



*Prepared for*

**Georgia Power Company**  
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Atlanta, Georgia 30308

**ASSESSMENT OF CORRECTIVE  
MEASURES REPORT  
PLANT HAMMOND ASH POND 1  
(AP-1)**

*Prepared by*

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Project Number GW6581B

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## ASSESSMENT OF CORRECTIVE MEASURES REPORT

Plant Hammond  
Ash Pond 1

June 12, 2019

A handwritten signature in black ink, appearing to read "Herwig Goldemund".

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## LIST OF ACRONYMS

ACM	Assessment of Corrective Measures
AP	ash pond
CCR	coal combustion residuals
CFR	Code of Federal Regulations
cm/sec	centimeters per second
EPD	Environmental Protection Division
ft	feet
ft bgs	feet below ground surface
ft/day	feet per day
ft/ft	feet per foot
GPC	Georgia Power Company
GWPS	Groundwater Protection Standard
HAR	Hydrogeologic Assessment Report
ISS	in-situ solidification/stabilization
$K_h$	horizontal hydraulic conductivity
$K_v$	vertical hydraulic conductivity
MNA	monitored natural attenuation
O&M	operations and maintenance
P&T	pump and treat
PE	professional engineer
PRB	permeable reactive barriers
RCRA	Resource Conservation and Recovery Act
SSL	statistically significant level
US EPA	United States Environmental Protection Agency
ZVI	zero-valent iron

## 1.0 INTRODUCTION

In accordance with the United States Environmental Protection Agency (US EPA) coal combustion residual (CCR) rule [40 Code of Federal Regulations (CFR) Part 257, Subpart D] and the Georgia Environmental Protection Division (EPD) Rules for Solid Waste Management 391-3-4-.10, Geosyntec Consultants, Inc. (Geosyntec) has prepared this *Assessment of Corrective Measures (ACM) Report* for Georgia Power Company (GPC) Plant Hammond (Site) Ash Pond 1 (AP-1). Pursuant to 40 CFR 257.96 and Georgia Rule 391-3-4-.10(6)(a), this ACM evaluates potential corrective measures to address statistically significant levels (SSLs) of arsenic and molybdenum identified in the *2018 Annual Groundwater Monitoring and Corrective Action Report* (Geosyntec, 2019), which are the target constituents for corrective measures presented in this report.

The ACM was initiated within 90 days of identifying the SSLs on January 13, 2019; and a 60-day extension until June 12, 2019, for completion of the ACM was documented on April 12, 2019. Eleven delineation groundwater monitoring wells, installed to assess the extent of arsenic and molybdenum in groundwater at AP-1, show that arsenic and molybdenum are horizontally delineated and contained within the property boundary. This ACM is the first step in identifying viable corrective measures to address SSLs in groundwater at the Site. Based on the results of the ACM, further evaluation may be performed, site-specific studies completed, and a corrective action plan developed and implemented pursuant to 40 CFR 257.97 and 257.98 and Georgia Rule 391-3-4-.10(6)(a).

### 1.1 Purpose

The purpose of this ACM is to begin the process of selecting corrective measure(s) for groundwater. This process is typically iterative and may be composed of multiple steps to analyze the effectiveness of corrective measures to address the potential migration of CCR constituents in groundwater at AP-1.

Once potential corrective measures are identified in this ACM, they are further evaluated using the criteria outlined in 40 CFR 257.96 (c) and Rule 391-3-4-.10(6)(a), which state that corrective measures assessment should include an analysis of the effectiveness of potential corrective measures that considers the following:

- Performance;
- Reliability;
- Ease of implementation;

- Potential impacts (including safety, cross-media, and exposure);
- The time required to begin and complete the remedy; and
- Any institutional requirements (e.g., permitting or environmental and public health requirements) that could affect implementation of the remedy.

These evaluation criteria are considered for each potential corrective measure. Further evaluation of the technologies will be required to select a corrective measure(s).

## **1.2 Site Location and Description**

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. Georgia Power has submitted a new Integrated Resource Plan to the Georgia Public Service Commission in January 2019 which calls for the decertification of Plant Hammond. All four units are included in the decertification.

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

## **1.3 Pond Closure**

GPC will close AP-1 through removal of the CCR material from the CCR unit. The Closure Plan submitted to Georgia EPD as part of the closure permit application package describes the closure activities and requirements in accordance with 40 CFR 257.102 and corresponding Rule 391-3-4-.10(7)(b). The Closure Plan has been summarized in the Initial Written Closure Plan and published in 2016 to GPC's webpage.

Per the Closure Plan, the sequence of closing AP-1 via removal of the CCR material generally includes: (i) dewatering the surface water contained within the impoundment; (ii) sufficient dewatering and stabilization of the CCR material to facilitate its excavation and removal; (iii) removal of the CCR material and a minimum 6 inches of the residual

soils underlying the CCR material in AP-1; (iv) transportation and disposal of the removed material into the Plant Hammond Huffaker Road private industrial solid waste permitted landfill or in another permitted solid waste disposal facility, or sold to an ash marketer for beneficial re-use; and (v) final grading and backfilling with approved on-site/off-site borrow soil to promote positive drainage of stormwater from the stabilized area.

The closure of AP-1 in the manner described above provides a source control measure that reduces the potential for migration of CCR constituents to groundwater. Corrective measures discussed in this ACM are being evaluated to address SSLs in groundwater at the compliance boundary. The compliance boundary is the unit boundary where the detection monitoring network is installed.

## 2.0 CONCEPTUAL SITE MODEL

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

### 2.1 Geology

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

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

## **2.2 Hydrology and Groundwater Flow**

The uppermost aquifer at the Site is a regional groundwater aquifer that occurs in the residuum and the highly weathered and fractured bedrock. Based on observations of residuum soil types and horizontal conductivity values, the movement of groundwater in the residuum, and to a degree the highly weathered bedrock zone, can be characterized as low-permeability, porous media flow. The shallow bedrock groundwater flow in the underlying bedrock is characterized as fracture flow. The regional groundwater flow direction is expected to be from north to south; however, the constant head maintained in AP-1 influences the groundwater flow in the vicinity of AP-1. Groundwater level data are recorded during each groundwater sampling event from the AP-1 well network, depicted on **Figure 2** and discussed in detail in Section 3.1.1. The data are used to generate potentiometric surface maps that depict the groundwater flow direction or calculate flow gradients. The potentiometric surface map representing the April 2019 groundwater level data is provided on **Figure 3**.

Accounting for groundwater flow easterly towards Cabin Creek and southerly towards Coosa River, the representative groundwater hydraulic gradient for AP-1 is 0.048 feet per foot (ft/ft). The horizontal hydraulic conductivity ( $K_h$ ) estimated by slug testing in wells screened in the alluvium/residuum was  $8.26 \times 10^{-4}$  to  $2.35 \times 10^{-2}$  centimeters per second (cm/sec), with a geometric mean of  $4.11 \times 10^{-3}$  cm/sec (11.82 feet per day [ft/day]). The  $K_h$  values across the residuum/bedrock interface ranged from  $2.68 \times 10^{-3}$  to  $1.14 \times 10^{-2}$  cm/sec, with a geometric mean of  $5.24 \times 10^{-3}$  cm/sec (14.85 ft/day). The range of vertical hydraulic conductivity ( $K_v$ ) values for undisturbed soil samples collected from fill, alluvium, or residuum layers was from  $1.50 \times 10^{-8}$  to  $8.63 \times 10^{-7}$  cm/sec, with a geometric mean of  $1.13 \times 10^{-7}$  cm/sec ( $3.20 \times 10^{-4}$  ft/day). A groundwater flow velocity calculation was performed using the geometric mean value for  $K_h$  11.82 ft/day, a hydraulic gradient of 0.048 ft/ft, and an assumed effective porosity of 0.15, derived from review of available boring logs and professional judgement. This calculation yielded a groundwater flow velocity of approximately 3.8 ft/day for typical AP-1 conditions. Additional details regarding the hydrogeologic conditions in vicinity of AP-1 are provided in the HAR.

### 3.0 NATURE AND EXTENT DELINEATION

The following describes monitoring-related field and assessment activities performed to date in support of (i) delineating the nature and extent of SSLs in groundwater and (ii) evaluating potential corrective measures to address them.

#### 3.1 Groundwater Monitoring & Constituents of Concern

##### 3.1.1 Groundwater Monitoring Program

In accordance with 40 CFR 257.91, a groundwater monitoring system was installed at AP-1 which (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 well network was certified by a professional engineer (PE) on October 17, 2017, and the certification is maintained in the AP-1 Operating Record. The certified compliance monitoring well network for AP-1 consists of a total of 10 monitoring wells: 3 upgradient wells and 7 downgradient wells. The locations of the compliance monitoring wells are shown on **Figure 2**; well construction details are listed in **Table 1**. Groundwater is currently monitored in AP-1 wells under the assessment monitoring program pursuant to 40 CFR 257.95. Additional groundwater monitoring details are provided in the *2018 Annual Groundwater and Corrective Action Monitoring Report* (Geosyntec, 2019).

##### 3.1.2 SSLs for Appendix IV Constituents

Groundwater monitoring data collected during the semiannual monitoring events in June and October 2018 were statistically analyzed pursuant to 40 CFR 257.93(f) and in general accordance with the US EPA document *Statistical Analysis of Groundwater Data at RCRA Facilities Unified Guidance* (Unified Guidance) (US EPA, 2009). Following Federal and state rule requirements, separate groundwater protection standards (GWPS) were established for statistical comparisons of Appendix IV assessment monitoring parameters. Appendix IV GWPS are provided in **Table 2**. Appendix IV parameters detected during the semiannual monitoring event were compared to GWPS to assess if concentrations in compliance wells statistically exceeded the GWPS. Details regarding the statistical analyses are provided in the *2018 Annual Groundwater and Corrective Action Monitoring Report* (Geosyntec, 2019).

Statistical analyses of the June and October 2018 analytical data identified SSLs of arsenic and molybdenum in the following wells:

AP-1 (Federal CCR Rule):

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

AP-1 (Georgia EPD CCR Rule):

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

In accordance with 40 CFR 257.95(g), a notification identifying SSLs for arsenic and molybdenum was prepared for AP-1 and placed in the Operating Record on November 14, 2018. Pursuant to 40 CFR 257.96, an ACM was initiated for AP-1 on January 13, 2019.

### **3.2 Field Investigation Activities**

Eight additional groundwater monitoring wells were installed in 2018 to provide additional data to characterize flow conditions downgradient of AP-1 and to horizontally and vertically delineate SSLs of arsenic and molybdenum in groundwater at AP-1. Wells MW-19, MW-20, and MW-29 were installed for horizontal delineation and wells MW-24D, MW-25D, MW-26D, MW-27D, and MW-28D were installed for vertical delineation. Detailed boring and well construction logs for these eight new wells are provided in **Appendix A**. The new delineation well network was augmented with piezometers MW-5, MW-6, and MW-7, which were installed in 2014 to gauge water levels downgradient of AP-1. The locations of these eleven delineation wells are shown on **Figure 2** and well construction details are also provided in **Table 1**.

Pursuant to 40 CFR 257.96, groundwater in the vicinity of AP-1 continues to be monitored during the ACM phase in accordance with the assessment monitoring program established for the CCR unit in 2018. Groundwater samples were collected from the compliance wells and eleven delineation wells in March 2019 and analyzed for all Appendix IV parameters per 40 CFR 257.95(b). The compliance and delineation wells were sampled again in April 2019 during the first semiannual monitoring event. The



groundwater analytical results from the March and April 2019 events are summarized in **Table 3**. Laboratory reports associated with the 2019 results are provided in **Appendix B**.

The 2019 analytical results reported for the horizontal delineation wells (MW-5, MW-6, MW-7, MW-20, MW-29) indicate that SSLs of arsenic and molybdenum are horizontally delineated and contained within the property boundary; for these wells, the arsenic and molybdenum concentrations are below their respective GWPS. The SSL of arsenic in well BGWC-13 has also been vertically delineated by well MW-24D. Similarly, molybdenum has been vertically delineated in four of the five deeper delineation wells (MW-24D, MW-25D, MW-26D, and MW-27D). Vertical delineation of molybdenum in well MW-28D is currently in progress.

The April 2019 semiannual event results reported for the ten compliance wells will be statistically evaluated relative to the site-specific GWPS and reported in the corresponding semiannual groundwater monitoring report, which will be published online on August 30, 2019.

## **4.0 GROUNDWATER CORRECTIVE MEASURES**

### **4.1 Objectives of the Corrective Measures**

In evaluating the effectiveness of potential corrective measures using the criteria listed in 40 CFR 257.96(c) and referenced in Rule 391-3-4-.10(6)(a), including performance, reliability, ease of implementation, potential impacts, time required, and institutional and public health requirements, the following criteria listed in 40 CFR 257.97(b) and corresponding Rule 391-3-4-.10(6)(a) must be met by the corrective measure when selected:

- Be protective of human health and the environment;
- Attain applicable groundwater protection standards as specified pursuant to 40 CFR 257.95(h);
- Control the sources of releases to reduce or eliminate, to the maximum extent feasible, further releases of constituents in appendix IV to this part to the environment;
- Remove from the environment as much of the contaminated material that was released from the CCR unit as is feasible, taking into account factors such as avoiding inappropriate disturbance of sensitive ecosystems; and
- Comply with standards for management of wastes as specified in 40 CFR 257.98(d).

Corrective measures selected for evaluation herein for potential use at AP-1 are anticipated to satisfy the above criteria to varying degrees of effectiveness.

### **4.2 Summary of Corrective Measures**

The closure of AP-1 as described in Section 1.3 is a source control measure that reduces the potential for migration of CCR constituents to groundwater. Corrective measures discussed in this ACM are being evaluated to address SSLs in groundwater at and downgradient of the compliance boundary.

This section presents potential corrective measures capable of remediating the Appendix IV groundwater constituents (i.e., arsenic and molybdenum) at AP-1. Each corrective measure is evaluated relative to criteria specified in 40 CFR 257.96(c) and 40 CFR

257.97(b). **Table 4** provides a comparative screening of the corrective measures discussed in Section 4.

The following potential corrective measures are considered in this ACM:

- Geochemical Approaches (In-Situ Injection)
- Hydraulic Containment (Pump and Treat)
- In-Situ Solidification/Stabilization
- Monitored Natural Attenuation
- Permeable Reactive Barrier
- Phytoremediation
- Subsurface Vertical Barrier Walls

While in-situ solidification/stabilization (ISS) is generally considered a viable option for either small source areas or targeted zones within a larger footprint, this potential corrective measure is not a viable corrective measure at AP-1. The closure of AP-1 as previously described will remove CCR materials from the pond and place them into a permitted offsite landfill (i.e., the Huffaker Road Landfill). As such, the use of ISS for a fully excavated CCR pond is not an applicable corrective measure at AP-1 and no detailed evaluation is provided in **Table 4**.

#### **4.2.1 Geochemical Approaches (In-Situ Injection)**

Arsenic and molybdenum can be precipitated and/or immobilized under different combinations of pH and redox conditions. A variety of pH and/or redox-altering technologies are available which can incorporate biological processes, chemical oxidants and reductants, and/or mechanical processes such as air sparging. These processes can be used to decrease the mobility of these constituents.

For example, insoluble (or sparingly soluble) arsenic-containing minerals such as arsenopyrite ( $\text{FeAsS}$ ), realgar ( $\text{AsS}$ ), or orpiment ( $\text{As}_2\text{S}_3$ ) can be formed under sulfate-reducing conditions by indigenous microbial populations (Onstott et al., 2011). These conditions can be induced by injecting electron donors such as emulsified vegetable oil (EVO), lactate, or ethanol into arsenic-impacted groundwater together with a sufficient supply of iron and sulfate. Furthermore, arsenic can be sorbed to iron and manganese oxides, while molybdenum can be sorbed to aluminum and iron oxides as well as clay minerals.

To understand the biogeochemical processes that would effectively immobilize target constituents in groundwater, site-specific bench-scale and pilot-scale treatability studies are needed to prepare an effective amendment to create the appropriate conditions for the precipitation and/or sorption of these minerals without mobilizing other naturally-occurring constituents. Once precipitated, these minerals are often stable even if geochemical conditions revert back to a different redox environment. However, if not properly designed and implemented, manipulating redox conditions without forming the desired compounds may increase the mobility of naturally-occurring constituents such as iron, manganese, and arsenic.

Air sparging can be used to provide oxygen to the subsurface in an attempt to precipitate out (or make more “sorptive”) compounds that are generally more soluble and mobile under reducing conditions. This can also support the precipitation of iron and manganese oxides, which would provide additional sorption sites for constituents such as arsenic and molybdenum.

Furthermore, in-situ chemical oxidation (ISCO) or in-situ chemical reduction (ISCR) can be used to chemically alter the redox environment in the subsurface to affect the mobility and/or bioavailability of certain inorganic compounds.

The main limiting process in these in-situ remedial approaches is the delivery of the compounds within the area of interest. Mixing and contact with the target constituents are necessary and can be difficult in heterogeneous materials and fine-grained materials.

While it is currently not well understood whether molybdenum can be efficiently attenuated using in-situ redox manipulations due to slow reaction kinetics, the attenuation of arsenic is expected to occur under both aerobic (via sorption to iron or manganese oxides) and anaerobic conditions (via formation of sulfide minerals). Therefore, in-situ injections are considered a potentially viable corrective measure to address arsenic and molybdenum in groundwater at AP-1, especially in smaller, more localized areas, and will be retained for further evaluation.

#### **4.2.2 Hydraulic Containment (Pump and Treat)**

Generally, hydraulic containment (or control) refers to the use of groundwater extraction to artificially induce a hydraulic gradient and capture or control the migration of impacted groundwater. One example, groundwater pump and treat (P&T), is often considered to be a viable remedial technology at many sites (US EPA, 1996). This approach uses extraction wells or trenches to capture groundwater, which may subsequently require

above-ground treatment and permitted discharge to a receiving water body or sewer system, reinjection into the aquifer, or reuse at the generating station. Groundwater P&T is often relatively slow and costly as a means to restore groundwater quality over a long-term period, but can be effective as an interim measure, or combined with another measure, to provide hydraulic containment to limit constituent migration toward a potential receptor.

Groundwater extraction for hydraulic control can often effectively address the variety of inorganic constituents encountered at CCR sites, including arsenic and molybdenum. Extraction technologies also have the ability to overcome the limitations of in situ injection-based technologies (i.e., mixing and contact with affected materials, and to access impacted groundwater in lower permeability geologic formations such as fractured bedrock). Space constraints are mainly limited to the above-ground conveyance and treatment component of a P&T system since extraction wells can generally be installed into relatively tight spaces at the edge of waste or other points of compliance.

Extracted groundwater may need to be treated prior to discharge (depending on discharge permit requirements) but does have the potential to be used for irrigation (e.g., of a cover system or other vegetated areas at the Site) or dust suppression purposes. It could also be used as moisture conditioning of dry ash that is being landfilled. Therefore, P&T is a potentially viable corrective measure for arsenic and molybdenum in groundwater at AP-1 and will be retained for further evaluation.

#### **4.2.3 Monitored Natural Attenuation**

The US EPA defines monitored natural attenuation (MNA) as the reliance on natural attenuation processes (within the context of a carefully controlled and monitored site cleanup approach) to achieve site-specific remediation objectives within a time frame that is reasonable compared to that offered by other more active methods. The natural attenuation processes that are at work in such a remediation approach include a variety of physical, chemical, or biological processes that, under favorable conditions, act without human intervention to reduce the mass, toxicity, mobility, volume, or concentration of contaminants in soil or groundwater. These in-situ processes include biodegradation; dispersion; dilution; sorption; volatilization; radioactive decay; and chemical or biological stabilization, transformation, or destruction of contaminants (US EPA, 2015b).

Attenuation mechanisms for inorganic constituents, such as arsenic and molybdenum, are either physical or chemical. Physical attenuation mechanisms such as dilution and dispersion may be appropriate as a polishing step (e.g., at the boundaries of impacted

groundwater, when source control is complete, an active remedy is being used at AP-1, and appropriate land use and groundwater controls are in place). Chemical attenuation mechanisms through sorption or oxidation-reduction (redox) reactions discussed in more detail below may be viable as a stand-alone corrective measure.

“MNA may, under certain conditions (e.g., through sorption or oxidation-reduction reactions), effectively reduce the dissolved concentrations and/or toxic forms of inorganic contaminants in groundwater and soil. Both metals and non-metals (including radionuclides) may be attenuated by sorption reactions such as precipitation, adsorption on the surfaces of soil minerals, absorption into the matrix of soil minerals, or partitioning into organic matter. Oxidation-reduction (redox) reactions can transform the valence states of some inorganic contaminants to less soluble and thus less mobile forms (e.g., hexavalent uranium to tetravalent uranium) and/or to less toxic forms (e.g., hexavalent chromium to trivalent chromium)” (US EPA, 2015b). Both arsenic and molybdenum undergo sorption to iron and manganese oxides. Also, redox reactions, via abiotic or biotic processes, can transform arsenic into sparingly soluble sulfide minerals.

The US EPA uses four phases to establish whether MNA can be successfully implemented at a given site. The phases (or steps) include:

1. Demonstration that SSLs in groundwater are delineated and stable.
2. Evaluation of the mechanisms and rates of attenuation.
3. Assessment if the capacity of the aquifer is sufficient to attenuate the mass of constituents in groundwater and that the immobilized constituents are stable and will not remobilize.
4. Design of a performance monitoring program based on the mechanisms of attenuation and including a decision framework for consideration of a contingent remedy tailored to site-specific conditions should MNA not perform adequately.

Physical and chemical MNA mechanisms for arsenic and molybdenum, including dilution, dispersion, sorption, and precipitation, can be operational without the potential for additional mass of constituents migrating to downgradient groundwater. Even under current conditions, attenuation processes for arsenic and molybdenum are already occurring as evidenced by groundwater data from delineation wells. Therefore, MNA is a potentially viable corrective measure for arsenic and molybdenum in groundwater at AP-1 and will be retained for further evaluation.

#### 4.2.4 Permeable Reactive Barriers

Permeable reactive barriers (PRBs) can present a viable alternative for in-situ treatment of arsenic and molybdenum. The technology typically involves the installation of a subsurface wall constructed with reactive media such as zero-valent iron (ZVI), biologically active media (to induce oxidizing or reducing conditions), or clays, apatite, zeolites, and/or peat moss (to promote ionic exchange and/or sorption). PRBs have proven to be effective in passively treating several inorganic constituents found at CCR sites, including arsenic, selenium, and chromium (e.g. ITRC, 2011). The use of PRBs for molybdenum has been tested, but additional site-specific testing is needed to confirm the applicability of this technology to remove molybdenum from groundwater since it has shown early breakthrough with ZVI-type media (e.g., Morrison et al., 2006) and careful testing is required to select the appropriate treatment media.

PRBs can be installed in downgradient locations using conventional excavation methods or one-pass trenching method. Excavated trenches get back-filled with reactive media to create a barrier that treats dissolved constituents as they passively flow through the PRB with the groundwater (e.g., ITRC, 2011). These systems can either be constructed as continuous “walls” or as “funnel-and-gate” systems where (impermeable) slurry walls create a “funnel” that directs groundwater to permeable “treatment gates” filled with reactive materials. Since the costs for reactive materials (e.g., ZVI or similar) are generally higher than bentonite-based slurry wall construction, these configurations with a smaller treatment area help to lower construction and maintenance costs. Similar to slurry walls (see Section 4.2.6), PRBs are typically keyed into an underlying low-permeability unit such as a clay layer or bedrock.

The installation depths of a PRB unit are generally limited to about 90 ft below ground surface (ft bgs). The installation of a PRB generally requires more space than extraction wells, but the system does not require above-ground treatment components and therefore, the overall treatment footprint is likely to be smaller compared to a P&T system.

While additional subsurface investigations, aquifer testing, reactive media testing, and compatibility testing of groundwater and a slurry wall component of a PRB will be needed to further evaluate the feasibility of installing a PRB at AP-1, the technology is currently considered to be a potentially viable corrective measure to address arsenic and molybdenum in groundwater at AP-1 and will be retained for further evaluation.

#### 4.2.5 Phytoremediation

Phytoremediation is the use of plants to degrade, immobilize, or contain constituents in soil, groundwater, surface water, and sediments. Over recent decades, phytoremediation has emerged as a viable alternative to more active and costly environmental cleanup technologies, especially for large areas with relatively low levels of constituents in shallow soils or groundwater. The effectiveness of groundwater remediation using traditional phytoremediation approaches may be limited by compacted soil conditions that impede root penetration, or target groundwater that is too deep for root access. Given that groundwater wells at AP-1 that exhibited SSLs for arsenic and molybdenum are screened to depths of no deeper than 46 ft bgs, traditional plantings for phytoremediation are not expected to be successful. However, more recently, an engineered approach to phytoremediation, the *TreeWell*<sup>®</sup> system (which is a proprietary system developed by Applied Natural Sciences [ANS]), has been shown to overcome these constraints by utilizing a specialized lined planting unit constructed with optimum planting media designed to promote downward root growth, encourage constituent treatment, and focus groundwater extraction from a targeted depth interval (e.g., Gatliff et al., 2016).

By installing a cased “well” for tree planting using large diameter auger (LDA) technology, extraction of deeper groundwater zones (i.e., in excess of 50 ft bgs) can be achieved since the surface of the “well” is sealed and only groundwater from a targeted zone is allowed into the cased-off borehole. This type of system mirrors a traditional mechanical extraction system using the trees as pumps. The *TreeWell* system can be used for both hydraulic control of groundwater and for treatment of constituents via degradation (for organic constituents) or immobilization/containment mechanisms (for organic and inorganic constituents). With respect to the site-specific conditions, the system would be applied for hydraulic control, but arsenic and molybdenum are expected to be either immobilized within the root zone or incidentally taken up into the tree biomass.

The advantage of the system includes no above-ground water management needs and limited long-term operations and maintenance (O&M) requirements following the establishment of the tree system. Such systems have been observed to meet design hydraulic control parameters typically by the end of the third growing season, when properly designed and spaced. The layout for a *TreeWell* remediation system is generally based on groundwater flow modeling assuming a design uptake rate of approximately 40 to 60 gallons per day per tree.



Based on the current understanding of groundwater flow velocities downgradient of AP-1, a phytoremediation approach does not appear to be viable. However, additional aquifer testing as site conditions change and AP-1 is dewatered may indicate different groundwater flow velocities potentially making phytoremediation a viable corrective measure for groundwater at AP-1. An engineered phytoremediation approach will be retained for further evaluation.

#### **4.2.6 Subsurface Vertical Barrier Walls**

Subsurface vertical barrier walls (sometimes referred to as slurry walls) have been used for seep control and groundwater cutoff at impoundments and waste disposal units for more than three decades. In general, barrier walls are designed to provide containment; localized treatment achieved through the sorption or chemical precipitation reactions from construction of the walls are incidental to the design objective.

This approach involves placing a barrier to groundwater flow in the subsurface, frequently around the source area (or the downgradient limits of the source area), to prevent future migration of dissolved constituents in groundwater from beneath the source to downgradient areas. Barrier walls can also be used in downgradient applications to limit discharge to a surface water feature or to reduce aquifer recharge from an adjacent surface water features when groundwater extraction wells are placed near a surface water feature. A variety of barrier materials can be used, including cement and/or bentonite slurries or various mixtures of soil with cement or bentonite, geomembrane composite materials, or driven materials such as steel or vinyl sheet pile.

The installation of these low-permeability walls is similar to the methods described for PRBs above. In general, the applicability of slurry walls is limited by the depth of installation, which is approximately 90 ft bgs. However, site-specific geologic and technology-specific considerations may limit this depth to shallower installations.

Groundwater pumping is required upgradient of the barrier wall to maintain an inward hydraulic gradient. The extracted groundwater would likely require treatment in an above-ground treatment system.

While additional subsurface investigations, aquifer testing, and wall compatibility testing with the groundwater chemistry will be needed to further evaluate the feasibility as well as the placement of a barrier wall at AP-1, the technology is currently considered to be a potentially viable corrective measure to address arsenic and molybdenum at AP-1 and

will be retained for further evaluation. However, it is more likely to be a component of a potential PRB application rather than a stand-alone corrective measure.

## **5.0 REMEDY SELECTION PROCESS**

The purpose of this ACM is to begin the process of selecting corrective measure(s) for groundwater based on further evaluation using the criteria outlined in 40 CFR 257.96 and Georgia Rule 391-3-4-.10(6)(a). The following sections present the pond closure and site management strategy, additional data gathering, schedule, reporting, and next steps.

### **5.1 Pond Closure and Site Management Strategy**

GPC plans to close AP-1 via removal of the CCR materials from the unit for off-site disposal at a permitted landfill or sold to an ash marketer for beneficial re-use. During the pond closure, temporary changes in site conditions may occur. Additionally, the site conceptual model may need to be refined and/or updated from the current understanding as more data are collected. GPC plans to proactively utilize adaptive site management to support the remedial strategy and address potential changes in site conditions as appropriate. Under an adaptive site management strategy, a remedial approach will be selected whereby: (1) a corrective measure will be installed or implemented to address current conditions; (2) the performance of the corrective measure will be monitored, evaluated, and reported semiannually; (3) the site conceptual model will be updated as more data are collected; and (4) adjustments and augmentations will be made to the corrective measure(s), as needed, to assure that performance criteria and site remedial goals are met.

### **5.2 Additional Data Gathering**

Additional data, data analysis, and site-specific evaluation are necessary to refine the conceptual site model and to further evaluate the feasibility of each corrective measure presented herein such that an appropriate groundwater corrective measure may be selected. Some of the data needed to refine the conceptual site model may be collected concurrent with routine groundwater monitoring events under the assessment monitoring program, or during supplementary sampling, if required. However, additional data collection that includes aquifer testing, groundwater modeling, material compatibility testing, bench scale studies, and pilot tests may require an estimated one to two additional years to complete. Once sufficient data are available to arrive at a focused number of corrective measures or a combination of corrective measures that would provide an effective groundwater remedy, necessary steps will be taken to implement a remedy at the Site in accordance with 40 CFR 257.98.

### **5.3 Schedule, Reporting, and Next Steps**

It is anticipated that additional data collection will begin in 2019. GPC will prepare semiannual reports to document Site groundwater conditions, results associated with additional data gathering identified in Section 5.2 and in Table 4, and the progress in selecting and designing the remedy in accordance with 40 CFR 257.97(a). The reports will be posted to GPC's website.

At least 30 days prior to the selection of remedy or remedies, a public meeting to discuss the results of the corrective measures assessment will be held pursuant to 40 CFR 257.96(e). The final remedy selection report will be developed as outlined in 40 CFR 257.97(a). Once the remedy has been selected, the implementation of the remedy will be initiated in accordance with 40 CFR 257.98.

## 6.0 REFERENCES

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# TABLES

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



Well ID	Hydraulic Location	Installation Date	Northing <sup>(1)</sup>	Easting <sup>(1)</sup>	Top of Casing Elevation (ft AMSL)	Top of Screen Elevation (ft AMSL)	Bottom of Screen Elevation (ft AMSL)	Well Depth (ft bgs) <sup>(2)</sup>	Screen Interval Length
<i>Compliance Monitoring Wells</i>									
HGWA-1	Upgradient	12/3/2014	1550423.69	1940773.31	595.50	573.40	563.40	32.50	10
HGWA-2	Upgradient	12/2/2015	1549796.40	1939845.20	588.18	570.23	560.23	27.95	10
HGWA-3	Upgradient	12/2/2015	1549793.93	1939833.46	588.06	553.19	543.19	44.87	10
HGWC-7	Downgradient	12/3/2015	1549520.39	1942319.97	579.49	561.32	551.32	28.17	10
HGWC-8	Downgradient	12/8/2015	1549114.34	1942392.75	580.08	563.43	553.43	26.65	10
HGWC-9	Downgradient	12/9/2015	1548692.82	1942215.01	580.60	543.62	533.62	46.98	10
HGWC-10	Downgradient	12/8/2015	1548469.50	1941644.41	579.66	566.66	556.66	23.00	10
HGWC-11	Downgradient	12/15/2015	1548477.54	1941146.65	580.96	565.48	555.48	25.78	10
HGWC-12	Downgradient	12/9/2015	1548475.82	1941152.08	581.01	555.33	545.33	35.68	10
HGWC-13	Downgradient	12/10/2015	1548628.52	1940900.41	594.83	559.76	549.76	45.07	10
<i>Groundwater Level Monitoring Piezometers</i>									
APIA-1	Upgradient	12/15/2015	1550080.50	1941613.87	587.72	576.17	566.17	21.85	10
MW-1	Upgradient	12/2/2014	1549936.35	1941590.63	588.82	568.10	558.10	31.12	10
MW-8	Downgradient	10/29/2014	1548174.39	1940014.36	587.37	565.50	555.50	32.27	10
<i>Delineation Monitoring Wells</i>									
MW-5	Downgradient	11/4/2014	1548430.93	1942445.51	581.02	560.60	550.60	30.82	10
MW-6	Downgradient	11/4/2014	1548381.08	1941686.62	581.90	559.30	549.30	33.00	10
MW-7	Downgradient	10/30/2014	1548230.07	1941084.33	577.90	561.50	551.50	26.80	10
MW-19	Downgradient	9/26/2018	1548421.73	1940943.35	580.77	561.20	551.20	26.30	10
MW-20	Downgradient	9/27/2018	1549029.01	1942735.47	579.18	554.82	544.82	31.00	10
MW-24D	Downgradient	11/7/2018	1548637.48	1940900.52	594.67	531.56	521.56	70.00	10
MW-25D	Downgradient	11/6/2018	1548471.80	1941161.62	580.64	527.61	517.61	60.00	10
MW-26D	Downgradient	11/14/2018	1548699.09	1942223.22	580.48	512.57	502.57	75.00	10
MW-27D	Downgradient	11/8/2018	1549103.69	1942391.99	579.74	526.87	516.87	60.10	10
MW-28D	Downgradient	11/13/2018	1549511.13	1942322.32	579.20	531.06	521.06	55.00	10
MW-29	Downgradient	11/13/2018	1549437.24	1942632.41	575.00	556.89	546.89	25.10	10

Notes:

ft = feet

AMSL = above mean sea level

bgs = below ground surface

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

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

**Table 2**  
**Summary of Background Concentrations**  
**and Groundwater Protection Standards**  
**Plant Hammond AP-1, Floyd County, Georgia**

Analyte	Units	Background <sup>(1)</sup>	Federal GWPS <sup>(2)</sup>	State GWPS <sup>(3)</sup>
Antimony	mg/L	0.003	0.006	0.006
Arsenic	mg/L	0.005	0.01	0.01
Barium	mg/L	0.13; 0.14	2	2
Beryllium	mg/L	0.003	0.004	0.004
Cadmium	mg/L	0.001	0.005	0.005
Chromium	mg/L	0.01	0.1	0.1
Cobalt	mg/L	0.029	0.029	0.029
Fluoride	mg/L	0.26; 0.36	4	4
Lead	mg/L	0.005	0.015 <sup>(4)</sup>	0.005
Lithium	mg/L	Federal 0.025 <sup>(5)</sup> State 0.05	0.04	0.05
Mercury	mg/L	0.0005	0.002	0.002
Molybdenum	mg/L	0.01	0.1	0.01
Selenium	mg/L	0.01	0.05	0.05
Thallium	mg/L	0.001	0.002	0.002
Combined Radium-226/228	pCi/L	1.40; 1.38	5	5

Notes:

"mg/L" = milligrams per liter

"pCi/L" = picocuries per liter

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



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

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

Notes:

-- = Parameter was not analyzed

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

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

TDS = total dissolved solids

U = Indicates the parameter was not detected above the analytical minimum detectable concentration (MDC) (Specific to combined radium 226/228)

(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 total radium by EPA Methods 9315/9320. The pH value presented was recorded at the time of sample collection in the field.

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

Appendix IV parameters with a "+" exhibited statistically significant levels (SSLs) over established Groundwater Protection Standards (GWPS) during the June and October 2018 assessment monitoring events.

(4) Well is designated a delineation monitoring well.

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

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

Notes:

-- = Parameter was not analyzed

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

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

TDS = total dissolved solids

U = Indicates the parameter was not detected above the analytical minimum detectable concentration (MDC) (Specific to combined radium 226/228)

(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 total radium by EPA Methods 9315/9320. The pH value presented was recorded at the time of sample collection in the field.

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

Appendix IV parameters with a "+" exhibited statistically significant levels (SSLs) over established Groundwater Protection Standards (GWPS) during the June and October 2018 assessment monitoring events.

(4) Well is designated a delineation monitoring well.

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

Well ID:		MW-25D <sup>(4)</sup>	MW-25D	MW-26D <sup>(4)</sup>	MW-26D	MW-27D <sup>(4)</sup>	MW-27D	MW-28D <sup>(4)</sup>	MW-28D	MW-29 <sup>(4)</sup>	MW-29	
Sample Date:		3/14/2019	4/3/2019	3/13/2019	4/3/2019	3/13/2019	4/4/2019	3/12/2019	4/2/2019	3/12/2019	4/2/2019	
Parameter <sup>(1,2,3)</sup>												
APPENDIX III	<b>Boron*</b>	--	0.37	--	1.5	--	ND (0.12 J)	--	0.17	--	1.2	
	<b>Calcium*</b>	--	25.4	--	122	-	26.3	--	64.6	--	131	
	<b>Chloride*</b>	--	32.0	--	90.6	--	26.9	--	44	--	80.9	
	<b>Fluoride*</b>	2.2	1.6	ND (0.052 J)	ND (0.044 J)	ND (0.028 J)	ND (0.26 J)	ND (0.24 J)	ND (0.18 J)	ND (0.07 J)	ND (0.045 J)	
	<b>pH</b>	7.67	7.56	7.40	7.25	7.78	7.63	7.46	7.40	7.20	6.91	
	<b>Sulfate*</b>	--	53.0	--	131	--	11.8	--	67.7	--	151	
	<b>TDS*</b>	--	ND (15 J)	--	493	--	203	--	350	--	548	
APPENDIX IV	<b>Antimony</b>	ND	ND	ND	ND	ND	ND (0.00016 J)	ND	ND	ND	ND	
	<b>Arsenic<sup>+</sup></b>	ND (0.0019 J)	ND	ND	ND	ND	ND (0.0002 J)	ND	ND	ND	ND	
	<b>Barium</b>	0.44	0.38	0.099	0.12	1.5	1.2	0.82	0.37	0.089	0.078	
	<b>Beryllium</b>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	<b>Cadmium</b>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	<b>Chromium</b>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	<b>Cobalt</b>	ND	ND	ND	ND	ND	ND (0.000091 J)	ND	ND	ND (0.00057 J)	ND (0.00084 J)	
	<b>Fluoride</b>	2.2	1.6	ND (0.052 J)	ND (0.044 J)	ND (0.028 J)	ND (0.26 J)	ND (0.24 J)	ND (0.18 J)	ND (0.07 J)	ND (0.045 J)	
	<b>Lead</b>	ND	--	ND	--	ND	--	ND	--	ND	--	
	<b>Lithium</b>	0.050	ND (0.047 J)	ND (0.0033 J)	ND (0.0034 J)	ND (0.0097 J)	ND (0.0069 J)	ND (0.011 J)	ND (0.0052 J)	ND (0.0024 J)	ND (0.0021 J)	
	<b>Mercury</b>	ND	--	ND	--	ND	--	ND	--	ND	--	
	<b>Molybdenum<sup>+</sup></b>	ND (0.0022 J)	ND	ND	ND (0.0083 J)	ND	ND (0.0018 J)	0.013	0.028	ND (0.0038 J)	ND (0.0028 J)	
	<b>Comb. Radium 226/228</b>	1.28 U	0.662 U	0.627 U	0.205 U	1.81	1.33	0.926 U	0.479 U	1.37	0.620 U	
	<b>Selenium</b>	ND	ND	ND	ND	ND	ND (0.00012 J)	ND	ND	ND	ND	
<b>Thallium</b>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		

Notes:

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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

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(4) Well is designated a delineation monitoring well.

**Table 4**  
Evaluation of Remedial Technologies  
Plant Hammond AP-1, Floyd County, Georgia

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

**Table 4**  
Evaluation of Remedial Technologies  
Plant Hammond AP-1, Floyd County, Georgia

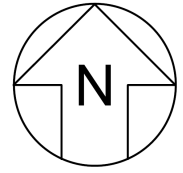
Corrective Measure	40 CFR 257.96(C)(1)	40 CFR 257.96(C)(1)	40 CFR 257.96(C)(2)
	Ease of Implementation	Potential Impacts	Time Requirement to Begin/Complete
<b>Geochemical Approaches (In-Situ Injection)</b>	Moderate. Installation of injection well network or other injection infrastructure would be required. Alternative installation approaches may be considered, such as along the downgradient edge of impacted groundwater, which would function similar to a PRB application. Potential for clogging of aquifer matrix and/or injection well infrastructure. Chemical distribution during injections (i.e., radius of influence) needs to be evaluated.	Minimal impacts are expected if remedy works as designed, based on a thorough pre-design investigation, geochemical modeling, and bench/pilot study results. Redox-altering processes have the potential to mobilize naturally-occurring constituents as an unintended consequence if not properly studied and implemented.	Installation of the injection network can be accomplished relatively quickly (1 to 2 months). However, a thorough pre-design investigation, geochemical modeling, and/or bench- and/or pilot-testing will be required to obtain design parameters prior to design and construction of the corrective measure, which may take up to 24 months. Once installed, the time required to achieve GWPS within the treatment area may be relatively quick but depends on the attenuation process kinetics of each targeted constituent. The time for complete distribution of the injected materials throughout the treatment area is also variable.
<b>Hydraulic Containment ("Pump and Treat")</b>	Moderate. Proven approach, and supplemental installation of extraction wells/trenches is fairly straightforward. The extracted groundwater may potentially require an above-ground treatment system. A variety of sorption and precipitation approaches exist for ex-situ treatment of As and Mo. Operation and maintenance (O&M) requirements are expected to include upkeep of infrastructure components (pumps, pipes, tanks, instrumentation and controls, above-ground treatment system) and handling of treatment residuals.	Moderate. The main potential impacts are related to the presence and operation of an on-site above-ground water treatment facility and related infrastructure to convey and treat extracted groundwater. Pumping activity may unintentionally alter the geochemistry within the hydraulic capture zone.	Installation of extraction wells and/or trenches can be accomplished relatively quickly (1 to 2 months). However, additional aquifer testing, system design and installation, and permit approval may be required, which may take up to 24 months. The initiation of the approach would be contingent on the start-up of the wastewater treatment infrastructure. Hydraulic containment can be achieved relatively quickly after startup of the extraction system, but uncertainty exists with respect to the time to achieve GWPS without additional data collection to better understand attenuation mechanisms for As and Mo.
<b>Monitored Natural Attenuation (MNA)</b>	Reasonably implementable with respect to infrastructure, but moderate to complex with respect to documentation. Proven approach, but additional data are needed to show that the existing attenuation capacity is sufficient to meet site objectives within a reasonable timeframe. A monitoring well network already exists to implement future groundwater monitoring efforts.	None. MNA relies on the natural processes active in the aquifer matrix to reduce constituent concentrations without disturbing the surface or the subsurface.	The infrastructure to initiate MNA is already in place. Demonstrating attenuation mechanisms and capacity can be time-consuming and can take up to 24 months. MNA is expected to be successful within a reasonable time frame following pond closure. Engineering measures will be implemented during closure of AP-1 to minimize potential impacts to the subsurface during closure activities and routine groundwater monitoring will be used to verify that groundwater impacts remain stable or decrease over time.
<b>Permeable Reactive Barrier</b>	Moderate to difficult. Trenching would be required to install a mix of reactive materials in the subsurface. Continuous trenching may be the most feasible construction method. Installation methods and materials are readily available. Once installed, treatment will be passive and O&M requirements are minimal if replacement of the PRB is not necessary.	Minimal impacts are expected following the construction of the remedy. However, ZVI has the potential to create anaerobic conditions downgradient of the PRB wall that may mobilize redox-sensitive naturally-occurring constituents. These conditions need to be carefully monitored. Short-term impacts during the construction of the remedy can be mitigated through appropriate planning and health and safety measures.	Installation of a PRB can be accomplished relatively quickly (6 to 12 months), depending on the final location and configuration. However, bench- and/or pilot-testing would be required to obtain design parameters prior to design and construction of the remedy, which may take up to 24 months. Once installed, the time to achieve GWPS downgradient of the PRB is anticipated to be relatively quick.
<b>Phytoremediation / TreeWells</b>	Reasonably implementable to moderate. Engineered approach has been proven effective, and specific depth zones can be targeted. Trees are installed as "tree wells" in a large diameter boring to get the roots deep enough to intercept impacted groundwater flow paths. Area must be clear of above and below-ground structures (i.e., power lines). The system, once established (approximately three growing seasons), is a self-maintaining, sustainable remedial system that has no external energy requirements and little maintenance (i.e., efforts normally associated with landscaping).	Minimal impacts are expected. In fact, there are several positive impacts expected, including enhanced aesthetics, wildlife habitat, and limited energy consumption.	The design phase will require some groundwater modeling for optimal placement of the TreeWell units, which may take up to 6 months. Depending on the number of required units, the installation effort is expected to last several weeks. Hydraulic capture/control is expected approximately three years after planting and system performance is expected to further improve over time.
<b>Subsurface Vertical Barrier Walls</b>	Moderate to difficult. Trenching will be required to fill in the various slurry mixes; alternatively, sheet pile installations can be accomplished without excavation of trenches. The application of barrier walls is limited by the depth of installation, which similar to PRBs, should be keyed into a low permeability layer such as a thick clay layer or bedrock. Installation methods and materials are readily available. Once installed, above-ground infrastructure to pump and treat groundwater will be required. O&M requirements are expected to include upkeep of infrastructure components (pumps, pipes, tanks, instrumentation and controls, above-ground treatment system) and handling of treatment residuals.	Minimal impacts are expected following the construction of the remedy. Short-term impacts during the construction of the remedy can be mitigated through appropriate planning and health and safety measures. Changes to groundwater flow patterns due to installation of the barrier wall are expected, which can affect other aspects of groundwater corrective action. Pumping activity may unintentionally alter the geochemistry within the hydraulic capture zone that may result in the mobilization of other constituents that may require treatment.	Installation of a barrier wall can be accomplished relatively quickly (6 to 12 months), depending on the final location and configuration. However, some design phase and additional aquifer and compatibility testing will be required, which may take up to 24 months. Once installed, preventing migration of constituents dissolved in groundwater is anticipated to be relatively quick. Since this approach does not treat the downgradient area of impacted groundwater but prevents migration from a source area, it will likely have to be maintained long-term and coupled with other approaches.

**Table 4**  
Evaluation of Remedial Technologies  
Plant Hammond AP-1, Floyd County, Georgia

Corrective Measure	40 CFR 257.96(C)(3)		Relative Costs
	Institutional Requirements	Other Env or Public Health Requirements	
Geochemical Approaches (In-Situ Injection)	Deed restrictions may be necessary until in-situ treatment has achieved GWPS. A new UIC permit (for in-situ injections) would be required to implement this corrective measure. No other institutional requirements are expected at this time.	None expected at this point. Based on downgradient sampling results near adjacent water features, there currently are no complete exposure pathways for potential receptors downgradient of AP-1. Potential for mobilization of redox-sensitive constituents exists during implementation of an anaerobic attenuation approach. Following installation, the remedy is passive.	Medium (depending on expanse of injection network required and injectate volume required per derived design parameters)
Hydraulic Containment ("Pump and Treat")	Depending on the effluent management strategy, modifications to the existing NPDES permit may be required, or obtaining a new underground injection control (UIC) permit may be needed if groundwater reinjection is chosen. In addition, deed restrictions may be required as long as groundwater conditions are above regulatory standards for unrestricted use.	Based on downgradient sampling results near adjacent water features, there currently are no complete exposure pathways for potential receptors downgradient of AP-1. Above-ground treatment components may need to be present for an extended period of time, generating residuals requiring management and disposal.	Medium to high (depending on remedy duration, complexity of above-ground treatment system, and volume of water processed)
Monitored Natural Attenuation (MNA)	MNA may require the implementation of institutional controls, such as deed restrictions, to preclude potential exposure to groundwater within the footprint of impacted groundwater until GWPS are achieved.	Little to no physical disruption to remediation areas and no adverse construction-related impacts are expected on the surrounding community. Based on downgradient sampling results near adjacent water features, there currently are no complete exposure pathways for potential receptors downgradient of AP-1.	Low to medium
Permeable Reactive Barrier	Deed restrictions may be necessary for groundwater areas upgradient of the PRB (if not installed along the waste boundary). No other institutional requirements are expected at this time.	None expected at this point. Based on downgradient sampling results near adjacent water features, there currently are no complete exposure pathways for potential receptors downgradient of AP-1. Following installation, the remedy is passive. However, certain treatment media (such as ZVI) have the potential to mobilize naturally-occurring constituents downgradient of the PRB.	Medium to high (for installation) - minimal O&M requirements if replacement is not necessary
Phytoremediation / TreeWells	Deed restrictions may be necessary for groundwater areas upgradient of the TreeWell system. No other institutional requirements are expected at this time.	None expected at this point. Based on downgradient sampling results near adjacent water features, there currently are no complete exposure pathways for potential receptors downgradient of AP-1. Following installation, the remedy is passive and does not require external energy.	Medium (for installation) - minimal O&M requirements
Subsurface Vertical Barrier Walls	Deed restrictions may be necessary for groundwater areas downgradient of the barrier wall until remedial goals are met. No other institutional requirements are expected at this time.	Based on downgradient sampling results near adjacent water features, there currently are no complete exposure pathways for potential receptors downgradient of AP-1. Due to the need for groundwater extraction associated with barrier walls, above-ground treatment components may need to be present for an extended period of time, generating residuals requiring management and disposal.	Medium to high (depending on length and depth of wall, remedy duration and complexity of above-ground treatment system)

# FIGURES





**SITE LOCATION MAP**

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

Prepared For:  Georgia Power

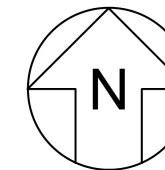
Prepared By:  Geosyntec  
consultants




KENNESAW, GA

MAY 2019

**FIGURE  
1**





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



**MONITORING WELL NETWORK MAP**

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

Prepared For:  Georgia Power

Prepared By:  Geosyntec  
consultants

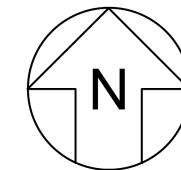
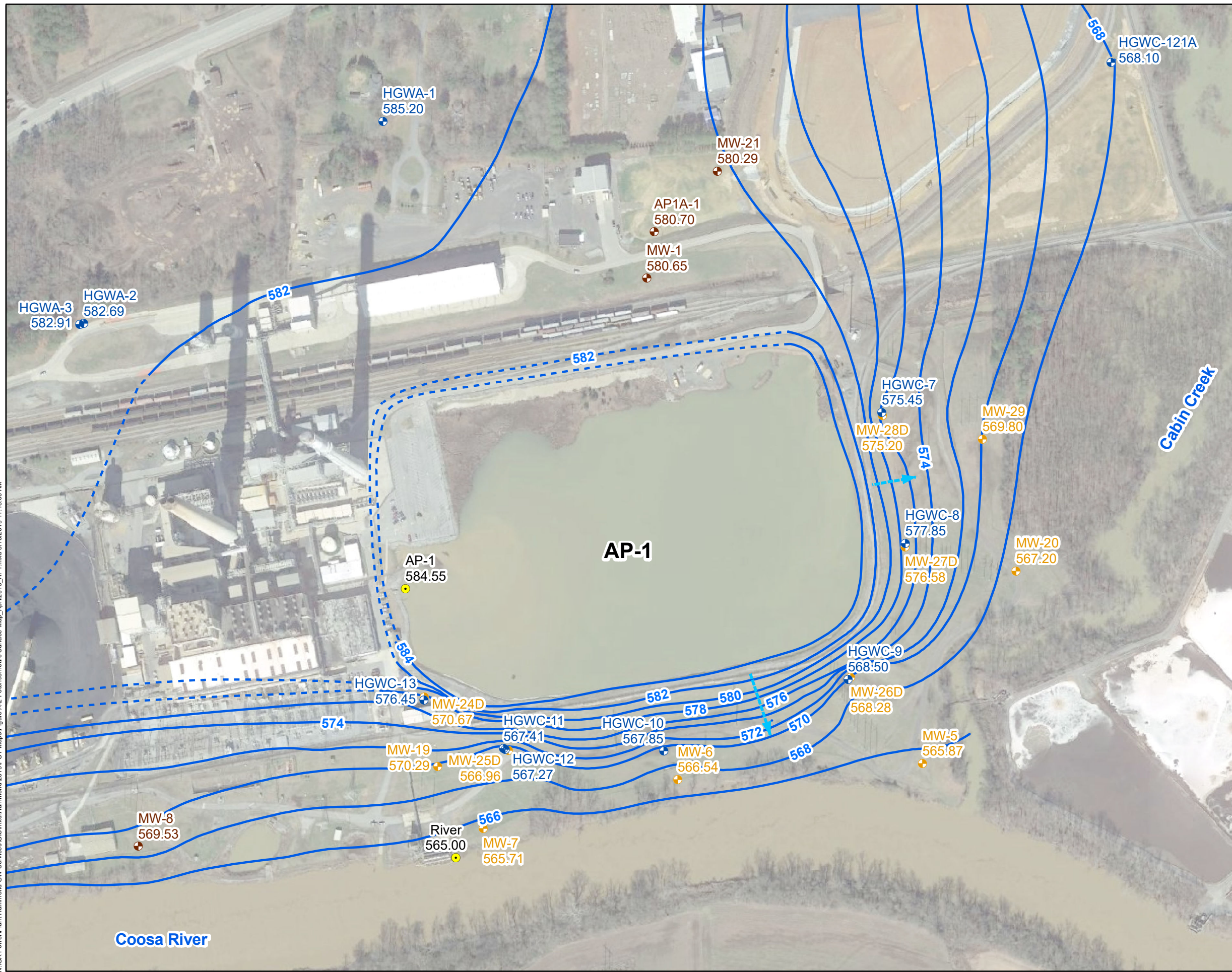
KENNESAW, GA

MAY 2019

**FIGURE**  
**2**



N:\GA Power\Plant Hammond\GIS\mxd\Hammond\2019\DOT Maps\Figure A-2 Potentiometric Surface Map\_April2019.apr12019\_11:18:00 AM



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



Note:  
 1. Water level elevation recorded on April 1, 2019. Elevation provided in feet above mean sea level (ft AMSL) in North American Vertical Datum (NAVD) 88.



**POTENTIOMETRIC SURFACE CONTOUR  
 MAP - APRIL 2019**

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

Prepared For: Georgia Power

Prepared By: Geosyntec  
 consultants

**FIGURE  
 3**

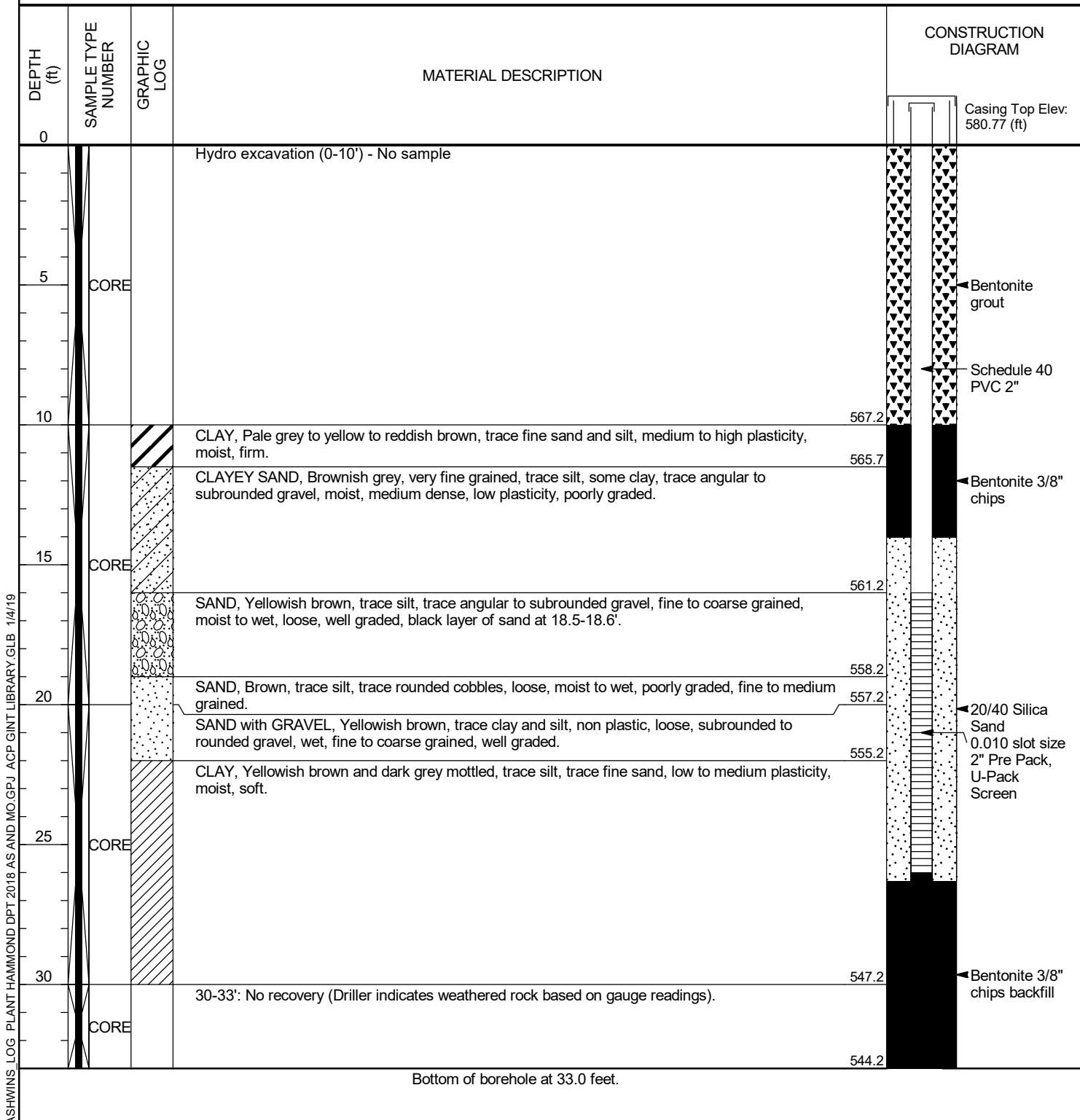
KENNESAW, GA      MAY 2019



## APPENDIX A

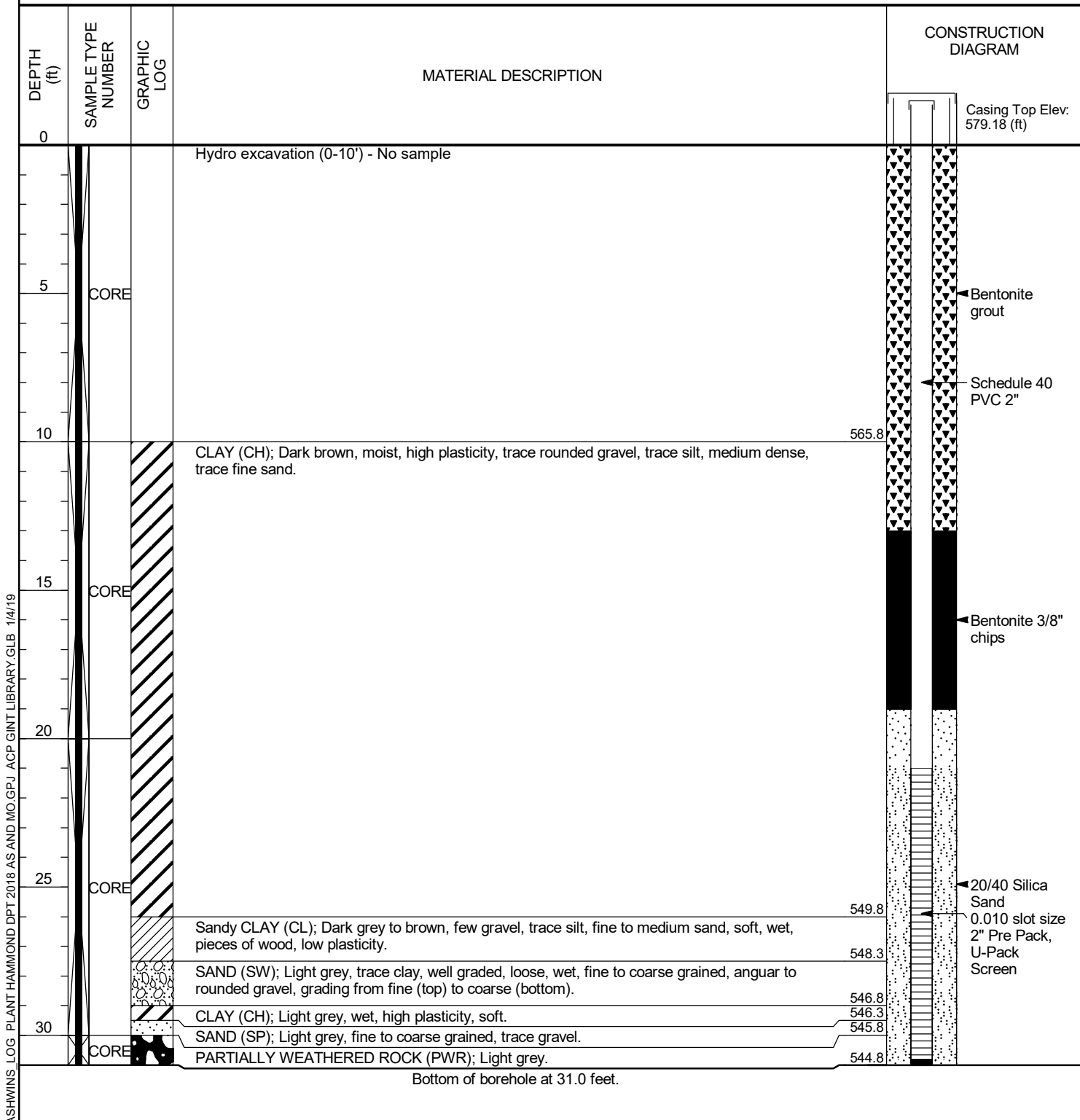
### Boring and Well Construction Logs

<b>CLIENT</b> Southern Company Services	<b>PROJECT NAME</b> Plant Hammond Well Installation
<b>PROJECT NUMBER</b> GW6581B	<b>PROJECT LOCATION</b> Plant Hammond
<b>DATE STARTED</b> 9/26/18 <b>COMPLETED</b> 9/26/18	<b>NORTHING</b> 1548421.73 ft <b>EASTING</b> 1940943.35 ft
<b>DRILLER</b> Cascade Drilling	<b>GROUND ELEVATION</b> 577.21 ft <b>BORING DIAMETER</b> 6 in
<b>DRILLING METHOD</b> Sonic	<b>TOP OF CASING ELEVATION</b> 580.77 ft
<b>SAMPLING METHOD</b> 4" core 6" override	<b>GEOPHYSICAL CONTRACTOR</b> ---
<b>RIG TYPE</b> Terrasonic 11-450666	<b>LOGGED BY</b> N.Tilahun <b>CHECKED BY</b> J. Ivanowski

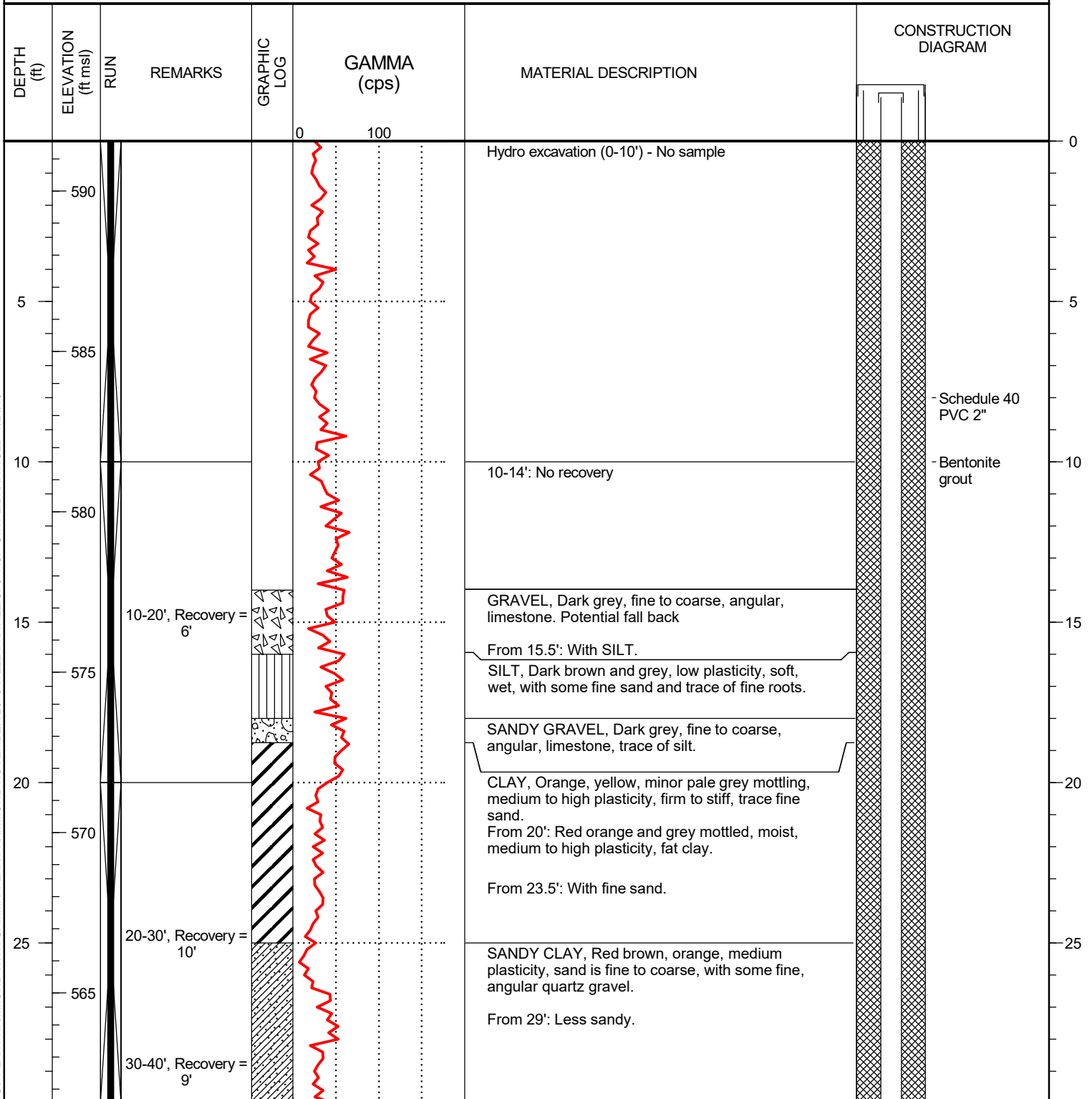


ASHWINS LOG PLANT HAMMOND DPT 2018 AS AND MO.GPJ ACP GINT LIBRARY.GLB 1/4/19

<b>CLIENT</b> Southern Company Services	<b>PROJECT NAME</b> Plant Hammond Well Installation
<b>PROJECT NUMBER</b> GW6581B	<b>PROJECT LOCATION</b> Plant Hammond
<b>DATE STARTED</b> 9/27/18 <b>COMPLETED</b> 9/27/18	<b>NORTHING</b> 1549029.01 ft <b>EASTING</b> 1942735.47 ft
<b>DRILLER</b> Cascade Drilling	<b>GROUND ELEVATION</b> 575.82 ft <b>BORING DIAMETER</b> 6 in
<b>DRILLING METHOD</b> Sonic	<b>TOP OF CASING ELEVATION</b> 579.18 ft
<b>SAMPLING METHOD</b> 4" core 6" override	<b>GEOPHYSICAL CONTRACTOR</b> ---
<b>RIG TYPE</b> Terrasonic 11-45066	<b>LOGGED BY</b> N.Tilahun <b>CHECKED BY</b> J. Ivanowski



<b>CLIENT</b> <u>Southern Company Services</u>	<b>PROJECT NAME</b> <u>Plant Hammond Well Installation</u>
<b>PROJECT NUMBER</b> <u>GW6581B</u>	<b>PROJECT LOCATION</b> <u>Plant Hammond</u>
<b>DATE STARTED</b> <u>11/7/18</u> <b>COMPLETED</b> <u>11/7/18</u>	<b>NORTHING</b> <u>1548637.48 ft</u> <b>EASTING</b> <u>1940900.52 ft</u>
<b>DRILLER</b> <u>Cascade Drilling</u>	<b>GROUND ELEVATION</b> <u>591.56 ft</u> <b>BORING DIAMETER</b> <u>6 in</u>
<b>DRILLING METHOD</b> <u>Sonic</u>	<b>TOP OF CASING ELEVATION</b> <u>594.67 ft</u>
<b>SAMPLING METHOD</b> <u>4" core 6" override</u>	<b>GEOPHYSICAL CONTRACTOR</b> <u>Geosyntec Consultants</u>
<b>RIG TYPE</b> <u>Geoprobe 8140LC</u>	<b>LOGGED BY</b> <u>C. Hug</u> <b>CHECKED BY</b> <u>J. Ivanowski</u>



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

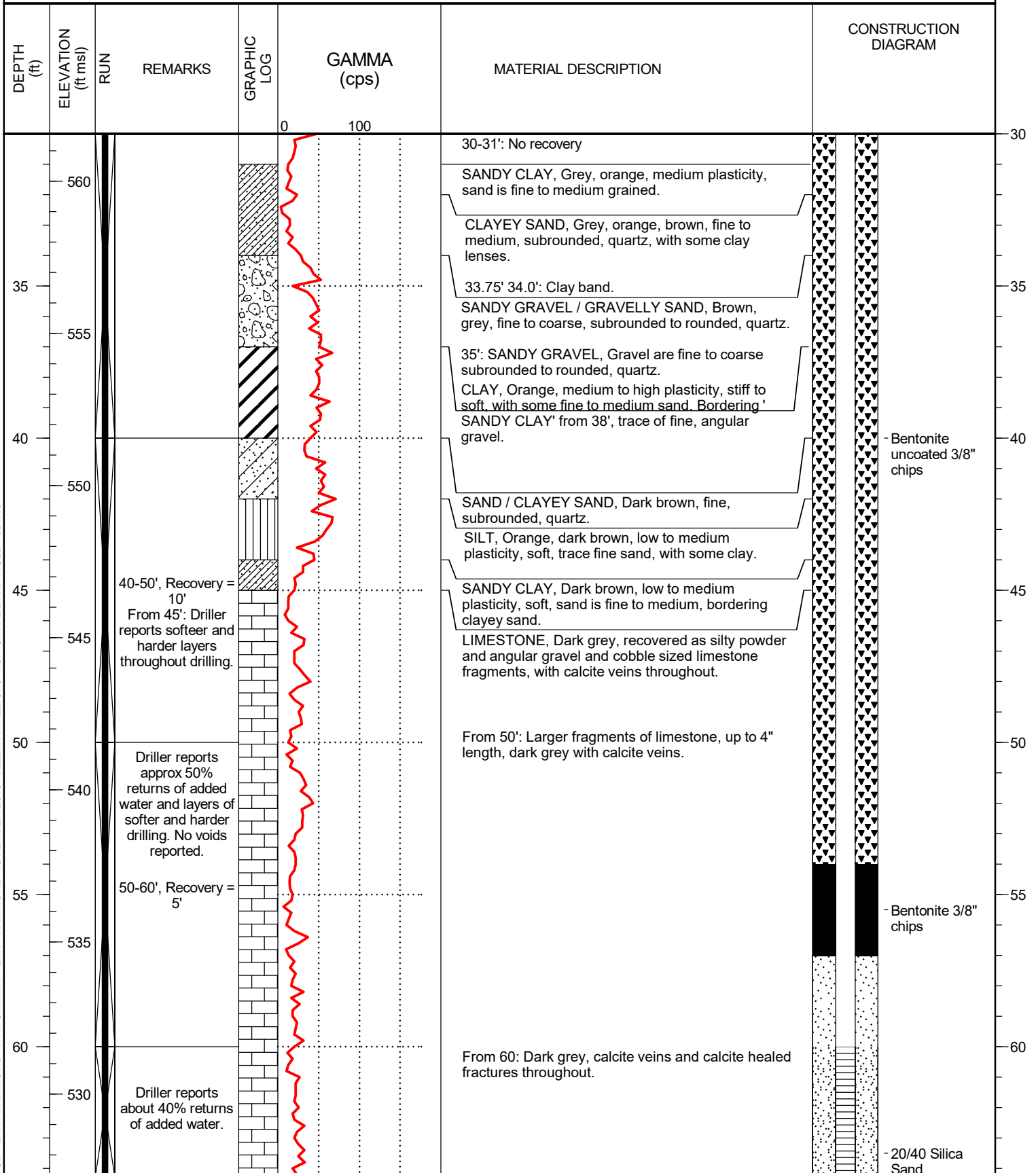
(Continued Next Page)

CLIENT Southern Company Services

PROJECT NAME Plant Hammond Well Installation

PROJECT NUMBER GW6581B

PROJECT LOCATION Plant Hammond



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

(Continued Next Page)

CLIENT Southern Company Services

PROJECT NAME Plant Hammond Well Installation

PROJECT NUMBER GW6581B

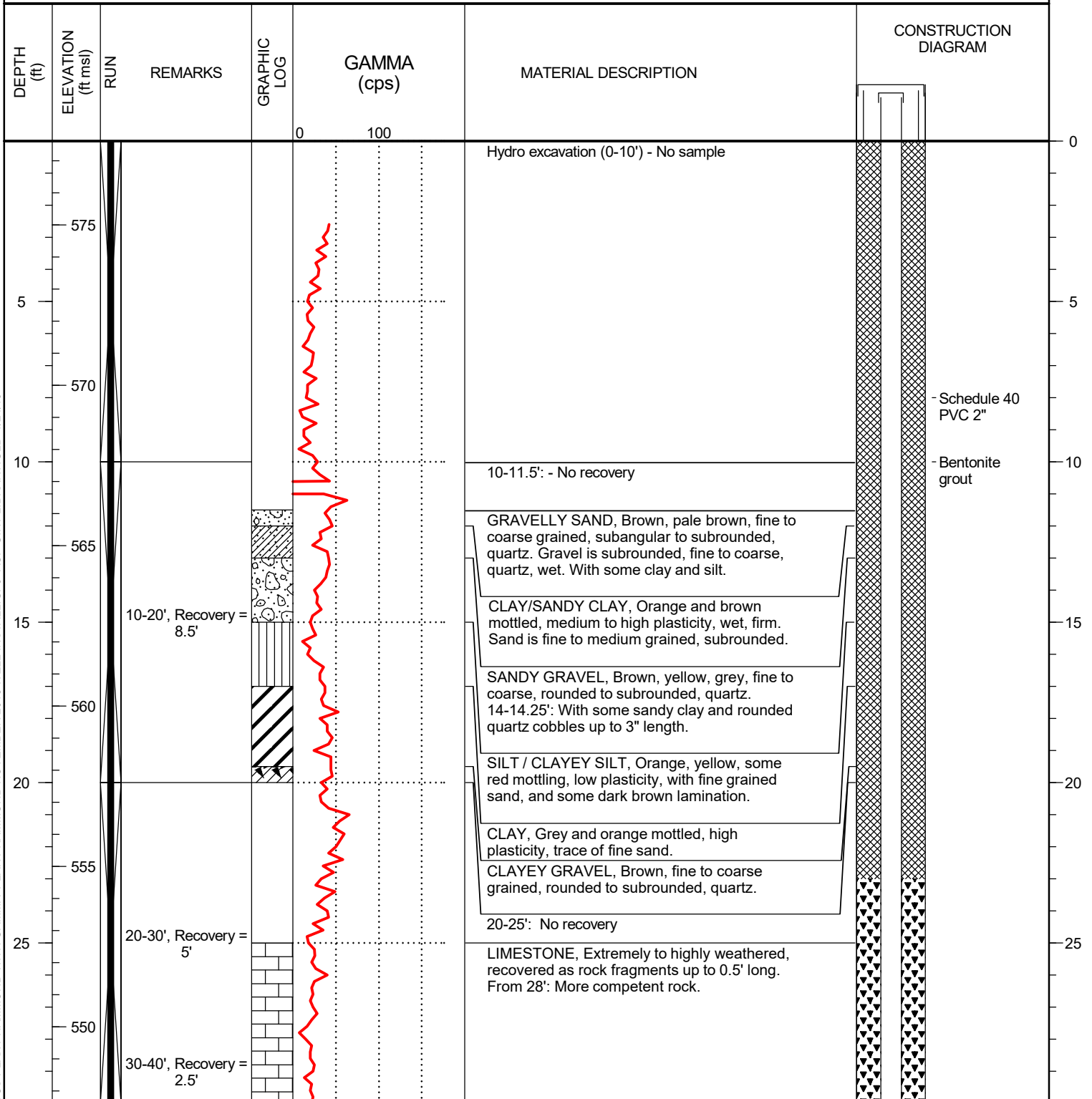
PROJECT LOCATION Plant Hammond

DEPTH (ft)	ELEVATION (ft msl)	RUN	REMARKS	GRAPHIC LOG	GAMMA (cps)	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM	
65	525		60-70', Recovery = 6'		0 100	LIMESTONE, Dark grey, recovered as silty powder and angular gravel and cobble sized limestone fragments, with calcite veins throughout. (continued)		
70	520		Bottom of borehole at 70.0 feet.					
75	515							
80	510							
85	505							
90	500							
95	495							

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



<b>CLIENT</b> Southern Company Services	<b>PROJECT NAME</b> Plant Hammond Well Installation
<b>PROJECT NUMBER</b> GW6581B	<b>PROJECT LOCATION</b> Plant Hammond
<b>DATE STARTED</b> 11/6/18	<b>COMPLETED</b> 11/6/18
<b>DRILLER</b> Cascade Drilling	<b>NORTHING</b> 1548471.8 ft
<b>DRILLING METHOD</b> Sonic	<b>EASTING</b> 1941161.62 ft
<b>SAMPLING METHOD</b> 4" core 6" override	<b>GROUND ELEVATION</b> 577.61 ft
<b>RIG TYPE</b> Geoprobe 8140LC	<b>BORING DIAMETER</b> 6 in
	<b>TOP OF CASING ELEVATION</b> 580.64 ft
	<b>GEOPHYSICAL CONTRACTOR</b> Geosyntec Consultants
	<b>LOGGED BY</b> C. Hug
	<b>CHECKED BY</b> J. Ivanowski



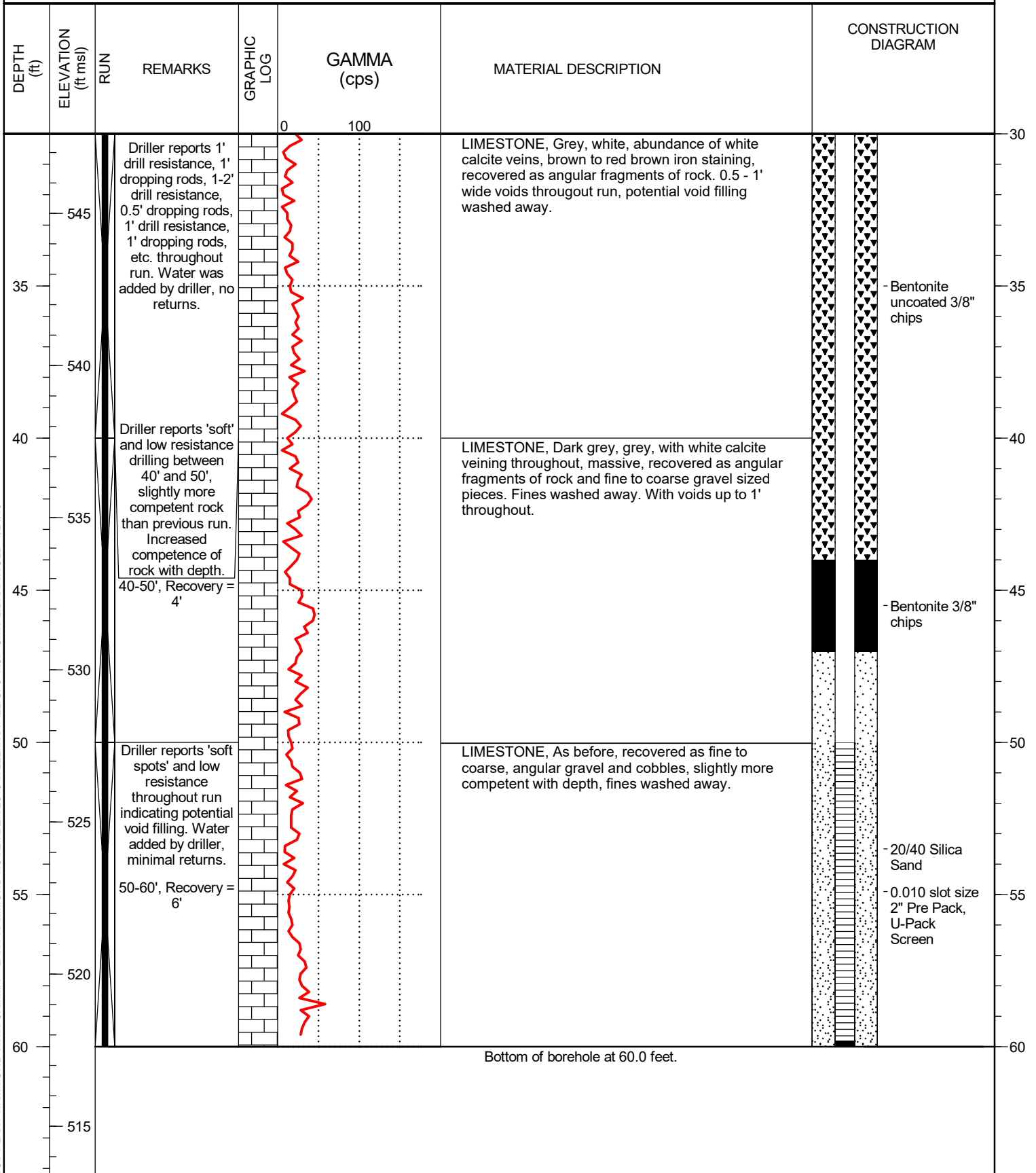
SCS PLANT HAMMOND WITH GAMMA PLANT HAMMOND NOVEMBER 2018 WELL INSTALL.GPJ ACP GINT LIBRARY.GLB 1/24/19

CLIENT Southern Company Services

PROJECT NAME Plant Hammond Well Installation

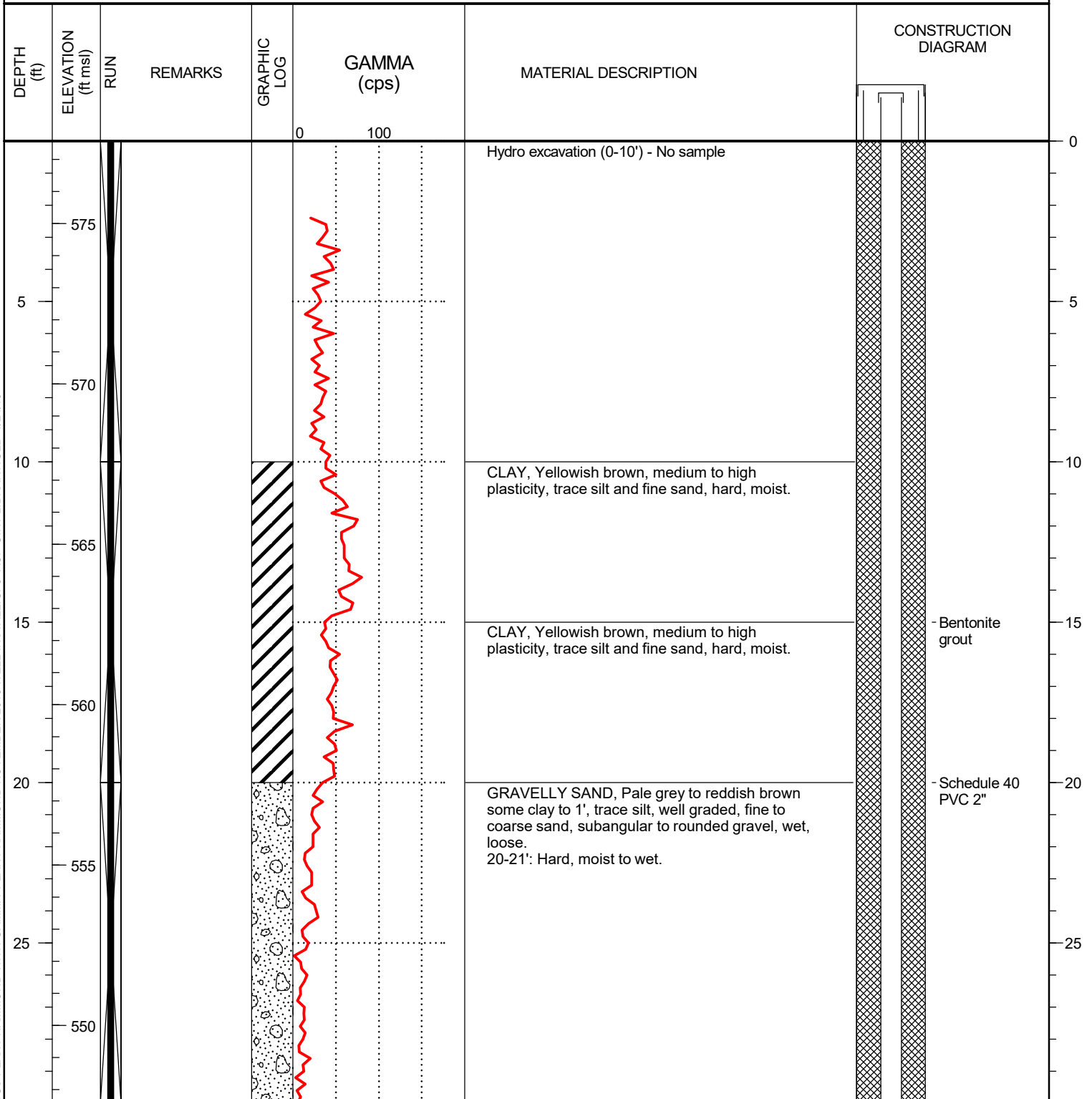
PROJECT NUMBER GW6581B

PROJECT LOCATION Plant Hammond



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

<b>CLIENT</b> <u>Southern Company Services</u>	<b>PROJECT NAME</b> <u>Plant Hammond Well Installation</u>
<b>PROJECT NUMBER</b> <u>GW6581B</u>	<b>PROJECT LOCATION</b> <u>Plant Hammond</u>
<b>DATE STARTED</b> <u>11/14/18</u> <b>COMPLETED</b> <u>11/14/17</u>	<b>NORTHING</b> <u>1548699.09 ft</u> <b>EASTING</b> <u>1942223.22 ft</u>
<b>DRILLER</b> <u>Cascade Drilling</u>	<b>GROUND ELEVATION</b> <u>577.57 ft</u> <b>BORING DIAMETER</b> <u>6 in</u>
<b>DRILLING METHOD</b> <u>Sonic</u>	<b>TOP OF CASING ELEVATION</b> <u>580.48 ft</u>
<b>SAMPLING METHOD</b> <u>4" core 6" override</u>	<b>GEOPHYSICAL CONTRACTOR</b> <u>Geosyntec Consultants</u>
<b>RIG TYPE</b> <u>Geoprobe 8140LC</u>	<b>LOGGED BY</b> <u>N.Tilahun</u> <b>CHECKED BY</b> <u>J. Ivanowski</u>



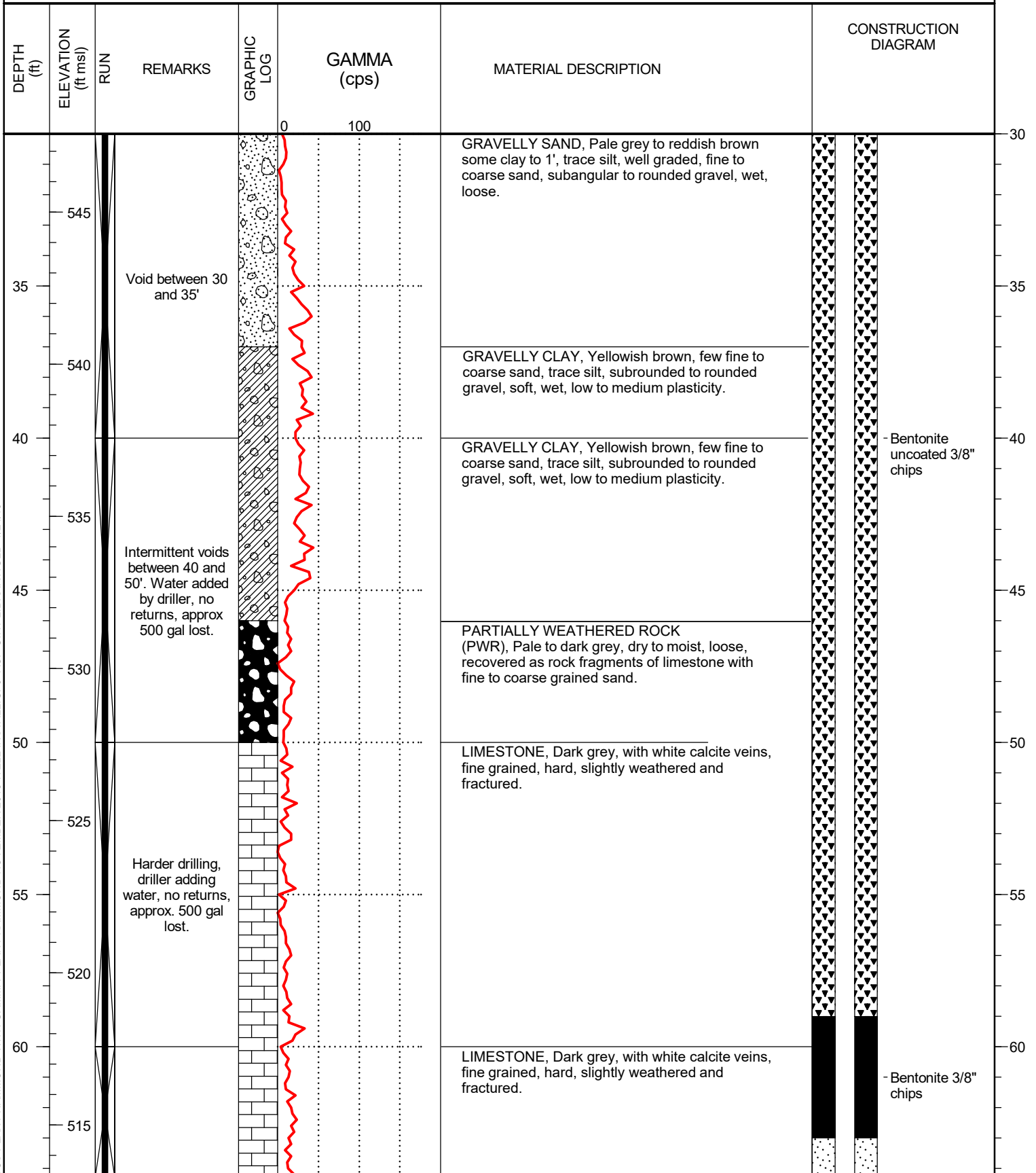
SCS PLANT HAMMOND WITH GAMMA PLANT HAMMOND NOVEMBER 2018 WELL INSTALL.GPJ ACP GINT LIBRARY.GLB 1/24/19

CLIENT Southern Company Services

PROJECT NAME Plant Hammond Well Installation

PROJECT NUMBER GW6581B

PROJECT LOCATION Plant Hammond



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

(Continued Next Page)

CLIENT Southern Company Services

PROJECT NAME Plant Hammond Well Installation

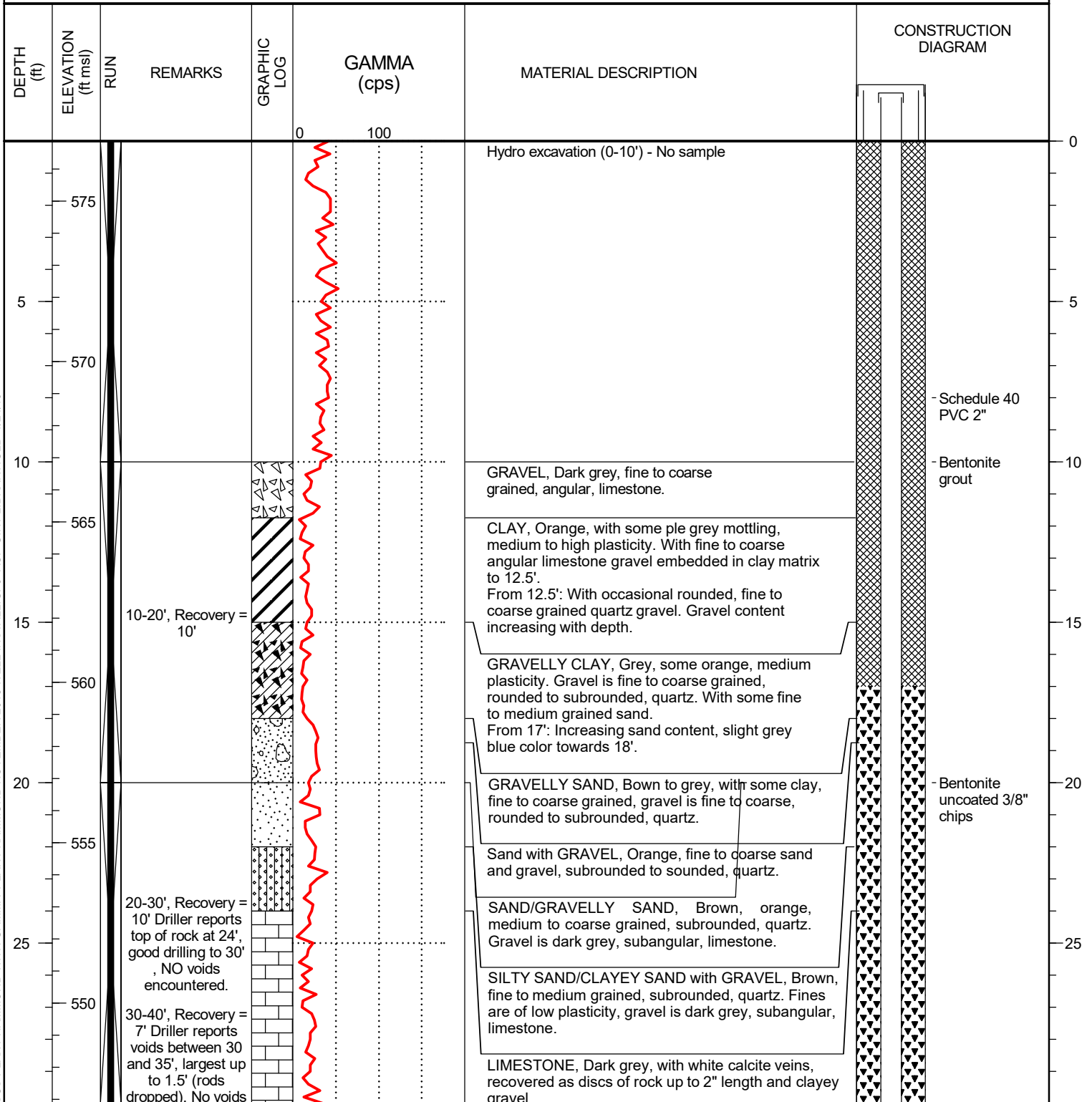
PROJECT NUMBER GW6581B

PROJECT LOCATION Plant Hammond

DEPTH (ft)	ELEVATION (ft msl)	RUN	REMARKS	GRAPHIC LOG	GAMMA (cps)	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM	
65			Hard drilling.		0 100	LIMESTONE, Dark grey, with white calcite veins, fine grained, hard, slightly weathered and fractured. <i>(continued)</i>		
510								
70						LIMESTONE, Dark grey, with white calcite veins, fine grained, hard, slightly weathered and fractured.		
505								
75			Bottom of borehole at 75.0 feet.					
500								
80								
495								
85								
490								
90								
485								
95								
480								

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

<b>CLIENT</b> Southern Company Services	<b>PROJECT NAME</b> Plant Hammond Well Installation
<b>PROJECT NUMBER</b> GW6581B	<b>PROJECT LOCATION</b> Plant Hammond
<b>DATE STARTED</b> 11/8/18 <b>COMPLETED</b> 11/8/18	<b>NORTHING</b> 1549103.69 ft <b>EASTING</b> 1942391.99 ft
<b>DRILLER</b> Cascade Drilling	<b>GROUND ELEVATION</b> 576.87 ft <b>BORING DIAMETER</b> 6 in
<b>DRILLING METHOD</b> Sonic	<b>TOP OF CASING ELEVATION</b> 579.74 ft
<b>SAMPLING METHOD</b> 4" core 6" override	<b>GEOPHYSICAL CONTRACTOR</b> Geosyntec Consultants
<b>RIG TYPE</b> Geoprobe 8140LC	<b>LOGGED BY</b> C. Hug <b>CHECKED BY</b> J. Ivanowski



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

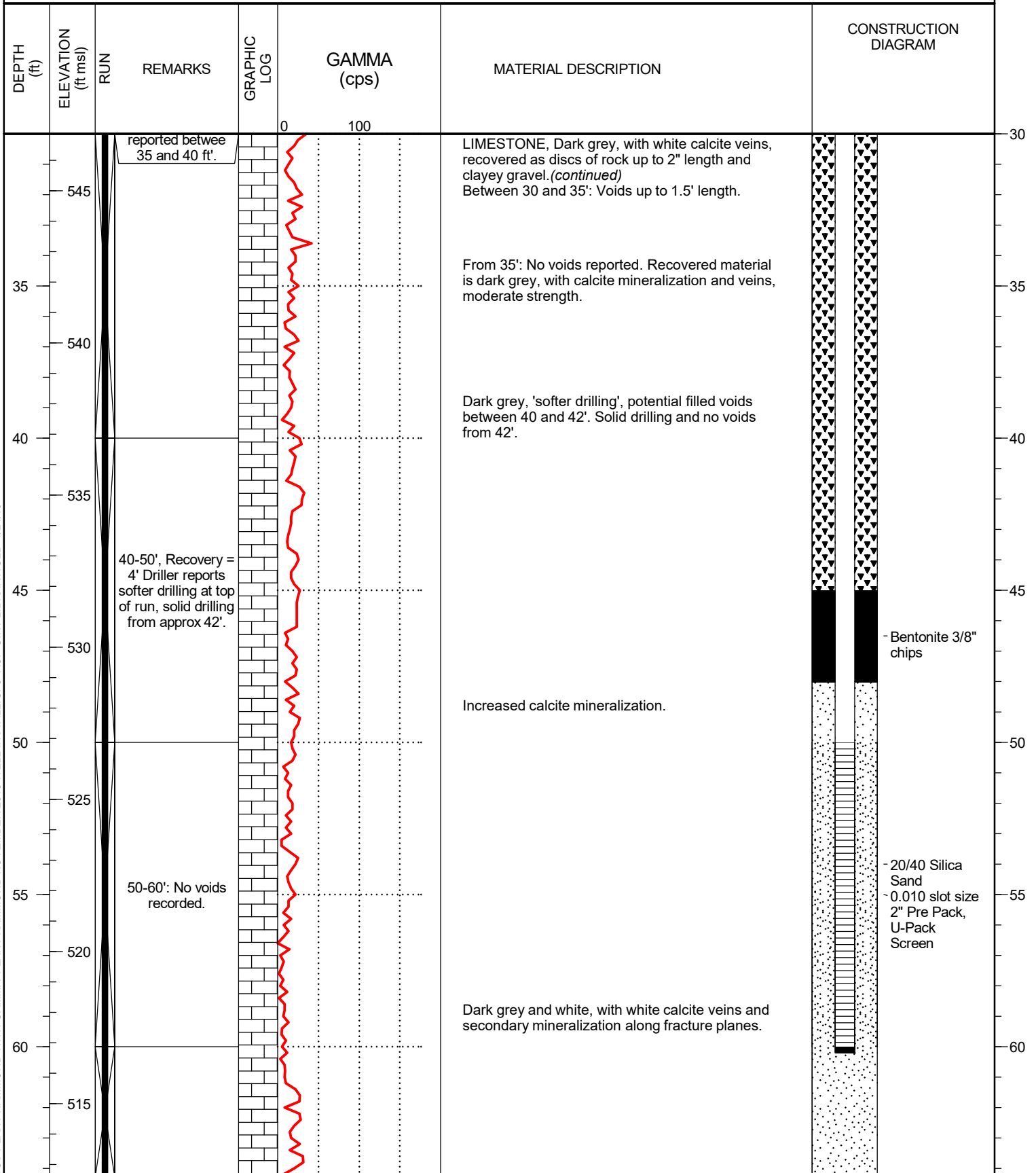
(Continued Next Page)

CLIENT Southern Company Services

PROJECT NAME Plant Hammond Well Installation

PROJECT NUMBER GW6581B

PROJECT LOCATION Plant Hammond



(Continued Next Page)



CLIENT Southern Company Services

PROJECT NAME Plant Hammond Well Installation

PROJECT NUMBER GW6581B

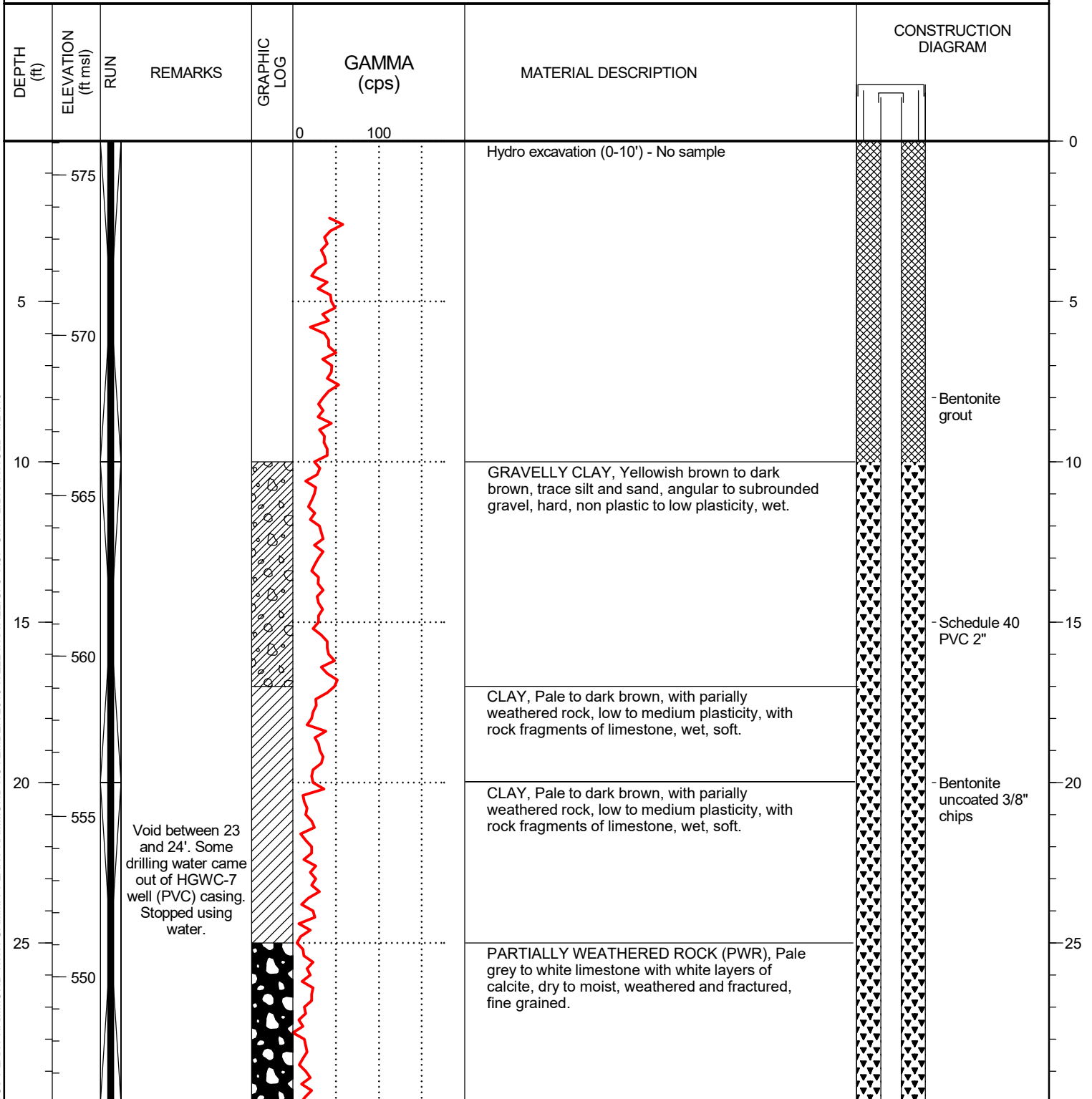
PROJECT LOCATION Plant Hammond

DEPTH (ft)	ELEVATION (ft msl)	RUN	REMARKS	GRAPHIC LOG	GAMMA (cps)	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM	
65			60-70', Recovery = 7' No voids reported.		0 100	LIMESTONE, Dark grey, with white calcite veins, recovered as discs of rock up to 2" length and clayey gravel. (continued)		
70			Bottom of borehole at 70.0 feet.					
510								
75								
80								
85								
90								
95								

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



**CLIENT** Southern Company Services **PROJECT NAME** Plant Hammond Well Installation  
**PROJECT NUMBER** GW6581B **PROJECT LOCATION** Plant Hammond  
**DATE STARTED** 11/13/18 **COMPLETED** 11/13/18 **NORTHING** 1549511.13 ft **EASTING** 1942322.32 ft  
**DRILLER** Cascade Drilling **GROUND ELEVATION** 576.06 ft **BORING DIAMETER** 6 in  
**DRILLING METHOD** Sonic **TOP OF CASING ELEVATION** 579.2 ft  
**SAMPLING METHOD** 4" core 6" override **GEOPHYSICAL CONTRACTOR** Geosyntec Consultants  
**RIG TYPE** Geoprobe 8140LC **LOGGED BY** N.Tilahun **CHECKED BY** J. Ivanowski



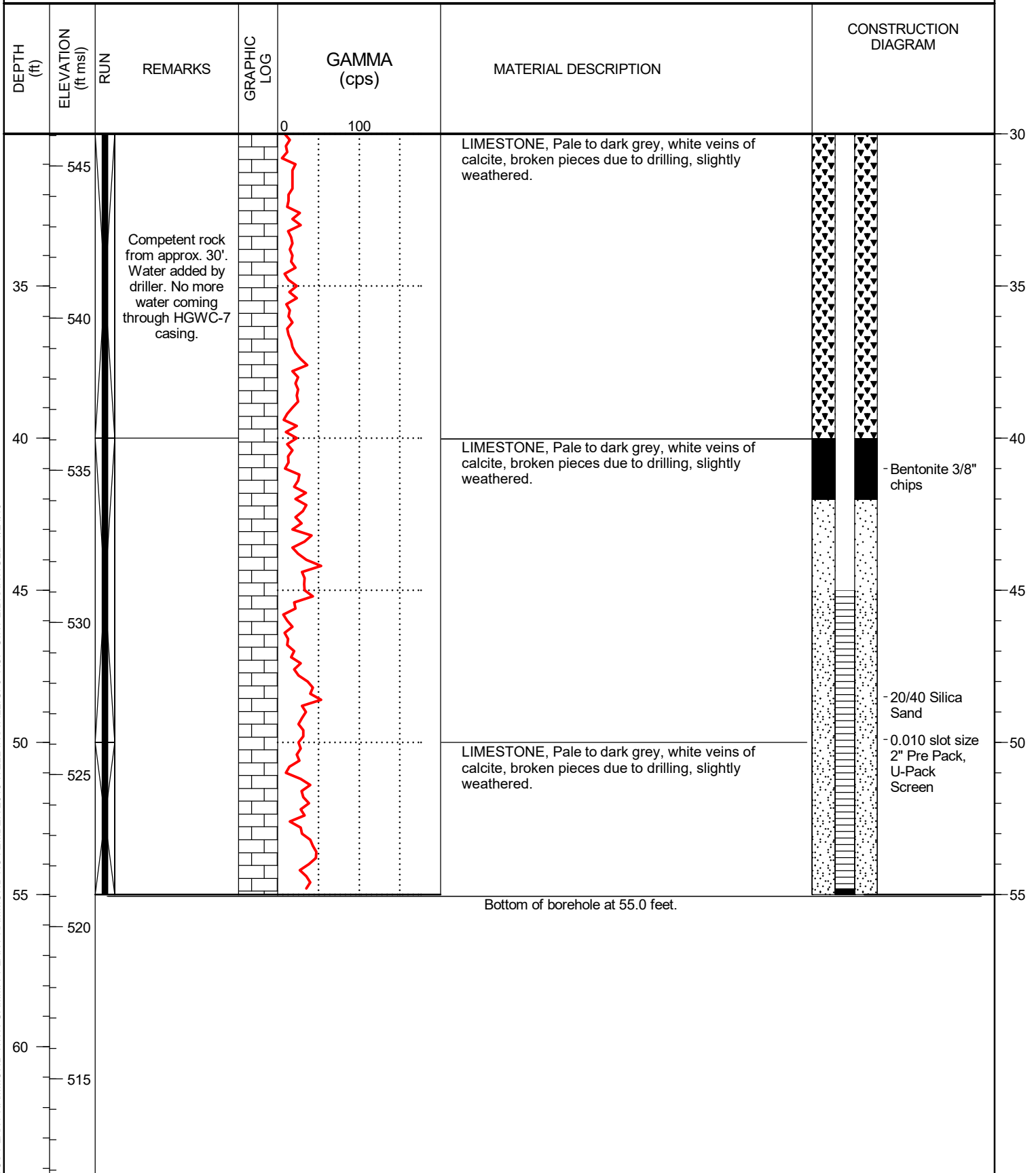
SCS PLANT HAMMOND WITH GAMMA PLANT HAMMOND NOVEMBER 2018 WELL INSTALL.GPJ ACP GINT LIBRARY.GLB 1/24/19

CLIENT Southern Company Services

PROJECT NAME Plant Hammond Well Installation

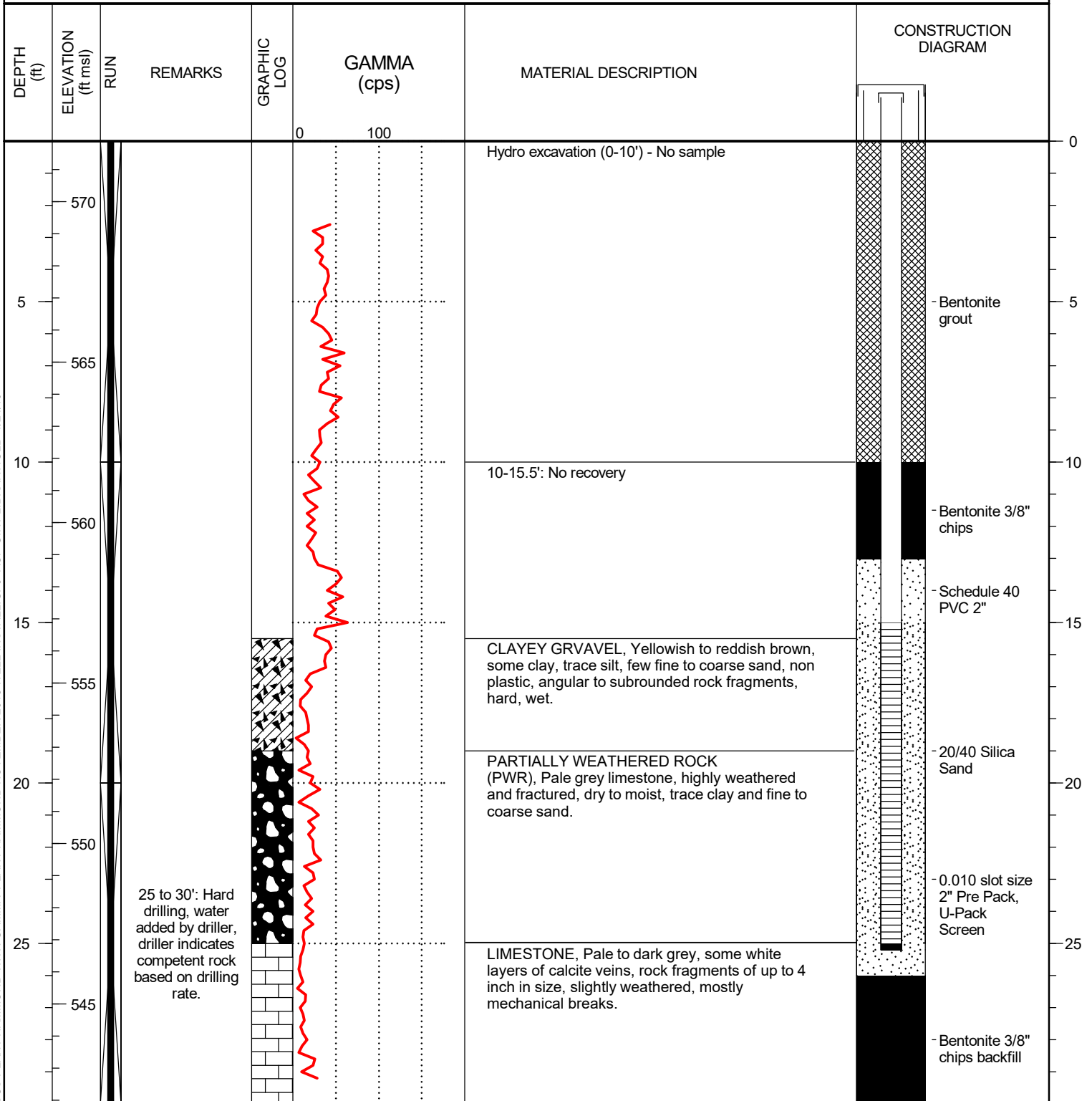
PROJECT NUMBER GW6581B

PROJECT LOCATION Plant Hammond



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

<b>CLIENT</b> Southern Company Services	<b>PROJECT NAME</b> Plant Hammond Well Installation
<b>PROJECT NUMBER</b> GW6581B	<b>PROJECT LOCATION</b> Plant Hammond
<b>DATE STARTED</b> 11/13/18 <b>COMPLETED</b> 11/13/18	<b>NORTHING</b> 1549437.24 ft <b>EASTING</b> 1942632.41 ft
<b>DRILLER</b> Cascade Drilling	<b>GROUND ELEVATION</b> 571.89 ft <b>BORING DIAMETER</b> 6 in
<b>DRILLING METHOD</b> Sonic	<b>TOP OF CASING ELEVATION</b> 575 ft
<b>SAMPLING METHOD</b> 4" core 6" overide	<b>GEOPHYSICAL CONTRACTOR</b> Geosyntec Consultants
<b>RIG TYPE</b> Geoprobe 8140LC	<b>LOGGED BY</b> N.Tilahun <b>CHECKED BY</b> J. Ivanowski



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

Bottom of borehole at 30.0 feet.

## APPENDIX B

### Laboratory Analytical Reports

Full Appendix IV  
Scan Sampling Event  
March 2019

March 20, 2019

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

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

Dear Joju Abraham:

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

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

Sincerely,



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

Enclosures

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



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond  
Pace Project No.: 2616036

---

### Atlanta Certification IDs

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

North Carolina Certification #: 381  
South Carolina Certification #: 98011001  
Virginia Certification #: 460204

---

## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616036

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

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616036

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616036

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616036

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616036

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616036

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616036

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

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616036

QC Batch: 24380 Analysis Method: EPA 7470A  
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury  
Associated Lab Samples: 2616036001, 2616036002, 2616036003, 2616036004, 2616036005

METHOD BLANK: 109357 Matrix: Water  
Associated Lab Samples: 2616036001, 2616036002, 2616036003, 2616036004, 2616036005

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

LABORATORY CONTROL SAMPLE: 109358

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 109378 109379

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

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2616036

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

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

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

LABORATORY CONTROL SAMPLE: 108897

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 108898 108899

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

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616036

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

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2616036

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

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

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

LABORATORY CONTROL SAMPLE: 109375

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 109376 109377

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

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616036

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

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2616036

QC Batch: 24402 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 2616036001, 2616036002, 2616036003, 2616036004, 2616036005

METHOD BLANK: 109496 Matrix: Water  
Associated Lab Samples: 2616036001, 2616036002, 2616036003, 2616036004, 2616036005

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

LABORATORY CONTROL SAMPLE: 109497

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 109498 109499

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

MATRIX SPIKE SAMPLE: 109500

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

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616036

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

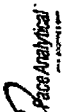
Pace Project No.: 2616036

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

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# CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 3

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

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

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

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

**NO# : 2616036**

**2616036**

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

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

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

DATE Signed: 3/12/19



# CHAIN-OF-CUSTODY / Analytical Request Document

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

2 of 3

Page: 1 of 3  
1/13/19

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

**Section B** Report To: John Abraham / Lauren Petty  
 Copy To: Geosyntec  
 Project Name: Plant Hammond  
 Project #: Standard TAT

**Section C** Invoice Information:  
 Attention: SCSinvoices@southermico.com  
 Company Name: SCS  
 Address: 327.4 (AP) or 328.5 (Hurl)  
 Pace Order #: SCS 0548606  
 Pace Project Manager: belisy.medanial@pacelabs.com  
 Pace Profile #: 327.4 (AP) or 328.5 (Hurl)

Regulatory Agency: GA  
 State/Location: GA

ITEM #	MATRIX	MATRIX CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES		ANALYSES TEST	Requested Analysis/Filteract (Y/N)	Residual Chlorine (Y/N)
			START DATE	END DATE				UNPRESERVED	H2SO4			
1	Drinking Water	DW	03/12/19 10:29 AM	03/12/19 10:45 AM	G	41	3	Unpreserved		Y	Y	N
2	Water	WT										
3	Waste Water	WW										
4	Product	P										
5	Solid	SL										
6	Oil	OL										
7	Wipe	WP										
8	Air	AR										
9	Other	OT										
10	Tissue	TS										

**NO# : 2616036**  
 PH: 811 Due Date: 03/20/19  
 CLIENT: GAPower-CCR

REQUISITIONED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Grant Walker / Geosyntec	03/12/19	1950	Media Malcom	3/12/19	1950	2.5 4 4 4
Media Malcom	3/12/19	2205	Grant Walker	3/12/19	2205	
Geosyntec	3/13/19	943	Grant Walker	3/13/19	0943	

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

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

# CHAIN-OF-CUSTODY / Analytical Request Document

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

3 of 3

Page: 1 of 3

<b>Section A</b>		<b>Section B</b>		<b>Section C</b>	
<b>Required Client Information:</b>		<b>Required Project Information:</b>		<b>Invoice Information:</b>	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Johu Abraham / Lauren Peby	Attention:	scsinvoices@southemco.com
Address:	2480 Marner Road Atlanta, GA 30339	Copy To:	Geosyntec	Company Name:	
Email:	labraham@southemco.com	Purchase Order #:	SCS10348606	Address:	
Phone:	(404)506-7239	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@paceciabs.com
Requested Due Date:	5/1/2019	Project #:		Pace Profile #:	327.4 (API) or 328.5 (Hum)
Regulatory Agency:		Regulatory Agency:		State/Location:	
				GA	

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	PRESERVATIVES		ANALYSES TEST	Fluoride by 300.0	Radium 226/228	Metals (As, B, Co, Mo) Substrate by 300.0	Residual Chlorine (Y/N)
			START DATE TIME	END DATE TIME				H2SO4	Unpreserved					
1	Drinking Water	DW	3/12/19 10:00	3/12/19 10:00	W16		4			Y	Y	Y	Y	
2	Waste Water	WW	3/12/19 19:15	3/12/19 19:15	W16		4			Y	Y	Y	Y	
3	Waste Water	WW	3/12/19 19:50	3/12/19 19:50	W16		4			Y	Y	Y	Y	
4	Product	P												
5	Soil/Solid	SL												
6	Oil	OL												
7	Wipe	WP												
8	Air	AR												
9	Other	OT												
10	Tissue	TS												

**NON: 2616036**

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

REQUISITIONED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP IN C	Received on	Ice (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)
Media Marston	3/12/19	1930	Media Marston	3/12/19	1950						
LeBB Coors/Geosyntec	3/13/19	943	Pass	3/13/19	0944	2.5					
SAMPLER NAME AND SIGNATURE		Beyann UGHA-TICKHE		DATE SIGNED: 03/16/19							
SIGNATURE OF SAMPLER:		Beyann		DATE SIGNED: 03/16/19							



Sample Condition Upon Receipt

Client Name: GIA Power

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

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

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

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

Thermometer Used 83 Type of Ice:  Wet  Blue  None

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

**WO#: 2616036**

PM: BM Due Date: 03/20/19

CLIENT: GAPower-CCR

Samples on ice, cooling process has begun

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

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

**Client Notification/ Resolution:** \_\_\_\_\_

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

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Field Data Required? Y / N

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

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

March 29, 2019

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

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

Dear Joju Abraham:

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

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

Sincerely,



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

Enclosures

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



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616037

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### Pennsylvania Certification IDs

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

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616037

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

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616037

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616037

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

PWS:      Site ID:      Sample Type:

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

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616037

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

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

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616037

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

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616037

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

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616037

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

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616037

QC Batch: 334698 Analysis Method: EPA 9315

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

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

METHOD BLANK: 1628718 Matrix: Water

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

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

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

### REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL - RADIOCHEMISTRY**

Project: Plant Hammond

Pace Project No.: 2616037

QC Batch: 334688

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

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

METHOD BLANK: 1628693

Matrix: Water

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

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

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

**REPORT OF LABORATORY ANALYSIS**

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616037

---

### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616037

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

### REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY / Analytical Request Document

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Page: 1 of 3

<b>Section A</b>		<b>Section B</b>		<b>Section C</b>	
<b>Required Client Information:</b>		<b>Required Project Information:</b>		<b>Invoice Information:</b>	
Company: Georgia Power - Coal Combustion Residuals	Report To: Joju Abraham / Lauren Petty	Attention: SCSinvoices@southernco.com	Company Name:	SCS Invoices	
Address: 2480 Maner Road	Copy To: Geosyntec	Purchase Order #: SCS10948606	Address:	Paco Project Manager: betsy.mcdonnet@pocoelabs.com	
Atlanta, GA 30339		Project Name: Plant Hammond	Paco Profile #: 327.4 (AP) or 328.5 (Hudf)	States / Location: GA	
Mail: jabraham@southernco.com		Project #:		Regulatory Agency:	
Phone: (404) 506-7239					
Requested Due Date: <b>Standard</b>					

ITEM #	MATRIX	CODE	COLLECTED		DATE	TIME	SAMPLER TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Analytes Test	App. IV Metals	Fluoride by 300.0	Radium 226/228	Metals (As, B, Co, Mo)	Sulfate by 300.0	Residual Chlorine (Y/N)	Requested Analysis Filled (Y/N)	State / Location
			START DATE	END DATE														
1	Drinking Water	DW	3/12/19	3/12/19	1410	1931	3	Unpreserved	Y	Y	Y	Y	Y	Y	Y	Y	Y	GA
2	Water	WT																
3	Waste Water	WW																
4	Precipitated Solids	P																
5	Sludge	SL																
6	Wipe	WP																
7	Air	AR																
8	Other	OT																
9	Tissue	TS																

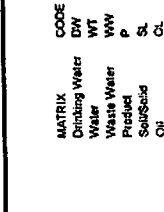
**SAMPLE ID**  
One Character per box.  
(A-Z, 0-9, /, -)

Sample IDs must be unique

HGWA-1

DM 2/12/19

NO# : 2616037



RELINQUISHED BY / AFFILIATION: Noelia Mustkus, ETS Lowry Co., etc. DATE: 3/13/19 TIME: 1400

ACCEPTED BY / AFFILIATION: Noelia Mustkus, ETS Lowry Co., etc. DATE: 3/13/19 TIME: 1400

RECEIVED BY	DATE	TIME	TEMP IN C	RECEIVED ON	TEMP IN C	LOC	Y/N	CUSTODY	SEAL	COOL	SAMPLES	INTACT	Y/N
Noelia Mustkus	3/12/19	2205											
ETS Lowry Co., etc.	3/13/19	0944											
Noelia Mustkus	3/13/19	1400	2.58										

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

DATE Signed: 3/12/19



# CHAIN-OF-CUSTODY / Analytical Request Document

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Page: 2 of 3  
we  
13/019

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

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

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

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

GN 03/12/19

NO#: 2616037

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

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Grant Walker / Geosyntec	03/22/19	1950	Maelia Muehler	3/12/19	1950	2.5 f y
	Maelia Muehler	3/12/17	2205	Grant Walker	3/12/19	2205	
	Geosyntec	3/13/19	943	Maelia Muehler	5.15.19	0451	
				Maelia Muehler	3/13/19	1400	

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

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

<b>Section A</b>	<b>Section B</b>	<b>Section C</b>
<b>Required Client Information:</b>	<b>Required Project Information:</b>	<b>Invoice Information:</b>
Company: Georgia Power - Coal Combustion Residuals	Report To: Jaja Abraham / Lauren Petty	Attention: SCSinvoices@southarmco.com
Address: 2480 Manor Road	Copy To: Geosynlec	Company Name:
Atlanta, GA 30339	Purchase Order #: SCS10348606	Address:
Email: jabraham@southarmco.com	Project Name: Plant Hammond	Pace Quote:
Phone: (404)506-7239	Project #: STP-1102A TAT	Pace Project Manager: belty.moderate@pacelabs.com
Requested Due Date: STP-1102A TAT		Pace Profile #: 327.4 (AP) or 328.5 (Huff)
		State/Jurisdiction: GA
		Regulatory Agency:

ITEM #	MATRIX	MATRIX CODE (see valid codes to left)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES						Analytes Test	Requested/Analysis Filtered (Y/N)	Residual Chlorine (Y/N)
			START DATE	END DATE			H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol			
1	DW	WTG	3/12/19	3/12/19	25	4									
2	WT	WT	3/12/19	3/12/19	25	4									
3	WW	WT	3/12/19	3/12/19	25	4									
4	P	WT	3/12/19	3/12/19	25	4									
5	Product	WT	3/12/19	3/12/19	25	4									
6	Soil/Sed	WT	3/12/19	3/12/19	25	4									
7	Oil	WT	3/12/19	3/12/19	25	4									
8	Wipe	WT	3/12/19	3/12/19	25	4									
9	Air	WT	3/12/19	3/12/19	25	4									
10	Other	WT	3/12/19	3/12/19	25	4									
11	TS	WT	3/12/19	3/12/19	25	4									
12	Tissue	WT	3/12/19	3/12/19	25	4									

ADDITIONAL COMMENTS	REQUISITIONED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	RECEIVED ON	TEMP IN C	Ice (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)
	Media Mofman	3/12/19	1930	Media Mofman	3/12/19	1950						
	Media Mofman	3/12/19	2205	Media Mofman	3/12/19	2205						
	Media Mofman	3/13/19	943	Media Mofman	3/13/19	0944						
	Media Mofman	3/13/19	1400	Media Mofman	3/13/19	1400						
SAMPLER NAME AND SIGNATURE: <u>Media Mofman</u> PRINT Name of SAMPLER: <u>Media Mofman</u> SIGNATURE of SAMPLER: <u>Media Mofman</u> DATE Signed: <u>03/12/19</u>												

**NO# : 2616037**

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



Sample Condition Upon Receipt

Client Name: GIA Power

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

WO#: **2616037**

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

CLIENT: **GAPower-CCR**

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

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

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

Thermometer Used 83 Type of Ice:  Wet  Blue  None

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

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

Comments: \_\_\_\_\_

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

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

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

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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

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



March 20, 2019

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

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

Dear Joju Abraham:

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

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

Sincerely,



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

Enclosures

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



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616042

---

### Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond  
Pace Project No.: 2616042

---

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

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond  
Pace Project No.: 2616042

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

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616042

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

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616042

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

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Plant Hammond  
Pace Project No.: 2616042

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

## REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA**

Project: Plant Hammond

Pace Project No.: 2616042

QC Batch: 24399 Analysis Method: EPA 7470A  
 QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury  
 Associated Lab Samples: 2616042001, 2616042002, 2616042003

METHOD BLANK: 109482 Matrix: Water

Associated Lab Samples: 2616042001, 2616042002, 2616042003

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

LABORATORY CONTROL SAMPLE: 109483

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 109484 109485

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

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

**REPORT OF LABORATORY ANALYSIS**

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616042

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

METHOD BLANK: 109374 Matrix: Water

Associated Lab Samples: 2616042001, 2616042002, 2616042003

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

LABORATORY CONTROL SAMPLE: 109375

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 109376 109377

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

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616042

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

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2616042

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

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

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

LABORATORY CONTROL SAMPLE: 110052

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 110053 110054

Parameter	Units	2616039001		110053		110054		% Rec Limits	RPD	Max RPD	Qual	
		MS Result	MSD Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result					
Fluoride	mg/L	0.035J		10	10	10.2	10.3	102	102	90-110	0	15

MATRIX SPIKE SAMPLE: 110055

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

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616042

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616042

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

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# CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 2 of 3

Section A		Section B		Section C	
<b>Required Client Information:</b>		<b>Required Project Information:</b>		<b>Invoice Information:</b>	
Company: Georgia Power - Coal Combustion Residuals	Report To: Jaji Abraham / Lauren Petty	Attention: scsinvoices@southernco.com	Company Name: SCS10348606	Date: <u>03/20/19</u>	
Address: 2480 Manor Road Atlanta, GA 30339	Copy To: Geosyntec	Purchase Order #: SCS10348606	Address: SCSinvoicess@southernco.com	Due Date: <u>03/20/19</u>	
Email: labraham@southernco.com	Project Name: Plant Hammond	Project #: Standard TAT	Project Manager: batsy.modiano@pacelabs.com	Client: <b>GAPower-CCR</b>	
Phone: (404)506-7239	Requested Due Date: <u>Standard TAT</u>	Matrix Code: <u>WTG-8</u>	Pace Profile #: 327.4 (AP) or 328.5 (Huf)	PN: <b>BM</b>	

ITEM #	MATRIX CODE (see valid codes to left)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES		ANALYSIS TEST	REQUESTED ANALYSIS FILTERED (Y/N)		Residual Chrome (Y/N)								
		START	END			H2SO4	HNO3		HCl	NaOH		Na2S2O3	Methanol	Other	Fluoride by 300.0	Radium 226/228	Metals (As, B, Co, Mo)	Sulfate by 300.0	
1	WTG-8	16:06	08:22	16:27	4	3			Y	Y	N	N							
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			

ADDITIONAL COMMENTS	REQUISITIONED BY / AFFILIATION		ACCEPTED BY / AFFILIATION		SAMPLE CONDITIONS	
	DATE	TIME	DATE	TIME	Received on	TEMP in C
Grant Walker / Geosyntec	03/12/19	19:50	Media / M / m / m	3/12/19	19:50	
Media / m / m / m	3/12/19	21:05	GLS Law	3/12/19	22:05	
ERTS / Law / Geosyntec	3/13/19	9:43	Pace	3/13/19	9:44	
			MDA / m / m / m	3/13/19	14:00	2.5
						4
						7

DATE Signed: 03/12/19

SIGNATURE OF SAMPLER: Grant Walker

SIGNATURE OF ANALYST: Net Walker

# CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 3 of 3

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

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

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

Regulatory Agency: GA  
 State / Location:

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see vial codes to left)	# OF CONTAINERS	PRESERVATIVES							ANALYSES TEST	Fluoride by 300.0	Radium 226/228	Metals (As, B, Co, Mo) Sulfate by 300.0	Residual Chlorine (Y/N)
			START DATE	END DATE				Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol					
1	Water	DW	3/12/19				4												
2	Water	WT																	
3	Waste Water	WW																	
4	Product	P																	
5	Soil/Solid	SL																	
6	Oil	OL																	
7	Wipe	VP																	
8	Air	AR																	
9	Other	OT																	
10	Tissue	TS																	
11																			
12																			

**NO# : 2616042**

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

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

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





Sample Condition Upon Receipt

Client Name: GIA Power

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

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

WO#: **2616042**

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

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

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 2.5 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Samples on ice, cooling process has begun

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

Comments:

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

Client Notification/ Resolution:

Field Data Required? Y / N

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

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

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

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

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

March 29, 2019

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

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

Dear Joju Abraham:

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

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

Sincerely,



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

Enclosures

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



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond  
Pace Project No.: 2616043

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### Pennsylvania Certification IDs

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

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

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond  
Pace Project No.: 2616043

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

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616043

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616043

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

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616043

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

PWS:      Site ID:      Sample Type:

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

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616043

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

PWS:      Site ID:      Sample Type:

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

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

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616043

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QC Batch:	334698	Analysis Method:	EPA 9315
QC Batch Method:	EPA 9315	Analysis Description:	9315 Total Radium
Associated Lab Samples:	2616043001, 2616043002, 2616043003		

---

METHOD BLANK:	1628718	Matrix:	Water
Associated Lab Samples:	2616043001, 2616043002, 2616043003		

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

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

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616043

QC Batch: 334688

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616043001, 2616043002, 2616043003

METHOD BLANK: 1628693

Matrix: Water

Associated Lab Samples: 2616043001, 2616043002, 2616043003

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

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

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## QUALIFIERS

Project: Plant Hammond  
Pace Project No.: 2616043

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616043

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

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# CHAIN-OF-CUSTODY / Analytical Request Document

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

1 of 3

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

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

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

Page: 1 of 3  
LA OFFICE  
STAFF

ITEM #	MATRIX CODE (see vial codes to left)	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES	ANALYSES TEST	Requested Analytes	Filtered (Y/N)
		START DATE	END DATE							
1	DW	3/12/19	3/12/19	G	41	3	HNO3	Y	Metals (As, B, Cd, Mo)	Y
2	W	3/12/19	3/12/19	G	41	3	HNO3	Y	Fluoride by 300.0	Y
3	W	3/12/19	3/12/19	G	41	3	HNO3	Y	Radium 226/228	Y
4	W	3/12/19	3/12/19	G	41	3	HNO3	Y	App. IV Metals	Y
5	W	3/12/19	3/12/19	G	41	3	HNO3	Y	Surfate by 300.0	Y
6	W	3/12/19	3/12/19	G	41	3	HNO3	Y	Residual Chlorine (Y/N)	Y

**ADDITIONAL COMMENTS**

RELINQUISHED BY / AFFILIATION: LA OFFICE  
 DATE: 3/12/19 TIME: 1750  
 ACCEPTED BY / AFFILIATION: MOELIA NEPOMBA  
 DATE: 3/12/19 TIME: 1950  
MOELIA NEPOMBA  
3/12/19 2205  
3/13/19 0944  
3/13/19 1400  
257

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

**SAMPLER NAME AND SIGNATURE**  
 PRINT Name of SAMPLER: MOELIA NEPOMBA  
 SIGNATURE OF SAMPLER: [Signature]  
 DATE Signed: 03/12/19

W0#: 2616043



# CHAIN-OF-CUSTODY / Analytical Request Document

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Page: 2 of 3

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

**Section B**  
 Required Project Information:  
 Report To: Joji Abraham / Lauren Peity  
 Copy To: Geosyntec  
 Project Name: Plant Hammond  
 Purchase Order #: SCS 0548606  
 Project Address: Plant Hammond

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

Regulatory Agency: State of Georgia  
 State Location: GA

ITEM #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G-GRAB C-COMP)	COLLECTED		# OF CONTAINERS	PRESERVATIVES	ANALYSES TEST	Metals (As, B, Co, Mo)	Sulfate by 300.0	Residual Chlorine (Y/N)
			START DATE TIME	END DATE TIME						
1	DW	WT GRAB	12/06 18:06	02/12 16:27	4	H2SO4 HNO3 HCl NaOH Na2S2O3 Methanol Other	Y	MM		N
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										

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

HGWC-8

GN 03/12/19

WO#: 2616043

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

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

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

DATE Signed: 03/12/19

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

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

3 of 3

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

**Section B**  
 Required Project Information:  
 Report To: Joji Abraham / Lauren Petty  
 Copy To: Geosyntec  
 Purchase Order #: SCS10348606  
 Project Name: Plant Hammond  
 Project #: 721

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

Regulatory Agency: State of Georgia  
 State: GA

ITEM #	MATRIX CODE Drinking Water Waste Water Product Soil/Solid Oil Air Char Tissue	SAMPLE ID One Character per box. (A-Z, 0-9, -, ')	SAMPLE TYPE (see valid codes to left)	COLLECTED		# OF CONTAINERS	PRESERVATIVES	ANALYSES TEST	Request/Analysis Filtered (Y/N)	Residual Chlorine (Y/N)
				START DATE	END DATE					
1		<u>HW MW-29</u>	<u>GW</u>	<u>3/12/19 10:00</u>	<u>3/12/19 10:00</u>	<u>4</u>	Unpreserved H2SO4 HNO3 HCl NaOH Na2S2O3 Methanol Other	App. IV Metals Fluoride by 300.0 Radium 226/228 Metals (As, B, Co, Mo) Sulfate by 300.0	N	
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										

**WO# : 2616043**

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

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	<u>Media Muskos</u>	<u>3/12/19</u>	<u>2205</u>	<u>GeoSyntec</u>	<u>3/12/19</u>	<u>2205</u>	
	<u>GeoSyntec</u>	<u>3/13/19</u>	<u>9453</u>	<u>GeoSyntec</u>	<u>3/13/19</u>	<u>0945</u>	
				<u>Media Muskos</u>	<u>3/13/19</u>	<u>1400</u>	
							TEMP in C R-5 F Y Y

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



Sample Condition Upon Receipt

Client Name: GIA Power

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

WO#: **2616043**

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

CLIENT: **GAPower-CCR**

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

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

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

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

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 2.5 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Samples on ice, cooling process has begun

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

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

Client Notification/ Resolution: \_\_\_\_\_

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

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

Field Data Required? Y / N

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

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



March 21, 2019

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

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

Dear Joju Abraham:

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

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

Sincerely,



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

Enclosures

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



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616120

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### Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond  
Pace Project No.: 2616120

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

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616120

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

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616120

---

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616120

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

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616120

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

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616120

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

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616120

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

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616120

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

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616120

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

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616120

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

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616120

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

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616120

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

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616120

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616120

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

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616120

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

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616120

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

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616120

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

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

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

LABORATORY CONTROL SAMPLE: 109865

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 109866 109867

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

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616120

QC Batch: 24639

Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A

Analysis Description: 7470 Mercury

Associated Lab Samples: 2616120002

METHOD BLANK: 110677

Matrix: Water

Associated Lab Samples: 2616120002

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

LABORATORY CONTROL SAMPLE: 110678

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 110679

110680

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

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2616120

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

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

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

LABORATORY CONTROL SAMPLE: 109940

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 109941 109942

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

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616120

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

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2616120

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

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

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

LABORATORY CONTROL SAMPLE: 110052

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 110053 110054

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

MATRIX SPIKE SAMPLE: 110055

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

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616120

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond  
Pace Project No.: 2616120

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

### REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 3 Of 3

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

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

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

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

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

**ADDITIONAL COMMENTS:**  
 BETA TICKNER 3/13/19  
 Maria M... 3/13/19  
 ... 3/13/19

**RELINQUISHED BY / AFFILIATION:**  
 BETA TICKNER  
 Maria M...  
 ...

**DATE:** 3/13/19

**TIME:** 11:35

**ACCEPTED BY / AFFILIATION:**  
 Maria M...  
 ...

**DATE:** 3/13/19

**TIME:** 11:35

**TEMP IN C:** \_\_\_\_\_

**Received on:** \_\_\_\_\_

**Ice (Y/N):** \_\_\_\_\_

**Custody Sealed (Y/N):** \_\_\_\_\_

**Cooler (Y/N):** \_\_\_\_\_

**Samples Intact (Y/N):** \_\_\_\_\_

**SAMPLER NAME AND SIGNATURE:**  
 PRINT Name of SAMPLER: Beta Tickner  
 SIGNATURE of SAMPLER: [Signature]

**DATE Signed:** 03/13/19

NO# : 2616120

2616120



# CHAIN-OF-CUSTODY / Analytical Request Document

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

### Section A

#### Required Client Information:

Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Manser Road  
 Atlanta, GA 30339  
 Email: labraham@southermco.com  
 Phone: (404)506-7239  
 Project Name: Plant Hammond  
 Project #: Standard TAI

### Section B

#### Required Project Information:

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

### Section C

#### Invoice Information:

Attention: SCSInvoices@southermco.com  
 Company Name:  
 Address:  
 Pace Quote:  
 Pace Project Manager: betsy.medams@paceilabs.com  
 Pace Profile #: 327.4 (AP) or 328.5 (Huff)

Page: 2 Of 3

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	PRESERVATIVES				ANALYSES TEST	Fluoride by 300.0	Radium 226/228	Metals (As, B, Co, Mo) Sulfate by 300.0	Residual Chrome (Y/N)	
			START DATE	END TIME				H2SO4	HNO3	HCl	NaOH						Na2S2O3
1	Drinking Water	DM	3/13 8:54	3/13 1:24	10	W10	41										
2	Waste Water	WT	3/13 10:51	3/13 11:06	10	W10	41										
3	Process Water	WP	3/13 11:50	3/13 2:10	10	W10	41										
4	Sludge	SL	3/13 10:22	3/13 10:48	10	W10	41										
5	Other	OT	3/13 15:27	3/13 16:40	10	W10	41										
6	Other	OT	3/13	3/13	10	W10	41										
7	Other	OT															
8	Other	OT															
9	Other	OT															
10	Other	OT															
11	Other	OT															
12	Other	OT															

WO#: 2616120

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

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on	Ice (Y/N)	Custody Sealed (Y/N)	Color (Y/N)	Samples Intact (Y/N)
	Grant Walker / Geosyntec	02/19	10:23	Apollia Mphah	3/13/19	10:23						
	Apollia Mphah / Geosyntec	3/13/19	20:18	Lee Blevins / Geosyntec	3/13/19	20:18						
	Lee Blevins / Geosyntec	3/14/19	11:35	MDA LAMMAN	3/14/19	11:35						
	MDA LAMMAN	3/14/19	12:48		3/14/19	12:48	21					

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



# CHAIN-OF-CUSTODY / Analytical Request Document

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

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

Page: 3 of 3

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	PRESERVATIVES				ANALYSES TEST	App. IV Metals	Fluoride by 300.0	Radium 226/228	Metals (As, B, Co, Mo)	Sulfate by 300.0	Residual Chlorine (Y/N)	
			START DATE	END DATE				H2SO4	HNO3	HCl	NaOH								Na2S2O3
1	MW-20	DM	2/19/19 1032	2/19/19 1033	WTG	WTG	41	3											
2	MW-5	WT	2/19/19 1212	2/19/19 1233	WTG	WTG	41	3											
3	HGWC-7	SL	2/19/19 1542	2/19/19 1603	WTG	WTG	41	3											
4	HGWC-11	AR	2/19/19 1713	2/19/19 1734	WTG	WTG	41	3											
5		OT																	
6		TS																	
7																			
8																			
9																			
10																			
11																			
12																			

WO# : 2616120

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

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION		ACCEPTED BY / AFFILIATION		TEMP IN C	Received on	Ises (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples (Y/N)	Intract (Y/N)
	DATE	TIME	DATE	TIME							
	2/19/19	2018	3/15/19	2018							
	3/14/19	1135	3/14/19	1135							
			3/14/19	1245	2.1						

SAMPLER NAME AND SIGNATURE: *Medea Muskus*  
 PRINT Name of SAMPLER: *Medea Muskus*  
 SIGNATURE of SAMPLER: *Medea Muskus*  
 DATE Signed: 3/13/19



Sample Condition Upon Receipt

Client Name: GCA Power

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

WO#: **2616120**

PM: **BM**

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

CLIENT: **GAPower-CCR**

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

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

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 2.1 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Samples on ice, cooling process has begun

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

Comments:

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

Client Notification/ Resolution:

Field Data Required? Y / N

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

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

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

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

April 01, 2019

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

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

Dear Joju Abraham:

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

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

Sincerely,



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

Enclosures

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



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616121

---

### Pennsylvania Certification IDs

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

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616121

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

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616121

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

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond  
Pace Project No.: 2616121

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

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

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

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

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

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

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

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

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

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

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

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

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

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

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

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

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

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

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

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

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

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

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

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

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

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

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

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

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

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

QC Batch: 334699

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2616121001, 2616121013

METHOD BLANK: 1628719

Matrix: Water

Associated Lab Samples: 2616121001, 2616121013

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

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

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

QC Batch: 334689

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616121001

METHOD BLANK: 1628695

Matrix: Water

Associated Lab Samples: 2616121001

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

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

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Hammond  
Pace Project No.: 2616121

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond  
Pace Project No.: 2616121

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

### REPORT OF LABORATORY ANALYSIS

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

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<b>Section A</b>		<b>Section B</b>		<b>Section C</b>	
<b>Required Client Information:</b>		<b>Required Project Information:</b>		<b>Invoice Information:</b>	
Company: Georgia Power - Coal Combustion Residuals	Report To: Jeph Abraham / Lauren Peaty	Company Name: SCS Invoices@southemco.com	Attention: SCS Invoices@southemco.com	Company Name: SCS Invoices@southemco.com	Alertion: SCS Invoices@southemco.com
Address: 2480 Marner Road	Copy To: Geosyntec	Project Name: Plant Hammond	Address: SCS 10348606	Address: SCS 10348606	Address: SCS 10348606
Atlanta, GA 30339		Project #:	Purchase Order #: SCS 10348606	Purchase Order #: SCS 10348606	Purchase Order #: SCS 10348606
			Project Name: Plant Hammond	Project Name: Plant Hammond	Project Name: Plant Hammond
			Requested Due Date: <u>Standard TAT</u>	Requested Due Date: <u>Standard TAT</u>	Requested Due Date: <u>Standard TAT</u>

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

NO#: 2616121



RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
BEA TICKNER	3/13/19	8:23	Melina Johnson	3/13/19	10:23	
Geosyntec	3/13/19	20:18	Geosyntec	3/13/19	20:18	
Geosyntec	3/14/19	11:55	Geosyntec	3/14/19	11:55	
Geosyntec	3/14/19	12:45	Geosyntec	3/14/19	12:45	

**SAMPLER NAME AND SIGNATURE**

PRINT Name of SAMPLER: BEA TICKNER DATE Signed: 03/13/19

SIGNATURE of SAMPLER: [Signature]



# CHAIN-OF-CUSTODY / Analytical Request Document

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Page: 2 of 3

### Section A Required Client Information:

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

### Section B Required Project Information:

Report To: Jaja Abraham / Lauren Polty  
 Copy To: Geosyntec  
 Purchase Order #: SCS10348606  
 Project Name: Plant Hammond  
 Project #:

### Section C Invoice Information:

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

Regulatory Agency: [blank]  
 State / Location: GA

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (C=GRAB C=COMP)	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Analytes Test	App. IV Metals	Fluoride by 300.0	Radium 226/228	Metals (As, B, Co, Mo)	Sulfate by 300.0	Residual Chlorine (Y/N)
			START DATE TIME	END DATE TIME											
1	DW	23D	3/13 8:54	3/13 9:21	6	19	3		Y	Y	Y	Y	Y		
2	WW	6	3/13 10:51	3/13 11:06	6	16	3		Y	Y	Y	Y	Y		
3	WW	10	3/13 11:50	3/13 12:20	6	16	3		Y	Y	Y	Y	Y		
4	WW	24D	3/13 10:22	3/13 11:48	6	19	3		Y	Y	Y	Y	Y		
5	WW	13	3/13 15:27	3/13 16:40	6	19	3		Y	Y	Y	Y	Y		
6	FD	1	3/13	3/13	6	19	3		Y	Y	Y	Y	Y		

## WO#: 2616121

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

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on	Loc (Y/N)	Custody	Sealed	Cooler	Samples	Intact
	Grant Walker / Geosyntec	03/13/19	1825	Medina M... / Geosyntec	3/13/19	1825								
	Medina M... / Geosyntec	3/13/19	2018	Grant Walker / Geosyntec	3/14/19	1135								
	Grant Walker / Geosyntec	3/14/19	1135	Medina M... / Geosyntec	3/14/19	1248	2.1		Y	Y	Y	Y	Y	Y

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



# CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 3 of 3

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

ITEM #	MATRIX CODE DW Drinking Water WT Water WW Waste Water P Product SL Soil/Solid OH Oil WI Wipe AR Air OT Other TS Tissue	SAMPLE ID One Character per box. (A-Z, 0-9 /, -) Sample IDs must be unique	COLLECTED		# OF CONTAINERS	PRESERVATIVES	ANALYSES TEST	REQUESTED ANALYSES FILTERED (Y/N)											
			START	END				Fluoride by 300.0	App. IV Metals	Radium 226/228	Metals (As, B Co, Mo)	Sulfate by 300.0	Residual Chlorine (Y/N)						
			DATE	TIME				DATE	TIME	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other			
1		MW-20	3/13/19	1033	41		Y	Y	Y	Y	N	N	N						
2		MW-5	3/13/19	1233	41		Y	Y	Y	Y	N	N	N						
3		HGWC-7	3/13/19	1609	41		Y	Y	Y	Y	N	N	N						
4		HGWC-11	3/13/19	1324	41		Y	Y	Y	Y	N	N	N						

3/13/19 AM

WO#: 2616121

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

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Melissa M. ...	3/13/19	20:18	...	3/13/19	20:18
...	3/14/19	11:35	...	3/14/19	11:35
...			M. ...	3/14/19	12:45

SAMPLER NAME AND SIGNATURE  
 PRINT Name of SAMPLER: **Melissa Muskus**  
 SIGNATURE of SAMPLER: *Melissa Muskus*  
 DATE Signed: **3/13/19**



Sample Condition Upon Receipt

Client Name: GCA Power

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

WO#: **2616121**

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

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

PM: **BM**

Due Date: **04/11/19**

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

CLIENT: **GAPower-CCR**

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

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Samples on ice, cooling process has begun

Cooler Temperature 2.1 Biological Tissue is Frozen: Yes No

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

Temp should be above freezing to 6°C Comments: \_\_\_\_\_

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

Client Notification/ Resolution: \_\_\_\_\_

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

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

Field Data Required? Y / N

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

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

March 25, 2019

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

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

Dear Joju Abraham:

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

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

Sincerely,



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

Enclosures

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



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616161

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### Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616161

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

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond  
Pace Project No.: 2616161

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

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Plant Hammond  
Pace Project No.: 2616161

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

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616161

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616161

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

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616161

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

METHOD BLANK: 109864 Matrix: Water

Associated Lab Samples: 2616161001, 2616161002, 2616161003

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

LABORATORY CONTROL SAMPLE: 109865

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 109866 109867

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

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2616161

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

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

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

LABORATORY CONTROL SAMPLE: 110480

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 110481 110482

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

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616161

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

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2616161

QC Batch: 24743 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 2616161001, 2616161002, 2616161003

METHOD BLANK: 111327 Matrix: Water  
Associated Lab Samples: 2616161001, 2616161002, 2616161003

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

LABORATORY CONTROL SAMPLE: 111328

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 111329 111330

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

MATRIX SPIKE SAMPLE: 111331

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

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### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616161

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

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

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616161

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

### REPORT OF LABORATORY ANALYSIS

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WO#: 2616161

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



2616161  
2616161

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

**Section B**  
 Required Project Information:  
 Report To: Joju Abraham / Lauren Pethy  
 Copy To: Geosyntec  
 Purchase Order #: SCS10346806  
 Project Name: Plant Hammond  
 Project #:

**Section C**  
 Invoice Information:  
 Attention: SCSInvoices@southernco.com  
 Company Name: Southern Company  
 Address: 100 Peachtree Street, NE, Atlanta, GA 30309  
 Pace Quote: betsy.mcdaniel@paceclabs.com  
 Pace Project Manager:  
 Pace Profile #: 327.4 (AP) or 328.5 (Huff)

Regulatory Agency: GA  
 State / Location: GA

ITEM #	MATRIX CODE (A-Z, 0-9 / . -)	MATRIX Drinking Water Waste Water Product Soil/Sediment Oil Vapor Air Other Tissue	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	# OF CONTAINERS	PRESERVATIVES		ANALYSES TEST	Fluoride by 300.0	Radium 226/228	Metals (As, B, Co, Mo)	Sulfate by 300.0	Requested/Analytes Filled (Y/N)	Residual Chlorine (Y/N)
			START DATE TIME	END DATE TIME			Unpreserved	H2SO4							
1	HGWC-12		3/14/19 0946	3/14/19 0946	h	1			Y	Y					
2	MW-25D		3/14/19 1141	3/14/19 1141	h	1			Y	Y					
3	MW-19		3/14/19 1321	3/14/19 1321	h	1			Y	Y					
4															
5															
6															
7															
8															
9															
10															
11															
12															

**ADDITIONAL COMMENTS:**  
 BM 03/14/19  
 Pace Analytical

**REQUIREMENTS BY AFFILIATION:**  
 DATE TIME ACCEPTED BY AFFILIATION  
 3/14/19 1040 Analytic Information  
 3/14/19 2026 Lab keep Geosyntec  
 3/15/19 1129 M. RATTMAN  
 3/15/19 1300 Jessica Wills PACE

**TEMP IN C:** 4.5 Y N Y

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

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



Sample Condition Upon Receipt

WO#: 2616161

Client Name: GA Power - CCR

PM: BM

Due Date: 03/22/19

CLIENT: GAPower-CCR

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other Courier

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

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

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

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

Temp should be above freezing to 6°C Comments:

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

Options  
Proj. Due Date:  
Proj. Name:

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

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

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

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

April 02, 2019

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

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

Dear Joju Abraham:

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

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

Sincerely,



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

Enclosures

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



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616168

---

### Pennsylvania Certification IDs

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

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond  
Pace Project No.: 2616168

---

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

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616168

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616168

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

PWS:      Site ID:      Sample Type:

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

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616168

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

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

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616168

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

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

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616168

QC Batch: 334699

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2616168001, 2616168002, 2616168003

METHOD BLANK: 1628719

Matrix: Water

Associated Lab Samples: 2616168001, 2616168002, 2616168003

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

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616168

QC Batch: 334690

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616168001, 2616168002, 2616168003

METHOD BLANK: 1628696

Matrix: Water

Associated Lab Samples: 2616168001, 2616168002, 2616168003

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

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

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Hammond  
Pace Project No.: 2616168

---

### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond  
Pace Project No.: 2616168

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

**REPORT OF LABORATORY ANALYSIS**

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NO#: 2616168

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



Page 1 of 1

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

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

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

ITEM #	MATRIX CODE (see valid codes to left)	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	SAMPLE TEMP AT COLLECTION	PRESERVATIVES		ANALYSE TEST Y/N	App. IV Metals Fluoride by 300.0 Radium 226/228 Metals (As, B, Co, Mo) Sulfate by 300.0	Requested Analysis Filtered (Y/N)	TEMP in C	Received on	Sealed (Y/N)	Custody (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)	
		START DATE	START TIME			END DATE	END TIME										H2SO4
1	HGWC-12	WTG	3/14/19 09:06	3/14/19 09:06	4	1	3	Y	Y	Y	Y	1					
2	MW-25D	WTG	3/14/19 11:41	3/14/19 11:41	4	1	3	Y	Y	Y	Y	2					
3	MW-19	WTG	3/14/19 14:21	3/14/19 14:21	4	1	3	Y	Y	Y	Y	3					
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	Patricia Greco	3/14/19	10:40	Abbie Robinson	3/14/19	10:40
	Marta Nelson (Geosyntec)	3/14/19	20:26	Geosyntec	3/14/19	20:26
	Ellen Geosyntec	3/15/19	11:29	M. RATTMAN	3/15/19	11:29
				Jessie Wicks PACE	3/15/19	13:00

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



Sample Condition Upon Receipt

WO#: 2616168

Client Name: GA Power - CCR

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

Courier: Fed Ex UPS USPS Client Commercial Pace Other Courier

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

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used 083 Type of Ice: Wet Blue None

Cooler Temperature 4.5 C Biological Tissue is Frozen: Yes No

Optional Proj. Due Date: Proj. Name:

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

Table with 16 rows of checklist items: Chain of Custody Present, Chain of Custody Filled Out, Chain of Custody Relinquished, Sampler Name & Signature on COC, Samples Arrived within Hold Time, Short Hold Time Analysis (<72hr), Rush Turn Around Time Requested, Sufficient Volume, Correct Containers Used, Containers Intact, Filtered volume received for Dissolved tests, Sample Labels match COC, All containers needing preservation have been checked, All containers needing preservation are found to be in compliance with EPA recommendation, exceptions: VOA, coliform, TOC, O&G, WI-DRO (water), Samples checked for dechlorination, Headspace in VOA Vials (>6mm), Trip Blank Present, Trip Blank Custody Seals Present, Pace Trip Blank Lot# (if purchased).

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

Project Manager Review: Date:

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

March 25, 2019

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

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

Dear Joju Abraham:

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

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

Sincerely,



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

Enclosures

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



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond  
Pace Project No.: 2616230

---

### Atlanta Certification IDs

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

North Carolina Certification #: 381  
South Carolina Certification #: 98011001  
Virginia Certification #: 460204

---

## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond  
Pace Project No.: 2616230

---

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

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond  
Pace Project No.: 2616230

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616230

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616230

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

METHOD BLANK: 112752 Matrix: Water

Associated Lab Samples: 2616230001

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

LABORATORY CONTROL SAMPLE: 112753

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 112754 112755

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

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2616230

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

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

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

LABORATORY CONTROL SAMPLE: 111122

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 111123 111124

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

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616230

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

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616230

QC Batch: 24985

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Associated Lab Samples: 2616230001

METHOD BLANK: 112760

Matrix: Water

Associated Lab Samples: 2616230001

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

LABORATORY CONTROL SAMPLE: 112761

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 112762

112763

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

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### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616230

---

### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

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

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616230

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

### REPORT OF LABORATORY ANALYSIS

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**Sample Condition Upon Receipt**



Client Name: GIA Power

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

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

**WO#: 2616230**

PM: BM

Due Date: 03/25/19

CLIENT: GAPower-CCR

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

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Samples on ice, cooling process has begun

Cooler Temperature 4.2 Biological Tissue is Frozen: Yes No

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

Temp should be above freezing to 6°C

Comments:

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

Client Notification/ Resolution:

Field Data Required? Y / N

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

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

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

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

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



April 10, 2019

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

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

Dear Joju Abraham:

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

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

Sincerely,



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

Enclosures

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



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond  
Pace Project No.: 2616231

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### Pennsylvania Certification IDs

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

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

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## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616231

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

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond  
Pace Project No.: 2616231

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616231

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

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616231

QC Batch: 334703

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616231001

METHOD BLANK: 1628726

Matrix: Water

Associated Lab Samples: 2616231001

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

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616231

QC Batch: 334701

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2616231001

METHOD BLANK: 1628722

Matrix: Water

Associated Lab Samples: 2616231001

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

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## QUALIFIERS

Project: Plant Hammond  
Pace Project No.: 2616231

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond  
Pace Project No.: 2616231

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616231001	FB-02	EPA 9315	334701		
2616231001	FB-02	EPA 9320	334703		
2616231001	FB-02	Total Radium Calculation	336613		

**REPORT OF LABORATORY ANALYSIS**

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# CHAIN-OF-CUSTODY / Analytical Request Document

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

**Section A**  
**Required Client Information:**  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Maner Road  
 Atlanta, GA 30339  
 Email: [abraham@southhamco.com](mailto:abraham@southhamco.com)  
 Phone: (404)506-7239 Fax  
 Requested Due Date: Stand and Test

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

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

Page: 1 Of 1

Regulatory Agency:  
 State Location: GA

ITEM #	MATRIX CODE (see valid codes to left)	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	SAMPLE TEMP AT COLLECTION	ANALYSES TEST		Y/N	App. IV Metals	Fluoride by 300.0	Radium 226/228	Metals (As, B, Co, Mo) Sulfate by 300.0	Residual Chlorine (Y/N)	Received on	Ice (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples (Y/N)	
		START DATE	END DATE			TIME	TIME												DATE
1	FB-02	3/15/14	3/15/14	1445	1400	20	4	1	3	Y	Y	Y	Y						
<p><b>NO# : 2616231</b></p>																			
<p>AWM 315 119</p>																			
<p>REMOVED BY / AFFILIATION: <u>Noelia Mustkus</u> / <u>Geosyntec</u></p> <p>DATE: <u>3/18/14</u> TIME: <u>10:27</u></p> <p>REMOVED BY / AFFILIATION: <u>Madalman</u> / <u>Geosyntec</u></p> <p>DATE: <u>3/18/14</u> TIME: <u>12:00</u></p>																			

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

DATE Signed: 3/15/14



Sample Condition Upon Receipt

Client Name: GIA Power

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

WO#: **2616231**

PM: **BM** Due Date: **04/15/19**  
CLIENT: **GAPower-CCR**

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

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

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 4.2 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Samples on ice, cooling process has begun  
Date and Initials of person examining contents: 3/18/19 mm

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

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

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

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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

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

First Semiannual Sampling  
Event  
April 2019

April 09, 2019

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

RE: Project: Plant Hammond  
Pace Project No.: 2616885

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 02, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



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

Enclosures

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



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond  
Pace Project No.: 2616885

---

### Atlanta Certification IDs

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

North Carolina Certification #: 381  
South Carolina Certification #: 98011001  
Virginia Certification #: 460204

---

## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616885

---

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616885001	HGWA-3	Water	04/01/19 17:25	04/02/19 11:30

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond  
Pace Project No.: 2616885

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2616885001	HGWA-3	EPA 6020B	CSW	14
		SM 2540C	RLC	1
		EPA 300.0	RLC	3

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616885

Sample: HGWA-3		Lab ID: 2616885001		Collected: 04/01/19 17:25		Received: 04/02/19 11:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 14:47	04/08/19 18:46	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 14:47	04/08/19 18:46	7440-38-2	
Barium	<b>0.13</b>	mg/L	0.010	0.00078	1	04/05/19 14:47	04/08/19 18:46	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 14:47	04/08/19 18:46	7440-41-7	
Boron	<b>0.0066J</b>	mg/L	0.040	0.0039	1	04/05/19 14:47	04/08/19 18:46	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 14:47	04/08/19 18:46	7440-43-9	
Calcium	<b>80.5</b>	mg/L	25.0	0.69	50	04/05/19 14:47	04/08/19 18:52	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 14:47	04/08/19 18:46	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	04/05/19 14:47	04/08/19 18:46	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	04/05/19 14:47	04/08/19 18:46	7439-92-1	
Lithium	<b>0.0032J</b>	mg/L	0.050	0.00097	1	04/05/19 14:47	04/08/19 18:46	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	04/05/19 14:47	04/08/19 18:46	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 14:47	04/08/19 18:46	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 14:47	04/08/19 18:46	7440-28-0	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>284</b>	mg/L	25.0	10.0	1		04/04/19 17:45		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>6.5</b>	mg/L	0.25	0.024	1		04/06/19 01:13	16887-00-6	M1
Fluoride	<b>0.029J</b>	mg/L	0.30	0.029	1		04/06/19 01:13	16984-48-8	
Sulfate	<b>50.4</b>	mg/L	10.0	0.17	10		04/08/19 20:01	14808-79-8	M1

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616885

QC Batch: 25905 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3005A Analysis Description: 6020B MET  
Associated Lab Samples: 2616885001

METHOD BLANK: 116813 Matrix: Water

Associated Lab Samples: 2616885001

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

LABORATORY CONTROL SAMPLE: 116814

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.11	108	80-120	
Arsenic	mg/L	0.1	0.10	103	80-120	
Barium	mg/L	0.1	0.10	103	80-120	
Beryllium	mg/L	0.1	0.10	101	80-120	
Boron	mg/L	1	1.0	105	80-120	
Cadmium	mg/L	0.1	0.11	109	80-120	
Calcium	mg/L	1	1.0	104	80-120	
Chromium	mg/L	0.1	0.11	108	80-120	
Cobalt	mg/L	0.1	0.11	107	80-120	
Lead	mg/L	0.1	0.10	103	80-120	
Lithium	mg/L	0.1	0.10	102	80-120	
Molybdenum	mg/L	0.1	0.11	105	80-120	
Selenium	mg/L	0.1	0.11	106	80-120	
Thallium	mg/L	0.1	0.10	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 116815 116816

Parameter	Units	2616901004 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
			Spike Conc.	MS Result	MSD Result	MSD Result					
Antimony	mg/L	ND	0.1	0.1	0.11	0.11	110	107	75-125	3	20

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616885

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

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616885

QC Batch: 25772

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 2616885001

LABORATORY CONTROL SAMPLE: 116265

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	403	101	84-108	

SAMPLE DUPLICATE: 116266

Parameter	Units	2616783001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	87.0	115	28	10	D6

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2616885

QC Batch: 25881 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 2616885001

METHOD BLANK: 116727 Matrix: Water  
Associated Lab Samples: 2616885001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.069J	0.25	0.024	04/05/19 23:23	
Fluoride	mg/L	ND	0.30	0.029	04/05/19 23:23	
Sulfate	mg/L	0.028J	1.0	0.017	04/05/19 23:23	

LABORATORY CONTROL SAMPLE: 116728

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.3	103	90-110	
Fluoride	mg/L	10	10.3	103	90-110	
Sulfate	mg/L	10	10.1	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 116729 116730

Parameter	Units	2616881001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	4.0	10	10	13.8	13.7	99	97	90-110	1	15	
Fluoride	mg/L	0.042J	10	10	10.0	9.9	100	99	90-110	1	15	
Sulfate	mg/L	1.7	10	10	11.4	11.4	97	96	90-110	1	15	

MATRIX SPIKE SAMPLE: 116731

Parameter	Units	2616885001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	6.5	10	15.5	89	90-110	M1
Fluoride	mg/L	0.029J	10	9.5	95	90-110	
Sulfate	mg/L	50.4	10	54.7	43	90-110	E,M1

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

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616885

---

### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

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

E Analyte concentration exceeded the calibration range. The reported result is estimated.

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

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

R1 RPD value was outside control limits.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616885

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616885001	HGWA-3	EPA 3005A	25905	EPA 6020B	25922
2616885001	HGWA-3	SM 2540C	25772		
2616885001	HGWA-3	EPA 300.0	25881		

### REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY / Analytical Request Document

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

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

**Section B**  
**Required Project Information:**  
 Report To: Jiju Abraham  
 Copy To: Lauren Pethy, Geosyntec  
 Purchase Order #: SCS-10348606  
 Project Name: Plant Hammond  
 Project #:

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

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	SAMPLE TEMP AT COLLECTION		# OF CONTAINERS	PRESERVATIVES	ANALYSES TEST	Requester/Analyst/Collected (Y/N)
			START	END			DATE	TIME				
1	Drinking Water	DW			WG		4/11/19	1700	3	Unpreserved	Metals (App. III & App. IV) Metals (App. III, App. IV, D&O) TDS, Cl, F, SO4 Radium 226/228	
2	Water	WT										
3	Waste Water	WW										
4	Product	P										
5	Solid	SL										
6	Oil	OL										
7	Wipe	WP										
8	Air	AR										
9	Other	OT										
10	Tissue	TS										

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

**DATE:** 4/11/19

**TIME:** 10:36

**DATE:** 4/2/19

**TIME:** 10:36

**DATE:** 4/2/19

**TIME:** 11:30

**TEMP in C:** 20.7

**Received on:** 4/11/19

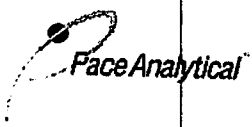
**DATE Signed:** 4/11/19

**PRINT Name of SAMPLER:** Noelia Muskus

**SIGNATURE of SAMPLER:** Noelia Muskus

**SAMPLER NAME AND SIGNATURE:** Noelia Muskus





Sample Condition Upon Receipt

Client Name: GIA Power

Project #

WO#: **2616885**

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other

PM: **BM** Due Date: **04/09/19**

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

CLIENT: **GAPower-CCR**

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 2.0 Biological Tissue is Frozen: Yes No  Samples on ice, cooling process has begun

Date and Initials of person examining contents: 4/2/19 MR

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

Client Notification/ Resolution: \_\_\_\_\_

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

Field Data Required? Y / N

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

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

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

April 25, 2019

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

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

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 02, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



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

Enclosures

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



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond  
Pace Project No.: 2616886

---

### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

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

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616886

---

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616886001	HGWA-3	Water	04/01/19 17:25	04/02/19 11:30

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616886

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2616886001	HGWA-3	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616886

**Sample: HGWA-3**      **Lab ID: 2616886001**      Collected: 04/01/19 17:25      Received: 04/02/19 11:30      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.388 ± 0.261 (0.385)</b> C:94% T:NA	pCi/L	04/12/19 08:04	13982-63-3	
Radium-228	EPA 9320	<b>0.372 ± 0.422 (0.887)</b> C:75% T:83%	pCi/L	04/16/19 16:21	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.760 ± 0.683 (1.27)</b>	pCi/L	04/17/19 13:15	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616886

QC Batch: 337341

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616886001

METHOD BLANK: 1641952

Matrix: Water

Associated Lab Samples: 2616886001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.438 ± 0.343 (0.679) C:77% T:88%	pCi/L	04/16/19 13:06	

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616886

QC Batch: 337391

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2616886001

METHOD BLANK: 1642068

Matrix: Water

Associated Lab Samples: 2616886001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.148 ± 0.194 (0.401) C:93% T:NA	pCi/L	04/12/19 08:12	

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

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616886

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616886

---

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616886001	HGWA-3	EPA 9315	337391		
2616886001	HGWA-3	EPA 9320	337341		
2616886001	HGWA-3	Total Radium Calculation	338683		

## REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

Client Name: GIA Power

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

WO#: **2616886**

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

PM: **BM** Due Date: **04/30/19**  
CLIENT: **GAPower-CCR**

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

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 2.0 Biological Tissue is Frozen: Yes No  Samples on ice, cooling process has begun

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 4/2/19 MR

Comments:

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

Client Notification/ Resolution:

Field Data Required? Y / N

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

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

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

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

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

April 10, 2019

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

RE: Project: Plant Hammond  
Pace Project No.: 2616925

Dear Joju Abraham:

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

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

Sincerely,



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

Enclosures

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



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616925

---

### Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

---

## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616925

---

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616925001	HGWA-1	Water	04/02/19 10:02	04/03/19 11:10
2616925002	HGWA-2	Water	04/02/19 13:40	04/03/19 11:10

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616925

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2616925001	HGWA-1	EPA 6020B	CSW	14
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616925002	HGWA-2	EPA 6020B	CSW	14
		SM 2540C	RLC	1
		EPA 300.0	RLC	3

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616925

Sample: HGWA-1		Lab ID: 2616925001		Collected: 04/02/19 10:02		Received: 04/03/19 11:10		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 14:47	04/08/19 22:29	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 14:47	04/08/19 22:29	7440-38-2		
Barium	<b>0.040</b>	mg/L	0.010	0.00078	1	04/05/19 14:47	04/08/19 22:29	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 14:47	04/08/19 22:29	7440-41-7		
Boron	<b>0.016J</b>	mg/L	0.040	0.0039	1	04/05/19 14:47	04/08/19 22:29	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 14:47	04/08/19 22:29	7440-43-9		
Calcium	<b>132</b>	mg/L	25.0	0.69	50	04/05/19 14:47	04/08/19 22:35	7440-70-2		
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 14:47	04/08/19 22:29	7440-47-3		
Cobalt	ND	mg/L	0.010	0.00052	1	04/05/19 14:47	04/08/19 22:29	7440-48-4		
Lead	ND	mg/L	0.0050	0.00027	1	04/05/19 14:47	04/08/19 22:29	7439-92-1		
Lithium	<b>0.0010J</b>	mg/L	0.050	0.00097	1	04/05/19 14:47	04/08/19 22:29	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.0019	1	04/05/19 14:47	04/08/19 22:29	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 14:47	04/08/19 22:29	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 14:47	04/08/19 22:29	7440-28-0		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>452</b>	mg/L	25.0	10.0	1		04/08/19 15:30			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>20.3</b>	mg/L	0.25	0.024	1		04/06/19 10:16	16887-00-6		
Fluoride	<b>0.10J</b>	mg/L	0.30	0.029	1		04/06/19 10:16	16984-48-8		
Sulfate	<b>84.3</b>	mg/L	5.0	0.085	5		04/06/19 11:43	14808-79-8		

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616925

Sample: HGWA-2		Lab ID: 2616925002		Collected: 04/02/19 13:40		Received: 04/03/19 11:10		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 14:47	04/08/19 22:52	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 14:47	04/08/19 22:52	7440-38-2	
Barium	<b>0.13</b>	mg/L	0.010	0.00078	1	04/05/19 14:47	04/08/19 22:52	7440-39-3	
Beryllium	<b>0.00015J</b>	mg/L	0.0030	0.000050	1	04/05/19 14:47	04/08/19 22:52	7440-41-7	
Boron	<b>0.034J</b>	mg/L	0.040	0.0039	1	04/05/19 14:47	04/08/19 22:52	7440-42-8	
Cadmium	<b>0.00015J</b>	mg/L	0.0010	0.000093	1	04/05/19 14:47	04/08/19 22:52	7440-43-9	
Calcium	<b>22.5J</b>	mg/L	25.0	0.69	50	04/05/19 14:47	04/08/19 22:58	7440-70-2	D3
Chromium	<b>0.0079J</b>	mg/L	0.010	0.0016	1	04/05/19 14:47	04/08/19 22:52	7440-47-3	
Cobalt	<b>0.019</b>	mg/L	0.010	0.00052	1	04/05/19 14:47	04/08/19 22:52	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	04/05/19 14:47	04/08/19 22:52	7439-92-1	
Lithium	<b>0.0018J</b>	mg/L	0.050	0.00097	1	04/05/19 14:47	04/08/19 22:52	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	04/05/19 14:47	04/08/19 22:52	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 14:47	04/08/19 22:52	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 14:47	04/08/19 22:52	7440-28-0	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>133</b>	mg/L	25.0	10.0	1		04/08/19 15:31		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>5.8</b>	mg/L	0.25	0.024	1		04/06/19 10:38	16887-00-6	
Fluoride	<b>0.071J</b>	mg/L	0.30	0.029	1		04/06/19 10:38	16984-48-8	
Sulfate	<b>48.7</b>	mg/L	1.0	0.017	1		04/06/19 10:38	14808-79-8	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2616925

QC Batch: 25905 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3005A Analysis Description: 6020B MET  
Associated Lab Samples: 2616925001, 2616925002

METHOD BLANK: 116813 Matrix: Water  
Associated Lab Samples: 2616925001, 2616925002

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

LABORATORY CONTROL SAMPLE: 116814

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.11	108	80-120	
Arsenic	mg/L	0.1	0.10	103	80-120	
Barium	mg/L	0.1	0.10	103	80-120	
Beryllium	mg/L	0.1	0.10	101	80-120	
Boron	mg/L	1	1.0	105	80-120	
Cadmium	mg/L	0.1	0.11	109	80-120	
Calcium	mg/L	1	1.0	104	80-120	
Chromium	mg/L	0.1	0.11	108	80-120	
Cobalt	mg/L	0.1	0.11	107	80-120	
Lead	mg/L	0.1	0.10	103	80-120	
Lithium	mg/L	0.1	0.10	102	80-120	
Molybdenum	mg/L	0.1	0.11	105	80-120	
Selenium	mg/L	0.1	0.11	106	80-120	
Thallium	mg/L	0.1	0.10	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 116815 116816

Parameter	Units	2616901004 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
			Spike Conc.	MS Result	MSD Result						
Antimony	mg/L	ND	0.1	0.1	0.11	0.11	110	107	75-125	3	20

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616925

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

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2616925

QC Batch: 25881 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 2616925001, 2616925002

METHOD BLANK: 116727 Matrix: Water  
Associated Lab Samples: 2616925001, 2616925002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.069J	0.25	0.024	04/05/19 23:23	
Fluoride	mg/L	ND	0.30	0.029	04/05/19 23:23	
Sulfate	mg/L	0.028J	1.0	0.017	04/05/19 23:23	

LABORATORY CONTROL SAMPLE: 116728

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.3	103	90-110	
Fluoride	mg/L	10	10.3	103	90-110	
Sulfate	mg/L	10	10.1	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 116729 116730

Parameter	Units	2616881001 Result	MS Spike Conc.	MSD Spike Conc.	116729		116730		% Rec Limits	RPD	Max RPD	Qual
					MS Result	MSD Result	MS % Rec	MSD % Rec				
Chloride	mg/L	4.0	10	10	13.8	13.7	99	97	90-110	1	15	
Fluoride	mg/L	0.042J	10	10	10.0	9.9	100	99	90-110	1	15	
Sulfate	mg/L	1.7	10	10	11.4	11.4	97	96	90-110	1	15	

MATRIX SPIKE SAMPLE: 116731

Parameter	Units	2616885001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	6.5	10	15.5	89	90-110	M1
Fluoride	mg/L	0.029J	10	9.5	95	90-110	
Sulfate	mg/L	50.4	10	54.7	43	90-110	E,M1

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616925

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

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

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

E Analyte concentration exceeded the calibration range. The reported result is estimated.

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

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

R1 RPD value was outside control limits.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616925

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616925001	HGWA-1	EPA 3005A	25905	EPA 6020B	25922
2616925002	HGWA-2	EPA 3005A	25905	EPA 6020B	25922
2616925001	HGWA-1	SM 2540C	25999		
2616925002	HGWA-2	SM 2540C	25999		
2616925001	HGWA-1	EPA 300.0	25881		
2616925002	HGWA-2	EPA 300.0	25881		

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# CHAIN-OF-CUSTODY / Analytical Request Document

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

**Section A** Required Client Information: Company: Georgia Power - Coal Combustion Residuals, Address: 2480 Manor Road, Atlanta, GA 30339, Email: jbrahram@southarmco.com, Phone: (404)506-7239, Requested Due Date: 2/28/2019

**Section B** Required Project Information: Report To: Joju Abraham, Copy To: Lauren Petty, Geosyntec, Address: Atlanta, GA 30339, Purchase Order #: 62510348606, Project Name: Plant Hammond, Project #: 18T

**Section C** Invoice Information: Attention: sctinvoices@southarmco.com, Company Name: Southarmco, Address: 1000 Peachtree Avenue, Atlanta, GA 30309, Pace Project Manager: betsy.mcdaniel@pacelabs.com, Pace Profile #: 327 (AP) or 328 (Huff)

Page: 2 of 2

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see viald codes to left)	SAMPLE TEMP AT COLLECTION		# OF CONTAINERS	PRESERVATIVES	ANALYSES TEST (Y/N)	Requester's Analytical Method (Y/N)	Residual Chlorine (Y/N)
			START DATE	END DATE			TIME	TIME					
1	Drinking Water	DW	4/21/19	4/21/19	G		17:45	17:45	3	H2SO4, HNO3, HCl, NaOH, Na2S2O3, Methanol, Other	Metals (App. III & App. IV), Metals (App. III & D&O), TDS, Cl, F, SO4, Radium 226/228	Y	Y
2	Waste Water	WW											
3	Waste Water Product	WP											
4	Soil/Sediment	SL											
5	Oil	OL											
6	Wipe	WP											
7	Air	AR											
8	Other	OT											
9	Tissue	TS											
10													
11													
12													

NO#: 2616925

APPROVALS	RECEIVED BY / AFFILIATION	DATE	TIME	RECEIVED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on	Ice (Y/N)	Custody (Y/N)	Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)
APPROVED (A): Antimony, Arsenic, Barium, Dalton Anderson (602) 412/19	Maria Mubon Geosyntec	4/21/19	17:45										
Beryllium, Cadmium, Chromium, Cobalt, Muelica espachon/Geosyntec	Geosyntec	4/21/19	19:30										
Fluoride, Lead, Lithium, Molybdenum, Nitrate, Nickel, Selenium, Thallium	APR-19 (Pace)	4/21/19	09:54	M. Rahman	4/21/19	11:00	10						
SAMPLER NAME AND SIGNATURE: Dalton Anderson		PRINT Name of SAMPLER:		DATE Signed: 4/2/19		SIGNATURE of SAMPLER: [Signature]							



Sample Condition Upon Receipt

Client Name: GAPower

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

WO#: **2616925**

PM: **BM**

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

CLIENT: **GAPower-CCR**

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

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

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

Thermometer Used 23 Type of Ice:  Wet  Blue  None

Cooler Temperature 1.0 Biological Tissue is Frozen: Yes No  
Temp should be above freezing to 6°C

Samples on ice, cooling process has begun

Date and Initials of person examining contents: 4/3/19 MR

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

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

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

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

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

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

April 25, 2019

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

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

Dear Joju Abraham:

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

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

Sincerely,



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

Enclosures

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



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond  
Pace Project No.: 2616926

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### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

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

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616926

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Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616926001	HGWA-1	Water	04/02/19 10:02	04/03/19 11:10
2616926002	HGWA-2	Water	04/02/19 13:40	04/03/19 11:10

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616926

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2616926001	HGWA-1	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616926002	HGWA-2	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616926

**Sample: HGWA-1**      **Lab ID: 2616926001**      Collected: 04/02/19 10:02      Received: 04/03/19 11:10      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.426 ± 0.282 (0.418)</b> <b>C:85% T:NA</b>	pCi/L	04/12/19 09:46	13982-63-3	
Radium-228	EPA 9320	<b>0.313 ± 0.501 (1.09)</b> <b>C:74% T:89%</b>	pCi/L	04/16/19 19:38	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.739 ± 0.783 (1.51)</b>	pCi/L	04/17/19 13:15	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616926

**Sample: HGWA-2**      **Lab ID: 2616926002**      Collected: 04/02/19 13:40      Received: 04/03/19 11:10      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.472 ± 0.275 (0.348)</b> <b>C:88% T:NA</b>	pCi/L	04/12/19 09:46	13982-63-3	
Radium-228	EPA 9320	<b>0.179 ± 0.465 (1.04)</b> <b>C:77% T:89%</b>	pCi/L	04/16/19 18:32	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.651 ± 0.740 (1.39)</b>	pCi/L	04/17/19 13:15	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616926

QC Batch: 337392

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2616926001, 2616926002

METHOD BLANK: 1642069

Matrix: Water

Associated Lab Samples: 2616926001, 2616926002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.117 ± 0.178 (0.382) C:94% T:NA	pCi/L	04/12/19 08:07	

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

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**QUALITY CONTROL - RADIOCHEMISTRY**

Project: Plant Hammond

Pace Project No.: 2616926

QC Batch: 337342

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616926001, 2616926002

METHOD BLANK: 1641953

Matrix: Water

Associated Lab Samples: 2616926001, 2616926002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	-0.245 ± 0.294 (0.748) C:78% T:79%	pCi/L	04/16/19 16:22	

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

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616926

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616926

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616926001	HGWA-1	EPA 9315	337392		
2616926002	HGWA-2	EPA 9315	337392		
2616926001	HGWA-1	EPA 9320	337342		
2616926002	HGWA-2	EPA 9320	337342		
2616926001	HGWA-1	Total Radium Calculation	338683		
2616926002	HGWA-2	Total Radium Calculation	338683		

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# CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 2 of 2

### Section A

**Required Client Information:**  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Manor Road  
 Atlanta, GA 30339  
 Email: jbraham@southhamco.com  
 Phone: (404)506-7239  
 Requested Due Date: Standard 1st

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

**Section C**  
**Invoice Information:**  
 Attention: scsinvoices@southhamco.com  
 Company Name:  
 Address:  
 Pace Quote:  
 Pace Project Manager: betisy.mcdaniel@pace-labs.com  
 Pace Profile #: 327 (AP) or 328 (Huf)

ITEM #	MATRIX	CODE	COLLECTED		DATE	TIME	SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	PRESERVATIVES	ANALYSES TESTED	RESIDUAL CHIRONS (Y/N)										
			START	END																		
1	Drinking Water	DW	4/12/19	13:40	4/12/19	13:40	5	2	3	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2SO3	Methanol	Other	Metals (App. III & App. IV)	Metals (App. III, App. IV, D&O)	TDS, Cl, F, SO4	Radium 226/228	
2	Water	WT																				
3	Waste Water	WW																				
4	Product	P																				
5	Soil/Sediment	SL																				
6	Oil	OL																				
7	Wipe	WP																				
8	Air	AR																				
9	Other	OT																				
10	Tissue	TS																				

**NO# : 2616926**  
**PM: 8M Due Date: 05/01/19**  
**CLIENT: GAPower-CCR**

**APPROVED BY (SAMPLER):** Dalton Anderson (Geo) 4/12/19 17:45  
**APPROVED BY (ANALYST):** M. LaVigne 4/12/19 19:30  
 4/3/19 09:54  
 4/3/19 11:00

**RECEIVED BY (PLANT):** M. LaVigne 4/12/19 17:45  
**RECEIVED BY (ANALYST):** M. LaVigne 4/12/19 19:30  
 4/3/19 09:54  
 4/3/19 11:00

**TEMP in C**  
 Received on: 4/12/19 17:45  
 Cooled (Y/N)  
 Sealed (Y/N)  
 Custody (Y/N)  
 Samples (Y/N)  
 Interact (Y/N)

**SAMPLER NAME AND SIGNATURE:** Dalton Anderson  
**PRINT Name of SAMPLER:** Dalton Anderson  
**SIGNATURE of SAMPLER:** Dalton Anderson  
**DATE Signed:** 4/12/19



Sample Condition Upon Receipt

Client Name: GIA Power

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

WO#: **2616926**

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

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

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

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 1.0 Biological Tissue is Frozen: Yes No  
Temp should be above freezing to 6°C

Samples on ice, cooling process has begun  
Date and initials of person examining contents: 4/3/19 MK

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

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

Person Contacted: \_\_\_\_\_  
Comments/ Resolution: \_\_\_\_\_

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

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



April 10, 2019

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

RE: Project: Plant Hammond  
Pace Project No.: 2616933

Dear Joju Abraham:

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

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

Sincerely,



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

Enclosures

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



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616933

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### Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616933

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

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616933

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

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616933

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

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616933

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

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## ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616933

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

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616933

Sample: HGWC-7		Lab ID: 2616933004		Collected: 04/02/19 17:15		Received: 04/03/19 11:10		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 20:31	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 20:31	7440-38-2		
Barium	<b>0.072</b>	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 20:31	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 20:31	7440-41-7		
Boron	<b>0.99</b>	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 20:31	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 20:31	7440-43-9		
Calcium	<b>101</b>	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 20:37	7440-70-2	M6	
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 20:31	7440-47-3		
Cobalt	<b>0.00069J</b>	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 20:31	7440-48-4		
Lithium	<b>0.0020J</b>	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 20:31	7439-93-2		
Molybdenum	<b>0.041</b>	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 20:31	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 20:31	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 20:31	7440-28-0		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>428</b>	mg/L	25.0	10.0	1		04/09/19 18:49			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>55.5</b>	mg/L	2.5	0.24	10		04/06/19 04:05	16887-00-6		
Fluoride	<b>0.097J</b>	mg/L	0.30	0.029	1		04/05/19 23:31	16984-48-8		
Sulfate	<b>127</b>	mg/L	10.0	0.17	10		04/06/19 04:05	14808-79-8		

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2616933

QC Batch: 25906 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3005A Analysis Description: 6020B MET  
Associated Lab Samples: 2616933001, 2616933002, 2616933003, 2616933004

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

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

LABORATORY CONTROL SAMPLE: 116818

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 116819 116820

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

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616933

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

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616933

QC Batch: 26059 Analysis Method: SM 2540C

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

Associated Lab Samples: 2616933001, 2616933002, 2616933003, 2616933004

LABORATORY CONTROL SAMPLE: 117667

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	407	102	84-108	

SAMPLE DUPLICATE: 117668

Parameter	Units	2616931001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	540	670	21	10	D6

SAMPLE DUPLICATE: 117669

Parameter	Units	2617082006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	728	766	5	10	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2616933

QC Batch: 25882 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 2616933001, 2616933002, 2616933003, 2616933004

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

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.029J	0.25	0.024	04/05/19 15:47	
Fluoride	mg/L	ND	0.30	0.029	04/05/19 15:47	
Sulfate	mg/L	ND	1.0	0.017	04/05/19 15:47	

LABORATORY CONTROL SAMPLE: 116733

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.5	105	90-110	
Fluoride	mg/L	10	10.4	104	90-110	
Sulfate	mg/L	10	10.2	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 116734 116735

Parameter	Units	2616927001		2616927002		2616927003		2616927004		% Rec Limits	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.			
Chloride	mg/L	4.4	10	10	10	14.5	14.6	101	102	90-110	0	15
Fluoride	mg/L	ND	10	10	10	10.6	10.6	106	106	90-110	0	15
Sulfate	mg/L	4.9	10	10	10	14.3	14.4	94	95	90-110	0	15

MATRIX SPIKE SAMPLE: 116736

Parameter	Units	2616927002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	1.7	10	11.3	96	90-110	
Fluoride	mg/L	0.12J	10	10.4	103	90-110	
Sulfate	mg/L	23.8	10	30.8	70	90-110 M1	

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### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Hammond  
Pace Project No.: 2616933

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

- |    |   |
|----|---|
| D6 | The precision between the sample and sample duplicate exceeded laboratory control limits.                     |
| M1 | Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.   |
| M6 | Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution. |

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616933

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

### REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A		Section B		Section C	
Required Client Information:		Required Project Information:		Invoice Information:	
Company: Georgia Power - Coal Combustion Residuals	Report To: Jofu Abraham	Client: Lauren Petty, Geosyntec	Company Name: Geosyntec	Attention: scsinvoices@geosyntec.com	Address: 2480 Maner Road, Atlanta, GA 30339
Address: 2480 Maner Road	Copy To: Lauren Petty, Geosyntec	Purchase Order #: SCS10248608	Project Name: Plant Hammond	Order #: 327 (AP) or 328 (Huff)	State: GA
Atlanta, GA 30339	Project #: Standard FRI	Pacel Project Manager: betsy.modamal@pacelabs.com			
Email: j.abraham@southhamco.com	Project #: Standard FRI	Pacel Profile #: 327 (AP) or 328 (Huff)			
Phone: (404)505-7239	Project #: Standard FRI	Pacel Profile #: 327 (AP) or 328 (Huff)			
Requested Due Date:	Project #: Standard FRI	Pacel Profile #: 327 (AP) or 328 (Huff)			

ITEM #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES	ANALYSED TEST	METS (App. III & App. IV, D&O)	METS (App. III, App. IV, D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
			START DATE TIME	END DATE TIME									
1	MW-29	WTG	04/02 13:52	04/02 14:05	16	5	2	3	Y	Y	Y	Y	Y
2	MW-20	WTG	04/02 15:35	04/02 15:54	19	5	2	3	Y	Y	Y	Y	Y
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													

GW 04/02/19

NO#: 2616933

DATE	TIME	ACCEPTED BY / VERIFICATION	DATE	TIME	RECEIVED ON	TEMP in C	Job (Y/N)	Custody (Y/N)	Sealed Cooler (Y/N)	Samples Intact (Y/N)
04/02/19	1745	Mollen/Melton/Geosyntec	4/2/19	1745						
04/02/19	1930	Geosyntec/Geosyntec	4/2/19	1930						
04/02/19	0954	Geosyntec/Geosyntec	4/2/19	0954						
04/02/19	1110	Mollen/Melton	4/2/19	1110						

SAMPLER NAME AND SIGNATURE: Grant Water  
 PRINT Name of SAMPLER: Grant Water  
 SIGNATURE OF SAMPLER: Grant Water  
 DATE Signed: 04/02/19



# CHAIN-OF-CUSTODY / Analytical Request Document

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: jbraham@southmco.com  
 Phone: (404) 505-7239  
 Requested Due Date: Standard TAT

**Section B**  
**Required Project Information:**  
 Report To: Jitu Abraham  
 Copy To: Lauren Petty, Geosyntec  
 Purchase Order #: SC510048608  
 Project Name: Plant Hammond  
 Project #:

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

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G-RAB C-COMP)	MATRIX CODE (see vild codes to left)	# OF CONTAINERS	SAMPLE TEMP AT COLLECTION	PRESERVATIVES	ANALYSES REQUESTED (Y/N)	DATE	TIME	DATE	TIME	RECEIVED BY (AFFILIATION)	DATE	TIME	TEMP IN C	Received on	Job (Y/N)	Custody (Y/N)	Sealed (Y/N)	Cooler (Y/N)	Samples (Y/N)	Initial (Y/N)	
			START	END																						
1	Drinking Water	DW	4/21/19	17:45	G-RAB		5	17:45	H2SO4, HNO3, HCl, NaOH, Na2S2O3, Methanol, Other	Metals (App. III & App. IV), Metals (App. III & D&O), TDS, Cl, F, SO4, Radium 226/228	4/21/19	17:45	4/21/19	17:45	Maellia Mumber	4/21/19	17:45									
2	Waste Water	WW	4/21/19	19:30	G-RAB		2	19:30			4/21/19	19:30	4/21/19	19:30	Maellia Mumber / Geosyntec	4/21/19	19:30									
3	Water Product	P	4/21/19	09:54	G-RAB		1	09:54			4/21/19	09:54	4/21/19	09:54	Maellia Mumber / Geosyntec	4/21/19	09:54									
4	Soil/Solid	SL	4/21/19	15:54	G-RAB		1	15:54			4/21/19	15:54	4/21/19	15:54	Maellia Mumber / Geosyntec	4/21/19	15:54									
5	Other	OT	4/21/19	15:54	G-RAB		1	15:54			4/21/19	15:54	4/21/19	15:54	Maellia Mumber / Geosyntec	4/21/19	15:54									
6	Wipe	WP	4/21/19	15:54	G-RAB		1	15:54			4/21/19	15:54	4/21/19	15:54	Maellia Mumber / Geosyntec	4/21/19	15:54									
7	Air	AR	4/21/19	15:54	G-RAB		1	15:54			4/21/19	15:54	4/21/19	15:54	Maellia Mumber / Geosyntec	4/21/19	15:54									
8	Other	OT	4/21/19	15:54	G-RAB		1	15:54			4/21/19	15:54	4/21/19	15:54	Maellia Mumber / Geosyntec	4/21/19	15:54									
9	Tissue	TS	4/21/19	15:54	G-RAB		1	15:54			4/21/19	15:54	4/21/19	15:54	Maellia Mumber / Geosyntec	4/21/19	15:54									
10	Drinking Water	DW	4/21/19	17:45	G-RAB		5	17:45			4/21/19	17:45	4/21/19	17:45	Maellia Mumber	4/21/19	17:45									
11	Waste Water	WW	4/21/19	19:30	G-RAB		2	19:30			4/21/19	19:30	4/21/19	19:30	Maellia Mumber / Geosyntec	4/21/19	19:30									
12	Water Product	P	4/21/19	09:54	G-RAB		1	09:54			4/21/19	09:54	4/21/19	09:54	Maellia Mumber / Geosyntec	4/21/19	09:54									
13	Soil/Solid	SL	4/21/19	15:54	G-RAB		1	15:54			4/21/19	15:54	4/21/19	15:54	Maellia Mumber / Geosyntec	4/21/19	15:54									
14	Wipe	WP	4/21/19	15:54	G-RAB		1	15:54			4/21/19	15:54	4/21/19	15:54	Maellia Mumber / Geosyntec	4/21/19	15:54									
15	Other	OT	4/21/19	15:54	G-RAB		1	15:54			4/21/19	15:54	4/21/19	15:54	Maellia Mumber / Geosyntec	4/21/19	15:54									
16	Tissue	TS	4/21/19	15:54	G-RAB		1	15:54			4/21/19	15:54	4/21/19	15:54	Maellia Mumber / Geosyntec	4/21/19	15:54									

**NO# : 2616933**  
 PM: BM Due Date: 04/10/19  
 CLIENT: GAPower-CCR

**CONTROL COMMENTS**  
 APPROX (2) Anthony, Arsed, Barium, Dalton Anderson (G) 4/21/19 17:45 Maellia Mumber  
 Beryllium, Cadmium, Chromium, Maellia Mumber / Geosyntec 4/21/19 19:30  
 Cobalt, Fluoride, Lithium, Molybdenum, Dalton Anderson / Geosyntec 4/21/19 09:54  
 Selenium, Thallium

**TEMP IN C**  
 Received on: 4/21/19 17:45  
 Job (Y/N):  
 Custody (Y/N):  
 Sealed (Y/N):  
 Cooler (Y/N):  
 Samples (Y/N):  
 Initial (Y/N):

**PRINT Name of SAMPLER:** Dalton Anderson  
**SIGNATURE OF SAMPLER:** [Signature]  
**DATE Signed:** 4/21/19







Sample Condition Upon Receipt

Client Name: GIA Power

Project #

WO#: **2616933**

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other

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

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 1.0 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Samples on ice, cooling process has begun

PM: BM

Due Date: 04/10/19

CLIENT: GAPower-CCR

Date and Initials of person examining contents: 4/3/19 ML

Comments:

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

Client Notification/ Resolution:

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

Field Data Required?

Y / N

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

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

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

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

April 25, 2019

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

RE: Project: Plant Hammond  
Pace Project No.: 2616935

Dear Joju Abraham:

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

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

Sincerely,



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

Enclosures

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



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond  
Pace Project No.: 2616935

---

### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

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

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616935

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

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616935

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

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616935

**Sample: MW-29**      **Lab ID: 2616935001**      Collected: 04/02/19 14:05      Received: 04/03/19 11:10      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.218 ± 0.272 (0.567)</b> <b>C:86% T:NA</b>	pCi/L	04/12/19 08:04	13982-63-3	
Radium-228	EPA 9320	<b>0.402 ± 0.408 (0.847)</b> <b>C:76% T:82%</b>	pCi/L	04/16/19 16:21	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.620 ± 0.680 (1.41)</b>	pCi/L	04/17/19 13:15	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616935

**Sample: MW-20**      **Lab ID: 2616935002**      Collected: 04/02/19 15:54      Received: 04/03/19 11:10      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.780 ± 0.360 (0.385)</b> C:89% T:NA	pCi/L	04/12/19 08:05	13982-63-3	
Radium-228	EPA 9320	<b>0.238 ± 0.422 (0.922)</b> C:73% T:76%	pCi/L	04/16/19 16:21	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.02 ± 0.782 (1.31)</b>	pCi/L	04/17/19 13:15	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616935

**Sample: MW-28D**      **Lab ID: 2616935003**      Collected: 04/02/19 16:30      Received: 04/03/19 11:10      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.312 ± 0.266 (0.489)</b> <b>C:95% T:NA</b>	pCi/L	04/12/19 08:07	13982-63-3	
Radium-228	EPA 9320	<b>0.167 ± 0.434 (0.966)</b> <b>C:70% T:88%</b>	pCi/L	04/16/19 16:21	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.479 ± 0.700 (1.46)</b>	pCi/L	04/17/19 13:15	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616935

**Sample: HGWC-7**      **Lab ID: 2616935004**      Collected: 04/02/19 17:15      Received: 04/03/19 11:10      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.445 ± 0.341 (0.626)</b> <b>C:88% T:NA</b>	pCi/L	04/12/19 08:08	13982-63-3	
Radium-228	EPA 9320	<b>0.420 ± 0.405 (0.834)</b> <b>C:76% T:85%</b>	pCi/L	04/16/19 16:22	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.865 ± 0.746 (1.46)</b>	pCi/L	04/17/19 13:15	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616935

QC Batch: 337392

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2616935003, 2616935004

METHOD BLANK: 1642069

Matrix: Water

Associated Lab Samples: 2616935003, 2616935004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.117 ± 0.178 (0.382) C:94% T:NA	pCi/L	04/12/19 08:07	

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

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616935

QC Batch: 337341

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616935001, 2616935002, 2616935003

METHOD BLANK: 1641952

Matrix: Water

Associated Lab Samples: 2616935001, 2616935002, 2616935003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.438 ± 0.343 (0.679) C:77% T:88%	pCi/L	04/16/19 13:06	

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

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616935

QC Batch: 337342

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616935004

METHOD BLANK: 1641953

Matrix: Water

Associated Lab Samples: 2616935004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	-0.245 ± 0.294 (0.748) C:78% T:79%	pCi/L	04/16/19 16:22	

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

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616935

QC Batch: 337391

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2616935001, 2616935002

METHOD BLANK: 1642068

Matrix: Water

Associated Lab Samples: 2616935001, 2616935002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.148 ± 0.194 (0.401) C:93% T:NA	pCi/L	04/12/19 08:12	

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

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## QUALIFIERS

Project: Plant Hammond  
Pace Project No.: 2616935

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616935

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

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# CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A		Section B		Section C	
Required Client Information:		Required Project Information:		Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joy Abraham	Attention:	scsinvoices@southamco.com
Address:	2480 Maner Road	Copy To:	Lauren Petty, Geosyntec	Company Name:	
Atlanta, GA	30339	Purchase Order #:	SGS10348606	Address:	
Email:	labraham@southamco.com	Project Name:	Plant Hartmond	Pace Project Manager:	betsy.mcdaniel@pacetabs.com.
Phone:	(404)508-7239	Project #:		Pace Profile #:	327 (AP) or 328 (Huff)
Requested Due Date:	Standard TAT	GA			

Page: 2 of 3

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	SAMPLE TEMP AT COLLECTION	PRESERVATIVES		Other	Metals (App. III & App. IV)	Metals (App. III, App. IV, D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
			START	END					H2SO4	HNO3						
1	Drinking Water	DW	11/19/19	11:45	17:45		3									
2	Waste Water	WW	11/19/19													
3	Waste Water	WW	11/19/19													
4	Waste Water	WW	11/19/19													
5	Waste Water	WW	11/19/19													
6	Waste Water	WW	11/19/19													
7	Waste Water	WW	11/19/19													
8	Waste Water	WW	11/19/19													
9	Waste Water	WW	11/19/19													
10	Waste Water	WW	11/19/19													
11	Waste Water	WW	11/19/19													
12	Waste Water	WW	11/19/19													

MO#: 2616935  
 PM: BM Due Date: 05/01/19  
 CLIENT: GAPower-CCR

RECEIVED BY / VERIFICATION	DATE	TEMP in C	Received on	Sealed	Cooler	Samples
Dalton Anderson (G)	4/21/19	17.45	4/21/19	1745		
Maellia Mufson / Geosyntec	4/21/19	19.38	4/21/19	1938		
Maellia Mufson / Geosyntec	4/21/19	09.54	4/21/19	0954		
Maellia Mufson / Geosyntec	4/21/19	11.07	4/21/19	1107		

SAMPLER NAME AND SIGNATURE: Dalton Anderson  
 PRINT Name of SAMPLER: Dalton Anderson  
 SIGNATURE of SAMPLER: [Signature]



# CHAIN-OF-CUSTODY / Analytical Request Document

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

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

**Section B**  
 Report To: Jody Abraham  
 Copy To: Lauren Petty, Geosyntec  
 Purchase Order #: SCS10348606  
 Project Name: Plant Hammond  
 Project #:

**Section C**  
 Invoice Information:  
 Attention: scsimvoices@southernco.com  
 Company Name:  
 Address:  
 Pace Quote:  
 Pace Project Manager: betsy.mcdaniel@peccolabs.com  
 Pace Profile #: 327 (AP) or 328 (Huf)  
 State: GA

Page: 3 of 3

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	SAMPLER TEMP AT COLLECTION		# OF CONTAINERS	PRESERVATIVES		ANALYSES TEST (Y/N)	Metals (App. III & App. IV)	Metals (App. III, App. IV, D&O)	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
			START	END			DATE	TIME		H2SO4	HNO3							
1	Drinking Water	DW	4/2/19	1645	WT	WT	4/2/19	1715	5	2	3	Y	Y	Y	Y	Y	Y	Y
2	Waste Water	WW																
3	Product	P																
4	Soil/Sediment	SL																
5	Oil	OL																
6	Wipe	WP																
7	Air	AR																
8	Other	OT																
9	Tissue	TS																

**ADDITIONAL COMMENTS**  
 App. IV (2): Antimony, Arsenic, Barium, Bismuth, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Molybdenum, Selenium, Thallium

**REASONED BY / EVALUATION**  
 DATE: 4/2/19  
 TIME: 1930  
 Signature: [Signature]

**TEMP IN C**  
 Received on: 4/5/19 11:07  
 Sealed: [Signature]  
 Cooled: [Signature]  
 Samples Intact: [Signature]

**DATE SIGNED:** 4/2/19  
**SIGNATURE OF SAMPLER:** Noelia Muskus  
**PRINT NAME OF SAMPLER:** Noelia Muskus

WO#: 2616935

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



Sample Condition Upon Receipt

Client Name: GIA Power

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

WO#: **2616935**

PM: BM

Due Date: 05/01/19

CLIENT: GAPower-CCR

Samples on ice, cooling process has begun

Date and Initials of person examining contents: 4/3/19 MR

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

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

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

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 1.0 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C Comments: \_\_\_\_\_

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

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

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

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

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

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

April 11, 2019

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

RE: Project: Plant Hammond  
Pace Project No.: 2616997

Dear Joju Abraham:

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

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

Sincerely,



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

Enclosures

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



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616997

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### Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616997

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

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616997

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2616997001	HGWC-9	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616997002	MW-26D	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616997003	MW-19	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616997004	MW-5	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616997005	HGWC-8	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616997006	HGWC-10	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616997007	MW-6	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616997008	MW-7	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616997009	HGWC-11	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616997010	HGWC-12	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616997011	MW-25D	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616997

**Sample: HGWC-9**      **Lab ID: 2616997001**      Collected: 04/03/19 10:05      Received: 04/04/19 11:00      Matrix: Water

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

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616997

Sample: MW-26D		Lab ID: 2616997002		Collected: 04/03/19 11:38		Received: 04/04/19 11:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 22:20	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 22:20	7440-38-2		
Barium	<b>0.12</b>	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 22:20	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 22:20	7440-41-7		
Boron	<b>1.5</b>	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 22:20	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 22:20	7440-43-9		
Calcium	<b>122</b>	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 22:26	7440-70-2		
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 22:20	7440-47-3		
Cobalt	ND	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 22:20	7440-48-4		
Lithium	<b>0.0034J</b>	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 22:20	7439-93-2		
Molybdenum	<b>0.0083J</b>	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 22:20	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 22:20	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 22:20	7440-28-0		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>493</b>	mg/L	25.0	10.0	1		04/10/19 16:41			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>90.6</b>	mg/L	2.5	0.24	10		04/11/19 13:12	16887-00-6		
Fluoride	<b>0.044J</b>	mg/L	0.30	0.029	1		04/05/19 15:12	16984-48-8		
Sulfate	<b>131</b>	mg/L	10.0	0.17	10		04/11/19 13:12	14808-79-8		

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## ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616997

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

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## ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616997

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

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## ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616997

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

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616997

Sample: HGWC-10		Lab ID: 2616997006		Collected: 04/03/19 13:38		Received: 04/04/19 11:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 23:17	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 23:17	7440-38-2		
Barium	<b>0.076</b>	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 23:17	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 23:17	7440-41-7		
Boron	<b>0.66</b>	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 23:17	7440-42-8		
Cadmium	<b>0.00010J</b>	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 23:17	7440-43-9		
Calcium	<b>137</b>	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 23:23	7440-70-2		
Chromium	<b>0.020</b>	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 23:17	7440-47-3		
Cobalt	ND	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 23:17	7440-48-4		
Lithium	ND	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 23:17	7439-93-2		
Molybdenum	<b>0.0021J</b>	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 23:17	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 23:17	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 23:17	7440-28-0		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>525</b>	mg/L	25.0	10.0	1		04/10/19 16:42			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>49.3</b>	mg/L	0.25	0.024	1		04/05/19 16:37	16887-00-6		
Fluoride	<b>0.082J</b>	mg/L	0.30	0.029	1		04/05/19 16:37	16984-48-8		
Sulfate	<b>159</b>	mg/L	10.0	0.17	10		04/05/19 21:15	14808-79-8		

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616997

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616997

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

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616997

**Sample: HGWC-11**      **Lab ID: 2616997009**      Collected: 04/03/19 12:40      Received: 04/04/19 11:00      Matrix: Water

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

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616997

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

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616997

Sample: MW-25D		Lab ID: 2616997011		Collected: 04/03/19 16:15		Received: 04/04/19 11:00		Matrix: Water	
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:33	04/10/19 01:41	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/08/19 11:33	04/10/19 01:41	7440-38-2	
Barium	<b>0.38</b>	mg/L	0.010	0.00078	1	04/08/19 11:33	04/10/19 01:41	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/08/19 11:33	04/10/19 01:41	7440-41-7	
Boron	<b>0.37</b>	mg/L	0.040	0.0039	1	04/08/19 11:33	04/10/19 01:41	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/08/19 11:33	04/10/19 01:41	7440-43-9	
Calcium	<b>25.4</b>	mg/L	25.0	0.69	50	04/08/19 11:33	04/10/19 10:46	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/08/19 11:33	04/10/19 01:41	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	04/08/19 11:33	04/10/19 01:41	7440-48-4	
Lithium	<b>0.047J</b>	mg/L	0.050	0.00097	1	04/08/19 11:33	04/10/19 01:41	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	04/08/19 11:33	04/10/19 01:41	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/08/19 11:33	04/10/19 01:41	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:33	04/10/19 01:41	7440-28-0	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>15.0J</b>	mg/L	25.0	10.0	1		04/10/19 16:42		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>32.0</b>	mg/L	0.25	0.024	1		04/05/19 20:11	16887-00-6	
Fluoride	<b>1.6</b>	mg/L	0.30	0.029	1		04/05/19 20:11	16984-48-8	
Sulfate	<b>53.0</b>	mg/L	10.0	0.17	10		04/11/19 15:13	14808-79-8	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616997

QC Batch: 25906 Analysis Method: EPA 6020B  
 QC Batch Method: EPA 3005A Analysis Description: 6020B MET  
 Associated Lab Samples: 2616997001, 2616997002, 2616997003, 2616997004, 2616997005, 2616997006

METHOD BLANK: 116817 Matrix: Water  
 Associated Lab Samples: 2616997001, 2616997002, 2616997003, 2616997004, 2616997005, 2616997006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	04/09/19 18:14	
Arsenic	mg/L	ND	0.0050	0.00057	04/09/19 18:14	
Barium	mg/L	ND	0.010	0.00078	04/09/19 18:14	
Beryllium	mg/L	ND	0.0030	0.000050	04/09/19 18:14	
Boron	mg/L	ND	0.040	0.0039	04/09/19 18:14	
Cadmium	mg/L	ND	0.0010	0.000093	04/09/19 18:14	
Calcium	mg/L	ND	0.50	0.014	04/09/19 18:14	
Chromium	mg/L	ND	0.010	0.0016	04/09/19 18:14	
Cobalt	mg/L	ND	0.010	0.00052	04/09/19 18:14	
Lithium	mg/L	ND	0.050	0.00097	04/09/19 18:14	
Molybdenum	mg/L	ND	0.010	0.0019	04/09/19 18:14	
Selenium	mg/L	ND	0.010	0.0014	04/09/19 18:14	
Thallium	mg/L	ND	0.0010	0.00014	04/09/19 18:14	

LABORATORY CONTROL SAMPLE: 116818

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	102	80-120	
Arsenic	mg/L	0.1	0.10	100	80-120	
Barium	mg/L	0.1	0.098	98	80-120	
Beryllium	mg/L	0.1	0.096	96	80-120	
Boron	mg/L	1	0.94	94	80-120	
Cadmium	mg/L	0.1	0.10	100	80-120	
Calcium	mg/L	1	0.97	97	80-120	
Chromium	mg/L	0.1	0.10	101	80-120	
Cobalt	mg/L	0.1	0.10	100	80-120	
Lithium	mg/L	0.1	0.096	96	80-120	
Molybdenum	mg/L	0.1	0.10	102	80-120	
Selenium	mg/L	0.1	0.10	101	80-120	
Thallium	mg/L	0.1	0.098	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 116819 116820

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		2616933004 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Antimony	mg/L	ND	0.1	0.1	0.11	0.10	108	105	75-125	3	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.10	102	102	75-125	0	20	
Barium	mg/L	0.072	0.1	0.1	0.18	0.18	109	105	75-125	2	20	

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616997

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 116819		116820		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		2616933004 Result	MS Spike Conc.	MSD Spike Conc.									
Beryllium	mg/L	ND	0.1	0.1	0.092	0.092	92	92	75-125	1	20		
Boron	mg/L	0.99	1	1	1.9	2.0	92	96	75-125	2	20		
Cadmium	mg/L	ND	0.1	0.1	0.10	0.10	104	101	75-125	3	20		
Calcium	mg/L	101	1	1	140	115	3930	1380	75-125	20	20	M6	
Chromium	mg/L	ND	0.1	0.1	0.11	0.10	105	103	75-125	2	20		
Cobalt	mg/L	0.00069J	0.1	0.1	0.10	0.10	102	100	75-125	2	20		
Lithium	mg/L	0.0020J	0.1	0.1	0.094	0.095	91	93	75-125	2	20		
Molybdenum	mg/L	0.041	0.1	0.1	0.15	0.15	112	110	75-125	1	20		
Selenium	mg/L	ND	0.1	0.1	0.11	0.10	105	102	75-125	3	20		
Thallium	mg/L	ND	0.1	0.1	0.097	0.096	97	95	75-125	2	20		

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2616997

QC Batch: 25997 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3005A Analysis Description: 6020B MET  
Associated Lab Samples: 2616997007, 2616997008, 2616997009, 2616997010, 2616997011

METHOD BLANK: 117367 Matrix: Water  
Associated Lab Samples: 2616997007, 2616997008, 2616997009, 2616997010, 2616997011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	04/09/19 23:46	
Arsenic	mg/L	ND	0.0050	0.00057	04/09/19 23:46	
Barium	mg/L	ND	0.010	0.00078	04/09/19 23:46	
Beryllium	mg/L	ND	0.0030	0.000050	04/09/19 23:46	
Boron	mg/L	ND	0.040	0.0039	04/09/19 23:46	
Cadmium	mg/L	ND	0.0010	0.000093	04/09/19 23:46	
Calcium	mg/L	ND	0.50	0.014	04/09/19 23:46	
Chromium	mg/L	ND	0.010	0.0016	04/09/19 23:46	
Cobalt	mg/L	ND	0.010	0.00052	04/09/19 23:46	
Lithium	mg/L	ND	0.050	0.00097	04/09/19 23:46	
Molybdenum	mg/L	ND	0.010	0.0019	04/09/19 23:46	
Selenium	mg/L	ND	0.010	0.0014	04/09/19 23:46	
Thallium	mg/L	ND	0.0010	0.00014	04/09/19 23:46	

LABORATORY CONTROL SAMPLE: 117368

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	102	80-120	
Arsenic	mg/L	0.1	0.096	96	80-120	
Barium	mg/L	0.1	0.098	98	80-120	
Beryllium	mg/L	0.1	0.094	94	80-120	
Boron	mg/L	1	0.95	95	80-120	
Cadmium	mg/L	0.1	0.10	100	80-120	
Calcium	mg/L	1	0.98	98	80-120	
Chromium	mg/L	0.1	0.10	104	80-120	
Cobalt	mg/L	0.1	0.10	101	80-120	
Lithium	mg/L	0.1	0.094	94	80-120	
Molybdenum	mg/L	0.1	0.10	102	80-120	
Selenium	mg/L	0.1	0.097	97	80-120	
Thallium	mg/L	0.1	0.096	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 117369 117370

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		2616997007 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Antimony	mg/L	ND	0.1	0.1	0.10	0.10	102	102	75-125	0	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.099	100	99	75-125	1	20	
Barium	mg/L	0.090	0.1	0.1	0.18	0.18	90	93	75-125	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616997

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 117369		117370		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		2616997007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Beryllium	mg/L	ND	0.1	0.1	0.090	0.088	90	88	75-125	2	20		
Boron	mg/L	0.67	1	1	1.5	1.5	85	86	75-125	0	20		
Cadmium	mg/L	ND	0.1	0.1	0.099	0.099	99	99	75-125	0	20		
Calcium	mg/L	178	1	1	173	179	-513	1	75-125	3	20		
Chromium	mg/L	ND	0.1	0.1	0.099	0.10	99	102	75-125	3	20		
Cobalt	mg/L	ND	0.1	0.1	0.096	0.097	95	97	75-125	2	20		
Lithium	mg/L	ND	0.1	0.1	0.090	0.091	90	90	75-125	0	20		
Molybdenum	mg/L	0.0021J	0.1	0.1	0.10	0.11	103	104	75-125	1	20		
Selenium	mg/L	ND	0.1	0.1	0.097	0.10	97	100	75-125	3	20		
Thallium	mg/L	ND	0.1	0.1	0.092	0.094	92	94	75-125	2	20		

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2616997

QC Batch: 25883 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 2616997001, 2616997002, 2616997003, 2616997004, 2616997005, 2616997006, 2616997007, 2616997008, 2616997009, 2616997010, 2616997011

METHOD BLANK: 116739 Matrix: Water  
Associated Lab Samples: 2616997001, 2616997002, 2616997003, 2616997004, 2616997005, 2616997006, 2616997007, 2616997008, 2616997009, 2616997010, 2616997011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.057J	0.25	0.024	04/05/19 13:26	
Fluoride	mg/L	ND	0.30	0.029	04/05/19 13:26	
Sulfate	mg/L	0.026J	1.0	0.017	04/05/19 13:26	

LABORATORY CONTROL SAMPLE: 116740

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.1	101	90-110	
Fluoride	mg/L	10	10.1	101	90-110	
Sulfate	mg/L	10	10.0	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 116741 116742

Parameter	Units	2616997001		2616997002		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	% Rec	% Rec					
Chloride	mg/L	130	10	10	111	111	-190	-190	90-110	0	15	E,M1	
Fluoride	mg/L	0.14J	10	10	10.4	10.2	103	100	90-110	2	15		
Sulfate	mg/L	214	10	10	165	165	-494	-494	90-110	0	15	E,M1	

MATRIX SPIKE SAMPLE: 116743

Parameter	Units	2616997002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	90.6	10	90.3	-2	90-110	E
Fluoride	mg/L	0.044J	10	9.2	92	90-110	
Sulfate	mg/L	131	10	122	-98	90-110	E

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616997

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

E Analyte concentration exceeded the calibration range. The reported result is estimated.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond  
Pace Project No.: 2616997

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616997001	HGWC-9	EPA 3005A	25906	EPA 6020B	25928
2616997002	MW-26D	EPA 3005A	25906	EPA 6020B	25928
2616997003	MW-19	EPA 3005A	25906	EPA 6020B	25928
2616997004	MW-5	EPA 3005A	25906	EPA 6020B	25928
2616997005	HGWC-8	EPA 3005A	25906	EPA 6020B	25928
2616997006	HGWC-10	EPA 3005A	25906	EPA 6020B	25928
2616997007	MW-6	EPA 3005A	25997	EPA 6020B	26011
2616997008	MW-7	EPA 3005A	25997	EPA 6020B	26011
2616997009	HGWC-11	EPA 3005A	25997	EPA 6020B	26011
2616997010	HGWC-12	EPA 3005A	25997	EPA 6020B	26011
2616997011	MW-25D	EPA 3005A	25997	EPA 6020B	26011
2616997001	HGWC-9	SM 2540C	26129		
2616997002	MW-26D	SM 2540C	26129		
2616997003	MW-19	SM 2540C	26129		
2616997004	MW-5	SM 2540C	26129		
2616997005	HGWC-8	SM 2540C	26129		
2616997006	HGWC-10	SM 2540C	26129		
2616997007	MW-6	SM 2540C	26129		
2616997008	MW-7	SM 2540C	26129		
2616997009	HGWC-11	SM 2540C	26129		
2616997010	HGWC-12	SM 2540C	26129		
2616997011	MW-25D	SM 2540C	26129		
2616997001	HGWC-9	EPA 300.0	25883		
2616997002	MW-26D	EPA 300.0	25883		
2616997003	MW-19	EPA 300.0	25883		
2616997004	MW-5	EPA 300.0	25883		
2616997005	HGWC-8	EPA 300.0	25883		
2616997006	HGWC-10	EPA 300.0	25883		
2616997007	MW-6	EPA 300.0	25883		
2616997008	MW-7	EPA 300.0	25883		
2616997009	HGWC-11	EPA 300.0	25883		
2616997010	HGWC-12	EPA 300.0	25883		
2616997011	MW-25D	EPA 300.0	25883		

### REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 2 of 3

**Section A**  
**Required Client Information:**  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Nanner Road  
 Atlanta, GA 30339  
 Email: jabraham@southemco.com  
 Phone: (404) 506-7239  
 Requested Due Date: **Standard TAT**

**Section B**  
**Required Project Information:**  
 Report To: Joju Abraham  
 Copy To: Lauren Petty, Geosyntec  
 Purchase Order #: SCS10348606  
 Project Name: Plant Hammond  
 Project #:

**Section C**  
**Invoice Information:**  
 Attention: scsinvoices@southemco.com  
 Company Name:  
 Address:  
 Pace Project Manager: betsy.mcdaniel@paceilabs.com  
 Pace Profile #: 327 (AP) or 328 (Huff)

ITEM #	MATRIX	MATRIX CODE	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see void codes to left)	SAMPLER TEMP AT COLLECTION		# OF CONTAINERS	PRESERVATIVES	ANALYSES TEST		REQUIRED ANALYSES (Y/N)		Residual Chlorine (Y/N)
			START DATE	START TIME			END DATE	END TIME			DATE	TIME	DATE	TIME	
1	Drinking Water	OW	4/3/19	1054	4/3/19	1124	185	2	H2SO4	Y	Metals (App. III & App. IV)	Y	Metals (App. III & D&O)	Y	
2	Waste Water	WW	4/3/19	1310	4/3/19	1330	195	2	HNO3	Y	Metals (App. III & App. IV)	Y	Metals (App. III & D&O)	Y	
3	Process	P	4/3/19	1450	4/3/19	1510	205	2	Unpreserved	Y	Metals (App. III & App. IV)	Y	Metals (App. III & D&O)	Y	
4	Sulfidated Oil	SO													
5	Wipe	WIP													
6	Air	AIR													
7	Other	OT													
8	Tissue	TS													

**ADDITIONAL COMMENTS:**  
 App. IV (2): Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lithium, Molybdenum, Selenium, Thallium

**SAMPLER NAME AND SIGNATURE:**  
 Noelia Muskus  
 Maria Muskus

**DATE SIGNED:** 4/3/19

**DATE:** 4/3/19 1700  
 4/4/19 0908  
 4/4/19 1100

**TEMP IN C:** 35.7

**RECEIVED ON:** 4/3/19

**COOLER:** Y

**SEAL:** Y

**CUSTODY:** Y

**SAMPLE CONTAINERS:** Y

**WO# : 2616997**  
 PM: BM  
 Due Date: 04/11/19  
 CLIENT: GAPower-CCR





Sample Condition Upon Receipt

Client Name: GIA Power

Project # \_\_\_\_\_

WO#: **2616997**

PM: **BM** Due Date: **04/11/19**

CLIENT: **GAPower-CCR**

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other

Tracking #: \_\_\_\_\_

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 3.5 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Samples on ice, cooling process has begun

Date and Initials of person examining contents: 4/4/19 MM

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.	
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.	
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.	
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.	
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.	
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.	
-Includes date/time/ID/Analysis Matrix:	<u>W</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.	
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed	Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.	
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.	
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Pace Trip Blank Lot # (if purchased):			

Client Notification/ Resolution: \_\_\_\_\_

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

Field Data Required? Y / N

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

April 26, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2616998

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 04, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond  
Pace Project No.: 2616998

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### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond  
Pace Project No.: 2616998

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616998001	HGWC-9	Water	04/03/19 10:05	04/04/19 11:00
2616998002	MW-26D	Water	04/03/19 11:38	04/04/19 11:00
2616998003	MW-19	Water	04/03/19 14:50	04/04/19 11:00
2616998004	MW-5	Water	04/03/19 13:12	04/04/19 11:00
2616998005	HGWC-8	Water	04/03/19 11:24	04/04/19 11:00
2616998006	HGWC-10	Water	04/03/19 13:38	04/04/19 11:00
2616998007	MW-6	Water	04/03/19 15:10	04/04/19 11:00
2616998008	MW-7	Water	04/03/19 10:45	04/04/19 11:00
2616998009	HGWC-11	Water	04/03/19 12:40	04/04/19 11:00
2616998010	HGWC-12	Water	04/03/19 14:20	04/04/19 11:00
2616998011	MW-25D	Water	04/03/19 16:15	04/04/19 11:00

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond  
Pace Project No.: 2616998

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2616998001	HGWC-9	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998002	MW-26D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998003	MW-19	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998004	MW-5	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998005	HGWC-8	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998006	HGWC-10	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998007	MW-6	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998008	MW-7	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998009	HGWC-11	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998010	HGWC-12	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998011	MW-25D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616998

**Sample: HGWC-9**      **Lab ID: 2616998001**      Collected: 04/03/19 10:05      Received: 04/04/19 11:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.147 ± 0.211 (0.452)</b> <b>C:86% T:NA</b>	pCi/L	04/12/19 09:46	13982-63-3	
Radium-228	EPA 9320	<b>0.00881 ± 0.442 (1.03)</b> <b>C:76% T:82%</b>	pCi/L	04/16/19 18:33	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.156 ± 0.653 (1.48)</b>	pCi/L	04/17/19 13:15	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616998

**Sample: MW-26D**      **Lab ID: 2616998002**      Collected: 04/03/19 11:38      Received: 04/04/19 11:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.205 ± 0.207 (0.378)</b> <b>C:94% T:NA</b>	pCi/L	04/12/19 09:36	13982-63-3	
Radium-228	EPA 9320	<b>-0.0700 ± 0.421 (1.00)</b> <b>C:77% T:80%</b>	pCi/L	04/16/19 18:37	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.205 ± 0.628 (1.38)</b>	pCi/L	04/17/19 13:15	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616998

**Sample: MW-19**      **Lab ID: 2616998003**      Collected: 04/03/19 14:50      Received: 04/04/19 11:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.276 ± 0.229 (0.387)</b> C:89% T:NA	pCi/L	04/12/19 09:49	13982-63-3	
Radium-228	EPA 9320	<b>0.608 ± 0.805 (1.72)</b> C:77% T:83%	pCi/L	04/16/19 21:13	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.884 ± 1.03 (2.11)</b>	pCi/L	04/17/19 13:15	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616998

**Sample: MW-5**      **Lab ID: 2616998004**      Collected: 04/03/19 13:12      Received: 04/04/19 11:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.607 ± 0.360 (0.575)</b> C:92% T:NA	pCi/L	04/12/19 09:37	13982-63-3	
Radium-228	EPA 9320	<b>0.325 ± 0.807 (1.79)</b> C:79% T:83%	pCi/L	04/16/19 21:13	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.932 ± 1.17 (2.37)</b>	pCi/L	04/17/19 13:15	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616998

**Sample: HGWC-8**      **Lab ID: 2616998005**      Collected: 04/03/19 11:24      Received: 04/04/19 11:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.291 ± 0.241 (0.415)</b> C:92% T:NA	pCi/L	04/12/19 09:46	13982-63-3	
Radium-228	EPA 9320	<b>0.594 ± 0.544 (1.11)</b> C:77% T:79%	pCi/L	04/16/19 18:37	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.885 ± 0.785 (1.53)</b>	pCi/L	04/17/19 13:15	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616998

**Sample: HGWC-10**      **Lab ID: 2616998006**      Collected: 04/03/19 13:38      Received: 04/04/19 11:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>1.80 ± 0.587 (0.524)</b> C:83% T:NA	pCi/L	04/12/19 09:39	13982-63-3	
Radium-228	EPA 9320	<b>0.0170 ± 0.700 (1.61)</b> C:80% T:80%	pCi/L	04/16/19 21:13	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.82 ± 1.29 (2.13)</b>	pCi/L	04/17/19 13:15	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616998

**Sample: MW-6**      **Lab ID: 2616998007**      Collected: 04/03/19 15:10      Received: 04/04/19 11:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.789 ± 0.376 (0.497)</b> C:91% T:NA	pCi/L	04/12/19 09:49	13982-63-3	
Radium-228	EPA 9320	<b>0.0827 ± 0.817 (1.86)</b> C:79% T:80%	pCi/L	04/16/19 21:13	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.872 ± 1.19 (2.36)</b>	pCi/L	04/17/19 13:15	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616998

**Sample: MW-7**      **Lab ID: 2616998008**      Collected: 04/03/19 10:45      Received: 04/04/19 11:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.310 ± 0.233 (0.379)</b> C:99% T:NA	pCi/L	04/12/19 09:46	13982-63-3	
Radium-228	EPA 9320	<b>0.741 ± 0.545 (1.07)</b> C:75% T:84%	pCi/L	04/16/19 18:35	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.05 ± 0.778 (1.45)</b>	pCi/L	04/17/19 13:15	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616998

**Sample: HGWC-11**      **Lab ID: 2616998009**      Collected: 04/03/19 12:40      Received: 04/04/19 11:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.302 ± 0.263 (0.475)</b> C:90% T:NA	pCi/L	04/12/19 09:37	13982-63-3	
Radium-228	EPA 9320	<b>0.0575 ± 0.452 (1.04)</b> C:79% T:82%	pCi/L	04/16/19 18:37	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.360 ± 0.715 (1.52)</b>	pCi/L	04/17/19 13:15	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616998

**Sample: HGWC-12**      **Lab ID: 2616998010**      Collected: 04/03/19 14:20      Received: 04/04/19 11:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.344 ± 0.249 (0.412)</b> C:94% T:NA	pCi/L	04/12/19 09:49	13982-63-3	
Radium-228	EPA 9320	<b>0.390 ± 0.755 (1.66)</b> C:76% T:83%	pCi/L	04/16/19 21:13	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.734 ± 1.00 (2.07)</b>	pCi/L	04/17/19 13:15	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616998

**Sample: MW-25D**      **Lab ID: 2616998011**      Collected: 04/03/19 16:15      Received: 04/04/19 11:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.361 ± 0.333 (0.652)</b> <b>C:82% T:NA</b>	pCi/L	04/12/19 09:49	13982-63-3	
Radium-228	EPA 9320	<b>0.301 ± 0.482 (1.05)</b> <b>C:74% T:77%</b>	pCi/L	04/25/19 11:04	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.662 ± 0.815 (1.70)</b>	pCi/L	04/26/19 09:32	7440-14-4	

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616998

QC Batch: 337393

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2616998003, 2616998004, 2616998006, 2616998007, 2616998009, 2616998010, 2616998011

METHOD BLANK: 1642070

Matrix: Water

Associated Lab Samples: 2616998003, 2616998004, 2616998006, 2616998007, 2616998009, 2616998010, 2616998011

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.123 ± 0.274 (0.633) C:65% T:NA	pCi/L	04/12/19 09:37	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616998

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QC Batch:	337392	Analysis Method:	EPA 9315
QC Batch Method:	EPA 9315	Analysis Description:	9315 Total Radium
Associated Lab Samples:	2616998001, 2616998002, 2616998005, 2616998008		

---

METHOD BLANK:	1642069	Matrix:	Water
Associated Lab Samples:	2616998001, 2616998002, 2616998005, 2616998008		

---

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.117 ± 0.178 (0.382) C:94% T:NA	pCi/L	04/12/19 08:07	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616998

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QC Batch:	337342	Analysis Method:	EPA 9320
QC Batch Method:	EPA 9320	Analysis Description:	9320 Radium 228
Associated Lab Samples:	2616998001, 2616998002, 2616998003, 2616998004, 2616998005, 2616998006, 2616998007, 2616998008, 2616998009, 2616998010		

---

METHOD BLANK:	1641953	Matrix:	Water
Associated Lab Samples:	2616998001, 2616998002, 2616998003, 2616998004, 2616998005, 2616998006, 2616998007, 2616998008, 2616998009, 2616998010		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	-0.245 ± 0.294 (0.748) C:78% T:79%	pCi/L	04/16/19 16:22	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616998

QC Batch: 338745

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616998011

METHOD BLANK: 1648702

Matrix: Water

Associated Lab Samples: 2616998011

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.552 ± 0.362 (0.681) C:81% T:74%	pCi/L	04/25/19 11:04	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616998

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond  
Pace Project No.: 2616998

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616998001	HGWC-9	EPA 9315	337392		
2616998002	MW-26D	EPA 9315	337392		
2616998003	MW-19	EPA 9315	337393		
2616998004	MW-5	EPA 9315	337393		
2616998005	HGWC-8	EPA 9315	337392		
2616998006	HGWC-10	EPA 9315	337393		
2616998007	MW-6	EPA 9315	337393		
2616998008	MW-7	EPA 9315	337392		
2616998009	HGWC-11	EPA 9315	337393		
2616998010	HGWC-12	EPA 9315	337393		
2616998011	MW-25D	EPA 9315	337393		
2616998001	HGWC-9	EPA 9320	337342		
2616998002	MW-26D	EPA 9320	337342		
2616998003	MW-19	EPA 9320	337342		
2616998004	MW-5	EPA 9320	337342		
2616998005	HGWC-8	EPA 9320	337342		
2616998006	HGWC-10	EPA 9320	337342		
2616998007	MW-6	EPA 9320	337342		
2616998008	MW-7	EPA 9320	337342		
2616998009	HGWC-11	EPA 9320	337342		
2616998010	HGWC-12	EPA 9320	337342		
2616998011	MW-25D	EPA 9320	338745		
2616998001	HGWC-9	Total Radium Calculation	338684		
2616998002	MW-26D	Total Radium Calculation	338684		
2616998003	MW-19	Total Radium Calculation	338684		
2616998004	MW-5	Total Radium Calculation	338684		
2616998005	HGWC-8	Total Radium Calculation	338684		
2616998006	HGWC-10	Total Radium Calculation	338684		
2616998007	MW-6	Total Radium Calculation	338684		
2616998008	MW-7	Total Radium Calculation	338684		
2616998009	HGWC-11	Total Radium Calculation	338684		
2616998010	HGWC-12	Total Radium Calculation	338684		
2616998011	MW-25D	Total Radium Calculation	340066		

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: **2** of **3**

**Section A**  
 Required Client Information:  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Maner Road  
 Atlanta, GA 30339  
 Email: jbrabham@southernco.com  
 Phone: (404) 506-7239  
 Requested Due Date: **Standard TAT**

**Section B**  
 Required Project Information:  
 Report To: Jopi Abraham  
 Copy To: Lauren Felty, Geosyntec  
 Purchase Order #: SCS 0948606  
 Project Name: Plant Hammond

**Section C**  
 Invoice Information:  
 Attention: scsinvoices@southernco.com  
 Company Name:  
 Address:  
 Pace Quote:  
 Pace Project Manager: betsy.mcdaniel@pacelabs.com  
 Pace Profile #: 327 (AP) or 328 (Huff)

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	PRESERVATIVES		# OF CONTAINERS	ANALYSES TEST	Mets (App. III & App. IV, D&O)	Mets (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
			START DATE	START TIME			END DATE	END TIME							
1	DW	DW	4/3/19	1054	G	WT G			5	2	3				
2	WT	WT	4/3/19	1310	G	WT G			5	2	3				
3	WT	WT	4/3/19	1450	G	WT G			5	2	3				
4															
5															
6															
7															
8															
9															
10															
11															
12															

**WQH# 2616998**  
 RM: BM Due Date: 05/02/19  
 CLIENT: GAPower-CCR

RECEIVED BY / AFFILIATION	DATE	TIME	TEMP IN C	RECEIVED ON	ICE (Y/N)	CUSTODY (Y/N)	SEALED (Y/N)	COOLER (Y/N)	SAMPLES (Y/N)	INTACT (Y/N)
Noelia Musus / Geosyntec	4/3/19	1100	1908							
Geosyntec	4/4/19	0908								
<i>(Signature)</i>	4/4/19	1100	357							

**SAMPLER NAME AND SIGNATURE**  
 PRINT Name of SAMPLER: Noelia Musus  
 SIGNATURE of SAMPLER: *(Signature)*  
 DATE Signed: 4/3/19





Sample Condition Upon Receipt

Client Name: GA Power

Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other  
Tracking #: \_\_\_\_\_

WO#: **2616998**

PM: **BM** Due Date: **05/02/19**  
CLIENT: **GA Power-CCR**

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 3.5 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Samples on ice, cooling process has begun  
Date and Initials of person examining contents: 4/29/19 MR

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.		
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.		
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.		
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.		
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.		
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.		
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.		
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.		
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.		
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.		
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.		
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.		
-Includes date/time/ID/Analysis Matrix:	<u>W</u>			
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.		
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed	Lot # of added preservative	
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.		
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.		
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.		
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A			
Pace Trip Blank Lot # (if purchased):				

Client Notification/ Resolution: \_\_\_\_\_

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

Field Data Required? Y / N

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)



May 01, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2617067

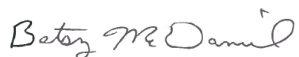
Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 05, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This revised report replaces the one issued on 4/12/2019. The report has been revised to correct metals units per consultant request. No other changes have been made to this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2617067

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### Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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### Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804

Florida/NELAP Certification #: E87648

Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40

South Carolina Certification #: 99030001

Virginia/VELAP Certification #: 460222

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## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: Plant Hammond  
Pace Project No.: 2617067

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Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617067001	MW-27D	Water	04/04/19 09:48	04/05/19 11:20

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond  
Pace Project No.: 2617067

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617067001	MW-27D	EPA 6020B	JMW1	13	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond  
Pace Project No.: 2617067

Sample: MW-27D		Lab ID: 2617067001		Collected: 04/04/19 09:48		Received: 04/05/19 11:20		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Antimony	<b>0.00016J</b>	mg/L	0.0030	0.00011	1	04/09/19 10:55	04/10/19 02:00	7440-36-0		
Arsenic	<b>0.00020J</b>	mg/L	0.0050	0.000060	1	04/09/19 10:55	04/10/19 02:00	7440-38-2		
Barium	<b>1.2</b>	mg/L	0.050	0.00030	5	04/09/19 10:55	04/11/19 01:16	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 10:55	04/10/19 02:00	7440-41-7		
Boron	<b>0.12J</b>	mg/L	0.20	0.0051	2	04/09/19 10:55	04/11/19 01:12	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 10:55	04/10/19 02:00	7440-43-9		
Calcium	<b>26.3</b>	mg/L	2.5	0.10	5	04/09/19 10:55	04/11/19 01:16	7440-70-2		
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 10:55	04/10/19 02:00	7440-47-3		
Cobalt	<b>0.000091J</b>	mg/L	0.010	0.000050	1	04/09/19 10:55	04/10/19 02:00	7440-48-4		
Lithium	<b>0.0069J</b>	mg/L	0.050	0.00042	1	04/09/19 10:55	04/10/19 02:00	7439-93-2		
Molybdenum	<b>0.0018J</b>	mg/L	0.010	0.00010	1	04/09/19 10:55	04/10/19 02:00	7439-98-7		
Selenium	<b>0.00012J</b>	mg/L	0.010	0.000080	1	04/09/19 10:55	04/10/19 02:00	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 10:55	04/10/19 02:00	7440-28-0		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>203</b>	mg/L	25.0	10.0	1		04/11/19 19:34			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>26.9</b>	mg/L	0.25	0.024	1		04/09/19 09:48	16887-00-6		
Fluoride	<b>0.26J</b>	mg/L	0.30	0.029	1		04/09/19 09:48	16984-48-8		
Sulfate	<b>11.8</b>	mg/L	1.0	0.017	1		04/09/19 09:48	14808-79-8		

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2617067

QC Batch: 468126 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3010A Analysis Description: 6020 MET  
Associated Lab Samples: 2617067001

METHOD BLANK: 2543175 Matrix: Water  
Associated Lab Samples: 2617067001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00011	04/10/19 00:56	
Arsenic	mg/L	ND	0.0050	0.000060	04/11/19 00:58	
Barium	mg/L	ND	0.010	0.000060	04/11/19 00:58	
Beryllium	mg/L	ND	0.0030	0.000050	04/10/19 00:56	
Boron	mg/L	ND	0.10	0.0026	04/11/19 00:58	
Cadmium	mg/L	ND	0.0010	0.000070	04/11/19 00:58	
Calcium	mg/L	ND	0.50	0.021	04/11/19 00:58	
Chromium	mg/L	ND	0.010	0.00042	04/11/19 00:58	
Cobalt	mg/L	ND	0.010	0.000050	04/11/19 00:58	
Lithium	mg/L	ND	0.050	0.00042	04/11/19 00:58	
Molybdenum	mg/L	ND	0.010	0.00010	04/11/19 00:58	
Selenium	mg/L	ND	0.010	0.000080	04/11/19 00:58	
Thallium	mg/L	ND	0.0010	0.000060	04/11/19 00:58	

LABORATORY CONTROL SAMPLE: 2543176

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	100	80-120	
Arsenic	mg/L	0.01	0.0099	99	80-120	
Barium	mg/L	0.05	0.049	98	80-120	
Beryllium	mg/L	0.01	0.0095	95	80-120	
Boron	mg/L	0.05	0.047J	94	80-120	
Cadmium	mg/L	0.01	0.010	101	80-120	
Calcium	mg/L	0.62	0.63	101	80-120	
Chromium	mg/L	0.05	0.050	99	80-120	
Cobalt	mg/L	0.01	0.010J	100	80-120	
Lithium	mg/L	0.05	0.050J	100	80-120	
Molybdenum	mg/L	0.05	0.051	102	80-120	
Selenium	mg/L	0.05	0.050	99	80-120	
Thallium	mg/L	0.01	0.0099	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2543177 2543178

Parameter	Units	2543177		2543178		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Antimony	mg/L	ND	0.1	0.1	0.10	0.10	102	100	75-125	2	20	
Arsenic	mg/L	0.00017J	0.01	0.01	0.010	0.010	102	99	75-125	3	20	
Barium	mg/L	0.018	0.05	0.05	0.069	0.068	101	99	75-125	1	20	

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2617067

Parameter	Units	2543177		2543178		MS % Rec	MSD % Rec	% Rec	Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Beryllium	mg/L	ND	0.01	0.01	0.0088	0.0084	87	84	75-125	4	20	
Boron	mg/L	2.3	0.05	0.05	2.4	2.4	205	248	75-125	1	20	M6
Cadmium	mg/L	0.0018	0.01	0.01	0.012	0.011	97	96	75-125	1	20	
Calcium	mg/L	214	0.62	0.62	218	216	575	271	75-125	1	20	M6
Chromium	mg/L	ND	0.05	0.05	0.050	0.049	99	98	75-125	1	20	
Cobalt	mg/L	0.035	0.01	0.01	0.044	0.044	97	94	75-125	1	20	
Lithium	mg/L	0.00090J	0.05	0.05	0.046J	0.045J	90	88	75-125	2	20	
Molybdenum	mg/L	ND	0.05	0.05	0.052	0.052	104	103	75-125	1	20	
Selenium	mg/L	0.00021J	0.05	0.05	0.050	0.049	99	97	75-125	2	20	
Thallium	mg/L	ND	0.01	0.01	0.010	0.010	104	102	75-125	1	20	

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2617067

QC Batch: 25956 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 2617067001

METHOD BLANK: 117263 Matrix: Water  
Associated Lab Samples: 2617067001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.066J	0.25	0.024	04/08/19 22:43	
Fluoride	mg/L	ND	0.30	0.029	04/08/19 22:43	
Sulfate	mg/L	0.045J	1.0	0.017	04/08/19 22:43	

LABORATORY CONTROL SAMPLE: 117264

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	9.8	98	90-110	
Fluoride	mg/L	10	9.7	97	90-110	
Sulfate	mg/L	10	9.7	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 117265 117266

Parameter	Units	2617035001		2617035002		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	% Rec	% Rec					
Chloride	mg/L	4.3	10	10	14.3	14.4	100	101	90-110	1	15		
Fluoride	mg/L	ND	10	10	9.7	9.8	97	98	90-110	1	15		
Sulfate	mg/L	8.5	10	10	17.6	17.7	91	92	90-110	0	15		

MATRIX SPIKE SAMPLE: 117267

Parameter	Units	2617035002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	4.2	10	13.9	96	90-110	
Fluoride	mg/L	ND	10	9.3	93	90-110	
Sulfate	mg/L	2.1	10	11.2	91	90-110	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Hammond  
Pace Project No.: 2617067

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### LABORATORIES

PASI-A Pace Analytical Services - Asheville

PASI-GA Pace Analytical Services - Atlanta, GA

### ANALYTE QUALIFIERS

D6 The precision between the sample and sample duplicate exceeded laboratory control limits.

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2617067

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617067001	MW-27D	EPA 3010A	468126	EPA 6020B	468248
2617067001	MW-27D	SM 2540C	26251		
2617067001	MW-27D	EPA 300.0	25956		

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

### Section A

#### Required Client Information:

Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Maner Road  
 Atlanta, GA 30339  
 Email: jbraham@southemco.com  
 Phone: (404) 505-7239  
 Requested Due Date: **Standard TAT**

### Section B

#### Invoice Information:

Report To: Jolu Abraham  
 Copy To: Lauren Peaty, Geosyntec  
 Attention: scsinvoices@southemco.com  
 Company Name:  
 Address:  
 State: GA  
 City: Marietta  
 Zip: 30067  
 Project Name: Plant Hammond  
 Project #: 327 (AP) or 328 (Huff)

### Section C

#### Required Project Information:

Matrix Code: 669 (see valid codes to left)  
 Sample Type: (G=GRAB C=COMP)  
 Matrix Code: 669 (see valid codes to left)  
 Sample Type: (G=GRAB C=COMP)

ITEM #	MATRIX CODE (669 valid codes to left)	MATRIX	COLLECTED		# OF CONTAINERS	PRESERVATIVES	ANALYSES TESTED (Y/N)	RECEIVED ON	TEMP IN C	Ice (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)
			START DATE	END DATE									
1	AW-2AD	Drinking Water	4/4/19 09:15	4/4/19 09:15	5	Unpreserved	Metals (App. III & App. IV, D&O)	4/5/19 11:20	1804	Y	Y	Y	Y
2		Water					Metals (App. III & App. IV, D&O)						
3		Waste Water					Metals (App. III & App. IV, D&O)						
4		Product					Metals (App. III & App. IV, D&O)						
5		Solid					Metals (App. III & App. IV, D&O)						
6		Oil					Metals (App. III & App. IV, D&O)						
7		Wipe					Metals (App. III & App. IV, D&O)						
8		Air					Metals (App. III & App. IV, D&O)						
9		Other					Metals (App. III & App. IV, D&O)						
10		Trace					Metals (App. III & App. IV, D&O)						
11							Metals (App. III & App. IV, D&O)						
12							Metals (App. III & App. IV, D&O)						

NO# : 2617067

DATE	TIME	INITIALED BY	SIGNATURE
4/4/19	1804	[Signature]	4/4/19 1804
4/5/19	0933	[Signature]	4/5/19 0933
4/5/19	1120	[Signature]	4/5/19 1120

SAMPLER NAME AND SIGNATURE  
 PRINT NAME of SAMPLER: **Nadia Matus**  
 SIGNATURE of SAMPLER: *Nadia Matus*  
 DATE Signed: **4/4/19**



Sample Condition Upon Receipt

Client Name: GIA Power

Project # \_\_\_\_\_

WO#: **2617067**

PN: **BM** Due Date: **04/12/19**  
CLIENT: **GAPower-CCR**

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_  
Tracking #: \_\_\_\_\_

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 1.2 Biological Tissue is Frozen: Yes No  Samples on ice, cooling process has begun  
Temp should be above freezing to 8°C

Date and Initials of person examining contents: 4/5/19 mg

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.		
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.		
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.		
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.		
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.		
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.		
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.		
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.		
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.		
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.		
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.		
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.		
-Includes date/time/ID/Analysis Matrix:	<u>W</u>			
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.		
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A			
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed	Lot # of added preservative	
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.		
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.		
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.		
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A			
Pace Trip Blank Lot # (if purchased):				

Client Notification/ Resolution: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Field Data Required? Y / N

Person Contacted: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

April 29, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2617068

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 05, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond  
Pace Project No.: 2617068

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### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2617068

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<b>Lab ID</b>	<b>Sample ID</b>	<b>Matrix</b>	<b>Date Collected</b>	<b>Date Received</b>
2617068001	MW-27D	Water	04/04/19 09:48	04/05/19 11:20

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond  
Pace Project No.: 2617068

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617068001	MW-27D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617068

**Sample: MW-27D**      **Lab ID: 2617068001**      Collected: 04/04/19 09:48      Received: 04/05/19 11:20      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.983 ± 0.386 (0.350)</b> C:98% T:NA	pCi/L	04/17/19 08:36	13982-63-3	
Radium-228	EPA 9320	<b>0.348 ± 0.348 (0.722)</b> C:87% T:79%	pCi/L	04/18/19 12:29	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.33 ± 0.734 (1.07)</b>	pCi/L	04/22/19 11:17	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617068

QC Batch: 337911

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2617068001

METHOD BLANK: 1644521

Matrix: Water

Associated Lab Samples: 2617068001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.526 ± 0.315 (0.569) C:87% T:76%	pCi/L	04/18/19 12:31	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617068

QC Batch: 337917

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2617068001

METHOD BLANK: 1644525

Matrix: Water

Associated Lab Samples: 2617068001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.221 ± 0.211 (0.378) C:90% T:NA	pCi/L	04/17/19 08:36	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2617068

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2617068

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617068001	MW-27D	EPA 9315	337917		
2617068001	MW-27D	EPA 9320	337911		
2617068001	MW-27D	Total Radium Calculation	339290		

### REPORT OF LABORATORY ANALYSIS

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# Sample Condition Upon Receipt

Client Name: GLA Power

Project # \_\_\_\_\_

**WO#: 2617068**

PM: **BM** Due Date: **05/03/19**  
CLIENT: **GRPower-CCR**

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other  
Tracking #: \_\_\_\_\_

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 1.2 Biological Tissue is Frozen: Yes No  
Temp should be above freezing to 6°C

Samples on ice, cooling process has begun

Date and Initials of person examining contents: 4/5/19 MK

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.	
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.	
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.	
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.	
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.	
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.	
-Includes date/time/ID/Analysis Matrix:	<u>W</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.	
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed	Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.	
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.	
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Pace Trip Blank Lot # (if purchased):	_____		

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)



May 01, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2617146

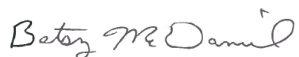
Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 08, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This revised report replaces the one issued on 4/15/2019. The report has been revised to correct metals units per consultant request. No other changes have been made to this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2617146

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### Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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### Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804

Florida/NELAP Certification #: E87648

Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40

South Carolina Certification #: 99030001

Virginia/VELAP Certification #: 460222

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2617146

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<b>Lab ID</b>	<b>Sample ID</b>	<b>Matrix</b>	<b>Date Collected</b>	<b>Date Received</b>
2617146001	HGWC-13	Water	04/05/19 16:03	04/08/19 15:30

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond  
Pace Project No.: 2617146

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617146001	HGWC-13	EPA 6020B	JMW1	13	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2617146

Sample: HGWC-13		Lab ID: 2617146001		Collected: 04/05/19 16:03		Received: 04/08/19 15:30		Matrix: Water	
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3010A							
Antimony	<b>0.00021J</b>	mg/L	0.0030	0.00011	1	04/10/19 19:59	04/12/19 09:34	7440-36-0	
Arsenic	<b>0.36</b>	mg/L	0.0050	0.000060	1	04/10/19 19:59	04/12/19 09:34	7440-38-2	
Barium	<b>0.079</b>	mg/L	0.010	0.000060	1	04/10/19 19:59	04/12/19 09:34	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/10/19 19:59	04/12/19 09:34	7440-41-7	
Boron	<b>0.86J</b>	mg/L	2.0	0.051	20	04/10/19 19:59	04/11/19 23:20	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/10/19 19:59	04/12/19 09:34	7440-43-9	
Calcium	<b>77.1</b>	mg/L	10.0	0.41	20	04/10/19 19:59	04/11/19 23:20	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/10/19 19:59	04/12/19 09:34	7440-47-3	
Cobalt	<b>0.0017J</b>	mg/L	0.010	0.000050	1	04/10/19 19:59	04/12/19 09:34	7440-48-4	
Lithium	<b>0.023J</b>	mg/L	0.050	0.00042	1	04/10/19 19:59	04/12/19 09:34	7439-93-2	
Molybdenum	<b>0.030</b>	mg/L	0.010	0.00010	1	04/10/19 19:59	04/12/19 09:34	7439-98-7	
Selenium	<b>0.00018J</b>	mg/L	0.010	0.000080	1	04/10/19 19:59	04/12/19 09:34	7782-49-2	
Thallium	<b>0.00034J</b>	mg/L	0.0010	0.000060	1	04/10/19 19:59	04/12/19 09:34	7440-28-0	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>331</b>	mg/L	25.0	10.0	1		04/11/19 20:53		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>36.4</b>	mg/L	0.25	0.024	1		04/10/19 09:10	16887-00-6	
Fluoride	<b>0.83</b>	mg/L	0.30	0.029	1		04/10/19 09:10	16984-48-8	
Sulfate	<b>105</b>	mg/L	10.0	0.17	10		04/10/19 13:29	14808-79-8	

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2617146

QC Batch: 468622 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3010A Analysis Description: 6020 MET  
Associated Lab Samples: 2617146001

METHOD BLANK: 2545263 Matrix: Water  
Associated Lab Samples: 2617146001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00011	04/11/19 20:42	
Arsenic	mg/L	ND	0.0050	0.000060	04/11/19 20:42	
Barium	mg/L	ND	0.010	0.000060	04/11/19 20:42	
Beryllium	mg/L	ND	0.0030	0.000050	04/11/19 20:42	
Boron	mg/L	ND	0.10	0.0026	04/11/19 20:42	
Cadmium	mg/L	ND	0.0010	0.000070	04/11/19 20:42	
Calcium	mg/L	ND	0.50	0.021	04/11/19 20:42	
Chromium	mg/L	ND	0.010	0.00042	04/11/19 20:42	
Cobalt	mg/L	ND	0.010	0.000050	04/11/19 20:42	
Lithium	mg/L	ND	0.050	0.00042	04/11/19 20:42	
Molybdenum	mg/L	ND	0.010	0.00010	04/11/19 20:42	
Selenium	mg/L	ND	0.010	0.000080	04/11/19 20:42	
Thallium	mg/L	ND	0.0010	0.000060	04/11/19 20:42	

LABORATORY CONTROL SAMPLE: 2545264

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	100	80-120	
Arsenic	mg/L	0.01	0.0099	99	80-120	
Barium	mg/L	0.05	0.049	99	80-120	
Beryllium	mg/L	0.01	0.010	104	80-120	
Boron	mg/L	0.05	0.052J	104	80-120	
Cadmium	mg/L	0.01	0.010	102	80-120	
Calcium	mg/L	0.62	0.64	102	80-120	
Chromium	mg/L	0.05	0.051	102	80-120	
Cobalt	mg/L	0.01	0.010	102	80-120	
Lithium	mg/L	0.05	0.050	100	80-120	
Molybdenum	mg/L	0.05	0.051	102	80-120	
Selenium	mg/L	0.05	0.051	101	80-120	
Thallium	mg/L	0.01	0.010	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2545265 2545266

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		2617144001	Spike Conc.	Spike Conc.	Result							Result
Antimony	mg/L		0.1	0.1	0.099	0.099	99	99	75-125	0	20	
Arsenic	mg/L		0.01	0.01	0.0091J	0.0089J	91	89	75-125	2	20	
Barium	mg/L		0.05	0.05	0.085	0.085	85	85	75-125	0	20	

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### REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA**

Project: Plant Hammond

Pace Project No.: 2617146

Parameter	Units	2545265		2545266		MS % Rec	MSD % Rec	% Rec	Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Beryllium	mg/L		0.01	0.01	0.0086	0.0089	86	89	75-125	4	20	
Boron	mg/L	1010J ug/L	0.05	0.05	1.0J	1.0J	67	48	75-125	1	20	M6
Cadmium	mg/L		0.01	0.01	0.011	0.011	99	99	75-125	0	20	
Calcium	mg/L	70000 ug/L	0.62	0.62	71.3	74.8	207	759	75-125	5	20	M6
Chromium	mg/L		0.05	0.05	0.048	0.048	96	95	75-125	1	20	
Cobalt	mg/L		0.01	0.01	0.015	0.015	97	96	75-125	1	20	
Lithium	mg/L		0.05	0.05	0.043J	0.044J	82	85	75-125	3	20	
Molybdenum	mg/L		0.05	0.05	0.050	0.049	99	99	75-125	1	20	
Selenium	mg/L		0.05	0.05	0.044	0.044	89	88	75-125	1	20	
Thallium	mg/L		0.01	0.01	0.0096	0.0096	96	96	75-125	0	20	

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**REPORT OF LABORATORY ANALYSIS**

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2617146

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QC Batch: 26252	Analysis Method: SM 2540C
QC Batch Method: SM 2540C	Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2617146001	

---

LABORATORY CONTROL SAMPLE: 118510

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	408	102	84-108	

---

SAMPLE DUPLICATE: 118512

Parameter	Units	2617150003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2310	2380	3	10	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2617146

QC Batch: 26064 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 2617146001

METHOD BLANK: 117680 Matrix: Water  
Associated Lab Samples: 2617146001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	0.25	0.024	04/10/19 01:27	
Fluoride	mg/L	ND	0.30	0.029	04/10/19 01:27	
Sulfate	mg/L	ND	1.0	0.017	04/10/19 01:27	

LABORATORY CONTROL SAMPLE: 117681

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.1	101	90-110	
Fluoride	mg/L	10	10.2	102	90-110	
Sulfate	mg/L	10	10.1	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 117682 117683

Parameter	Units	2617086001		2617086002		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	% Rec	% Rec					
Chloride	mg/L	4.2	10	10	14.3	14.3	101	101	90-110	0	15		
Fluoride	mg/L	0.047J	10	10	10.4	10.4	103	103	90-110	0	15		
Sulfate	mg/L	10.8	10	10	19.6	19.6	89	88	90-110	0	15	M1	

MATRIX SPIKE SAMPLE: 117684

Parameter	Units	2617086002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	1.6	10	10.7	91	90-110	
Fluoride	mg/L	ND	10	9.2	92	90-110	
Sulfate	mg/L	5.2	10	13.7	85	90-110	M1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2617146

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### LABORATORIES

PASI-A Pace Analytical Services - Asheville

PASI-GA Pace Analytical Services - Atlanta, GA

### ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2617146

---

<b>Lab ID</b>	<b>Sample ID</b>	<b>QC Batch Method</b>	<b>QC Batch</b>	<b>Analytical Method</b>	<b>Analytical Batch</b>
2617146001	HGWC-13	EPA 3010A	468622	EPA 6020B	468673
2617146001	HGWC-13	SM 2540C	26252		
2617146001	HGWC-13	EPA 300.0	26064		

### REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

Client Name: GIA Power

Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other  
Tracking #: \_\_\_\_\_

**WO#: 2617146**

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes

PM: BM Due Date: 04/15/19  
CLIENT: GAPower-CCR

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Samples on ice, cooling process has begun

Cooler Temperature 1.1 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 4/8/19 MR

Temp should be above freezing to 6°C

Comments: \_\_\_\_\_

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.	
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.	
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.	
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.	
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.	
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.	
-Includes date/time/ID/Analysis Matrix:	<u>W</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.	
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed	Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.	
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.	
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Pace Trip Blank Lot # (if purchased):			

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e out of hold, incorrect preservative, out of temp, incorrect containers)

May 01, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2617147

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 08, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2617147

---

### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond  
Pace Project No.: 2617147

---

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617147001	HGWC-13	Water	04/05/19 16:03	04/08/19 15:30

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2617147

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617147001	HGWC-13	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617147

**Sample: HGWC-13**      **Lab ID: 2617147001**      Collected: 04/05/19 16:03      Received: 04/08/19 15:30      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.422 ± 0.319 (0.565)</b> C:87% T:NA	pCi/L	04/18/19 08:06	13982-63-3	
Radium-228	EPA 9320	<b>-0.0205 ± 0.300 (0.711)</b> C:85% T:69%	pCi/L	04/18/19 12:31	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.422 ± 0.619 (1.28)</b>	pCi/L	04/22/19 11:27	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617147

QC Batch: 337915

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2617147001

METHOD BLANK: 1644524

Matrix: Water

Associated Lab Samples: 2617147001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.664 ± 0.303 (0.504) C:90% T:91%	pCi/L	04/18/19 12:31	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617147

QC Batch: 337923

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2617147001

METHOD BLANK: 1644541

Matrix: Water

Associated Lab Samples: 2617147001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.170 ± 0.213 (0.439) C:94% T:NA	pCi/L	04/18/19 08:05	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Hammond  
Pace Project No.: 2617147

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2617147

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617147001	HGWC-13	EPA 9315	337923		
2617147001	HGWC-13	EPA 9320	337915		
2617147001	HGWC-13	Total Radium Calculation	339294		

### REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:		Section B Required Project Information:	
Company: Georgia Power - Coal Combustion Residuals	Report To: Joju Abraham	Invoice Information: Attention: sssinvoices@southernco.com	Page: 1 Of 1
Address: 2480 Menar Road Atlanta, GA 30339	Copy To: Lauren Petty, Geosyntec	Company Name: Address: Pace Order#	Regulatory Agency:
Email: jlabraham@southernco.com	Purchaser Order #: SCS10348606	Pace Project Manager: betsy.mcdaniel@pacelabs.com	State / Location: GA
Phone: (404) 506-7239	Project Name: Plant Hammond	Pace Profile #: 327 (AP) or 328 (Huff)	
Requested Due Date: <b>Standard TAT</b>	Project #:		

ITEM #	MATRIX	MATRIX CODE	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see void codes to left)	PRESERVATIVES		ANALYSES TEST	Requested Analysis Filtered (Y/N)
			START DATE	END DATE			UNPRESERVED	OTHER		
1	Dinking Water	DW	4/15/19 1553	4/15/19 1603	W52	3	H2SO4 HNO3 HCl NaOH Na2S2O3 Methanol	Metals (App. III & App. IV) Metals (App. III, App. IV, D&O) Metals (App. III & D&O) TDS, Cl, F, SO4 Radium 226/228	Y	
2	Waste Water	WW								
3	Product	P								
4	Semi-solid	SL								
5	Oil	OL								
6	Wipe	WP								
7	Air	AR								
8	Other	OT								
9	Tissue	TS								
10										
11										
12										

W0#: 2617147

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP IN C	Received on	Sealed	Cooler	Samples
Relinquished	4/15/19	1945	Accepted	4/15/19	1945					
Relinquished	4/18/19	1116	Accepted	4/18/19	1116					
Relinquished	4/18/19	1530	Accepted	4/18/19	1530					

ADDITIONAL COMMENTS: App. IV (L): Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lithium, Molybdenum, Selenium, Thallium, Vanadium, Zinc, Lead, Copper, etc.

SAMPLER NAME AND SIGNATURE: Noelia Muskus  
 PRINT NAME OF SAMPLER: Noelia Muskus  
 SIGNATURE OF SAMPLER: Noelia Muskus  
 DATE SIGNED: 4/15/19



Sample Condition Upon Receipt

Client Name: GIA Power

Project # \_\_\_\_\_

WO#: **2617147**

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_  
Tracking #: \_\_\_\_\_

PM: **BM** Due Date: **05/06/19**  
CLIENT: **GAPower-CCR**

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Thermometer Used 83 Type of Ice:  Wet  Blue  None  Samples on ice, cooling process has begun

Cooler Temperature 1.1 Biological Tissue is Frozen: Yes No  
Temp should be above freezing to 6°C

Date and Initials of person examining contents: 4/8/19 MB

	Comments:
Chain of Custody Present: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr): <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>W</u>	
All containers needing preservation have been checked. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed
Samples checked for dechlorination: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm): <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____	

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)



May 01, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2617205

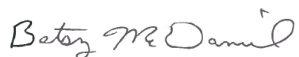
Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 09, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This revised report replaces the one issued on 4/16/2019. The report has been revised to correct metals units per consultant request. No other changes have been made to this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2617205

---

### Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

---

### Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804

Florida/NELAP Certification #: E87648

Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40

South Carolina Certification #: 99030001

Virginia/VELAP Certification #: 460222

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2617205

---

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617205001	MW-24D	Water	04/08/19 11:06	04/09/19 13:30

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond  
Pace Project No.: 2617205

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617205001	MW-24D	EPA 6020B	JMW1	13	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2617205

Sample: MW-24D		Lab ID: 2617205001		Collected: 04/08/19 11:06		Received: 04/09/19 13:30		Matrix: Water	
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3010A							
Antimony	ND	mg/L	0.0030	0.00011	1	04/10/19 19:59	04/12/19 09:41	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.000060	1	04/10/19 19:59	04/12/19 09:41	7440-38-2	
Barium	<b>0.043</b>	mg/L	0.010	0.000060	1	04/10/19 19:59	04/12/19 09:41	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/10/19 19:59	04/12/19 09:41	7440-41-7	
Boron	<b>0.47J</b>	mg/L	2.0	0.051	20	04/10/19 19:59	04/12/19 01:33	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/10/19 19:59	04/12/19 09:41	7440-43-9	
Calcium	<b>83.0</b>	mg/L	10.0	0.41	20	04/10/19 19:59	04/12/19 01:33	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/10/19 19:59	04/12/19 09:41	7440-47-3	
Cobalt	<b>0.00025J</b>	mg/L	0.010	0.000050	1	04/10/19 19:59	04/12/19 09:41	7440-48-4	
Lithium	<b>0.0027J</b>	mg/L	0.050	0.00042	1	04/10/19 19:59	04/12/19 09:41	7439-93-2	
Molybdenum	<b>0.00027J</b>	mg/L	0.010	0.00010	1	04/10/19 19:59	04/12/19 09:41	7439-98-7	
Selenium	ND	mg/L	0.010	0.000080	1	04/10/19 19:59	04/12/19 09:41	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000060	1	04/10/19 19:59	04/12/19 09:41	7440-28-0	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>323</b>	mg/L	25.0	10.0	1		04/11/19 20:54		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>43.3</b>	mg/L	0.25	0.024	1		04/11/19 00:33	16887-00-6	
Fluoride	<b>0.048J</b>	mg/L	0.30	0.029	1		04/11/19 00:33	16984-48-8	
Sulfate	<b>97.3</b>	mg/L	10.0	0.17	10		04/15/19 23:14	14808-79-8	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2617205

QC Batch: 468622 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3010A Analysis Description: 6020 MET  
Associated Lab Samples: 2617205001

METHOD BLANK: 2545263 Matrix: Water  
Associated Lab Samples: 2617205001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00011	04/11/19 20:42	
Arsenic	mg/L	ND	0.0050	0.000060	04/11/19 20:42	
Barium	mg/L	ND	0.010	0.000060	04/11/19 20:42	
Beryllium	mg/L	ND	0.0030	0.000050	04/11/19 20:42	
Boron	mg/L	ND	0.10	0.0026	04/11/19 20:42	
Cadmium	mg/L	ND	0.0010	0.000070	04/11/19 20:42	
Calcium	mg/L	ND	0.50	0.021	04/11/19 20:42	
Chromium	mg/L	ND	0.010	0.00042	04/11/19 20:42	
Cobalt	mg/L	ND	0.010	0.000050	04/11/19 20:42	
Lithium	mg/L	ND	0.050	0.00042	04/11/19 20:42	
Molybdenum	mg/L	ND	0.010	0.00010	04/11/19 20:42	
Selenium	mg/L	ND	0.010	0.000080	04/11/19 20:42	
Thallium	mg/L	ND	0.0010	0.000060	04/11/19 20:42	

LABORATORY CONTROL SAMPLE: 2545264

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	100	80-120	
Arsenic	mg/L	0.01	0.0099	99	80-120	
Barium	mg/L	0.05	0.049	99	80-120	
Beryllium	mg/L	0.01	0.010	104	80-120	
Boron	mg/L	0.05	0.052J	104	80-120	
Cadmium	mg/L	0.01	0.010	102	80-120	
Calcium	mg/L	0.62	0.64	102	80-120	
Chromium	mg/L	0.05	0.051	102	80-120	
Cobalt	mg/L	0.01	0.010	102	80-120	
Lithium	mg/L	0.05	0.050	100	80-120	
Molybdenum	mg/L	0.05	0.051	102	80-120	
Selenium	mg/L	0.05	0.051	101	80-120	
Thallium	mg/L	0.01	0.010	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2545265 2545266

Parameter	Units	2545265		2545266		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Antimony	mg/L	0.1	0.1	0.099	0.099	99	99	75-125	0	20	
Arsenic	mg/L	0.01	0.01	0.0091J	0.0089J	91	89	75-125	2	20	
Barium	mg/L	0.05	0.05	0.085	0.085	85	85	75-125	0	20	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2617205

Parameter	Units	2545265		2545266		MS % Rec	MSD % Rec	% Rec	Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Beryllium	mg/L		0.01	0.01	0.0086	0.0089	86	89	75-125	4	20	
Boron	mg/L	1010J ug/L	0.05	0.05	1.0J	1.0J	67	48	75-125	1	20	M6
Cadmium	mg/L		0.01	0.01	0.011	0.011	99	99	75-125	0	20	
Calcium	mg/L	70000 ug/L	0.62	0.62	71.3	74.8	207	759	75-125	5	20	M6
Chromium	mg/L		0.05	0.05	0.048	0.048	96	95	75-125	1	20	
Cobalt	mg/L		0.01	0.01	0.015	0.015	97	96	75-125	1	20	
Lithium	mg/L		0.05	0.05	0.043J	0.044J	82	85	75-125	3	20	
Molybdenum	mg/L		0.05	0.05	0.050	0.049	99	99	75-125	1	20	
Selenium	mg/L		0.05	0.05	0.044	0.044	89	88	75-125	1	20	
Thallium	mg/L		0.01	0.01	0.0096	0.0096	96	96	75-125	0	20	

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### REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA**

Project: Plant Hammond

Pace Project No.: 2617205

QC Batch: 26252

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 2617205001

LABORATORY CONTROL SAMPLE: 118510

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	408	102	84-108	

SAMPLE DUPLICATE: 118512

Parameter	Units	2617150003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2310	2380	3	10	

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**REPORT OF LABORATORY ANALYSIS**

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2617205

QC Batch: 26135 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 2617205001

METHOD BLANK: 117979 Matrix: Water  
Associated Lab Samples: 2617205001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.064J	0.25	0.024	04/10/19 21:47	
Fluoride	mg/L	ND	0.30	0.029	04/10/19 21:47	
Sulfate	mg/L	ND	1.0	0.017	04/10/19 21:47	

LABORATORY CONTROL SAMPLE: 117980

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.2	102	90-110	
Fluoride	mg/L	10	10.0	100	90-110	
Sulfate	mg/L	10	9.9	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 117981 117982

Parameter	Units	2617207001 Result	MS		MSD		MS		MSD		% Rec Limits	Max RPD	Qual
			Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Chloride	mg/L	0.25J	10	10	9.9	10	96	97	90-110	1	15		
Fluoride	mg/L	ND	10	10	9.5	9.6	95	96	90-110	1	15		
Sulfate	mg/L	0.13J	10	10	9.5	9.6	94	94	90-110	1	15		

MATRIX SPIKE SAMPLE: 117983

Parameter	Units	2617150001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	131	10	10.5	-1210	90-110	
Fluoride	mg/L	0.13J	10	9.4	93	90-110	
Sulfate	mg/L	392	10	13.7	-3780	90-110	

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2617205

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### LABORATORIES

PASI-A Pace Analytical Services - Asheville

PASI-GA Pace Analytical Services - Atlanta, GA

### ANALYTE QUALIFIERS

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond  
Pace Project No.: 2617205

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<b>Lab ID</b>	<b>Sample ID</b>	<b>QC Batch Method</b>	<b>QC Batch</b>	<b>Analytical Method</b>	<b>Analytical Batch</b>
2617205001	MW-24D	EPA 3010A	468622	EPA 6020B	468673
2617205001	MW-24D	SM 2540C	26252		
2617205001	MW-24D	EPA 300.0	26135		

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

**Section A**

**Required Client Information:**

Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Manser Road  
 Atlanta, GA 30339  
 Email: jbrahman@southernco.com  
 Phone: (404)506-7239  
 Project Name: Plant Hammond  
 Project #: Standard TR1  
 Requested Due Date: Standard TR1

**Section B**

**Invoice Information:**

Report To: Joju Abraham  
 Copy To: Lauren Petty, Geosyntec  
 Attention: scsimvoibes@southhamco.com  
 Company Name:  
 Address:  
 Paces Project Manager: betsy.mcdaniel@pactelabs.com  
 Paces Profile #: 327 (AP) or 328 (Huf)

ITEM #	MATRIX	CODE	COLLECTED		DATE	TIME	SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	PRESERVATIVES	ANALYSES TESTS	RECEIVED BY AFFILIATION	DATE	TIME	TEMP in C	Received on	Ice (Y/N)	Custody Sealed (Y/N)	Samples Intact (Y/N)	
			START	END																
1	MW - 240	DW	4/8/19	10:06	4/8/19	11:27	WF 5	Unpreserved	3	H2SO4 HNO3 HCl NaOH Na2S2O3 Methanol Other	Metals (App. III & App. IV) Metals (App. III, IV, D&O) TDS, Cl, F, SO4 Radium 226/228	4/8/19	2210	4.9.19	1127	4/8/19	1350.7	4	4	
2		WT	4/8/19	10:15	4/8/19	11:27	WF 5													
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				

WO#: 2617205

ADDITIONAL COMMENTS	RECEIVED BY AFFILIATION	DATE	TIME	TEMP in C	Received on	Ice (Y/N)	Custody Sealed (Y/N)	Samples Intact (Y/N)
App TO (2): Arsenic, Boron, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Polychlorinated Biphenyls, Selenium, Thallium	Moelia Mpanambano	4/8/19	2010	4.9.19	1350.7	4	4	4
	Geosyntec	4/9/19	1127	4.9.19	1127	4	4	4
	Moelia Mpanambano	4/9/19	1350.7	4.9.19	1350.7	4	4	4

**Sample Condition Upon Receipt**



Client Name: GIA Power

Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other

**WO#: 2617205**

Tracking #: \_\_\_\_\_  
Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes

PH: BM Due Date: 04/16/19  
CLIENT: GAPower-CCR

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Samples on ice, cooling process has begun

Cooler Temperature 0.7 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 4/9/19 NR

Temp should be above freezing to 6°C Comments: \_\_\_\_\_

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.	
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.	
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.	
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.	
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.	
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.	
-Includes date/time/ID/Analysis Matrix:	<u>W</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.	
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed	Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.	
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.	
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Pace Trip Blank Lot # (if purchased):			

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N  
 Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Comments/ Resolution: \_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

May 01, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2617206

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 09, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond  
Pace Project No.: 2617206

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### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2617206

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Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617206001	MW-24D	Water	04/08/19 11:06	04/09/19 13:30

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2617206

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617206001	MW-24D	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617206

**Sample: MW-24D**      **Lab ID: 2617206001**      Collected: 04/08/19 11:06      Received: 04/09/19 13:30      Matrix: Water

PWS:      Site ID:      Sample Type:

Comments: • Sample collection time on containers does not match COC; client was notified.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.127 ± 0.0949 (0.162)</b> C:91% T:NA	pCi/L	04/22/19 21:19	13982-63-3	
Radium-228	EPA 9320	<b>0.446 ± 0.375 (0.749)</b> C:79% T:73%	pCi/L	04/25/19 14:16	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.573 ± 0.470 (0.911)</b>	pCi/L	04/26/19 09:32	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617206

QC Batch: 338631

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2617206001

METHOD BLANK: 1648339

Matrix: Water

Associated Lab Samples: 2617206001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.146 ± 0.0893 (0.139) C:90% T:NA	pCi/L	04/22/19 21:19	

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617206

QC Batch: 338745

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2617206001

METHOD BLANK: 1648702

Matrix: Water

Associated Lab Samples: 2617206001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.552 ± 0.362 (0.681) C:81% T:74%	pCi/L	04/25/19 11:04	

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### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Hammond  
Pace Project No.: 2617206

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond  
Pace Project No.: 2617206

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617206001	MW-24D	EPA 9315	338631		
2617206001	MW-24D	EPA 9320	338745		
2617206001	MW-24D	Total Radium Calculation	340066		

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**Sample Condition Upon Receipt**

Face Analytical

Client Name: GIA Power

Project # \_\_\_\_\_

**WO#: 2617206**

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other

Tracking #: \_\_\_\_\_

PM: **BM** Due Date: **05/07/19**  
**CLIENT: GAPower-CCR**

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83

Type of Ice:  Wet  Blue  None

Samples on ice, cooling process has begun

Cooler Temperature 0.7  
 Temp should be above freezing to 6°C

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 4/9/19 NR

Comments: \_\_\_\_\_

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.	
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.	
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.	
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.	
-Pace Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.	
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.	
-Includes date/time/ID/Analysis Matrix:	<u>W</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.	
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed	Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.	
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.	
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Pace Trip Blank Lot # (if purchased):	_____		

**Client Notification/ Resolution:** \_\_\_\_\_ **Field Data Required?** Y / N

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

**Project Manager Review:** \_\_\_\_\_ **Date:** \_\_\_\_\_

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (ie. out of hold, incorrect preservative, out of temp, incorrect containers)



May 01, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2617148

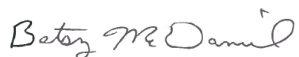
Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 08, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This revised report replaces the one issued on 4/16/2019. The report has been revised to correct metals units per consultant request. No other changes have been made to this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2617148

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### Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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### Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804

Florida/NELAP Certification #: E87648

Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40

South Carolina Certification #: 99030001

Virginia/VELAP Certification #: 460222

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2617148

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<b>Lab ID</b>	<b>Sample ID</b>	<b>Matrix</b>	<b>Date Collected</b>	<b>Date Received</b>
2617148001	FB-01	Water	04/05/19 08:50	04/08/19 15:30

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2617148

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617148001	FB-01	EPA 6020B	SER	19	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2617148

Sample: FB-01		Lab ID: 2617148001		Collected: 04/05/19 08:50		Received: 04/08/19 15:30		Matrix: Water	
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3010A							
Antimony	ND	mg/L	0.0030	0.00011	1	04/16/19 07:51	04/16/19 18:55	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.000060	1	04/16/19 07:51	04/16/19 18:55	7440-38-2	
Barium	<b>0.000078J</b>	mg/L	0.010	0.000060	1	04/16/19 07:51	04/16/19 18:55	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/16/19 07:51	04/16/19 18:55	7440-41-7	
Boron	ND	mg/L	0.10	0.0026	1	04/16/19 07:51	04/16/19 18:55	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/16/19 07:51	04/16/19 18:55	7440-43-9	
Calcium	<b>0.024J</b>	mg/L	0.50	0.021	1	04/16/19 07:51	04/16/19 18:55	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/16/19 07:51	04/16/19 18:55	7440-47-3	
Cobalt	ND	mg/L	0.010	0.000050	1	04/16/19 07:51	04/16/19 18:55	7440-48-4	
Copper	ND	mg/L	0.025	0.00023	1	04/16/19 07:51	04/16/19 18:55	7440-50-8	
Lead	ND	mg/L	0.0050	0.000050	1	04/16/19 07:51	04/16/19 18:55	7439-92-1	
Lithium	ND	mg/L	0.050	0.00042	1	04/16/19 07:51	04/16/19 18:55	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00010	1	04/16/19 07:51	04/16/19 18:55	7439-98-7	
Nickel	ND	mg/L	0.010	0.00011	1	04/16/19 07:51	04/16/19 18:55	7440-02-0	
Selenium	ND	mg/L	0.010	0.000080	1	04/16/19 07:51	04/16/19 18:55	7782-49-2	
Silver	ND	mg/L	0.010	0.000050	1	04/16/19 07:51	04/16/19 18:55	7440-22-4	
Thallium	ND	mg/L	0.0010	0.000060	1	04/16/19 07:51	04/16/19 18:55	7440-28-0	
Vanadium	ND	mg/L	0.010	0.00012	1	04/16/19 07:51	04/16/19 18:55	7440-62-2	
Zinc	<b>0.017</b>	mg/L	0.010	0.0011	1	04/16/19 07:51	04/16/19 18:55	7440-66-6	C0
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00020	0.00010	1	04/11/19 21:25	04/15/19 18:37	7439-97-6	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	ND	mg/L	25.0	10.0	1		04/11/19 20:53		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>0.11J</b>	mg/L	0.25	0.024	1		04/10/19 22:29	16887-00-6	B
Fluoride	ND	mg/L	0.30	0.029	1		04/10/19 22:29	16984-48-8	
Sulfate	<b>0.069J</b>	mg/L	1.0	0.017	1		04/10/19 22:29	14808-79-8	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2617148

QC Batch: 468895

Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A

Analysis Description: 7470 Mercury

Associated Lab Samples: 2617148001

METHOD BLANK: 2546716

Matrix: Water

Associated Lab Samples: 2617148001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00020	0.00010	04/15/19 18:06	

LABORATORY CONTROL SAMPLE: 2546717

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0021	83	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2546718 2546719

Parameter	Units	92424398001 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	Spike Conc.	MSD Result						
Mercury	mg/L	ND	0.0025	0.0019	0.0025	0.0019	77	77	75-125	0	25	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2617148

QC Batch: 469500

Analysis Method: EPA 6020B

QC Batch Method: EPA 3010A

Analysis Description: 6020 MET

Associated Lab Samples: 2617148001

METHOD BLANK: 2549697

Matrix: Water

Associated Lab Samples: 2617148001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00011	04/16/19 18:48	
Arsenic	mg/L	ND	0.0050	0.000060	04/16/19 18:48	
Barium	mg/L	ND	0.010	0.000060	04/16/19 18:48	
Beryllium	mg/L	ND	0.0030	0.000050	04/16/19 18:48	
Boron	mg/L	ND	0.10	0.0026	04/16/19 18:48	
Cadmium	mg/L	ND	0.0010	0.000070	04/16/19 18:48	
Calcium	mg/L	ND	0.50	0.021	04/16/19 18:48	
Chromium	mg/L	ND	0.010	0.00042	04/16/19 18:48	
Cobalt	mg/L	ND	0.010	0.000050	04/16/19 18:48	
Copper	mg/L	ND	0.025	0.00023	04/16/19 18:48	
Lead	mg/L	ND	0.0050	0.000050	04/16/19 18:48	
Lithium	mg/L	ND	0.050	0.00042	04/16/19 18:48	
Molybdenum	mg/L	ND	0.010	0.00010	04/16/19 18:48	
Nickel	mg/L	ND	0.010	0.00011	04/16/19 18:48	
Selenium	mg/L	ND	0.010	0.000080	04/16/19 18:48	
Silver	mg/L	ND	0.010	0.000050	04/16/19 18:48	
Thallium	mg/L	ND	0.0010	0.000060	04/16/19 18:48	
Vanadium	mg/L	ND	0.010	0.00012	04/16/19 18:48	
Zinc	mg/L	ND	0.010	0.0011	04/16/19 18:48	

LABORATORY CONTROL SAMPLE: 2549698

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.098	98	80-120	
Arsenic	mg/L	0.01	0.0096	96	80-120	
Barium	mg/L	0.05	0.049	98	80-120	
Beryllium	mg/L	0.01	0.0096	96	80-120	
Boron	mg/L	0.05	0.048J	95	80-120	
Cadmium	mg/L	0.01	0.0099	99	80-120	
Calcium	mg/L	0.62	0.64	103	80-120	
Chromium	mg/L	0.05	0.048	97	80-120	
Cobalt	mg/L	0.01	0.0098J	98	80-120	
Copper	mg/L	0.05	0.049	98	80-120	
Lead	mg/L	0.05	0.050	99	80-120	
Lithium	mg/L	0.05	0.049J	98	80-120	
Molybdenum	mg/L	0.05	0.049	98	80-120	
Nickel	mg/L	0.05	0.049	97	80-120	
Selenium	mg/L	0.05	0.050	100	80-120	
Silver	mg/L	0.025	0.025	99	80-120	
Thallium	mg/L	0.01	0.010	100	80-120	

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**QUALITY CONTROL DATA**

Project: Plant Hammond

Pace Project No.: 2617148

LABORATORY CONTROL SAMPLE: 2549698

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Vanadium	mg/L	0.05	0.049	98	80-120	
Zinc	mg/L	0.05	0.049	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2549699 2549700

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2617148001 Result	Spike Conc.	Spike Conc.	MS Result						
Antimony	mg/L	ND	0.1	0.1	0.099	0.098	99	98	75-125	1	20
Arsenic	mg/L	ND	0.01	0.01	0.0098	0.0097	98	97	75-125	1	20
Barium	mg/L	0.000078J	0.05	0.05	0.049	0.050	99	99	75-125	0	20
Beryllium	mg/L	ND	0.01	0.01	0.0097	0.0097	97	97	75-125	0	20
Boron	mg/L	ND	0.05	0.05	0.049J	0.050J	93	95	75-125	2	20
Cadmium	mg/L	ND	0.01	0.01	0.010	0.0099	100	99	75-125	1	20
Calcium	mg/L	0.024J	0.62	0.62	0.65	0.65	100	101	75-125	1	20
Chromium	mg/L	ND	0.05	0.05	0.050	0.049	99	97	75-125	2	20
Cobalt	mg/L	ND	0.01	0.01	0.010J	0.0099J	100	98	75-125	1	20
Copper	mg/L	ND	0.05	0.05	0.050	0.050	101	99	75-125	2	20
Lead	mg/L	ND	0.05	0.05	0.050	0.050	100	99	75-125	1	20
Lithium	mg/L	ND	0.05	0.05	0.050J	0.048J	99	96	75-125	4	20
Molybdenum	mg/L	ND	0.05	0.05	0.050	0.050	100	99	75-125	1	20
Nickel	mg/L	ND	0.05	0.05	0.050	0.049	100	98	75-125	1	20
Selenium	mg/L	ND	0.05	0.05	0.050	0.050	101	100	75-125	1	20
Silver	mg/L	ND	0.025	0.025	0.025	0.025	100	100	75-125	0	20
Thallium	mg/L	ND	0.01	0.01	0.010	0.0099	100	99	75-125	1	20
Vanadium	mg/L	ND	0.05	0.05	0.050	0.049	99	98	75-125	1	20
Zinc	mg/L	0.017	0.05	0.05	0.067	0.066	99	98	75-125	1	20

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2617148

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QC Batch: 26252	Analysis Method: SM 2540C
QC Batch Method: SM 2540C	Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2617148001	

---

LABORATORY CONTROL SAMPLE: 118510

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	408	102	84-108	

---

SAMPLE DUPLICATE: 118512

Parameter	Units	2617150003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2310	2380	3	10	

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2617148

QC Batch: 26135 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 2617148001

METHOD BLANK: 117979 Matrix: Water  
Associated Lab Samples: 2617148001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.064J	0.25	0.024	04/10/19 21:47	
Fluoride	mg/L	ND	0.30	0.029	04/10/19 21:47	
Sulfate	mg/L	ND	1.0	0.017	04/10/19 21:47	

LABORATORY CONTROL SAMPLE: 117980

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.2	102	90-110	
Fluoride	mg/L	10	10.0	100	90-110	
Sulfate	mg/L	10	9.9	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 117981 117982

Parameter	Units	2617207001 Result	MS		MSD		MS		MSD		% Rec Limits	Max RPD	Qual
			Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Chloride	mg/L	0.25J	10	10	9.9	10	96	97	90-110	1	15		
Fluoride	mg/L	ND	10	10	9.5	9.6	95	96	90-110	1	15		
Sulfate	mg/L	0.13J	10	10	9.5	9.6	94	94	90-110	1	15		

MATRIX SPIKE SAMPLE: 117983

Parameter	Units	2617150001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	131	10	10.5	-1210	90-110	
Fluoride	mg/L	0.13J	10	9.4	93	90-110	
Sulfate	mg/L	392	10	13.7	-3780	90-110	

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### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Hammond  
Pace Project No.: 2617148

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### LABORATORIES

PASI-A Pace Analytical Services - Asheville

PASI-GA Pace Analytical Services - Atlanta, GA

### ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

C0 Result confirmed by second analysis.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2617148

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617148001	FB-01	EPA 3010A	469500	EPA 6020B	469558
2617148001	FB-01	EPA 7470A	468895	EPA 7470A	468941
2617148001	FB-01	SM 2540C	26252		
2617148001	FB-01	EPA 300.0	26135		

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A  
 Required Client Information:  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Maner Road  
 Atlanta, GA 30339  
 Phone: (404) 506-7239  
 Email: jahraham@southemco.com  
 Requested Due Date: Standard

Section B  
 Required Project Information:  
 Report To: Jolu Abraham  
 Copy To: Lauren Petty, Geosyntec  
 Purchase Order #: SCS10348606  
 Project Name: Plant Hammond  
 Project #:

Section C  
 Invoice Information:  
 Attention: sesinvoicess@southemco.com  
 Company Name:  
 Address:  
 Pace Quibbe:  
 Pace Project Manager: betsy.mcdaniel@paceilabs.com  
 Pace Profile #: 327 (AP) or 328 (Huff)

Regulatory Agency: GA  
 State: GA

ITEM #	MATRIX	MATRIX CODE	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	ANALYSES REQUESTED (Y/N)		RESIDUAL CHLORINE (Y/N)
			START DATE TIME	END DATE TIME			Y/N	Y/N	
1	Drinking Water	DW	4/15/19 0940	4/15/19 0950	17	5	2	3	
2	Water	WT							
3	Waste Water	WW							
4	Process	P							
5	Sludge	SL							
6	Oil	OL							
7	Wet	WP							
8	Air	AR							
9	Other	OT							
10	Tissue	TS							
11									
12									

ANALYSES REQUESTED (Y/N)	METALS (APP. III & APP. IV)	METALS (APP. III, APP. IV, D&O)	TDS, CL, F, SO4	RADIUM 226/228
Y	Y	Y	Y	Y

UNPRESERVED	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other

# OF CONTAINERS	DATE	TIME	INITIALS	DATE	TIME	INITIALS
1945	4/15/19	0945		4/15/19	1116	
1116	4/18/19	1116		4/18/19	1116	

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Sample Condition Upon Receipt

Client Name: GTA Power

Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other

Tracking #: \_\_\_\_\_

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 1.1

Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

WO#: **2617148**

PM: **BM** Due Date: **04/15/19**

CLIENT: **GAPower-CCR**

Samples on ice, cooling process has begun

Date and Initials of person examining contents: 4/8/19 MR

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.	
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.	
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.	
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.	
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.	
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.	
-Includes date/time/ID/Analysis Matrix:	<u>W</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.	
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed	Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.	
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.	
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Pace Trip Blank Lot # (if purchased):			

Client Notification/Resolution: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Field Data Required? Y / N

Person Contacted: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

May 01, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2617149

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 08, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond  
Pace Project No.: 2617149

---

### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

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### SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2617149

---

<b>Lab ID</b>	<b>Sample ID</b>	<b>Matrix</b>	<b>Date Collected</b>	<b>Date Received</b>
2617149001	FB-01	Water	04/05/19 08:50	04/08/19 15:30

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**SAMPLE ANALYTE COUNT**

Project: Plant Hammond  
Pace Project No.: 2617149

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617149001	FB-01	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

**REPORT OF LABORATORY ANALYSIS**

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617149

**Sample: FB-01**      **Lab ID: 2617149001**      Collected: 04/05/19 08:50      Received: 04/08/19 15:30      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.114 ± 0.161 (0.330)</b> <b>C:92% T:NA</b>	pCi/L	04/18/19 08:25	13982-63-3	
Radium-228	EPA 9320	<b>0.160 ± 0.258 (0.561)</b> <b>C:88% T:76%</b>	pCi/L	04/18/19 12:31	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.274 ± 0.419 (0.891)</b>	pCi/L	04/22/19 11:27	7440-14-4	

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617149

QC Batch: 337915

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2617149001

METHOD BLANK: 1644524

Matrix: Water

Associated Lab Samples: 2617149001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.664 ± 0.303 (0.504) C:90% T:91%	pCi/L	04/18/19 12:31	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617149

QC Batch: 337923

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2617149001

METHOD BLANK: 1644541

Matrix: Water

Associated Lab Samples: 2617149001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.170 ± 0.213 (0.439) C:94% T:NA	pCi/L	04/18/19 08:05	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2617149

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2617149

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Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617149001	FB-01	EPA 9315	337923		
2617149001	FB-01	EPA 9320	337915		
2617149001	FB-01	Total Radium Calculation	339294		

### REPORT OF LABORATORY ANALYSIS

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**Sample Condition Upon Receipt**



Client Name: GTA Power

Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_  
Tracking #: \_\_\_\_\_

**WO#: 2617149**

PM: **BM** Due Date: **05/06/19**  
CLIENT: **GAPower-CCR**

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Thermometer Used 83 Type of Ice:  Wet  Blue  None  Samples on ice, cooling process has begun

Cooler Temperature 1.1 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 4/8/19 MB

Temp should be above freezing to 6°C Comments: \_\_\_\_\_

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.	
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.	
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.	
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.	
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.	
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.	
-Includes date/time/ID/Analysis Matrix:	<u>W</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.	
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed	Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.	
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.	
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Pace Trip Blank Lot # (if purchased):			

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

May 03, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2617207

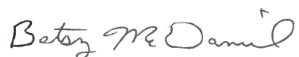
Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 09, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This revised report replaces the one issued on 4/16/2019. The report has been revised to correct metals units per consultant request. No other changes have been made to this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2617207

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### Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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### Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804

Florida/NELAP Certification #: E87648

Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40

South Carolina Certification #: 99030001

Virginia/VELAP Certification #: 460222

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond  
Pace Project No.: 2617207

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Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617207001	FB-02	Water	04/08/19 17:45	04/09/19 13:30
2617207002	EB-01	Water	04/08/19 18:00	04/09/19 13:30

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2617207

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617207001	FB-02	EPA 6020B	JMW1	19	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617207002	EB-01	EPA 6020B	JMW1	19	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA

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## ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2617207

Sample: <b>FB-02</b>		Lab ID: <b>2617207001</b>		Collected: 04/08/19 17:45		Received: 04/09/19 13:30		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Antimony	ND	mg/L	0.0030	0.00011	1	04/10/19 19:59	04/12/19 01:04	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.000060	1	04/10/19 19:59	04/12/19 01:04	7440-38-2		
Barium	ND	mg/L	0.010	0.000060	1	04/10/19 19:59	04/12/19 01:04	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/10/19 19:59	04/12/19 01:04	7440-41-7		
Boron	ND	mg/L	0.10	0.0026	1	04/10/19 19:59	04/12/19 01:04	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000070	1	04/10/19 19:59	04/12/19 01:04	7440-43-9		
Calcium	ND	mg/L	0.50	0.021	1	04/10/19 19:59	04/12/19 01:04	7440-70-2		
Chromium	ND	mg/L	0.010	0.00042	1	04/10/19 19:59	04/12/19 01:04	7440-47-3		
Cobalt	ND	mg/L	0.010	0.000050	1	04/10/19 19:59	04/12/19 01:04	7440-48-4		
Copper	ND	mg/L	0.025	0.00023	1	04/10/19 19:59	04/12/19 01:04	7440-50-8		
Lead	ND	mg/L	0.0050	0.000050	1	04/10/19 19:59	04/12/19 01:04	7439-92-1		
Lithium	ND	mg/L	0.050	0.00042	1	04/10/19 19:59	04/12/19 01:04	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00010	1	04/10/19 19:59	04/12/19 01:04	7439-98-7		
Nickel	ND	mg/L	0.010	0.00011	1	04/10/19 19:59	04/12/19 01:04	7440-02-0		
Selenium	ND	mg/L	0.010	0.000080	1	04/10/19 19:59	04/12/19 01:04	7782-49-2		
Silver	ND	mg/L	0.010	0.000050	1	04/10/19 19:59	04/12/19 01:04	7440-22-4		
Thallium	ND	mg/L	0.0010	0.000060	1	04/10/19 19:59	04/12/19 01:04	7440-28-0		
Vanadium	ND	mg/L	0.010	0.00012	1	04/10/19 19:59	04/12/19 01:04	7440-62-2		
Zinc	ND	mg/L	0.010	0.0011	1	04/10/19 19:59	04/12/19 01:04	7440-66-6		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00020	0.00010	1	04/11/19 21:25	04/15/19 18:39	7439-97-6		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>14.0J</b>	mg/L	25.0	10.0	1		04/11/19 20:54			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>0.25J</b>	mg/L	0.25	0.024	1		04/11/19 00:54	16887-00-6	B	
Fluoride	ND	mg/L	0.30	0.029	1		04/11/19 00:54	16984-48-8		
Sulfate	<b>0.13J</b>	mg/L	1.0	0.017	1		04/11/19 00:54	14808-79-8		

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2617207

Sample: EB-01		Lab ID: 2617207002		Collected: 04/08/19 18:00		Received: 04/09/19 13:30		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Antimony	ND	mg/L	0.0030	0.00011	1	04/10/19 19:59	04/12/19 01:08	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.000060	1	04/10/19 19:59	04/12/19 01:08	7440-38-2		
Barium	ND	mg/L	0.010	0.000060	1	04/10/19 19:59	04/12/19 01:08	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/10/19 19:59	04/12/19 01:08	7440-41-7		
Boron	ND	mg/L	0.10	0.0026	1	04/10/19 19:59	04/12/19 01:08	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000070	1	04/10/19 19:59	04/12/19 01:08	7440-43-9		
Calcium	ND	mg/L	0.50	0.021	1	04/10/19 19:59	04/12/19 01:08	7440-70-2		
Chromium	ND	mg/L	0.010	0.00042	1	04/10/19 19:59	04/12/19 01:08	7440-47-3		
Cobalt	ND	mg/L	0.010	0.000050	1	04/10/19 19:59	04/12/19 01:08	7440-48-4		
Copper	ND	mg/L	0.025	0.00023	1	04/10/19 19:59	04/12/19 01:08	7440-50-8		
Lead	ND	mg/L	0.0050	0.000050	1	04/10/19 19:59	04/12/19 01:08	7439-92-1		
Lithium	ND	mg/L	0.050	0.00042	1	04/10/19 19:59	04/12/19 01:08	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00010	1	04/10/19 19:59	04/12/19 01:08	7439-98-7		
Nickel	ND	mg/L	0.010	0.00011	1	04/10/19 19:59	04/12/19 01:08	7440-02-0		
Selenium	ND	mg/L	0.010	0.000080	1	04/10/19 19:59	04/12/19 01:08	7782-49-2		
Silver	ND	mg/L	0.010	0.000050	1	04/10/19 19:59	04/12/19 01:08	7440-22-4		
Thallium	ND	mg/L	0.0010	0.000060	1	04/10/19 19:59	04/12/19 01:08	7440-28-0		
Vanadium	ND	mg/L	0.010	0.00012	1	04/10/19 19:59	04/12/19 01:08	7440-62-2		
Zinc	ND	mg/L	0.010	0.0011	1	04/10/19 19:59	04/12/19 01:08	7440-66-6		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00020	0.00010	1	04/11/19 21:25	04/15/19 18:41	7439-97-6		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>12.0J</b>	mg/L	25.0	10.0	1		04/11/19 20:54			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>0.22J</b>	mg/L	0.25	0.024	1		04/11/19 03:19	16887-00-6	B	
Fluoride	ND	mg/L	0.30	0.029	1		04/11/19 03:19	16984-48-8		
Sulfate	<b>0.38J</b>	mg/L	1.0	0.017	1		04/11/19 03:19	14808-79-8		

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2617207

QC Batch: 468895

Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A

Analysis Description: 7470 Mercury

Associated Lab Samples: 2617207001, 2617207002

METHOD BLANK: 2546716

Matrix: Water

Associated Lab Samples: 2617207001, 2617207002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00020	0.00010	04/15/19 18:06	

LABORATORY CONTROL SAMPLE: 2546717

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0021	83	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2546718 2546719

Parameter	Units	92424398001 Result	MS		MSD		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	Spike Conc.	MSD Result							
Mercury	mg/L	ND	0.0025	0.0019	0.0025	0.0019	77	77	75-125	0	25		

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2617207

QC Batch: 468622 Analysis Method: EPA 6020B

QC Batch Method: EPA 3010A Analysis Description: 6020 MET

Associated Lab Samples: 2617207001, 2617207002

METHOD BLANK: 2545263 Matrix: Water

Associated Lab Samples: 2617207001, 2617207002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00011	04/11/19 20:42	
Arsenic	mg/L	ND	0.0050	0.000060	04/11/19 20:42	
Barium	mg/L	ND	0.010	0.000060	04/11/19 20:42	
Beryllium	mg/L	ND	0.0030	0.000050	04/11/19 20:42	
Boron	mg/L	ND	0.10	0.0026	04/11/19 20:42	
Cadmium	mg/L	ND	0.0010	0.000070	04/11/19 20:42	
Calcium	mg/L	ND	0.50	0.021	04/11/19 20:42	
Chromium	mg/L	ND	0.010	0.00042	04/11/19 20:42	
Cobalt	mg/L	ND	0.010	0.000050	04/11/19 20:42	
Copper	mg/L	ND	0.025	0.00023	04/11/19 20:42	
Lead	mg/L	ND	0.0050	0.000050	04/11/19 20:42	
Lithium	mg/L	ND	0.050	0.00042	04/11/19 20:42	
Molybdenum	mg/L	ND	0.010	0.00010	04/11/19 20:42	
Nickel	mg/L	ND	0.010	0.00011	04/11/19 20:42	
Selenium	mg/L	ND	0.010	0.000080	04/11/19 20:42	
Silver	mg/L	ND	0.010	0.000050	04/11/19 20:42	
Thallium	mg/L	ND	0.0010	0.000060	04/11/19 20:42	
Vanadium	mg/L	ND	0.010	0.00012	04/11/19 20:42	
Zinc	mg/L	ND	0.010	0.0011	04/11/19 20:42	

LABORATORY CONTROL SAMPLE: 2545264

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	100	80-120	
Arsenic	mg/L	0.01	0.0099	99	80-120	
Barium	mg/L	0.05	0.049	99	80-120	
Beryllium	mg/L	0.01	0.010	104	80-120	
Boron	mg/L	0.05	0.052J	104	80-120	
Cadmium	mg/L	0.01	0.010	102	80-120	
Calcium	mg/L	0.62	0.64	102	80-120	
Chromium	mg/L	0.05	0.051	102	80-120	
Cobalt	mg/L	0.01	0.010	102	80-120	
Copper	mg/L	0.05	0.051	103	80-120	
Lead	mg/L	0.05	0.050	100	80-120	
Lithium	mg/L	0.05	0.050	100	80-120	
Molybdenum	mg/L	0.05	0.051	102	80-120	
Nickel	mg/L	0.05	0.051	102	80-120	
Selenium	mg/L	0.05	0.051	101	80-120	
Silver	mg/L	0.025	0.025	102	80-120	
Thallium	mg/L	0.01	0.010	100	80-120	

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**QUALITY CONTROL DATA**

Project: Plant Hammond

Pace Project No.: 2617207

LABORATORY CONTROL SAMPLE: 2545264

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Vanadium	mg/L	0.05	0.051	101	80-120	
Zinc	mg/L	0.05	0.051	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2545265 2545266

Parameter	Units	2617144001 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Spike Conc.	MSD Spike Conc.	MS Result						
Antimony	mg/L		0.1	0.1	0.099	0.099	99	99	75-125	0	20	
Arsenic	mg/L		0.01	0.01	0.0091J	0.0089J	91	89	75-125	2	20	
Barium	mg/L		0.05	0.05	0.085	0.085	85	85	75-125	0	20	
Beryllium	mg/L		0.01	0.01	0.0086	0.0089	86	89	75-125	4	20	
Boron	mg/L	1.0J	0.05	0.05	1.0J	1.0J	67	48	75-125	1	20	M6
Cadmium	mg/L		0.01	0.01	0.011	0.011	99	99	75-125	0	20	
Calcium	mg/L	70.0	0.62	0.62	71.3	74.8	207	759	75-125	5	20	M6
Chromium	mg/L		0.05	0.05	0.048	0.048	96	95	75-125	1	20	
Cobalt	mg/L		0.01	0.01	0.015	0.015	97	96	75-125	1	20	
Copper	mg/L		0.05	0.05	0.049	0.048	98	97	75-125	1	20	
Lead	mg/L		0.05	0.05	0.048	0.048	96	96	75-125	0	20	
Lithium	mg/L		0.05	0.05	0.043J	0.044J	82	85	75-125	3	20	
Molybdenum	mg/L		0.05	0.05	0.050	0.049	99	99	75-125	1	20	
Nickel	mg/L		0.05	0.05	0.051	0.051	96	96	75-125	0	20	
Selenium	mg/L		0.05	0.05	0.044	0.044	89	88	75-125	1	20	
Silver	mg/L		0.025	0.025	0.023	0.023	92	91	75-125	1	20	
Thallium	mg/L		0.01	0.01	0.0096	0.0096	96	96	75-125	0	20	
Vanadium	mg/L		0.05	0.05	0.050	0.050	100	100	75-125	0	20	
Zinc	mg/L		0.05	0.05	0.047	0.047	86	86	75-125	0	20	

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2617207

QC Batch: 26135 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 2617207001, 2617207002

METHOD BLANK: 117979 Matrix: Water  
Associated Lab Samples: 2617207001, 2617207002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.064J	0.25	0.024	04/10/19 21:47	
Fluoride	mg/L	ND	0.30	0.029	04/10/19 21:47	
Sulfate	mg/L	ND	1.0	0.017	04/10/19 21:47	

LABORATORY CONTROL SAMPLE: 117980

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.2	102	90-110	
Fluoride	mg/L	10	10.0	100	90-110	
Sulfate	mg/L	10	9.9	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 117981 117982

Parameter	Units	2617207001 Result	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	MSD Result	% Rec	% Rec							
Chloride	mg/L	0.25J	10	10	9.9	10	96	97	90-110	1	15			
Fluoride	mg/L	ND	10	10	9.5	9.6	95	96	90-110	1	15			
Sulfate	mg/L	0.13J	10	10	9.5	9.6	94	94	90-110	1	15			

MATRIX SPIKE SAMPLE: 117983

Parameter	Units	2617150001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	131	10	10.5	-1210	90-110	
Fluoride	mg/L	0.13J	10	9.4	93	90-110	
Sulfate	mg/L	392	10	13.7	-3780	90-110	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2617207

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### LABORATORIES

PASI-A Pace Analytical Services - Asheville

PASI-GA Pace Analytical Services - Atlanta, GA

### ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

## REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2617207

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617207001	FB-02	EPA 3010A	468622	EPA 6020B	468673
2617207002	EB-01	EPA 3010A	468622	EPA 6020B	468673
2617207001	FB-02	EPA 7470A	468895	EPA 7470A	468941
2617207002	EB-01	EPA 7470A	468895	EPA 7470A	468941
2617207001	FB-02	SM 2540C	26252		
2617207002	EB-01	SM 2540C	26252		
2617207001	FB-02	EPA 300.0	26135		
2617207002	EB-01	EPA 300.0	26135		

**REPORT OF LABORATORY ANALYSIS**

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

**Section A**  
**Required Client Information:**  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Wiener Road  
 Atlanta, GA 30339  
 Email: j.abraham@southemco.com  
 Phone: (404)508-7239  
 Requested Date: Standard TXI

**Section B**  
**Required Project Information:**  
 Report To: Joju Abraham  
 Copy To: Lauren Peaty, Geosyntec  
 Purchase Order #: SCS10348606  
 Project Name: Plant Hammond  
 Project #:

**Section C**  
**Invoice Information:**  
 Attention: scsinvoices@southemco.com  
 Company Name:  
 Address:  
 Pace Project Manager: baisy.mcdaniel@paceilabs.com  
 Pace Profile #: 327 (AP) or 328 (Huff)

Page: 1 of 1

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	PRESERVATIVES		# OF CONTAINERS	ANALYSES TEST	Residual Chlorine (Y/N)
			START DATE TIME	END DATE TIME			UNPRESERVED	H2SO4			
1	Drinking Water	DW	4/8/19 1740	4/8/19 1745	WT6				2		
2	Waste Water	WW	4/8/19 1755	4/8/19 1800	WT6				2		
3	Waste Water Product	P									
4	Slurry	SL									
5	Oil	OL									
6	Wipe	WP									
7	Air	AR									
8	Other	OT									
9	Tissue	TS									
10											
11											
12											

**NO# : 2617207**

**2617207**

RECEIVED BY / AFFILIATION	DATE	TIME	TEMP IN C	Received on	Ice (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)
Modia Myshus / Geosyntec	4/8/19	2010						
Geosyntec	4/9/19	1127						
Modia Myshus	4/9/19	1330	7.9					

PRINT Name of SAMPLER: Modia Myshus  
 SIGNATURE of SAMPLER: Modia Myshus  
 DATE Signed: 4/8/19

**Sample Condition Upon Receipt**



Client Name: GIA Power

Project # \_\_\_\_\_

**WO#: 2617207**

PM: **BM** Due Date: **04/16/19**  
 CLIENT: **GAPower-CCR**

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other

Tracking #: \_\_\_\_\_

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 0.7 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Samples on ice, cooling process has begun

Date and Initials of person examining contents: 4/9/19 MK

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.	
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.	
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.	
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.	
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.	
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.	
-Includes date/time/ID/Analysis Matrix:	<u>W</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.	
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed	Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.	
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.	
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Pace Trip Blank Lot # (if purchased):	_____		

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N  
 Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Comments/ Resolution: \_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (ie out of hold, incorrect preservative, out of temp, incorrect containers)



May 01, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2617208

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 09, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond  
Pace Project No.: 2617208

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### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond  
Pace Project No.: 2617208

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Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617208001	FB-02	Water	04/08/19 17:45	04/09/19 13:30
2617208002	EB-01	Water	04/08/19 18:00	04/09/19 13:30

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2617208

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617208001	FB-02	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617208002	EB-01	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617208

**Sample: FB-02**      **Lab ID: 2617208001**      Collected: 04/08/19 17:45      Received: 04/09/19 13:30      Matrix: Water

PWS:      Site ID:      Sample Type:

Comments: • Sample collection time on containers does not match COC; client was notified.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.170 ± 0.1000 (0.159)</b> C:93% T:NA	pCi/L	04/22/19 21:19	13982-63-3	
Radium-228	EPA 9320	<b>0.521 ± 0.334 (0.615)</b> C:78% T:79%	pCi/L	04/25/19 14:16	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.691 ± 0.434 (0.774)</b>	pCi/L	04/26/19 09:32	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617208

**Sample: EB-01**      **Lab ID: 2617208002**      Collected: 04/08/19 18:00      Received: 04/09/19 13:30      Matrix: Water

PWS:      Site ID:      Sample Type:

Comments: • Sample collection time on containers does not match COC; client was notified.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.108 ± 0.128 (0.243)</b> C:87% T:NA	pCi/L	04/22/19 21:19	13982-63-3	
Radium-228	EPA 9320	<b>0.370 ± 0.318 (0.634)</b> C:81% T:75%	pCi/L	04/25/19 14:16	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.478 ± 0.446 (0.877)</b>	pCi/L	04/26/19 09:32	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617208

QC Batch: 338631

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2617208001, 2617208002

METHOD BLANK: 1648339

Matrix: Water

Associated Lab Samples: 2617208001, 2617208002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.146 ± 0.0893 (0.139) C:90% T:NA	pCi/L	04/22/19 21:19	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617208

QC Batch: 338745

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2617208001, 2617208002

METHOD BLANK: 1648702

Matrix: Water

Associated Lab Samples: 2617208001, 2617208002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.552 ± 0.362 (0.681) C:81% T:74%	pCi/L	04/25/19 11:04	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Hammond  
Pace Project No.: 2617208

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2617208

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617208001	FB-02	EPA 9315	338631		
2617208002	EB-01	EPA 9315	338631		
2617208001	FB-02	EPA 9320	338745		
2617208002	EB-01	EPA 9320	338745		
2617208001	FB-02	Total Radium Calculation	340066		
2617208002	EB-01	Total Radium Calculation	340066		

### REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A		Section B		Section C	
Required Client Information:		Required Project Information:		Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joy Abraham	Attention:	sesinvoic@scouthernco.com
Address:	2480 Manner Road Atlanta, GA 30339	Copy To:	Lauron Peby, Geosyntec	Company Name:	
Email:	jabraham@scouthernco.com	Purchase Order #:	9C5T0348666	Address:	
Phone:	(404)506-7239	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniels@paceelabs.com
Requested Due Date:	Standard TX	Project #:		Pace Profile #:	327 (AP) or 328 (Huff)

Page: 1 of 1

ITEM #	MATRIX CODE DW Drinking Water WT Waste Water P Product SL Solids OI Oil WI Wipe AR Air OT Other TS Tissue	SAMPLE TYPE (G-GRAB C-COMP)	COLLECTED		DATE	TIME	SAMPLER NAME AND SIGNATURE	DATE	TIME	RECEIVED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on	Sealed	Cooler	Samples	
			START	END														
1		WT 6	4/8/19 1340	4/8/19 1345	19	5	2	3										
2		WT 6	4/8/19 1355	4/8/19 1800	19	5	2	3										
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		

ADDITIONAL COMMENTS:	RELINQUISHED BY / AFFILIATION:	DATE:	TIME:	RECEIVED BY / AFFILIATION:	DATE:	TIME:	TEMP in C:	Received on:	Sealed:	Cooler:	Samples:
	Noelia Munson Geosyntec	4/8/19	2010	EB Low / Geosyntec	4/8/19	2210					
	EBB Low / Geosyntec	4/9/19	1127	1 Rose	4/9/19	1127					
				Noelia Munson	4/9/19	1330	0.7				

WO#: 2617208

**Sample Condition Upon Receipt**



Client Name: GIA Power

Project # \_\_\_\_\_

**WO#: 2617208**

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: \_\_\_\_\_

PM: BM Due Date: 05/07/19

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

CLIENT: GAPower-CCR

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Samples on ice, cooling process has begun

Cooler Temperature 0.7 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 4/9/19 NR

Temp should be above freezing to 6°C Comments: \_\_\_\_\_

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.	
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.	
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.	
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.	
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.	
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.	
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.	
-Includes date/time/ID/Analysis Matrix:	<u>W</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.	
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed	Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.	
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.	
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Pace Trip Blank Lot # (if purchased):			

Client Notification/Resolution: \_\_\_\_\_ Field Data Required? Y / N

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)