 J)	ND	ND (0.042 J)	ND (0.070 J)	ND (0.087 J)
	pH [3]	6.04	6.46	6.26	6.19	6.76	6.58	5.53	6.17	6.93	7.03
	Sulfate	--	162	--	123	--	23.2	--	133	--	80.9
	TDS	--	419	--	308	--	212	--	348	--	354
APPENDIX IV	Antimony	ND	--	ND	--	ND	--	ND	--	ND	--
	Arsenic	ND	ND	ND	ND	ND (0.0035 J)	ND (0.0019 J)	ND	ND	ND	ND
	Barium	0.066	0.066	0.038	0.039	0.088	0.087	0.036	0.049	0.052	0.054
	Beryllium	ND	ND	ND	ND	ND	ND	ND (0.000079 J)	ND	ND	ND
	Cadmium	ND	ND	ND (0.00011 J)	ND	ND	ND	ND (0.00064 J)	ND (0.00068 J)	ND	ND
	Chromium	ND	ND (0.00040 J)	ND	ND	ND	ND (0.00062 J)	ND	ND	ND	ND (0.00066 J)
	Cobalt	ND	ND (0.00038 J)	ND	ND	ND (0.0027 J)	ND (0.0022 J)	0.012	0.0064	ND (0.00030 J)	ND (0.00061 J)
	Fluoride	ND	ND	ND	ND (0.047 J)	ND (0.034 J)	ND (0.099 J)	ND	ND (0.042 J)	ND (0.070 J)	ND (0.087 J)
	Lead	ND	ND (0.000068 J)	ND	ND (0.000079 J)	ND (0.000058 J)	ND (0.000054 J)	ND	ND (0.00016 J)	ND	ND (0.00025 J)
	Lithium	ND (0.0040 J)	ND (0.0039 J)	ND (0.00092 J)	ND (0.00094 J)	ND (0.00090 J)	ND (0.00088 J)	ND (0.0012 J)	ND (0.0028 J)	ND (0.0018 J)	ND (0.0027 J)
	Mercury	ND	--	ND	--	ND	--	ND	--	ND	--
	Molybdenum	ND	--	ND	--	ND	--	ND	--	ND	--
	Radium	0.694 U	0.584 U	1.69	0.705 U	0.470 U	0.545 U	0.333 U	0.827 U	0.904 U	0.424 U
	Selenium	ND	--	ND	--	ND	--	ND	--	ND	--
	Thallium	ND	--	ND	--	ND	--	ND	--	ND	--

Notes:

-- = Parameter was not analyzed

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

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

TDS = Total dissolved solids

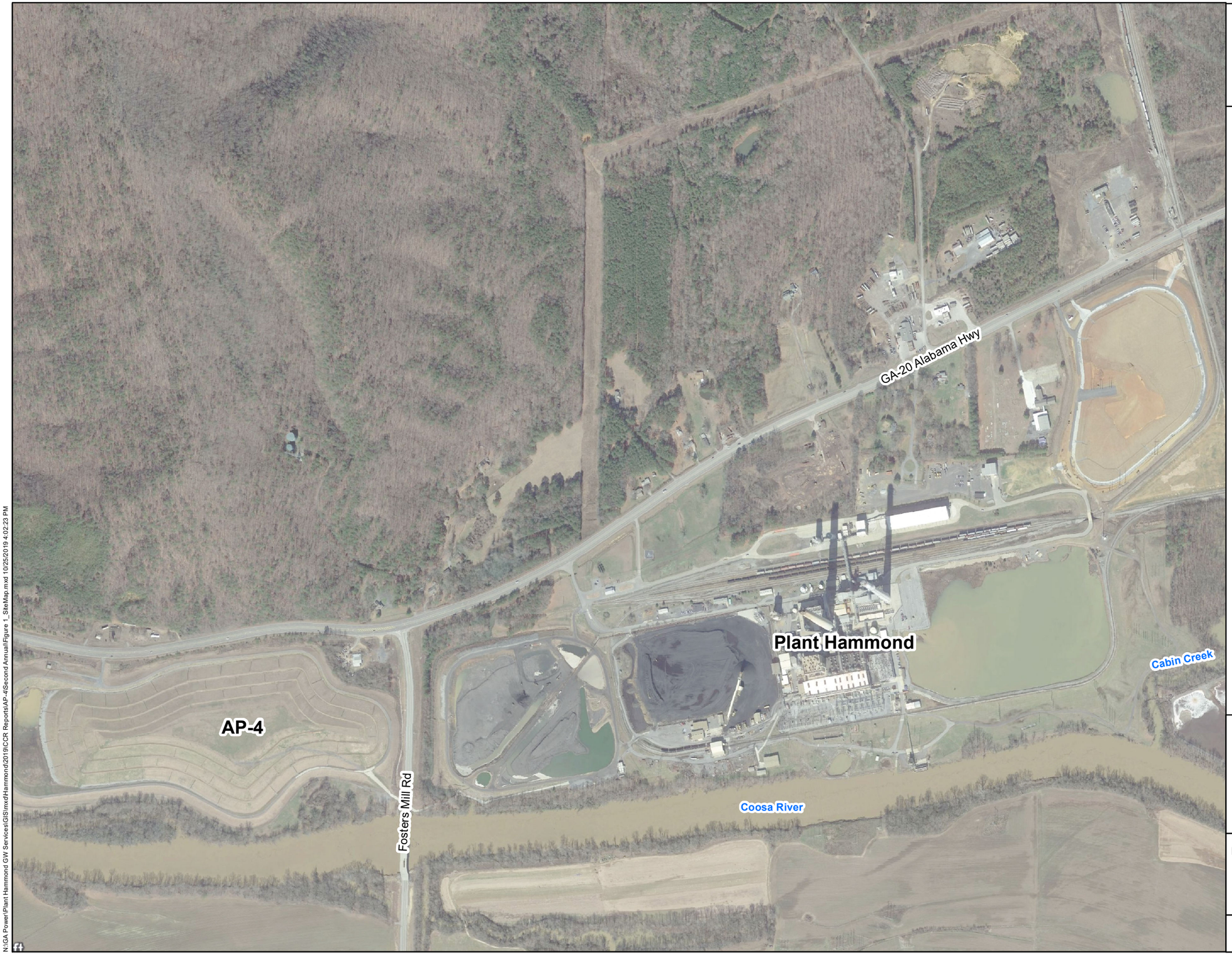
U = Indicates the parameter was not detected above the minimum detection concentration (MDC, specific to combined radium)

(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 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.

(3) The pH value presented was recorded at the time of sample collection in the field.

FIGURES



N

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

0 330 660 1,320

SCALE IN FEET

SITE LOCATION MAP

GEORGIA POWER COMPANY
PLANT HAMMOND AP-4
FLOYD COUNTY, GEORGIA

Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA | FEBRUARY 2020

FIGURE 1

N:\GA Power\Plant Hammond GW Services\GIS\mxd\Hammond\2019\CCR Reports\AP-4\Second Annual\Figure 1_SiteMap.mxd 10/25/2019 4:02:23 PM

N

LEGEND

- Compliance Monitoring Well
- Groundwater Level Monitoring Piezometer

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

0 150 300 600

SCALE IN FEET

MONITORING WELL NETWORK MAP

GEORGIA POWER COMPANY
PLANT HAMMOND AP-4
FLOYD COUNTY, GEORGIA

Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA | FEBRUARY 2020

FIGURE 2

N:\GA Power\Plant Hammond GW Services\GIS\mxd\Hammond\2019\CCR Reports\AP-4\Second Annual\Figure 2_WellMap.mxd 10/27/2019 2:11:57 PM

N

LEGEND

- Compliance Monitoring Well
- Groundwater Level Monitoring Piezometer
- Groundwater Elevation Iso-Contour
- Approximate Groundwater Flow Direction

Notes:
1. Water level elevation recorded on August 21, 2019. Elevation provided in feet (ft) referenced to the North American Vertical Datum (NAVD) 88.
2. Aerial photograph source: Google Earth Pro, February 2018.

0 150 300 600

SCALE IN FEET

POTENTIOMETRIC SURFACE CONTOUR MAP - AUGUST 2019

GEORGIA POWER COMPANY
PLANT HAMMOND AP-4
FLOYD COUNTY, GEORGIA

Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA | FEBRUARY 2020

FIGURE 3

N:\GA Power\Plant Hammond GW Services\GIS\mxd\Hammond\2019\CCR Reports\AP-4\Second Annual\Figure 3_POTMap_August2019_AP4.mxd 2/19/2020 5:08:53 PM

N

LEGEND

- Compliance Monitoring Well
- Groundwater Level Monitoring Piezometer
- Groundwater Elevation Iso-Contour
- Approximate Groundwater Flow Direction

Notes:
1. Water level elevation recorded on October 21, 2019. Elevation provided in feet (ft) referenced to the North American Vertical Datum (NAVD) 88.
2. * = Water level was at or below bottom of piezometer of time of measurement, therefore water elevation not used in the construction of groundwater contours.
3. Aerial photograph source: Google Earth Pro, February 2018.

0 150 300 600

SCALE IN FEET

POTENTIOMETRIC SURFACE CONTOUR MAP - OCTOBER 2019

GEORGIA POWER COMPANY
PLANT HAMMOND AP-4
FLOYD COUNTY, GEORGIA

Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA | FEBRUARY 2020

FIGURE 4

N:\GA Power\Plant Hammond GW Services\GIS\mxd\Hammond\2019\CCR Reports\AP-4\Second Annual\Figure 4_POTMap_Oct2019_AP4.mxd 2/19/2020 5:32:26 PM

APPENDIX A

Well Inspection Forms

Geosyntec

WELL INSPECTION FORM

Field Technician: Chad Rosso | Site/Location: Plant Hammond AP-4 | Inspection Date: 8/21/19

Well Inspection Items

Well ID	Inspection Time	Present (Y/N)						Comments regarding well condition
		Lock	Locking Cap	Bollards	Concrete Pad	Protective Casing	Vegetation	
GWC-8	0852	Y	Y	Y	Y	Y	Y	Good condition
HGWA-111	0817	Y	Y	Y	Y	Y	Y	Good condition
HGWC-109	0827	Y	Y	Y	Y	Y	N	Tall grass; potential for snakes
HGWC-107	0901	Y	Y	Y	Y	Y	Y	Good condition
GWC-6	0914	Y	Y	Y	Y	Y	Y	Some spider webs in casing
HGWC-105	0919	Y	Y	Y	Y	Y	Y	Some abandoned wasp nests in casing.
GWC-4	0934	Y	Y	Y	Y	Y	Y	Spider web in casing.
HGWC-103	0940	Y	Y	Y	Y	Y	Y	Good condition
GWC-2	0950	Y	Y	Y	Y	Y	Y	Good condition
HGWC-101	0955	Y	Y	Y	Y	Y	N	Tall grass
GWC-19	1009	Y	Y	Y	Y	Y	Y	Spider web on well cap
HGWC-118	1015	Y	Y	Y	Y	Y	Y	Good condition
HGWC-117	1020	Y	Y	Y	Y	Y	Y	Good condition
GWA-16	1039	Y	Y	Y	Y	Y	Y	Good condition
GWA-15	1052	Y	Y	Y	Y	Y	Y	Good conditions
GWA-14	1109	Y	Y	Y	Y	Y	Y	Good condition
HGWA-113	1115	Y	Y	Y	Y	Y	Y	Good condition
HGWA-112	1120	Y	Y	Y	Y	Y	Y	Good condition

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: MGWA-111
Date, field conditions: 8/28/19 91°F partly cloudy

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: HGWA-11Z
Date, field conditions: 8/21/19 91°F partly cloudy

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: AP-4
Permit Number:
Well ID: AGWA-113
Date, field conditions: 08/21/19 clear, sunny 90°

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: HGWC-101
Date, field conditions: 8/22/19; 86°F sunny

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: HGWC-10S
Date, field conditions: 8/22/19; 91°F partly cloudy

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: HGWC-105
Date, field conditions: 8/22/18 91°F partly cloudy

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: HGWC-107
Date, field conditions: 3/23/19; 73°F; cloudy

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: HGNC-109
Date, field conditions: 8/23/19 75°F cloudy

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: HGWC-117
Date, field conditions: 8/22/19; 77 OF sunny

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: HGWC-118
Date, field conditions: 9/22/19; 82°F sunny

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: GWC-2
Date, field conditions: 8/21/19; 75°F cloudy

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: GWC-4
Date, field conditions: 8/21/19; 75°F cloudy

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: GWC-6
Date, field conditions: 8/21/14; 75°F overcast

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: GWC-8
Date, field conditions: 08/21/19; 73°F Overcast

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: GWA-19
Date, field conditions: 8/21/19 ; 79F partly cloudy

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: GWA-15
Date, field conditions: 8/21/19 ; 70°F partly cloudy

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: GWA-16
Date, field conditions: 8/21/19; 29 F partly cloudy

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: GWC-19
Date, field conditions: 8/25/19; 77°F SUNNY

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Geosyntec[c]

WELL INSPECTION FORM

Field Technician: Chaci Russo | Site/Location: Plant Hammond AP-4 | Inspection Date: 10/21/19

Well Inspection Items

Well ID	Inspection Time	Present (Y/N)						Comments regarding well condition
		Lock	Locking Cap	Bollards	Concrete Pad	Protective Casing	Vegetation	
HGWC-109	0905	Y	N	Y	Y	Y	Y	
GWC-8	0925	Y	Y	Y	Y	Y	Y	
HGWC-107	0935	Y	N	Y	Y	Y	Y	
GWC-6	0940	Y	Y	Y	Y	Y	Y	
HGWC-105	0950	Y	N	Y	Y	Y	Y	
GWC-4	0955	Y	Y	Y	Y	Y	Y	
HGWC-103	1000	Y	N	Y	Y	Y	Y	
HGWC-102	1005	Y	Y	Y	Y	Y	Y	
HGWC-101	1010	Y	N	Y	Y	Y	Y	
GWC-19	1012	Y	Y	Y	Y	Y	Y	
HGWC-118	1020	Y	N	Y	Y	Y	Y	
MW-12	1025	Y	Y	Y	Y	Y	Y	
HGWC-117	1040	Y	N	Y	Y	Y	Y	
GWA-16	1045	Y	Y	Y	Y	Y	Y	
HGWA-5	1050	Y	N	Y	Y	Y	Y	
NGWA-6	1055	Y	N	Y	Y	Y	Y	
GWA-15	1115	Y	Y	Y	Y	Y	Y	
GWA-14	1125	Y	Y	Y	Y	Y	Y	
HGWA-113	1140	Y	N	Y	Y	Y	Y	
HGWA-112	1145	Y	N	Y	Y	Y	Y	
HGWA-111	1150	Y	N	Y	Y	Y	Y	

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number: —
Well ID: HGWA-(1)
Date, field conditions: 10/21/19 66°F daily

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number: —
Well ID: HGWA-112
Date, field conditions: 10/22/14; 61°F; SUNNY

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Hammond
Permit Number: —
Well ID: HGWA-113
Date, field conditions: 10/22/2014 Damp / clear

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: HGWC-101
Date, field conditions: 10/23/19 sunny 52°F

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number: —
Well ID: HGWC-102
Date, field conditions: 10/23/19 34°F Clear

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Hammond
Permit Number:
Well ID: HGWC-103
Date, field conditions: 10-23-2019 cold / clear

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Hankins
Permit Number:
Well ID: HGWC-105
Date, field conditions: 10-23-2019 cold / clear

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Hammond
Permit Number: —
Well ID: HGWC-107
Date, field conditions: 10-22-2019 Damp / warm

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Hammond
Permit Number: —
Well ID: HGWC-109
Date, field conditions: 10-22-2019 Damp / clear

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number: —
Well ID: HGWC-117
Date, field conditions: 10/22/19 60°F Sunny

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: HGWC-118
Date, field conditions: 10/22/19 60°F sunny

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: GWC-4
Date, field conditions: 10/21/17 63°F

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

WL only

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number: —
Well ID: GWC-6
Date, field conditions: 63°F; cloudy 10/21/19

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

WL only

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: CHWA-94
Date, field conditions: 10/22/11 63°F cloudy

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

WL only

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond AP-4
Permit Number: —
Well ID: GWSC-8
Date, field conditions: 63°F; cloudy 10/24/19

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

WL only

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number: —
Well ID: GWA-15
Date, field conditions: 10/21/19 C35°F Cloudy

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: GWA-16
Date, field conditions: 10/21/19 63°F cloudy

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number: —
Well ID: GWC-19
Date, field conditions: 10/21/14 63°F cloudy

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

APPENDIX B

Laboratory Analytical and Field Sampling Reports

APPENDIX B1
Laboratory Analytical Data Packages and Data Validation Reports

Laboratory Reports

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

March 12, 2020

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

RE: Project: Plant Hammond AP
Pace Project No.: 2622317

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on August 22, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

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

Enclosures

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

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

CERTIFICATIONS

Project: Plant Hammond AP
Pace Project No.: 2622317

Pace Analytical Services Atlanta
110 Technology Parkway Peachtree Corners, GA 30092
Florida DOH Certification #: E87315
Georgia DW Inorganics Certification #: 812
Georgia DW Microbiology Certification #: 812
North Carolina Certification #: 381
South Carolina Certification #: 98011001
Virginia Certification #: 460204

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

SAMPLE SUMMARY

Project: Plant Hammond AP
Pace Project No.: 2622317

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2622317001	**HGWA-111**	Water	08/21/19 16:15	08/22/19 15:38
2622317002	**HGWA-112**	Water	08/21/19 17:20	08/22/19 15:38
2622317003	**HGWA-113**	Water	08/21/19 17:20	08/22/19 15:38

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

SAMPLE ANALYTE COUNT

Project: Plant Hammond AP
Pace Project No.: 2622317

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2622317001	**HGWA-111**	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2622317002	**HGWA-112**	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2622317003	**HGWA-113**	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1

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

ANALYTICAL RESULTS

Project: Plant Hammond AP
Pace Project No.: 2622317

Sample: HGWA-111 **Lab ID: 2622317001** Collected: 08/21/19 16:15 Received: 08/22/19 15:38 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/23/19 14:12	08/26/19 20:31	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/23/19 14:12	08/26/19 20:31	7440-38-2	
Barium	**0.029**	mg/L	0.010	0.00049	1	08/23/19 14:12	08/26/19 20:31	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/23/19 14:12	08/26/19 20:31	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/23/19 14:12	08/26/19 20:31	7440-43-9	
Chromium	**0.00061J**	mg/L	0.010	0.00039	1	08/23/19 14:12	08/26/19 20:31	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	08/23/19 14:12	08/26/19 20:31	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/23/19 14:12	08/26/19 20:31	7439-92-1	
Lithium	**0.0018J**	mg/L	0.030	0.00078	1	08/23/19 14:12	08/26/19 20:31	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/23/19 14:12	08/26/19 20:31	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/23/19 14:12	08/26/19 20:31	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/23/19 14:12	08/26/19 20:31	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	08/26/19 14:21	08/27/19 11:51	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	**0.048J**	mg/L	0.30	0.029	1		08/30/19 04:12	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant Hammond AP
Pace Project No.: 2622317

Sample: HGWA-112 **Lab ID: 2622317002** Collected: 08/21/19 17:20 Received: 08/22/19 15:38 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/23/19 14:12	08/26/19 20:36	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/23/19 14:12	08/26/19 20:36	7440-38-2	
Barium	**0.027**	mg/L	0.010	0.00049	1	08/23/19 14:12	08/26/19 20:36	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/23/19 14:12	08/26/19 20:36	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/23/19 14:12	08/26/19 20:36	7440-43-9	
Chromium	**0.0039J**	mg/L	0.010	0.00039	1	08/23/19 14:12	08/26/19 20:36	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	08/23/19 14:12	08/26/19 20:36	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/23/19 14:12	08/26/19 20:36	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	08/23/19 14:12	08/26/19 20:36	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/23/19 14:12	08/26/19 20:36	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/23/19 14:12	08/26/19 20:36	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/23/19 14:12	08/26/19 20:36	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	08/26/19 14:21	08/27/19 11:53	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		08/30/19 04:57	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant Hammond AP
Pace Project No.: 2622317

Sample: HGWA-113 **Lab ID: 2622317003** Collected: 08/21/19 17:20 Received: 08/22/19 15:38 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/23/19 14:12	08/26/19 20:42	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/23/19 14:12	08/26/19 20:42	7440-38-2	
Barium	**0.027**	mg/L	0.010	0.00049	1	08/23/19 14:12	08/26/19 20:42	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/23/19 14:12	08/26/19 20:42	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/23/19 14:12	08/26/19 20:42	7440-43-9	
Chromium	**0.0022J**	mg/L	0.010	0.00039	1	08/23/19 14:12	08/26/19 20:42	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	08/23/19 14:12	08/26/19 20:42	7440-48-4	
Lead	**0.000071J**	mg/L	0.0050	0.000046	1	08/23/19 14:12	08/26/19 20:42	7439-92-1	
Lithium	**0.0011J**	mg/L	0.030	0.00078	1	08/23/19 14:12	08/26/19 20:42	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/23/19 14:12	08/26/19 20:42	7439-98-7	
Selenium	**0.0025J**	mg/L	0.010	0.0013	1	08/23/19 14:12	08/26/19 20:42	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/23/19 14:12	08/26/19 20:42	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	08/26/19 14:21	08/27/19 11:56	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	**0.11J**	mg/L	0.30	0.029	1		08/30/19 05:20	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: Plant Hammond AP
Pace Project No.: 2622317

QC Batch: 34231 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Associated Lab Samples: 2622317001, 2622317002, 2622317003

METHOD BLANK: 154028 Matrix: Water
Associated Lab Samples: 2622317001, 2622317002, 2622317003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	08/27/19 10:49	

LABORATORY CONTROL SAMPLE: 154029

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 154030 154031

Parameter	Units	2622246001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	ND	0.0025	0.0025	0.0026	0.0025	103	99	75-125	3	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: Plant Hammond AP
Pace Project No.: 2622317

QC Batch: 34179 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2622317001, 2622317002, 2622317003

METHOD BLANK: 153793 Matrix: Water
Associated Lab Samples: 2622317001, 2622317002, 2622317003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	0.00075J	0.0030	0.00027	08/26/19 19:11	
Arsenic	mg/L	ND	0.0050	0.00035	08/26/19 19:11	
Barium	mg/L	ND	0.010	0.00049	08/26/19 19:11	
Beryllium	mg/L	ND	0.0030	0.000074	08/26/19 19:11	
Cadmium	mg/L	ND	0.0025	0.00011	08/26/19 19:11	
Chromium	mg/L	ND	0.010	0.00039	08/26/19 19:11	
Cobalt	mg/L	ND	0.0050	0.00030	08/26/19 19:11	
Lead	mg/L	ND	0.0050	0.000046	08/26/19 19:11	
Lithium	mg/L	ND	0.030	0.00078	08/26/19 19:11	
Molybdenum	mg/L	ND	0.010	0.00095	08/26/19 19:11	
Selenium	mg/L	ND	0.010	0.0013	08/26/19 19:11	
Thallium	mg/L	ND	0.0010	0.000052	08/26/19 19:11	

LABORATORY CONTROL SAMPLE: 153794

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.092	92	80-120	
Arsenic	mg/L	0.1	0.10	103	80-120	
Barium	mg/L	0.1	0.099	99	80-120	
Beryllium	mg/L	0.1	0.10	105	80-120	
Cadmium	mg/L	0.1	0.10	103	80-120	
Chromium	mg/L	0.1	0.081	81	80-120	
Cobalt	mg/L	0.1	0.10	100	80-120	
Lead	mg/L	0.1	0.086	86	80-120	
Lithium	mg/L	0.1	0.10	105	80-120	
Molybdenum	mg/L	0.1	0.091	91	80-120	
Selenium	mg/L	0.1	0.10	103	80-120	
Thallium	mg/L	0.1	0.093	93	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 153795 153796

Parameter	Units	2622267002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L	0.00039J	0.1	0.1	0.11	0.10	108	103	75-125	5	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.099	101	99	75-125	2	20	
Barium	mg/L	0.017	0.1	0.1	0.13	0.12	108	101	75-125	5	20	
Beryllium	mg/L	ND	0.1	0.1	0.10	0.10	101	101	75-125	0	20	
Cadmium	mg/L	ND	0.1	0.1	0.10	0.10	101	100	75-125	1	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: Plant Hammond AP
Pace Project No.: 2622317

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 153795 153796

Parameter	Units	2622267002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chromium	mg/L	0.00073J	0.1	0.1	0.10	0.10	99	100	75-125	1	20	
Cobalt	mg/L	ND	0.1	0.1	0.097	0.098	97	98	75-125	0	20	
Lead	mg/L	0.000064J	0.1	0.1	0.095	0.097	94	97	75-125	3	20	
Lithium	mg/L	ND	0.1	0.1	0.10	0.10	101	101	75-125	0	20	
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.097	101	97	75-125	5	20	
Selenium	mg/L	ND	0.1	0.1	0.10	0.10	100	102	75-125	2	20	
Thallium	mg/L	ND	0.1	0.1	0.095	0.099	95	98	75-125	3	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: Plant Hammond AP
Pace Project No.: 2622317

QC Batch: 34532 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2622317001, 2622317002, 2622317003

METHOD BLANK: 155480 Matrix: Water
Associated Lab Samples: 2622317001, 2622317002, 2622317003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.30	0.029	08/29/19 22:10	

LABORATORY CONTROL SAMPLE: 155481

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 155482 155483

Parameter	Units	2622265001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	ND	10	10	9.3	9.2	93	92	90-110	0	15	

MATRIX SPIKE SAMPLE: 155490

Parameter	Units	2622267002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	ND	10	8.5	85	90-110	M1

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: Plant Hammond AP
Pace Project No.: 2622317

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

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

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond AP
Pace Project No.: 2622317

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2622317001	**HGWA-111**	EPA 3005A	34179	EPA 6020B	34192
2622317002	**HGWA-112**	EPA 3005A	34179	EPA 6020B	34192
2622317003	**HGWA-113**	EPA 3005A	34179	EPA 6020B	34192
2622317001	**HGWA-111**	EPA 7470A	34231	EPA 7470A	34309
2622317002	**HGWA-112**	EPA 7470A	34231	EPA 7470A	34309
2622317003	**HGWA-113**	EPA 7470A	34231	EPA 7470A	34309
2622317001	**HGWA-111**	EPA 300.0	34532		
2622317002	**HGWA-112**	EPA 300.0	34532		
2622317003	**HGWA-113**	EPA 300.0	34532		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham / Lauren Petty	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Geosyntec	Company Name:	
	Atlanta, GA 30339			Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond AP	Pace Project Manager:	betsy.mcdaniel@pacelabs.com
Requested Due Date:	Standard TAT	Project #:	GW6581	Pace Profile #:	327.4.2

Regulatory Agency: —

State / Location: GA

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	App. IV Metals *	Fluoride by 300.0	Radium 226/228	Residual Chlorine (Y/N)
	MATRIX: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS																	Requested Analysis Filtered (Y/N)	N	N	N	
1	~~HGWA-110~~ HGWA-111	WT	G	8/21/19	1555	8/21/19	1615	23	4	1		3							Y	Y	Y	N
2	~~HGWA-110 CR~~ HGWA-112	WT	G	8/21/19	1700	8/21/19	1720	25	4	1		3							Y	Y	Y	N
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

CR 8/21/19

WO# : 2622317

2622317

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
* Metals list: Hg, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl	Chad Russo / Georgia	8/21/19	1900	Maria Munbus / Geo	8/21/19	1900				
	Maria Munbus	8/21/19	20:45	Leslie Lowe / Geosyntec	8/21/19	20:45				
	Leslie Blaine Geosyntec	8/21/19	10:49	[illegible]	8.21.19	10:49				
				MAlman	8/21/19	1538	3.2	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Chad Russo

SIGNATURE of SAMPLER: Chad Russo DATE Signed: 8/21/19

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham / Lauren Petty	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Geosyntec	Company Name:	
	Atlanta, GA 30339			Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond AP	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:	GW6581	Pace Profile #:	327.4.2

Requlatory Agency: GA

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test: Y/N	App. IV Metals *	Fluoride by 300.0	Radium 226/228	Residual Chlorine (Y/N)
	MATRIX: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS																	Requested Analysis Filtered (Y/N)	N	N	N	
1	HGWA-113	WT	G	8/21/19	1658	8/21/19	1720	↓	4	1		3							Y	Y	Y	N
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

NM 08/21/19

WO#: 2622317

PM: BM Due Date: 08/29/19

CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
* Metals list: Hg, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl	Noelia Muskus/Geo	8/21/19	20:45	Lauren Lee/Geosyntec	8/21/19	20:45				
	Lee/Geosyntec	8/22/19	10:49	[illegible]	8.22.19	1049				
				MZalman	8/22/19	1538	3.2	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Noelia Muskus

SIGNATURE of SAMPLER: Noelia Muskus DATE Signed: 08/21/19

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power Project #

WO#: 2622317

PM: BM Due Date: 08/29/19

CLIENT: GAPower-CCR

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

Tracking #:

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

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

Thermometer Used 83 Type of Ice: Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 3.2 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C Comments:

Date and Initials of person examining contents: 8/22/19 MK

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

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

Person Contacted: Date/Time:

Comments/ Resolution:

Project Manager Review: **Date:**

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

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

September 23, 2019

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

RE: Project: Plant Hammond AP
Pace Project No.: 2622318

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on August 22, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

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

Enclosures

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

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

CERTIFICATIONS

Project: Plant Hammond AP
Pace Project No.: 2622318

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Florida: Cert E871149 SEKS WET
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

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

SAMPLE SUMMARY

Project: Plant Hammond AP
Pace Project No.: 2622318

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2622318001	**HGWA-111**	Water	08/21/19 16:15	08/22/19 15:38
2622318002	**HGWA-112**	Water	08/21/19 17:20	08/22/19 15:38
2622318003	**HGWA-113**	Water	08/21/19 17:20	08/22/19 15:38

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

SAMPLE ANALYTE COUNT

Project: Plant Hammond AP
Pace Project No.: 2622318

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2622318001	**HGWA-111**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622318002	**HGWA-112**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622318003	**HGWA-113**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond AP
Pace Project No.: 2622318

Sample: HGWA-111 **Lab ID: 2622318001** Collected: 08/21/19 16:15 Received: 08/22/19 15:38 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.492 ± 0.222 (0.223) C:92% T:NA**	pCi/L	09/09/19 08:48	13982-63-3	
Radium-228	EPA 9320	**0.0607 ± 0.403 (0.923) C:67% T:74%**	pCi/L	09/19/19 12:09	15262-20-1	
Total Radium	Total Radium Calculation	**0.553 ± 0.625 (1.15)**	pCi/L	09/20/19 12:23	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond AP
Pace Project No.: 2622318

Sample: HGWA-112 **Lab ID: 2622318002** Collected: 08/21/19 17:20 Received: 08/22/19 15:38 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.417 ± 0.244 (0.395) C:91% T:NA**	pCi/L	09/09/19 08:48	13982-63-3	
Radium-228	EPA 9320	**0.0971 ± 0.572 (1.30) C:54% T:78%**	pCi/L	09/19/19 12:09	15262-20-1	
Total Radium	Total Radium Calculation	**0.514 ± 0.816 (1.70)**	pCi/L	09/20/19 12:23	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond AP
Pace Project No.: 2622318

Sample: HGWA-113 **Lab ID: 2622318003** Collected: 08/21/19 17:20 Received: 08/22/19 15:38 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.241 ± 0.188 (0.324) C:86% T:NA**	pCi/L	09/09/19 08:48	13982-63-3	
Radium-228	EPA 9320	**0.251 ± 0.437 (0.955) C:71% T:71%**	pCi/L	09/19/19 12:09	15262-20-1	
Total Radium	Total Radium Calculation	**0.492 ± 0.625 (1.28)**	pCi/L	09/20/19 12:23	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond AP
Pace Project No.: 2622318

QC Batch: 358895 Analysis Method: EPA 9320
QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228
Associated Lab Samples: 2622318001, 2622318002, 2622318003

METHOD BLANK: 1742554 Matrix: Water
Associated Lab Samples: 2622318001, 2622318002, 2622318003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.167 ± 0.291 (0.635) C:73% T:86%	pCi/L	09/19/19 12:11	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond AP
Pace Project No.: 2622318

QC Batch: 359801 Analysis Method: EPA 9315
QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium
Associated Lab Samples: 2622318001, 2622318002, 2622318003

METHOD BLANK: 1746802 Matrix: Water
Associated Lab Samples: 2622318001, 2622318002, 2622318003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.563 ± 0.229 (0.205) C:97% T:NA	pCi/L	09/09/19 09:06	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: Plant Hammond AP
Pace Project No.: 2622318

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond AP
Pace Project No.: 2622318

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2622318001	**HGWA-111**	EPA 9315	359801		
2622318002	**HGWA-112**	EPA 9315	359801		
2622318003	**HGWA-113**	EPA 9315	359801		
2622318001	**HGWA-111**	EPA 9320	358895		
2622318002	**HGWA-112**	EPA 9320	358895		
2622318003	**HGWA-113**	EPA 9320	358895		
2622318001	**HGWA-111**	Total Radium Calculation	362430		
2622318002	**HGWA-112**	Total Radium Calculation	362430		
2622318003	**HGWA-113**	Total Radium Calculation	362430		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 2

Section A — Required Client Information:

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

Section B — Required Project Information:

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

Section C — Invoice Information:

Attention:	scsinvoices@southernco.com
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	betsy.mcdaniel@pacelabs.com
Pace Profile #:	327.4.2

Regulatory Agency: —

State / Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test (Y/N)	App. IV Metals *	Fluoride by 300.0	Radium 226/228	Residual Chlorine (Y/N)
	MATRIX: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Other OT, Tissue TS																	N	N	N	N	
1	~~HGWA-110~~ HGWA-111	WT	G	8/21/19	1555	8/21/19	1615	23	4	1		3						Y	Y	Y	Y	N
2	~~HGWA-110~~ HGWA-112	WT	G	8/21/19	1700	8/21/19	1720	25	4	1		3						Y	Y	Y	Y	N
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

CR 8/21/19

WO# : 2622318

2622318

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
* Metals list: Hg, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl	Chad Russo / Geosyntec	8/21/19	1900	Marlia Mushon / Geo	8/21/19	1900	
	Marlia Mushon	8/21/19	20:45	[illegible] / Geosyntec	8/21/19	20:45	
	[illegible] Blake Geosyntec	8/22/19	10:49	[illegible]	8.22.19	10:49	
				MDaliman	8/22/19	1538	3.2

TEMP in C: 3.2

Received on Ice (Y/N): Y

Custody Sealed Cooler (Y/N): Y

Samples Intact (Y/N): Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Chad Russo

SIGNATURE of SAMPLER: Chad Russo

DATE Signed: 8/21/19

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham / Lauren Petty	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Geosyntec	Company Name:	
	Atlanta, GA 30339			Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax	Project Name:	Plant Hammond AP	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:	GW6581	Pace Profile #:	327.4.2

Regulatory Agency: —

State / Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test: PIN	App. IV Metals *	Fluoride by 300.0	Radium 226/228	Residual Chlorine (Y/N)
																		N	N	N	N	
1	HGWA-113	WT	G	8/21/19	1658	8/21/19	1720	25	4	1		3						Y	Y	Y	Y	N
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

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

NM 08/21/19

WO# : 2622318

PM: BM Due Date: 09/20/19

CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
* Metals list: Hg, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl	Nalia Muskus/Geo	8/21/19	20:45	Jeffrey Law/Geosyntec	8/21/19	20:45	
	Jeffrey Law/Geosyntec	8/21/19	10:49	[illegible]	8.22.19	1049	
				MRahman	8/22/19	1538	3.2 Y Y Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Nalia Muskus

SIGNATURE of SAMPLER: Nalia Muskus DATE Signed: 08/21/19

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

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Powere Project #

WO#: 2622318

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

Tracking #:

PM: BM Due Date: 09/20/19

CLIENT: GAPower-CCR

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

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

Thermometer Used 83 Type of Ice: Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 3.2 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 8/22/19 MK

Temp should be above freezing to 6°C Comments:

Chain of Custody Present:	☑Yes	☐No	☐N/A
Chain of Custody Filled Out:	☑Yes	☐No	☐N/A
Chain of Custody Relinquished:	☑Yes	☐No	☐N/A
Sampler Name & Signature on COC:	☑Yes	☐No	☐N/A
Samples Arrived within Hold Time:	☑Yes	☐No	☐N/A
Short Hold Time Analysis (<72hr):	☐Yes	☑No	☐N/A
Rush Turn Around Time Requested:	☐Yes	☑No	☐N/A
Sufficient Volume:	☑Yes	☐No	☐N/A
Correct Containers Used:	☑Yes	☐No	☐N/A
-Pace Containers Used:	☑Yes	☐No	☐N/A
Containers Intact:	☑Yes	☐No	☐N/A
Filtered volume received for Dissolved tests	☐Yes	☐No	☑N/A
Sample Labels match COC:	☑Yes	☐No	☐N/A
-Includes date/time/ID/Analysis Matrix: W			
All containers needing preservation have been checked.	☑Yes	☐No	☐N/A
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes	☐No	☐N/A
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes	☑No	
Samples checked for dechlorination:	☐Yes	☐No	☑N/A
Headspace in VOA Vials (>6mm):	☐Yes	☐No	☑N/A
Trip Blank Present:	☐Yes	☐No	☑N/A
Trip Blank Custody Seals Present	☐Yes	☐No	☑N/A
Pace Trip Blank Lot # (if purchased):			

Comments	Initial when completed	Lot # of added preservative
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		

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

Person Contacted: Date/Time:

Comments/ Resolution:

Project Manager Review: **Date:**

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

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

March 12, 2020

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

RE: Project: Plant Hammond AP GW6581
Pace Project No.: 2622354

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on August 23, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

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

Enclosures

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

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

CERTIFICATIONS

Project: Plant Hammond AP GW6581
Pace Project No.: 2622354

Pace Analytical Services Atlanta
110 Technology Parkway Peachtree Corners, GA 30092
Florida DOH Certification #: E87315
Georgia DW Inorganics Certification #: 812
Georgia DW Microbiology Certification #: 812
North Carolina Certification #: 381
South Carolina Certification #: 98011001
Virginia Certification #: 460204

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

SAMPLE SUMMARY

Project: Plant Hammond AP GW6581
Pace Project No.: 2622354

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2622354001	**HGWC-117**	Water	08/22/19 10:00	08/23/19 12:00
2622354002	**HGWC-101**	Water	08/22/19 13:20	08/23/19 12:00
2622354003	**HGWC-118**	Water	08/22/19 11:23	08/23/19 12:00
2622354004	**HGWC-103**	Water	08/22/19 14:50	08/23/19 12:00
2622354005	**HGWC-105**	Water	08/22/19 17:15	08/23/19 12:00

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

SAMPLE ANALYTE COUNT

Project: Plant Hammond AP GW6581
Pace Project No.: 2622354

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2622354001	**HGWC-117**	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2622354002	**HGWC-101**	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2622354003	**HGWC-118**	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2622354004	**HGWC-103**	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2622354005	**HGWC-105**	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1

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ANALYTICAL RESULTS

Project: Plant Hammond AP GW6581
Pace Project No.: 2622354

Sample: HGWC-117 **Lab ID: 2622354001** Collected: 08/22/19 10:00 Received: 08/23/19 12:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/27/19 11:50	08/27/19 18:29	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/27/19 11:50	08/27/19 18:29	7440-38-2	
Barium	**0.036**	mg/L	0.010	0.00049	1	08/27/19 11:50	08/27/19 18:29	7440-39-3	
Beryllium	**0.000079J**	mg/L	0.0030	0.000074	1	08/27/19 11:50	08/27/19 18:29	7440-41-7	
Cadmium	**0.00064J**	mg/L	0.0025	0.00011	1	08/27/19 11:50	08/27/19 18:29	7440-43-9	
Chromium	ND	mg/L	0.010	0.00039	1	08/27/19 11:50	08/27/19 18:29	7440-47-3	
Cobalt	**0.012**	mg/L	0.0050	0.00030	1	08/27/19 11:50	08/27/19 18:29	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/27/19 11:50	08/27/19 18:29	7439-92-1	
Lithium	**0.0012J**	mg/L	0.030	0.00078	1	08/27/19 11:50	08/27/19 18:29	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/27/19 11:50	08/27/19 18:29	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/27/19 11:50	08/27/19 18:29	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/27/19 11:50	08/27/19 18:29	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	08/26/19 14:21	08/27/19 14:24	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		08/30/19 21:52	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Hammond AP GW6581
Pace Project No.: 2622354

Sample: HGWC-101 **Lab ID: 2622354002** Collected: 08/22/19 13:20 Received: 08/23/19 12:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/27/19 11:50	08/27/19 18:34	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/27/19 11:50	08/27/19 18:34	7440-38-2	
Barium	**0.043**	mg/L	0.010	0.00049	1	08/27/19 11:50	08/27/19 18:34	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/27/19 11:50	08/27/19 18:34	7440-41-7	
Cadmium	**0.00014J**	mg/L	0.0025	0.00011	1	08/27/19 11:50	08/27/19 18:34	7440-43-9	
Chromium	**0.00064J**	mg/L	0.010	0.00039	1	08/27/19 11:50	08/27/19 18:34	7440-47-3	B
Cobalt	ND	mg/L	0.0050	0.00030	1	08/27/19 11:50	08/27/19 18:34	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/27/19 11:50	08/27/19 18:34	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	08/27/19 11:50	08/27/19 18:34	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/27/19 11:50	08/27/19 18:34	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/27/19 11:50	08/27/19 18:34	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/27/19 11:50	08/27/19 18:34	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	08/26/19 14:21	08/27/19 14:26	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		08/30/19 22:15	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Hammond AP GW6581
Pace Project No.: 2622354

Sample: HGWC-118 **Lab ID: 2622354003** Collected: 08/22/19 11:23 Received: 08/23/19 12:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/27/19 11:50	08/27/19 18:40	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/27/19 11:50	08/27/19 18:40	7440-38-2	
Barium	**0.052**	mg/L	0.010	0.00049	1	08/27/19 11:50	08/27/19 18:40	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/27/19 11:50	08/27/19 18:40	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/27/19 11:50	08/27/19 18:40	7440-43-9	
Chromium	ND	mg/L	0.010	0.00039	1	08/27/19 11:50	08/27/19 18:40	7440-47-3	
Cobalt	**0.00030J**	mg/L	0.0050	0.00030	1	08/27/19 11:50	08/27/19 18:40	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/27/19 11:50	08/27/19 18:40	7439-92-1	
Lithium	**0.0018J**	mg/L	0.030	0.00078	1	08/27/19 11:50	08/27/19 18:40	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/27/19 11:50	08/27/19 18:40	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/27/19 11:50	08/27/19 18:40	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/27/19 11:50	08/27/19 18:40	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	08/26/19 14:21	08/27/19 14:28	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	**0.070J**	mg/L	0.30	0.029	1		08/30/19 22:38	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Hammond AP GW6581
Pace Project No.: 2622354

Sample: HGWC-103 **Lab ID: 2622354004** Collected: 08/22/19 14:50 Received: 08/23/19 12:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/27/19 11:50	08/27/19 18:46	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/27/19 11:50	08/27/19 18:46	7440-38-2	
Barium	**0.036**	mg/L	0.010	0.00049	1	08/27/19 11:50	08/27/19 18:46	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/27/19 11:50	08/27/19 18:46	7440-41-7	
Cadmium	**0.00080J**	mg/L	0.0025	0.00011	1	08/27/19 11:50	08/27/19 18:46	7440-43-9	
Chromium	**0.00063J**	mg/L	0.010	0.00039	1	08/27/19 11:50	08/27/19 18:46	7440-47-3	B
Cobalt	**0.0019J**	mg/L	0.0050	0.00030	1	08/27/19 11:50	08/27/19 18:46	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/27/19 11:50	08/27/19 18:46	7439-92-1	
Lithium	**0.0015J**	mg/L	0.030	0.00078	1	08/27/19 11:50	08/27/19 18:46	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/27/19 11:50	08/27/19 18:46	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/27/19 11:50	08/27/19 18:46	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/27/19 11:50	08/27/19 18:46	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	08/26/19 14:21	08/27/19 14:31	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		08/30/19 23:00	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Hammond AP GW6581
Pace Project No.: 2622354

Sample: HGWC-105 **Lab ID: 2622354005** Collected: 08/22/19 17:15 Received: 08/23/19 12:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/27/19 11:50	08/27/19 19:03	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/27/19 11:50	08/27/19 19:03	7440-38-2	
Barium	**0.066**	mg/L	0.010	0.00049	1	08/27/19 11:50	08/27/19 19:03	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/27/19 11:50	08/27/19 19:03	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/27/19 11:50	08/27/19 19:03	7440-43-9	
Chromium	ND	mg/L	0.010	0.00039	1	08/27/19 11:50	08/27/19 19:03	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	08/27/19 11:50	08/27/19 19:03	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/27/19 11:50	08/27/19 19:03	7439-92-1	
Lithium	**0.0040J**	mg/L	0.030	0.00078	1	08/27/19 11:50	08/27/19 19:03	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/27/19 11:50	08/27/19 19:03	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/27/19 11:50	08/27/19 19:03	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/27/19 11:50	08/27/19 19:03	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	08/26/19 14:21	08/27/19 14:38	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		08/31/19 00:31	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2622354

QC Batch: 34265 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Associated Lab Samples: 2622354001, 2622354002, 2622354003, 2622354004, 2622354005

METHOD BLANK: 154112 Matrix: Water
Associated Lab Samples: 2622354001, 2622354002, 2622354003, 2622354004, 2622354005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	08/27/19 13:41	

LABORATORY CONTROL SAMPLE: 154113

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0026	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 154114 154115

Parameter	Units	2622337002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	ND	0.0025	0.0025	0.0025	0.0025	101	100	75-125	1	20	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2622354

QC Batch: 34320 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2622354001, 2622354002, 2622354003, 2622354004, 2622354005

METHOD BLANK: 154347 Matrix: Water
Associated Lab Samples: 2622354001, 2622354002, 2622354003, 2622354004, 2622354005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	08/27/19 16:36	
Arsenic	mg/L	ND	0.0050	0.00035	08/27/19 16:36	
Barium	mg/L	ND	0.010	0.00049	08/27/19 16:36	
Beryllium	mg/L	ND	0.0030	0.000074	08/27/19 16:36	
Cadmium	mg/L	ND	0.0025	0.00011	08/27/19 16:36	
Chromium	mg/L	0.0012J	0.010	0.00039	08/27/19 16:36	
Cobalt	mg/L	ND	0.0050	0.00030	08/27/19 16:36	
Lead	mg/L	ND	0.0050	0.000046	08/27/19 16:36	
Lithium	mg/L	ND	0.030	0.00078	08/27/19 16:36	
Molybdenum	mg/L	ND	0.010	0.00095	08/27/19 16:36	
Selenium	mg/L	ND	0.010	0.0013	08/27/19 16:36	
Thallium	mg/L	ND	0.0010	0.000052	08/27/19 16:36	

LABORATORY CONTROL SAMPLE: 154348

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.090	90	80-120	
Arsenic	mg/L	0.1	0.085	85	80-120	
Barium	mg/L	0.1	0.088	88	80-120	
Beryllium	mg/L	0.1	0.086	86	80-120	
Cadmium	mg/L	0.1	0.088	88	80-120	
Chromium	mg/L	0.1	0.088	88	80-120	
Cobalt	mg/L	0.1	0.086	86	80-120	
Lead	mg/L	0.1	0.086	86	80-120	
Lithium	mg/L	0.1	0.087	87	80-120	
Molybdenum	mg/L	0.1	0.089	89	80-120	
Selenium	mg/L	0.1	0.085	85	80-120	
Thallium	mg/L	0.1	0.087	87	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 154349 154350

Parameter	Units	2622337002 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	103	75-125	1	20	
Arsenic	mg/L	ND	0.1	0.1	0.098	0.098	98	98	75-125	1	20	
Barium	mg/L	0.078	0.1	0.1	0.18	0.18	104	104	75-125	0	20	
Beryllium	mg/L	ND	0.1	0.1	0.092	0.093	92	93	75-125	1	20	
Cadmium	mg/L	ND	0.1	0.1	0.099	0.10	99	101	75-125	2	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2622354

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 154349 154350

Parameter	Units	2622337002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chromium	mg/L	ND	0.1	0.1	0.10	0.10	101	100	75-125	1	20	
Cobalt	mg/L	ND	0.1	0.1	0.099	0.098	99	98	75-125	1	20	
Lead	mg/L	ND	0.1	0.1	0.096	0.098	96	98	75-125	2	20	
Lithium	mg/L	0.0025J	0.1	0.1	0.095	0.096	92	93	75-125	1	20	
Molybdenum	mg/L	ND	0.1	0.1	0.11	0.11	106	105	75-125	0	20	
Selenium	mg/L	ND	0.1	0.1	0.099	0.096	99	96	75-125	3	20	
Thallium	mg/L	0.00018J	0.1	0.1	0.098	0.099	97	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.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Hammond AP GW6581
Pace Project No.: 2622354

QC Batch: 34533 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2622354001, 2622354002, 2622354003, 2622354004, 2622354005

METHOD BLANK: 155485 Matrix: Water
Associated Lab Samples: 2622354001, 2622354002, 2622354003, 2622354004, 2622354005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.30	0.029	08/30/19 13:57	

LABORATORY CONTROL SAMPLE: 155486

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	10	9.3	93	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 155487 155488

Parameter	Units	2622319009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	ND	10	10	10.8	10.7	108	107	90-110	1	15	

MATRIX SPIKE SAMPLE: 155523

Parameter	Units	2622337002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	0.11J	10	9.5	94	90-110	

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Plant Hammond AP GW6581
Pace Project No.: 2622354

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond AP GW6581
Pace Project No.: 2622354

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2622354001	**HGWC-117**	EPA 3005A	34320	EPA 6020B	34344
2622354002	**HGWC-101**	EPA 3005A	34320	EPA 6020B	34344
2622354003	**HGWC-118**	EPA 3005A	34320	EPA 6020B	34344
2622354004	**HGWC-103**	EPA 3005A	34320	EPA 6020B	34344
2622354005	**HGWC-105**	EPA 3005A	34320	EPA 6020B	34344
2622354001	**HGWC-117**	EPA 7470A	34265	EPA 7470A	34311
2622354002	**HGWC-101**	EPA 7470A	34265	EPA 7470A	34311
2622354003	**HGWC-118**	EPA 7470A	34265	EPA 7470A	34311
2622354004	**HGWC-103**	EPA 7470A	34265	EPA 7470A	34311
2622354005	**HGWC-105**	EPA 7470A	34265	EPA 7470A	34311
2622354001	**HGWC-117**	EPA 300.0	34533		
2622354002	**HGWC-101**	EPA 300.0	34533		
2622354003	**HGWC-118**	EPA 300.0	34533		
2622354004	**HGWC-103**	EPA 300.0	34533		
2622354005	**HGWC-105**	EPA 300.0	34533		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham / Lauren Petty	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Geosyntec	Company Name:	
	Atlanta, GA 30339			Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond AP	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:	GWC581	Pace Profile #:	327.4.2

Regulatory Agency: GA

State / Location

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	App. IV Metals *	Fluoride by 300.0	Radium 226/228	Residual Chlorine (Y/N)
	MATRIX CODE: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Other OT, Tissue TS																		N	N	N	
1	HGWC-117	GW	G	8/12/19	0930	8/22	1000	22	4	1		3							Y	Y	Y	N
2	HGWC-101	GW	G	8/22	~~1155~~ 1250	8/22	1320	25	4	1		3							Y	Y	Y	N
3	HGWC-118	GW	G	8/22	1105	8/22	1123	22	4	1		3							Y	Y	Y	N
4	HGWC-103	GW	G	8/22	1430	8/22	1450	22	4	1		3							Y	Y	Y	N
6	HGWC-105	GW	G	8/22	1640	8/22	1715	26	4	1		3							Y	Y	Y	N
5																						
7																						
8												08/21/19										
9																						
10																						
11																						
12																						

CR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
* Metals list: Hg, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl	Chad Russo / Geo	8/22/19	1810	Natalia Murphy / Geosyntec	8/22/19	1810	
	Natalia Murphy / Geosyntec	8/22/19	1935	1 Pace	8.23.19	1048	
				Charles Hunter	8/23/19	2000	3.1 Y Y Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Chad Russo

SIGNATURE of SAMPLER: Chad Russo

DATE Signed: 8/12/19

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

WO#: 2622354

2622354

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA-Power CCR

WO# : 2622354

PM: BM Due Date: 08/30/19

CLIENT: GAPower-CCR

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

Tracking #: ____

Proj. Name:

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

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

Thermometer Used 214 **Type of Ice:** (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 3.1°C **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 8/23/19 CH

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	CH 8/23/19 ☐Yes ☑No ☐N/A	12. HGWC-103 collection time is 1450 per COC
-Includes date/time/ID/Analysis Matrix: W		" " " " " 1430 per labels
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes ☑No	Initial when completed / Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):____		

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

Person Contacted: ____ Date/Time: ____

Comments/ Resolution: The COC was used for login purposes. CH 8/23/19

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)

F-ALLC003rev.3, 11September2006

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

September 23, 2019

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

RE: Project: Plant Hammond AP GW6581
Pace Project No.: 2622355

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on August 23, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

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

Enclosures

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

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

CERTIFICATIONS

Project: Plant Hammond AP GW6581
Pace Project No.: 2622355

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Florida: Cert E871149 SEKS WET
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

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

SAMPLE SUMMARY

Project: Plant Hammond AP GW6581
Pace Project No.: 2622355

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2622355001	**HGWC-117**	Water	08/22/19 10:00	08/23/19 12:00
2622355002	**HGWC-101**	Water	08/22/19 13:20	08/23/19 12:00
2622355003	**HGWC-118**	Water	08/22/19 11:23	08/23/19 12:00
2622355004	**HGWC-103**	Water	08/22/19 14:50	08/23/19 12:00
2622355005	**HGWC-105**	Water	08/22/19 17:15	08/23/19 12:00

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SAMPLE ANALYTE COUNT

Project: Plant Hammond AP GW6581
Pace Project No.: 2622355

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2622355001	**HGWC-117**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622355002	**HGWC-101**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622355003	**HGWC-118**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622355004	**HGWC-103**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622355005	**HGWC-105**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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(770)734-4200

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond AP GW6581
Pace Project No.: 2622355

Sample: HGWC-117 **Lab ID: 2622355001** Collected: 08/22/19 10:00 Received: 08/23/19 12:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.333 ± 0.283 (0.509) C:84% T:NA**	pCi/L	09/05/19 09:49	13982-63-3	
Radium-228	EPA 9320	**-0.0831 ± 0.297 (0.726) C:67% T:79%**	pCi/L	09/19/19 12:11	15262-20-1	
Total Radium	Total Radium Calculation	**0.333 ± 0.580 (1.24)**	pCi/L	09/20/19 12:23	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond AP GW6581
Pace Project No.: 2622355

Sample: HGWC-101 **Lab ID: 2622355002** Collected: 08/22/19 13:20 Received: 08/23/19 12:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.474 ± 0.245 (0.335) C:81% T:NA**	pCi/L	09/09/19 09:06	13982-63-3	
Radium-228	EPA 9320	**-0.0890 ± 0.343 (0.828) C:69% T:75%**	pCi/L	09/19/19 12:12	15262-20-1	
Total Radium	Total Radium Calculation	**0.474 ± 0.588 (1.16)**	pCi/L	09/20/19 12:23	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond AP GW6581
Pace Project No.: 2622355

Sample: HGWC-118 **Lab ID: 2622355003** Collected: 08/22/19 11:23 Received: 08/23/19 12:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.492 ± 0.255 (0.370) C:81% T:NA**	pCi/L	09/09/19 09:06	13982-63-3	
Radium-228	EPA 9320	**0.412 ± 0.411 (0.846) C:67% T:78%**	pCi/L	09/19/19 12:11	15262-20-1	
Total Radium	Total Radium Calculation	**0.904 ± 0.666 (1.22)**	pCi/L	09/20/19 12:23	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond AP GW6581
Pace Project No.: 2622355

Sample: HGWC-103 **Lab ID: 2622355004** Collected: 08/22/19 14:50 Received: 08/23/19 12:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.434 ± 0.204 (0.222) C:95% T:NA**	pCi/L	09/09/19 09:06	13982-63-3	
Radium-228	EPA 9320	**0.512 ± 0.402 (0.787) C:72% T:78%**	pCi/L	09/19/19 13:34	15262-20-1	
Total Radium	Total Radium Calculation	**0.946 ± 0.606 (1.01)**	pCi/L	09/20/19 12:23	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond AP GW6581
Pace Project No.: 2622355

Sample: HGWC-105 **Lab ID: 2622355005** Collected: 08/22/19 17:15 Received: 08/23/19 12:00 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.241 ± 0.175 (0.286) C:83% T:NA**	pCi/L	09/09/19 09:06	13982-63-3	
Radium-228	EPA 9320	**0.453 ± 0.393 (0.786) C:71% T:72%**	pCi/L	09/19/19 12:12	15262-20-1	
Total Radium	Total Radium Calculation	**0.694 ± 0.568 (1.07)**	pCi/L	09/20/19 12:23	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond AP GW6581
Pace Project No.: 2622355

QC Batch: 359490 Analysis Method: EPA 9315
QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium
Associated Lab Samples: 2622355001

METHOD BLANK: 1745579 Matrix: Water
Associated Lab Samples: 2622355001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.243 ± 0.244 (0.474) C:94% T:NA	pCi/L	09/05/19 08:07	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond AP GW6581
Pace Project No.: 2622355

QC Batch: 358895 Analysis Method: EPA 9320
QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228
Associated Lab Samples: 2622355001, 2622355002, 2622355003, 2622355004, 2622355005

METHOD BLANK: 1742554 Matrix: Water
Associated Lab Samples: 2622355001, 2622355002, 2622355003, 2622355004, 2622355005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.167 ± 0.291 (0.635) C:73% T:86%	pCi/L	09/19/19 12:11	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond AP GW6581
Pace Project No.: 2622355

QC Batch: 359801 Analysis Method: EPA 9315
QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium
Associated Lab Samples: 2622355002, 2622355003, 2622355004, 2622355005

METHOD BLANK: 1746802 Matrix: Water
Associated Lab Samples: 2622355002, 2622355003, 2622355004, 2622355005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.563 ± 0.229 (0.205) C:97% T:NA	pCi/L	09/09/19 09:06	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: Plant Hammond AP GW6581
Pace Project No.: 2622355

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond AP GW6581
Pace Project No.: 2622355

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2622355001	**HGWC-117**	EPA 9315	359490		
2622355002	**HGWC-101**	EPA 9315	359801		
2622355003	**HGWC-118**	EPA 9315	359801		
2622355004	**HGWC-103**	EPA 9315	359801		
2622355005	**HGWC-105**	EPA 9315	359801		
2622355001	**HGWC-117**	EPA 9320	358895		
2622355002	**HGWC-101**	EPA 9320	358895		
2622355003	**HGWC-118**	EPA 9320	358895		
2622355004	**HGWC-103**	EPA 9320	358895		
2622355005	**HGWC-105**	EPA 9320	358895		
2622355001	**HGWC-117**	Total Radium Calculation	362430		
2622355002	**HGWC-101**	Total Radium Calculation	362430		
2622355003	**HGWC-118**	Total Radium Calculation	362430		
2622355004	**HGWC-103**	Total Radium Calculation	362430		
2622355005	**HGWC-105**	Total Radium Calculation	362430		

PaceAnalytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 Of 1

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: Georgia Power - Coal Combustion Residuals	Report To: Joju Abraham / Lauren Petty	Attention: scsinvoices@southernco.com
Address: 2480 Maner Road	Copy To: Geosyntec	Company Name:
Atlanta, GA 30339		Address:
Email: jabraham@southernco.com	Purchase Order #: SCS10382775	Pace Quote:
Phone: (404)506-7239 Fax:	Project Name: Plant Hammond AP	Pace Project Manager: betsy.mcdaniel@pacelabs.com,
Requested Due Date: Standard TAT	Project #: GWC581	Pace Profile #: 327.4.2

Regulatory Agency:

State / Location: GA

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

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

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	App. IV Metals *	Fluoride by 300.0	Radium 226/228	Residual Chlorine (Y/N)
1	HGWC-117	WT	G	8/22/19	0930	8/22	1000	22	4	1		3							Y	Y	Y	N
2	HGWC-101	WT	G	8/22	~~1155~~ 1250	8/22	1320	25	4	1		3							Y	Y	Y	N
3	HGWC-118	WT	G	8/22	1105	8/22	1123	22	4	1		3							Y	Y	Y	N
4	HGWC-103	WT	G	8/22	1430	8/22	1450	22	4	1		3							Y	Y	Y	N
5	HGWC-105	WT	G	8/22	1640	8/22	1715	26	4	1		3							Y	Y	Y	N
6																						
7																						
8																						
9																						
10																						
11																						
12																						

CR 08/21/19

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
* Metals list: Hg, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl	Chad Russo / Geo	8/22/19	1810	Nicolia Munteo / Geosyntec	8/22/19	1910				
	Nicolia Munteo / Geosyntec	8/22/19	1935	/ Pace	8.23.19	1048				
				Charles Hurtz	8/23/19	1200	3.1	Y	Y	Y

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

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Chad Russo

SIGNATURE of SAMPLER: Chad Russo DATE Signed: 8/22/19

WO# : 2622355

2622355

Sample Condition Upon Receipt

Pace Analytical

Client Name: GA Power CCR

WO#: 2622355

PM: BM Due Date: 09/23/19

CLIENT: GAPower-CCR

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

Tracking #: _____

Proj. Name:

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

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

Thermometer Used 214 Type of Ice: (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 3.1 °C Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 8/23/19 CAH

Temp should be above freezing to 6°C Comments:

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: W	8/23/19 CAH ☑Yes ☐No ☐N/A	12. H-GWC-103 collection time is 1450 per COC " " " " " 1430 per labels.
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes ☑No	Initial when completed / Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased): _____		

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: The COC was used for login purposes. CAH 8/23/19

Project Manager Review: _____ **Date:** _____

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

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

March 12, 2020

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

RE: Project: Plant Hammond AP
Pace Project No.: 2622400

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on August 26, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

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

Enclosures

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

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

CERTIFICATIONS

Project: Plant Hammond AP
Pace Project No.: 2622400

Pace Analytical Services Atlanta
110 Technology Parkway Peachtree Corners, GA 30092
Florida DOH Certification #: E87315
Georgia DW Inorganics Certification #: 812
Georgia DW Microbiology Certification #: 812
North Carolina Certification #: 381
South Carolina Certification #: 98011001
Virginia Certification #: 460204

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

SAMPLE SUMMARY

Project: Plant Hammond AP
Pace Project No.: 2622400

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2622400001	**EB-01**	Water	08/23/19 11:45	08/26/19 18:30
2622400002	**EB-02**	Water	08/23/19 11:55	08/26/19 18:30

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: Plant Hammond AP
Pace Project No.: 2622400

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2622400001	**EB-01**	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2622400002	**EB-02**	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1

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

ANALYTICAL RESULTS

Project: Plant Hammond AP
Pace Project No.: 2622400

Sample: EB-01 **Lab ID: 2622400001** Collected: 08/23/19 11:45 Received: 08/26/19 18:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/29/19 18:05	08/30/19 17:59	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/29/19 18:05	08/30/19 17:59	7440-38-2	
Barium	ND	mg/L	0.010	0.00049	1	08/29/19 18:05	08/30/19 17:59	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/29/19 18:05	08/30/19 17:59	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/29/19 18:05	08/30/19 17:59	7440-43-9	
Chromium	ND	mg/L	0.010	0.00039	1	08/29/19 18:05	08/30/19 17:59	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	08/29/19 18:05	08/30/19 17:59	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/29/19 18:05	08/30/19 17:59	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	08/29/19 18:05	08/30/19 17:59	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/29/19 18:05	08/30/19 17:59	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/29/19 18:05	08/30/19 17:59	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/29/19 18:05	08/30/19 17:59	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	08/28/19 13:26	08/28/19 16:35	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		08/31/19 00:53	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant Hammond AP
Pace Project No.: 2622400

Sample: EB-02 **Lab ID: 2622400002** Collected: 08/23/19 11:55 Received: 08/26/19 18:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/29/19 18:05	08/30/19 18:05	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/29/19 18:05	08/30/19 18:05	7440-38-2	
Barium	ND	mg/L	0.010	0.00049	1	08/29/19 18:05	08/30/19 18:05	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/29/19 18:05	08/30/19 18:05	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/29/19 18:05	08/30/19 18:05	7440-43-9	
Chromium	ND	mg/L	0.010	0.00039	1	08/29/19 18:05	08/30/19 18:05	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	08/29/19 18:05	08/30/19 18:05	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/29/19 18:05	08/30/19 18:05	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	08/29/19 18:05	08/30/19 18:05	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/29/19 18:05	08/30/19 18:05	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/29/19 18:05	08/30/19 18:05	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/29/19 18:05	08/30/19 18:05	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	08/28/19 13:26	08/28/19 16:38	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		08/31/19 01:16	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: Plant Hammond AP
Pace Project No.: 2622400

QC Batch: 34391 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Associated Lab Samples: 2622400001, 2622400002

METHOD BLANK: 154672 Matrix: Water
Associated Lab Samples: 2622400001, 2622400002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	08/28/19 16:21	

LABORATORY CONTROL SAMPLE: 154673

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 154674 154675

Parameter	Units	2622398001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	ND	0.0025	0.0025	0.0024	0.0025	98	100	75-125	2	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: Plant Hammond AP
Pace Project No.: 2622400

QC Batch: 34496
QC Batch Method: EPA 3005A
Analysis Method: EPA 6020B
Analysis Description: 6020B MET
Associated Lab Samples: 2622400001, 2622400002

METHOD BLANK: 155177 Matrix: Water
Associated Lab Samples: 2622400001, 2622400002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	08/30/19 17:42	
Arsenic	mg/L	ND	0.0050	0.00035	08/30/19 17:42	
Barium	mg/L	ND	0.010	0.00049	08/30/19 17:42	
Beryllium	mg/L	ND	0.0030	0.000074	08/30/19 17:42	
Cadmium	mg/L	ND	0.0025	0.00011	08/30/19 17:42	
Chromium	mg/L	ND	0.010	0.00039	08/30/19 17:42	
Cobalt	mg/L	ND	0.0050	0.00030	08/30/19 17:42	
Lead	mg/L	ND	0.0050	0.000046	08/30/19 17:42	
Lithium	mg/L	ND	0.030	0.00078	08/30/19 17:42	
Molybdenum	mg/L	ND	0.010	0.00095	08/30/19 17:42	
Selenium	mg/L	ND	0.010	0.0013	08/30/19 17:42	
Thallium	mg/L	ND	0.0010	0.000052	08/30/19 17:42	

LABORATORY CONTROL SAMPLE: 155178

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	104	80-120	
Arsenic	mg/L	0.1	0.10	101	80-120	
Barium	mg/L	0.1	0.10	104	80-120	
Beryllium	mg/L	0.1	0.10	104	80-120	
Cadmium	mg/L	0.1	0.10	103	80-120	
Chromium	mg/L	0.1	0.10	103	80-120	
Cobalt	mg/L	0.1	0.10	101	80-120	
Lead	mg/L	0.1	0.10	101	80-120	
Lithium	mg/L	0.1	0.11	105	80-120	
Molybdenum	mg/L	0.1	0.10	105	80-120	
Selenium	mg/L	0.1	0.10	102	80-120	
Thallium	mg/L	0.1	0.10	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 155179 155180

Parameter	Units	2622479002 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	104	102	75-125	2	20	
Arsenic	mg/L	ND	0.1	0.1	0.11	0.11	106	107	75-125	1	20	
Barium	mg/L	0.036	0.1	0.1	0.14	0.13	103	97	75-125	4	20	
Beryllium	mg/L	0.00024J	0.1	0.1	0.098	0.095	97	95	75-125	3	20	
Cadmium	mg/L	0.00072	0.1	0.1	0.10	0.099	100	98	75-125	1	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: Plant Hammond AP
Pace Project No.: 2622400

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 155179 155180

Parameter	Units	2622479002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chromium	mg/L	ND	0.1	0.1	0.099	0.097	99	97	75-125	2	20	
Cobalt	mg/L	0.0018J	0.1	0.1	0.098	0.098	97	96	75-125	1	20	
Lead	mg/L	0.000049J	0.1	0.1	0.094	0.093	94	93	75-125	1	20	
Lithium	mg/L	0.0033J	0.1	0.1	0.10	0.10	100	97	75-125	2	20	
Molybdenum	mg/L	0.0065J	0.1	0.1	0.11	0.11	106	105	75-125	1	20	
Selenium	mg/L	ND	0.1	0.1	0.11	0.11	106	109	75-125	2	20	
Thallium	mg/L	ND	0.1	0.1	0.096	0.095	96	95	75-125	1	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: Plant Hammond AP
Pace Project No.: 2622400

QC Batch: 34533 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2622400001, 2622400002

METHOD BLANK: 155485 Matrix: Water
Associated Lab Samples: 2622400001, 2622400002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.30	0.029	08/30/19 13:57	

LABORATORY CONTROL SAMPLE: 155486

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	10	9.3	93	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 155487 155488

Parameter	Units	2622319009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	ND	10	10	10.8	10.7	108	107	90-110	1	15	

MATRIX SPIKE SAMPLE: 155523

Parameter	Units	2622337002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	0.11J	10	9.5	94	90-110	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: Plant Hammond AP
Pace Project No.: 2622400

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond AP
Pace Project No.: 2622400

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2622400001	**EB-01**	EPA 3005A	34496	EPA 6020B	34557
2622400002	**EB-02**	EPA 3005A	34496	EPA 6020B	34557
2622400001	**EB-01**	EPA 7470A	34391	EPA 7470A	34429
2622400002	**EB-02**	EPA 7470A	34391	EPA 7470A	34429
2622400001	**EB-01**	EPA 300.0	34533		
2622400002	**EB-02**	EPA 300.0	34533		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham / Lauren Petty	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Geosyntec	Company Name:	
	Atlanta, GA 30339			Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond AP	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:		Project #:		Pace Profile #:	327.4.2

Regulatory Agency: —

State / Location: GA

Requested Analysis Filtered (Y/N): Y/N = N N N

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test: App. IV Metals *	Fluoride by 300.0	Radium 226/228	Residual Chlorine (Y/N)
1	EB-01	WT	G	8/23/19	1140	8/23/19	1145	26	4	1		3						Y	Y	Y	
2	EB-02	WT	G	8/23/19	1150	8/23/19	1155	26	4	1		3						Y	Y	Y	
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

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

N N 08/23/19

2

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
* Metals list: Hg, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl	Noelia Muskus/Geo	08/23/19	1530	Caroline Hong	8/23/19	1540	
	Christine Hong	08/26/19	0815	Charles Hurle	8/26/19	1830	2.8 Y 7 Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Noelia Muskus

SIGNATURE of SAMPLER: Noelia Muskus DATE Signed: 08/23/19

TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
2.8	Y	7	Y

Page 1 of 1

WO# : 2622400

2622400

Sample Condition Upon Receipt

WO# : 2622400

Pace Analytical

Client Name: GA Power CCR

PM: BM Due Date: 09/04/1

CLIENT: GAPower-CCR

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

Optional
Proj. Due Date:
Proj. Name:

Tracking #: _____

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

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

Thermometer Used 214

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

Cooler Temperature 2.8°C

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 8/26/19 [illegible]

Comments:

Temp should be above freezing to 6°C

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

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Field Data Required? Y / N

Comments/ Resolution: _____

Project Manager Review: _____ **Date:** _____

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

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

September 25, 2019

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

RE: Project: Plant Hammond AP
Pace Project No.: 2622401

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on August 26, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

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

Enclosures

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

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

CERTIFICATIONS

Project: Plant Hammond AP
Pace Project No.: 2622401

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Florida: Cert E871149 SEKS WET
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

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

SAMPLE SUMMARY

Project: Plant Hammond AP
Pace Project No.: 2622401

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2622401001	**EB-01**	Water	08/23/19 11:45	08/26/19 18:30
2622401002	**EB-02**	Water	08/23/19 11:55	08/26/19 18:30

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: Plant Hammond AP
Pace Project No.: 2622401

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2622401001	**EB-01**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622401002	**EB-02**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond AP
Pace Project No.: 2622401

Sample: EB-01 **Lab ID: 2622401001** Collected: 08/23/19 11:45 Received: 08/26/19 18:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.251 ± 0.254 (0.495) C:91% T:NA**	pCi/L	09/18/19 08:37	13982-63-3	
Radium-228	EPA 9320	**-0.369 ± 0.255 (0.680) C:77% T:83%**	pCi/L	09/20/19 11:53	15262-20-1	
Total Radium	Total Radium Calculation	**0.251 ± 0.509 (1.18)**	pCi/L	09/23/19 12:55	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond AP
Pace Project No.: 2622401

Sample: EB-02 **Lab ID: 2622401002** Collected: 08/23/19 11:55 Received: 08/26/19 18:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.539 ± 0.297 (0.374) C:91% T:NA**	pCi/L	09/18/19 08:37	13982-63-3	
Radium-228	EPA 9320	**0.478 ± 0.382 (0.753) C:75% T:75%**	pCi/L	09/20/19 11:54	15262-20-1	
Total Radium	Total Radium Calculation	**1.02 ± 0.679 (1.13)**	pCi/L	09/23/19 12:55	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond AP
Pace Project No.: 2622401

QC Batch: 359964 Analysis Method: EPA 9315
QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium
Associated Lab Samples: 2622401001, 2622401002

METHOD BLANK: 1747386 Matrix: Water
Associated Lab Samples: 2622401001, 2622401002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.204 ± 0.233 (0.472) C:94% T:NA	pCi/L	09/18/19 08:31	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond AP
Pace Project No.: 2622401

QC Batch: 359966 Analysis Method: EPA 9320
QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228
Associated Lab Samples: 2622401001, 2622401002

METHOD BLANK: 1747390 Matrix: Water
Associated Lab Samples: 2622401001, 2622401002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.232 ± 0.311 (0.664) C:77% T:89%	pCi/L	09/20/19 11:52	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: Plant Hammond AP
Pace Project No.: 2622401

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond AP
Pace Project No.: 2622401

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2622401001	**EB-01**	EPA 9315	359964		
2622401002	**EB-02**	EPA 9315	359964		
2622401001	**EB-01**	EPA 9320	359966		
2622401002	**EB-02**	EPA 9320	359966		
2622401001	**EB-01**	Total Radium Calculation	362632		
2622401002	**EB-02**	Total Radium Calculation	362632		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A — Required Client Information:

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

Section B — Required Project Information:

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

Section C — Invoice Information:

Attention:	scsinvoices@southernco.com
Company Name:	
Address:	
Pace Quote	
Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Pace Profile #:	327 4.2

Regulatory Agency:

State / Location: GA

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

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

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

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	Collected Start DATE	Start TIME	End DATE	End TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	App. IV Metals *	Fluoride by 300.0	Radium 226/228	Residual Chlorine (Y/N)	
1	EB-01	WT	G	8/23/19	1140	8/23/19	1145	26	4	1		3							Y	Y	Y		1
2	EB-02	WT	G	8/23/19	1150	8/23/19	1155	26	4	1		3							Y	Y	Y		2
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

NM 08/23/19

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
* Metals list: Hg, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl	Noelia Muskus / Geo	08/23/19	1530	Christine Herg	8/23/19	1540				
	Christine Herg	08/26/19	0815	[signature]	8/26/19	1830	2.8	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Noelia Muskus

SIGNATURE of SAMPLER: [signature] DATE Signed: 08/23/19

WO#: 2622401

2622401

Pace Analytical

Sample Condition Upon Receipt

WO#: 2622401

Client Name: GA Power CCR

PM: BM Due Date: 09/25/19

CLIENT: GAPower-CCR

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

Tracking #: _____

Optional: Proj. Due Date: Proj. Name:

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

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

Thermometer Used 214 Type of Ice: (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 2.8°C Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 8/26/19 BM

Temp should be above freezing to 6°C Comments:

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

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ **Date:** _____

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

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

March 12, 2020

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

RE: Project: Plant Hammond AP GW 6581
Pace Project No.: 2622402

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on August 26, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

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

Enclosures

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

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

CERTIFICATIONS

Project: Plant Hammond AP GW 6581
Pace Project No.: 2622402

Pace Analytical Services Atlanta
110 Technology Parkway Peachtree Corners, GA 30092
Florida DOH Certification #: E87315
Georgia DW Inorganics Certification #: 812
Georgia DW Microbiology Certification #: 812
North Carolina Certification #: 381
South Carolina Certification #: 98011001
Virginia Certification #: 460204

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

SAMPLE SUMMARY

Project: Plant Hammond AP GW 6581
Pace Project No.: 2622402

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2622402001	**HGWC-107**	Water	08/23/19 09:35	08/26/19 18:30
2622402002	**HGWC-109**	Water	08/23/19 10:40	08/26/19 18:30

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: Plant Hammond AP GW 6581
Pace Project No.: 2622402

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2622402001	**HGWC-107**	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2622402002	**HGWC-109**	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1

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

ANALYTICAL RESULTS

Project: Plant Hammond AP GW 6581
Pace Project No.: 2622402

Sample: HGWC-107 **Lab ID: 2622402001** Collected: 08/23/19 09:35 Received: 08/26/19 18:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/29/19 18:05	08/30/19 18:11	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/29/19 18:05	08/30/19 18:11	7440-38-2	
Barium	**0.038**	mg/L	0.010	0.00049	1	08/29/19 18:05	08/30/19 18:11	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/29/19 18:05	08/30/19 18:11	7440-41-7	
Cadmium	**0.00011J**	mg/L	0.0025	0.00011	1	08/29/19 18:05	08/30/19 18:11	7440-43-9	
Chromium	ND	mg/L	0.010	0.00039	1	08/29/19 18:05	08/30/19 18:11	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	08/29/19 18:05	08/30/19 18:11	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/29/19 18:05	08/30/19 18:11	7439-92-1	
Lithium	**0.00092J**	mg/L	0.030	0.00078	1	08/29/19 18:05	08/30/19 18:11	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/29/19 18:05	08/30/19 18:11	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/29/19 18:05	08/30/19 18:11	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/29/19 18:05	08/30/19 18:11	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	08/28/19 13:26	08/28/19 16:40	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		09/03/19 22:51	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant Hammond AP GW 6581
Pace Project No.: 2622402

Sample: HGWC-109 **Lab ID: 2622402002** Collected: 08/23/19 10:40 Received: 08/26/19 18:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/29/19 18:05	08/30/19 18:16	7440-36-0	
Arsenic	**0.0035J**	mg/L	0.0050	0.00035	1	08/29/19 18:05	08/30/19 18:16	7440-38-2	
Barium	**0.088**	mg/L	0.010	0.00049	1	08/29/19 18:05	08/30/19 18:16	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/29/19 18:05	08/30/19 18:16	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/29/19 18:05	08/30/19 18:16	7440-43-9	
Chromium	ND	mg/L	0.010	0.00039	1	08/29/19 18:05	08/30/19 18:16	7440-47-3	
Cobalt	**0.0027J**	mg/L	0.0050	0.00030	1	08/29/19 18:05	08/30/19 18:16	7440-48-4	
Lead	**0.000058J**	mg/L	0.0050	0.000046	1	08/29/19 18:05	08/30/19 18:16	7439-92-1	B
Lithium	**0.00090J**	mg/L	0.030	0.00078	1	08/29/19 18:05	08/30/19 18:16	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/29/19 18:05	08/30/19 18:16	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/29/19 18:05	08/30/19 18:16	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/29/19 18:05	08/30/19 18:16	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	08/28/19 13:26	08/28/19 16:42	7439-97-6	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Fluoride	**0.034J**	mg/L	0.30	0.029	1		09/03/19 23:14	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: Plant Hammond AP GW 6581
Pace Project No.: 2622402

QC Batch: 34391 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Associated Lab Samples: 2622402001, 2622402002

METHOD BLANK: 154672 Matrix: Water
Associated Lab Samples: 2622402001, 2622402002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	08/28/19 16:21	

LABORATORY CONTROL SAMPLE: 154673

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 154674 154675

Parameter	Units	2622398001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	ND	0.0025	0.0025	0.0024	0.0025	98	100	75-125	2	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: Plant Hammond AP GW 6581
Pace Project No.: 2622402

QC Batch: 34496 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2622402001, 2622402002

METHOD BLANK: 155177 Matrix: Water
Associated Lab Samples: 2622402001, 2622402002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	08/30/19 17:42	
Arsenic	mg/L	ND	0.0050	0.00035	08/30/19 17:42	
Barium	mg/L	ND	0.010	0.00049	08/30/19 17:42	
Beryllium	mg/L	ND	0.0030	0.000074	08/30/19 17:42	
Cadmium	mg/L	ND	0.0025	0.00011	08/30/19 17:42	
Chromium	mg/L	ND	0.010	0.00039	08/30/19 17:42	
Cobalt	mg/L	ND	0.0050	0.00030	08/30/19 17:42	
Lead	mg/L	ND	0.0050	0.000046	08/30/19 17:42	
Lithium	mg/L	ND	0.030	0.00078	08/30/19 17:42	
Molybdenum	mg/L	ND	0.010	0.00095	08/30/19 17:42	
Selenium	mg/L	ND	0.010	0.0013	08/30/19 17:42	
Thallium	mg/L	ND	0.0010	0.000052	08/30/19 17:42	

LABORATORY CONTROL SAMPLE: 155178

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	104	80-120	
Arsenic	mg/L	0.1	0.10	101	80-120	
Barium	mg/L	0.1	0.10	104	80-120	
Beryllium	mg/L	0.1	0.10	104	80-120	
Cadmium	mg/L	0.1	0.10	103	80-120	
Chromium	mg/L	0.1	0.10	103	80-120	
Cobalt	mg/L	0.1	0.10	101	80-120	
Lead	mg/L	0.1	0.10	101	80-120	
Lithium	mg/L	0.1	0.11	105	80-120	
Molybdenum	mg/L	0.1	0.10	105	80-120	
Selenium	mg/L	0.1	0.10	102	80-120	
Thallium	mg/L	0.1	0.10	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 155179 155180

Parameter	Units	2622479002 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	104	102	75-125	2	20	
Arsenic	mg/L	ND	0.1	0.1	0.11	0.11	106	107	75-125	1	20	
Barium	mg/L	0.036	0.1	0.1	0.14	0.13	103	97	75-125	4	20	
Beryllium	mg/L	0.00024J	0.1	0.1	0.098	0.095	97	95	75-125	3	20	
Cadmium	mg/L	0.00072	0.1	0.1	0.10	0.099	100	98	75-125	1	20	

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REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: Plant Hammond AP GW 6581
Pace Project No.: 2622402

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 155179 155180

Parameter	Units	2622479002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chromium	mg/L	ND	0.1	0.1	0.099	0.097	99	97	75-125	2	20	
Cobalt	mg/L	0.0018J	0.1	0.1	0.098	0.098	97	96	75-125	1	20	
Lead	mg/L	0.000049J	0.1	0.1	0.094	0.093	94	93	75-125	1	20	
Lithium	mg/L	0.0033J	0.1	0.1	0.10	0.10	100	97	75-125	2	20	
Molybdenum	mg/L	0.0065J	0.1	0.1	0.11	0.11	106	105	75-125	1	20	
Selenium	mg/L	ND	0.1	0.1	0.11	0.11	106	109	75-125	2	20	
Thallium	mg/L	ND	0.1	0.1	0.096	0.095	96	95	75-125	1	20	

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REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: Plant Hammond AP GW 6581
Pace Project No.: 2622402

QC Batch: 34680 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2622402001, 2622402002

METHOD BLANK: 156099 Matrix: Water
Associated Lab Samples: 2622402001, 2622402002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.30	0.029	09/03/19 20:58	

LABORATORY CONTROL SAMPLE: 156100

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 156101 156102

Parameter	Units	2622398001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.11J	10	10	9.4	9.2	92	91	90-110	1	15	

MATRIX SPIKE SAMPLE: 156103

Parameter	Units	2622402001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	ND	10	9.6	96	90-110	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: Plant Hammond AP GW 6581
Pace Project No.: 2622402

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond AP GW 6581
Pace Project No.: 2622402

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2622402001	**HGWC-107**	EPA 3005A	34496	EPA 6020B	34557
2622402002	**HGWC-109**	EPA 3005A	34496	EPA 6020B	34557
2622402001	**HGWC-107**	EPA 7470A	34391	EPA 7470A	34429
2622402002	**HGWC-109**	EPA 7470A	34391	EPA 7470A	34429
2622402001	**HGWC-107**	EPA 300.0	34680		
2622402002	**HGWC-109**	EPA 300.0	34680		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham / Lauren Petty	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Geosyntec	Company Name:	
	Atlanta, GA 30339			Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond AP	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:	GW6581	Pace Profile #:	327.4.2

Regulatory Agency: GA

State / Location:

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analysis Test (Y/N)	Requested Analysis Filtered (Y/N): App. IV Metals *	Fluoride by 300.0	Radium 226/228	Residual Chlorine (Y/N)	
																		Y/N	N	N	N			
1	HGWC-107	GW	G	8/23	0905	8/23	0935	21	4	1		3							Y	Y	Y	N		1
2	HGWC-109	GW	G	8/23	1020	8/23	1040	20	4	1		3							Y	Y	Y	N		2
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

CR2 8/23/19

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
* Metals list: Hg, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl	Chad Russo / Geo	8/23/19	1136	Nadia Mushtaq / Geo	8/23/19	1136				
	Nadia Mushtaq / Geo	8/23/19	1530	Christin Hagg	08/23/19	1540				
	Christin Hagg	08/26/19	0815	Chad Russo	8/26/19	1830	3.3	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Chad Russo

SIGNATURE of SAMPLER: Chad Russo DATE Signed: 8/23/19

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

WO# : 2622402

2622402

Sample Condition Upon Receipt

WO#: 2622402

Pace Analytical

Client Name: GA Power CCR

PM: BM Due Date: 09/04/19

CLIENT: GAPower-CCR

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

Optional
Proj. Due Date:
Proj. Name:

Tracking #: _____

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

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

Thermometer Used 214

Type of Ice: Wet Blue None

☐ Samples on ice, cooling process has begun

Date and Initials of person examining contents: 9/26/2019

Cooler Temperature 3.3°C

Biological Tissue is Frozen: Yes No

Comments:

Temp should be above freezing to 6°C

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

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ **Date:** _____

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

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

September 25, 2019

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

RE: Project: Plant Hammond AP GW6581
Pace Project No.: 2622403

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on August 26, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

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

Enclosures

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

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

CERTIFICATIONS

Project: Plant Hammond AP GW6581
Pace Project No.: 2622403

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Florida: Cert E871149 SEKS WET
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

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

SAMPLE SUMMARY

Project: Plant Hammond AP GW6581
Pace Project No.: 2622403

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2622403001	**HGWC-107**	Water	08/23/19 09:35	08/26/19 18:30
2622403002	**HGWC-109**	Water	08/23/19 10:40	08/26/19 18:30

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: Plant Hammond AP GW6581
Pace Project No.: 2622403

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2622403001	**HGWC-107**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622403002	**HGWC-109**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond AP GW6581
Pace Project No.: 2622403

Sample: HGWC-107 **Lab ID: 2622403001** Collected: 08/23/19 09:35 Received: 08/26/19 18:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.502 ± 0.296 (0.407) C:90% T:NA**	pCi/L	09/18/19 08:37	13982-63-3	
Radium-228	EPA 9320	**1.19 ± 0.482 (0.736) C:74% T:73%**	pCi/L	09/20/19 11:54	15262-20-1	
Total Radium	Total Radium Calculation	**1.69 ± 0.778 (1.14)**	pCi/L	09/23/19 12:55	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond AP GW6581
Pace Project No.: 2622403

Sample: HGWC-109 **Lab ID: 2622403002** Collected: 08/23/19 10:40 Received: 08/26/19 18:30 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.201 ± 0.209 (0.390) C:91% T:NA**	pCi/L	09/18/19 09:57	13982-63-3	
Radium-228	EPA 9320	**0.269 ± 0.262 (0.531) C:80% T:84%**	pCi/L	09/20/19 11:54	15262-20-1	
Total Radium	Total Radium Calculation	**0.470 ± 0.471 (0.921)**	pCi/L	09/24/19 10:31	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond AP GW6581
Pace Project No.: 2622403

QC Batch: 359964 Analysis Method: EPA 9315
QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium
Associated Lab Samples: 2622403001, 2622403002

METHOD BLANK: 1747386 Matrix: Water
Associated Lab Samples: 2622403001, 2622403002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.204 ± 0.233 (0.472) C:94% T:NA	pCi/L	09/18/19 08:31	

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REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond AP GW6581
Pace Project No.: 2622403

QC Batch: 359966 Analysis Method: EPA 9320
QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228
Associated Lab Samples: 2622403001, 2622403002

METHOD BLANK: 1747390 Matrix: Water
Associated Lab Samples: 2622403001, 2622403002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.232 ± 0.311 (0.664) C:77% T:89%	pCi/L	09/20/19 11:52	

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REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: Plant Hammond AP GW6581
Pace Project No.: 2622403

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond AP GW6581
Pace Project No.: 2622403

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2622403001	**HGWC-107**	EPA 9315	359964		
2622403002	**HGWC-109**	EPA 9315	359964		
2622403001	**HGWC-107**	EPA 9320	359966		
2622403002	**HGWC-109**	EPA 9320	359966		
2622403001	**HGWC-107**	Total Radium Calculation	362632		
2622403002	**HGWC-109**	Total Radium Calculation	362817		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Pace Analytical

Page : 1 Of 1

Section A Required Client Information:

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

Section B Required Project Information:

Report To:	Joju Abraham / Lauren Petty
Copy To:	Geosyntec
Purchase Order #	SCS10382775
Project Name:	Plant Hammond AP
Project #:	GWG-EC1

Section C Invoice Information:

Attention	scsinvoices@southernco.com
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Pace Profile #:	327.4 2

Regulatory Agency:

State / Location: GA

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

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

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

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test	App. IV Metals *	Fluoride by 300.0	Radium 226/228	Residual Chlorine (Y/N)
1	HGWC-107	WT	G	8/23	0905	8/23	0935	21	4	1		3							Y	Y	Y	N
2	HGWC-109	WT	G	8/23	1020	8/23	1040	20	4	1		3							Y	Y	Y	N
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

CR 8/23/19

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
* Metals list: Hg, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl	Chad Russo / Geo	8/23/19	1136	Malia Musgrove / Geo	8/23/19	1136				
	Malia Musgrove / Geo	8/23/19	1530	Christian Hess	8/23/19	1540				
	Christian Hess	8/26/19	0815	Charles Hull	8/26/19	1830	3.3	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Chad Russo

SIGNATURE of SAMPLER: Chad Russo

DATE Signed: 8/23/19

WO#: 2622403

2622403

Sample Condition Upon Receipt

WO#: 2622403

PM: BM Due Date: 09/25/19

CLIENT: GAPower-CCR

Pace Analytical

Client Name: GA Power CCR

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

Tracking #: _____

Optional
Proj. Due Date:
Proj. Name:

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

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

Thermometer Used 214

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

Cooler Temperature 3.3°C

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 9/26/19 CDH

Temp should be above freezing to 6°C

Comments:

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

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ **Date:** _____

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

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

December 16, 2019

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

RE: Project: PLANT HAMMOND
Pace Project No.: 2624787

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on October 22, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

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

Enclosures

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

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

CERTIFICATIONS

Project: PLANT HAMMOND
Pace Project No.: 2624787

Pace Analytical Services Atlanta
110 Technology Parkway Peachtree Corners, GA 30092
Florida DOH Certification #: E87315
Georgia DW Inorganics Certification #: 812
Georgia DW Microbiology Certification #: 812
North Carolina Certification #: 381
South Carolina Certification #: 98011001
Virginia Certification #: 460204

REPORT OF LABORATORY ANALYSIS

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

SAMPLE SUMMARY

Project: PLANT HAMMOND
Pace Project No.: 2624787

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624787001	**HGWA-111**	Water	10/21/19 15:45	10/22/19 09:57

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

SAMPLE ANALYTE COUNT

Project: PLANT HAMMOND
Pace Project No.: 2624787

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2624787001	**HGWA-111**	EPA 6020B	CSW	10
		SM 2540C	MZP	1
		EPA 300.0	MWB	3

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

ANALYTICAL RESULTS

Project: PLANT HAMMOND
Pace Project No.: 2624787

Sample: HGWA-111 **Lab ID: 2624787001** Collected: 10/21/19 15:45 Received: 10/22/19 09:57 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	ND	mg/L	0.0050	0.00035	1	10/28/19 20:04	10/29/19 20:48	7440-38-2	
Barium	**0.033**	mg/L	0.010	0.00049	1	10/28/19 20:04	10/29/19 20:48	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	10/28/19 20:04	10/29/19 20:48	7440-41-7	
Boron	**0.0097J**	mg/L	0.040	0.0049	1	10/28/19 20:04	10/29/19 20:48	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	10/28/19 20:04	10/29/19 20:48	7440-43-9	
Calcium	**51.0**	mg/L	5.0	0.55	50	10/28/19 20:04	10/29/19 20:54	7440-70-2	
Chromium	**0.0012J**	mg/L	0.010	0.00039	1	10/28/19 20:04	10/29/19 20:48	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	10/28/19 20:04	10/29/19 20:48	7440-48-4	
Lead	**0.00016J**	mg/L	0.0050	0.000046	1	10/28/19 20:04	10/29/19 20:48	7439-92-1	
Lithium	**0.0026J**	mg/L	0.030	0.00078	1	10/28/19 20:04	10/29/19 20:48	7439-93-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**187**	mg/L	10.0	10.0	1		10/28/19 13:57		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**3.9**	mg/L	1.0	0.024	1		10/29/19 19:03	16887-00-6	
Fluoride	**0.12J**	mg/L	0.30	0.029	1		10/29/19 19:03	16984-48-8	
Sulfate	**1.8**	mg/L	1.0	0.017	1		10/29/19 19:03	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: PLANT HAMMOND
Pace Project No.: 2624787

QC Batch: 37696
QC Batch Method: EPA 3005A
Associated Lab Samples: 2624787001

Analysis Method: EPA 6020B
Analysis Description: 6020B MET

METHOD BLANK: 171182 Matrix: Water
Associated Lab Samples: 2624787001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0050	0.00035	10/29/19 19:20	
Barium	mg/L	ND	0.010	0.00049	10/29/19 19:20	
Beryllium	mg/L	ND	0.0030	0.000074	10/29/19 19:20	
Boron	mg/L	ND	0.040	0.0049	10/29/19 19:20	
Cadmium	mg/L	ND	0.0025	0.00011	10/29/19 19:20	
Calcium	mg/L	ND	0.10	0.011	10/29/19 19:20	
Chromium	mg/L	ND	0.010	0.00039	10/29/19 19:20	
Cobalt	mg/L	ND	0.0050	0.00030	10/29/19 19:20	
Lead	mg/L	ND	0.0050	0.000046	10/29/19 19:20	
Lithium	mg/L	ND	0.030	0.00078	10/29/19 19:20	

LABORATORY CONTROL SAMPLE: 171183

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.1	0.10	100	80-120	
Barium	mg/L	0.1	0.10	104	80-120	
Beryllium	mg/L	0.1	0.10	103	80-120	
Boron	mg/L	1	0.99	99	80-120	
Cadmium	mg/L	0.1	0.10	102	80-120	
Calcium	mg/L	1	1.0	101	80-120	
Chromium	mg/L	0.1	0.11	107	80-120	
Cobalt	mg/L	0.1	0.11	106	80-120	
Lead	mg/L	0.1	0.11	106	80-120	
Lithium	mg/L	0.1	0.11	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 171184 171185

Parameter	Units	2624794002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	0.0046J	0.1	0.1	0.097	0.098	93	93	75-125	0	20	
Barium	mg/L	0.35	0.1	0.1	0.46	0.46	108	109	75-125	0	20	
Beryllium	mg/L	0.000078J	0.1	0.1	0.090	0.091	90	91	75-125	1	20	
Boron	mg/L	1.1	1	1	1.9	1.9	78	81	75-125	1	20	
Cadmium	mg/L		0.1	0.1	0.086	0.085	86	85	75-125	1	20	
Calcium	mg/L	260	1	1	269	272	841	1200	75-125	1	20	
Chromium	mg/L	0.0019J	0.1	0.1	0.11	0.11	104	103	75-125	1	20	
Cobalt	mg/L	ND	0.1	0.1	0.095	0.094	95	94	75-125	1	20	
Lead	mg/L	ND	0.1	0.1	0.095	0.096	95	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.

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: PLANT HAMMOND
Pace Project No.: 2624787

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 171184 171185

Parameter	Units	2624794002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Lithium	mg/L	0.096	0.1	0.1	0.20	0.20	101	102	75-125	0	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: PLANT HAMMOND
Pace Project No.: 2624787

QC Batch: 37642
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2624787001

LABORATORY CONTROL SAMPLE: 170927

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	377	94	84-108	

SAMPLE DUPLICATE: 170928

Parameter	Units	2624784001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	296	297	0	10	

SAMPLE DUPLICATE: 170929

Parameter	Units	2624685010 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	817	813	0	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: PLANT HAMMOND
Pace Project No.: 2624787

QC Batch: 37730
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2624787001

METHOD BLANK: 171248 Matrix: Water
Associated Lab Samples: 2624787001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.034J	1.0	0.024	10/29/19 13:23	
Fluoride	mg/L	ND	0.30	0.029	10/29/19 13:23	
Sulfate	mg/L	ND	1.0	0.017	10/29/19 13:23	

LABORATORY CONTROL SAMPLE: 171249

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.5	105	90-110	
Fluoride	mg/L	10	10.8	108	90-110	
Sulfate	mg/L	10	10.5	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 171250 171251

Parameter	Units	2624505001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	57.2	20	20	75.8	74.8	93	88	90-110	1	15	M1
Fluoride	mg/L	1.7	20	20	20.7	21.6	95	100	90-110	4	15	
Sulfate	mg/L	ND	20	20	ND	ND	0	0	90-110		15	M1

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: PLANT HAMMOND
Pace Project No.: 2624787

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

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

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PLANT HAMMOND
Pace Project No.: 2624787

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624787001	**HGWA-111**	EPA 3005A	37696	EPA 6020B	37751
2624787001	**HGWA-111**	SM 2540C	37642		
2624787001	**HGWA-111**	EPA 300.0	37730		

WO# : 2624788

2624788

WO# : 2624787

2624787

Page : 1 Of 1

Section B

Required Project Information:

Report To: Joju Abraham

Copy To: Lauren Petty, Geosyntec

Purchase Order #: SCS10382775

Project Name: Plant Hammond

Project #: GW658

Requested Due Date: Standard TAT

Section C

Invoice Information:

Attention: scsinvoices@southernco.com

Company Name:

Address:

Pace Quote:

Pace Project Manager: betsy.mcdaniel@pacelabs.com,

Pace Profile #: 327 (AP)

Regulatory Agency

State / Location: GA

Section A

...rmation:

...eorgia Power - Coal Combustion Residuals

...2480 Maner Road

..., 30339

E...jabraham@southernco.com

Phone: (404)506-7239 Fax:

Requested Due Date: Standard TAT

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test: App. III Metals (1)	App. IV Metals (2, AP-4)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	HGWA-111	GW	G	10/21	1535	10/21	1545	20	4	1		3						Y	X	Y	Y	N
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

CR 10/21/19

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

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
(1) App. III Metals = B, Ca	Chad Russo / GCO	10/21	1830	Pace	10.22.19	0957	8.8
(2, AP-4) App. IV Metals = As, Ba, Be, Cd, Cr, Co, Pb, Li							

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Chad Russo

SIGNATURE of SAMPLER: Chad Russo

DATE Signed: 10/21/19

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

Pace Analytical

WO#: 2624787
PM: BM Due Date: 10/29/19
CLIENT: GAPower-CCR

0#: 2624788
: BM Due Date: 11/19/19
IENT: GAPower-CCR

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

Tracking #: _____

Proj. Due Date:
Proj. Name:

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

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

Thermometer Used THR 214 Type of Ice: (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature _____ Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: _____

Temp should be above freezing to 6°C Comments:

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

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

3000 W28

Project Manager Review: _____ **Date:** _____

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

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

November 19, 2019

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

RE: Project: PLANT HAMMOND
Pace Project No.: 2624788

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on October 22, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

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

Enclosures

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

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

CERTIFICATIONS

Project: PLANT HAMMOND
Pace Project No.: 2624788

Pace Analytical Services Pennsylvania
1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Florida: Cert E871149 SEKS WET
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

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

SAMPLE SUMMARY

Project: PLANT HAMMOND
Pace Project No.: 2624788

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624788001	**HGWA-111**	Water	10/21/19 15:45	10/22/19 09:57

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

SAMPLE ANALYTE COUNT

Project: PLANT HAMMOND
Pace Project No.: 2624788

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2624788001	**HGWA-111**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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(770)734-4200

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PLANT HAMMOND
Pace Project No.: 2624788

Sample: HGWA-111 **Lab ID: 2624788001** Collected: 10/21/19 15:45 Received: 10/22/19 09:57 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.351 ± 0.311 (0.591) C:74% T:NA**	pCi/L	11/15/19 08:32	13982-63-3	
Radium-228	EPA 9320	**-0.102 ± 0.278 (0.674) C:77% T:90%**	pCi/L	11/12/19 12:15	15262-20-1	
Total Radium	Total Radium Calculation	**0.351 ± 0.589 (1.27)**	pCi/L	11/18/19 14:56	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: PLANT HAMMOND
Pace Project No.: 2624788

QC Batch: 369306
QC Batch Method: EPA 9320
Analysis Method: EPA 9320
Analysis Description: 9320 Radium 228
Associated Lab Samples: 2624788001

METHOD BLANK: 1791694
Matrix: Water
Associated Lab Samples: 2624788001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.317 ± 0.325 (0.673) C:79% T:91%	pCi/L	11/12/19 12:14	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: PLANT HAMMOND
Pace Project No.: 2624788

QC Batch: 369307
QC Batch Method: EPA 9315
Analysis Method: EPA 9315
Analysis Description: 9315 Total Radium
Associated Lab Samples: 2624788001

METHOD BLANK: 1791695
Matrix: Water
Associated Lab Samples: 2624788001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.330 ± 0.234 (0.359) C:92% T:NA	pCi/L	11/15/19 08:32	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: PLANT HAMMOND
Pace Project No.: 2624788

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PLANT HAMMOND
Pace Project No.: 2624788

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624788001	**HGWA-111**	EPA 9315	369307		
2624788001	**HGWA-111**	EPA 9320	369306		
2624788001	**HGWA-111**	Total Radium Calculation	371524		

WO# : 2624788

2624788

WO# : 2624787

2624787

Pace Analytical

Page : 1 Of 1

Section A Required Client Information:		Section B Required Project Information:		Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	scsinvoices@southernco.com
Address:	2480 Maner Road	Copy To:	Lauren Petty, Geosyntec	Company Name:	
Atlanta, GA 30339				Address:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com,
Requested Due Date:	Standard TAT	Project #:	GW658	Pace Profile #:	327 (AP)

Regulatory Agency: —

State / Location: GA

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

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test: App. III Metals (1)	App. IV Metals (2, AP-4)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	HGWA-111	GW	G	10/21	1535	10/21	1545	20	4	1		3						Y	Y	Y	Y	N
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

CB 10/21/19

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

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
(1) App. III Metals = B, Ca	Chad Russo GCO	10/21	1830	Pace	10.22.19	0957	8.8	Y	Y	Y
(2, AP-4) App. IV Metals = As, Ba, Be, Cd, Cr, Co, Pb, Li										

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Chad Russo

SIGNATURE of SAMPLER: Chad Russo

DATE Signed: 10/21/19

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

Pace Analytical

WO#: 2624787
PM: BM Due Date: 10/29/19
CLIENT: GAPower-CCR

0#: 2624788
: BM Due Date: 11/19/19
IENT: GAPower-CCR

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

Tracking #: _____

Proj. Due Date:
Proj. Name:

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

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

Thermometer Used THR 214 Type of Ice: Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature _____ Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: _____

Temp should be above freezing to 6°C

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

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

3000 W28

Project Manager Review: _____ **Date:** _____

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

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

November 21, 2019

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

RE: Project: Plant Hammond
Pace Project No.: 2624791

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on October 24, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

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

Enclosures

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

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

CERTIFICATIONS

Project: Plant Hammond
Pace Project No.: 2624791

Pace Analytical Services Pennsylvania
1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Florida: Cert E871149 SEKS WET
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

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

SAMPLE SUMMARY

Project: Plant Hammond
Pace Project No.: 2624791

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624791001	**HGWC-101**	Water	10/23/19 11:30	10/24/19 10:07
2624791002	**HGWC-102**	Water	10/23/19 09:40	10/24/19 10:07
2624791003	**HGWC-105**	Water	10/23/19 09:17	10/24/19 10:07
2624791004	**HGWC-103**	Water	10/23/19 11:36	10/24/19 10:07

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

SAMPLE ANALYTE COUNT

Project: Plant Hammond
Pace Project No.: 2624791

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2624791001	**HGWC-101**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624791002	**HGWC-102**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624791003	**HGWC-105**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624791004	**HGWC-103**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond
Pace Project No.: 2624791

Sample: HGWC-101 **Lab ID: 2624791001** Collected: 10/23/19 11:30 Received: 10/24/19 10:07 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.182 ± 0.199 (0.390) C:90% T:NA**	pCi/L	11/15/19 10:17	13982-63-3	
Radium-228	EPA 9320	**0.594 ± 0.484 (0.965) C:78% T:87%**	pCi/L	11/12/19 17:49	15262-20-1	
Total Radium	Total Radium Calculation	**0.776 ± 0.683 (1.36)**	pCi/L	11/19/19 09:18	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond
Pace Project No.: 2624791

Sample: HGWC-102 **Lab ID: 2624791002** Collected: 10/23/19 09:40 Received: 10/24/19 10:07 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.252 ± 0.219 (0.392) C:93% T:NA**	pCi/L	11/15/19 10:17	13982-63-3	
Radium-228	EPA 9320	**0.606 ± 0.539 (1.09) C:84% T:71%**	pCi/L	11/12/19 17:49	15262-20-1	
Total Radium	Total Radium Calculation	**0.858 ± 0.758 (1.48)**	pCi/L	11/19/19 09:18	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond
Pace Project No.: 2624791

Sample: HGWC-105 **Lab ID: 2624791003** Collected: 10/23/19 09:17 Received: 10/24/19 10:07 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.387 ± 0.259 (0.398) C:91% T:NA**	pCi/L	11/15/19 10:17	13982-63-3	
Radium-228	EPA 9320	**0.197 ± 0.465 (1.03) C:82% T:78%**	pCi/L	11/12/19 17:49	15262-20-1	
Total Radium	Total Radium Calculation	**0.584 ± 0.724 (1.43)**	pCi/L	11/19/19 09:18	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond
Pace Project No.: 2624791

Sample: HGWC-103 **Lab ID: 2624791004** Collected: 10/23/19 11:36 Received: 10/24/19 10:07 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.571 ± 0.291 (0.358) C:92% T:NA**	pCi/L	11/15/19 10:17	13982-63-3	
Radium-228	EPA 9320	**-0.102 ± 0.382 (0.914) C:85% T:85%**	pCi/L	11/12/19 17:50	15262-20-1	
Total Radium	Total Radium Calculation	**0.571 ± 0.673 (1.27)**	pCi/L	11/19/19 09:18	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond
Pace Project No.: 2624791

QC Batch: 369310 Analysis Method: EPA 9315
QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium
Associated Lab Samples: 2624791001, 2624791002, 2624791003, 2624791004

METHOD BLANK: 1791698 Matrix: Water
Associated Lab Samples: 2624791001, 2624791002, 2624791003, 2624791004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.590 ± 0.307 (0.405) C:93% T:NA	pCi/L	11/15/19 07:34	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond
Pace Project No.: 2624791

QC Batch: 369311 Analysis Method: EPA 9320
QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228
Associated Lab Samples: 2624791001, 2624791002, 2624791003, 2624791004

METHOD BLANK: 1791699 Matrix: Water
Associated Lab Samples: 2624791001, 2624791002, 2624791003, 2624791004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.174 ± 0.362 (0.799) C:80% T:87%	pCi/L	11/12/19 15:54	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2624791

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond
Pace Project No.: 2624791

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624791001	**HGWC-101**	EPA 9315	369310		
2624791002	**HGWC-102**	EPA 9315	369310		
2624791003	**HGWC-105**	EPA 9315	369310		
2624791004	**HGWC-103**	EPA 9315	369310		
2624791001	**HGWC-101**	EPA 9320	369311		
2624791002	**HGWC-102**	EPA 9320	369311		
2624791003	**HGWC-105**	EPA 9320	369311		
2624791004	**HGWC-103**	EPA 9320	369311		
2624791001	**HGWC-101**	Total Radium Calculation	371617		
2624791002	**HGWC-102**	Total Radium Calculation	371617		
2624791003	**HGWC-105**	Total Radium Calculation	371617		
2624791004	**HGWC-103**	Total Radium Calculation	371617		

Pace Analytical

WO# : 2624792

2624792

WO# : 2624791

2624791

Page: 1 of 3

Section A
Required Client Information:

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

Section B
Required Project Inform

Report To	Joju Abraha...
Copy To	Lauren Petty, Geosyntec
Purchase Order #	SCS10362775
Project Name	Plant Hammond
Project #	CW6581

Invoice Information:

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

Regulatory Agency

State / Location: GA

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	App III Metals (1)	App IV Metals (2. AP-4)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
	MATRIX: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Other OT, Tissue TS																	Y/N	N	N	N	N	
1	MGWC-101	GW	G	10/23	1046	10/23	1130	19	4	1		3							Y	Y	Y	Y	N
2																							
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

CR 10/23/19

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
(1) App. III Metals = B, Ca	[signature]	1423	1300	[signature] Pace	10.24	1007	2.8	X	Y	Y
(2. AP-4) App. IV Metals = As, Ba, Be, Cd, Cr, Co, Pb, Li										

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Chad Russo

SIGNATURE of SAMPLER: [signature] DATE Signed: 10/23/19

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

Pace Ana... Sample C... on Receipt

WO#: 2624791

PM: BM **Due Date: 11/21/19**

CLIENT: GRPower-CCR

Courier: ☑ Fed E... ace Other

Tracking #: _____

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

Proj. Name:

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

Thermometer Used THR214 **Type of Ice:** Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 2.8 **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C **Comments:**

Date and Initials of person examining contents: _____

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

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

3000 W28

Project Manager Review: _____ **Date:** _____

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

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 2 of 3

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company	Georgia Power - Coal Combustion Residuals	Report To:	Joju Abraham	Attention:	scsinvoices@southernco.com
Address	2480 Maner Road	Copy To	Lauren Petty, Geosyntec	Company Name	
	Atlanta, GA 30339			Address	
Email	jabraham@southernco.com	Purchase Order #	SCS10382775	Pace Quote	
Phone	(404)506-7239 Fax	Project Name	Plant Hammond	Pace Project Manager	betsy mcdaniel@pacelabs.com,
Requested Due Date	Standard TAT	Project #	CWG581	Pace Profile #	327 (AP)

Regulatory Agency:

State / Location: GA

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

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	App. III Metals (1) (N)	App. IV Metals (2, HGWC-102) (N)	TDS, Cl, F, SO4 (N)	Radium 226/228 (N)	Residual Chlorine (Y/N)
1	HGWC-102	GW	G	10/23	0917	10/23	0940	17	4	1		3							Y	Y	Y	Y	N
2																							
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

CK 10/23/19

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
(1) App. III Metals = B, Ca	Chad Russo / GCO	10/23	1300	[signature] / Pace	10/24	1007	4.2	Y	Y	Y
(2, HGWC-102) App. IV Metals = Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Hg, Mo, Se, Tl										

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Chad Russo

SIGNATURE of SAMPLER: Chad Russo DATE Signed: 10/23/19

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

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 3 Of 3

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company	Georgia Power - Coal Combustion Residuals	Report To	Jeju Abraham	Attention	scsinvoices@southernco.com
Address	2480 Maner Road	Copy To	Lauren Petty, Geosyntec	Company Name	
Atlanta, GA 30339				Address	
Email	jabrahams@southernco.com	Purchase Order #	SCS10382775	Pace Quote	
Phone	(404)506-7239 Fax	Project Name	Plant Hammond	Pace Project Manager	betsy.modaresi@pacelabs.com,
Requested Due Date	Standard TAT	Project #	GWGS81	Pace Profile #	327 (AP)

Regulatory Agency: —

State / Location: GA

Requested Analyses Filtered (Y/N): Y/N — N N N N

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test	App III Metals (1)	App IV Metals (2, AP-4)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	HGWC-105	GW	G	10/23/19	08:53	10/23/19	9:17	16.2	4	1		3							Y	Y	Y	Y	N
2	HGWC-103	GW	G	10/23/19	11:09	10/23/19	11:36	16.2	4	1		3							Y	Y	Y	Y	N
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

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

(1) DG 10-23-2019

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
(1) App. III Metals = B, Ca	Dan Gibbs / Geosyntec	10/23	1150	Chad Russell / GCO	10/23	1150	
(2, AP-4) App. IV Metals = As, Ba, Be, Cd, Cr, Co, Pb, Li	Chad Russell / GCO	10/23	1300	2 — 1 Pace	10.24	1007	4.6

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Dan Gibbs

SIGNATURE of SAMPLER: Dan

DATE Signed: 10-23-2019

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

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

March 12, 2020

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

RE: Project: Plant Hammond
Pace Project No.: 2624792

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on October 24, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

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

Enclosures

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

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

CERTIFICATIONS

Project: Plant Hammond
Pace Project No.: 2624792

Pace Analytical Services Atlanta
110 Technology Parkway Peachtree Corners, GA 30092
Florida DOH Certification #: E87315
Georgia DW Inorganics Certification #: 812
Georgia DW Microbiology Certification #: 812
North Carolina Certification #: 381
South Carolina Certification #: 98011001
Virginia Certification #: 460204

REPORT OF LABORATORY ANALYSIS

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

SAMPLE SUMMARY

Project: Plant Hammond
Pace Project No.: 2624792

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624792001	**HGWC-101**	Water	10/23/19 11:30	10/24/19 10:07
2624792002	**HGWC-102**	Water	10/23/19 09:40	10/24/19 10:07
2624792003	**HGWC-105**	Water	10/23/19 09:17	10/24/19 10:07
2624792004	**HGWC-103**	Water	10/23/19 11:36	10/24/19 10:07

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

SAMPLE ANALYTE COUNT

Project: Plant Hammond
Pace Project No.: 2624792

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2624792001	**HGWC-101**	EPA 6020B	CSW	10
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624792002	**HGWC-102**	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624792003	**HGWC-105**	EPA 6020B	CSW	10
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624792004	**HGWC-103**	EPA 6020B	CSW	10
		SM 2540C	MZP	1
		EPA 300.0	MWB	3

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

ANALYTICAL RESULTS

Project: Plant Hammond
Pace Project No.: 2624792

Sample: HGWC-101 **Lab ID: 2624792001** Collected: 10/23/19 11:30 Received: 10/24/19 10:07 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	ND	mg/L	0.0050	0.00035	1	11/01/19 16:00	11/04/19 02:50	7440-38-2	
Barium	**0.043**	mg/L	0.010	0.00049	1	11/01/19 16:00	11/04/19 02:50	7440-39-3	
Beryllium	**0.000075J**	mg/L	0.0030	0.000074	1	11/01/19 16:00	11/04/19 13:31	7440-41-7	
Boron	**0.10**	mg/L	0.040	0.0049	1	11/01/19 16:00	11/04/19 02:50	7440-42-8	
Cadmium	**0.00020J**	mg/L	0.0025	0.00011	1	11/01/19 16:00	11/04/19 02:50	7440-43-9	
Calcium	**21.9**	mg/L	5.0	0.55	50	11/01/19 16:00	11/04/19 02:55	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	11/01/19 16:00	11/04/19 02:50	7440-47-3	
Cobalt	**0.0023J**	mg/L	0.0050	0.00030	1	11/01/19 16:00	11/04/19 02:50	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	11/01/19 16:00	11/04/19 02:50	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	11/01/19 16:00	11/04/19 13:31	7439-93-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**221**	mg/L	10.0	10.0	1		10/29/19 13:16		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**5.5**	mg/L	1.0	0.024	1		10/31/19 06:50	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		10/31/19 06:50	16984-48-8	
Sulfate	**101**	mg/L	10.0	0.17	10		10/31/19 17:35	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant Hammond
Pace Project No.: 2624792

Sample: HGWC-102 **Lab ID: 2624792002** Collected: 10/23/19 09:40 Received: 10/24/19 10:07 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	11/01/19 16:00	11/04/19 03:01	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	11/01/19 16:00	11/04/19 03:01	7440-38-2	
Barium	**0.037**	mg/L	0.010	0.00049	1	11/01/19 16:00	11/04/19 03:01	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	11/01/19 16:00	11/04/19 13:37	7440-41-7	
Boron	**3.1**	mg/L	0.040	0.0049	1	11/01/19 16:00	11/04/19 03:01	7440-42-8	
Cadmium	**0.00026J**	mg/L	0.0025	0.00011	1	11/01/19 16:00	11/04/19 03:01	7440-43-9	
Calcium	**136**	mg/L	5.0	0.55	50	11/01/19 16:00	11/04/19 03:07	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	11/01/19 16:00	11/04/19 03:01	7440-47-3	
Cobalt	**0.0018J**	mg/L	0.0050	0.00030	1	11/01/19 16:00	11/04/19 03:01	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	11/01/19 16:00	11/04/19 03:01	7439-92-1	
Lithium	**0.0012J**	mg/L	0.030	0.00078	1	11/01/19 16:00	11/04/19 13:37	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	11/01/19 16:00	11/04/19 03:01	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	11/01/19 16:00	11/04/19 03:01	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	11/01/19 16:00	11/04/19 03:01	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/29/19 09:50	10/29/19 16:05	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**736**	mg/L	10.0	10.0	1		10/29/19 13:16		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**7.9**	mg/L	1.0	0.024	1		10/31/19 07:13	16887-00-6	
Fluoride	**0.22J**	mg/L	0.30	0.029	1		10/31/19 07:13	16984-48-8	
Sulfate	ND	mg/L	1.0	0.017	1		10/31/19 07:13	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant Hammond
Pace Project No.: 2624792

Sample: HGWC-105 **Lab ID: 2624792003** Collected: 10/23/19 09:17 Received: 10/24/19 10:07 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	ND	mg/L	0.0050	0.00035	1	11/01/19 16:00	11/04/19 03:24	7440-38-2	
Barium	**0.066**	mg/L	0.010	0.00049	1	11/01/19 16:00	11/04/19 03:24	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	11/01/19 16:00	11/04/19 13:42	7440-41-7	
Boron	**1.3**	mg/L	0.040	0.0049	1	11/01/19 16:00	11/04/19 13:42	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	11/01/19 16:00	11/04/19 03:24	7440-43-9	
Calcium	**89.4**	mg/L	5.0	0.55	50	11/01/19 16:00	11/04/19 03:30	7440-70-2	
Chromium	**0.00040J**	mg/L	0.010	0.00039	1	11/01/19 16:00	11/04/19 03:24	7440-47-3	
Cobalt	**0.00038J**	mg/L	0.0050	0.00030	1	11/01/19 16:00	11/04/19 03:24	7440-48-4	
Lead	**0.000068J**	mg/L	0.0050	0.000046	1	11/01/19 16:00	11/04/19 03:24	7439-92-1	
Lithium	**0.0039J**	mg/L	0.030	0.00078	1	11/01/19 16:00	11/04/19 13:42	7439-93-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**419**	mg/L	10.0	10.0	1		10/29/19 13:16		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**3.6**	mg/L	1.0	0.024	1		10/31/19 07:35	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		10/31/19 07:35	16984-48-8	
Sulfate	**162**	mg/L	10.0	0.17	10		10/31/19 17:58	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: Plant Hammond
Pace Project No.: 2624792

Sample: HGWC-103 **Lab ID: 2624792004** Collected: 10/23/19 11:36 Received: 10/24/19 10:07 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	ND	mg/L	0.0050	0.00035	1	11/01/19 16:00	11/04/19 03:35	7440-38-2	
Barium	**0.039**	mg/L	0.010	0.00049	1	11/01/19 16:00	11/04/19 03:35	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	11/01/19 16:00	11/04/19 13:48	7440-41-7	
Boron	**2.3**	mg/L	0.040	0.0049	1	11/01/19 16:00	11/04/19 13:48	7440-42-8	
Cadmium	**0.00091J**	mg/L	0.0025	0.00011	1	11/01/19 16:00	11/04/19 03:35	7440-43-9	
Calcium	**86.5**	mg/L	5.0	0.55	50	11/01/19 16:00	11/04/19 03:41	7440-70-2	
Chromium	**0.0015J**	mg/L	0.010	0.00039	1	11/01/19 16:00	11/04/19 03:35	7440-47-3	
Cobalt	**0.0021J**	mg/L	0.0050	0.00030	1	11/01/19 16:00	11/04/19 03:35	7440-48-4	
Lead	**0.00043J**	mg/L	0.0050	0.000046	1	11/01/19 16:00	11/04/19 03:35	7439-92-1	
Lithium	**0.0020J**	mg/L	0.030	0.00078	1	11/01/19 16:00	11/04/19 13:48	7439-93-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**507**	mg/L	10.0	10.0	1		10/29/19 13:16		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**6.1**	mg/L	1.0	0.024	1		10/31/19 07:57	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		10/31/19 07:57	16984-48-8	
Sulfate	**248**	mg/L	10.0	0.17	10		10/31/19 18:20	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2624792

QC Batch: 37720
QC Batch Method: EPA 7470A
Analysis Method: EPA 7470A
Analysis Description: 7470 Mercury
Associated Lab Samples: 2624792002

METHOD BLANK: 171214 Matrix: Water
Associated Lab Samples: 2624792002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	10/29/19 15:19	

LABORATORY CONTROL SAMPLE: 171215

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0026	105	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 171216 171217

Parameter	Units	2624786001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L				0.0027	0.0025				6	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2624792

QC Batch: 38024 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2624792001, 2624792002, 2624792003, 2624792004

METHOD BLANK: 172889 Matrix: Water
Associated Lab Samples: 2624792001, 2624792002, 2624792003, 2624792004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	11/04/19 01:12	
Arsenic	mg/L	ND	0.0050	0.00035	11/04/19 01:12	
Barium	mg/L	ND	0.010	0.00049	11/04/19 01:12	
Beryllium	mg/L	ND	0.0030	0.000074	11/04/19 01:12	
Boron	mg/L	0.0059J	0.040	0.0049	11/04/19 01:12	
Cadmium	mg/L	ND	0.0025	0.00011	11/04/19 01:12	
Calcium	mg/L	ND	0.10	0.011	11/04/19 01:12	
Chromium	mg/L	ND	0.010	0.00039	11/04/19 01:12	
Cobalt	mg/L	ND	0.0050	0.00030	11/04/19 01:12	
Lead	mg/L	ND	0.0050	0.000046	11/04/19 01:12	
Lithium	mg/L	ND	0.030	0.00078	11/04/19 01:12	
Molybdenum	mg/L	ND	0.010	0.00095	11/04/19 01:12	
Selenium	mg/L	ND	0.010	0.0013	11/04/19 01:12	
Thallium	mg/L	ND	0.0010	0.000052	11/04/19 01:12	

LABORATORY CONTROL SAMPLE: 172890

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.11	107	80-120	
Arsenic	mg/L	0.1	0.10	100	80-120	
Barium	mg/L	0.1	0.10	103	80-120	
Beryllium	mg/L	0.1	0.11	114	80-120	
Boron	mg/L	1	1.2	116	80-120	
Cadmium	mg/L	0.1	0.11	106	80-120	
Calcium	mg/L	1	1.1	106	80-120	
Chromium	mg/L	0.1	0.10	105	80-120	
Cobalt	mg/L	0.1	0.10	104	80-120	
Lead	mg/L	0.1	0.10	102	80-120	
Lithium	mg/L	0.1	0.11	112	80-120	
Molybdenum	mg/L	0.1	0.10	103	80-120	
Selenium	mg/L	0.1	0.10	101	80-120	
Thallium	mg/L	0.1	0.10	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 172891 172892

Parameter	Units	2624772007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.11	0.10	106	104	75-125	2	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2624792

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 172891 172892

Parameter	Units	2624772007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	2.5	0.1	0.1	2.6	2.6	43	106	75-125	2	20	M6
Barium	mg/L	0.22	0.1	0.1	0.32	0.31	99	98	75-125	0	20	
Beryllium	mg/L	ND	0.1	0.1	0.090	0.086	90	86	75-125	5	20	
Boron	mg/L	4.3	1	1	5.1	5.2	85	95	75-125	2	20	
Cadmium	mg/L	0.00012J	0.1	0.1	0.11	0.10	107	103	75-125	4	20	
Calcium	mg/L	177	1	1	170	179	-693	243	75-125	5	20	M6
Chromium	mg/L	ND	0.1	0.1	0.099	0.097	99	97	75-125	2	20	
Cobalt	mg/L	ND	0.1	0.1	0.097	0.096	97	96	75-125	0	20	
Lead	mg/L	ND	0.1	0.1	0.092	0.090	92	90	75-125	2	20	
Lithium	mg/L	0.29	0.1	0.1	0.36	0.36	73	75	75-125	1	20	M1
Molybdenum	mg/L	0.49	0.1	0.1	0.58	0.60	89	105	75-125	3	20	
Selenium	mg/L	ND	0.1	0.1	0.10	0.10	100	100	75-125	0	20	
Thallium	mg/L	ND	0.1	0.1	0.093	0.092	93	92	75-125	2	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2624792

QC Batch: 37735 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2624792001, 2624792002, 2624792003, 2624792004

LABORATORY CONTROL SAMPLE: 171263

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	402	100	84-108	

SAMPLE DUPLICATE: 171264

Parameter	Units	2624800005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	212	212	0	10	

SAMPLE DUPLICATE: 171265

Parameter	Units	2624792004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	507	512	1	10	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2624792

QC Batch: 37870 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2624792001, 2624792002, 2624792003, 2624792004

METHOD BLANK: 171906 Matrix: Water
Associated Lab Samples: 2624792001, 2624792002, 2624792003, 2624792004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.024	10/31/19 04:37	
Fluoride	mg/L	ND	0.30	0.029	10/31/19 04:37	
Sulfate	mg/L	ND	1.0	0.017	10/31/19 04:37	

LABORATORY CONTROL SAMPLE: 171907

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	96	90-110	
Fluoride	mg/L	5	5.0	101	90-110	
Sulfate	mg/L	5	5.1	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 171908 171909

Parameter	Units	2624786002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	3.2	10	10	13.0	13.2	97	100	90-110	2	15	
Fluoride	mg/L	0.56	10	10	10.6	10.9	100	103	90-110	3	15	

MATRIX SPIKE SAMPLE: 171910

Parameter	Units	2624800005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	4.6	10	14.7	101	90-110	
Fluoride	mg/L	0.099J	10	10.6	105	90-110	
Sulfate	mg/L	23.2	10	28.2	50	90-110	M1

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2624792

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M6	Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond
Pace Project No.: 2624792

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624792001	**HGWC-101**	EPA 3005A	38024	EPA 6020B	38049
2624792002	**HGWC-102**	EPA 3005A	38024	EPA 6020B	38049
2624792003	**HGWC-105**	EPA 3005A	38024	EPA 6020B	38049
2624792004	**HGWC-103**	EPA 3005A	38024	EPA 6020B	38049
2624792002	**HGWC-102**	EPA 7470A	37720	EPA 7470A	37761
2624792001	**HGWC-101**	SM 2540C	37735		
2624792002	**HGWC-102**	SM 2540C	37735		
2624792003	**HGWC-105**	SM 2540C	37735		
2624792004	**HGWC-103**	SM 2540C	37735		
2624792001	**HGWC-101**	EPA 300.0	37870		
2624792002	**HGWC-102**	EPA 300.0	37870		
2624792003	**HGWC-105**	EPA 300.0	37870		
2624792004	**HGWC-103**	EPA 300.0	37870		

Pace Analytical

WO# : 2624792

2624792

WO# : 2624791

2624791

Page: 1 of 3

Section A
Required Client Information:

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

Section B
Required Project Inform

Report To	Joju Abraha...
Copy To	Lauren Petty, Geosyntec
Purchase Order #	SCS10362775
Project Name	Plant Hammond
Project #	CW6581

Invoice Information:

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

Regulatory Agency

State / Location: GA

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	App III Metals (1)	App IV Metals (2. AP-4)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
	MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS																	N	N	N	N	N	
1	HGWC-101	GW	G	10/23	1046	10/23	1130	19	4	1		3						Y	Y	Y	Y	Y	N
2																							
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

CR 10/23/19

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
(1) App. III Metals = B, Ca	[signature]	1423	1300	[signature] Pace	10.24	1007	2.8	X	Y	Y
(2. AP-4) App. IV Metals = As, Ba, Be, Cd, Cr, Co, Pb, Li										

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Chad Rusco

SIGNATURE of SAMPLER: [signature] DATE Signed: 10/23/19

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

Pace Ana

Sample Condition Upon Receipt

WO# : 2624791

PM: BM Due Date: 11/21/19

CLIENT: GAPower-CCR

[redacted]

Courier: ☑ Fed E ... ace Other

Tracking #: ______

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

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

Thermometer Used TH2214 **Type of Ice:** Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 2.8 **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: ______

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

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

Person Contacted: ______ Date/Time: ______

Comments/ Resolution: ______

3000 W28

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)

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 2 of 3

Section A — Required Client Information:

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

Section B — Required Project Information:

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

Section C — Invoice Information:

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

Regulatory Agency	
State / Location	GA

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

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

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	START TIME	END DATE	END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test	App III Metals (1)	App IV Metals (2, HGWC-102)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
Requested Analysis Filtered (Y/N)																		Y/N	N	N	N	N	
1	HGWC-102	GW	G	1023	0917	1023	0940	17	4	1		3							Y	Y	Y	Y	N
2																							
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

CK 10/23/19

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
(1) App. III Metals = B, Ca	Chad Russo / gco	10/23	1300	[illegible] / Pace	10/24	1007	4.2	Y	Y	Y
(2, HGWC-102) App. IV Metals = Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Hg, Mo, Se, Ta										
							TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Chad Russo

SIGNATURE of SAMPLER: Chad Russo — DATE Signed: 10/23/19

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 3 Of 3

Section A – Required Client Information:		Section B – Required Project Information:		Section C – Invoice Information:	
Company	Georgia Power - Coal Combustion Residuals	Report To	Jeju Abraham	Attention	acsinvoices@southernco.com
Address	2480 Maner Road	Copy To	Lauren Petty, Geosyntec	Company Name	
Atlanta, GA 30339				Address	
Email	jabrahem@southernco.com	Purchase Order #	SCS10382775	Pace Quote	
Phone	(404)506-7239 Fax	Project Name	Plant Hammond	Pace Project Manager	betsy.modaresi@pacelabs.com,
Requested Due Date	Standard TAT	Project #	GWGS81	Pace Profile #	327 (AP)

Regulatory Agency: —

State / Location: GA

Requested Analyses Filtered (Y/N): N N N N

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test	App III Metals (1)	App IV Metals (2, AP-4)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
1	HGWC-105	GW	G	10/23/19	08:53	10/23/19	9:17	16.2	4	1		3							Y	Y	Y	Y	N
2	HGWC-103	GW	G	10/23/19	11:09	10/23/19	11:36	16.2	4	1		3							Y	Y	Y	Y	N
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

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

(1) DG 10-23-2019

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
(1) App. III Metals = B, Ca	Dan Gibbs / Geosyntec	10/23	1150	Chad Russell / GCO	10/23	1150	
(2, AP-4) App. IV Metals = As, Ba, Be, Cd, Cr, Co, Pb, Li	Chad Russell / GCO	10/23	1300	2 — 1 Peace	10.24	1007	4.6

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Dan Gibbs

SIGNATURE of SAMPLER: Dan

DATE Signed: 10-23-2019

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

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

November 21, 2019

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

RE: Project: PLANT HAMMOND
Pace Project No.: 2624799

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on October 24, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

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

Enclosures

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

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

CERTIFICATIONS

Project: PLANT HAMMOND
Pace Project No.: 2624799

Pace Analytical Services Pennsylvania
1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Florida: Cert E871149 SEKS WET
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

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

SAMPLE SUMMARY

Project: PLANT HAMMOND
Pace Project No.: 2624799

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624799001	**HGWA-112**	Water	10/22/19 10:40	10/24/19 10:07
2624799002	**HGWC-117**	Water	10/22/19 15:00	10/24/19 10:07
2624799003	**HGWC-118**	Water	10/22/19 19:08	10/24/19 10:07
2624799004	**HGWA-113**	Water	10/22/19 11:20	10/24/19 10:07
2624799005	**HGWC-109**	Water	10/22/19 14:35	10/24/19 10:07
2624799006	**HGWC-107**	Water	10/22/19 13:55	10/24/19 10:07

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

SAMPLE ANALYTE COUNT

Project: PLANT HAMMOND
Pace Project No.: 2624799

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2624799001	**HGWA-112**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624799002	**HGWC-117**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624799003	**HGWC-118**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624799004	**HGWA-113**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624799005	**HGWC-109**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624799006	**HGWC-107**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PLANT HAMMOND
Pace Project No.: 2624799

Sample: HGWA-112 **Lab ID: 2624799001** Collected: 10/22/19 10:40 Received: 10/24/19 10:07 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.491 ± 0.311 (0.509) C:94% T:NA**	pCi/L	11/15/19 07:34	13982-63-3	
Radium-228	EPA 9320	**0.337 ± 0.310 (0.623) C:77% T:90%**	pCi/L	11/12/19 15:56	15262-20-1	
Total Radium	Total Radium Calculation	**0.828 ± 0.621 (1.13)**	pCi/L	11/18/19 15:16	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PLANT HAMMOND
Pace Project No.: 2624799

Sample: HGWC-117 **Lab ID: 2624799002** Collected: 10/22/19 15:00 Received: 10/24/19 10:07 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.383 ± 0.293 (0.519) C:87% T:NA**	pCi/L	11/15/19 07:34	13982-63-3	
Radium-228	EPA 9320	**0.444 ± 0.685 (1.48) C:64% T:77%**	pCi/L	11/12/19 16:01	15262-20-1	
Total Radium	Total Radium Calculation	**0.827 ± 0.978 (2.00)**	pCi/L	11/18/19 15:16	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PLANT HAMMOND
Pace Project No.: 2624799

Sample: HGWC-118 **Lab ID: 2624799003** Collected: 10/22/19 19:08 Received: 10/24/19 10:07 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.424 ± 0.266 (0.398) C:90% T:NA**	pCi/L	11/15/19 07:34	13982-63-3	
Radium-228	EPA 9320	**-0.247 ± 0.425 (1.01) C:82% T:89%**	pCi/L	11/12/19 16:01	15262-20-1	
Total Radium	Total Radium Calculation	**0.424 ± 0.691 (1.41)**	pCi/L	11/18/19 15:16	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PLANT HAMMOND
Pace Project No.: 2624799

Sample: HGWA-113 **Lab ID: 2624799004** Collected: 10/22/19 11:20 Received: 10/24/19 10:07 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.401 ± 0.255 (0.368) C:93% T:NA**	pCi/L	11/15/19 07:35	13982-63-3	
Radium-228	EPA 9320	**0.122 ± 0.462 (1.04) C:76% T:83%**	pCi/L	11/12/19 16:01	15262-20-1	
Total Radium	Total Radium Calculation	**0.523 ± 0.717 (1.41)**	pCi/L	11/19/19 09:18	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PLANT HAMMOND
Pace Project No.: 2624799

Sample: HGWC-109 **Lab ID: 2624799005** Collected: 10/22/19 14:35 Received: 10/24/19 10:07 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.545 ± 0.309 (0.464) C:94% T:NA**	pCi/L	11/15/19 07:35	13982-63-3	
Radium-228	EPA 9320	**-0.545 ± 0.446 (1.09) C:77% T:90%**	pCi/L	11/12/19 16:01	15262-20-1	
Total Radium	Total Radium Calculation	**0.545 ± 0.755 (1.55)**	pCi/L	11/19/19 09:18	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PLANT HAMMOND
Pace Project No.: 2624799

Sample: HGWC-107 **Lab ID: 2624799006** Collected: 10/22/19 13:55 Received: 10/24/19 10:07 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.357 ± 0.270 (0.465) C:90% T:NA**	pCi/L	11/15/19 07:35	13982-63-3	
Radium-228	EPA 9320	**0.348 ± 0.486 (1.04) C:83% T:80%**	pCi/L	11/12/19 17:46	15262-20-1	
Total Radium	Total Radium Calculation	**0.705 ± 0.756 (1.51)**	pCi/L	11/19/19 09:18	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: PLANT HAMMOND
Pace Project No.: 2624799

QC Batch: 369310 Analysis Method: EPA 9315
QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium
Associated Lab Samples: 2624799001, 2624799002, 2624799003, 2624799004, 2624799005, 2624799006

METHOD BLANK: 1791698 Matrix: Water
Associated Lab Samples: 2624799001, 2624799002, 2624799003, 2624799004, 2624799005, 2624799006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.590 ± 0.307 (0.405) C:93% T:NA	pCi/L	11/15/19 07:34	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: PLANT HAMMOND
Pace Project No.: 2624799

QC Batch: 369311 Analysis Method: EPA 9320
QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228
Associated Lab Samples: 2624799001, 2624799002, 2624799003, 2624799004, 2624799005, 2624799006

METHOD BLANK: 1791699 Matrix: Water
Associated Lab Samples: 2624799001, 2624799002, 2624799003, 2624799004, 2624799005, 2624799006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.174 ± 0.362 (0.799) C:80% T:87%	pCi/L	11/12/19 15:54	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: PLANT HAMMOND
Pace Project No.: 2624799

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PLANT HAMMOND
Pace Project No.: 2624799

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624799001	**HGWA-112**	EPA 9315	369310		
2624799002	**HGWC-117**	EPA 9315	369310		
2624799003	**HGWC-118**	EPA 9315	369310		
2624799004	**HGWA-113**	EPA 9315	369310		
2624799005	**HGWC-109**	EPA 9315	369310		
2624799006	**HGWC-107**	EPA 9315	369310		
2624799001	**HGWA-112**	EPA 9320	369311		
2624799002	**HGWC-117**	EPA 9320	369311		
2624799003	**HGWC-118**	EPA 9320	369311		
2624799004	**HGWA-113**	EPA 9320	369311		
2624799005	**HGWC-109**	EPA 9320	369311		
2624799006	**HGWC-107**	EPA 9320	369311		
2624799001	**HGWA-112**	Total Radium Calculation	371530		
2624799002	**HGWC-117**	Total Radium Calculation	371530		
2624799003	**HGWC-118**	Total Radium Calculation	371530		
2624799004	**HGWA-113**	Total Radium Calculation	371617		
2624799005	**HGWC-109**	Total Radium Calculation	371617		
2624799006	**HGWC-107**	Total Radium Calculation	371617		

Sample Condition Upon Receipt

Pace Analytical

WO#: 2624800
PM: BM Due Date: 10/31/19
CLIENT: GAPower-CCR

Project #
WO#: 2624799
PM: BM Due Date: 11/21/19
CLIENT: GAPower-CCR

Courier: ☑ Fed Ex ☐ UP
Tracking #: _____
Custody Seal on Cooler/Box Present: ☐ yes
Packing Material: ☑ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other _____
Thermometer Used THR 214
Cooler Temperature 0.8
Type of Ice: Wet Blue None
Biological Tissue is Frozen: Yes No
☐ Samples on ice, cooling process has begun
Date and Initials of person examining contents: _____
Temp should be above freezing to 6°C
Comments:

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

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

3000 W28

Project Manager Review: _____ **Date:** _____

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

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

December 16, 2019

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

RE: Project: PLANT HAMMOND
Pace Project No.: 2624800

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on October 24, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

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

Enclosures

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

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

CERTIFICATIONS

Project: PLANT HAMMOND
Pace Project No.: 2624800

Pace Analytical Services Atlanta
110 Technology Parkway Peachtree Corners, GA 30092
Florida DOH Certification #: E87315
Georgia DW Inorganics Certification #: 812
Georgia DW Microbiology Certification #: 812
North Carolina Certification #: 381
South Carolina Certification #: 98011001
Virginia Certification #: 460204

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

SAMPLE SUMMARY

Project: PLANT HAMMOND
Pace Project No.: 2624800

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624800001	**HGWA-112**	Water	10/22/19 10:40	10/24/19 10:07
2624800002	**HGWC-117**	Water	10/22/19 15:00	10/24/19 10:07
2624800003	**HGWC-118**	Water	10/22/19 19:08	10/24/19 10:07
2624800004	**HGWA-113**	Water	10/22/19 11:20	10/24/19 10:07
2624800005	**HGWC-109**	Water	10/22/19 14:35	10/24/19 10:07
2624800006	**HGWC-107**	Water	10/22/19 13:55	10/24/19 10:07

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

SAMPLE ANALYTE COUNT

Project: PLANT HAMMOND
Pace Project No.: 2624800

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2624800001	**HGWA-112**	EPA 6020B	CSW	10
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624800002	**HGWC-117**	EPA 6020B	CSW	10
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624800003	**HGWC-118**	EPA 6020B	CSW	10
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624800004	**HGWA-113**	EPA 6020B	CSW	10
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624800005	**HGWC-109**	EPA 6020B	CSW	10
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624800006	**HGWC-107**	EPA 6020B	CSW	10
		SM 2540C	MZP	1
		EPA 300.0	MWB	3

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ANALYTICAL RESULTS

Project: PLANT HAMMOND
Pace Project No.: 2624800

Sample: HGWA-112 **Lab ID: 2624800001** Collected: 10/22/19 10:40 Received: 10/24/19 10:07 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	ND	mg/L	0.0050	0.00035	1	11/01/19 16:00	11/04/19 03:47	7440-38-2	
Barium	**0.028**	mg/L	0.010	0.00049	1	11/01/19 16:00	11/04/19 03:47	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	11/01/19 16:00	11/04/19 13:54	7440-41-7	
Boron	**0.016J**	mg/L	0.040	0.0049	1	11/01/19 16:00	11/04/19 13:54	7440-42-8	B
Cadmium	ND	mg/L	0.0025	0.00011	1	11/01/19 16:00	11/04/19 03:47	7440-43-9	
Calcium	**6.3**	mg/L	0.10	0.011	1	11/01/19 16:00	11/04/19 03:47	7440-70-2	
Chromium	**0.0040J**	mg/L	0.010	0.00039	1	11/01/19 16:00	11/04/19 03:47	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	11/01/19 16:00	11/04/19 03:47	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	11/01/19 16:00	11/04/19 03:47	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	11/01/19 16:00	11/04/19 13:54	7439-93-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**81.0**	mg/L	10.0	10.0	1		10/29/19 13:03		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**5.5**	mg/L	1.0	0.024	1		10/31/19 08:19	16887-00-6	
Fluoride	**0.050J**	mg/L	0.30	0.029	1		10/31/19 08:19	16984-48-8	
Sulfate	**0.60J**	mg/L	1.0	0.017	1		10/31/19 08:19	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PLANT HAMMOND
Pace Project No.: 2624800

Sample: HGWC-117 **Lab ID: 2624800002** Collected: 10/22/19 15:00 Received: 10/24/19 10:07 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	ND	mg/L	0.0050	0.00035	1	11/01/19 16:00	11/04/19 03:58	7440-38-2	
Barium	**0.049**	mg/L	0.010	0.00049	1	11/01/19 16:00	11/04/19 03:58	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	11/01/19 16:00	11/04/19 14:00	7440-41-7	
Boron	**1.0**	mg/L	0.040	0.0049	1	11/01/19 16:00	11/04/19 14:00	7440-42-8	
Cadmium	**0.00068J**	mg/L	0.0025	0.00011	1	11/01/19 16:00	11/04/19 03:58	7440-43-9	
Calcium	**70.9**	mg/L	5.0	0.55	50	11/01/19 16:00	11/04/19 04:04	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	11/01/19 16:00	11/04/19 03:58	7440-47-3	
Cobalt	**0.0064**	mg/L	0.0050	0.00030	1	11/01/19 16:00	11/04/19 03:58	7440-48-4	
Lead	**0.00016J**	mg/L	0.0050	0.000046	1	11/01/19 16:00	11/04/19 03:58	7439-92-1	
Lithium	**0.0028J**	mg/L	0.030	0.00078	1	11/01/19 16:00	11/04/19 14:00	7439-93-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**348**	mg/L	10.0	10.0	1		10/29/19 13:03		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**12.1**	mg/L	1.0	0.024	1		10/31/19 08:41	16887-00-6	
Fluoride	**0.042J**	mg/L	0.30	0.029	1		10/31/19 08:41	16984-48-8	
Sulfate	**133**	mg/L	10.0	0.17	10		10/31/19 18:42	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PLANT HAMMOND
Pace Project No.: 2624800

Sample: HGWC-118 **Lab ID: 2624800003** Collected: 10/22/19 19:08 Received: 10/24/19 10:07 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	ND	mg/L	0.0050	0.00035	1	11/01/19 16:00	11/04/19 04:10	7440-38-2	
Barium	**0.054**	mg/L	0.010	0.00049	1	11/01/19 16:00	11/04/19 04:10	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	11/01/19 16:00	11/04/19 14:05	7440-41-7	
Boron	**0.65**	mg/L	0.040	0.0049	1	11/01/19 16:00	11/04/19 14:05	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	11/01/19 16:00	11/04/19 04:10	7440-43-9	
Calcium	**84.2**	mg/L	5.0	0.55	50	11/01/19 16:00	11/04/19 04:15	7440-70-2	
Chromium	**0.00066J**	mg/L	0.010	0.00039	1	11/01/19 16:00	11/04/19 04:10	7440-47-3	
Cobalt	**0.00061J**	mg/L	0.0050	0.00030	1	11/01/19 16:00	11/04/19 04:10	7440-48-4	
Lead	**0.00025J**	mg/L	0.0050	0.000046	1	11/01/19 16:00	11/04/19 04:10	7439-92-1	
Lithium	**0.0027J**	mg/L	0.030	0.00078	1	11/01/19 16:00	11/04/19 14:05	7439-93-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**354**	mg/L	10.0	10.0	1		10/29/19 13:03		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**4.5**	mg/L	1.0	0.024	1		10/31/19 09:04	16887-00-6	
Fluoride	**0.087J**	mg/L	0.30	0.029	1		10/31/19 09:04	16984-48-8	
Sulfate	**80.9**	mg/L	10.0	0.17	10		10/31/19 19:05	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PLANT HAMMOND
Pace Project No.: 2624800

Sample: HGWA-113 **Lab ID: 2624800004** Collected: 10/22/19 11:20 Received: 10/24/19 10:07 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	ND	mg/L	0.0050	0.00035	1	11/01/19 16:00	11/04/19 04:33	7440-38-2	
Barium	**0.027**	mg/L	0.010	0.00049	1	11/01/19 16:00	11/04/19 04:33	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	11/01/19 16:00	11/04/19 14:32	7440-41-7	
Boron	**0.010J**	mg/L	0.040	0.0049	1	11/01/19 16:00	11/04/19 14:32	7440-42-8	B
Cadmium	ND	mg/L	0.0025	0.00011	1	11/01/19 16:00	11/04/19 04:33	7440-43-9	
Calcium	**7.2**	mg/L	0.10	0.011	1	11/01/19 16:00	11/04/19 04:33	7440-70-2	
Chromium	**0.0023J**	mg/L	0.010	0.00039	1	11/01/19 16:00	11/04/19 04:33	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	11/01/19 16:00	11/04/19 04:33	7440-48-4	
Lead	**0.000073J**	mg/L	0.0050	0.000046	1	11/01/19 16:00	11/04/19 04:33	7439-92-1	
Lithium	**0.0011J**	mg/L	0.030	0.00078	1	11/01/19 16:00	11/04/19 14:32	7439-93-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**95.0**	mg/L	10.0	10.0	1		10/29/19 13:04		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**1.9**	mg/L	1.0	0.024	1		10/31/19 10:55	16887-00-6	
Fluoride	**0.18J**	mg/L	0.30	0.029	1		10/31/19 10:55	16984-48-8	
Sulfate	**6.8**	mg/L	1.0	0.017	1		10/31/19 10:55	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PLANT HAMMOND
Pace Project No.: 2624800

Sample: HGWC-109 **Lab ID: 2624800005** Collected: 10/22/19 14:35 Received: 10/24/19 10:07 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	**0.0019J**	mg/L	0.0050	0.00035	1	11/01/19 16:00	11/04/19 04:44	7440-38-2	
Barium	**0.087**	mg/L	0.010	0.00049	1	11/01/19 16:00	11/04/19 04:44	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	11/01/19 16:00	11/04/19 14:37	7440-41-7	
Boron	**0.32**	mg/L	0.040	0.0049	1	11/01/19 16:00	11/04/19 14:37	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	11/01/19 16:00	11/04/19 04:44	7440-43-9	
Calcium	**42.6**	mg/L	5.0	0.55	50	11/01/19 16:00	11/04/19 04:50	7440-70-2	
Chromium	**0.00062J**	mg/L	0.010	0.00039	1	11/01/19 16:00	11/04/19 04:44	7440-47-3	
Cobalt	**0.0022J**	mg/L	0.0050	0.00030	1	11/01/19 16:00	11/04/19 04:44	7440-48-4	
Lead	**0.000054J**	mg/L	0.0050	0.000046	1	11/01/19 16:00	11/04/19 04:44	7439-92-1	
Lithium	**0.00088J**	mg/L	0.030	0.00078	1	11/01/19 16:00	11/04/19 14:37	7439-93-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**212**	mg/L	10.0	10.0	1		10/29/19 13:15		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**4.6**	mg/L	1.0	0.024	1		10/31/19 11:17	16887-00-6	
Fluoride	**0.099J**	mg/L	0.30	0.029	1		10/31/19 11:17	16984-48-8	
Sulfate	**23.2**	mg/L	1.0	0.017	1		10/31/19 11:17	14808-79-8	M1

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PLANT HAMMOND
Pace Project No.: 2624800

Sample: HGWC-107 **Lab ID: 2624800006** Collected: 10/22/19 13:55 Received: 10/24/19 10:07 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Arsenic	ND	mg/L	0.0050	0.00035	1	11/01/19 16:00	11/04/19 04:55	7440-38-2	
Barium	**0.039**	mg/L	0.010	0.00049	1	11/01/19 16:00	11/04/19 04:55	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	11/01/19 16:00	11/04/19 14:43	7440-41-7	
Boron	**0.91**	mg/L	0.040	0.0049	1	11/01/19 16:00	11/04/19 14:43	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	11/01/19 16:00	11/04/19 04:55	7440-43-9	
Calcium	**58.1**	mg/L	5.0	0.55	50	11/01/19 16:00	11/04/19 05:01	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	11/01/19 16:00	11/04/19 04:55	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	11/01/19 16:00	11/04/19 04:55	7440-48-4	
Lead	**0.000079J**	mg/L	0.0050	0.000046	1	11/01/19 16:00	11/04/19 04:55	7439-92-1	
Lithium	**0.00094J**	mg/L	0.030	0.00078	1	11/01/19 16:00	11/04/19 14:43	7439-93-2	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**308**	mg/L	10.0	10.0	1		10/29/19 13:15		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**3.6**	mg/L	1.0	0.024	1		10/31/19 12:02	16887-00-6	
Fluoride	**0.047J**	mg/L	0.30	0.029	1		10/31/19 12:02	16984-48-8	
Sulfate	**123**	mg/L	10.0	0.17	10		10/31/19 19:27	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PLANT HAMMOND
Pace Project No.: 2624800

QC Batch: 38024 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2624800001, 2624800002, 2624800003, 2624800004, 2624800005, 2624800006

METHOD BLANK: 172889 Matrix: Water
Associated Lab Samples: 2624800001, 2624800002, 2624800003, 2624800004, 2624800005, 2624800006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0050	0.00035	11/04/19 01:12	
Barium	mg/L	ND	0.010	0.00049	11/04/19 01:12	
Beryllium	mg/L	ND	0.0030	0.000074	11/04/19 01:12	
Boron	mg/L	0.0059J	0.040	0.0049	11/04/19 01:12	
Cadmium	mg/L	ND	0.0025	0.00011	11/04/19 01:12	
Calcium	mg/L	ND	0.10	0.011	11/04/19 01:12	
Chromium	mg/L	ND	0.010	0.00039	11/04/19 01:12	
Cobalt	mg/L	ND	0.0050	0.00030	11/04/19 01:12	
Lead	mg/L	ND	0.0050	0.000046	11/04/19 01:12	
Lithium	mg/L	ND	0.030	0.00078	11/04/19 01:12	

LABORATORY CONTROL SAMPLE: 172890

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.1	0.10	100	80-120	
Barium	mg/L	0.1	0.10	103	80-120	
Beryllium	mg/L	0.1	0.11	114	80-120	
Boron	mg/L	1	1.2	116	80-120	
Cadmium	mg/L	0.1	0.11	106	80-120	
Calcium	mg/L	1	1.1	106	80-120	
Chromium	mg/L	0.1	0.10	105	80-120	
Cobalt	mg/L	0.1	0.10	104	80-120	
Lead	mg/L	0.1	0.10	102	80-120	
Lithium	mg/L	0.1	0.11	112	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 172891 172892

Parameter	Units	2624772007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	2.5	0.1	0.1	2.6	2.6	43	106	75-125	2	20	M6
Barium	mg/L	0.22	0.1	0.1	0.32	0.31	99	98	75-125	0	20	
Beryllium	mg/L	ND	0.1	0.1	0.090	0.086	90	86	75-125	5	20	
Boron	mg/L	3.8	1	1	5.1	5.2	85	95	75-125	2	20	
Cadmium	mg/L	ND	0.1	0.1	0.11	0.10	107	103	75-125	4	20	
Calcium	mg/L	177	1	1	170	179	-693	243	75-125	5	20	M6
Chromium	mg/L	ND	0.1	0.1	0.099	0.097	99	97	75-125	2	20	
Cobalt	mg/L	ND	0.1	0.1	0.097	0.096	97	96	75-125	0	20	
Lead	mg/L	ND	0.1	0.1	0.092	0.090	92	90	75-125	2	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PLANT HAMMOND
Pace Project No.: 2624800

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 172891 172892

Parameter	Units	2624772007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Lithium	mg/L	0.29	0.1	0.1	0.36	0.36	73	75	75-125	1	20	M1

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PLANT HAMMOND
Pace Project No.: 2624800

QC Batch: 37734 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2624800001, 2624800002, 2624800003, 2624800004

LABORATORY CONTROL SAMPLE: 171260

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	395	99	84-108	

SAMPLE DUPLICATE: 171261

Parameter	Units	2624674001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	269	270	0	10	

SAMPLE DUPLICATE: 171262

Parameter	Units	2624786001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	693	709	2	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PLANT HAMMOND
Pace Project No.: 2624800

QC Batch: 37735
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2624800005, 2624800006

LABORATORY CONTROL SAMPLE: 171263

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	402	100	84-108	

SAMPLE DUPLICATE: 171264

Parameter	Units	2624800005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	212	212	0	10	

SAMPLE DUPLICATE: 171265

Parameter	Units	2624792004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	507	512	1	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PLANT HAMMOND
Pace Project No.: 2624800

QC Batch: 37870 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2624800001, 2624800002, 2624800003, 2624800004, 2624800005, 2624800006

METHOD BLANK: 171906 Matrix: Water
Associated Lab Samples: 2624800001, 2624800002, 2624800003, 2624800004, 2624800005, 2624800006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.024	10/31/19 04:37	
Fluoride	mg/L	ND	0.30	0.029	10/31/19 04:37	
Sulfate	mg/L	ND	1.0	0.017	10/31/19 04:37	

LABORATORY CONTROL SAMPLE: 171907

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	96	90-110	
Fluoride	mg/L	5	5.0	101	90-110	
Sulfate	mg/L	5	5.1	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 171908 171909

Parameter	Units	2624786002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	3.2	10	10	13.0	13.2	97	100	90-110	2	15	
Fluoride	mg/L	0.56	10	10	10.6	10.9	100	103	90-110	3	15	

MATRIX SPIKE SAMPLE: 171910

Parameter	Units	2624800005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	4.6	10	14.7	101	90-110	
Fluoride	mg/L	0.099J	10	10.6	105	90-110	
Sulfate	mg/L	23.2	10	28.2	50	90-110	M1

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: PLANT HAMMOND
Pace Project No.: 2624800

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M6	Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PLANT HAMMOND
Pace Project No.: 2624800

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624800001	**HGWA-112**	EPA 3005A	38024	EPA 6020B	38049
2624800002	**HGWC-117**	EPA 3005A	38024	EPA 6020B	38049
2624800003	**HGWC-118**	EPA 3005A	38024	EPA 6020B	38049
2624800004	**HGWA-113**	EPA 3005A	38024	EPA 6020B	38049
2624800005	**HGWC-109**	EPA 3005A	38024	EPA 6020B	38049
2624800006	**HGWC-107**	EPA 3005A	38024	EPA 6020B	38049
2624800001	**HGWA-112**	SM 2540C	37734		
2624800002	**HGWC-117**	SM 2540C	37734		
2624800003	**HGWC-118**	SM 2540C	37734		
2624800004	**HGWA-113**	SM 2540C	37734		
2624800005	**HGWC-109**	SM 2540C	37735		
2624800006	**HGWC-107**	SM 2540C	37735		
2624800001	**HGWA-112**	EPA 300.0	37870		
2624800002	**HGWC-117**	EPA 300.0	37870		
2624800003	**HGWC-118**	EPA 300.0	37870		
2624800004	**HGWA-113**	EPA 300.0	37870		
2624800005	**HGWC-109**	EPA 300.0	37870		
2624800006	**HGWC-107**	EPA 300.0	37870		

Sample Condition Upon Receipt

Pace Analytical

WO#: 2624800
PM: BM Due Date: 10/31/19
CLIENT: GAPower-CCR

Project #
WO#: 2624799
PM: BM Due Date: 11/21/19
CLIENT: GAPower-CCR

Courier: ☑ Fed Ex ☐ UP
Tracking #: _____
Custody Seal on Cooler/Box Present: ☐ yes
Packing Material: ☑ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other _____
Thermometer Used THR 214
Cooler Temperature 0.8
Type of Ice: Wet Blue None
Biological Tissue is Frozen: Yes No
☐ Samples on ice, cooling process has begun
Date and Initials of person examining contents: _____
Temp should be above freezing to 6°C
Comments:

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

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

3000 W28

Project Manager Review: _____ **Date:** _____

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

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

November 21, 2019

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

RE: Project: PLANT HAMMOND
Pace Project No.: 2624802

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on October 24, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

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

Enclosures

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

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

CERTIFICATIONS

Project: PLANT HAMMOND
Pace Project No.: 2624802

Pace Analytical Services Pennsylvania
1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Florida: Cert E871149 SEKS WET
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

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

SAMPLE SUMMARY

Project: PLANT HAMMOND
Pace Project No.: 2624802

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624802001	**FB-01**	Water	10/22/19 17:10	10/24/19 10:07

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

SAMPLE ANALYTE COUNT

Project: PLANT HAMMOND
Pace Project No.: 2624802

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2624802001	**FB-01**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PLANT HAMMOND
Pace Project No.: 2624802

Sample: FB-01 **Lab ID: 2624802001** Collected: 10/22/19 17:10 Received: 10/24/19 10:07 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	**0.270 ± 0.222 (0.392) C:97% T:NA**	pCi/L	11/15/19 10:17	13982-63-3	
Radium-228	EPA 9320	**-0.147 ± 0.412 (0.993) C:83% T:84%**	pCi/L	11/12/19 17:50	15262-20-1	
Total Radium	Total Radium Calculation	**0.270 ± 0.634 (1.39)**	pCi/L	11/19/19 09:18	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: PLANT HAMMOND
Pace Project No.: 2624802

QC Batch: 369310
QC Batch Method: EPA 9315
Analysis Method: EPA 9315
Analysis Description: 9315 Total Radium
Associated Lab Samples: 2624802001

METHOD BLANK: 1791698
Matrix: Water
Associated Lab Samples: 2624802001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.590 ± 0.307 (0.405) C:93% T:NA	pCi/L	11/15/19 07:34	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: PLANT HAMMOND
Pace Project No.: 2624802

QC Batch: 369311 Analysis Method: EPA 9320
QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228
Associated Lab Samples: 2624802001

METHOD BLANK: 1791699 Matrix: Water
Associated Lab Samples: 2624802001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.174 ± 0.362 (0.799) C:80% T:87%	pCi/L	11/12/19 15:54	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: PLANT HAMMOND
Pace Project No.: 2624802

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PLANT HAMMOND
Pace Project No.: 2624802

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624802001	**FB-01**	EPA 9315	369310		
2624802001	**FB-01**	EPA 9320	369311		
2624802001	**FB-01**	Total Radium Calculation	371617		

WO# : 2624803

2624803

WO# : 2624802

2624802

Pace Analytical

Section A
Required Client Information:

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

Section B
Required Project Information:

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

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

Regulatory Agency: —
State / Location: GA

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Y/N	Analyses Test: App III Metals (1)	App IV Metals (2, AP-4)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
	MATRIX: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Other OT, Tissue TS																	N	N	N	N		
1	FB-01	SS	G	10/22/19	17:00	10/22/19	17:10	25	4	1		3							Y	Y	Y	Y	N
2																							
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

10-22-2019

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
(1) App III Metals = B, Ca	Dan Gibbs / Geosyntec	10/22/19	1800	Rad Kubes / gco	10/22	1800	1.3	Y		
(2, AP-4) App IV Metals = As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo	Rad Kubes / gco	10/22	2000	3= 1 Pace	10.24	1007	1.8	Y	Y	Y

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

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Dan Gibbs

SIGNATURE of SAMPLER: Dan Gibbs

DATE Signed: 10/22/2019

Sample Condition Upon Receipt

Pace Analytical

Cli

WO#: 2624803

PM: BM Due Date: 10/31/19

CLIENT: GAPower-CCR

WO#: 2624802

PM: BM Due Date: 11/21/19

CLIENT: GAPower-CCR

Courier: ☑ Fed Ex ☐ UPS ☐

Tracking #: _____

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

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

Thermometer Used THR 214 Type of Ice: Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 1.3 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: _____

Temp should be above freezing to 6°C

Comments:

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

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

3000 W28

Project Manager Review: _____ **Date:** _____

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

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

December 17, 2019

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

RE: Project: PLANT HAMMOND
Pace Project No.: 2624803

Dear Joju Abraham:
Enclosed are the analytical results for sample(s) received by the laboratory on October 24, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

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

Enclosures

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

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

CERTIFICATIONS

Project: PLANT HAMMOND
Pace Project No.: 2624803

Pace Analytical Services Atlanta
110 Technology Parkway Peachtree Corners, GA 30092
Florida DOH Certification #: E87315
Georgia DW Inorganics Certification #: 812
Georgia DW Microbiology Certification #: 812
North Carolina Certification #: 381
South Carolina Certification #: 98011001
Virginia Certification #: 460204

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

SAMPLE SUMMARY

Project: PLANT HAMMOND
Pace Project No.: 2624803

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624803001	**FB-01**	Water	10/22/19 17:10	10/24/19 10:07

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

SAMPLE ANALYTE COUNT

Project: PLANT HAMMOND
Pace Project No.: 2624803

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2624803001	**FB-01**	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3

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

ANALYTICAL RESULTS

Project: PLANT HAMMOND
Pace Project No.: 2624803

Sample: FB-01 **Lab ID: 2624803001** Collected: 10/22/19 17:10 Received: 10/24/19 10:07 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	11/01/19 16:00	11/04/19 05:07	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	11/01/19 16:00	11/04/19 05:07	7440-38-2	
Barium	ND	mg/L	0.010	0.00049	1	11/01/19 16:00	11/04/19 05:07	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	11/01/19 16:00	11/04/19 14:49	7440-41-7	
Boron	ND	mg/L	0.040	0.0049	1	11/01/19 16:00	11/04/19 14:49	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	11/01/19 16:00	11/04/19 05:07	7440-43-9	
Calcium	**0.011J**	mg/L	0.10	0.011	1	11/01/19 16:00	11/04/19 05:07	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	11/01/19 16:00	11/04/19 05:07	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	11/01/19 16:00	11/04/19 05:07	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	11/01/19 16:00	11/04/19 05:07	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	11/01/19 16:00	11/04/19 14:49	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	11/01/19 16:00	11/04/19 05:07	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	11/01/19 16:00	11/04/19 05:07	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	11/01/19 16:00	11/04/19 05:07	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/29/19 09:50	10/29/19 16:31	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		10/29/19 13:15		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	ND	mg/L	1.0	0.024	1		10/31/19 12:24	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		10/31/19 12:24	16984-48-8	
Sulfate	ND	mg/L	1.0	0.017	1		10/31/19 12:24	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: PLANT HAMMOND
Pace Project No.: 2624803

QC Batch: 37720 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Associated Lab Samples: 2624803001

METHOD BLANK: 171214 Matrix: Water
Associated Lab Samples: 2624803001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	10/29/19 15:19	

LABORATORY CONTROL SAMPLE: 171215

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0026	105	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 171216 171217

Parameter	Units	2624786001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L				0.0027	0.0025				6	20	

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REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: PLANT HAMMOND
Pace Project No.: 2624803

QC Batch: 38024
QC Batch Method: EPA 3005A
Analysis Method: EPA 6020B
Analysis Description: 6020B MET
Associated Lab Samples: 2624803001

METHOD BLANK: 172889
Matrix: Water
Associated Lab Samples: 2624803001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	11/04/19 01:12	
Arsenic	mg/L	ND	0.0050	0.00035	11/04/19 01:12	
Barium	mg/L	ND	0.010	0.00049	11/04/19 01:12	
Beryllium	mg/L	ND	0.0030	0.000074	11/04/19 01:12	
Boron	mg/L	0.0059J	0.040	0.0049	11/04/19 01:12	
Cadmium	mg/L	ND	0.0025	0.00011	11/04/19 01:12	
Calcium	mg/L	ND	0.10	0.011	11/04/19 01:12	
Chromium	mg/L	ND	0.010	0.00039	11/04/19 01:12	
Cobalt	mg/L	ND	0.0050	0.00030	11/04/19 01:12	
Lead	mg/L	ND	0.0050	0.000046	11/04/19 01:12	
Lithium	mg/L	ND	0.030	0.00078	11/04/19 01:12	
Molybdenum	mg/L	ND	0.010	0.00095	11/04/19 01:12	
Selenium	mg/L	ND	0.010	0.0013	11/04/19 01:12	
Thallium	mg/L	ND	0.0010	0.000052	11/04/19 01:12	

LABORATORY CONTROL SAMPLE: 172890

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.11	107	80-120	
Arsenic	mg/L	0.1	0.10	100	80-120	
Barium	mg/L	0.1	0.10	103	80-120	
Beryllium	mg/L	0.1	0.11	114	80-120	
Boron	mg/L	1	1.2	116	80-120	
Cadmium	mg/L	0.1	0.11	106	80-120	
Calcium	mg/L	1	1.1	106	80-120	
Chromium	mg/L	0.1	0.10	105	80-120	
Cobalt	mg/L	0.1	0.10	104	80-120	
Lead	mg/L	0.1	0.10	102	80-120	
Lithium	mg/L	0.1	0.11	112	80-120	
Molybdenum	mg/L	0.1	0.10	103	80-120	
Selenium	mg/L	0.1	0.10	101	80-120	
Thallium	mg/L	0.1	0.10	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 172891 172892

Parameter	Units	2624772007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.11	0.10	106	104	75-125	2	20	

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REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: PLANT HAMMOND
Pace Project No.: 2624803

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 172891 172892

Parameter	Units	2624772007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	2.5	0.1	0.1	2.6	2.6	43	106	75-125	2	20	M6
Barium	mg/L	0.22	0.1	0.1	0.32	0.31	99	98	75-125	0	20	
Beryllium	mg/L	ND	0.1	0.1	0.090	0.086	90	86	75-125	5	20	
Boron	mg/L	3.8	1	1	5.1	5.2	85	95	75-125	2	20	
Cadmium	mg/L	ND	0.1	0.1	0.11	0.10	107	103	75-125	4	20	
Calcium	mg/L	177	1	1	170	179	-693	243	75-125	5	20	M6
Chromium	mg/L	ND	0.1	0.1	0.099	0.097	99	97	75-125	2	20	
Cobalt	mg/L	ND	0.1	0.1	0.097	0.096	97	96	75-125	0	20	
Lead	mg/L	ND	0.1	0.1	0.092	0.090	92	90	75-125	2	20	
Lithium	mg/L	0.29	0.1	0.1	0.36	0.36	73	75	75-125	1	20	M1
Molybdenum	mg/L	0.49	0.1	0.1	0.58	0.60	89	105	75-125	3	20	
Selenium	mg/L	ND	0.1	0.1	0.10	0.10	100	100	75-125	0	20	
Thallium	mg/L	ND	0.1	0.1	0.093	0.092	93	92	75-125	2	20	

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REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: PLANT HAMMOND
Pace Project No.: 2624803

QC Batch: 37735
QC Batch Method: SM 2540C
Analysis Method: SM 2540C
Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2624803001

LABORATORY CONTROL SAMPLE: 171263

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	402	100	84-108	

SAMPLE DUPLICATE: 171264

Parameter	Units	2624800005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	212	212	0	10	

SAMPLE DUPLICATE: 171265

Parameter	Units	2624792004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	507	512	1	10	

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REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: PLANT HAMMOND
Pace Project No.: 2624803

QC Batch: 37870
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2624803001

METHOD BLANK: 171906 Matrix: Water
Associated Lab Samples: 2624803001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.024	10/31/19 04:37	
Fluoride	mg/L	ND	0.30	0.029	10/31/19 04:37	
Sulfate	mg/L	ND	1.0	0.017	10/31/19 04:37	

LABORATORY CONTROL SAMPLE: 171907

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	96	90-110	
Fluoride	mg/L	5	5.0	101	90-110	
Sulfate	mg/L	5	5.1	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 171908 171909

Parameter	Units	2624786002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	3.2	10	10	13.0	13.2	97	100	90-110	2	15	
Fluoride	mg/L	0.56	10	10	10.6	10.9	100	103	90-110	3	15	

MATRIX SPIKE SAMPLE: 171910

Parameter	Units	2624800005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	4.6	10	14.7	101	90-110	
Fluoride	mg/L	0.099J	10	10.6	105	90-110	
Sulfate	mg/L	23.2	10	28.2	50	90-110	M1

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REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: PLANT HAMMOND
Pace Project No.: 2624803

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M6	Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PLANT HAMMOND
Pace Project No.: 2624803

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624803001	**FB-01**	EPA 3005A	38024	EPA 6020B	38049
2624803001	**FB-01**	EPA 7470A	37720	EPA 7470A	37761
2624803001	**FB-01**	SM 2540C	37735		
2624803001	**FB-01**	EPA 300.0	37870		

WO# : 2624803

2624803

WO# : 2624802

2624802

Pace Analytical

Section A
Required Client Information:

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

Section B
Required Project Information:

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

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

Regulatory Agency:

State / Location: GA

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	App III Metals (1)	App IV Metals (2, AP-4)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
	MATRIX: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Other OT, Tissue TS																	Y/N	N	N	N	N	
1	FB-01	SS	G	10/22/19	17:00	10/22/19	17:10	25	4	1		3							Y	Y	Y	Y	N
2																							
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

10-22-2019

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
(1) App III Metals = B, Ca	Dan Gibbs / Geosyntec	10/22/19	1800	Rad Kubes / gco	10/22	1800	1.3	Y		
(2, AP-4) App IV Metals = As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo	Rad Kubes / gco	10/22	2000	3 = 1 Pace	10.24	1007	1.8	Y	Y	Y

SAMPLER NAME AND SIGNATURE			
PRINT Name of SAMPLER:	Dan Gibbs		
SIGNATURE of SAMPLER:		DATE Signed:	10/22/2019

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

Sample Condition Upon Receipt

Pace Analytical

Cli

WO#: 2624803

PM: BM Due Date: 10/31/19

CLIENT: GAPower-CCR

WO#: 2624802

PM: BM Due Date: 11/21/19

CLIENT: GAPower-CCR

Courier: ☑ Fed Ex ☐ UPS ☐

Tracking #: _____

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

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

Thermometer Used THR 214 Type of Ice: Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 1.3 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: _____

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

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

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

3000 W28

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

Geosyntec consultants

180A Market Place Boulevard
Knoxville, TN 37922
PH 865.330.0037
www.geosyntec.com

Memorandum

Date:	October 8, 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 2622317, 2622318, 2622352, 2622353, 2622354, 2622355, 2622398, 2622399, 2622400, 2622401, 2622402 and 2622403**

SITE: Plant Hammond AP

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of fourteen aqueous samples and two equipment blanks, collected 21-23 August 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
- Fluoride 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); and,
- American National Standard, Verification and Validation of Radiological Data for use in Waste Management and Environmental Remediation, February 15, 2012 (ANSI/ANS-41.5-2012);

The following samples were analyzed and reported in the laboratory reports:

Laboratory ID	Client ID
2622317001	HGWA-111
2622317002	HGWA-112
2622317003	HGWA-113
2622318001	HGWA-111
2622318002	HGWA-112
2622318003	HGWA-113
2622352001	HGWA-122
2622352002	HGWC-121A
2622352003	HGWC-120
2622353001	HGWA-122
2622353002	HGWC-121A
2622353003	HGWC-120
2622354001	HGWC-117
2622354002	HGWC-101
2622354003	HGWC-118
2622354004	HGWC-103

Laboratory ID	Client ID
2622354005	HGWC-105
2622355001	HGWC-117
2622355002	HGWC-101
2622355003	HGWC-118
2622355004	HGWC-103
2622355005	HGWC-105
2622398001	HGWC-124
2622399001	HGWC-124
2622400001	EB-01
2622400002	EB-02
2622401001	EB-01
2622401002	EB-02
2622402001	HGWC-107
2622402002	HGWC-109
2622402001	HGWC-107
2622402002	HGWC-109

The samples were received within 0-6 degrees Celsius (ºC). No sample preservation issues were noted by the laboratory.

The following issues were noted with the chain of custody (COC) forms:

- 2622317, 2622318, 2622352, 2622353, 2622354 and 2622355: The relinquishing signature, date and time were missing for the final sample transfer on the COCs.
- 2622354 and 2622355: The collection time of HGWC-103 was listed as 1430 on the label and 1450 on the COC. The sample was logged in per the COC.
- 2622354, 2622355, 2622402 and 2622403: The years were missing from the start and end collection times from some or all of the samples.

- 2622400 and 2622401: There were time discrepancies between the relinquished by and received by times. For the first sample transfer the relinquished by time was documented as 08/23/19 1530 and the received by time was documented as 08/23/19 1540. For the second sample transfer the relinquished by time was documented as 08/26/19 0815 and the received by time was documented as 08/26/19 1830.
- 2622402 and 2622403: There were time discrepancies between the relinquished by and received by times. For the second sample transfer the relinquished by time was documented as 08/23/19 1530 and the received by time was documented as 08/23/19 1540. For the third sample transfer the relinquished by time was documented as 08/26/19 0815 and the received by time was documented as 08/26/19 1830.

1.0 METALS

The samples were analyzed for metals by EPA methods 3005A/6020B (Mercury evaluated separately in Section 2.0, below).

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

✓ Overall Assessment
✓ Holding Time
⊗ Method Blank
✓ Matrix Spike/Matrix Spike Duplicate
✓ Laboratory Control Sample
✓ Equipment Blank
✓ Field Blank
✓ Field Duplicate
✓ Sensitivity
⊗ Electronic Data Deliverables Review

1.1 Overall Assessment

The metals data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for this dataset is 100%.

1.2 Holding Time

The holding time for the metals analysis of a water sample is 180 days from sample collection to analysis. The holding times were met for the sample analyses.

1.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three method blanks were reported (batches 34179, 34320 and 34496). Metals were not detected in the method blanks above the method detection limits (MDLs), with the following exceptions.

2622317: Antimony was detected at an estimated concentration greater than the MDL and less than the reporting limit (RL) in the method blank in batch 34179. Since antimony was not detected in the associated samples, no qualifications were applied to the data.

2622352 and 2622354: Chromium was detected at an estimated concentration greater than the MDL and less than the RL in the method blank in batch 34320. Therefore, the chromium concentrations in the associated samples less than five times the method blank concentration were 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**
HGWA-122	Chromium	0.00060	J	0.0006	U*	BL
HGWC-120	Chromium	0.00072	J	0.00072	U*	BL
HGWC-101	Chromium	0.00064	J	0.00064	U*	BL
HGWC-103	Chromium	0.00063	J	0.00063	U*	BL

mg/L- milligram per liter
J- estimated concentration greater than the MDL and less than the RL
* Validation qualifiers are defined in Attachment 1 at the end of this report
**Reason codes are defined in Attachment 2 at the end of this report

1.4 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three batch MS/MSD pairs were 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). Three LCSs were reported. The recovery results were within the laboratory specified acceptance criteria.

1.6 Equipment Blank

Two equipment blanks were collected with the sample set, EB-01 and EB-02. Metals were not detected in the equipment blanks above the MDLs.

1.7 Field Blank

A field blank was not collected with the sample set.

1.8 Field Duplicate

A field duplicate was not collected with the sample set.

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 flag B used in the level II reports were not included in the EDDs. In addition, there were project specific EDDs that included project data for samples from a different laboratory report or analytes were included in the EDDs that were not requested or reported in the laboratory report when the sample was used for laboratory batch QC (i.e. if the sample was used for the MS/MSD analyses). No other discrepancies were identified between the level II reports and the EDDs.

2.0 MERCURY

The samples were analyzed for mercury by EPA method 7470A.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

✓ Overall Assessment

- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ⊗ Electronic Data Deliverables Review

2.1 Overall Assessment

The mercury data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for this dataset is 100%.

2.2 Holding Time

The holding time for mercury analysis of a water sample is 28 days from sample collection to analysis. The holding times were met for the sample analyses.

2.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three method blanks were reported (batches 34231, 34265 and 34391). 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 batch MS/MSD pairs were reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

2.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three LCSs were reported. The recovery results were within the laboratory specified acceptance criteria.

2.6 Equipment Blank

Two equipment blanks were collected with the sample set, EB-01 and EB-02. Mercury was not detected in the equipment blanks above the MDL.

2.7 Field Blank

A field blank was not collected with the sample set.

2.8 Field Duplicate

A field duplicate was not collected with the sample set.

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 project 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 FLUORIDE

The samples were analyzed for fluoride by EPA method 300.0.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ 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). Three method blanks were reported (batches 34532, 34533 and 34680). Fluoride was not detected in the method blanks above the MDL.

3.4 Matrix Spike/Matrix Spike Duplicate

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One sample set specific MS was reported using sample HGWC-107. The recovery result was within the laboratory specified acceptance criteria.

Two batch MSs and three MS/MSD pairs were also reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

3.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three LCSs were reported. The recovery results were within the laboratory specified acceptance criteria.

3.6 Laboratory Duplicate

Laboratory duplicates were not reported with the data.

3.7 Equipment Blank

Two equipment blanks were collected with the sample set, EB-01 and EB-02. Fluoride was not detected in the equipment blanks above the MDL.

3.8 Field Blank

A field blank was not collected with the sample set.

3.9 Field Duplicate

A field duplicate was not collected with the sample set.

3.10 Sensitivity

The samples were reported to the MDL. 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. There were project specific EDDs that included project data for samples from a different laboratory report or analytes were included in the EDDs that were not requested or reported in the laboratory report when the sample was used for laboratory batch QC (i.e. if the sample was used for the MS/MSD analyses). No other discrepancies were identified between the level II reports and the EDDs.

4.0 RADIOCHEMISTRY

The samples were analyzed for radium-226 by EPA method 9315, radium-228 by EPA method 9320 and total radium by calculation.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

✓ Overall Assessment
✓ Holding Times
⊗ Method Blank
✓ Matrix Spike/Matrix Spike Duplicate
✓ Laboratory Control Sample
✓ Laboratory Duplicate
✓ Tracers and Carriers

⊗ Equipment Blank
✓ Field Blank
✓ Field Duplicate
✓ Sensitivity
✓ Electronic Data Deliverables Review

4.1 Overall Assessment

The radium-226 and radium-228 data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for this dataset is 100%.

4.2 Holding Times

The holding times for the radium-226 and radium-228 analyses of a water sample are 180 days from sample collection to analysis. The holding times were met for the sample analyses.

4.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three method blanks were reported for the radium-228 data (batches 358895, 358894 and 359966). Three method blanks were reported for the radium-226 data (batches 359801, 359490 and 359964). Radium-226 and radium-228 were not detected in the method blanks above the minimum detectable concentrations (MDCs), with the following exceptions.

2622318, 2622355 and 2622399: Radium-226 (0.563 pCi/L) was detected at a concentration greater than the MDC in the method blank in batch 359801. Therefore, the radium-226 concentration in the associated sample greater than the MDC and with a normalized absolute difference (NAD) less than 2.58 was U* qualified as not detected at the reported concentration. Also, samples with a combined radium 226 + 228 concentration greater than the MDC with a radium-228 concentration less than the MDC and a U* qualified radium-226 concentration were U* qualified as not detected at the reported concentration.

2622353: Radium-228 (0.862 pCi/L) was detected at a concentration greater than the MDC in the method blank in batch 358894. Therefore, the radium-228 concentration in the associated sample greater than the MDC and with a 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
HGWA-111	Radium-226	0.492	NA	0.492	U*	BL
HGWA-112	Radium-226	0.417	NA	0.417	U*	BL
HGWA-122	Radium-228	0.886	NA	0.886	U*	BL
HGWC-101	Radium-226	0.474	NA	0.474	U*	BL
HGWC-118	Radium-226	0.492	NA	0.492	U*	BL
HGWC-103	Radium-226	0.434	NA	0.434	U*	BL
HGWC-124	Radium-226	0.450	NA	0.450	U*	BL
HGWC-124	Combined Radium 226 + 228	0.834	NA	0.834	U*	BL

pCi/L- picocuries per liter
NA-not applicable

4.4 Matrix Spike/Matrix Spike Duplicate

MS/MSD pairs were not reported with the data.

4.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two LCSs and one LCS/LCS duplicate (LCSD) pair were reported for radium-226. One LCS and two LCS/LCSD pairs were reported for radium-228. The recovery and replicate error ratio (RER) [2 sigma (2σ)] results were within the laboratory specified acceptance criteria.

4.6 Laboratory Duplicate

Four batch laboratory duplicates were reported for radium-226 and one batch laboratory duplicate was reported for radium-228. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

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 specified acceptance criteria.

4.8 Equipment Blank

Two equipment blanks were collected with the sample sets, EB-01 and EB-02. Radium-226 and Radium-228 were not detected in the equipment blank above the MDCs, with the following exception.

Radium-226 (0.539 pCi/L) was detected at a concentration greater than the MDC in EB-02. Therefore, the radium-226 concentration in the associated sample greater than the MDC and with a NAD less than 2.58 was U* qualified as not detected at the reported concentration. Also, samples with combined radium 226 + 228 concentrations greater than the MDC with a radium-228 concentration less than the MDC and a U* qualified radium-226 concentration were 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
HGWA-111	Radium-226	0.492	NA	0.492	U*	BE
HGWA-112	Radium-226	0.417	NA	0.417	U*	BE
HGWC-121A	Radium-226	0.635	NA	0.635	U*	BE
HGWC-121A	Combined Radium 226 + 228	1.30	NA	1.30	U*	BE
HGWC-120	Radium-226	0.845	NA	0.845	U*	BE
HGWC-120	Combined Radium 226 + 228	1.35	NA	1.35	U*	BE
HGWC-101	Radium-226	0.474	NA	0.474	U*	BE
HGWC-118	Radium-226	0.492	NA	0.492	U*	BE
HGWC-103	Radium-226	0.434	NA	0.434	U*	BE
HGWC-124	Radium-226	0.450	NA	0.450	U*	BE
HGWC-124	Combined Radium 226 + 228	0.834	NA	0.834	U*	BE
HGWC-107	Radium-226	0.502	NA	0.502	U*	BE
HGWC-107	Combined Radium 226 + 228	1.69	NA	1.69	J	BE

pCi/L- picocuries per liter
NA-not applicable

4.9 Field Blank

A field blank was not collected with the sample set.

4.10 Field Duplicate

A field duplicate was not collected with the sample set.

4.11 Sensitivity

The samples were reported to the MDCs. No elevated non-detect results were reported.

4.12 Electronic Data Deliverables Review

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II reports and the EDDs.

* * * * *

ATTACHMENT 1
DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY
Assigned by Geosyntec's Data Validation Team

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

Reason Code	Explanation
BE	Equipment blank contamination. The result should be considered "not-detected."
BF	Field blank contamination. The result should be considered "not-detected."
BL	Laboratory blank contamination. The result should be considered "not-detected."
L	LCS and LCSD recoveries outside acceptance limits, indeterminate bias
L-	LCS and/or LCSD recoveries outside of acceptance limits. The result may be biased low.
L+	LCS and/or LCSD recoveries outside of acceptance limits. The result may be biased high.
M-	MS and/or MSD recoveries outside of acceptance limits. The result may be biased low.

Geosyntec consultants

180A Market Place Boulevard
Knoxville, TN 37922
PH 865.330.0037
www.geosyntec.com

Memorandum

Date:	20 January 2020
To:	Whitney Law
From:	Kristoffer Henderson
CC:	J. Caprio
Subject:	**Stage 2A Data Validations - Level II Data Deliverables – Pace Analytical Services, LLC Project Numbers 2624782, 2624784, 2624785, 2624786, 2624787, 2624788, 2624791, 2624792, 2624799, 2624800, 2624802 and 2624803**

SITE: Plant Hammond AP3/4

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of fifteen aqueous samples, one field duplicate sample and one field blank, collected 21-23 October 2019, as part of the Plant Hammond AP3/4 on-site sampling event.

The samples were analyzed at Pace Analytical Services, LLC, Peachtree Corners, Georgia, for the following analytical tests:

- Metals by United States (US) Environmental Protection Agency (EPA) Methods 3005A/6020B
- Mercury by USEPA Method 7470A
- Total Dissolved Solids (TDS) by Standard Method 2540C
- Chloride, Fluoride and Sulfate by USEPA Method 300.0

The samples were analyzed at Pace Analytical Services, LLC, Greensburg, Pennsylvania, for the following analytical tests:

- Radium-226 by USEPA Method 9315
- Radium-228 by USEPA Method 9320
- Total Radium by Calculation

EXECUTIVE SUMMARY

Based on the Stage 2A data validation covering the quality control (QC) parameters listed below and the information provided, the data as qualified are usable for meeting project objectives. Qualified data should be used within the limitations of the qualification.

The data were reviewed based on the pertinent methods referenced in the laboratory reports, professional and technical judgment and the following documents:

- US EPA Region IV Data Validation Standard Operating Procedures (US EPA Region IV, September 2011);
- USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review, January 2017 (EPA 540-R-2017-001); and,
- American National Standard, Verification and Validation of Radiological Data for use in Waste Management and Environmental Remediation, February 15, 2012 (ANSI/ANS-41.5-2012).

The following samples were analyzed and reported in the laboratory reports:

Laboratory ID	Client ID
2624782001	HGWA-122
2624782002	HGWC-124
2624782003	HGWC-121A
2624784001	HGWA-122
2624784002	HGWC-124
2624784003	HGWC-121A
2624785001	HGWC-120
2624785002	FD-01
2624786001	HGWC-120
2624786002	FD-01
2624787001	HGWA-111
2624788001	HGWA-111
2624791001	HGWC-101
2624791002	HGWC-102
2624791003	HGWC-105
2624791004	HGWC-103
2624792001	HGWC-101

Laboratory ID	Client ID
2624792002	HGWC-102
2624792003	HGWC-105
2624792004	HGWC-103
2624799001	HGWA-112
2624799002	HGWC-117
2624799003	HGWC-118
2624799004	HGWA-113
2624799005	HGWC-109
2624799006	HGWC-107
2624800001	HGWA-112
2624800002	HGWC-117
2624800003	HGWC-118
2624800004	HGWA-113
2624800005	HGWC-109
2624800006	HGWC-107
2624802001	FB-01
2624803001	FB-01

The samples were received within 0-6ºC. No sample preservation issues were noted by the laboratory.

The following issues were noted with the chain of custody (COC) forms:

- 2624785 and 2624786: There was no time of collection listed for the field duplicate, FD-01. The laboratory assigned the collection time of 00:00. Also, the year was not documented for the relinquished by and received by times for the second transfer.
- 2624787 and 2624788: The year was not documented for the sample collection time and relinquished by time for the sample transfer.

- 2624791, 2624792, 2624799 and 2624800: The year was not documented for the sample collection times for samples HGWC-101, HGWC-102, HGWA-112, HGWC-117 and HGWC-118 and the relinquished by and received by times for the sample transfers.
- 2624802 and 2624803: The year was not documented for the received by time for the first transfer and the relinquished by and received by times for the second transfer.

1.0 METALS

The samples were analyzed for metals by USEPA methods 3005A/6020B. (Mercury was evaluated separately in Section 2.0, below).

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

✓ Overall Assessment
✓ Holding Time
⊗ Method Blank
✓ Matrix Spike/Matrix Spike Duplicate
✓ Laboratory Control Sample
✓ Equipment Blank
✓ Field Blank
✓ Field Duplicate
✓ Sensitivity
⊗ Electronic Data Deliverables Review

1.1 Overall Assessment

The metals data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for the dataset is 100%.

1.2 Holding Time

The holding time for the metals analysis of a water sample is 180 days from sample collection to analysis. The holding times were met for the sample analyses.

1.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported (batches 37696 and 38024). Metals were not detected in the method blanks above the method detection limits (MDLs), with the following exception.

2624786, 2624792, 2624800 and 2624803: Boron (0.0059 mg/L) was detected at an estimated concentration greater than the MDL and less than the reporting limit (RL) in the method blank in batch 38024. Therefore, the boron concentrations in the associated samples less than five times the method blank concentrations were U* qualified as not detected at the reported concentrations.

Sample	Analyte	Laboratory Result (mg/L)	Laboratory Flag	Validation Result (mg/L)	Validation Qualifier*	Reason Code**
HGWA-112	Boron	0.016	J B	0.016	U*	BL
HGWA-113	Boron	0.010	J B	0.010	U*	BL

mg/L- milligram per liter
J- estimated concentration greater than the MDL and less than the RL
B-laboratory flag indicating analyte was detected in the associated method blank
* Validation qualifiers are defined in Attachment 1 at the end of this report
**Reason codes are defined in Attachment 2 at the end of this report

1.4 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two batch MS/MSD pairs were 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). Two LCSs were reported. The recovery results were within the laboratory specified acceptance criteria.

1.6 Equipment Blank

An equipment blank was not collected with the sample set.

1.7 Field Blank

One field blank was collected with the sample sets, FB-01. Metals were not detected in the field blank above the MDLs, with the following exception.

Calcium (0.011 mg/L) was detected at an estimated concentration greater than the MDL and less than the RL in FB-01. Since calcium was detected in the associated samples at concentrations greater than five times the field blank concentration, 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 [relative percent difference (RPD) $\leq$ 20% or the difference between the concentrations < RL] was demonstrated between the field duplicate and the original sample HGWC-120.

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 flag B used in the level II reports was not included in the EDDs. No other discrepancies were identified between the level II reports and the EDDs.

2.0 MERCURY

The samples were analyzed by USEPA method 7470A.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

2.1 Overall Assessment

The mercury data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for the dataset is 100%.

2.2 Holding Time

The holding time for the 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 37720). Mercury was not detected in the method blank above the MDL.

2.4 Matrix Spike/Matrix Spike Duplicate

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One batch MS/MSD pair was reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

2.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was reported. The recovery result was within the laboratory specified acceptance criteria.

2.6 Equipment Blank

An equipment blank was not collected with the sample set.

2.7 Field Blank

One field blank was collected with the sample sets, FB-01. Mercury was not detected in the field blank above the MDL.

2.8 Field Duplicate

The field duplicate was not analyzed for mercury.

2.9 Sensitivity

The samples were reported to the MDL. Elevated nondetect results were not 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. No discrepancies were identified between the level II reports and the EDDs.

3.0 WET CHEMISTRY

The samples were analyzed for TDS by Standard Method 2540C and chloride, fluoride and sulfate by USEPA method 300.0.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

✓ Overall Assessment
✓ Holding Times
✓ Method Blank
⊗ Matrix Spike/Matrix Spike Duplicate
✓ Laboratory Control Sample
✓ Laboratory Duplicate
✓ Equipment Blank
✓ Field Blank
✓ Field Duplicate
✓ 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 this analysis, for the dataset is 100%.

3.2 Holding Times

The holding times for the analysis of a water sample for the wet chemistry parameters are listed below. The holding times were met for the sample analyses.

Analyte	Holding Time
TDS	7 days from collection to analysis
Chloride, Fluoride and Sulfate	28 days from collection to analysis

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). Three method blanks were reported for the anions (batches 37730, 37858 and 37870). The wet chemistry parameters were not detected in the method blanks above the MDLs, with the following exceptions.

2624784 and 2624787: Chloride (0.034 mg/L) was detected at an estimated concentration greater than the MDL and less than the RL in the method blank in batch 37730. 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.

2624786: Chloride (0.0032 mg/L) and sulfate (0.36 mg/L) were detected at estimated concentrations greater than the MDLs and less than the RLs in the method blank in batch 37858. 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.

3.4 Matrix Spike/Matrix Spike Duplicate

One sample set MS/MSD pair using sample FD-01 and one MS using sample HGWC-109 were reported for the anions. The RPD and recovery results were within the laboratory specified acceptance criteria, with the following exception.

2624800: The recovery of sulfate in the MS using sample HGWC-109 was low and outside the laboratory specified acceptance criteria. Therefore, the chloride concentration in sample HGWC-109 was J qualified as estimated.

One batch MS and two MS/MSD pairs were also reported for the anions. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

Sample	Analyte	Laboratory Result (mg/L)	Laboratory Flag	Validation Result (mg/L)	Validation Qualifier	Reason Code
HGWC-109	Sulfate	23.2	M1	23.2	J	M-

mg/L- milligram per liter
M1-laboratory flag indicating MS recovery exceeded the QC limits

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 analysis and batch as appropriate. The recovery results were within the laboratory specified acceptance criteria.

3.6 Laboratory Duplicate

Four sample set specific laboratory duplicates were reported for TDS using samples HGWA-122, HGWC-120, HGWA-113 and HGWC-109. The RPD results were within the laboratory specified acceptance criteria.

Two 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

An equipment blank was not collected with the sample set.

3.8 Field Blank

One field blank was collected with the sample sets, FB-01. The wet chemistry parameters were not detected in the field blank above the MDLs.

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-120.

3.10 Sensitivity

The samples were reported to the MDLs. No elevated nondetect 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 flag M1 used in the level II report was not included in the EDDs. No other discrepancies were identified between the level II reports and the EDDs.

4.0 RADIOCHEMISTRY

The samples were analyzed for radium-226 by EPA method 9315, radium-228 by EPA method 9320 and total radium by calculation.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

✓ Overall Assessment
✓ Holding Times
⊗ Method Blank
✓ Matrix Spike/Matrix Spike Duplicate
✓ Laboratory Control Sample
✓ Laboratory Duplicate
✓ Tracers and Carriers
✓ Equipment Blank
✓ Field Blank
✓ Field Duplicate
✓ Sensitivity
✓ Electronic Data Deliverables Review

4.1 Overall Assessment

The radium-226 and radium-228 data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for this dataset is 100%.

4.2 Holding Times

The holding times for the radium-226 and radium-228 analyses of a water sample are 180 days from sample collection to analysis. The holding times were met for the sample analyses.

4.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported for the radium-228 data (batches 369306 and 369311). Two method blanks were reported for the radium-226 data (batches 369307 and 369310). Radium-226 and radium-228 were not detected in the method blanks above the minimum detectable concentrations (MDCs), with the following exception.

2624785, 2624791 and 2624799: Radium-226 was detected at concentrations greater than the MDC in the method blank in batch 369310. Therefore, the radium-226 concentrations in the associated samples less than five times the method blank concentrations were U* qualified as not detected.

Sample	Analyte	Laboratory Result (pCi/L)	Laboratory Flag	Validation Result (pCi/L)	Validation Qualifier	Reason Code
HGWC-120	Radium-226	0.760	NA	0.760	U*	BL
FD-01	Radium-226	0.420	NA	0.420	U*	BL
HGWC-103	Radium-226	0.571	NA	0.571	U*	BL
HGWC-118	Radium-226	0.424	NA	0.424	U*	BL
HGWA-113	Radium-226	0.401	NA	0.401	U*	BL
HGWC-109	Radium-226	0.545	NA	0.545	U*	BL

pCi/L-picocuries per liter
NA-not applicable

4.4 Matrix Spike/Matrix Spike Duplicate

MS/MSD pairs were not reported with the data.

4.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two LCS/LCS duplicate (LCSD) pairs were reported for radium-226. Two LCS/LCSD pairs were reported for radium-228. The recovery and replicate error ratio (RER) [2 sigma (2σ)] results were within the laboratory specified acceptance criteria.

4.6 Laboratory Duplicate

One sample set specific laboratory duplicate was reported for radium-226 using sample BGWC-19. The RER (2σ) result was within the laboratory specified acceptance criteria.

Two 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. The recovery and RPD results were within the laboratory specified acceptance criteria.

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 specified acceptance criteria.

4.8 Equipment Blank

An equipment blank was not collected with the sample set.

4.9 Field Blank

One field blank was collected with the sample sets, FB-01. Radium-226 and radium-228 were not detected in the field blank above the MDCs.

4.10 Field Duplicate

One field duplicate sample was collected with the sample sets, FD-01. Acceptable precision (RER (2σ) < 3) was demonstrated between the field duplicates and the original samples BGWA-29, HGWC-120.

4.11 Sensitivity

The samples were reported to the MDCs. No elevated nondetect results were reported.

4.12 Electronic Data Deliverables Review

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II reports and the EDDs.

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ATTACHMENT 1
DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY
Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

U* This analyte should be considered "not-detected" because it was detected in an associated blank at a similar level.

UJ The analyte was analyzed for, but was not detected above the level of the reported sample reporting/method detection limit. The reported method detection limit is approximate and may be inaccurate or imprecise.

J The analyte was positively identified but the result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2
DATA VALIDATION REASON CODES
Assigned by Geosyntec's Data Validation Team

Reason Code	Explanation
13	Other
BE	Equipment blank contamination. The result should be considered "not-detected."
BF	Field blank contamination. The result should be considered "not-detected."
BL	Laboratory blank contamination. The result should be considered "not-detected."
H	Holding time exceedance.
L	LCS and LCSD recoveries outside acceptance limits, indeterminate bias
L-	LCS and/or LCSD recoveries outside of acceptance limits. The result may be biased low.
L+	LCS and/or LCSD recoveries outside of acceptance limits. The result may be biased high.
M-	MS and/or MSD recoveries outside of acceptance limits. The result may be biased low.

APPENDIX B2
Field Data Sheets

Product Name: Low-Flow System

Date: 2019-08-21 14:56:39

Project Information:		Pump Information:	
Operator Name	Chad Russo	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	541714		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWA-111	Final Pumping Rate	150 mL/min
Well diameter	2 in	Total System Volume	0.09 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	14.60 ft	Total Volume Pumped	8.25 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	14:33:14	600.02	22.43	6.29	144.85	0.42	15.44	4.22	33.11
Last 5	14:38:14	900.02	22.42	6.45	189.87	0.43	15.44	4.11	31.71
Last 5	14:43:14	1200.02	22.55	6.54	198.18	0.33	15.45	3.95	30.63
Last 5	14:48:14	1500.02	22.60	6.56	201.18	0.65	15.45	3.92	31.16
Last 5	14:53:14	1800.02	22.73	6.60	206.94	0.55	15.44	3.88	30.60
Variance 0			0.13	0.09	8.31			-0.16	-1.08
Variance 1			0.05	0.02	3.00			-0.03	0.53
Variance 2			0.13	0.03	5.76			-0.04	-0.56

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle for F (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A). Total depth = 43.21 ft.

Grab Samples

HGWA-111

Grab

Product Name: Low-Flow System

Date: 2019-08-21 17:45:59

Project Information:		Pump Information:	
Operator Name	Chad Russo	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	541714		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWA-112	Final Pumping Rate	100 mL/min
Well diameter	2 in	Total System Volume	0.09 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	15.07 ft	Total Volume Pumped	3.25 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	16:41:11	300.03	24.62	5.84	74.78	0.28	16.12	1.24	37.43
Last 5	16:46:11	600.02	25.00	5.81	74.14	2.80	16.18	1.22	36.38
Last 5	16:51:11	900.02	25.48	5.80	73.69	0.60	16.12	1.17	35.73
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.38	-0.03	-0.64			-0.03	-1.05
Variance 2			0.49	-0.01	-0.45			-0.05	-0.66

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle for F (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A). Total depth = 39.90 ft.

Grab Samples

HGWA-112

Grab

Product Name: Low-Flow System

Date: 2019-08-21 17:48:26

Project Information:		Pump Information:	
Operator Name	Noelia Muskus	Pump Model/Type	Alexis
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	613229		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWA-113	Final Pumping Rate	100 mL/min
Well diameter	2 in	Total System Volume	0.09 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	12.42 ft	Total Volume Pumped	7.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	16:32:54	1199.92	24.59	6.06	103.36	0.18	19.22	1.81	72.12
Last 5	16:37:54	1499.91	24.76	6.07	101.77	0.07	19.52	1.84	71.80
Last 5	16:42:54	1799.90	24.93	6.06	102.46	0.10	19.81	1.97	71.78
Last 5	16:47:54	2099.89	25.19	6.04	101.66	0.20	20.08	1.91	71.93
Last 5	16:52:54	2399.88	25.15	6.05	101.40	0.28	20.34	1.85	71.32
Variance 0			0.17	-0.01	0.69			0.13	-0.02
Variance 1			0.26	-0.01	-0.81			-0.06	0.15
Variance 2			-0.05	0.01	-0.25			-0.06	-0.61

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle for F (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A). Total depth = 36.11 ft.

Grab Samples

HGWA-113

Grab

Product Name: Low-Flow System

Date: 2019-08-22 13:58:13

Project Information:		Pump Information:	
Operator Name	Chad Russo	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	541714		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWC-101	Final Pumping Rate	100 mL/min
Well diameter	2 in	Total System Volume	0.09 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	13.58 ft	Total Volume Pumped	6.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	12:21:56	900.02	24.71	5.42	196.82	1.41	16.19	0.72	96.99
Last 5	12:26:56	1200.02	25.07	5.39	199.48	0.54	16.38	0.64	96.59
Last 5	12:31:56	1500.02	25.00	5.40	194.59	3.11	16.54	0.62	95.12
Last 5	12:36:56	1800.03	25.17	5.36	196.69	3.00	16.64	0.57	94.74
Last 5	12:41:56	2100.03	25.33	5.39	192.55	2.45	17.76	0.56	93.28
Variance 0			-0.07	0.02	-4.90			-0.02	-1.47
Variance 1			0.16	-0.04	2.11			-0.05	-0.37
Variance 2			0.16	0.03	-4.15			-0.01	-1.47

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle for F (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A). Total depth = 37.96 ft.

Grab Samples

HGWC-101

Grab

Product Name: Low-Flow System

Date: 2019-08-22 16:08:37

Project Information:		Pump Information:	
Operator Name	Chad Russo	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	541714		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWC-103	Final Pumping Rate	100 mL/min
Well diameter	2 in	Total System Volume	0.09 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	14.38 ft	Total Volume Pumped	4.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	14:05:07	300.03	22.33	5.58	716.13	5.92	14.48	0.71	137.24
Last 5	14:10:07	600.02	22.29	5.58	708.82	6.01	14.47	0.53	135.35
Last 5	14:15:07	900.02	22.24	5.57	711.39	4.70	14.48	0.89	133.68
Last 5	14:20:07	1200.03	22.10	5.56	705.24	3.89	14.48	0.84	132.68
Last 5	14:25:07	1500.03	22.44	5.55	703.84	4.27	14.48	0.70	131.21
Variance 0			-0.05	-0.01	2.56			0.36	-1.68
Variance 1			-0.14	-0.01	-6.15			-0.06	-0.99
Variance 2			0.34	-0.01	-1.40			-0.14	-1.48

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle for F (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A). Total depth = 36.70 ft.

Grab Samples

HGWC-103

Grab

SmarTroll log output unavailable for the sampling of well HGWC-105. Paper purge log provided.

Geosyntec consultants

GROUNDWATER SAMPLING LOG SHEET

Client: Southern Company
Site: Plant Hammond
Well ID: HGWC-105
Total Depth (ft): 44.85
Depth to Water (ft): 18.21
Well Diameter (in): 2
Well Volume (gal) = 0.041d²h: 4.37
Well Volume (L) = gal * 3.785: 16.54
d = well diameter (inches); h = length of water column (feet)
Well Type: Flush (Stick Up)
Well Lock: (Yes) No
Well Cap Condition: (Good) Replace
Well Tag Present: (Yes) No

Project No.: GW6581
Location: AP-4
Pump Type/Model: peristaltic/
Tubing Material: polyethylene
Pump Intake Depth (ft): 39
Start/Stop Purge Time: 1605/1715
Purge Rate (mL/min): 100
Total Purge Volume (L): 4
Purge Method: (Low-Flow) Well Volume Other: —
Sampling Method: (Pump Discharge) Other: —

Sampling Date: 8/22/19
Sampler's Name: Chad Russo
Sample Collection Time: 1640
Sample Purge Rate (mL/min): 100
Sample ID: HGWC-105
Laboratory Analyses: App IV
QA/QC Collected? —
QA/QC I.D.

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

Time	pH (SU)	Spec. Cond. (µS/cm)	ORP (mV)	DO (mg/L)	Temp. (°C)	Turbidity (NTUs)	DTW (ft btoc)	Purge Rate (mL/min)	Purged Volume (L)	Notes (Purge method, water clarity, odor, purge rate, issues with pump/well/weather/etc.)
1617	6.02	207.90	120.20	0.94	25.76	3.72	18.43	100	1	
1622	6.02	205.00	117.80	0.74	25.78	2.37	18.42	100	1.75	
1627	6.03	206.30	115.80	0.49	25.70	2.74	18.42	100	2.25	
1632	6.01	207.50	#114.60	0.49	26.21	2.37	18.42	100	2.75	
1637	6.04	203.10	113.10	0.48	26.35	# 3.29	18.40	100	3.25	
Stabilizing Criteria	**+/- 0.1 SU**	**+/- 5%**		0.2 mg/L or 10% for DO > 0.5 mg/L (whichever is greater)		**< 5 NTUs**	**< 0.3 ft**	**> 100 mL < 250 mL**	**> 3L**	

CLF 8/22/19

Product Name: Low-Flow System

Date: 2019-08-23 09:43:31

Project Information:		Pump Information:	
Operator Name	Chad Russo	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	541714		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWC-107	Final Pumping Rate	100 mL/min
Well diameter	2 in	Total System Volume	0.09 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	15.5 ft	Total Volume Pumped	3 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	08:50:59	300.06	21.31	6.26	423.07	0.59	15.50	0.31	113.40
Last 5	08:55:59	600.02	21.19	6.26	422.22	0.76	15.50	0.24	101.09
Last 5	09:00:59	900.02	21.24	6.26	420.90	1.35	15.50	0.21	94.77
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			-0.12	0.00	-0.85			-0.07	-12.31
Variance 2			0.05	0.01	-1.32			-0.03	-6.32

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle for F (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A). Total depth = 38.08 ft.

Grab Samples

HGWC-107

Grab

Product Name: Low-Flow System

Date: 2019-08-23 10:42:23

Project Information:		Pump Information:	
Operator Name	Chad Russo	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	541714		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWC-109	Final Pumping Rate	100 mL/min
Well diameter	2 in	Total System Volume	0.09 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	10.12 ft	Total Volume Pumped	4.25 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:04:28	300.05	20.77	6.69	365.18	3.66	10.17	0.25	10.59
Last 5	10:09:28	600.02	20.48	6.73	367.28	2.87	10.18	0.17	0.01
Last 5	10:14:28	900.02	20.27	6.76	365.30	2.45	10.17	0.13	-6.44
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			-0.29	0.03	2.11			-0.08	-10.58
Variance 2			-0.21	0.03	-1.99			-0.04	-6.45

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle for F (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A). Total depth = 31.02 ft.

Grab Samples

HGWC-109

Grab

Product Name: Low-Flow System

Date: 2019-08-22 10:10:05

Project Information:		Pump Information:	
Operator Name	Chad Russo	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	541714		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWC-117	Final Pumping Rate	100 mL/min
Well diameter	2 in	Total System Volume	0.09 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	17.03 ft	Total Volume Pumped	3.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:16:40	300.06	21.66	5.50	245.91	0.31	17.05	0.24	78.38
Last 5	09:21:40	600.02	21.78	5.54	245.19	0.68	17.05	0.25	75.04
Last 5	09:26:40	900.02	21.88	5.53	243.65	0.43	17.05	0.24	74.48
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.12	0.03	-0.72			0.01	-3.35
Variance 2			0.10	-0.00	-1.54			-0.02	-0.56

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle for F (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A). Total depth = 39.92 ft.

Grab Samples

HGWC-117

Grab

Product Name: Low-Flow System

Date: 2019-08-22 11:36:25

Project Information:		Pump Information:	
Operator Name	Chad Russo	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	541714		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWC-118	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.09 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	13.78 ft	Total Volume Pumped	3 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:47:27	300.03	22.71	6.92	494.64	0.52	13.96	0.47	90.30
Last 5	10:52:27	600.02	22.51	6.91	504.01	0.52	13.96	0.25	90.26
Last 5	10:57:27	900.02	22.37	6.93	506.65	0.74	13.96	0.14	90.68
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			-0.20	-0.01	9.37			-0.23	-0.04
Variance 2			-0.14	0.02	2.64			-0.11	0.42

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle for F (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A). Total depth = 40.82 ft.

Grab Samples

HGWC-118

Grab

Product Name: Low-Flow System

Date: 2019-10-21 15:49:03

Project Information:		Pump Information:	
Operator Name	Chad Russo	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	643819		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWA-111	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.485 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	15.95 ft	Total Volume Pumped	17 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	15:10:03	2400.00	19.68	6.98	311.16	8.39	17.16	3.34	64.34
Last 5	15:15:03	2699.99	19.60	6.98	312.60	8.92	17.16	3.34	64.86
Last 5	15:20:03	2999.99	19.55	6.98	312.38	8.22	17.16	3.34	65.14
Last 5	15:25:03	3299.99	19.59	7.01	316.53	6.92	17.16	3.32	64.94
Last 5	15:30:03	3599.99	19.53	7.02	318.32	4.98	17.16	3.31	65.23
Variance 0			-0.04	0.00	-0.22			0.00	0.29
Variance 1			0.04	0.02	4.15			-0.02	-0.20
Variance 2			-0.05	0.02	1.79			-0.02	0.29

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 43.24'

Grab Samples

HGWA-111

Grab

Product Name: Low-Flow System

Date: 2019-10-22 10:51:13

Project Information:		Pump Information:	
Operator Name	Chad Russo	Pump Model/Type	Alexis
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	30 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	643819		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	30 ft

Well Information:		Pumping Information:	
Well ID	HGWA-112	Final Pumping Rate	150 mL/min
Well diameter	2 in	Total System Volume	0.2239027 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	16.83 ft	Total Volume Pumped	2.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:58:01	300.09	20.48	5.72	82.17	0.82	17.65	1.66	62.05
Last 5	10:03:01	600.02	20.36	5.70	81.15	0.75	17.69	1.65	61.29
Last 5	10:08:01	900.02	20.27	5.70	80.76	1.04	17.72	1.69	61.17
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			-0.13	-0.01	-1.02			-0.01	-0.76
Variance 2			-0.09	-0.01	-0.39			0.04	-0.13

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 39.92’

Grab Samples

HGWA-112

Grab

Product Name: Low-Flow System

Date: 2019-10-22 11:25:42

Project Information:		Pump Information:	
Operator Name	Dan Gibbs	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	31.53 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	497259		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	31.53 ft

Well Information:		Pumping Information:	
Well ID	HGWA-113	Final Pumping Rate	100 mL/min
Well diameter	2 in	Total System Volume	0.6257317 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	13.98 ft	Total Volume Pumped	6.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:30:09	2699.94	20.47	5.97	93.99	11.21	18.01	1.31	-160.79
Last 5	10:35:09	2999.93	20.43	5.97	95.23	6.83	18.23	1.15	-161.28
Last 5	10:40:09	3299.92	20.39	5.97	96.44	4.98	18.41	1.01	-161.45
Last 5	10:45:09	3599.91	20.74	5.97	97.16	4.91	18.60	0.98	-164.42
Last 5	10:50:09	3899.90	21.05	5.98	97.58	4.93	18.73	0.97	-170.69
Variance 0			-0.04	0.00	1.21			-0.14	-0.17
Variance 1			0.35	-0.00	0.71			-0.03	-2.98
Variance 2			0.31	0.01	0.42			-0.01	-6.27

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EP A 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 36.21'

Grab Samples

HGWA-113

Grab

Product Name: Low-Flow System

Date: 2019-10-23 11:33:45

Project Information:		Pump Information:	
Operator Name	Chad Russo	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	33 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	643819		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	33 ft

Well Information:		Pumping Information:	
Well ID	HGWC-101	Final Pumping Rate	100 mL/min
Well diameter	2 in	Total System Volume	0.632293 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	15.23 ft	Total Volume Pumped	4.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:26:48	300.07	17.68	5.31	297.72	2.74	17.56	0.29	74.66
Last 5	10:31:48	600.02	18.28	5.30	312.88	2.28	17.55	0.29	76.20
Last 5	10:36:48	900.01	18.50	5.32	316.85	1.70	17.58	0.27	76.96
Last 5	10:41:48	1200.01	18.64	5.33	314.30	1.42	17.61	0.29	77.62
Last 5									
Variance 0			0.60	-0.01	15.16			-0.01	1.55
Variance 1			0.22	0.02	3.97			-0.01	0.76
Variance 2			0.13	0.01	-2.54			0.02	0.65

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 38.01′

Grab Samples

HGWC-101

Grab

Product Name: Low-Flow System

Date: 2019-10-23 09:43:29

Project Information:		Pump Information:	
Operator Name	Chad Russo	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	33 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	643819		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	33 ft

Well Information:		Pumping Information:	
Well ID	HGWC-102	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.237293 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	15.45 ft	Total Volume Pumped	4.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	08:51:29	600.02	17.05	5.70	869.08	1.66	15.64	0.28	74.70
Last 5	08:56:29	900.02	17.05	5.70	917.48	1.09	15.64	0.23	76.35
Last 5	09:01:29	1200.02	17.02	5.69	987.24	1.19	15.64	0.23	81.32
Last 5	09:06:29	1500.01	17.10	5.68	987.95	1.09	15.64	0.22	82.93
Last 5	09:11:29	1800.01	17.10	5.68	986.80	0.85	15.64	0.19	84.19
Variance 0			-0.03	-0.01	69.75			0.00	4.97
Variance 1			0.08	-0.00	0.71			-0.00	1.61
Variance 2			-0.00	0.00	-1.15			-0.04	1.25

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 36.9′

Grab Samples

HGWC-102

Grab

Product Name: Low-Flow System

Date: 2019-10-23 11:38:05

Project Information:		Pump Information:	
Operator Name	Dan Gibbs	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	32.68 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	497259		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	32.68 ft

Well Information:		Pumping Information:	
Well ID	HGWC-103	Final Pumping Rate	100 mL/min
Well diameter	2 in	Total System Volume	0.6308647 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	15.70 ft	Total Volume Pumped	8 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:44:07	3599.91	16.82	5.49	701.07	8.71	15.78	0.24	-170.93
Last 5	10:49:07	3899.90	16.75	5.49	701.23	7.21	15.78	0.25	-170.94
Last 5	10:54:07	4199.90	16.82	5.49	699.65	7.03	15.78	0.25	-171.17
Last 5	10:59:07	4499.89	16.82	5.49	699.13	6.09	15.78	0.26	-171.41
Last 5	11:04:07	4799.87	16.82	5.49	698.06	4.93	15.78	0.26	-171.40
Variance 0			0.07	-0.00	-1.58			0.00	-0.23
Variance 1			0.00	-0.00	-0.52			0.01	-0.23
Variance 2			0.00	-0.00	-1.07			0.01	0.01

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 37.65'

Grab Samples

HGWC-103

Grab

Product Name: Low-Flow System

Date: 2019-10-23 09:22:18

Project Information:		Pump Information:	
Operator Name	Dan Gibbs	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	39.67 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	497259		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	39.67 ft

Well Information:		Pumping Information:	
Well ID	HGWC-105	Final Pumping Rate	100 mL/min
Well diameter	2 in	Total System Volume	0.662064 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	20.33 ft	Total Volume Pumped	4 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	08:28:40	1199.99	16.05	6.49	613.24	14.30	20.45	0.54	-167.24
Last 5	08:33:40	1499.98	16.14	6.46	616.07	9.23	20.45	0.38	-168.30
Last 5	08:38:40	1799.97	16.15	6.46	616.42	6.21	20.45	0.32	-168.90
Last 5	08:43:40	2099.96	16.10	6.46	617.32	4.97	20.45	0.30	-169.00
Last 5	08:48:39	2399.95	16.19	6.46	614.51	4.73	20.45	0.28	-169.45
Variance 0			0.01	-0.00	0.35			-0.06	-0.60
Variance 1			-0.04	-0.00	0.90			-0.02	-0.11
Variance 2			0.09	-0.00	-2.81			-0.02	-0.45

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 44.92'

Grab Samples

HGWC-105

Grab

Product Name: Low-Flow System

Date: 2019-10-22 16:02:49

Project Information:		Pump Information:	
Operator Name	Dan Gibbs	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	33.20 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	497259		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	33.20 ft

Well Information:		Pumping Information:	
Well ID	HGWC-107	Final Pumping Rate	100 mL/min
Well diameter	2 in	Total System Volume	0.6331857 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	17.51 ft	Total Volume Pumped	3 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	15:07:56	600.01	21.94	6.30	413.12	1.53	17.51	0.99	-99.10
Last 5	15:12:56	900.00	21.83	6.24	414.12	1.76	17.51	0.61	-99.27
Last 5	15:17:56	1199.99	21.72	6.22	413.54	2.43	17.51	0.44	-96.36
Last 5	15:22:56	1499.98	21.68	6.20	413.28	2.46	17.51	0.36	-93.79
Last 5	15:27:56	1799.97	21.49	6.19	410.95	2.55	17.51	0.32	-92.94
Variance 0			-0.11	-0.03	-0.58			-0.18	2.91
Variance 1			-0.05	-0.02	-0.26			-0.07	2.57
Variance 2			-0.19	-0.01	-2.33			-0.05	0.85

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 38.12'

Grab Samples

HGWC-107

Grab

Product Name: Low-Flow System

Date: 2019-10-22 14:36:48

Project Information:		Pump Information:	
Operator Name	Dan Gibbs	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	26.36 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	497259		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	26.36 ft

Well Information:		Pumping Information:	
Well ID	HGWC-109	Final Pumping Rate	100 mL/min
Well diameter	2 in	Total System Volume	0.6026558 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	11.36 ft	Total Volume Pumped	3 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	13:45:33	600.01	22.08	6.51	351.98	10.06	11.38	1.70	-153.01
Last 5	13:50:33	900.00	22.03	6.52	355.65	7.39	11.38	0.99	-143.29
Last 5	13:55:33	1199.99	21.54	6.54	356.67	6.27	11.38	0.54	-131.06
Last 5	14:00:33	1499.98	21.36	6.56	355.77	4.71	11.38	0.37	-118.46
Last 5	14:05:33	1799.97	21.30	6.58	353.13	4.07	11.38	0.30	-108.44
Variance 0			-0.49	0.02	1.02			-0.44	12.22
Variance 1			-0.18	0.02	-0.89			-0.17	12.60
Variance 2			-0.07	0.02	-2.64			-0.08	10.02

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 31.03'

Grab Samples

HGWC-109

Grab

Product Name: Low-Flow System

Date: 2019-10-22 15:09:17

Project Information:		Pump Information:	
Operator Name	Chad Russo	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	643819		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWC-117	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.485 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	18.83 ft	Total Volume Pumped	39 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	14:29:59	9899.92	19.19	6.16	512.49	5.91	18.83	0.12	71.73
Last 5	14:34:59	10199.92	19.17	6.16	513.10	5.70	18.83	0.12	71.86
Last 5	14:39:59	10499.91	19.19	6.16	513.00	5.65	18.83	0.11	72.01
Last 5	14:44:59	10799.91	19.19	6.16	515.05	5.15	18.83	0.12	72.30
Last 5	14:49:59	11099.91	19.24	6.17	516.86	4.91	18.83	0.12	72.36
Variance 0			0.01	-0.00	-0.10			-0.00	0.15
Variance 1			0.01	0.01	2.05			0.00	0.29
Variance 2			0.04	0.00	1.82			-0.00	0.06

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 39.94'

Grab Samples

HGWC-117

Grab

Product Name: Low-Flow System

Date: 2019-10-22 19:09:29

Project Information:		Pump Information:	
Operator Name	Chad Russo	Pump Model/Type	QED MP50
Company Name	Geosyntec Consultants	Tubing Type	polyethylene
Project Name	GP-Plant Hammond	Tubing Diameter	0.17 in
Site Name	Plant Hammond	Tubing Length	ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	643819		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	HGWC-118	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.485 L
Well Total Depth	ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.6 in
Depth to Water	15.46 ft	Total Volume Pumped	35.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	18:34:19	10199.92	18.53	7.02	528.76	9.61	15.58	0.10	75.39
Last 5	18:39:19	10499.92	18.48	7.02	528.89	9.94	15.58	0.11	75.24
Last 5	18:44:19	10799.91	18.46	7.03	528.97	9.82	15.58	0.10	75.15
Last 5	18:49:19	11099.91	18.44	7.03	529.11	9.83	15.58	0.10	75.07
Last 5	18:54:19	11399.91	18.32	7.33	1.07	--	--	6.78	58.86
Variance 0			-0.02	0.00	0.08			-0.01	-0.09
Variance 1			-0.02	0.00	0.14			-0.00	-0.08
Variance 2			-0.12	0.30	-528.04			6.69	-16.21

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 41.80′

Grab Samples
HGWC-118
Grab

APPENDIX C

Statistical Analyses

Table C-1
Assessment Monitoring Interwell Prediction Limit Comparison
Plant Hammond AP-4, Floyd County, Georgia

Parameter	Well ID	Upper PL	Lower PL	Oct 21-23 2019
			Purpose of Sampling Event:	Verification
Boron (mg/L)	HGWC-101	0.023	-	0.10
Boron (mg/L)	HGWC-103	0.023	-	2.3
Boron (mg/L)	HGWC-105	0.023	-	1.3
Boron (mg/L)	HGWC-107	0.023	-	0.91
Boron (mg/L)	HGWC-109	0.023	-	0.32
Boron (mg/L)	HGWC-117	0.023	-	1.0
Boron (mg/L)	HGWC-118	0.023	-	0.65
Calcium (mg/L)	HGWC-101	58.4	-	21.9
Calcium (mg/L)	HGWC-103	58.4	-	86.5
Calcium (mg/L)	HGWC-105	58.4	-	89.4
Calcium (mg/L)	HGWC-107	58.4	-	58.1
Calcium (mg/L)	HGWC-109	58.4	-	42.6
Calcium (mg/L)	HGWC-117	58.4	-	70.9
Calcium (mg/L)	HGWC-118	58.4	-	84.2
Chloride (mg/L)	HGWC-101	5.7	-	5.5
Chloride (mg/L)	HGWC-103	5.7	-	6.1
Chloride (mg/L)	HGWC-105	5.7	-	3.6
Chloride (mg/L)	HGWC-107	5.7	-	3.6
Chloride (mg/L)	HGWC-109	5.7	-	4.6
Chloride (mg/L)	HGWC-117	5.7	-	12.1
Chloride (mg/L)	HGWC-118	5.7	-	4.5
Fluoride (mg/L)	HGWC-101	0.23	-	ND
Fluoride (mg/L)	HGWC-103	0.23	-	ND
Fluoride (mg/L)	HGWC-105	0.23	-	ND
Fluoride (mg/L)	HGWC-107	0.23	-	0.047 J
Fluoride (mg/L)	HGWC-109	0.23	-	0.099 J
Fluoride (mg/L)	HGWC-117	0.23	-	0.042 J
Fluoride (mg/L)	HGWC-118	0.23	-	0.087 J
pH (s.u.)	HGWC-101	7.1	5.5	5.3
pH (s.u.)	HGWC-103	7.1	5.5	5.5
pH (s.u.)	HGWC-105	7.1	5.5	6.5
pH (s.u.)	HGWC-107	7.1	5.5	6.2
pH (s.u.)	HGWC-109	7.1	5.5	6.6
pH (s.u.)	HGWC-117	7.1	5.5	6.2
pH (s.u.)	HGWC-118	7.1	5.5	7.0
Sulfate (mg/L)	HGWC-101	14	-	101
Sulfate (mg/L)	HGWC-103	14	-	248
Sulfate (mg/L)	HGWC-105	14	-	162
Sulfate (mg/L)	HGWC-107	14	-	123
Sulfate (mg/L)	HGWC-109	14	-	23.2
Sulfate (mg/L)	HGWC-117	14	-	133
Sulfate (mg/L)	HGWC-118	14	-	80.9

Table C-1
Assessment Monitoring Interwell Prediction Limit Comparison
Plant Hammond AP-4, Floyd County, Georgia

Parameter	Well ID	Upper PL	Lower PL	Oct 21-23 2019
			Purpose of Sampling Event:	**Verification**
TDS (mg/L)	HGWC-101	249	-	221
TDS (mg/L)	HGWC-103	249	-	507
TDS (mg/L)	HGWC-105	249	-	419
TDS (mg/L)	HGWC-107	249	-	308
TDS (mg/L)	HGWC-109	249	-	212
TDS (mg/L)	HGWC-117	249	-	348
TDS (mg/L)	HGWC-118	249	-	354

Notes:
- = Not applicable
-- = Indicates the parameter was not analyzed as part of the verification event.
J = Indicates that analyte was estimated and detected between the laboratory Method l
(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.
parameter in which the field result is compared to both the upper and lower PL.

Interwell Prediction Limit - Significant Results

Hammond AP Client: Georgia Power Data: Hammond AP-4 Printed 3/12/2020, 3:51 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Boron (mg/L)	**HGWC-101**	**0.02274**	**n/a**	**10/23/2019**	**0.1**	**Yes**	**30**	**20**	**sqrt(x)**	**0.001075**	**Param Inter 1 of 2**
Boron (mg/L)	**HGWC-103**	**0.02274**	**n/a**	**10/23/2019**	**2.3**	**Yes**	**30**	**20**	**sqrt(x)**	**0.001075**	**Param Inter 1 of 2**
Boron (mg/L)	**HGWC-105**	**0.02274**	**n/a**	**10/23/2019**	**1.3**	**Yes**	**30**	**20**	**sqrt(x)**	**0.001075**	**Param Inter 1 of 2**
Boron (mg/L)	**HGWC-107**	**0.02274**	**n/a**	**10/22/2019**	**0.91**	**Yes**	**30**	**20**	**sqrt(x)**	**0.001075**	**Param Inter 1 of 2**
Boron (mg/L)	**HGWC-109**	**0.02274**	**n/a**	**10/22/2019**	**0.32**	**Yes**	**30**	**20**	**sqrt(x)**	**0.001075**	**Param Inter 1 of 2**
Boron (mg/L)	**HGWC-117**	**0.02274**	**n/a**	**10/22/2019**	**1**	**Yes**	**30**	**20**	**sqrt(x)**	**0.001075**	**Param Inter 1 of 2**
Boron (mg/L)	**HGWC-118**	**0.02274**	**n/a**	**10/22/2019**	**0.65**	**Yes**	**30**	**20**	**sqrt(x)**	**0.001075**	**Param Inter 1 of 2**
Calcium (mg/L)	**HGWC-103**	**58.4**	**n/a**	**10/23/2019**	**86.5**	**Yes**	**30**	**0**	**n/a**	**0.00191**	**NP Inter (normality) 1 of 2**
Calcium (mg/L)	**HGWC-105**	**58.4**	**n/a**	**10/23/2019**	**89.4**	**Yes**	**30**	**0**	**n/a**	**0.00191**	**NP Inter (normality) 1 of 2**
Calcium (mg/L)	**HGWC-117**	**58.4**	**n/a**	**10/22/2019**	**70.9**	**Yes**	**30**	**0**	**n/a**	**0.00191**	**NP Inter (normality) 1 of 2**
Calcium (mg/L)	**HGWC-118**	**58.4**	**n/a**	**10/22/2019**	**84.2**	**Yes**	**30**	**0**	**n/a**	**0.00191**	**NP Inter (normality) 1 of 2**
Chloride (mg/L)	**HGWC-103**	**5.7**	**n/a**	**10/23/2019**	**6.1**	**Yes**	**30**	**0**	**n/a**	**0.00191**	**NP Inter (normality) 1 of 2**
Chloride (mg/L)	**HGWC-117**	**5.7**	**n/a**	**10/22/2019**	**12.1**	**Yes**	**30**	**0**	**n/a**	**0.00191**	**NP Inter (normality) 1 of 2**
pH (s.u.)	**HGWC-101**	**7.09**	**5.47**	**10/23/2019**	**5.33**	**Yes**	**33**	**0**	**n/a**	**0.003256**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**HGWC-101**	**14**	**n/a**	**10/23/2019**	**101**	**Yes**	**30**	**0**	**n/a**	**0.00191**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**HGWC-103**	**14**	**n/a**	**10/23/2019**	**248**	**Yes**	**30**	**0**	**n/a**	**0.00191**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**HGWC-105**	**14**	**n/a**	**10/23/2019**	**162**	**Yes**	**30**	**0**	**n/a**	**0.00191**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**HGWC-107**	**14**	**n/a**	**10/22/2019**	**123**	**Yes**	**30**	**0**	**n/a**	**0.00191**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**HGWC-109**	**14**	**n/a**	**10/22/2019**	**23.2**	**Yes**	**30**	**0**	**n/a**	**0.00191**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**HGWC-117**	**14**	**n/a**	**10/22/2019**	**133**	**Yes**	**30**	**0**	**n/a**	**0.00191**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**HGWC-118**	**14**	**n/a**	**10/22/2019**	**80.9**	**Yes**	**30**	**0**	**n/a**	**0.00191**	**NP Inter (normality) 1 of 2**
Total Dissolved Solids (mg/L)	**HGWC-103**	**248.8**	**n/a**	**10/23/2019**	**507**	**Yes**	**29**	**0**	**ln(x)**	**0.001075**	**Param Inter 1 of 2**
Total Dissolved Solids (mg/L)	**HGWC-105**	**248.8**	**n/a**	**10/23/2019**	**419**	**Yes**	**29**	**0**	**ln(x)**	**0.001075**	**Param Inter 1 of 2**
Total Dissolved Solids (mg/L)	**HGWC-107**	**248.8**	**n/a**	**10/22/2019**	**308**	**Yes**	**29**	**0**	**ln(x)**	**0.001075**	**Param Inter 1 of 2**
Total Dissolved Solids (mg/L)	**HGWC-117**	**248.8**	**n/a**	**10/22/2019**	**348**	**Yes**	**29**	**0**	**ln(x)**	**0.001075**	**Param Inter 1 of 2**
Total Dissolved Solids (mg/L)	**HGWC-118**	**248.8**	**n/a**	**10/22/2019**	**354**	**Yes**	**29**	**0**	**ln(x)**	**0.001075**	**Param Inter 1 of 2**

Interwell Prediction Limit - All Results

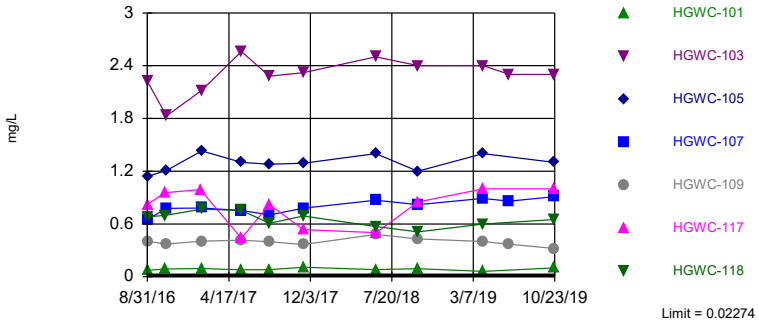
Hammond AP Client: Georgia Power Data: Hammond AP-4 Printed 3/12/2020, 3:51 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Boron (mg/L)	**HGWC-101**	**0.02274**	**n/a**	**10/23/2019**	**0.1**	**Yes**	**30**	**20**	**sqrt(x)**	**0.001075**	**Param Inter 1 of 2**
Boron (mg/L)	**HGWC-103**	**0.02274**	**n/a**	**10/23/2019**	**2.3**	**Yes**	**30**	**20**	**sqrt(x)**	**0.001075**	**Param Inter 1 of 2**
Boron (mg/L)	**HGWC-105**	**0.02274**	**n/a**	**10/23/2019**	**1.3**	**Yes**	**30**	**20**	**sqrt(x)**	**0.001075**	**Param Inter 1 of 2**
Boron (mg/L)	**HGWC-107**	**0.02274**	**n/a**	**10/22/2019**	**0.91**	**Yes**	**30**	**20**	**sqrt(x)**	**0.001075**	**Param Inter 1 of 2**
Boron (mg/L)	**HGWC-109**	**0.02274**	**n/a**	**10/22/2019**	**0.32**	**Yes**	**30**	**20**	**sqrt(x)**	**0.001075**	**Param Inter 1 of 2**
Boron (mg/L)	**HGWC-117**	**0.02274**	**n/a**	**10/22/2019**	**1**	**Yes**	**30**	**20**	**sqrt(x)**	**0.001075**	**Param Inter 1 of 2**
Boron (mg/L)	**HGWC-118**	**0.02274**	**n/a**	**10/22/2019**	**0.65**	**Yes**	**30**	**20**	**sqrt(x)**	**0.001075**	**Param Inter 1 of 2**
Calcium (mg/L)	HGWC-101	58.4	n/a	10/23/2019	21.9	No	30	0	n/a	0.00191	NP Inter (normality) 1 of 2
Calcium (mg/L)	**HGWC-103**	**58.4**	**n/a**	**10/23/2019**	**86.5**	**Yes**	**30**	**0**	**n/a**	**0.00191**	**NP Inter (normality) 1 of 2**
Calcium (mg/L)	**HGWC-105**	**58.4**	**n/a**	**10/23/2019**	**89.4**	**Yes**	**30**	**0**	**n/a**	**0.00191**	**NP Inter (normality) 1 of 2**
Calcium (mg/L)	HGWC-107	58.4	n/a	10/22/2019	58.1	No	30	0	n/a	0.00191	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-109	58.4	n/a	10/22/2019	42.6	No	30	0	n/a	0.00191	NP Inter (normality) 1 of 2
Calcium (mg/L)	**HGWC-117**	**58.4**	**n/a**	**10/22/2019**	**70.9**	**Yes**	**30**	**0**	**n/a**	**0.00191**	**NP Inter (normality) 1 of 2**
Calcium (mg/L)	**HGWC-118**	**58.4**	**n/a**	**10/22/2019**	**84.2**	**Yes**	**30**	**0**	**n/a**	**0.00191**	**NP Inter (normality) 1 of 2**
Chloride (mg/L)	HGWC-101	5.7	n/a	10/23/2019	5.5	No	30	0	n/a	0.00191	NP Inter (normality) 1 of 2
Chloride (mg/L)	**HGWC-103**	**5.7**	**n/a**	**10/23/2019**	**6.1**	**Yes**	**30**	**0**	**n/a**	**0.00191**	**NP Inter (normality) 1 of 2**
Chloride (mg/L)	HGWC-105	5.7	n/a	10/23/2019	3.6	No	30	0	n/a	0.00191	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-107	5.7	n/a	10/22/2019	3.6	No	30	0	n/a	0.00191	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-109	5.7	n/a	10/22/2019	4.6	No	30	0	n/a	0.00191	NP Inter (normality) 1 of 2
Chloride (mg/L)	**HGWC-117**	**5.7**	**n/a**	**10/22/2019**	**12.1**	**Yes**	**30**	**0**	**n/a**	**0.00191**	**NP Inter (normality) 1 of 2**
Chloride (mg/L)	HGWC-118	5.7	n/a	10/22/2019	4.5	No	30	0	n/a	0.00191	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-101	0.2306	n/a	10/23/2019	0.3ND	No	33	24.24	sqrt(x)	0.001075	Param Inter 1 of 2
Fluoride (mg/L)	HGWC-103	0.2306	n/a	10/23/2019	0.3ND	No	33	24.24	sqrt(x)	0.001075	Param Inter 1 of 2
Fluoride (mg/L)	HGWC-105	0.2306	n/a	10/23/2019	0.3ND	No	33	24.24	sqrt(x)	0.001075	Param Inter 1 of 2
Fluoride (mg/L)	HGWC-107	0.2306	n/a	10/22/2019	0.047	No	33	24.24	sqrt(x)	0.001075	Param Inter 1 of 2
Fluoride (mg/L)	HGWC-109	0.2306	n/a	10/22/2019	0.099	No	33	24.24	sqrt(x)	0.001075	Param Inter 1 of 2
Fluoride (mg/L)	HGWC-117	0.2306	n/a	10/22/2019	0.042	No	33	24.24	sqrt(x)	0.001075	Param Inter 1 of 2
Fluoride (mg/L)	HGWC-118	0.2306	n/a	10/22/2019	0.087	No	33	24.24	sqrt(x)	0.001075	Param Inter 1 of 2
pH (s.u.)	**HGWC-101**	**7.09**	**5.47**	**10/23/2019**	**5.33**	**Yes**	**33**	**0**	**n/a**	**0.003256**	**NP Inter (normality) 1 of 2**
pH (s.u.)	HGWC-103	7.09	5.47	10/23/2019	5.49	No	33	0	n/a	0.003256	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-105	7.09	5.47	10/23/2019	6.46	No	33	0	n/a	0.003256	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-107	7.09	5.47	10/22/2019	6.19	No	33	0	n/a	0.003256	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-109	7.09	5.47	10/22/2019	6.58	No	33	0	n/a	0.003256	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-117	7.09	5.47	10/22/2019	6.17	No	33	0	n/a	0.003256	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-118	7.09	5.47	10/22/2019	7.03	No	33	0	n/a	0.003256	NP Inter (normality) 1 of 2
Sulfate (mg/L)	**HGWC-101**	**14**	**n/a**	**10/23/2019**	**101**	**Yes**	**30**	**0**	**n/a**	**0.00191**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**HGWC-103**	**14**	**n/a**	**10/23/2019**	**248**	**Yes**	**30**	**0**	**n/a**	**0.00191**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**HGWC-105**	**14**	**n/a**	**10/23/2019**	**162**	**Yes**	**30**	**0**	**n/a**	**0.00191**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**HGWC-107**	**14**	**n/a**	**10/22/2019**	**123**	**Yes**	**30**	**0**	**n/a**	**0.00191**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**HGWC-109**	**14**	**n/a**	**10/22/2019**	**23.2**	**Yes**	**30**	**0**	**n/a**	**0.00191**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**HGWC-117**	**14**	**n/a**	**10/22/2019**	**133**	**Yes**	**30**	**0**	**n/a**	**0.00191**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**HGWC-118**	**14**	**n/a**	**10/22/2019**	**80.9**	**Yes**	**30**	**0**	**n/a**	**0.00191**	**NP Inter (normality) 1 of 2**
Total Dissolved Solids (mg/L)	HGWC-101	248.8	n/a	10/23/2019	221	No	29	0	ln(x)	0.001075	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	**HGWC-103**	**248.8**	**n/a**	**10/23/2019**	**507**	**Yes**	**29**	**0**	**ln(x)**	**0.001075**	**Param Inter 1 of 2**
Total Dissolved Solids (mg/L)	**HGWC-105**	**248.8**	**n/a**	**10/23/2019**	**419**	**Yes**	**29**	**0**	**ln(x)**	**0.001075**	**Param Inter 1 of 2**
Total Dissolved Solids (mg/L)	**HGWC-107**	**248.8**	**n/a**	**10/22/2019**	**308**	**Yes**	**29**	**0**	**ln(x)**	**0.001075**	**Param Inter 1 of 2**
Total Dissolved Solids (mg/L)	HGWC-109	248.8	n/a	10/22/2019	212	No	29	0	ln(x)	0.001075	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	**HGWC-117**	**248.8**	**n/a**	**10/22/2019**	**348**	**Yes**	**29**	**0**	**ln(x)**	**0.001075**	**Param Inter 1 of 2**
Total Dissolved Solids (mg/L)	**HGWC-118**	**248.8**	**n/a**	**10/22/2019**	**354**	**Yes**	**29**	**0**	**ln(x)**	**0.001075**	**Param Inter 1 of 2**

Exceeds Limit: HGWC-101, HGWC-103, HGWC-105, HGWC-107, HGWC-109, HGWC-117, HGWC-118

Prediction Limit

Interwell Parametric



Background Data Summary (based on square root transformation) (after Kaplan-Meier Adjustment): Mean=0.09644, Std. Dev.=0.02682, n=30, 20% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9044, critical = 0.9. Kappa = 2.027 (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.

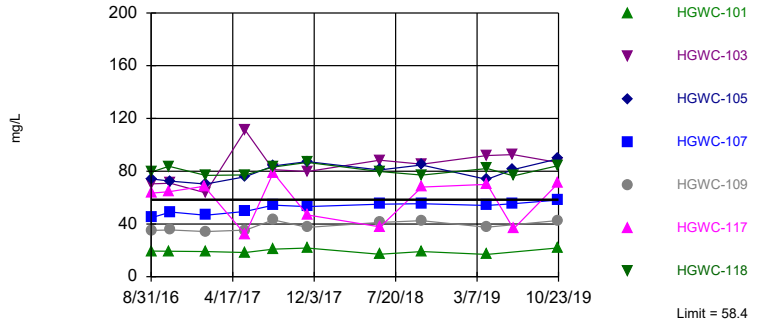
Constituent: Boron Analysis Run 3/12/2020 3:48 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Exceeds Limit: HGWC-103, HGWC-105, HGWC-117, HGWC-118

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 30 background values. Annual per-constituent alpha = 0.02642. Individual comparison alpha = 0.00191 (1 of 2). Comparing 7 points to limit.

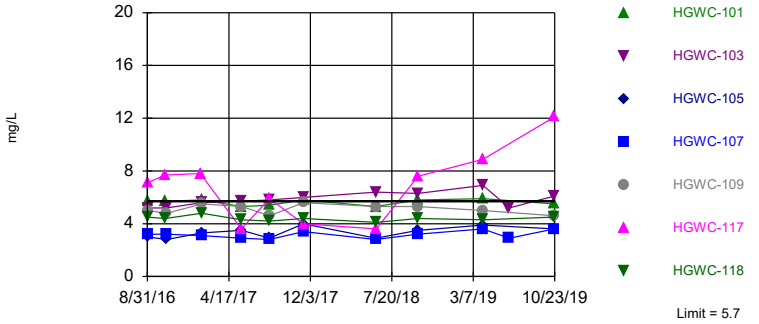
Constituent: Calcium Analysis Run 3/12/2020 3:48 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Exceeds Limit: HGWC-103, HGWC-117

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 30 background values. Annual per-constituent alpha = 0.02642. Individual comparison alpha = 0.00191 (1 of 2). Comparing 7 points to limit.

Constituent: Chloride Analysis Run 3/12/2020 3:48 PM

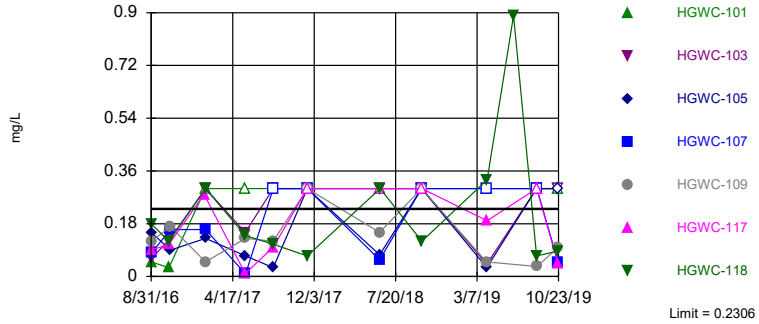
Hammond AP Client: Georgia Power Data: Hammond AP-4

Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Interwell Parametric



Background Data Summary (based on square root transformation) (after Kaplan-Meier Adjustment): Mean=0.2662, Std. Dev.=0.1067, n=33, 24.24% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9166, critical = 0.906. Kappa = 2.007 (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.

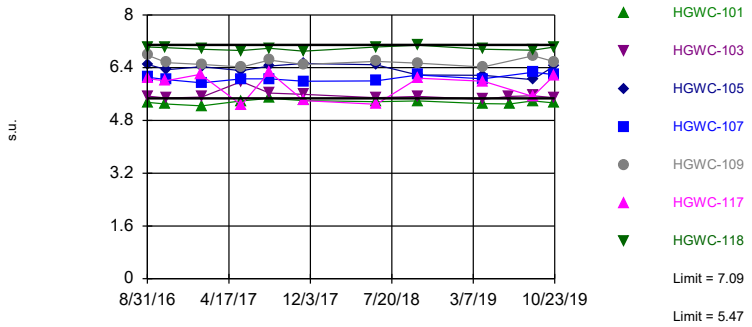
Constituent: Fluoride Analysis Run 3/12/2020 3:48 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Exceeds Limits: HGWC-101

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 33 background values. Annual per-constituent alpha = 0.04511. Individual comparison alpha = 0.003256 (1 of 2). Comparing 7 points to limit.

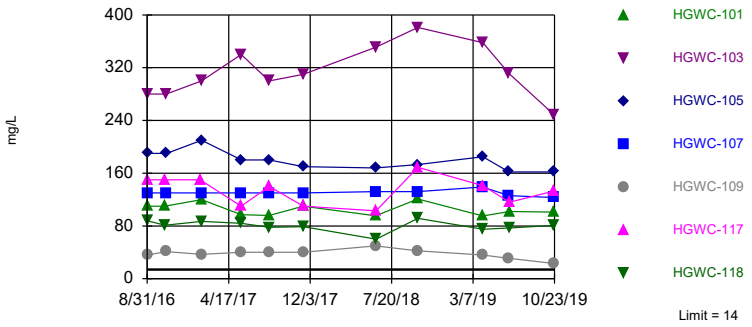
Constituent: pH Analysis Run 3/12/2020 3:48 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Exceeds Limit: HGWC-101, HGWC-103, HGWC-105, HGWC-107, HGWC-109, HGWC-117, HGWC-118

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 30 background values. Annual per-constituent alpha = 0.02642. Individual comparison alpha = 0.00191 (1 of 2). Comparing 7 points to limit.

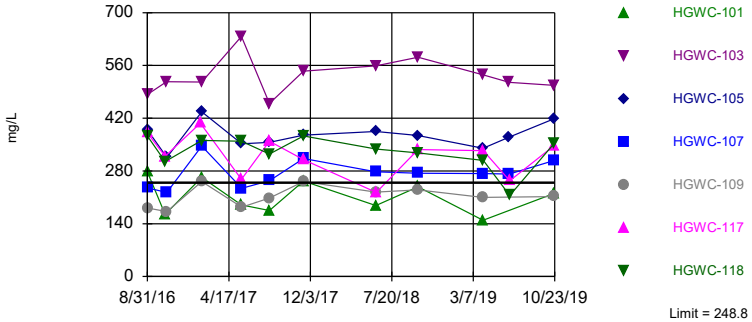
Constituent: Sulfate Analysis Run 3/12/2020 3:48 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Exceeds Limit: HGWC-103, HGWC-105, HGWC-107, HGWC-117, HGWC-118

Prediction Limit

Interwell Parametric



Background Data Summary (based on natural log transformation): Mean=4.636, Std. Dev.=0.4322, n=29. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9377, critical = 0.898. Kappa = 2.037 (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 3/12/2020 3:48 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Intrawell Prediction Limit - Significant Results

Hammond AP Client: Georgia Power Data: Hammond AP-4 Printed 1/30/2020, 9:26 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Chloride (mg/L)	**HGWC-107**	**3.595**	**n/a**	**10/22/2019**	**3.6**	**Yes**	**10**	**0**	**No**	**0.001075**	Param 1 of 3
Chloride (mg/L)	**HGWC-117**	**10.21**	**n/a**	**10/22/2019**	**12.1**	**Yes**	**9**	**0**	**No**	**0.001075**	Param 1 of 3

Intrawell Prediction Limit - All Results

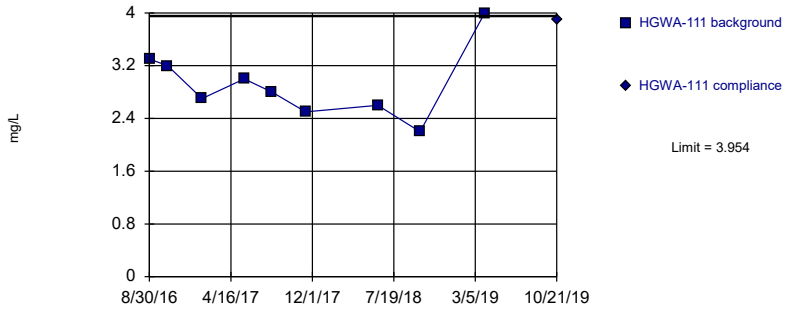
Hammond AP Client: Georgia Power Data: Hammond AP-4 Printed 1/30/2020, 9:26 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Chloride (mg/L)	HGWA-111	3.954	n/a	10/21/2019	3.9	No	9	0	No	0.001075	Param 1 of 3
Chloride (mg/L)	HGWA-112	5.789	n/a	10/22/2019	5.5	No	9	0	No	0.001075	Param 1 of 3
Chloride (mg/L)	HGWA-113	2.107	n/a	10/22/2019	1.9	No	9	0	No	0.001075	Param 1 of 3
Chloride (mg/L)	HGWC-101	6.089	n/a	10/23/2019	5.5	No	9	0	No	0.001075	Param 1 of 3
Chloride (mg/L)	HGWC-103	6.887	n/a	10/23/2019	6.1	No	10	0	No	0.001075	Param 1 of 3
Chloride (mg/L)	HGWC-105	4.177	n/a	10/23/2019	3.6	No	9	0	No	0.001075	Param 1 of 3
Chloride (mg/L)	**HGWC-107**	**3.595**	**n/a**	**10/22/2019**	**3.6**	**Yes**	**10**	**0**	**No**	**0.001075**	Param 1 of 3
Chloride (mg/L)	HGWC-109	5.793	n/a	10/22/2019	4.6	No	9	0	No	0.001075	Param 1 of 3
Chloride (mg/L)	**HGWC-117**	**10.21**	**n/a**	**10/22/2019**	**12.1**	**Yes**	**9**	**0**	**No**	**0.001075**	Param 1 of 3
Chloride (mg/L)	HGWC-118	4.764	n/a	10/22/2019	4.5	No	9	0	No	0.001075	Param 1 of 3

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=2.922, Std. Dev.=0.531, n=9. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9533, critical = 0.764. Kappa = 1.942 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

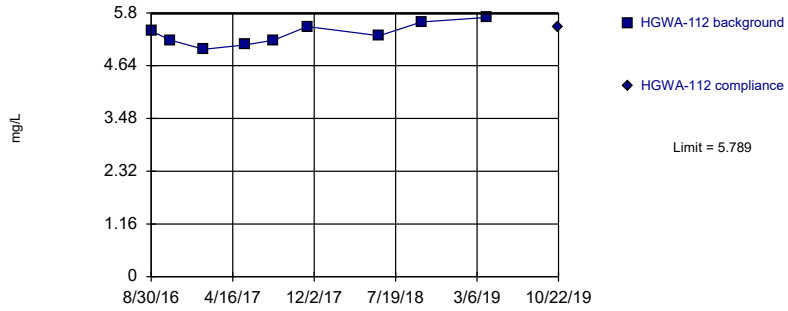
Constituent: Chloride Analysis Run 1/30/2020 9:21 AM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=5.333, Std. Dev.=0.2345, n=9. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9679, critical = 0.764. Kappa = 1.942 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

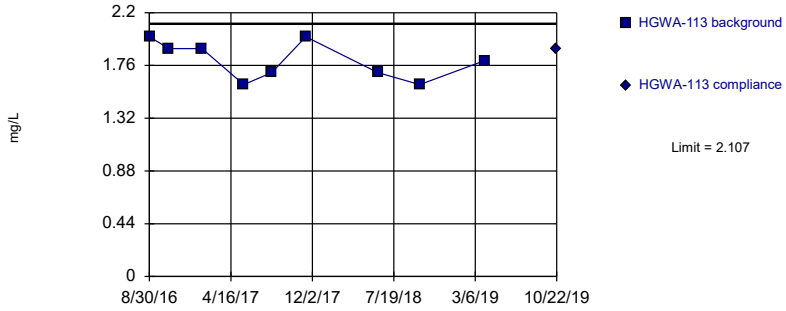
Constituent: Chloride Analysis Run 1/30/2020 9:21 AM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=1.8, Std. Dev.=0.1581, n=9. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8978, critical = 0.764. Kappa = 1.942 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

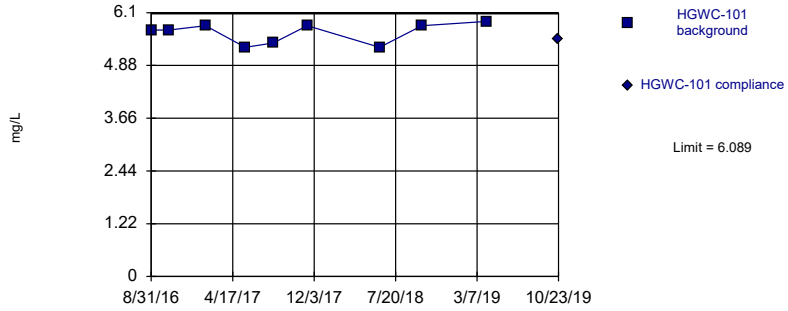
Constituent: Chloride Analysis Run 1/30/2020 9:21 AM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=5.633, Std. Dev.=0.2345, n=9. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8291, critical = 0.764. Kappa = 1.942 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

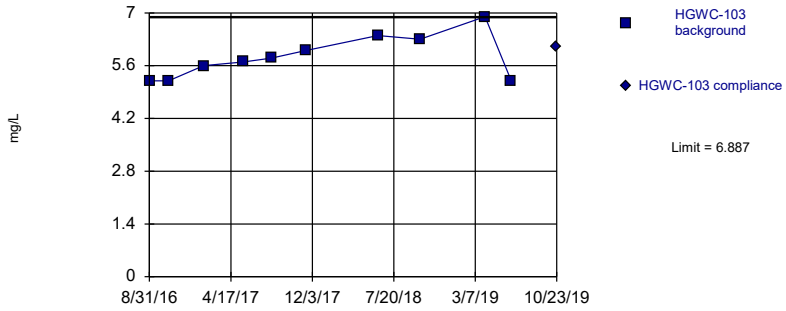
Constituent: Chloride Analysis Run 1/30/2020 9:21 AM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=5.83, Std. Dev.=0.5755, n=10. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9233, critical = 0.781. Kappa = 1.836 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

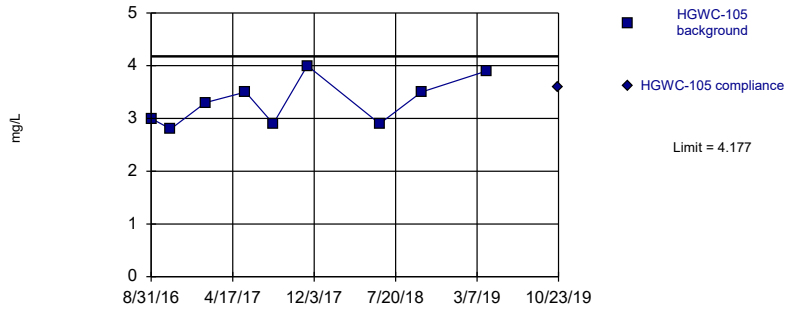
Constituent: Chloride Analysis Run 1/30/2020 9:21 AM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=3.311, Std. Dev.=0.4457, n=9. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9016, critical = 0.764. Kappa = 1.942 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

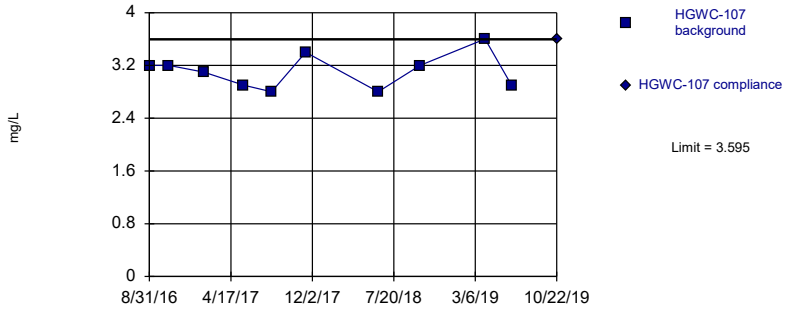
Constituent: Chloride Analysis Run 1/30/2020 9:21 AM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Exceeds Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=3.11, Std. Dev.=0.2644, n=10. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.922, critical = 0.781. Kappa = 1.836 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

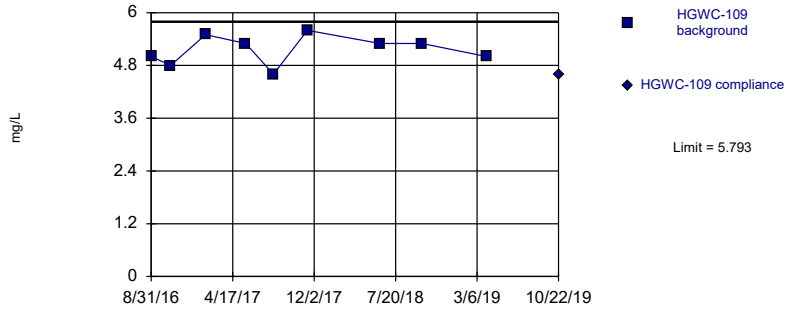
Constituent: Chloride Analysis Run 1/30/2020 9:21 AM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=5.156, Std. Dev.=0.3283, n=9. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9469, critical = 0.764. Kappa = 1.942 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

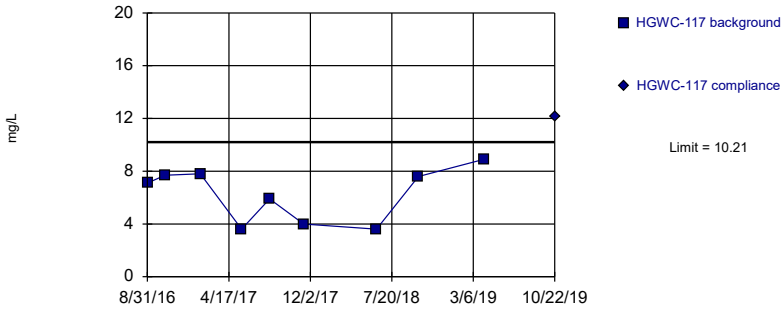
Constituent: Chloride Analysis Run 1/30/2020 9:21 AM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Exceeds Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=6.244, Std. Dev.=2.04, n=9. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8676, critical = 0.764. Kappa = 1.942 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Chloride Analysis Run 1/30/2020 9:21 AM

Hammond AP Client: Georgia Power Data: Hammond AP-4

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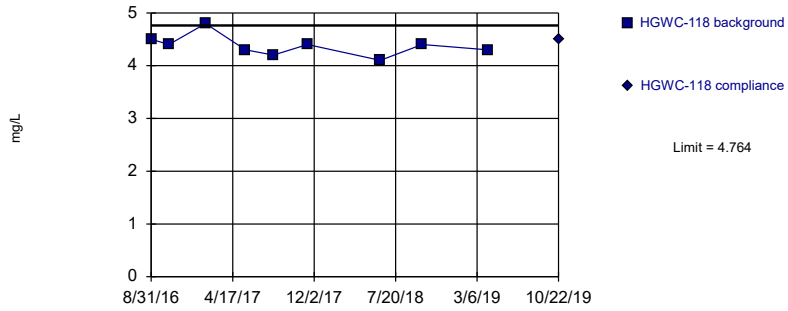
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=4.378, Std. Dev.=0.1986, n=9. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9197, critical = 0.764. Kappa = 1.942 (c=7, w=7, 1 of 3, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Chloride Analysis Run 1/30/2020 9:21 AM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Trend Test - Significant Results

Hammond AP Client: Georgia Power Data: Hammond AP-4 Printed 3/12/2020, 3:58 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Boron (mg/L)	**HGWC-107**	**0.05659**	**37**	**27**	**Yes**	**11**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Calcium (mg/L)	**HGWC-107**	**3.563**	**43**	**27**	**Yes**	**11**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Chloride (mg/L)	**HGWC-103**	**0.5087**	**30**	**27**	**Yes**	**11**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Sulfate (mg/L)	**HGWA-113 (bg)**	**-1.978**	**-33**	**-23**	**Yes**	**10**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Sulfate (mg/L)	**HGWC-105**	**-9.35**	**-34**	**-27**	**Yes**	**11**	**0**	**n/a**	**n/a**	**0.05**	**NP**

Trend Test - All Results

Hammond AP Client: Georgia Power Data: Hammond AP-4 Printed 3/12/2020, 3:58 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Boron (mg/L)	HGWA-111 (bg)	-0.002949	-20	-23	No	10	20	n/a	n/a	0.05	NP
Boron (mg/L)	HGWA-112 (bg)	-0.001613	-14	-23	No	10	30	n/a	n/a	0.05	NP
Boron (mg/L)	HGWA-113 (bg)	-0.004208	-21	-23	No	10	10	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-101	0.004089	7	23	No	10	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-103	0.06603	15	27	No	11	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-105	0.03802	11	23	No	10	0	n/a	n/a	0.05	NP
Boron (mg/L)	**HGWC-107**	**0.05659**	**37**	**27**	**Yes**	**11**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Boron (mg/L)	HGWC-109	-0.008063	-11	-27	No	11	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-117	0.0179	11	23	No	10	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-118	-0.04563	-19	-23	No	10	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWA-111 (bg)	1.092	1	23	No	10	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWA-112 (bg)	-0.07411	-3	-23	No	10	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWA-113 (bg)	0.2427	14	23	No	10	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWC-103	7.128	27	27	No	11	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWC-105	4.589	25	27	No	11	0	n/a	n/a	0.05	NP
Calcium (mg/L)	**HGWC-107**	**3.563**	**43**	**27**	**Yes**	**11**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Calcium (mg/L)	HGWC-117	1.843	7	27	No	11	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWC-118	0.1664	1	27	No	11	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWA-111 (bg)	-0.25	-7	-23	No	10	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWA-112 (bg)	0.1446	23	23	No	10	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWA-113 (bg)	-0.04101	-9	-23	No	10	0	n/a	n/a	0.05	NP
Chloride (mg/L)	**HGWC-103**	**0.5087**	**30**	**27**	**Yes**	**11**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Chloride (mg/L)	HGWC-117	0.6938	10	23	No	10	0	n/a	n/a	0.05	NP
pH (s.u.)	HGWA-111 (bg)	-0.04585	-4	-27	No	11	0	n/a	n/a	0.05	NP
pH (s.u.)	HGWA-112 (bg)	-0.02226	-3	-27	No	11	0	n/a	n/a	0.05	NP
pH (s.u.)	HGWA-113 (bg)	0.003891	4	27	No	11	0	n/a	n/a	0.05	NP
pH (s.u.)	HGWC-101	0	0	30	No	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWA-111 (bg)	0	0	23	No	10	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWA-112 (bg)	-0.005155	-2	-23	No	10	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	**HGWA-113 (bg)**	**-1.978**	**-33**	**-23**	**Yes**	**10**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Sulfate (mg/L)	HGWC-101	-2.86	-14	-27	No	11	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-103	12.72	19	27	No	11	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	**HGWC-105**	**-9.35**	**-34**	**-27**	**Yes**	**11**	**0**	**n/a**	**n/a**	**0.05**	**NP**
Sulfate (mg/L)	HGWC-107	0	1	27	No	11	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-109	-1.73	-11	-27	No	11	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-117	-5.41	-13	-27	No	11	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-118	-2.386	-19	-27	No	11	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWA-111 (bg)	4.773	3	23	No	10	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWA-112 (bg)	3.916	11	20	No	9	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWA-113 (bg)	2.173	6	23	No	10	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWC-103	7.365	1	27	No	11	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWC-105	8.714	3	27	No	11	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWC-107	18.53	13	27	No	11	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWC-117	-18.12	-13	-27	No	11	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWC-118	-19.75	-18	-27	No	11	0	n/a	n/a	0.05	NP

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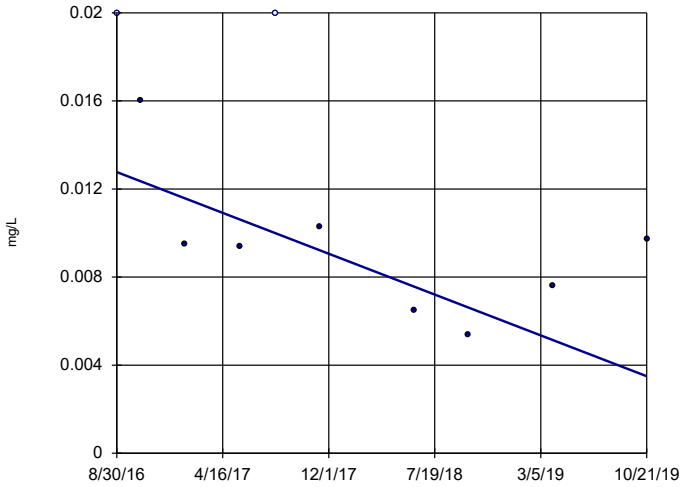
Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWA-111 (bg)



n = 10

Slope = -0.002949 units per year.

Mann-Kendall statistic = -20
critical = -23

Trend not significant at 95% confidence level (α = 0.025 per tail).

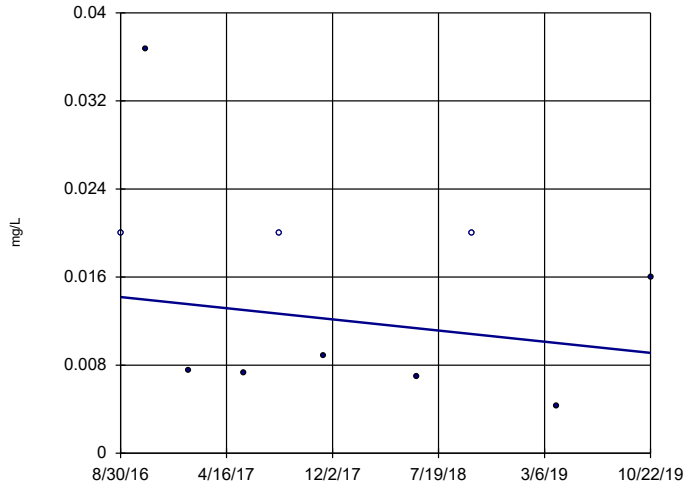
Constituent: Boron Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWA-112 (bg)



n = 10

Slope = -0.001613 units per year.

Mann-Kendall statistic = -14
critical = -23

Trend not significant at 95% confidence level (α = 0.025 per tail).

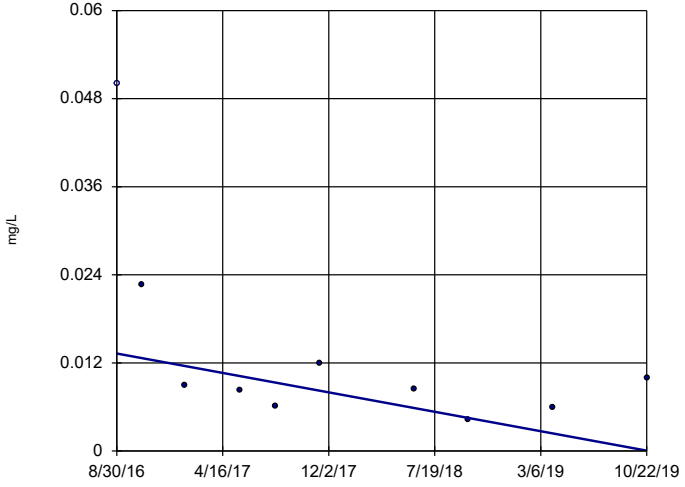
Constituent: Boron Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWA-113 (bg)



n = 10

Slope = -0.004208 units per year.

Mann-Kendall statistic = -21
critical = -23

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Boron Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

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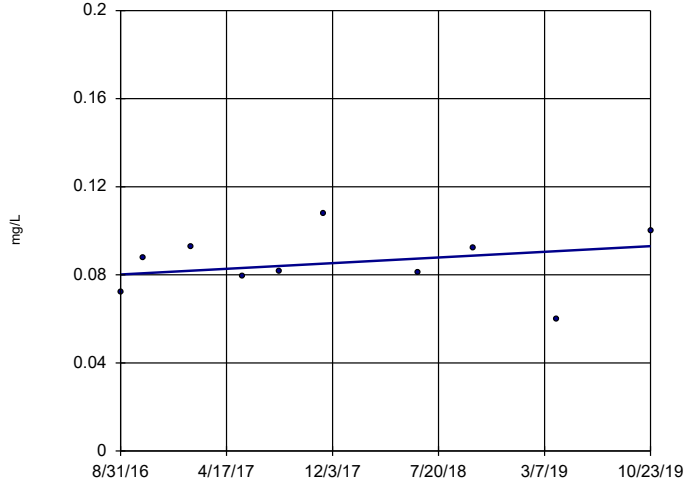
Sen's Slope Estimator

HGWC-101



n = 10

Slope = 0.004089 units per year.

Mann-Kendall statistic = 7
critical = 23

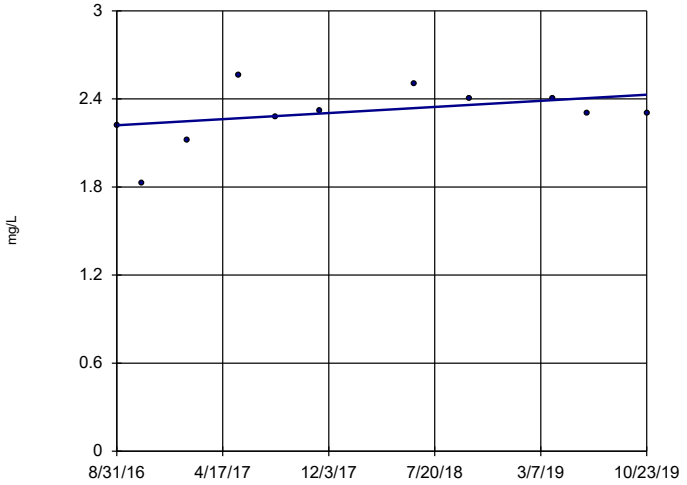
Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Boron Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Sen's Slope Estimator

HGWC-103



n = 11

Slope = 0.06603 units per year.

Mann-Kendall statistic = 15
critical = 27

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Boron Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

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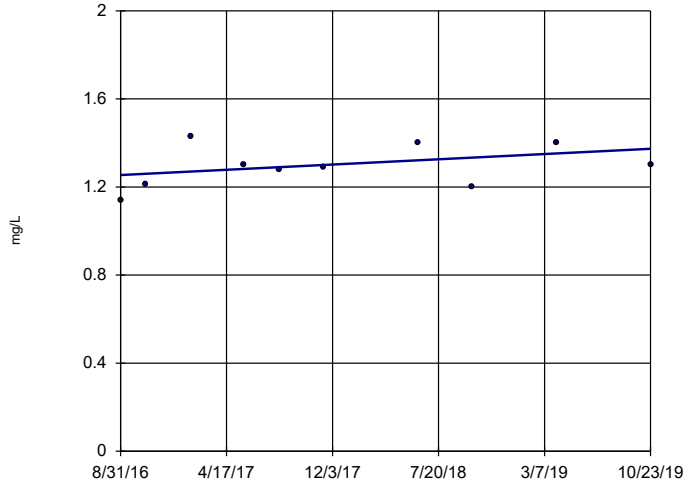
Sen's Slope Estimator

HGWC-105



n = 10

Slope = 0.03802 units per year.

Mann-Kendall statistic = 11
critical = 23

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Boron Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

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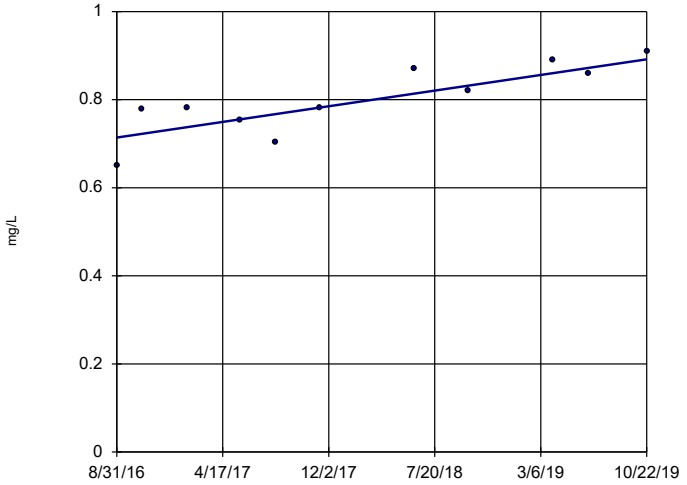
Sen's Slope Estimator

HGWC-107



n = 11

Slope = 0.05659 units per year.

Mann-Kendall statistic = 37
critical = 27

Increasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Boron Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

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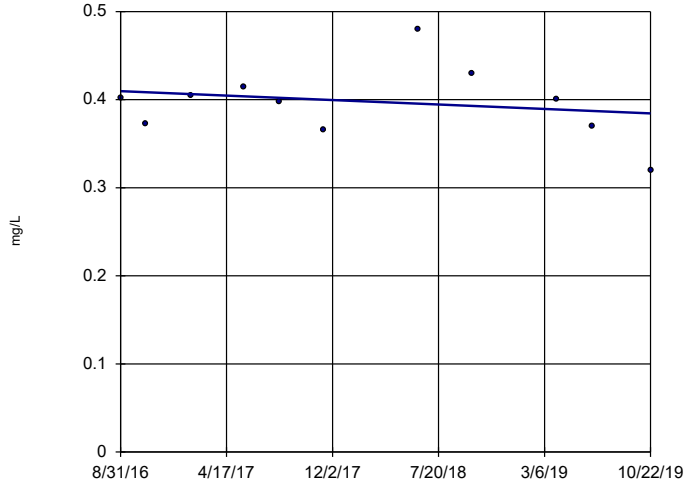
Sen's Slope Estimator

HGWC-109



n = 11

Slope = -0.008063 units per year.

Mann-Kendall statistic = -11
critical = -27

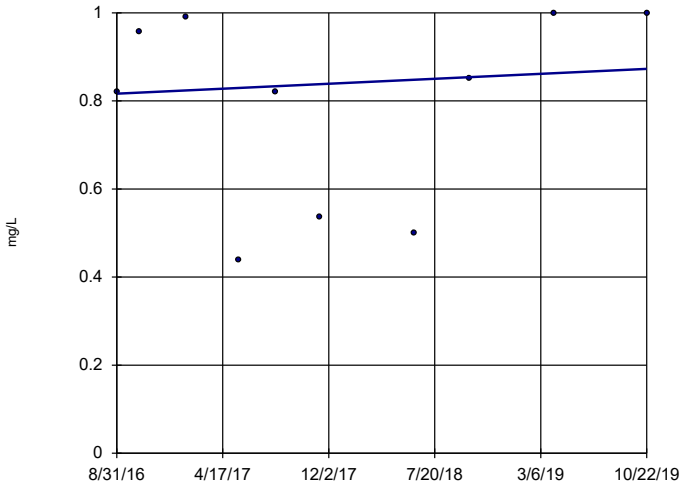
Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Boron Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Sen's Slope Estimator

HGWC-117



n = 10

Slope = 0.0179 units per year.

Mann-Kendall statistic = 11
critical = 23

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Boron Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

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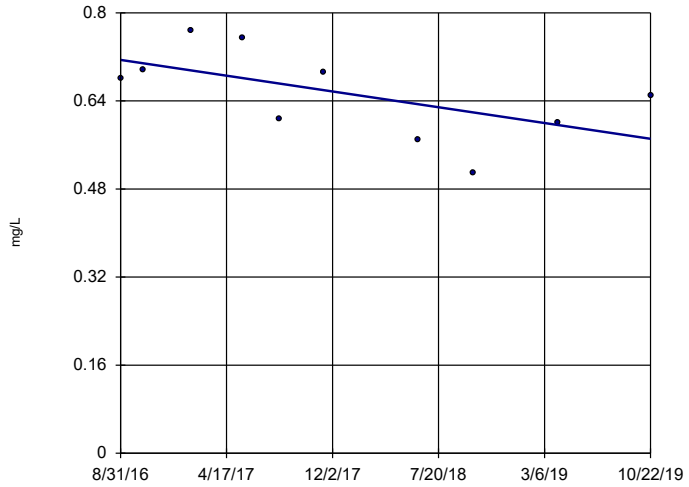
Sen's Slope Estimator

HGWC-118



n = 10

Slope = -0.04563 units per year.

Mann-Kendall statistic = -19
critical = -23

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Boron Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

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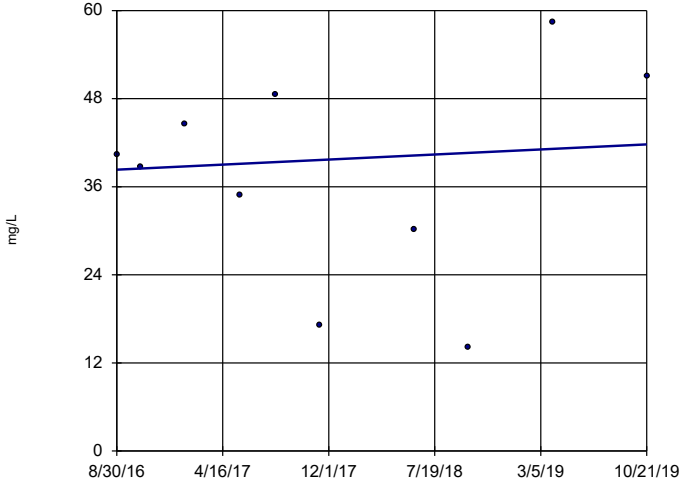
Sen's Slope Estimator

HGWA-111 (bg)



n = 10

Slope = 1.092 units per year.

Mann-Kendall statistic = 1
critical = 23

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Calcium Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

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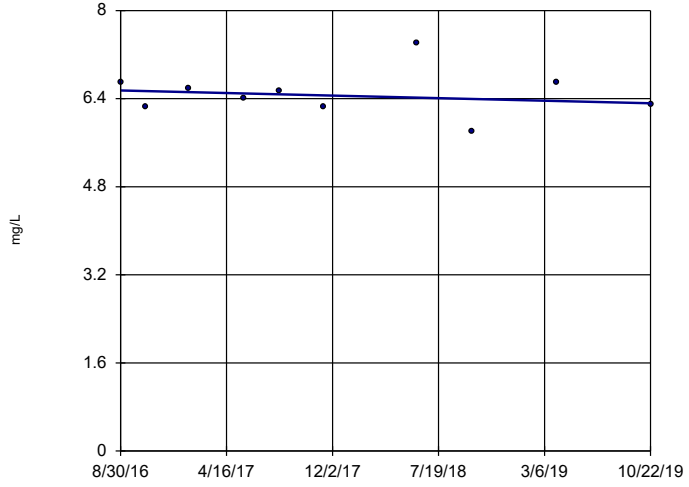
Sen's Slope Estimator

HGWA-112 (bg)



n = 10

Slope = -0.07411 units per year.

Mann-Kendall statistic = -3
critical = -23

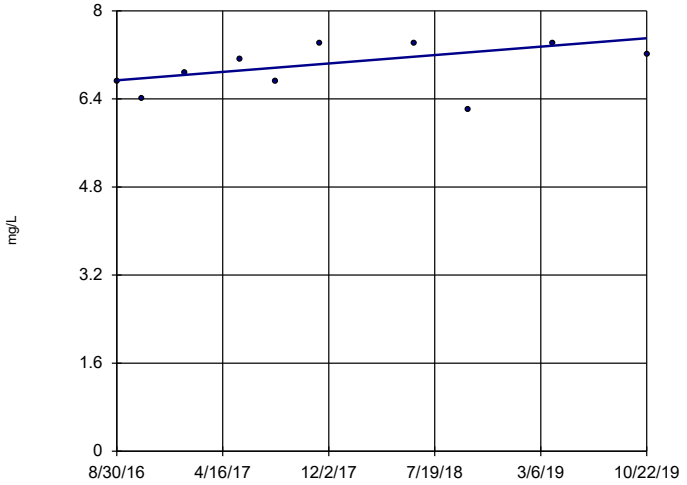
Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Calcium Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Sen's Slope Estimator

HGWA-113 (bg)



n = 10

Slope = 0.2427 units per year.

Mann-Kendall statistic = 14 critical = 23

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Calcium Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

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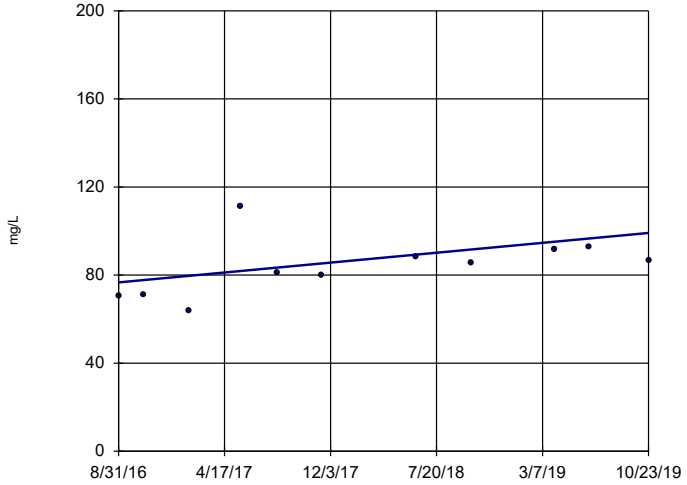
Sen's Slope Estimator

HGWC-103



n = 11

Slope = 7.128 units per year.

Mann-Kendall statistic = 27 critical = 27

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Calcium Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

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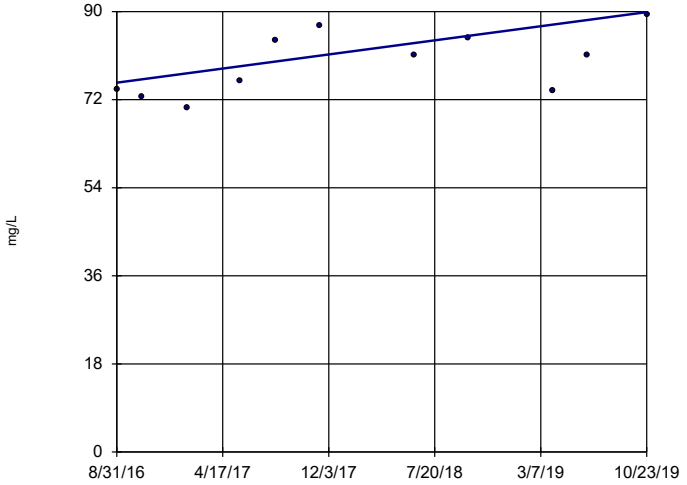
Sen's Slope Estimator

HGWC-105



n = 11

Slope = 4.589 units per year.

Mann-Kendall statistic = 25 critical = 27

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Calcium Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

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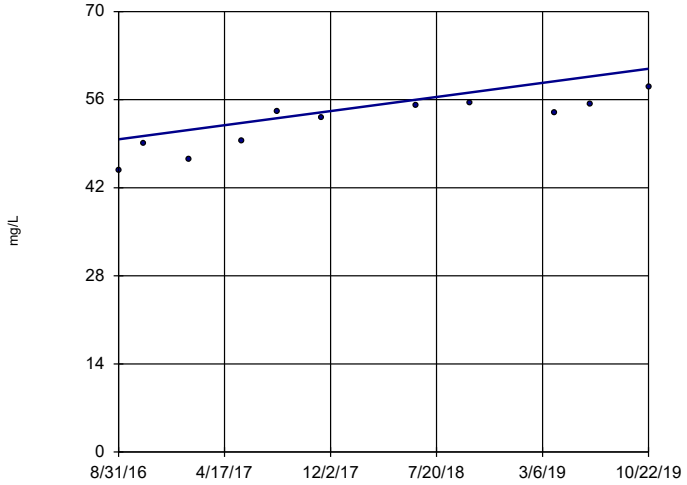
Sen's Slope Estimator

HGWC-107



n = 11

Slope = 3.563 units per year.

Mann-Kendall statistic = 43 critical = 27

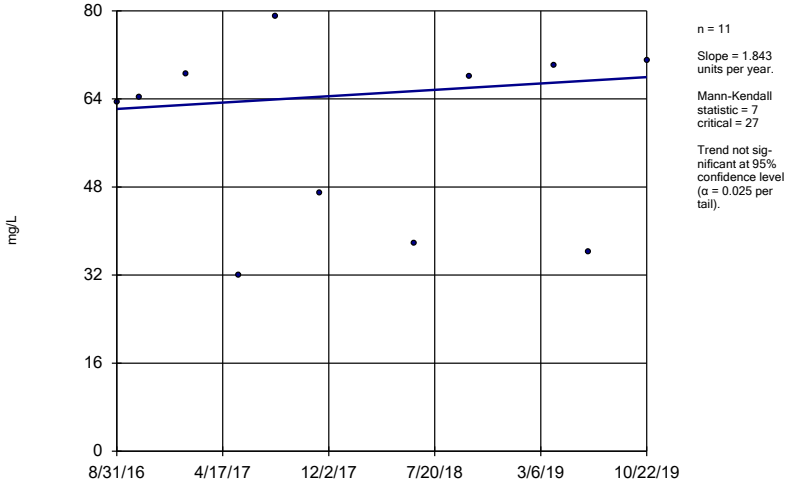
Increasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Calcium Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Sen's Slope Estimator

HGWC-117



n = 11

Slope = 1.843 units per year.

Mann-Kendall statistic = 7
critical = 27

Trend not significant at 95% confidence level (α = 0.025 per tail).

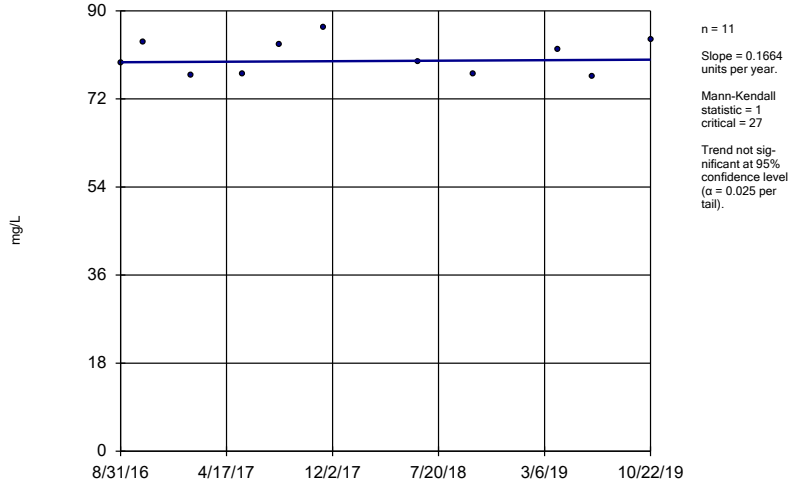
Constituent: Calcium Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Sen's Slope Estimator

HGWC-118



n = 11

Slope = 0.1664 units per year.

Mann-Kendall statistic = 1
critical = 27

Trend not significant at 95% confidence level (α = 0.025 per tail).

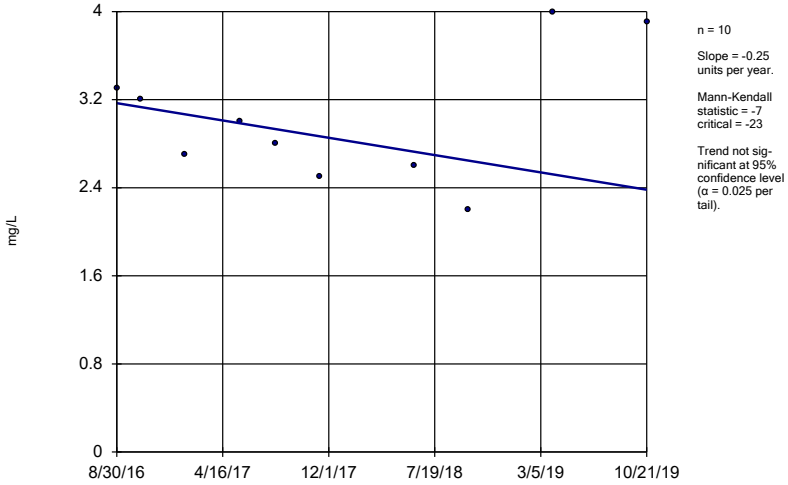
Constituent: Calcium Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Sen's Slope Estimator

HGWA-111 (bg)



n = 10

Slope = -0.25 units per year.

Mann-Kendall statistic = -7
critical = -23

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Chloride Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

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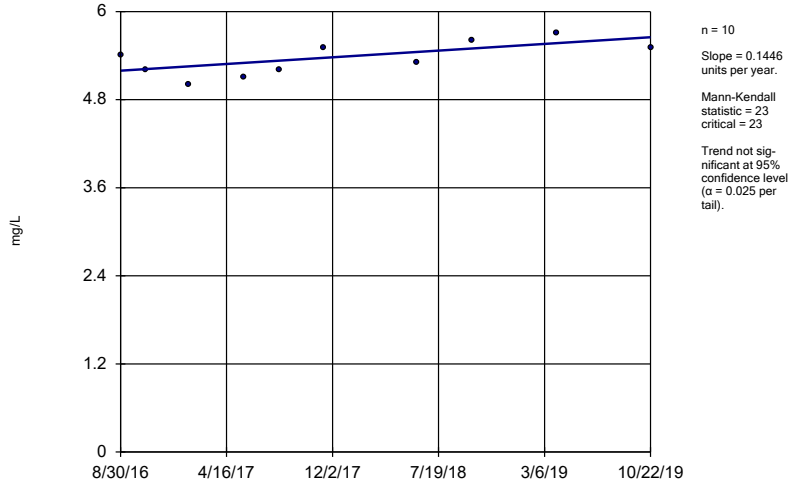
Sen's Slope Estimator

HGWA-112 (bg)



n = 10

Slope = 0.1446 units per year.

Mann-Kendall statistic = 23
critical = 23

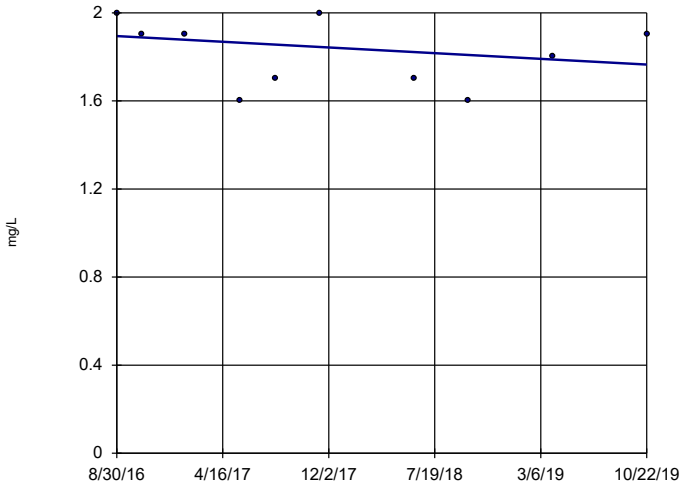
Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Chloride Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Sen's Slope Estimator

HGWA-113 (bg)



n = 10

Slope = -0.04101 units per year.

Mann-Kendall statistic = -9
critical = -23

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Chloride Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

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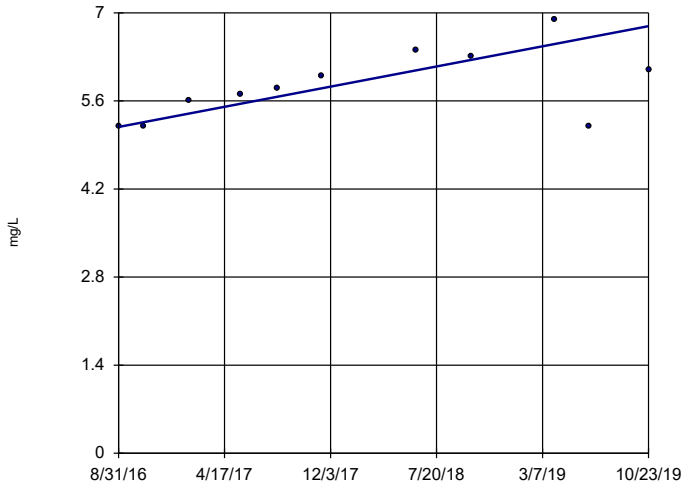
Sen's Slope Estimator

HGWC-103



n = 11

Slope = 0.5087 units per year.

Mann-Kendall statistic = 30
critical = 27

Increasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Chloride Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

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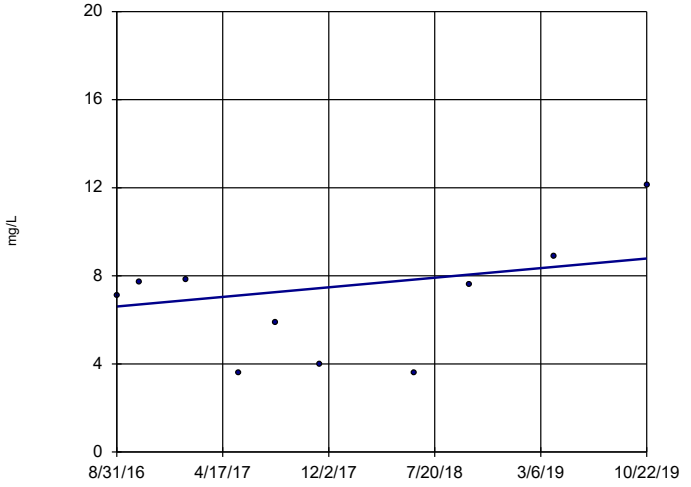
Sen's Slope Estimator

HGWC-117



n = 10

Slope = 0.6938 units per year.

Mann-Kendall statistic = 10
critical = 23

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Chloride Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

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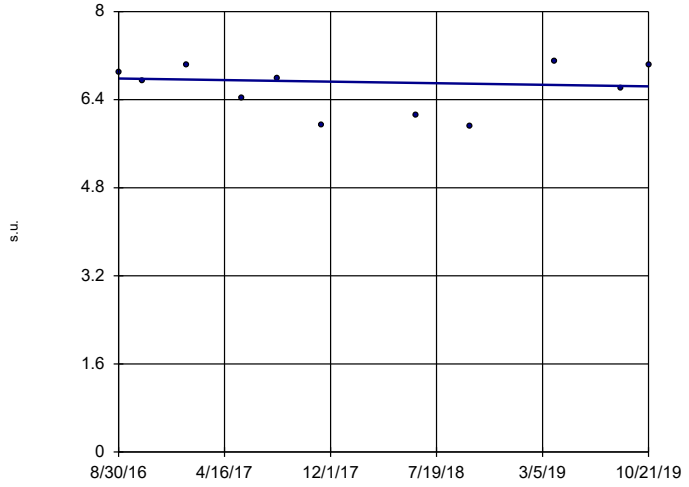
Sen's Slope Estimator

HGWA-111 (bg)



n = 11

Slope = -0.04585 units per year.

Mann-Kendall statistic = -4
critical = -27

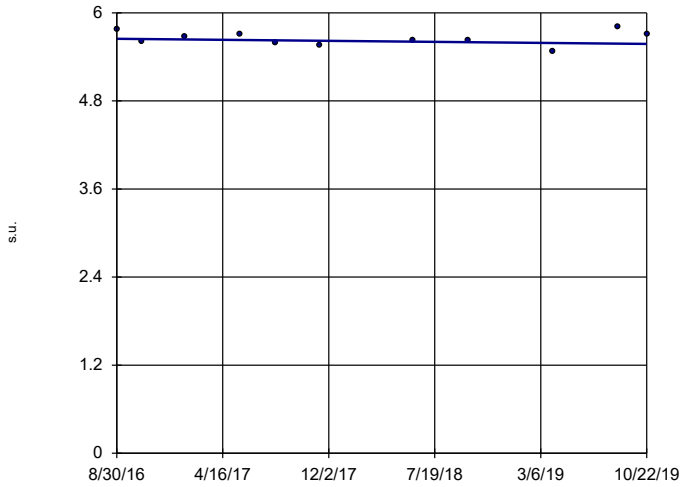
Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: pH Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Sen's Slope Estimator

HGWA-112 (bg)



n = 11

Slope = -0.02226 units per year.

Mann-Kendall statistic = -3
critical = -27

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: pH Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

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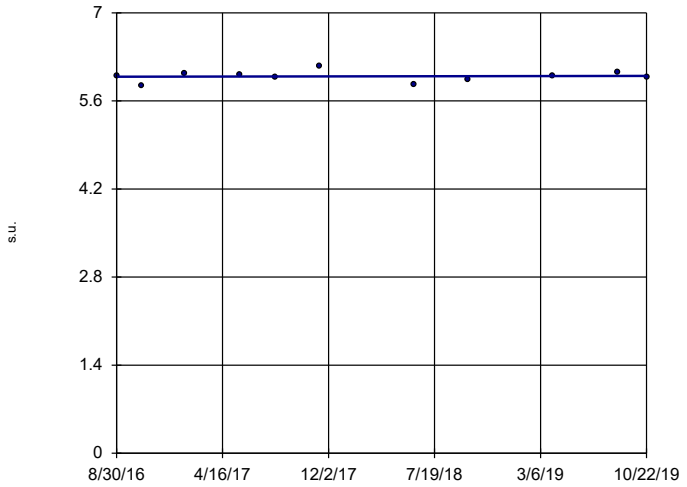
Sen's Slope Estimator

HGWA-113 (bg)



n = 11

Slope = 0.003891 units per year.

Mann-Kendall statistic = 4
critical = 27

Trend not significant at 95% confidence level (α = 0.025 per tail).

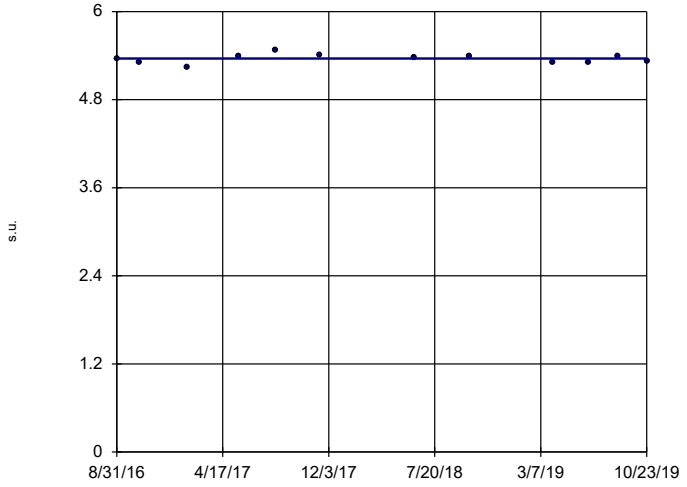
Constituent: pH Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Sen's Slope Estimator

HGWC-101



n = 12

Slope = 0 units per year.

Mann-Kendall statistic = 0
critical = 30

Trend not significant at 95% confidence level (α = 0.025 per tail).

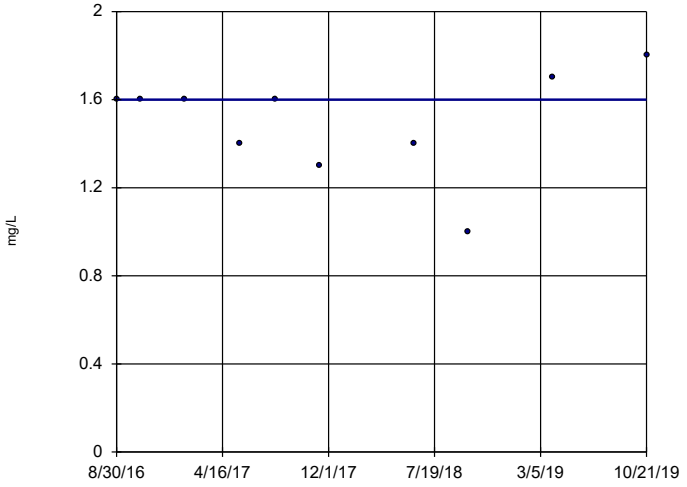
Constituent: pH Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Sen's Slope Estimator

HGWA-111 (bg)



n = 10

Slope = 0 units per year.

Mann-Kendall statistic = 0
critical = 23

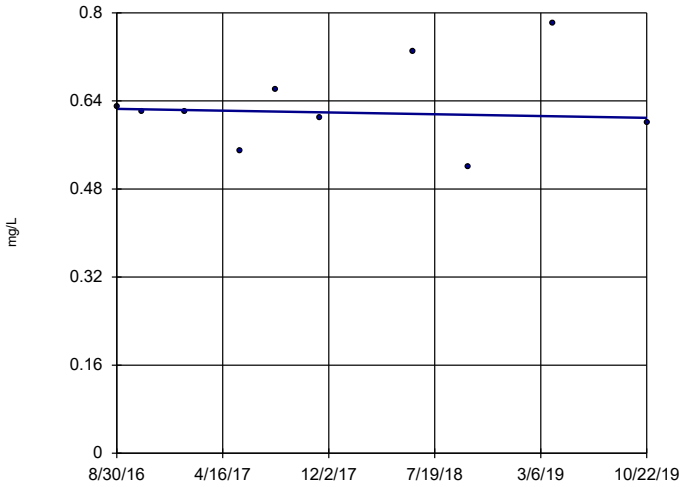
Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Sulfate Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Sen's Slope Estimator

HGWA-112 (bg)



n = 10

Slope = -0.005155 units per year.

Mann-Kendall statistic = -2
critical = -23

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Sulfate Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

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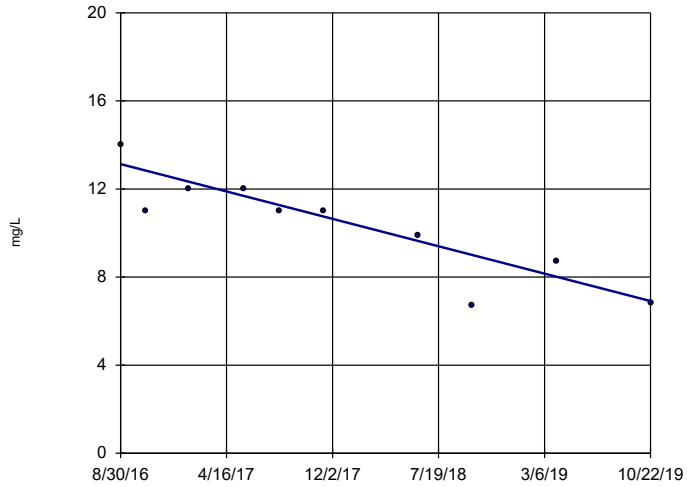
Sen's Slope Estimator

HGWA-113 (bg)



n = 10

Slope = -1.978 units per year.

Mann-Kendall statistic = -33
critical = -23

Decreasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Sulfate Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

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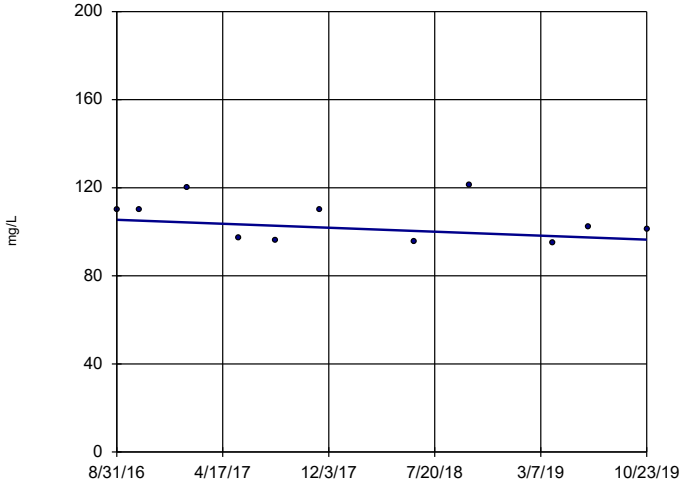
Sen's Slope Estimator

HGWC-101



n = 11

Slope = -2.86 units per year.

Mann-Kendall statistic = -14
critical = -27

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Sulfate Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

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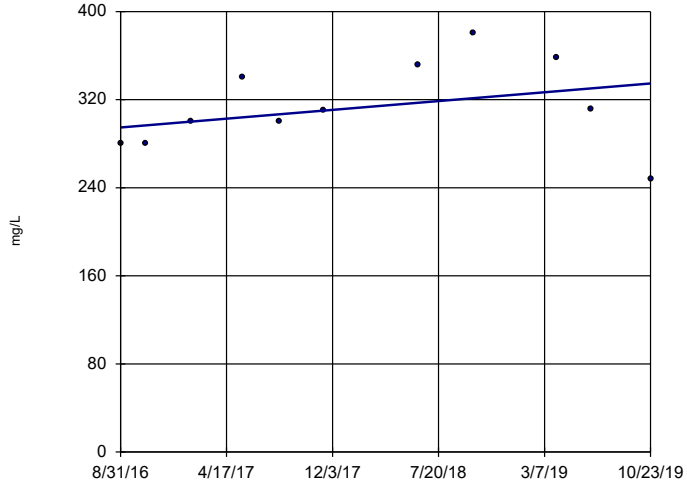
Sen's Slope Estimator

HGWC-103



n = 11

Slope = 12.72 units per year.

Mann-Kendall statistic = 19
critical = 27

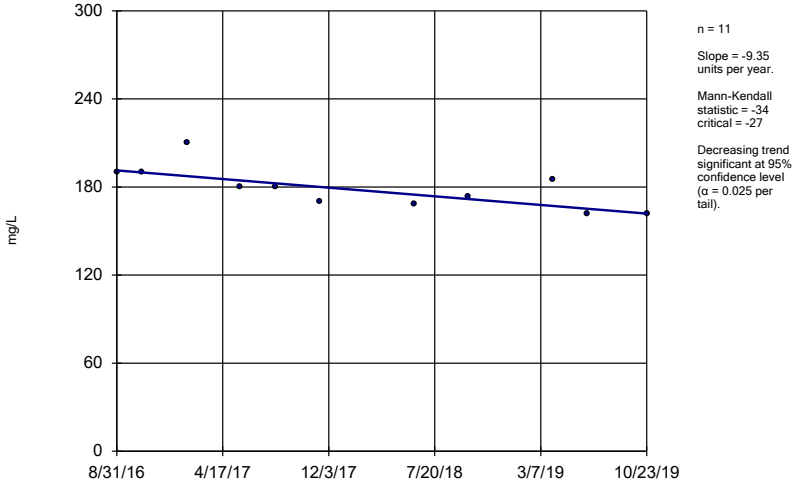
Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Sulfate Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Sen's Slope Estimator

HGWC-105



n = 11

Slope = -9.35 units per year.

Mann-Kendall statistic = -34
critical = -27

Decreasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Sulfate Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

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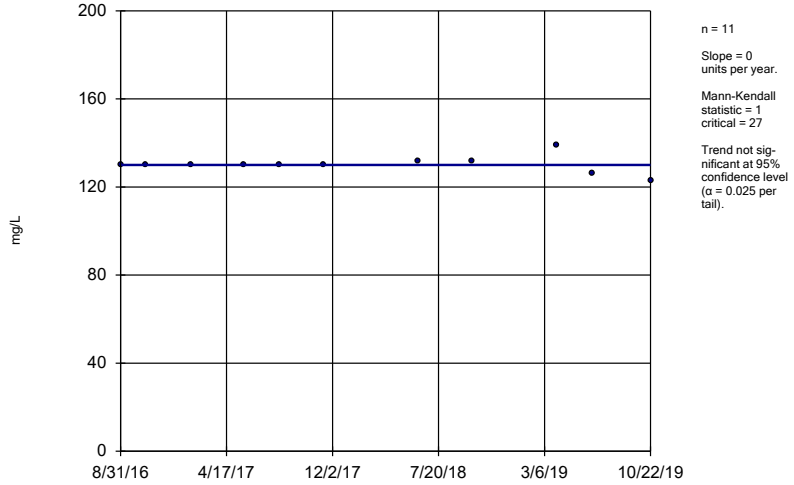
Sen's Slope Estimator

HGWC-107



n = 11

Slope = 0 units per year.

Mann-Kendall statistic = 1
critical = 27

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Sulfate Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

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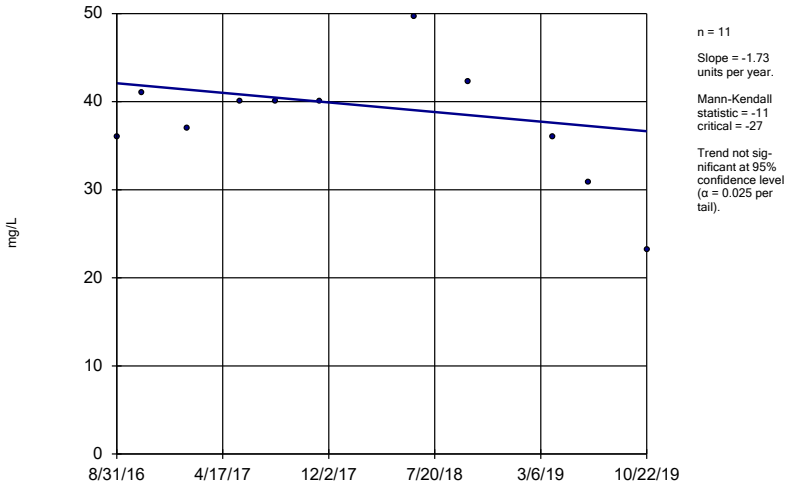
Sen's Slope Estimator

HGWC-109



n = 11

Slope = -1.73 units per year.

Mann-Kendall statistic = -11
critical = -27

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Sulfate Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

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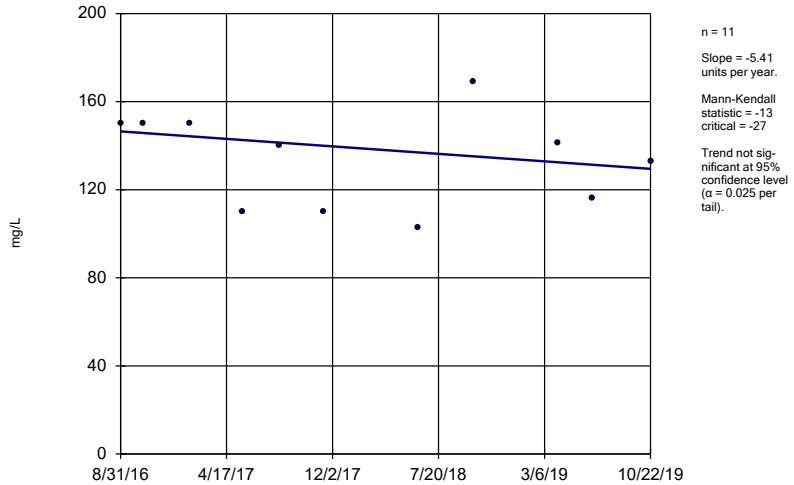
Sen's Slope Estimator

HGWC-117



n = 11

Slope = -5.41 units per year.

Mann-Kendall statistic = -13
critical = -27

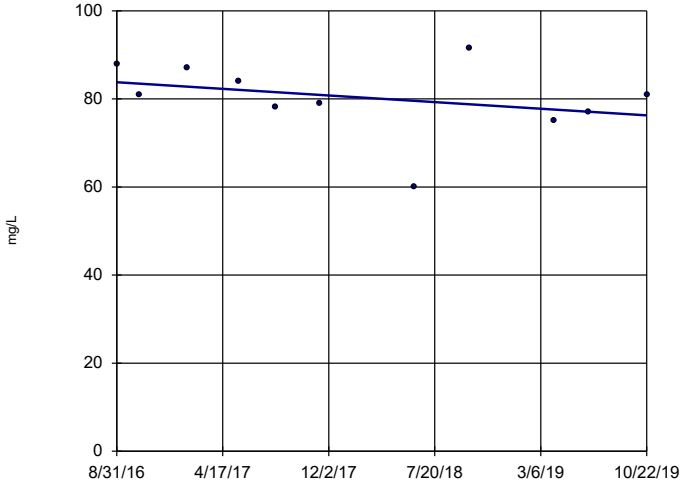
Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Sulfate Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Sen's Slope Estimator

HGWC-118



n = 11

Slope = -2.386 units per year.

Mann-Kendall statistic = -19
critical = -27

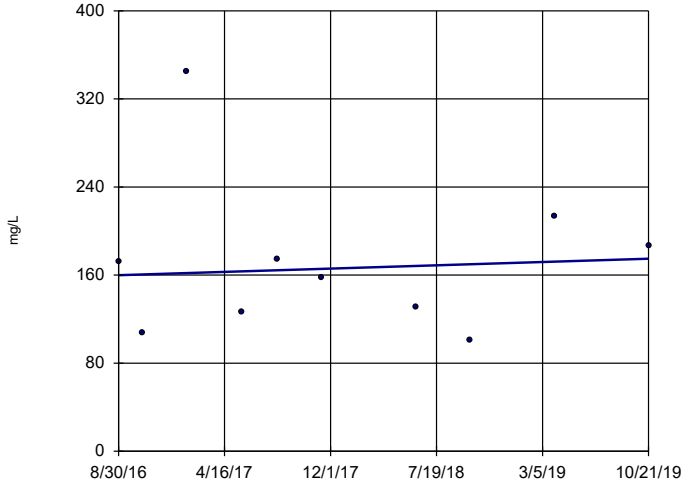
Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Sulfate Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Sen's Slope Estimator

HGWA-111 (bg)



n = 10

Slope = 4.773 units per year.

Mann-Kendall statistic = 3
critical = 23

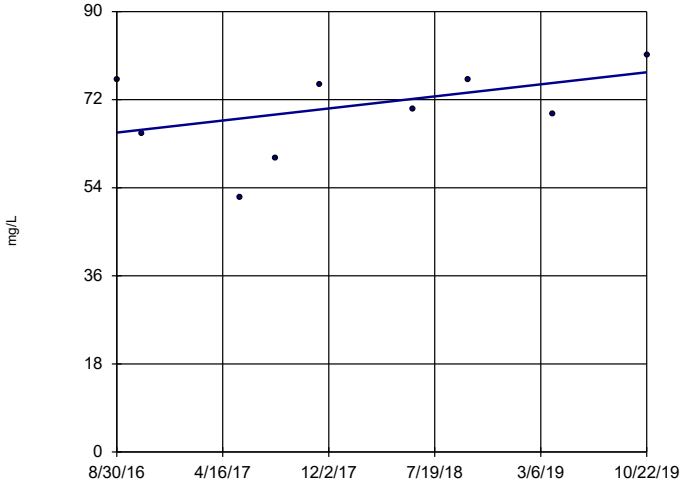
Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Total Dissolved Solids Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Sen's Slope Estimator

HGWA-112 (bg)



n = 9

Slope = 3.916 units per year.

Mann-Kendall statistic = 11
critical = 20

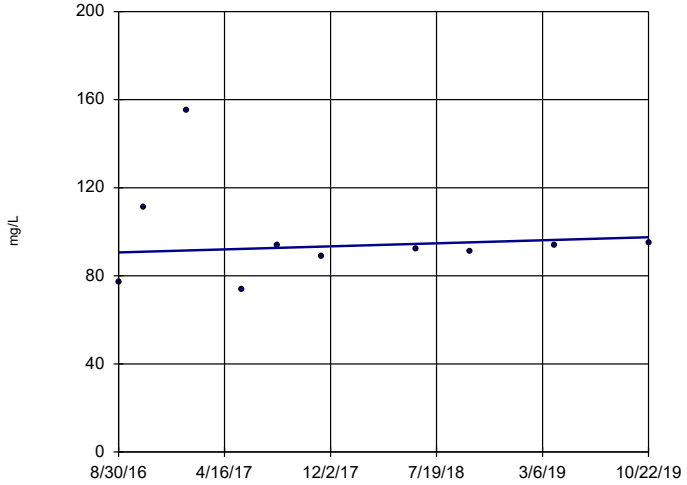
Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Total Dissolved Solids Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Sen's Slope Estimator

HGWA-113 (bg)



n = 10

Slope = 2.173 units per year.

Mann-Kendall statistic = 6
critical = 23

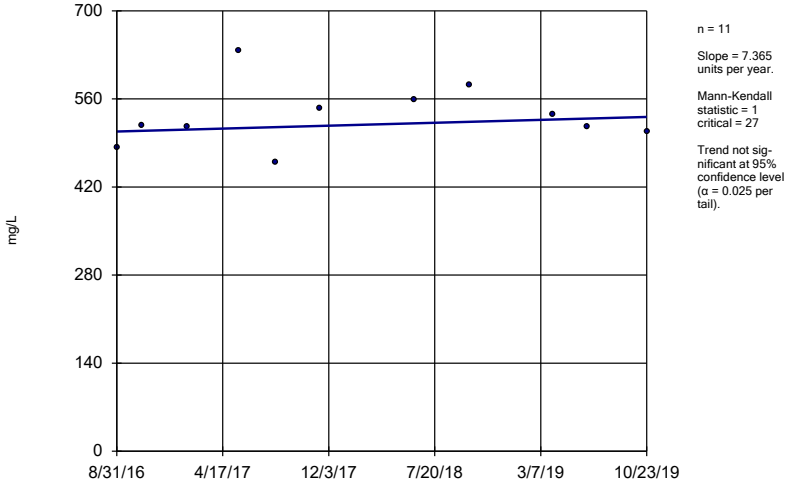
Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Total Dissolved Solids Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Sen's Slope Estimator

HGWC-103



n = 11

Slope = 7.365 units per year.

Mann-Kendall statistic = 1 critical = 27

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Total Dissolved Solids Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

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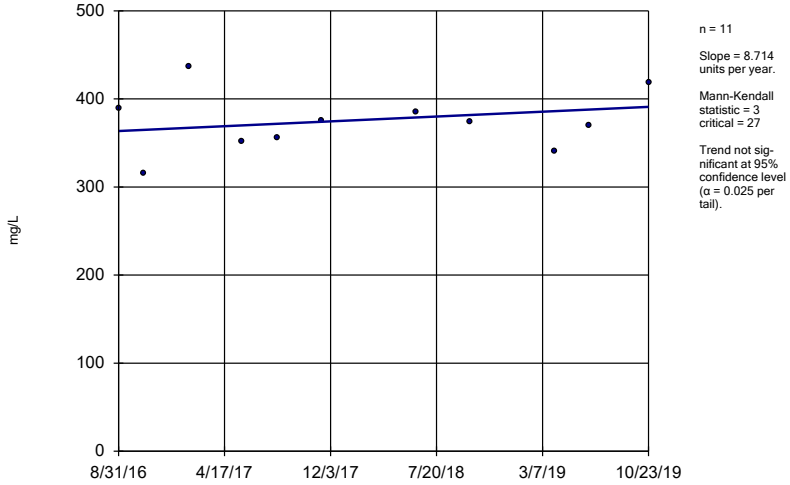
Sen's Slope Estimator

HGWC-105



n = 11

Slope = 8.714 units per year.

Mann-Kendall statistic = 3 critical = 27

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Total Dissolved Solids Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

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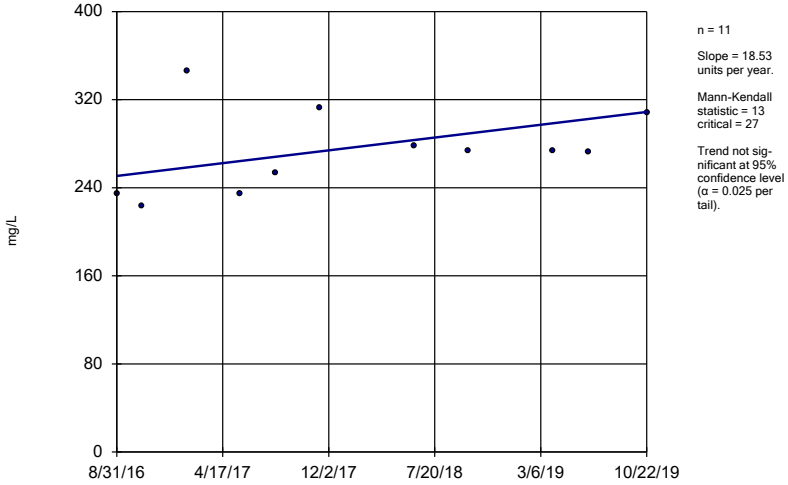
Sen's Slope Estimator

HGWC-107



n = 11

Slope = 18.53 units per year.

Mann-Kendall statistic = 13 critical = 27

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Total Dissolved Solids Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

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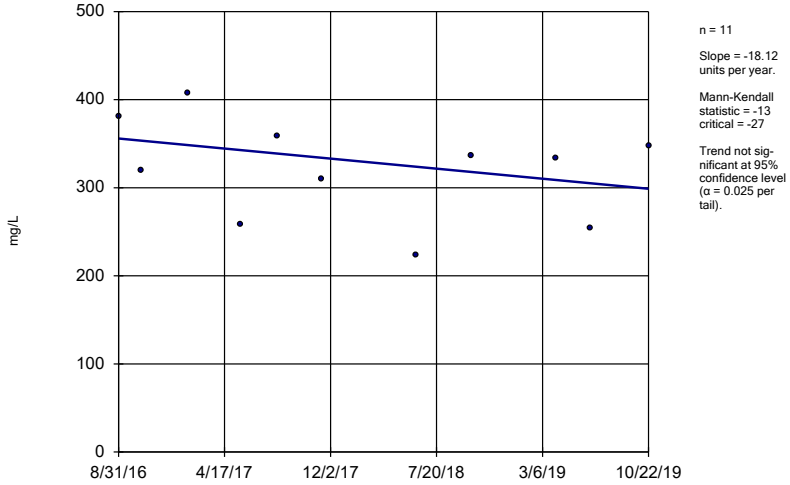
Sen's Slope Estimator

HGWC-117



n = 11

Slope = -18.12 units per year.

Mann-Kendall statistic = -13 critical = -27

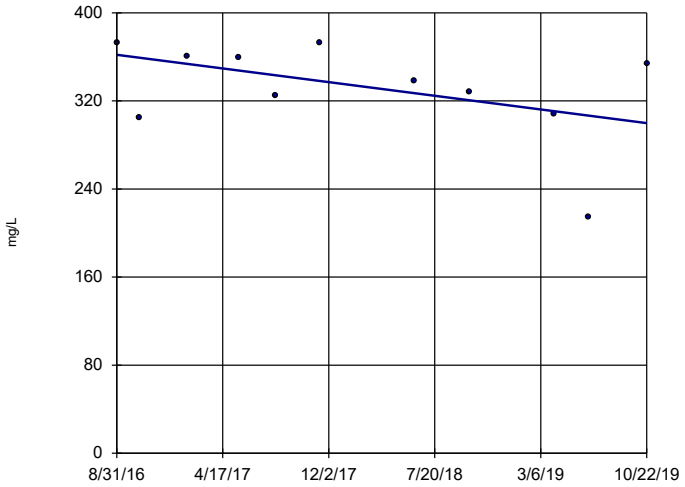
Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Total Dissolved Solids Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Sen's Slope Estimator

HGWC-118



n = 11

Slope = -19.75 units per year.

Mann-Kendall statistic = -18
critical = -27

Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Total Dissolved Solids Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4