Prepared for



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SEMI-ANNUAL REMEDY SELECTION AND DESIGN PROGRESS REPORT PLANT HAMMOND ASH POND 2 (AP-2)

Prepared by



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SEMI-ANNUAL REMEDY SELECTION AND DESIGN PROGRESS REPORT GEORGIA POWER COMPANY - PLANT HAMMOND

ASH POND 2 (AP-2)

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



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December 12, 2019 Date



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December 2019

Geosyntec[>]

LIST OF ACRONYMS

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



1.0 INTRODUCTION

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

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

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

- 1. Geochemical Manipulation (In-Situ Injection)
- 2. Hydraulic Containment (Pump and Treat)
- 3. Monitored Natural Attenuation (MNA)
- 4. Permeable Reactive Barrier (PRB)
- 5. Subsurface Vertical Barrier Walls

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



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

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



2.0 SUMMARY OF WORK COMPLETED

2.1 <u>Nature and Extent Delineation</u>

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

• Cobalt: HGWC-15 and HGWC-18

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

Pursuant to 40 CFR § 257.96, groundwater in the vicinity of AP-2 continues to be monitored during the remedy selection phase in accordance with the established assessment monitoring program. As part of the assessment program, three additional groundwater monitoring wells were installed in 2018 to provide additional data to characterize flow conditions downgradient of AP-2 and to horizontally and vertically delineate SSLs of cobalt from the two target wells previously listed. Well MW-22 was installed for horizontal delineation and wells MW-21D and MW-23D were installed for vertical delineation. The locations of these wells are shown on **Figure 2**. Supporting details and documents (e.g., boring logs, well construction table) are provided in the ACM Report.

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

The September 2019 data indicates a continued SSL of cobalt in well HGWC-18. However, based on available groundwater and aquifer solid data, elevated cobalt groundwater concentrations reported in this well are believed to originate from the dissolution of naturally occurring cobalt under slightly acidic groundwater conditions. An Alternate Source Demonstration (ASD) is being finalized that will outline multiple lines of evidence to support that cobalt is naturally occurring in the vicinity of HGWC-18. The ASD will be provided in the 2019 annual groundwater monitoring report.

2.2 <u>Summary of Corrective Measures</u>

The closure of AP-2 by removal of the CCR material is a source control measure that reduces the potential for migration of CCR constituents to groundwater. The corrective measures proposed in the ACM are being evaluated to address SSLs in groundwater at and downgradient of the compliance boundary. Each individual corrective measure is evaluated relative to criteria specified in 40 CFR § 257.96(c) and 40 CFR § 257.97(b). A comparative screening of the corrective measures is provided in **Table 1**; the following provides a brief description of each corrective measure being screened.

- Geochemical Approaches (In-Situ Injection): Use of an injection well network, or other means of introducing reagents or air into the subsurface, to provide suitable reagents for either anaerobic or aerobic attenuation of cobalt.
- **Hydraulic Containment (Pump and Treat):** The use of groundwater extraction system(s) to induce a hydraulic gradient for hydraulic capture or control the

migration of impacted groundwater. Extracted water may require subsequent above-ground treatment before permitted discharge or reuse.

- **Monitored Natural Attenuation (MNA):** *MNA relies on natural attenuation processes to achieve site-specific remediation objectives within a reasonable time frame relative to more active methods.*
- **Permeable Reactive Barrier (PRB):** *PRB technology typically involves the installation of a permeable subsurface wall constructed with reactive media for the removal of constituents as groundwater passes through.*
- Subsurface Vertical Barrier Walls: This approach involves placing a barrier to groundwater flow in the subsurface, frequently around a source area, to prevent future migration of dissolved constituents in groundwater from beneath the source to downgradient areas. Groundwater extraction from upgradient of the barrier is required to avoid groundwater mounding behind the barrier.

2.3 Field Investigation and Data Collection

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

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

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

- Attenuation mechanisms and rates and aquifer capacity for attenuation;
- Amount and distribution of select metal hydroxides or electron donors that may affect geochemical mechanisms; and

• Groundwater parameters specific to the existing National Pollutant Discharge Elimination System (NPDES) permitted discharge limits and capabilities of onsite low volume wastewater treatment plant.

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

The ACM related analytical results from the September 2019 event are summarized in **Tables 3a** and **3b**. The tables present parameters needed to evaluate in-situ conditions that may affect the performance and feasibility of the corrective measures. As previously mentioned, the Appendix III and IV groundwater data collected during the September 2019 event are not presented herein, but instead will be provided in the 2019 annual groundwater monitoring report in January.

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

3.0 PLANNED ACTIVITIES & ANTICIPATED SCHEDULE

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

Supplementary data collection and evaluation activities proposed to be completed during the next semi-annual reporting period are presented on **Table 4**. GPC will continue to prepare semi-annual progress reports to document AP-2 groundwater conditions, results associated with additional data gathering, and the progress in selecting and designing the remedy in accordance with 40 CFR § 257.97(a). GPC will include future semi-annual ACM progress reports in routine groundwater monitoring and corrective action reports. To this, any remedy selection evaluation data collected between submission of this December 2019 report and the submission of the 2019 annual groundwater monitoring report in January 2020 will be presented as an addendum to this current Semi-Annual Remedy Selection Report. The addendum will be included with the 2019 annual groundwater monitoring reports for the semi-annual ACM progress reports will be provided in accordance with 40 CFR § 257.105(h)(12), 257.106(h)(9), and 257.107(h)(9), respectively.

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4.0 **REFERENCES**

- Geosyntec Consultants. 2019a. 2018 Annual Groundwater Monitoring and Corrective Action Report - Plant Hammond Ash Ponds 1 & 2 (AP-2 and AP-2). January 2019.
- Geosyntec Consultants, 2019b. Assessment of Corrective Measures Report Plant Hammond Ash Pond 2 (AP-2). June 2019.
- U.S. Environmental Protection Agency. 2015a. Federal Register. Volume 80. No. 74. Friday April 17, 2015. Part II. Environmental Protection Agency. 40 CFR Parts 257 and 261. Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule. [EPA-HQ-RCRA-2009-0640; FRL-9919-44-OSWER]. RIN-2050-AE81, April 2015.

TABLES

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

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

Reliability

a permeability of the subsurface and the amount and y iron or manganese (oxy-) hydroxides (for aerobic onors and soluble iron or manganese and sulfur that can ed (for anaerobic approach). Reliable technology if e distributed throughout the impacted aquifer. Benchbility testing programs are needed to understand the es that would effectively reduce migration of Co in

draulic containment, but uncertainty exists whether goals can be achieved within a reasonable time frame ding attenuation mechanisms.

uifer conditions that result in Co attenuation remain g enhanced and sufficient attenuation capacity is present. either be used as a stand-alone corrective measure for 7 dissolved Co, or in combination with a second

rective measure, but loss of reactivity over time may pending on the duration of the remedy. Additional data ducting a bench and/or pilot study, is needed to better uation mechanisms and/or select the appropriate reactive

arrier to groundwater flow; however, treatment of the is incidental and not the primary objective.

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

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

40 CFR 257.96(C)(2) Requirement to Begin/Complet

n network can be accomplished relatively quickly (1 to prough pre-design investigation, geochemical modeling, -testing will be required to obtain design parameters action of the corrective measure, which may take up to a the time required to achieve GWPS within the tively quick but depends on the attenuation process constituent. The time for complete distribution of the out the treatment area is also variable.

vells and/or trenches can be accomplished relatively Iowever, additional aquifer testing, system design and proval may be required, which may take up to 24 the approach would be contingent on the start-up of the istructure. Hydraulic containment can be achieved rtup of the extraction system, but uncertainty exists with eve GWPS without additional data collection to better ichanisms for Co.

te MNA is already in place. Demonstrating attenuation can be time-consuming and can take up to 24 months. ccessful within a reasonable time frame following pond sures will be implemented during closure of AP-2 to is to the subsurface during closure activities and routine vill be used to verify that groundwater impacts remain ne.

be accomplished relatively quickly (6 to 12 months), ation and configuration. However, bench- and/or pilotto obtain design parameters prior to design and *v*, which may take up to 24 months. Once installed, the wngradient of the PRB is anticipated to be relatively

l can be accomplished relatively quickly (6 to 12 final location and configuration. However, some al aquifer and compatibility testing will be required, onths. Once installed, preventing migration of roundwater is anticipated to be relatively quick. Since t the downgradient area of impacted groundwater but source area, it will likely have to be maintained longer approaches.

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

1	40 CFR 257 96(C)(3)					
Corrective Measure	Institutional Requirements	Other Env or Public Health Requirements	<u>//</u>			
Geochemical Approaches (In-Situ Injection)	Deed restrictions may be necessary until in-situ treatment has achieved GWPS. A new UIC permit (for in-situ injections) would be required to implement this corrective measure. No other institutional requirements are expected at this time.	None expected at this point. Based on downgradient sampling results near adjacent water features, there currently are no complete exposure pathways for potential receptors downgradient of AP-2. Potential for mobilization of redox- sensitive constituents exists during implementation of an anerobic attenuation approach. Following installation, the remedy is passive.	Medium (depending on volume re			
Hydraulic Containment ("Pump and Treat")	Depending on the effluent management strategy, modifications to the existing NPDES permit may be required, or obtaining a new underground injection control (UIC) permit may be needed if groundwater reinjection is chosen. In addition, deed restrictions may be required as long as groundwater conditions are above regulatory standards for unrestricted use.	Based on downgradient sampling results near adjacent water features, there currently are no complete exposure pathways for potential receptors downgradient of AP-2. Above-ground treatment components may need to be present for an extended period of time, generating residuals requiring management and disposal.	: Medium to high (depend treatment s			
Monitored Natural Attenuation (MNA)	MNA may require the implementation of institutional controls, such as deed restrictions, to preclude potential exposure to groundwater within the footprint of impacted groundwater until GWPS are achieved.	Little to no physical disruption to remediation areas and no adverse construction- related impacts are expected on the surrounding community. Based on downgradient sampling results near adjacent water features, there currently are no complete exposure pathways for potential receptors downgradient of AP-2.				
Permeable Reactive Barrier	Deed restrictions may be necessary for groundwater areas upgradient of the PRB (if not installed along the waste boundary). No other institutional requirements are expected at this time.	None expected at this point. Based on downgradient sampling results near adjacent water features, there currently are no complete exposure pathways for potential receptors downgradient of AP-2. Following installation, the remedy is passive. However, certain treatment media (such as ZVI) have the potential to mobilize naturally-occurring constituents downgradient of the PRB.	Medium to high (for instal			
Subsurface Vertical Barrier Walls	Deed restrictions may be necessary for groundwater areas downgradient of the barrier wall until remedial goals are met. No other institutional requirements are expected at this time.	Based on downgradient sampling results near adjacent water features, there currently are no complete exposure pathways for potential receptors downgradient of AP-2. Due to the need for groundwater extraction associated with barrier walls, above-ground treatment components may need to be present for an extended period of time, generating residuals requiring management and disposal.	Medium to high (depend complexi			

Relative Costs
expanse of injection network required and injectate quired per derived design parameters)
ing on remedy duration, complexity of above-ground ystem, and volume of water processed)
Low to medium
lation) - minimal O&M requirements if replacement is not necessary
ing on length and depth of wall, remedy duration and ty of above-ground treatment system)

Table 2Summary of ActivityPlant Hammond AP-2, Floyd County, Georgia

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

Table 3aSummary of Groundwater Analytical Data - Geochemical Parameter EvaluationPlant Hammond AP-2, Floyd County, Georgia

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

Notes:

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

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

(1) Well is designated a delineation monitoring well.

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

Table 3aSummary of Groundwater Analytical Data - Geochemical Parameter EvaluationPlant Hammond AP-2, Floyd County, Georgia

Well ID:	HGWC-15	HGWC-16	HGWC-17	HGWC-18	MW-21D ⁽¹⁾	MW-22 ⁽¹⁾	MW-23D ⁽¹⁾
Sample Date:	9/24/2019	9/25/2019	9/25/2019	9/25/2019	9/25/2019	9/27/2019	9/26/2019
Parameter							
Alkalinity, Bicarbonate (CaCO ₃)	124	192	182	ND	62.0	93.0	216
Alkalinity, Total as CaCO ₃	124	192	182	ND	62.0	93.0	216
Dissolved Organic Carbon	ND (0.61 J)	ND	ND (0.72 J)	ND	ND	ND	ND
Iron	0.053	1.5	0.18	0.11	14.6	0.66	0.17
Magnesium	37.9	15.5	31.2	36.0	67.0	46.3	35.4
Manganese	16.3	0.036	4.4	3.7	0.99	16.7	9.0
Orthophosphate as P	ND	0.021	ND	ND	ND	ND	ND
Phosphorous	0.10	0.069	ND	ND	ND (0.032 J)	0.054	ND (0.025 J)
Potassium	0.89	ND (0.76 J)	2.7	8.9	1.1	1.0	2.1
Sodium	14.7	9.9	15.3	10.4	15.3	15.0	13.1
Sulfide	ND	ND	ND	ND	ND	ND	ND

Notes:

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

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

(1) Well is designated a delineation monitoring well.

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

Table 3bSummary of Groundwater Analytical Data - NPDES Compliance EvaluationPlant Hammond AP-2, Floyd County, Georgia

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

Notes:

 $\ensuremath{\text{ND}}\xspace$ = Indicates the parameter was not detected above the analytical MDL

NPDES = National Pollutant Discharge Elimination System

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

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

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

Note:

(1) Corrective Measure (CM) Codes:

1 - Geochemical Approaches (In-Situ Injection)

2 - Hydraulic Containment

3 - Monitored Natural Attenuation (MNA)

4 - Permeable Reactive Barrier (PRB)

5 - Subsurface Vertical Barrier Walls

FIGURES









APPENDIX A

Laboratory Analytical Reports



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

October 25, 2019

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

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

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on September 24, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Batery Mr Damil

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

Enclosures

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





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

CERTIFICATIONS

Project: Plant Hammond GW6581 Pace Project No.: 2623499

Atlanta Certification IDs

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

Ormond Beach Certification IDs 8 East Tower Circle, Ormond Beach, FL 32174 Alaska DEC- CS/UST/LUST Alabama Certification #: 41320 Arizona Certification# AZ0819 Colorado Certification: FL NELAC Reciprocity Connecticut Certification #: PH-0216 Delaware Certification: FL NELAC Reciprocity Florida Certification #: E83079 Georgia Certification #: 955 Guam Certification: FL NELAC Reciprocity Hawaii Certification: FL NELAC Reciprocity Illinois Certification #: 200068 Indiana Certification: FL NELAC Reciprocity Kansas Certification #: E-10383 Kentucky Certification #: 90050 Louisiana Certification #: FL NELAC Reciprocity Louisiana Environmental Certificate #: 05007 Maryland Certification: #346 Michigan Certification #: 9911 Mississippi Certification: FL NELAC Reciprocity

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

Missouri Certification #: 236 Montana Certification #: Cert 0074 Nebraska Certification: NE-OS-28-14 New Hampshire Certification #: 2958 New Jersey Certification #: FL022 New York Certification #: 11608 North Carolina Environmental Certificate #: 667 North Carolina Certification #: 12710 North Dakota Certification #: R-216 Oklahoma Certification #: D9947 Pennsylvania Certification #: 68-00547 Puerto Rico Certification #: FL01264 South Carolina Certification: #96042001 Tennessee Certification #: TN02974 Texas Certification: FL NELAC Reciprocity US Virgin Islands Certification: FL NELAC Reciprocity Virginia Environmental Certification #: 460165 West Virginia Certification #: 9962C Wisconsin Certification #: 399079670 Wyoming (EPA Region 8): FL NELAC Reciprocity



SAMPLE SUMMARY

Project: Plant Hammond GW6581

Pace Project No.: 2623499

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



SAMPLE ANALYTE COUNT

Project: Plant Hammond GW6581

Pace Project No.: 2623499

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



ANALYTICAL RESULTS

Project: Plant Hammond GW6581

Pace Project No.: 2623499

Sample: HGWA-1	Lab ID:	2623499001	Collecte	d: 09/23/19	9 16:15	Received: 09/	24/19 15:23 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP	Analytical	Method: EPA 6	6010D Prep	aration Met	hod: Ef	PA 3010A			
Iron	0.022J	mg/L	0.040	0.015	1	10/22/19 14:30	10/23/19 22:51	7439-89-6	
Magnesium	5.4	mg/L	0.050	0.011	1	10/22/19 14:30	10/23/19 22:51	7439-95-4	
Manganese	0.20	mg/L	0.040	0.0061	1	10/22/19 14:30	10/23/19 22:51	7439-96-5	
Phosphorus	ND	mg/L	0.050	0.023	1	10/22/19 14:30	10/23/19 22:51	7723-14-0	
Potassium	0.33	mg/L	0.20	0.026	1	10/22/19 14:30	10/23/19 22:51	7440-09-7	
Sodium	20.4	mg/L	1.0	0.19	1	10/22/19 14:30	10/23/19 22:51	7440-23-5	
2320B Alkalinity	Analytical	Method: SM 2	320B						
Alkalinity,Bicarbonate (CaCO3)	279	mg/L	20.0	20.0	1		09/25/19 16:36		
Alkalinity, Total as CaCO3	279	mg/L	20.0	20.0	1		09/25/19 16:36		
4500PE Ortho Phosphorus	Analytical	Method: SM 4	500-P						
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/25/19 12:26		
4500S2D Sulfide Water	Analytical	Method: SM 4	500-S2 D						
Sulfide	ND	mg/L	0.20	0.20	1		09/26/19 09:20	18496-25-8	
5310B Dissolved Organic Carbon	Analytical	Method: SM 5	310B						
Dissolved Organic Carbon	1.1	mg/L	1.0	0.50	1		10/24/19 23:28		H3



ANALYTICAL RESULTS

Project: Plant Hammond GW6581

Pace Project No.: 2623499

Sample: HGWA-2	Lab ID:	2623499002	Collected: 09/23/19 16:55		Received: 09/24/19 15:23 Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP	Analytical	Method: EPA 6	6010D Prep	paration Met	hod: El	PA 3010A			
Iron	1.7	mg/L	0.040	0.015	1	10/22/19 14:30	10/23/19 22:56	7439-89-6	
Magnesium	2.4	mg/L	0.050	0.011	1	10/22/19 14:30	10/23/19 22:56	7439-95-4	
Manganese	1.1	mg/L	0.040	0.0061	1	10/22/19 14:30	10/23/19 22:56	7439-96-5	
Phosphorus	ND	mg/L	0.050	0.023	1	10/22/19 14:30	10/23/19 22:56	7723-14-0	
Potassium	0.88	mg/L	0.20	0.026	1	10/22/19 14:30	10/23/19 22:56	7440-09-7	
Sodium	8.7	mg/L	1.0	0.19	1	10/22/19 14:30	10/23/19 22:56	7440-23-5	
2320B Alkalinity	Analytical	Method: SM 2	320B						
Alkalinity,Bicarbonate (CaCO3)	29.0	mg/L	20.0	20.0	1		09/25/19 16:58		
Alkalinity, Total as CaCO3	29.0	mg/L	20.0	20.0	1		09/25/19 16:58		
4500PE Ortho Phosphorus	Analytical	Method: SM 4	500-P						
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/25/19 12:27		
4500S2D Sulfide Water	Analytical	Method: SM 4	500-S2 D						
Sulfide	ND	mg/L	0.20	0.20	1		09/26/19 09:23	18496-25-8	
5310B Dissolved Organic Carbon	Analytical	Method: SM 5	310B						
Dissolved Organic Carbon	2.1	mg/L	1.0	0.50	1		10/25/19 00:17		H3



ANALYTICAL RESULTS

Project: Plant Hammond GW6581

Pace Project No.: 2623499

Sample: HGWA-3	Lab ID:	2623499003	29003 Collected: 09/23/19 17:10		Received: 09/24/19 15:23 Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP	Analytical	Method: EPA	6010D Prep	paration Met	hod: El	PA 3010A			
Iron	0.53	mg/L	0.040	0.015	1	10/22/19 14:30	10/23/19 23:24	7439-89-6	
Magnesium	4.8	mg/L	0.050	0.011	1	10/22/19 14:30	10/23/19 23:24	7439-95-4	
Manganese	0.21	mg/L	0.040	0.0061	1	10/22/19 14:30	10/23/19 23:24	7439-96-5	
Phosphorus	0.026J	mg/L	0.050	0.023	1	10/22/19 14:30	10/23/19 23:24	7723-14-0	
Potassium	0.42	mg/L	0.20	0.026	1	10/22/19 14:30	10/23/19 23:24	7440-09-7	
Sodium	5.2	mg/L	1.0	0.19	1	10/22/19 14:30	10/23/19 23:24	7440-23-5	
2320B Alkalinity	Analytical	Method: SM 2	320B						
Alkalinity,Bicarbonate (CaCO3)	174	mg/L	20.0	20.0	1		09/25/19 17:01		
Alkalinity, Total as CaCO3	174	mg/L	20.0	20.0	1		09/25/19 17:01		
4500PE Ortho Phosphorus	Analytical	Method: SM 4	500-P						
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/25/19 12:28		
4500S2D Sulfide Water	Analytical	Method: SM 4	500-S2 D						
Sulfide	ND	mg/L	0.20	0.20	1		09/26/19 09:25	18496-25-8	
5310B Dissolved Organic Carbon	Analytical	Method: SM 5	310B						
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/25/19 00:28		H3



QUALITY CONTROL DATA

Analysis Method:

Project: Plant Hammond GW6581

EPA 3010A

Pace Project No.: 2623499

QC Batch:	37339

Associated Lab Samples:

QC Batch Method:

2623499001, 2623499002, 2623499003

Analysis Description:	6010D MET
100003	

EPA 6010D

METH	OD BL	ANK:	168935

Associated Lab Samples: 2623	3499001, 2623499002, 26	623499003				
		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Iron	mg/L	ND	0.040	0.015	10/23/19 22:41	
Magnesium	mg/L	ND	0.050	0.011	10/23/19 22:41	
Manganese	mg/L	ND	0.040	0.0061	10/23/19 22:41	
Phosphorus	mg/L	ND	0.050	0.023	10/23/19 22:41	
Potassium	mg/L	ND	0.20	0.026	10/23/19 22:41	
Sodium	mg/L	ND	1.0	0.19	10/23/19 22:41	

Matrix: Water

LABORATORY CONTROL SAMPLE: 168936

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

Parameter	Units	2623499002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	mg/L	1.7	1	1	2.7	2.8	101	106	75-125	2	20	
Magnesium	mg/L	2.4	1	1	3.4	3.4	101	106	75-125	1	20	
Manganese	mg/L	1.1	1	1	2.1	2.1	101	105	75-125	2	20	
Phosphorus	mg/L	ND	1	1	1.0	1.0	102	103	75-125	1	20	
Potassium	mg/L	0.88	1	1	1.9	1.9	97	101	75-125	2	20	
Sodium	mg/L	8.7	1	1	9.5	9.8	84	112	75-125	3	20	

168938

Results presented on 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

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



QUALITY CONTROL DATA

Project:	Plant Hammond G	W6581								
Pace Project No.:	2623499									
QC Batch: 35970			Analysis M	Analysis Method:		SM 2320B				
QC Batch Method: SM 2320B			Analysis D	Analysis Description:		2320B Alkalinity				
Associated Lab Sar	nples: 26234990	01, 2623499002, 2	623499003							
METHOD BLANK: 161956			Matri	x: Water						
Associated Lab Sar	nples: 26234990	01, 2623499002, 2	623499003							
			Blank	Reporting						
Parameter		Units	Result	Limit	MDL		Analyze		Qualifiers	
Alkalinity, Total as CaCO3		mg/L	N	2	0.0	20.0 0	9/25/19	16:26		
LABORATORY CO	NTROL SAMPLE:	161957								
			Spike	LCS	LCS	% F	Rec			
Parameter		Units	Conc.	Result	% Rec	Lim	nits	Qual	lifiers	
Alkalinity, Total as C	CaCO3	mg/L	100	101	101		85-115			
SAMPLE DUPLICA	TE: 161958									
			2623499001	Dup			Max			
Parameter		Units	Result	Result	RPD		RPD		Qualifiers	
Alkalinity, Total as CaCO3		mg/L	27	9 2	281	1		10		

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



QUALITY CONTROL DATA

Project:	Plant Hammond G	W6581											
Pace Project No .:	2623499												
QC Batch: 35930				sis Metho	od: S	SM 4500-P							
QC Batch Method: SM 4500-P				Analysis Description:		4500PE Ortho Phosphorus							
Associated Lab Sar	nples: 262349900	01, 2623499002,	262349900)3									
METHOD BLANK: 161749				Matrix: V	Vater								
Associated Lab Sar	nples: 262349900	1, 2623499002,	262349900)3									
			Blar	Blank Reporting									
Paran	neter	Units	Res	ult	Limit	MD	L	Analyzed	l Qi	ualifiers			
Orthophosphate as	Ρ	mg/L		ND	0.020	0	0.020	09/25/19 11	:51				
LABORATORY CO	NTROL SAMPLE:	161750											
			Spike	L	CS	LCS	%	Rec					
Parar	neter	Units	Conc.	Re	esult	% Rec	Lin	nits	Qualifiers	_			
Orthophosphate as	Ρ	mg/L	0.	.5	0.52	10	4	80-120					
MATRIX SPIKE & M	IATRIX SPIKE DUP	LICATE: 1618	62		161863								
			MS	MSD					_				
Paramoto	r Linite	2623499001 Rosult	Spike	Spike	MS Bocult	MSD Rocult	MS % Roc	MSD % Roc	% Rec	חסס	Max	Qual	
Falameter				Conc.			/o Rec	/0 Rec			<u></u>	Qual	
Orthophosphate as	P mg/L	ND	0.5	0.5	0.52	0.52	103	3 103	8 80-120	0	10		

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


Project:	Plant Hammond G	W6581										
Pace Project No.:	2623499											
QC Batch:	35996		Analy	sis Metho	od: S	SM 4500-S	2 D					
QC Batch Method:	SM 4500-S2 D		Anal	ysis Descr	ription: 4	4500S2D S	ulfide Wa	ater				
Associated Lab Sar	nples: 26234990	01, 2623499002,	262349900)3								
METHOD BLANK:	162154			Matrix: V	Vater							
Associated Lab Sar	nples: 26234990	01, 2623499002,	262349900)3								
			Blai	nk	Reporting							
Paran	neter	Units	Res	ult	Limit	MD	L	Analyzed	Qı	ualifiers		
Sulfide		mg/L		ND	0.20	0	0.20	09/26/19 09	:18			
LABORATORY COI	NTROL SAMPLE:	162155										
			Spike	L	CS	LCS	%	Rec				
Paran	neter	Units	Conc.	Re	esult	% Rec	Lii	mits	Qualifiers			
Sulfide		mg/L	0	.5	0.45	9	0	80-120				
MATRIX SPIKE & M	IATRIX SPIKE DUF	PLICATE: 1621	56		162157							
			MS	MSD								
Parameter	· Units	2623499001 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide	mg/L	. ND	0.5	0.5	0.48	0.47	9	6 94	30-129	2	10	

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



Project: Plant Ha	ammond G\	N6581										
Pace Project No.: 2623499	Ð											
QC Batch: 58143	9		Analy	sis Metho	d:	SM 5310B						
QC Batch Method: SM 53	10B		Analy	/sis Descrij	otion:	5310B Diss	olved Orga	nic Carbon				
Associated Lab Samples:	262349900	01, 2623499002,	262349900)3								
METHOD BLANK: 316059	6			Matrix: W	ater							
Associated Lab Samples:	262349900	1, 2623499002,	262349900)3								
			Blar	nk l	Reporting							
Parameter		Units	Res	ult	Limit	MD	L	Analyzed	Qı	ualifiers		
Dissolved Organic Carbon		mg/L		ND	1.	.0	0.50 1	0/24/19 23:0	00			
LABORATORY CONTROL S	AMPLE:	3160597										
			Spike	LC	S	LCS	% R	ec				
Parameter		Units	Conc.	Res	sult	% Rec	Lim	its (Qualifiers	_		
Dissolved Organic Carbon		mg/L	2	20	19.3	90	6	90-110				
MATRIX SPIKE & MATRIX S	PIKE DUPL	_ICATE: 3160	598		3160599	9						
			MS	MSD								
		2624536004	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	<u> </u>
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Dissolved Organic Carbon	mg/L	ND	20	20	20.1	19.8	100	98	80-120	2	20	
MATRIX SPIKE & MATRIX S	PIKE DUPL	_ICATE: 3160	600		3160601	1						
			MS	MSD								
		2624536010	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Dissolved Organic Carbon	mg/L	ND	20	20	20.2	20.0	101	100	80-120	1	20	

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



QUALIFIERS

Project: Plant Hammond GW6581

Pace Project No.: 2623499

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-GA Pace Analytical Services - Atlanta, GA

PASI-O Pace Analytical Services - Ormond Beach

ANALYTE QUALIFIERS

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



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond GW6581

Pace Project No.: 2623499

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

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

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Email: j	tabraham@southernco.com	Purchase C	Order #:	SCS1	382775				Pace	Duote:																	
Phone:	(404)506-7239 Fax:	Project Nar	:eu	Plant Harr	puom				Pace	² roject I	Vanage	۲ ۲	betsy.m	cdaniel	@ pace	labs.co	Ē					3 12 1	//eum	Contron			
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Section .	4	Section B	Section C	
Require	d Client Information:	Required Project Information:	Invoice Information:	Page: 1- of 2
Company	Georgia Power - Coal Combustion Residuals	Report To: Joju Abraham	Attention: scsinvoices@southernco.com	
Address:	2480 Maner Road	Copy To: Lauren Petty, Geosyntec	Company Name:	
Atlanta, (3A 30339		Address:	Regulatory (Agency)
Emait:	jabraham @ southernco.com	Purchase Order #: SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name: Plant Hammond	Pace Project Manager: betsv.mcdaniel@pacelabs.com.	State // Location
Requeste	d Due Date: Stordard TAT	Project #: GUCSBI	Pace Profile #: 327 (AP)	GA
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Sar	nple Condition	Upon Receipt	WO#:262	23499	
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Client Name	: (-Hlow	esc.C.R.	CLIENT: GAPower	-CCR	'01/19
Courier: Fed Ex UPS USPS Clier	nt Commercial	Pace Other	Optional Proj. Duell)ate:	
Custody Seal on Cooler/Box Present: Eyes		intact: yes [no Proj Name		
Packing Material:	Baos 🗌 None (
Thermometer Used 214	Type of Ice: Wet	Blue None	Samples on ice, cooling	process has begun i	
	Biological Tissue	is Frozen: Yes No	Date and Initials of	personyexamining	
Temp should be above freezing to 6°C	•	Comments:	contents:/	24/19/00	,
Chain of Custody Present:		1.			
Chain of Custody Filled Out:		2.			
Chain of Custody Relinquished:		3.			
Sampler Name & Signature on COC:	DAES DNO DN/A	4.			
Samples Arrived within Hold Time:		5.			
Short Hold Time Analysis (<72hr):		6			
Rush Turn Around Time Requested:		7.			
Sufficient Volume:		8.			
Correct Containers Used:		9.			
-Pace Containers Used:	Pres DNo DN/A				
Containers Intact:	Pres DNO DN/A	10.			
Filtered volume received for Dissolved tests	UYes DANO DATA	11.O-phos	+ VOC Fire	2 d filte	(el
Sample Labels match COC:		12.			
-Includes date/time/ID/Analysis Matrix:	<u> </u>				
All containers needing preservation have been checked.		13.			
All containers needing preservation are found to be in compliance with EPA recommendation.					
		Initial when completed	Lot # of added preservative		
Samples checked for dechlorination:		14			
Headspace in VOA Vials (>6mm):		15			
Trin Blank Present:		16.			
Trip Blank Custody Seals Present	□Yes □No □N/A				
Pace Trip Blank Lot # (if purchased):					
			Field Date Required?	× / N	FI
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Project Manager Review:	<u></u>		Date:		
Note: Whenever there is a discrepancy affecting North Certification Office (i.e out of hold, incorrect preservati	Carolina compliance sa ive, out of temp, incorrect	mples, a copy of this forr t containers)	n will be sent to the North (arolina DEHNR	18 of 19

Page 1	8 of	18
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Pace Analytical Services, LLC 110 Technology Parkway Peachtree Corners, GA 30092 (770)734-4200

November 11, 2019

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

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

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on September 25, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Batery Mr Damil

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

Enclosures







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

CERTIFICATIONS

Project: Plant Hammond Pace Project No.: 2623556

Atlanta Certification IDs

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

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174 Alaska DEC- CS/UST/LUST Alabama Certification #: 41320 Arizona Certification# AZ0819 Colorado Certification: FL NELAC Reciprocity Connecticut Certification #: PH-0216 Delaware Certification: FL NELAC Reciprocity Florida Certification #: E83079 Georgia Certification #: 955 Guam Certification: FL NELAC Reciprocity Hawaii Certification: FL NELAC Reciprocity Illinois Certification #: 200068 Indiana Certification: FL NELAC Reciprocity Kansas Certification #: E-10383 Kentucky Certification #: 90050 Louisiana Certification #: FL NELAC Reciprocity Louisiana Environmental Certificate #: 05007 Maryland Certification: #346 Michigan Certification #: 9911 Mississippi Certification: FL NELAC Reciprocity

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

Missouri Certification #: 236 Montana Certification #: Cert 0074 Nebraska Certification: NE-OS-28-14 New Hampshire Certification #: 2958 New Jersey Certification #: FL022 New York Certification #: 11608 North Carolina Environmental Certificate #: 667 North Carolina Certification #: 12710 North Dakota Certification #: R-216 Oklahoma Certification #: D9947 Pennsylvania Certification #: 68-00547 Puerto Rico Certification #: FL01264 South Carolina Certification: #96042001 Tennessee Certification #: TN02974 Texas Certification: FL NELAC Reciprocity US Virgin Islands Certification: FL NELAC Reciprocity Virginia Environmental Certification #: 460165 West Virginia Certification #: 9962C Wisconsin Certification #: 399079670 Wyoming (EPA Region 8): FL NELAC Reciprocity



SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2623556

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



SAMPLE ANALYTE COUNT

Project:Plant HammondPace Project No.:2623556

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



Pace Project No.: 2623556

Sample: FB-01	Lab ID:	2623556001	Collecte	d: 09/24/19	Received: 09/	Received: 09/25/19 14:03 Matrix: Water						
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analvzed	CAS No.	Qual			
6010 MET ICP	Analytical	Method: EPA	6010 Prepa	ration Meth	od: EP/	A 3010						
Iron	ND	mg/L	0.040	0.0092	1	10/08/19 14:47	10/09/19 21:32	7439-89-6				
Magnesium	ND	mg/L	0.50	0.084	1	10/08/19 14:47	10/09/19 21:32	7439-95-4				
Manganese Phosphorus		mg/L	0.0050	0.00042	1	10/08/19 14:47	10/09/19 21:32	7439-96-5	N/2			
Potassium		mg/L	0.045	0.014	1	10/08/19 14:47	10/09/19 21:32	7440-09-7	INZ			
Sodium	ND	mg/L	2.0	0.27	1	10/08/19 14:47	10/09/19 21:32	7440-23-5				
Tot Hardness asCaCO3 (SM 2340B	ND	ug/L	3210	506	1	10/08/19 14:47	10/09/19 21:32					
6020B MET ICPMS	Analytical	Method: EPA	6020B Prep	paration Met	thod: El	PA 3005A						
Copper	ND	mg/L	0.025	0.00019	1	09/27/19 15:26	10/01/19 10:40	7440-50-8				
Zinc	0.0023J	mg/L	0.010	0.0015	1	09/27/19 15:26	10/01/19 10:40	7440-66-6				
7470 Mercury	Analytical	Method: EPA	7470A Prep	paration Met	hod: El	PA 7470A						
Mercury	0.025	mg/L	0.00050	0.00014	1	09/30/19 10:50	10/01/19 12:42	7439-97-6				
HEM, Oil and Grease	Analytical	Method: EPA	1664B									
Oil and Grease	ND	mg/L	4.9	4.9	1		09/30/19 08:00					
2320B Alkalinity Low Level	Analytical	Method: SM 2	320B									
Alkalinity,Bicarbonate (CaCO3)	ND	mg/L	1.0	1.0	1		10/02/19 12:49					
Alkalinity, Total as CaCO3	ND	mg/L	1.0	1.0	1		10/02/19 12:49					
2540C Total Dissolved Solids	Analytical	Method: SM 2	2540C									
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		10/01/19 16:32					
2540D Total Suspended Solids	Analytical	Method: SM 2	540D									
Total Suspended Solids	ND	mg/L	5.0	5.0	1		09/27/19 16:27					
4500CL G Chlorine, Residual	Analytical	Method: SM 4	500-CI G									
Chlorine, Total Residual	ND	mg/L	0.1	0.1	1		09/27/19 15:39	7782-50-5	H3,H6			
4500PE Ortho Phosphorus	Analytical	Method: SM 4	500-P									
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/26/19 12:54					
4500S2D Sulfide Water	Analytical	Method: SM 4	500-S2 D									
Sulfide	ND	mg/L	0.20	0.20	1		09/26/19 10:51	18496-25-8				
5210B BOD, 5 day	Analytical	Method: SM 5	210B Prepa	aration Meth	nod: SM	1 5210B						
BOD, 5 day	ND	mg/L	2.0	2.0	1	09/26/19 09:30	10/01/19 10:06		1A			
Total Organic Nitrogen Calc.	Analytical	Method: TKN-	NH3 Calcul	ation								
Total Organic Nitrogen	ND	mg/L	0.40	0.40	1		10/02/19 12:32					

REPORT OF LABORATORY ANALYSIS

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Hammond
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Pace Project No.: 2623556

Sample: FB-01	Lab ID:	2623556001	Collected	Collected: 09/24/19 17:25			25/19 14:03 Ma	Aatrix: Water		
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
300.0 IC Anions	Analytical	Method: EPA	300.0							
Nitrate as N	0.016J	mg/L	0.050	0.0050	1		09/26/19 09:36	14797-55-8		
Nitrite as N	0.021J	mg/L	0.050	0.011	1		09/26/19 09:36	14797-65-0	В	
350.1 Ammonia	Analytical	Method: EPA	350.1							
Nitrogen, Ammonia	ND	mg/L	0.10	0.10	1		09/30/19 10:31	7664-41-7		
351.2 Total Kjeldahl Nitrogen	Analytical	Method: EPA	351.2 Prepa	ration Meth	nod: EP	PA 351.2				
Nitrogen, Kjeldahl, Total	ND	mg/L	0.40	0.40	1	09/30/19 08:40	10/01/19 11:51	7727-37-9	M1	
5310B Dissolved Organic Carbon	Analytical	Method: SM 5	310B							
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/01/19 14:58			



t Hammond

Pace Project No.: 2623556

Sample: EB-01	Lab ID:	Lab ID: 2623556002 Collected: 09/24/19 17:40 Received: 09/25/19 14:03 Matrix: \							
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical	Method: EPA 6	6010 Prepa	ration Meth	od: EPA	3010			
Iron Magnesium	ND ND	mg/L mg/L	0.040 0.50	0.0092 0.084	1 1	10/08/19 14:47 10/08/19 14:47	10/09/19 21:46 10/09/19 21:46	7439-89-6 7439-95-4	
Manganese	ND	mg/L	0.0050	0.00042	1	10/08/19 14:47	10/09/19 21:46	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 14:47	10/09/19 21:46	7723-14-0	N2
Potassium	ND	mg/L	1.0	0.15	1	10/08/19 14:47	10/09/19 21:46	7440-09-7	
Sodium Tot Hardness asCaCO3 (SM 2340B	ND ND	mg/L mg/L	2.0 3.2	0.27 0.51	1 1	10/08/19 14:47 10/08/19 14:47	10/09/19 21:46 10/09/19 21:46	7440-23-5	
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Prep	paration Met	hod: EF	PA 3005A			
Copper Zinc	ND 0.0037J	mg/L mg/L	0.025 0.010	0.00019 0.0015	1 1	09/27/19 15:26 09/27/19 15:26	10/01/19 10:46 10/01/19 10:46	7440-50-8 7440-66-6	
7470 Mercury	Analytical	Method: EPA	7470A Prep	aration Met	hod: EF	PA 7470A			
Mercury	0.027	mg/L	0.00050	0.00014	1	09/30/19 10:50	10/01/19 12:45	7439-97-6	
HEM, Oil and Grease	Analytical	Method: EPA	1664B						
Oil and Grease	ND	mg/L	4.9	4.9	1		09/30/19 08:00		
2320B Alkalinity Low Level	Analytical	Method: SM 2	320B						
Alkalinity,Bicarbonate (CaCO3) Alkalinity, Total as CaCO3	ND ND	mg/L mg/L	1.0 1.0	1.0 1.0	1 1		10/02/19 12:53 10/02/19 12:53		
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		10/01/19 16:32		
2540D Total Suspended Solids	Analytical	Method: SM 2	540D						
Total Suspended Solids	ND	mg/L	5.0	5.0	1		09/27/19 16:27		
4500CL G Chlorine, Residual	Analytical	Method: SM 4	500-CI G						
Chlorine, Total Residual	ND	mg/L	0.1	0.1	1		09/27/19 15:39	7782-50-5	H3,H6
4500PE Ortho Phosphorus	Analytical	Method: SM 4	500-P						
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/26/19 12:56		
4500S2D Sulfide Water	Analytical	Method: SM 4	500-S2 D						
Sulfide	ND	mg/L	0.20	0.20	1		09/26/19 10:51	18496-25-8	
5210B BOD, 5 day	Analytical	Method: SM 5	210B Prep	aration Meth	nod: SM	5210B			
BOD, 5 day	ND	mg/L	2.0	2.0	1	09/26/19 09:30	10/01/19 10:08		1A
Total Organic Nitrogen Calc.	Analytical	Method: TKN-	NH3 Calcul	ation					
Total Organic Nitrogen	ND	mg/L	0.40	0.40	1		10/02/19 12:32		

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Pace Project No.: 2623556

Sample: EB-01	Lab ID:	2623556002	Collected	: 09/24/19	9 17:40	Received: 09/	25/19 14:03 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical I	Method: EPA	300.0						
Nitrate as N	0.015J	mg/L	0.050	0.0050	1		09/26/19 10:38	14797-55-8	
Nitrite as N	0.022J	mg/L	0.050	0.011	1		09/26/19 10:38	14797-65-0	В
350.1 Ammonia	Analytical I	Method: EPA	350.1						
Nitrogen, Ammonia	ND	mg/L	0.10	0.10	1		09/30/19 10:32	7664-41-7	
351.2 Total Kjeldahl Nitrogen	Analytical I	Method: EPA 3	351.2 Prepar	ation Meth	od: EP/	A 351.2			
Nitrogen, Kjeldahl, Total	ND	mg/L	0.40	0.40	1	09/30/19 08:40	10/01/19 11:53	7727-37-9	
5310B Dissolved Organic Carbon	Analytical I	Method: SM 5	310B						
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/01/19 15:37		



Project:	Plant Hammond											
Pace Project No.:	2623556											
QC Batch:	36152		Analy	sis Meth	nod: E	PA 7470A						
QC Batch Method:	EPA 7470A		Analy	sis Desc	cription: 7	470 Mercu	iry					
Associated Lab San	nples: 26235560	01, 2623556002										
METHOD BLANK:	163281			Matrix:	Water							
Associated Lab San	nples: 26235560	01, 2623556002										
			Blar	ık	Reporting							
Paran	neter	Units	Resu	ult	Limit	MD	L	Analyzed	l Qu	ualifiers		
Mercury		mg/L		ND	0.00050	0.0.	00014	10/01/19 12	:04			
LABORATORY COM	TROL SAMPLE:	163282										
_			Spike	L	LCS	LCS	%	Rec				
Paran	neter	Units	Conc.	R	esult	% Rec		imits	Qualifiers	_		
Mercury		mg/L	0.002	5	0.0021	8	3	80-120				
MATRIX SPIKE & M	IATRIX SPIKE DUF	PLICATE: 1632	83		163284							
			MS	MSD					_			
Parameter	Units	2623578001 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Red	MSD c % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	. ND	0.0025	0.002	5 0.0019	0.0021		77 83	3 75-125	8	20	

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



Project: Plant Hammond

Pace Project No.: 2623556

QC Batch:	576632		Analysis Meth	nod: E	PA 6010			
QC Batch Method:	EPA 3010		Analysis Dese	cription: 6	010 MET			
Associated Lab Sampl	les: 26235560	01, 2623556002						
METHOD BLANK: 3	133743		Matrix:	Water				
Associated Lab Sampl	les: 26235560	01, 2623556002						
			Blank	Reporting				
Paramet	ter	Units	Result	Limit	MDL	Analyzed	Qualifiers	
Calcium		mg/L	ND	0.50	0.064	10/10/19 13:56		
Iron		mg/L	ND	0.040	0.0092	10/10/19 13:56		
Magnesium		mg/L	ND	0.50	0.084	10/10/19 13:56		
Manganese		mg/L	ND	0.0050	0.00042	10/10/19 13:56		
Phosphorus		mg/L	ND	0.045	5 0.014	10/10/19 13:56	N2	
Potassium		mg/L	ND	1.0	0.15	10/10/19 13:56		
Sodium		mg/L	ND	2.0	0.27	10/10/19 13:56		
Tot Hardness asCaCO	3 (SM 2340B	ug/L	ND	3210	506	10/10/19 13:56		

LABORATORY CONTROL SAMPLE: 3133744

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Calcium	mg/L	12.5	13.2	105	80-120	
Iron	mg/L	2.5	2.6	105	80-120	
Magnesium	mg/L	12.5	13.0	104	80-120	
Manganese	mg/L	0.25	0.26	106	80-120	
Phosphorus	mg/L	0.25	0.25	99	80-120 N	2
Potassium	mg/L	12.5	12.8	103	80-120	
Sodium	mg/L	12.5	13.2	106	80-120	
Tot Hardness asCaCO3 (SM 2340B	ug/L	82700	86400	104	80-120	

MATRIX SPIKE & MATRIX	SPIKE DUPL	ICATE: 3133	745		3133746							
Parameter	Units	2623752004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	mg/L	29000 ug/L	12.5	12.5	42.7	41.5	110	100	75-125	3	20	
Iron	mg/L	0.22	2.5	2.5	2.8	2.8	105	103	75-125	1	20	
Magnesium	mg/L	8.5	12.5	12.5	21.6	21.3	105	103	75-125	2	20	
Manganese	mg/L	0.040	0.25	0.25	0.31	0.30	107	103	75-125	3	20	
Phosphorus	mg/L	0.019J	0.25	0.25	0.28	0.28	103	104	75-125	1	20	N2
Potassium	mg/L	0.69J	12.5	12.5	13.6	13.5	103	103	75-125	1	20	
Sodium	mg/L	118	12.5	12.5	135	131	130	102	75-125	3	20	M1
Tot Hardness asCaCO3 (SM 2340B	ug/L	107000	82700	82700	196000	191000	107	102	75-125	2	20	

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REPORT OF LABORATORY ANALYSIS

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Project:	Plant Hammond												
Pace Project No.:	2623556												
QC Batch:	36079		Anal	ysis Metho	od:	EPA 6020B							
QC Batch Method:	EPA 3005A		Anal	ysis Descr	iption:	6020B MET	-						
Associated Lab Sa	mples: 2623556	001, 2623556002											
METHOD BLANK:	162814			Matrix: V	Vater								
Associated Lab Sa	mples: 2623556	001, 2623556002											
			Bla	nk	Reporting								
Para	meter	Units	Res	ult	Limit	MD	L	Analyzed	Qı	ualifiers			
Copper		mg/L		ND	0.02	5 0.	.00019	09/30/19 19	:37				
Zinc		mg/L		ND	0.01	0	0.0015	09/30/19 19	:37				
LABORATORY CO	NTROL SAMPLE:	162815											
			Spike	L	CS	LCS	%	Rec					
Para	meter	Units	Conc.	Re	sult	% Rec	L	imits	Qualifiers				
Copper		mg/L	0	.1	0.098	9	8	80-120		_			
Zinc		mg/L	0	.1	0.10	10	1	80-120					
MATRIX SPIKE & M	MATRIX SPIKE DU	PLICATE: 1628	16		162817								
			MS	MSD									
		2623500001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max		
Paramete	er Unit	s Result	Conc.	Conc.	Result	Result	% Rec	c % Rec	Limits	RPD	RPD	Qual	
Copper	mg/	L ND	0.1	0.1	0.099	0.094	ę	99 94	75-125	6	20		
Zinc	mg/	L 0.0019J	0.1	0.1	0.10	0.097	9	99 95	5 75-125	3	20		

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Project:	Plant Hammond							
Pace Project No.:	2623556							
QC Batch:	36120		Analysis Me	ethod:	EPA 1664B			
QC Batch Method:	EPA 1664B		Analysis De	scription:	1664 HEM, Oil a	and Grease		
Associated Lab San	nples: 26235560	001, 2623556002						
METHOD BLANK:	163051		Matrix	: Water				
Associated Lab San	nples: 26235560	001, 2623556002						
Doron	aatar	Lipito	Blank	Reporting		Apolyza	d Qualifiar	
	letel							
Oil and Grease		mg/L	ND	5.	0 5	.0 09/30/19 0	8:00	
LABORATORY COM	NTROL SAMPLE:	163052						
Paran	neter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers	
Oil and Grease		mg/L	40	39.9	100	78-114		
MATRIX SPIKE SAI	MPLE:	163054						
			2623556001	Spike	MS	MS	% Rec	
Paran	neter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Oil and Grease		mg/L		ND 39.2	37.5	93	3 78-114	
SAMPLE DUPLICA	TE: 163053							
			2623453001	Dup		Max		
Paran	neter	Units	Result	Result	RPD	RPD	Qualifiers	
Oil and Grease		mg/L	ND	N	C		75	

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



Project: Plant Hammon	d					
Pace Project No.: 2623556						
QC Batch: 36336		Analysis M	lethod:	SM 2320B		
QC Batch Method: SM 2320B		Analysis D	escription:	2320B Alkalin	iity, Low Level	
Associated Lab Samples: 26235	56001, 2623556002					
METHOD BLANK: 164031		Matri	x: Water			
Associated Lab Samples: 26235	56001, 2623556002					
		Blank	Reporting	9		
Parameter	Units	Result	Limit	MDL	Analyz	zed Qualifiers
Alkalinity, Total as CaCO3	mg/L	N	C	1.0	1.0 10/02/19	12:39
LABORATORY CONTROL SAMPLE	: 164032					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	50	48.0	96	85-115	
SAMPLE DUPLICATE: 164047						
		2623614004	Dup		Max	
Parameter	Units	Result	Result	RPD	RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	13.	5 1	4.0	4	10

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



Project:	Plant Hammond										
Pace Project No.:	2623556										
QC Batch:	36262		Analysis N	/lethod:	SM 2540	C					
QC Batch Method:	SM 2540C		Analysis E	Description:	2540C T	otal Di	ssolve	d Solids			
Associated Lab Sar	mples: 26235560	01, 2623556002									
LABORATORY CO	NTROL SAMPLE:	163778									
			Spike	LCS	LCS		% F	Rec			
Para	neter	Units	Conc.	Result	% Rec		Lin	nits	Qu	alifiers	
Total Dissolved Sol	ds	mg/L	400	357		89		84-108			
SAMPLE DUPLICA	TE: 163780										
			2623620001	Dup				Max			
Parar	neter	Units	Result	Result	F	RPD		RPD		Qualifiers	
Total Dissolved Sol	ds	mg/L	14	46 [~]	139		5		10		
SAMPLE DUPLICA	TE: 163844										
			2623559001	Dup				Max			
Para	neter	Units	Result	Result	F	RPD		RPD		Qualifiers	
Total Dissolved Sol	ids	mg/L	13	33	124		7		10		

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



Project:	Plant Hammond									
Pace Project No .:	2623556									
QC Batch:	36092		Analysis N	lethod:	SM 2540D					
QC Batch Method:	SM 2540D		Analysis D	Description:	2540D Tota	al Suspe	nded Solids	6		
Associated Lab Sam	ples: 26235560	001, 2623556002								
METHOD BLANK:	162876		Matr	ix: Water						
Associated Lab Sam	ples: 26235560	01, 2623556002								
Param	neter	Units	Blank Result	Reporting Limit) MC)L	Analyz	ed	Qualifiers	
Total Suspended So	lids	mg/L	N	D	5.0	5.0	09/27/19	16:27		
LABORATORY CON	ITROL SAMPLE:	162877								
Param	neter	Units	Spike Conc.	LCS Result	LCS % Rec	% L	6 Rec ₋imits	Qua	lifiers	
Total Suspended So	lids	mg/L	100	100	10	00	90-110			
SAMPLE DUPLICAT	E: 162878									
_			2623124002	Dup			Max			
Param	leter	Units	Result	Result	RP	D	RPD		Qualifiers	
Total Suspended So	lids	mg/L	30)7	318	4		10 H [,]	1	
SAMPLE DUPLICAT	E: 162879									
_			2623546003	Dup			Max			
Param	leter	Units	Result	Result	RP	D	RPD		Qualifiers	
Total Suspended So	lids	mg/L	34.	.0 3	4.0	0		10		

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



Project: Pla	ant Hammond							
Pace Project No.: 26	23556							
QC Batch: 3	86088		Analysis M	lethod:	SM 4500-CI (G		
QC Batch Method:	SM 4500-CI G		Analysis D	escription:	4500CL G Cł	nlorine, Total Res	sidual	
Associated Lab Sample	es: 26235560	01, 2623556002						
METHOD BLANK: 16	2851		Matr	ix: Water				
Associated Lab Sample	es: 26235560	01, 2623556002						
			Blank	Reportin	g			
Paramete	er	Units	Result	Limit	MDL	Analy	zed	Qualifiers
Chlorine, Total Residua	I	mg/L	Ν	D	0.1	0.1 09/27/19	15:35	H6
LABORATORY CONTR	ROL SAMPLE:	162852						
			Spike	LCS	LCS	% Rec		
Paramete	er	Units	Conc.	Result	% Rec	Limits	Qual	ifiers
Chlorine, Total Residua	I	mg/L	1	1	100	86-116	H6	
SAMPLE DUPLICATE:	162870							
			2623664001	Dup		Max		
Paramete	er	Units	Result	Result	RPD	RPD		Qualifiers
Chlorine, Total Residua	1	mg/L	0.	1	0.1	0	10 H3	,H6

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



Project:	Plant Hammond											
Pace Project No.:	2623556											
QC Batch:	36006		Analy	sis Meth	od:	SM 4500-P						
QC Batch Method:	SM 4500-P		Analy	ysis Desc	ription:	4500PE Or	tho Phos	phorus				
Associated Lab Sam	ples: 26235560	01, 2623556002										
METHOD BLANK:	162241			Matrix: \	Water							
Associated Lab Sam	ples: 26235560	01, 2623556002										
			Blai	nk	Reporting							
Param	neter	Units	Res	ult	Limit	MD	L	Analyzed	d Qi	ualifiers		
Orthophosphate as	Ρ	mg/L		ND	0.02	0	0.020	09/26/19 12	2:53			
LABORATORY CON	ITROL SAMPLE:	162242										
			Spike	L	.CS	LCS	%	Rec				
Param	neter	Units	Conc.	Re	esult	% Rec	Li	mits	Qualifiers			
Orthophosphate as	Ρ	mg/L	0	.5	0.51	10	2	80-120				
MATRIX SPIKE & M	ATRIX SPIKE DUF	PLICATE: 1622	44		162243							
			MS	MSD								
Parameter	Units	2623556001 Result	Spike Conc.	Spike Conc	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Orthophosphate as I	p mg/L	ND	0.5	0.5	5 0.52	0.51	10	$\frac{1000}{1000}$	1 80-120	2	10	

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



Project:	Plant Hammond											
Pace Project No.:	2623556											
QC Batch:	35996		Anal	ysis Meth	od: S	SM 4500-S	2 D					
QC Batch Method:	SM 4500-S2 D		Anal	ysis Desc	ription: 4	4500S2D S	ulfide Wa	ter				
Associated Lab San	nples: 26235560	01, 2623556002										
METHOD BLANK:	162154			Matrix: N	Nater							
Associated Lab San	nples: 26235560	01, 2623556002										
			Bla	nk	Reporting							
Paran	neter	Units	Res	ult	Limit	MD	L	Analyzed	d Qi	ualifiers		
Sulfide		mg/L		ND	0.20	0	0.20	09/26/19 09	9:18			
LABORATORY COM	ITROL SAMPLE:	162155										
			Spike	L	CS	LCS	%	Rec				
Paran	neter	Units	Conc.	Re	esult	% Rec	Lir	nits	Qualifiers			
Sulfide		mg/L	0	.5	0.45	9	0	80-120				
MATRIX SPIKE & M	IATRIX SPIKE DUP	LICATE: 1621	56		162157							
			MS	MSD								
Parameter	Units	2623499001 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide	mg/L	ND	0.5	0.5	0.48	0.47	9	6 94	4 30-129	2	10	

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



Project: Plant Hammond							
Pace Project No.: 2623556							
QC Batch: 35994		Analysis M	lethod:	SM 5210B			
QC Batch Method: SM 5210B		Analysis D	escription:	5210B BOD,	5 day		
Associated Lab Samples: 26235560	01, 2623556002						
METHOD BLANK: 162151		Matri	x: Water				
Associated Lab Samples: 26235560	01, 2623556002						
		Blank	Reporting]			
Parameter	Units	Result	Limit	MDL		Analyzed	Qualifiers
BOD, 5 day	mg/L	NI	0	2.0	2.0	10/01/19 09:55	1A
LABORATORY CONTROL SAMPLE:	162153						
		Spike	LCS	LCS	%	Rec	
Parameter	Units	Conc.	Result	% Rec	Li	imits Qu	alifiers
BOD, 5 day	mg/L	198	198	100		85-115 1A	
SAMPLE DUPLICATE: 162313							
		2623577001	Dup			Max	
Parameter	Units	Result	Result	RPD		RPD	Qualifiers
BOD, 5 day	mg/L	19	3	192	1	20 1	A

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



Project:	Plant Hammond											
Pace Project No.:	2623556											
QC Batch:	35990		Anal	ysis Metho	d: I	EPA 300.0						
QC Batch Method:	EPA 300.0		Anal	ysis Descri	iption:	300.0 IC An	ions					
Associated Lab Sa	mples: 26235560	01, 2623556002										
METHOD BLANK:	162133			Matrix: W	/ater							
Associated Lab Sa	mples: 26235560	01, 2623556002										
			Bla	nk	Reporting							
Para	meter	Units	Res	sult	Limit	MD	L	Analyzed	Qı	ualifiers		
Nitrate as N		mg/L		ND	0.05	0 (0.0050	09/26/19 08	:55			
Nitrite as N		mg/L		0.013J	0.05	0	0.011	09/26/19 08	:55			
LABORATORY CO	NTROL SAMPLE:	162134										
			Spike	LC	CS	LCS	%	Rec				
Para	meter	Units	Conc.	Re	sult	% Rec	Li	imits	Qualifiers			
Nitrate as N		mg/L	,	10	10.4	10	4	90-110				
Nitrite as N		mg/L		10	10.5	10	5	90-110				
MATRIX SPIKE & M	MATRIX SPIKE DUF	PLICATE: 1621	35		162136							
			MS	MSD								
		2623556001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	r Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Nitrate as N	mg/L	0.016J	10	10	10.2	10.1	10	02 101	90-110	1	15	
Nitrite as N	mg/L	0.021J	10	10	10.3	10.5	1(03 105	90-110	2	15	

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



Project:	Plant Hammond									
Pace Project No.:	2623556									
QC Batch:	36095		Analysis N	Nethod	1:	EPA 350.1				
QC Batch Method:	EPA 350.1		Analysis [Descrip	otion:	350.1 Ammonia				
Associated Lab Sam	ples: 26235560	001, 2623556002								
METHOD BLANK:	162900		Mati	rix: Wa	ater					
Associated Lab Sam	ples: 26235560	001, 2623556002								
Param	ieter	Units	Blank Result	F	Reporting Limit	MDL	Analyz	zed	Qualifier	3
Nitrogen, Ammonia		mg/L	N	ID	0.1	0 0.	10 09/30/19	10:18		
LABORATORY CON	ITROL SAMPLE:	162901								
Param	neter	Units	Spike Conc.	LC Res	S ult	LCS % Rec	% Rec Limits	Qua	alifiers	
Nitrogen, Ammonia		mg/L	10		10.3	103	90-110			
MATRIX SPIKE SAM	/IPLE:	162902								
Param	leter	Units	26236000 Result	01	Spike Conc	MS Result	MS % Rec		% Rec Limits	Qualifiers
Nitrogen, Ammonia		mg/L		ND	10	10.2	1	02	90-110	
MATRIX SPIKE SAM	IPLE:	162903								
			26236790	01	Spike	MS	MS		% Rec	
Param	neter	Units	Result		Conc.	Result	% Rec		Limits	Qualifiers
Nitrogen, Ammonia		mg/L		0.33	10	12.1	1	18	90-110 N	/11

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



Project: Plar	nt Hammond										
Pace Project No.: 262	3556										
QC Batch: 36	141		Analysis N	/lethod	l: I	EPA 351.2					
QC Batch Method: EF	PA 351.2		Analysis E	Descrip	otion: 3	351.2 TKN					
Associated Lab Samples	: 26235560	001, 2623556002									
METHOD BLANK: 163	259		Matr	ix: Wa	ater						
Associated Lab Samples	: 26235560	001, 2623556002									
			Blank	F	Reporting						
Parameter		Units	Result		Limit	MDL		Analyz	ed	Qualifie	ers
Nitrogen, Kjeldahl, Total		mg/L	Ν	D	0.4	0 (0.40	10/01/19	11:44		
LABORATORY CONTRO	DL SAMPLE:	163260									
Parameter		Units	Spike Conc.	LC: Res	S ult	LCS % Rec	% L	Rec imits	Qua	lifiers	
Nitrogen, Kjeldahl, Total		mg/L	10		9.6	96		90-110			
MATRIX SPIKE SAMPLE	:	163261									
			262355600	01	Spike	MS		MS		% Rec	
Parameter		Units	Result		Conc.	Result		% Rec		Limits	Qualifiers
Nitrogen, Kjeldahl, Total		mg/L		ND	10	8	.8	8	88	90-110	M1
MATRIX SPIKE SAMPLE	:	163262									
			262364900)2	Spike	MS		MS		% Rec	
Parameter		Units	Result		Conc.	Result		% Rec		Limits	Qualifiers
Nitrogen, Kjeldahl, Total		mg/L		25.8	10	35	.3	ç	95	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.



Project: Plant H	lammond											
Pace Project No.: 262355	56											
QC Batch: 57463	34		Analy	sis Metho	d:	SM 5310B						
QC Batch Method: SM 5	310B		Analy	/sis Descri	ption:	5310B Diss	olved Orga	nic Carbon				
Associated Lab Samples:	262355600	1, 2623556002										
METHOD BLANK: 312243	36			Matrix: W	ater							
Associated Lab Samples:	262355600	1, 2623556002										
			Blar	nk	Reporting							
Parameter		Units	Res	ult	Limit	MD	L	Analyzed	Qu	ualifiers		
Dissolved Organic Carbon		mg/L		ND	1	.0	0.50 10	0/01/19 14:	32			
LABORATORY CONTROL S	SAMPLE:	3122437										
_			Spike	LC	S	LCS	% R	ec				
Parameter		Units	Conc.	Res	sult	% Rec	Limi	ts (Qualifiers			
Dissolved Organic Carbon		mg/L	2	20	18.6	9:	3 9	90-110				
MATRIX SPIKE & MATRIX	SPIKE DUPL	ICATE: 3122	438		3122439	9						
			MS	MSD								
Deveryoter	Linita	2623556001	Spike	Spike	MS	MSD	MS % Dee	MSD	% Rec		Max	0
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits			Quai
Dissolved Organic Carbon	mg/L	ND	20	20	19.6	19.5	96	95	80-120	1	20	
MATRIX SPIKE & MATRIX	SPIKE DUPL	ICATE: 3122	440		312244	1						
			MS	MSD								
Parameter	Units	2623635001 Result	Spike Conc	Spike Conc	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Dissolved Organic Carbon			20	20	10.6	10.5	001100		80-120	1	20	Quui
Dissolved Organic Calboli	iiig/L	ND	20	20	19.0	19.0	90	95	00-120	1	20	

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



QUALIFIERS

Project: Plant Hammond Pace Project No.: 2623556

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-GA Pace Analytical Services - Atlanta, GA

PASI-O Pace Analytical Services - Ormond Beach

BATCH QUALIFIERS

Batch: 36230

[1] The calculated SCF was below the desired range of 0.6 to 1.0 mg/L. All other QC indicators, including the LCS, were within acceptance criteria

ANALYTE QUALIFIERS

- 1A The calculated SCF was below the desired range of 0.6 to 1.0 mg/L. All other QC indicators, including the LCS, were within acceptance criteria
- B Analyte was detected in the associated method blank.
- H1 Analysis conducted outside the EPA method holding time.
- H3 Sample was received or analysis requested beyond the recognized method holding time.
- H6 Analysis initiated outside of the 15 minute EPA required holding time.
- M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:	Plant Hammond
Pace Project No .:	2623556

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623556001 2623556002	FB-01 EB-01	EPA 3010 EPA 3010	576632 576632	EPA 6010 EPA 6010	576717 576717
2623556001 2623556002	FB-01 EB-01	EPA 3005A EPA 3005A	36079 36079	EPA 6020B EPA 6020B	36104 36104
2623556001 2623556002	FB-01 EB-01	EPA 7470A EPA 7470A	36152 36152	EPA 7470A EPA 7470A	36190 36190
2623556001 2623556002	FB-01 EB-01	EPA 1664B EPA 1664B	36120 36120		
2623556001 2623556002	FB-01 EB-01	SM 2320B SM 2320B	36336 36336		
2623556001 2623556002	FB-01 EB-01	SM 2540C SM 2540C	36262 36262		
2623556001 2623556002	FB-01 EB-01	SM 2540D SM 2540D	36092 36092		
2623556001 2623556002	FB-01 EB-01	SM 4500-CI G SM 4500-CI G	36088 36088		
2623556001 2623556002	FB-01 EB-01	SM 4500-P SM 4500-P	36006 36006		
2623556001 2623556002	FB-01 EB-01	SM 4500-S2 D SM 4500-S2 D	35996 35996		
2623556001 2623556002	FB-01 EB-01	SM 5210B SM 5210B	35994 35994	SM 5210B SM 5210B	36230 36230
2623556001 2623556002	FB-01 EB-01	TKN-NH3 Calculation TKN-NH3 Calculation	36340 36340		
2623556001 2623556002	FB-01 EB-01	EPA 300.0 EPA 300.0	35990 35990		
2623556001 2623556002	FB-01 EB-01	EPA 350.1 EPA 350.1	36095 36095		
2623556001 2623556002	FB-01 EB-01	EPA 351.2 EPA 351.2	36141 36141	EPA 351.2 EPA 351.2	36143 36143
2623556001 2623556002	FB-01 EB-01	SM 5310B SM 5310B	574634 574634		

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

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Section A		Section B					Sect	ion C																		1	Γ
Required	l Client Information:	Required Project I	nformation				Invo	ice Info	vrnatio	Ë											Pac	 9			ō		_
Company:	Georgia Power - Coal Combustion Residuals	Report To: Joju /	Ubraham				Atter	tion:	scsin	voices	@ south	emco.c	ş					Г		-					5	-	1
Address:	2480 Maner Road	Copy To: Laure	in Petty. Ge	osyntec			Com	pany N	ame:									Γ									
Allanta, G	ia 30339						Addr	ess:										91894					(ioi)	1010			
Email: j	labraham@southernco.com	Purchase Order #:	SCS10	382775			Pace	Quote																			Γ
Phone:	(404)506-7239 Fax	Project Name:	Plant Ham	поп			Pace	Project	t Mana	ger:	betsy	mcdan	iel @ pi	acelab	, EOO:			643				100	VIII-				
Requester	d Due Date: Standard TAT	Project #: CN	2638				Pace	Profile		327 (AF	<u>٦</u>												B				
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# WƏTI	One Character per box. Wee (A-Z, 0-9 / , -) Ar Sample ids must be unique Tissue	स्ट्रे स्ट्रे ि क् ₩ATRIX CODE	AMPLE TYPE	TIME	DATE	I I I I I I I I I I I I I I I I I I I		H2SO4 Unpreserved	ÊONH	HCI HCI	Na2S203	Other	SOBAIRUY	Total alkalinity, bi	ອດເຊຍາດຕາ, ກວານ, າອດຊອວ	ovortąsortą, yruovem bred letot, muliboż	ebitius	dissolved organic	TDS, TSS, Resid	regortin sinomme	OUD (5-day)	Residual Chlorin					
	FB-01	571	<u>C 4</u> 2	SIEI 4	Pulled 1	1 225	<u>0</u>	6		2				~	>	7	7	~	 ≚	5	╞╧	~	7	I	A		7
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and the second sec	ample Conditi	on Upon Rece	
Pace Analytical Client Nan	ne: GLA	Power	Project #
Courier: Fed Ex UPS USPS C	lient 🗌 Commerci	ial Pace Othe	WO#: 2623550
Custody Seal on Cooler/Box Present:	, es □ no Se	eals intact:	S CITENT: GAPower-CCR
Packing Material: Bubble Wrap		e 🗍 Other	
Thermometer Used		e <u>U</u> Other	
	Biological Tis:	sue is Frozen: Yes	No Date and Initials of person examining
Temp should be above freezing to 6°C	•	Comments:	contents: <u>97 A ST19</u> M
Chain of Custody Present:		IN/A 1.	
Chain of Custody Filled Out:	Pres DNo D	IN/A 2.	
Chain of Custody Relinquished:	Dires []No []	IN/A 3.	
Sampler Name & Signature on COC:		IN/A 4.	
Samples Arrived within Hold Time:	ATTES DNO D	IN/A 5.	
Short Hold Time Analysis (<72hr):	-EYes DNo D	IN/A 6.	
Rush Turn Around Time Requested:	Yes Ho	IN/A 7.	
Sufficient Volume:	- Eres Ono C	IN/A 8.	
Correct Containers Used:	- Ettes ONO C	IN/A 9.	
-Pace Containers Used:	TYes No	In/A	
Containers Intact:	- Yes ONo C	IN/A 10,	
Filtered volume received for Dissolved tests	-EYes ONo C)N/A 11.	
Sample Labels match COC:]N/A 12.	
-Includes date/time/ID/Analysis Matrix:			
All containers needing preservation have been checked.]N/A 13.	
All containers needing preservation are found to be in compliance with EPA recommendation.	י 1 Yes ⊡No ⊡]n/A	
exceptions: VOA, coliform, TOC, 286G, WI-DRO (water)		Initial when completed	Lot # of added preservative
Samples checked for dechlorination:	 □Yes □No Æ	JN/A 14.	
Headspace in VOA Vials (>6mm):	 □Yes □No -E	15.	
Trip Blank Present:	□Yes □No 🖵	HNTA 16.	
Trip Blank Custody Seals Present	🗆 Yes 🖾 No 🖵	14/4	
Pace Trip Blank Lot # (if purchased):			
Client Notification/ Resolution:			Field Data Required? Y / N
Person Contacted:	D	ate/Time:	
Comments/ Resolution:			
			
		· •	
			· · · · · · · · · · · · · · · · · · ·
Project Manager Review:			Date:

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



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

November 11, 2019

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

RE: Project: Plant Hammond Pace Project No.: 2623562

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on September 25, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Kein Hung

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

Enclosures

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




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

CERTIFICATIONS

Project: Plant Hammond Pace Project No.: 2623562

Atlanta Certification IDs

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

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174 Alaska DEC- CS/UST/LUST Alabama Certification #: 41320 Arizona Certification# AZ0819 Colorado Certification: FL NELAC Reciprocity Connecticut Certification #: PH-0216 Delaware Certification: FL NELAC Reciprocity Florida Certification #: E83079 Georgia Certification #: 955 Guam Certification: FL NELAC Reciprocity Hawaii Certification: FL NELAC Reciprocity Illinois Certification #: 200068 Indiana Certification: FL NELAC Reciprocity Kansas Certification #: E-10383 Kentucky Certification #: 90050 Louisiana Certification #: FL NELAC Reciprocity Louisiana Environmental Certificate #: 05007 Maryland Certification: #346 Michigan Certification #: 9911 Mississippi Certification: FL NELAC Reciprocity

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

Missouri Certification #: 236 Montana Certification #: Cert 0074 Nebraska Certification: NE-OS-28-14 New Hampshire Certification #: 2958 New Jersey Certification #: FL022 New York Certification #: 11608 North Carolina Environmental Certificate #: 667 North Carolina Certification #: 12710 North Dakota Certification #: R-216 Oklahoma Certification #: D9947 Pennsylvania Certification #: 68-00547 Puerto Rico Certification #: FL01264 South Carolina Certification: #96042001 Tennessee Certification #: TN02974 Texas Certification: FL NELAC Reciprocity US Virgin Islands Certification: FL NELAC Reciprocity Virginia Environmental Certification #: 460165 West Virginia Certification #: 9962C Wisconsin Certification #: 399079670 Wyoming (EPA Region 8): FL NELAC Reciprocity



SAMPLE SUMMARY

Project: Plant Hammond Pace Project No.: 2623562

Lab ID Sample ID Matrix **Date Collected Date Received** 2623562001 HGWA-5 09/24/19 12:20 09/25/19 14:03 Water 2623562002 HGWA-6 Water 09/24/19 11:27 09/25/19 14:03 2623562003 HGWA-4 Water 09/24/19 10:52 09/25/19 14:03 2623562004 HGWC-14 Water 09/24/19 12:30 09/25/19 14:03 HGWC-15 2623562005 Water 09/24/19 14:25 09/25/19 14:03



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2623562

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2623562001	HGWA-5	EPA 6010	LEC	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	MWB	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623562002	HGWA-6	EPA 6010	LEC	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	MWB	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623562003	HGWA-4	EPA 6010	LEC	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	MWB	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623562004	HGWC-14	EPA 6010	LEC	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	MWB	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623562005	HGWC-15	EPA 6010D	KLH	7	PASI-GA
		EPA 6020B	CSW	2	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 1664B	SJS	1	PASI-GA
		SM 2320B	S1A	2	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		SM 2540D	ALW	1	PASI-GA
		SM 4500-CI G	KN	1	PASI-GA
		SM 4500-P	MWB	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5210B	KN	1	PASI-GA
		TKN-NH3 Calculation	LPH	1	PASI-GA
		EPA 300.0	MWB	2	PASI-GA
		EPA 350.1	ANB	1	PASI-GA
		EPA 351.2	ANB	1	PASI-GA
		SM 5310B	SA1	1	PASI-O



Project: Plant Hammond

Pace Project No.: 2623562

Sample: HGWA-5	Lab ID:	2623562001	Collecte	d: 09/24/19	9 12:20	Received: 09/	25/19 14:03 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical	Method: EPA	6010 Prepa	ration Meth	od: EPA	A 3010			
Iron	1.5	mg/L	0.040	0.0092	1	10/08/19 14:47	10/09/19 21:51	7439-89-6	
Magnesium	5.6	mg/L	0.50	0.084	1	10/08/19 14:47	10/09/19 21:51	7439-95-4	
Manganese	0.077	mg/L	0.0050	0.00042	1	10/08/19 14:47	10/09/19 21:51	7439-96-5	
Phosphorus	0.039J	mg/L	0.045	0.014	1	10/08/19 14:47	10/09/19 21:51	7723-14-0	N2
Potassium	0.65J	mg/L	1.0	0.15	1	10/08/19 14:47	10/09/19 21:51	7440-09-7	
Sodium	6.2	mg/L	2.0	0.27	1	10/08/19 14:47	10/09/19 21:51	7440-23-5	
2320B Alkalinity	Analytical	Method: SM 2	320B						
Alkalinity,Bicarbonate (CaCO3)	90.0	mg/L	20.0	20.0	1		09/30/19 16:45		
Alkalinity, Total as CaCO3	90.0	mg/L	20.0	20.0	1		09/30/19 16:45		
4500PE Ortho Phosphorus	Analytical	Method: SM 4	500-P						
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/25/19 21:01		
4500S2D Sulfide Water	Analytical	Method: SM 4	500-S2 D						
Sulfide	ND	mg/L	0.20	0.20	1		09/26/19 10:52	18496-25-8	
5310B Dissolved Organic Carbon	Analytical	Method: SM 5	310B						
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/01/19 15:51		



Project: Plant Hammond

Pace Project No.: 2623562

Sample: HGWA-6	Lab ID:	2623562002	Collecte	d: 09/24/19	9 11:27	Received: 09/	25/19 14:03 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical	Method: EPA	6010 Prepa	ration Meth	od: EPA	3010			
Iron	0.49	mg/L	0.040	0.0092	1	10/08/19 14:47	10/09/19 21:56	7439-89-6	
Magnesium	10	mg/L	0.50	0.084	1	10/08/19 14:47	10/09/19 21:56	7439-95-4	
Manganese	0.071	mg/L	0.0050	0.00042	1	10/08/19 14:47	10/09/19 21:56	7439-96-5	
Phosphorus	0.036J	mg/L	0.045	0.014	1	10/08/19 14:47	10/09/19 21:56	7723-14-0	N2
Potassium	0.56J	mg/L	1.0	0.15	1	10/08/19 14:47	10/09/19 21:56	7440-09-7	
Sodium	7.9	mg/L	2.0	0.27	1	10/08/19 14:47	10/09/19 21:56	7440-23-5	
2320B Alkalinity	Analytical	Method: SM 2	320B						
Alkalinity, Bicarbonate (CaCO3)	158	mg/L	20.0	20.0	1		09/30/19 16:55		
Alkalinity, Total as CaCO3	158	mg/L	20.0	20.0	1		09/30/19 16:55		
4500PE Ortho Phosphorus	Analytical	Method: SM 4	500-P						
Orthophosphate as P	0.038	mg/L	0.020	0.020	1		09/25/19 21:01		
4500S2D Sulfide Water	Analytical	Method: SM 4	500-S2 D						
Sulfide	ND	mg/L	0.20	0.20	1		09/26/19 10:53	18496-25-8	
5310B Dissolved Organic Carbon	Analytical	Method: SM 5	310B						
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/01/19 16:02		



Project: Plant Hammond

Pace Project No.: 2623562

Sample: HGWA-4	Lab ID:	2623562003	Collecte	d: 09/24/19	9 10:52	Received: 09/	25/19 14:03 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical	Method: EPA	6010 Prepa	ration Meth	od: EPA	A 3010			
Iron	0.021J	mg/L	0.040	0.0092	1	10/11/19 01:26	10/11/19 15:23	7439-89-6	
Magnesium	1.3	mg/L	0.50	0.084	1	10/11/19 01:26	10/11/19 15:23	7439-95-4	
Manganese	0.035	mg/L	0.0050	0.00042	1	10/11/19 01:26	10/11/19 15:23	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/11/19 01:26	10/11/19 15:23	7723-14-0	N2
Potassium	0.24J	mg/L	1.0	0.15	1	10/11/19 01:26	10/11/19 15:23	7440-09-7	
Sodium	8.3	mg/L	2.0	0.27	1	10/11/19 01:26	10/11/19 15:23	7440-23-5	
2320B Alkalinity	Analytical	Method: SM 2	320B						
Alkalinity, Bicarbonate (CaCO3)	109	mg/L	20.0	20.0	1		09/30/19 16:56		
Alkalinity, Total as CaCO3	109	mg/L	20.0	20.0	1		09/30/19 16:56		
4500PE Ortho Phosphorus	Analytical	Method: SM 4	500-P						
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/25/19 21:03		
4500S2D Sulfide Water	Analytical	Method: SM 4	500-S2 D						
Sulfide	ND	mg/L	0.20	0.20	1		09/26/19 10:54	18496-25-8	
5310B Dissolved Organic Carbon	Analytical	Method: SM 5	310B						
Dissolved Organic Carbon	0.85J	mg/L	1.0	0.50	1		10/01/19 16:18		



Project: Plant Hammond

Pace Project No.: 2623562

Sample: HGWC-14	Lab ID:	2623562004	Collecte	d: 09/24/19	9 12:30	Received: 09/	25/19 14:03 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical	Method: EPA	6010 Prepa	ration Meth	od: EPA	A 3010			
Iron	0.84	mg/L	0.040	0.0092	1	10/08/19 14:47	10/09/19 22:00	7439-89-6	
Magnesium	53.5	mg/L	0.50	0.084	1	10/08/19 14:47	10/09/19 22:00	7439-95-4	
Manganese	5.5	mg/L	0.10	0.0084	20	10/08/19 14:47	10/10/19 13:29	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 14:47	10/09/19 22:00	7723-14-0	N2
Potassium	12.1	mg/L	1.0	0.15	1	10/08/19 14:47	10/09/19 22:00	7440-09-7	
Sodium	12.1	mg/L	2.0	0.27	1	10/08/19 14:47	10/09/19 22:00	7440-23-5	
2320B Alkalinity Low Level	Analytical	Method: SM 2	320B						
Alkalinity, Bicarbonate (CaCO3)	ND	mg/L	1.0	1.0	1		10/02/19 13:00		
Alkalinity, Total as CaCO3	ND	mg/L	1.0	1.0	1		10/02/19 13:00		
4500PE Ortho Phosphorus	Analytical	Method: SM 4	500-P						
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/25/19 21:02		
4500S2D Sulfide Water	Analytical	Method: SM 4	500-S2 D						
Sulfide	ND	mg/L	0.20	0.20	1		09/26/19 10:55	18496-25-8	
5310B Dissolved Organic Carbon	Analytical	Method: SM 5	310B						
Dissolved Organic Carbon	0.52J	mg/L	1.0	0.50	1		10/01/19 16:33		



Project: Plant Hammond

Pace Project No.: 2623562

Sample: HGWC-15	Lab ID:	2623562005	Collecte	ed: 09/24/19	9 14:25	Received: 09/	25/19 14:03 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP	Analytical	Method: EPA	6010D Pre	paration Me	thod: Ef	PA 3010A			-
Iron	0.053	mg/L	0.040	0.015	1	09/26/19 18:42	10/01/19 22:40	7439-89-6	
Magnesium	37.9	mg/L	0.50	0.11	10	09/26/19 18:42	10/06/19 15:52	7439-95-4	
Manganese	16.3	mg/L	0.040	0.0061	1	09/26/19 18:42	10/01/19 22:40	7439-96-5	
Phosphorus	0.10	mg/L	0.050	0.023	1	09/26/19 18:42	10/03/19 20:38	7723-14-0	
Potassium	0.89	mg/L	0.20	0.026	1	09/26/19 18:42	10/03/19 20:38	7440-09-7	
Sodium	14.7	mg/L	1.0	0.19	1	09/26/19 18:42	10/03/19 20:38	7440-23-5	
Total Hardness by 2340B	681	mg/L	27.0	4.0	10	09/26/19 18:42	10/06/19 15:52		
6020B MET ICPMS	Analytical	Method: EPA	6020B Prep	paration Met	thod: EF	PA 3005A			
Copper	0.00086J	mg/L	0.025	0.00019	1	09/27/19 15:26	10/01/19 11:56	7440-50-8	
Zinc	0.0085J	mg/L	0.010	0.0015	1	09/27/19 15:26	10/01/19 11:56	7440-66-6	
7470 Mercury	Analytical	Method: EPA	7470A Prep	paration Met	hod: EF	PA 7470A			
Mercury	0.024	mg/L	0.00050	0.00014	1	09/30/19 10:50	10/01/19 12:47	7439-97-6	
HEM, Oil and Grease	Analytical	Method: EPA	1664B						
Oil and Grease	ND	mg/L	4.9	4.9	1		09/30/19 08:00		
2320B Alkalinity	Analytical	Method: SM 2	320B						
Alkalinity, Bicarbonate (CaCO3)	124	mg/L	20.0	20.0	1		09/30/19 17:10		
Alkalinity, Total as CaCO3	124	mg/L	20.0	20.0	1		09/30/19 17:10		
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	1070	mg/L	10.0	10.0	1		09/26/19 18:05		
2540D Total Suspended Solids	Analytical	Method: SM 2	540D						
Total Suspended Solids	ND	mg/L	5.0	5.0	1		09/27/19 16:28		
4500CL G Chlorine, Residual	Analytical	Method: SM 4	500-CI G						
Chlorine, Total Residual	ND	mg/L	0.1	0.1	1		09/27/19 15:37	7782-50-5	H3,H6
4500PE Ortho Phosphorus	Analytical	Method: SM 4	500-P						
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/25/19 21:02		
4500S2D Sulfide Water	Analytical	Method: SM 4	500-S2 D						
Sulfide	ND	mg/L	0.20	0.20	1		09/26/19 10:56	18496-25-8	
5210B BOD, 5 day	Analytical	Method: SM 5	210B Prep	aration Meth	nod: SM	I 5210B			
BOD, 5 day	ND	mg/L	2.0	2.0	1	09/26/19 09:30	10/01/19 10:09		1A
Total Organic Nitrogen Calc.	Analytical	Method: TKN-	NH3 Calcul	ation					
Total Organic Nitrogen	ND	mg/L	0.40	0.40	1		10/02/19 12:32		

REPORT OF LABORATORY ANALYSIS



Project: Plant Hammond

Pace Project No.: 2623562

Sample: HGWC-15	Lab ID:	2623562005	Collected	: 09/24/19	9 14:25	Received: 09/	25/19 14:03 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical	Method: EPA	300.0						
Nitrate as N Nitrite as N	0.74 0.030J	mg/L mg/L	0.050 0.050	0.0050 0.011	1 1		09/26/19 10:59 09/26/19 10:59	14797-55-8 14797-65-0	В
350.1 Ammonia	Analytical	Method: EPA 3	350.1						
Nitrogen, Ammonia	ND	mg/L	0.10	0.10	1		09/30/19 10:33	7664-41-7	
351.2 Total Kjeldahl Nitrogen	Analytical	Method: EPA 3	351.2 Prepar	ation Meth	od: EP	A 351.2			
Nitrogen, Kjeldahl, Total	ND	mg/L	0.40	0.40	1	10/01/19 09:05	10/01/19 13:23	7727-37-9	
5310B Dissolved Organic Carbon	Analytical	Method: SM 5	310B						
Dissolved Organic Carbon	0.61J	mg/L	1.0	0.50	1		10/01/19 17:25		



Mercury	mg/L	ND	0.0025	0.0025	0.0019	0.0021	77	83	3 75-125	8	20	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
		2623578001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
MATRIX SPIKE & MAT	RIX SPIKE DUP	LICATE: 1632	83 MS	MSD	163284							
Mercury		mg/L	0.002	5	0.0021	8	3	80-120				
Paramete	er	Units	Spike Conc.	LC Re:	CS sult	LCS % Rec	% R Lim	lec its	Qualifiers			
LABORATORY CONTR	ROL SAMPLE:	163282										
Mercury		mg/L		ND	0.0005	0 0.	00014 1	0/01/19 12	2:04			
Paramete	er	Units	Resi	ult	Limit	MD	L	Analyzed	d Qu	ualifiers		
Associated Lab Sample	es: 262356200	05	Blar) k	Peporting							
METHOD BLANK: 16	3281			Matrix: W	/ater							
Associated Lab Sample	es: 262356200	05										
QC Batch Method: E	PA 7470A		Analy	sis Descri	iption: 7	7470 Mercu	ry					
QC Batch: 3	6152		Analy	vsis Metho	od: E	EPA 7470A						
Pace Project No.: 26	23562											
Project: Pla	ant Hammond											

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



Project:	Plant Hammond								
Pace Project No.:	2623562								
QC Batch:	576632		Analysis	Method:	EPA 6010				
QC Batch Method:	EPA 3010		Analysis	Description:	6010 MET	-			
Associated Lab Sar	mples: 26235620	01, 2623562002, 2	623562004						
METHOD BLANK:	3133743		Ма	trix: Water					
Associated Lab Sar	mples: 26235620	01, 2623562002, 2	623562004						
			Blank	Reportin	g				
Para	meter	Units	Result	Limit	М	DL	Analyz	zed	Qualifiers
Iron		ma/L		ND 0	.040	0.0092	10/10/19	13:56	
Magnesium		mg/L		ND	0.50	0.084	10/10/19	13:56	
Manganese		mg/L		ND 0.0	050	0.00042	10/10/19	13:56	
Phosphorus		mg/L		ND 0	.045	0.014	10/10/19	13:56	N2
Potassium		mg/L		ND	1.0	0.15	10/10/19	13:56	
Sodium		mg/L		ND	2.0	0.27	10/10/19	13:56	
LABORATORY CO	NTROL SAMPLE:	3133744							
			Spike	LCS	LCS	9	6 Rec		
Para	meter	Units	Conc.	Result	% Rec	L	imits	Qua	lifiers
Iron		mg/L	2.5	2.6	1	05	80-120		
Magnesium		mg/L	12.5	13.0	1	04	80-120		
Manganese		mg/L	0.25	0.26	1	06	80-120		
		mg/L	0.25	0.25		99	80-120	N2	
Phosphorus			12.5	12.8	1	03	80-120		
Phosphorus Potassium		mg/L	12.5		•				

MS MSD 2623752004 Spike MS MSD MS MSD % Rec Max Spike Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD RPD Qual 0.22 20 Iron mg/L 2.5 2.5 2.8 2.8 105 103 75-125 1 Magnesium mg/L 8.5 12.5 12.5 21.6 21.3 105 103 75-125 2 20 Manganese 0.040 0.25 0.25 0.31 0.30 107 103 75-125 3 20 mg/L Phosphorus 0.019J 0.25 75-125 20 N2 mg/L 0.25 0.28 0.28 103 104 1 Potassium mg/L 0.69J 12.5 12.5 13.6 13.5 103 103 75-125 1 20 Sodium mg/L 118 12.5 12.5 135 131 130 102 75-125 3 20 M1

Results presented on 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



Project:

QUALITY CONTROL DATA

EPA 6010

6010 MET

QC Batch:	577481	Analysis Method:
QC Batch Method:	EPA 3010	Analysis Description:
Associated Lab Sam	nples: 2623562003	
METHOD BLANK:	3139682	Matrix: Water

Plant Hammond

Associated Lab Samples.	2623562003	

Iron mg/L ND 0.040 0.0092 10/11/19 15:14 Magnesium mg/L ND 0.50 0.084 10/11/19 15:14 Manganese mg/L ND 0.0050 0.00042 10/11/19 15:14 Phosphorus mg/L ND 0.045 0.014 10/11/19 15:14 Potassium mg/L ND 1.0 0.15 10/11/19 15:14 Sodium mg/L ND 2.0 0.27 10/11/19 15:14	Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Magnesium mg/L ND 0.50 0.084 10/11/19 15:14 Manganese mg/L ND 0.0050 0.00042 10/11/19 15:14 Phosphorus mg/L ND 0.045 0.014 10/11/19 15:14 Potassium mg/L ND 1.0 0.15 10/11/19 15:14 Sodium mg/L ND 2.0 0.27 10/11/19 15:14	Iron	ma/L		0.040	0.0092	10/11/19 15:14	
Manganese mg/L ND 0.0050 0.0042 10/11/19 15:14 Phosphorus mg/L ND 0.045 0.014 10/11/19 15:14 N2 Potassium mg/L ND 1.0 0.15 10/11/19 15:14 N2 Sodium mg/L ND 2.0 0.27 10/11/19 15:14 10	Magnesium	mg/L	ND	0.50	0.084	10/11/19 15:14	
Phosphorus mg/L ND 0.045 0.014 10/11/19 15:14 N2 Potassium mg/L ND 1.0 0.15 10/11/19 15:14 N2 Sodium mg/L ND 2.0 0.27 10/11/19 15:14 10	Manganese	mg/L	ND	0.0050	0.00042	10/11/19 15:14	
Potassium mg/L ND 1.0 0.15 10/11/19 15:14 Sodium mg/L ND 2.0 0.27 10/11/19 15:14	Phosphorus	mg/L	ND	0.045	0.014	10/11/19 15:14	N2
Sodium mg/L ND 2.0 0.27 10/11/19 15:14	Potassium	mg/L	ND	1.0	0.15	10/11/19 15:14	
	Sodium	mg/L	ND	2.0	0.27	10/11/19 15:14	

LABORATORY CONTROL SAMPLE: 3139683

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
				106		
Iron	mg/L	2.5	2.0	106	80-120	
Magnesium	mg/L	12.5	13.1	105	80-120	
Manganese	mg/L	0.25	0.27	109	80-120	
Phosphorus	mg/L	0.25	0.26	103	80-120 N2	
Potassium	mg/L	12.5	13.0	104	80-120	
Sodium	mg/L	12.5	13.2	105	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3139684

Parameter	Units	2623562003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	mg/L	0.021J	2.5	2.5	2.6	2.6	103	103	75-125	0	20	
Magnesium	mg/L	1.3	12.5	12.5	13.8	13.9	101	101	75-125	0	20	
Manganese	mg/L	0.035	0.25	0.25	0.30	0.30	106	107	75-125	1	20	
Phosphorus	mg/L	ND	0.25	0.25	0.26	0.26	105	104	75-125	0	20	N2
Potassium	mg/L	0.24J	12.5	12.5	12.9	13.0	102	102	75-125	0	20	
Sodium	mg/L	8.3	12.5	12.5	21.2	21.3	103	104	75-125	0	20	

3139685

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



Project:	Plant Hammond
1 10,000.	i lant i lanning

Pace Project No.: 2623562

36024		Analysis Method: EPA 6010D						
EPA 3010A		Analysis Desc	Analysis Description: 6010D MET					
les: 2623562005								
62383		Matrix: Water						
les: 2623562005								
		Blank	Reporting					
ter	Units	Result	Limit	MDL	Analyzed	Qualifiers		
	mg/L	ND	0.0	0.015	10/01/19 21:03			
	mg/L	ND	0.0	50 0.011	10/01/19 21:03			
	mg/L	ND	0.0	0.0061	10/01/19 21:03			
	mg/L	ND	0.0	50 0.023	10/01/19 21:03			
	mg/L	ND	0.	20 0.026	10/01/19 21:03			
Sodium n				1.0 0.19	10/01/19 21:03			
Fotal Hardness by 2340B m		ND	:	2.7 0.40	10/01/19 21:03			
	36024 EPA 3010A les: 2623562005 62383 les: 2623562005 ter	36024 EPA 3010A les: 2623562005 62383 les: 2623562005 ter Units mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	36024 Analysis Meth EPA 3010A Analysis Desc les: 2623562005 62383 Matrix: les: 2623562005 Blank Result ter Units mg/L ND mg/L ND	36024 Analysis Method: EPA 3010A Analysis Description: les: 2623562005 62383 Matrix: Water les: 2623562005 ter Units mg/L ND ND 0.0 mg/L ND ND 0.0	36024 Analysis Method: EPA 6010D EPA 3010A Analysis Description: 6010D MET les: 2623562005 6010D MET 62383 Matrix: Water les: 2623562005 Blank Reporting ter Units Result Limit MDL mg/L ND 0.040 0.015 mg/L ND 0.040 0.0061 mg/L ND 0.040 0.0061 mg/L ND 0.050 0.023 mg/L ND 0.20 0.026 mg/L ND 1.0 0.19 MB mg/L ND 2.7 0.40	36024 Analysis Method: EPA 6010D EPA 3010A Analysis Description: 6010D MET les: 2623562005 6010D MET 62383 Matrix: Water les: 2623562005 10/01/19 21:03 ter Units Result Limit MDL Analyzed mg/L ND 0.040 0.015 10/01/19 21:03 mg/L ND 0.040 0.0061 10/01/19 21:03 mg/L ND 0.040 0.0061 10/01/19 21:03 mg/L ND 0.040 0.0061 10/01/19 21:03 mg/L ND 0.050 0.023 10/01/19 21:03 mg/L ND 0.20 0.026 10/01/19 21:03 mg/L ND 0.20 0.026 10/01/19 21:03 mg/L ND 1.0 0.19 10/01/19 21:03 mg/L ND 2.7 0.40 10/01/19 21:03	36024 Analysis Method: EPA 6010D EPA 3010A Analysis Description: 6010D MET les: 2623562005 Matrix: Water les: 2623562005 Blank Reporting ter Units Result Limit MDL Analyzed Qualifiers mg/L ND 0.040 0.015 10/01/19 21:03 Qualifiers mg/L ND 0.040 0.0061 10/01/19 21:03 Qualifiers mg/L ND 0.050 0.011 10/01/19 21:03 Mg/L Qualifiers Mg/L ND 0.020 0.026 10/01/19 21:03 Mg/L MD 0.011 10/01/19 21:03 Mg/L ND 0.20 0.026 10/01/19 21:03 Mg/L MD 1.0 0.19 10/01/19 21:03 Mg/L ND 1.0 0.19 10/01/19 21:03 Mg/L ND 2.7 0.40 10/01/19 21:03	

	CONTROL	SAMDI E.	162384
LADURATURT	CONTROL	SAIVIPLE	102304

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
			1.0	104		Quamoro
Magnasium	mg/L	1	1.0	104	80.120	
Magnesium	mg/∟	1	1.1	111	80-120	
Manganese	mg/L	1	1.0	105	80-120	
Phosphorus	mg/L	1	1.0	105	80-120	
Potassium	mg/L	1	1.1	107	80-120	
Sodium	mg/L	1	1.1	107	80-120	
Total Hardness by 2340B	mg/L	6.6	7.1	107	80-120	

IATRIX SPIKE & MATRIX SPIKE DUPLICATE: 162385 162386												
		2623499001	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Iron	mg/L	0.022J			1.1	1.1				2	20	
Magnesium	mg/L	5.4			6.9	6.9				1	20	
Manganese	mg/L	0.20			1.2	1.3				1	20	
Phosphorus	mg/L	ND			1.3	1.3				5	20	
Potassium	mg/L	0.33			1.7	1.8				3	20	
Sodium	mg/L	20.4			26.8	27.0				1	20	
Total Hardness by 2340B	mg/L				330	332				1	20	

Results presented on 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



Project:	Plant Hammond											
Pace Project No .:	2623562											
QC Batch:	36079		Analy	sis Metho	od: I	EPA 6020B						
QC Batch Method:	EPA 3005A		Analy	ysis Descr	iption: 6	6020B MET	-					
Associated Lab Sa	mples: 262356200)5										
METHOD BLANK:	162814			Matrix: W	Vater							
Associated Lab Sa	mples: 262356200)5										
			Blar	nk	Reporting							
Para	meter	Units	Res	ult	Limit	MD	L	Analyzed	l Qi	ualifiers		
Copper		mg/L		ND	0.02	5 0.	.00019	09/30/19 19	:37			
Zinc		mg/L		ND	0.01	0 0	0.0015	09/30/19 19	:37			
LABORATORY CO	NTROL SAMPLE:	162815										
			Spike	LC	CS	LCS	%	Rec				
Para	meter	Units	Conc.	Re	sult	% Rec	L	imits	Qualifiers			
Copper		mg/L	0.	.1	0.098	9	8	80-120		_		
Zinc		mg/L	0.	.1	0.10	10	1	80-120				
MATRIX SPIKE & I	MATRIX SPIKE DUP	LICATE: 1628	16		162817							
			MS	MSD								
		2623500001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	r Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Copper	mg/L	ND	0.1	0.1	0.099	0.094	9	99 94	75-125	6	20	
Zinc	mg/L	0.0019J	0.1	0.1	0.10	0.097	9	99 95	5 75-125	3	20	

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



Project: Plant Hammond							
Pace Project No.: 2623562							
QC Batch: 36120		Analysis Met	hod: I	EPA 1664B			
QC Batch Method: EPA 1664B		Analysis Des	cription:	1664 HEM, Oil a	nd Grease		
Associated Lab Samples: 26235620	05						
METHOD BLANK: 163051		Matrix:	Water				
Associated Lab Samples: 26235620	05						
		Blank	Reporting				
Parameter	Units	Result	Limit	MDL	Analyze	ed Qualifier	6
Oil and Grease	mg/L	ND	5.	0 5.	09/30/19 0	8:00	
LABORATORY CONTROL SAMPLE:	163052						
		Spike	LCS	LCS	% Rec		
Parameter	Units	Conc. F	Result	% Rec	Limits	Qualifiers	
Oil and Grease	mg/L	40	39.9	100	78-114		
MATRIX SPIKE SAMPLE:	163054						
		2623556001	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Oil and Grease	mg/L	N	ID 39.2	37.5	93	3 78-114	
SAMPLE DUPLICATE: 163053							
		2623453001	Dup		Max		
Parameter	Units	Result	Result	RPD	RPD	Qualifiers	
Oil and Grease	mg/L	ND	N	<u></u>		75	

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

REPORT OF LABORATORY ANALYSIS



Project:	Plant Hammond								
Pace Project No.:	2623562								
QC Batch:	36180		Analysis M	ethod:	SM 2320B				
QC Batch Method:	SM 2320B		Analysis D	escription:	2320B Alkalir	nity			
Associated Lab Sar	nples: 26235620	01, 2623562002, 20	623562003, 26	23562005					
METHOD BLANK:	163383		Matri	x: Water					
Associated Lab Sar	nples: 26235620	01, 2623562002, 20	623562003, 26	23562005					
			Blank	Reporting					
Parar	neter	Units	Result	Limit	MDL	Analy:	zed	Qualifiers	
Alkalinity, Total as C	CaCO3	mg/L	N	20.	0	20.0 09/30/19	14:21		
LABORATORY CO	NTROL SAMPLE:	163384							
			Spike	LCS	LCS	% Rec			
Parar	neter	Units	Conc.	Result	% Rec	Limits	Quali	fiers	
Alkalinity, Total as C	CaCO3	mg/L	100	100	100	85-115			
SAMPLE DUPLICA	TE: 163385								
			2623563001	Dup		Max			
Parar	neter	Units	Result	Result	RPD	RPD		Qualifiers	
Alkalinity, Total as C	CaCO3	mg/L	17	7 17	4	2	10		

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



Project:	Plant Hammond						
Pace Project No.:	2623562						
QC Batch:	36336		Analysis M	lethod:	SM 2320B		
QC Batch Method:	SM 2320B		Analysis D	escription:	2320B Alkalini	ty, Low Level	
Associated Lab Sar	nples: 26235620	04					
METHOD BLANK:	164031		Matri	x: Water			
Associated Lab Sar	nples: 26235620	04					
			Blank	Reporting	9		
Parar	neter	Units	Result	Limit	MDL	Analyz	ed Qualifiers
Alkalinity, Total as C	CaCO3	mg/L	N	5	1.0	1.0 10/02/19	12:39
LABORATORY CO	NTROL SAMPLE:	164032					
			Spike	LCS	LCS	% Rec	
Parar	neter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Alkalinity, Total as C	CaCO3	mg/L	50	48.0	96	85-115	
SAMPLE DUPLICA	TE: 164047						
			2623614004	Dup		Max	
Parar	neter	Units	Result	Result	RPD	RPD	Qualifiers
Alkalinity, Total as C	CaCO3	mg/L	13.	5 1	4.0	4	10

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



Project:	Plant Hammond							
Pace Project No.:	2623562							
QC Batch:	36029		Analysis I	Method:	SM 2540C			
QC Batch Method:	SM 2540C		Analysis [Description:	2540C Total D	Dissolved Solids		
Associated Lab Sar	mples: 26235620	005						
LABORATORY CO	NTROL SAMPLE:	162444						
			Spike	LCS	LCS	% Rec		
Para	meter	Units	Conc.	Result	% Rec	Limits	Qualifiers	
Total Dissolved Sol	ids	mg/L	400	393	98	84-108		
SAMPLE DUPLICA	TE: 162445							
			2623494001	l Dup		Max		
Para	neter	Units	Result	Result	RPD	RPD	Qualifiers	
Total Dissolved Sol	ids	mg/L	22	22 2	248	11	10 D6	
SAMPLE DUPLICA	TE: 162446							
			2623553002	l Dup		Max		
Para	neter	Units	Result	Result	RPD	RPD	Qualifiers	
Total Dissolved Sol	ids	mg/L	N	ID	ND		10 D6	

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



Project:	Plant Hammond							
Pace Project No.:	2623562							
QC Batch:	36092		Analysis M	lethod:	SM 2540D			
QC Batch Method:	SM 2540D		Analysis D	escription:	2540D Total S	Suspended Solid	S	
Associated Lab Sar	nples: 26235620	05						
METHOD BLANK:	162876		Matr	ix: Water				
Associated Lab Sar	nples: 26235620	05						
			Blank	Reporting	9			
Paran	neter	Units	Result	Limit	MDL	Analyz	ced Qualifiers	_
Total Suspended So	blids	mg/L	N	D	5.0	5.0 09/27/19	16:27	
LABORATORY COI	NTROL SAMPLE:	162877						
			Spike	LCS	LCS	% Rec		
Paran	neter	Units	Conc.	Result	% Rec	Limits	Qualifiers	
Total Suspended So	blids	mg/L	100	100	100	90-110		
SAMPLE DUPLICA	TE: 162878							
			2623124002	Dup		Max		
Parar	neter	Units	Result	Result	RPD	RPD	Qualifiers	
Total Suspended So	blids	mg/L	30	7 :	318	4	10 H1	
SAMPLE DUPLICA	TE: 162879							
			2623546003	Dup		Max		
Parar	neter	Units	Result	Result	RPD	RPD	Qualifiers	
Total Suspended So	blids	mg/L	34.	0 3	4.0	0	10	

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



Project:	Plant Hammond						
Pace Project No.:	2623562						
QC Batch:	36088		Analysis M	lethod:	SM 4500-CI G	3	
QC Batch Method:	SM 4500-CI G		Analysis D	escription:	4500CL G Ch	lorine, Total Resi	dual
Associated Lab Sam	nples: 26235620	05					
METHOD BLANK:	162851		Matri	x: Water			
Associated Lab Sam	ples: 26235620	05					
			Blank	Reporting	9		
Param	neter	Units	Result	Limit	MDL	Analyz	ed Qualifiers
Chlorine, Total Resid	dual	mg/L	NI	C	0.1	0.1 09/27/19	15:35 H6
LABORATORY COM	ITROL SAMPLE:	162852					
_			Spike	LCS	LCS	% Rec	
Param	neter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Chlorine, Total Resid	dual	mg/L	1	1	100	86-116	H6
SAMPLE DUPLICAT	TE: 162870						
			2623664001	Dup		Max	
Param	neter	Units	Result	Result	RPD	RPD	Qualifiers
Chlorine, Total Resid	dual	mg/L	0.	1	0.1	0	10 H3,H6

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



Project:	Plant Hammond											
Pace Project No.:	2623562											
QC Batch:	35993		Analy	sis Metho	od: S	SM 4500-P						
QC Batch Method:	SM 4500-P		Analy	vsis Descr	ription: 4	500PE Ort	ho Phosp	ohorus				
Associated Lab Sar	mples: 26235620	01, 2623562002,	262356200	3, 262356	62004, 26235	562005						
METHOD BLANK:	162147			Matrix: V	Vater							
Associated Lab Sar	mples: 26235620	01, 2623562002,	262356200	3, 262356	62004, 26235	562005						
_			Blar	nk	Reporting							
Parar	neter	Units	Res	ult	Limit	MD	L	Analyzec	l Qi	ualifiers		
Orthophosphate as	Ρ	mg/L		ND	0.020)	0.020	09/25/19 20	:56			
LABORATORY CO	NTROL SAMPLE:	162148										
			Spike	L	CS	LCS	%	Rec				
Parar	neter	Units	Conc.	Re	sult	% Rec	Lir	mits	Qualifiers			
Orthophosphate as	Р	mg/L	0.	5	0.51	10	2	80-120				
MATRIX SPIKE & N	ATRIX SPIKE DUP	LICATE: 1621	49		162150							
			MS	MSD								
		2623562003	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	r Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Orthophosphate as	P mg/L	ND	0.5	0.5	0.53	0.52	10	6 104	80-120	1	10	

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



Project:	Plant Hammond											
Pace Project No.:	2623562											
QC Batch:	35996		Analy	sis Metho	od: S	SM 4500-S2	2 D					
QC Batch Method:	SM 4500-S2 D		Analy	/sis Descr	ription: 4	500S2D S	ulfide Wat	er				
Associated Lab Sar	nples: 262356200	01, 2623562002,	262356200	3, 262356	62004, 26235	562005						
METHOD BLANK:	162154			Matrix: V	Vater							
Associated Lab Sar	nples: 262356200	01, 2623562002,	262356200	3, 262356	62004, 26235	562005						
			Blar	nk	Reporting							
Parar	neter	Units	Res	ult	Limit	MD		Analyzec	l Qi	ualifiers		
Sulfide		mg/L		ND	0.20)	0.20 (9/26/19 09	:18			
LABORATORY CO	NTROL SAMPLE:	162155										
			Spike	L	CS	LCS	% F	Rec				
Paran	neter	Units	Conc.	Re	esult	% Rec	Lim	nits	Qualifiers			
Sulfide		mg/L	0.	5	0.45	90)	80-120				
MATRIX SPIKE & M	IATRIX SPIKE DUP	LICATE: 1621	56		162157							
			MS	MSD								
Parameter	r Units	2623499001 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide	mg/L	ND	0.5	0.5	0.48	0.47	96	94	30-129	2	10	

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



Project:	Plant Hammond						
Pace Project No.:	2623562						
QC Batch:	35994		Analysis M	lethod:	SM 5210B		
QC Batch Method:	SM 5210B		Analysis D	escription:	5210B BOD,	5 day	
Associated Lab Sar	nples: 26235620	05					
METHOD BLANK:	162151		Matri	x: Water			
Associated Lab Sar	nples: 26235620	05					
			Blank	Reportin	g		
Parar	neter	Units	Result	Limit	MDL	Analy	zed Qualifiers
BOD, 5 day		mg/L	N	5	2.0	2.0 10/01/19	09:55 1A
LABORATORY CO	NTROL SAMPLE:	162153					
			Spike	LCS	LCS	% Rec	
Parar	neter	Units	Conc.	Result	% Rec	Limits	Qualifiers
BOD, 5 day		mg/L	198	198	100	85-115	1A
SAMPLE DUPLICA	TE: 162313						
			2623577001	Dup		Max	
Parar	neter	Units	Result	Result	RPD	RPD	Qualifiers
BOD, 5 day		mg/L	19	3	192	1	20 1A

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



Project:	Plant Hammond											
Pace Project No.:	2623562											
QC Batch:	35990		Anal	ysis Metho	d: E	PA 300.0						
QC Batch Method:	EPA 300.0		Anal	ysis Descri	iption: 3	800.0 IC An	ions					
Associated Lab Sar	mples: 26235620	05										
METHOD BLANK:	162133			Matrix: W	/ater							
Associated Lab Sar	mples: 26235620	05										
			Bla	nk	Reporting							
Para	meter	Units	Res	ult	Limit	MD	L	Analyzed	Qı	alifiers		
Nitrate as N		mg/L		ND	0.050) (0.0050	09/26/19 08:	55			
Vitrite as N		mg/L		0.013J	0.050)	0.011	09/26/19 08:	55			
LABORATORY CO	NTROL SAMPLE:	162134										
			Spike	LC	CS	LCS	%	Rec				
Para	meter	Units	Conc.	Re	sult	% Rec	Lir	nits (Qualifiers			
Nitrate as N		mg/L	1	10	10.4	10	4	90-110		_		
Nitrite as N		mg/L	1	10	10.5	10	5	90-110				
MATRIX SPIKE & M	MATRIX SPIKE DUF	PLICATE: 1621	35		162136							
			MS	MSD								
		2623556001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	r Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Nitrate as N	mg/L	. 0.016J	10	10	10.2	10.1	10	2 101	90-110	1	15	
Nitrite as N	mg/L	. 0.021J	10	10	10.3	10.5	10	3 105	90-110	2	15	

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



Project:	Plant Hammond							
Pace Project No.:	2623562							
QC Batch:	36095		Analysis Me	ethod:	EPA 350.1			
QC Batch Method:	EPA 350.1		Analysis De	scription:	350.1 Ammonia			
Associated Lab Sam	ples: 2623562	005						
METHOD BLANK:	162900		Matrix	: Water				
Associated Lab Sam	ples: 2623562	005						
			Blank	Reporting				
Param	eter	Units	Result	Limit	MDL	Analyze	d Qualifier	S
Nitrogen, Ammonia		mg/L	ND	0.1	0 0.1	0 09/30/19 10	0:18	
LABORATORY CON	TROL SAMPLE:	162901						
Param	eter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers	
Nitrogen, Ammonia		mg/L	10	10.3	103	90-110		
MATRIX SPIKE SAM	IPLE:	162902						
			2623600001	Spike	MS	MS	% Rec	
Param	eter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Nitrogen, Ammonia		mg/L	1	ND 10	10.2	102	90-110	
MATRIX SPIKE SAM	IPLE:	162903						
			2623679001	Spike	MS	MS	% Rec	
Param	eter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Nitrogen, Ammonia		mg/L	0.	.33 10	12.1	118	90-110	V1

Results presented on 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



Project:	Plant Hammond									
Pace Project No.:	2623562									
QC Batch:	36222		Analysis M	lethod:	E	EPA 351.2				
QC Batch Method:	EPA 351.2		Analysis D	escript	tion: 3	351.2 TKN				
Associated Lab Sam	ples: 2623562	2005								
METHOD BLANK:	163614		Matr	ix: Wa	ter					
Associated Lab Sam	ples: 2623562	2005								
			Blank	R	eporting					
Param	neter	Units	Result		Limit	MDL	Analyz	ed	Qualifi	iers
Nitrogen, Kjeldahl, T	otal	mg/L	N	D	0.40	0.4	10/01/19	13:03		
LABORATORY CON	ITROL SAMPLE:	163615								
Param	neter	Units	Spike Conc.	LCS Resu	S Ilt	LCS % Rec	% Rec Limits	Qua	lifiers	
Nitrogen, Kjeldahl, T	otal	mg/L	10		10.7	107	90-110			
MATRIX SPIKE SAM	/IPLE:	163616								
			262368000)1	Spike	MS	MS		% Rec	
Param	neter	Units	Result		Conc.	Result	% Rec		Limits	Qualifiers
Nitrogen, Kjeldahl, T	otal	mg/L		2.3	10	10.5	8	32	90-110	D M1
MATRIX SPIKE SAM	/PLE:	163621								
			262368000)3	Spike	MS	MS		% Rec	
Param	neter	Units	Result		Conc.	Result	% Rec		Limits	Qualifiers
Nitrogen, Kjeldahl, T	otal	mg/L		3.5	10	12.3		38	90-11(0 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



Project: P	lant Hammond											
Pace Project No.: 26	623562											
QC Batch:	574634		Analy	sis Metho	d:	SM 5310B						
QC Batch Method:	SM 5310B		Analy	sis Descri	ption:	5310B Diss	olved Orga	nic Carbon				
Associated Lab Sampl	es: 262356200	1, 2623562002,	262356200	3, 262356	2004, 2623	562005						
METHOD BLANK: 3	122436			Matrix: W	ater							
Associated Lab Sampl	es: 262356200	1, 2623562002,	262356200	3, 262356	2004, 2623	562005						
			Blar	nk	Reporting							
Paramet	er	Units	Res	ult	Limit	MD	L	Analyzed	Qı	Jalifiers		
Dissolved Organic Car	bon	mg/L		ND	1.	.0	0.50 10	0/01/19 14::	32			
LABORATORY CONT	ROL SAMPLE:	3122437										
Deremet	or	Linito	Spike	LC	S	LCS	% R	ec	Qualifiara			
Paramet		Units				% Rec			Juaimers	_		
Dissolved Organic Car	bon	mg/L	2	0	18.6	9	3 9	90-110				
MATRIX SPIKE & MAT	RIX SPIKE DUPI	_ICATE: 3122	438		3122439)						
			MS	MSD								
		2623556001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Dissolved Organic Car	bon mg/L	ND	20	20	19.6	19.5	96	95	80-120	1	20	
MATRIX SPIKE & MAT	RIX SPIKE DUPI	_ICATE: 3122	2440		3122441	1						
			MS	MSD								
		2623635001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Dissolved Organic Car	bon mg/L	ND	20	20	19.6	19.5	96	95	80-120	1	20	

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

REPORT OF LABORATORY ANALYSIS



QUALIFIERS

Project: Plant Hammond Pace Project No.: 2623562

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-GA Pace Analytical Services - Atlanta, GA

PASI-O Pace Analytical Services - Ormond Beach

SAMPLE QUALIFIERS

Sample: 2623562005

[1] Sample was received outside the recognized method holding time; client notified and approved.

BATCH QUALIFIERS

Batch: 36230

[1] The calculated SCF was below the desired range of 0.6 to 1.0 mg/L. All other QC indicators, including the LCS, were within acceptance criteria

ANALYTE QUALIFIERS

1A The calculated SCF was below the desired range of 0.6 to 1.0 mg/L. All other QC indicators, including the LCS, were within acceptance criteria

- B Analyte was detected in the associated method blank.
- D6 The precision between the sample and sample duplicate exceeded laboratory control limits.
- H1 Analysis conducted outside the EPA method holding time.
- H3 Sample was received or analysis requested beyond the recognized method holding time.
- H6 Analysis initiated outside of the 15 minute EPA required holding time.
- M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.



QUALIFIERS

Project: Plant Hammond Pace Project No.: 2623562

ANALYTE QUALIFIERS

N2

The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:	Plant Hammond
Pace Project No .:	2623562

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623562001 2623562002	HGWA-5 HGWA-6	EPA 3010 EPA 3010	576632 576632	EPA 6010 EPA 6010	576717 576717
2623562003	HGWA-4	EPA 3010	577481	EPA 6010	577485
2623562004	HGWC-14	EPA 3010	576632	EPA 6010	576717
2623562005	HGWC-15	EPA 3010A	36024	EPA 6010D	36072
2623562005	HGWC-15	EPA 3005A	36079	EPA 6020B	36104
2623562005	HGWC-15	EPA 7470A	36152	EPA 7470A	36190
2623562005	HGWC-15	EPA 1664B	36120		
2623562001 2623562002 2623562003 2623562005	HGWA-5 HGWA-6 HGWA-4 HGWC-15	SM 2320B SM 2320B SM 2320B SM 2320B	36180 36180 36180 36180		
2623562004	HGWC-14	SM 2320B	36336		
2623562005	HGWC-15	SM 2540C	36029		
2623562005	HGWC-15	SM 2540D	36092		
2623562005	HGWC-15	SM 4500-CI G	36088		
2623562001 2623562002 2623562003 2623562004 2623562005	HGWA-5 HGWA-6 HGWA-4 HGWC-14 HGWC-15	SM 4500-P SM 4500-P SM 4500-P SM 4500-P SM 4500-P	35993 35993 35993 35993 35993 35993		
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2623562005	HGWC-15	SM 5210B	35994	SM 5210B	36230
2623562005	HGWC-15	TKN-NH3 Calculation	36340		
2623562005	HGWC-15	EPA 300.0	35990		
2623562005	HGWC-15	EPA 350.1	36095		
2623562005	HGWC-15	EPA 351.2	36222	EPA 351.2	36226
2623562001 2623562002 2623562003 2623562004 2623562005	HGWA-5 HGWA-6 HGWA-4 HGWC-14 HGWC-15	SM 5310B SM 5310B SM 5310B SM 5310B SM 5310B	574634 574634 574634 574634 574634 574634		

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Required	Client Information:	Required Project Information:	Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To: Joju Abraham	Attention: scsinvoices@southernco.com	
Atlanta. Gr	2400 marter 11080	COPY TO LAUREN FEILY, GROSSYNGC	Company reame. Biocharter Biochar	
Email: ja	toraham@southernco.com	Purchase Order #: SCS10382775	Pace Quote:	
hone:	(404)506-7239 Fax	Project Name: Plant Hammond	Pace Project Manager: betsy.mcctaniel@pacelabs.com,	the state of the s
Requested	IDUE Date: Starlard ThT	Project #: Cw6581	Pace Profile #: 327 (AP)	GA
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	UELYYN	ແ courected	Preservatives N N N N N N N V N V	
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ų			CLIENT: GRI	Pouer-CCR
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Due Date: 10/02/19 (V/V) or the photomete 2 00 c was field to litered Ţ səiqmaZ **BANKLECONDITIONS** (N/A) Cooler ? W0#:2623562 pelees poisno States //Location (N/A) ۶ Received on CLIENT: GRPower-CCR g イング Ζ (N/Y) eninoldO leubiseA O HI dWBL 1334 **TIME** ر ک (WA) personal subsystem DATE Signed: 09/24/19 PM: BM 127/10 Т ONE 9117119 2 nodies singenic carbon 7 2 > epilin The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be c CHAIN-OF-CUSTODY / Analytical Request Docur Ø 2 > นเกเอง ٧ 2 unissaiod, suorondson MANN ພກເຮອນອີຍພ**າ**ອຣອນຍອີນຍພາບວ ァ betsy.mcdaniel@pacelabs.com, 2 ACCERTED BY//AFRILATION ensudsoudours 7 2 2 otal alkalinity, bicarbonate Ż 126 IN/A 3 VILLE I BOBATOLIN Vitention: scsinvoices@southernco.com Noelia Muskus **Jeni**C Nethanol YRAL Murper Nalla 1 Preservatives Nessog Pace Profile #: 327 (AP) oA nZ + HOBN c Pace Project Manager. 3 ЮH Invoice Information: CONH Company Name: Belia a H52O¢ ace Quote: 0102 Section C Ð Address: Unpreserved 3 J SHENIATNOD HO SAMPLER VAME AND SKAVATURE 61/22/6 PRINT Name of SAMPLER: 12021 SIGNATURE of SAMPLER IOATE SAMPLE TEMP AT COLLECTION TIME BND DATE Plzyly Norlia Winden/Leaged RELENCINGHED BY/ AFRICATION COLLECTED TIME ltu Plant Hammond Lauren Petty, Geosyntec START 9)24kg DATE Required Project Information: LILESAI Report To: Joju Abraham ک BOAT BUOMAS (Gegrab C=COMP) Purchase Order #: Project Name: Pi Z WYTRIX CODE (see valid codes to tett) Project #: Section B Copy To: 다. 전문 전문 전문 전문 전문 전문 MATRIX Mater Water Water Product SoitSolid Offer Mater Cother Tissue Georgia Power - Coal Combustion Residuals 11CWA-5 ADDITIONAL COMMENTS Requested Due Date: Stundard TRT One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique Fax: SAMPLE ID Corrected COR for wells jabraham@southemco.com HCWA'S 2480 Maner Road (404)506-7239 Required Client Information: Face Arabitical Allanta, GA 30339 Company: Section A Ì 6 7. .1 3 6 6 <u>.</u> 10 **1**0 Address: 2 Email: hone: # WBTI 36 of 37

	- <u>-</u>				
	Sample Condition	on Upon Rece	eipt		:•
Face Analytical Client N	ame: GrA	Powere	Project #	:	
				2623562	
Tracking #:		Pace Uthe کھر Pace		ZUZUUL	10/02/19
Custody Seal on Cooler/Box Present:	∃yes □ no Sea	als intact: - 🛛 ye	PM: BM S CLIENT: (Due Vate: GAPower-CCR	10/02/13
Packing Material: 🔲 Bubble Wrap	Búbble Bags 🛛 None	Other		_	
Thermometer Used <u>83</u>	Type of Ice:	et Blue None	Samples on i	ce, cooling process has beg	un
Cooler Temperature 3.0 Temp should be above freezing to 6°C	Biological Tiss	ue is Frozen: Yes Comments:	No Date and content	Initials of person examinities: <u>9/25/19</u>	ng K
Chain of Custody Present:	- ETTES ONO ON	₩A 1.			
Chain of Custody Filled Out:		WA 2.			
Chain of Custody Relinquished:		V/A 3.			
Sampler Name & Signature on COC:		N/A 4.			
Samples Arrived within Hold Time:		VA 5.			
Short Hold Time Analysis (<72hr):		VA 6.			
Rush Turn Around Time Requested:		VA 7.			
Sufficient Volume:		N/A 8.			
Correct Containers Used:		N/A 9.			
-Pace Containers Used:		A/A			
Containers Intact:		N/A 10.			
Filtered volume received for Dissolved tests		WA 11.	-		
Sample Labels match COC:		WA 12. See	lom m	ent	
-Includes date/time/ID/Analysis Matr All containers needing preservation have been chec	ix:				
		WA 13.			
compliance with EPA recommendation.	De In EYes DNo DI	N/A			
exceptions: VOA, coliform, TOC, Q&G, WI-DRO (water	Yes INo	Initial when completed	Lot # of adde preservative	d	
Samples checked for dechlorination:	□Yes □No 🔎	VIA 14.			
Headspace in VOA Vials (>6mm):		VA 15.			
Trip Blank Present:	□Yes □No .21	₩A 16.			
Trip Blank Custody Seals Present	□Yes □No ,⊉t	VA			
Pace Trip Blank Lot # (if purchased):					
Client Notification/ Resolution:			Field Data R	equired? Y / N	
Person Contacted:	Da	ite/Time:			
Comments/ Resolution: The (lient sul	mitted.	exact/y.	Same Conta	1 reres
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09/27/19 @1.3.30.	<u>r un produce</u>	<u> </u>	www-5 u	INA) FRANK	
/ í Project Manager Review:			Date	ə:	

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


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

November 12, 2019

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

RE: Project: Plant Hammond AP GW6581 Pace Project No.: 2623638

Dear Joju Abraham:

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

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

Sincerely,

Kein Hung

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

Enclosures

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





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

CERTIFICATIONS

Project: Plant Hammond AP GW6581 Pace Project No.: 2623638

Atlanta Certification IDs

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

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174 Alaska DEC- CS/UST/LUST Alabama Certification #: 41320 Arizona Certification# AZ0819 Colorado Certification: FL NELAC Reciprocity Connecticut Certification #: PH-0216 Delaware Certification: FL NELAC Reciprocity Florida Certification #: E83079 Georgia Certification #: 955 Guam Certification: FL NELAC Reciprocity Hawaii Certification: FL NELAC Reciprocity Illinois Certification #: 200068 Indiana Certification: FL NELAC Reciprocity Kansas Certification #: E-10383 Kentucky Certification #: 90050 Louisiana Certification #: FL NELAC Reciprocity Louisiana Environmental Certificate #: 05007 Maryland Certification: #346 Michigan Certification #: 9911 Mississippi Certification: FL NELAC Reciprocity

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

Missouri Certification #: 236 Montana Certification #: Cert 0074 Nebraska Certification: NE-OS-28-14 New Hampshire Certification #: 2958 New Jersey Certification #: FL022 New York Certification #: 11608 North Carolina Environmental Certificate #: 667 North Carolina Certification #: 12710 North Dakota Certification #: R-216 Oklahoma Certification #: D9947 Pennsylvania Certification #: 68-00547 Puerto Rico Certification #: FL01264 South Carolina Certification: #96042001 Tennessee Certification #: TN02974 Texas Certification: FL NELAC Reciprocity US Virgin Islands Certification: FL NELAC Reciprocity Virginia Environmental Certification #: 460165 West Virginia Certification #: 9962C Wisconsin Certification #: 399079670 Wyoming (EPA Region 8): FL NELAC Reciprocity



SAMPLE SUMMARY

Project: Plant Hammond AP GW6581

Pace Project No.: 2623638

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623638001	HGWC-16	Water	09/25/19 11:00	09/26/19 15:22
2623638002	HGWC-17	Water	09/25/19 12:35	09/26/19 15:22
2623638003	MW-21d	Water	09/25/19 16:12	09/26/19 15:22
2623638004	HGWC-18	Water	09/25/19 14:38	09/26/19 15:22



SAMPLE ANALYTE COUNT

Project: Plant Hammond AP GW6581

Pace Project No.: 2623638

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2623638001	HGWC-16	EPA 6010	CS2	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623638002	HGWC-17	EPA 6010	CS2	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623638003	MW-21d	EPA 6010	CS2	6	PASI-O
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623638004	HGWC-18	EPA 6010	CS2	7	PASI-O
		EPA 6020B	CSW	2	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 1664B	SJS	1	PASI-GA
		SM 2320B	S1A	2	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		SM 2540D	ALW	1	PASI-GA
		SM 4500-CI G	KN	1	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5210B	KN	1	PASI-GA
		TKN-NH3 Calculation	LPH	1	PASI-GA
		EPA 300.0	MWB	2	PASI-GA
		EPA 350.1	ANB	1	PASI-GA
		EPA 351.2	ANB	1	PASI-GA
		SM 5310B	SA1	1	PASI-O



Project: Plant Hammond AP GW6581

Pace Project No.: 2623638

Sample: HGWC-16	Lab ID:	2623638001	Collecte	Collected: 09/25/19 11:00			Received: 09/26/19 15:22 Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual		
6010 MET ICP	Analytical	Method: EPA	6010 Prepa	ration Meth	od: EPA	3010					
Iron	1.5	mg/L	0.040	0.0092	1	10/08/19 16:13	10/09/19 13:10	7439-89-6			
Magnesium	15.5	mg/L	0.50	0.084	1	10/08/19 16:13	10/09/19 13:10	7439-95-4			
Manganese	0.036	mg/L	0.0050	0.00042	1	10/08/19 16:13	10/09/19 13:10	7439-96-5			
Phosphorus	0.069	mg/L	0.045	0.014	1	10/08/19 16:13	10/09/19 13:10	7723-14-0	N2		
Potassium	0.76J	mg/L	1.0	0.15	1	10/08/19 16:13	10/09/19 13:10	7440-09-7			
Sodium	9.9	mg/L	2.0	0.27	1	10/08/19 16:13	10/09/19 13:10	7440-23-5			
2320B Alkalinity	Analytical	Method: SM 2	320B								
Alkalinity,Bicarbonate (CaCO3)	192	mg/L	20.0	20.0	1		10/01/19 17:52				
Alkalinity, Total as CaCO3	192	mg/L	20.0	20.0	1		10/01/19 17:52				
4500PE Ortho Phosphorus	Analytical	Method: SM 4	500-P								
Orthophosphate as P	0.021	mg/L	0.020	0.020	1		09/27/19 10:42				
4500S2D Sulfide Water	Analytical	Method: SM 4	500-S2 D								
Sulfide	ND	mg/L	0.20	0.20	1		09/30/19 15:49	18496-25-8			
5310B Dissolved Organic Carbon	Analytical	Method: SM 5	310B								
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/01/19 19:44				



Project: Plant Hammond AP GW6581

Pace Project No.: 2623638

Sample: HGWC-17	Lab ID:	2623638002	Collecte	d: 09/25/19	9 12:35	Received: 09/	/26/19 15:22 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical	Method: EPA	6010 Prepa	ration Meth	od: EPA	A 3010			
Iron	0.18	mg/L	0.040	0.0092	1	10/08/19 16:13	10/09/19 13:13	7439-89-6	
Magnesium	31.2	mg/L	0.50	0.084	1	10/08/19 16:13	10/09/19 13:13	7439-95-4	
Manganese	4.4	mg/L	0.10	0.0084	20	10/08/19 16:13	10/10/19 14:58	7439-96-5	
Phosphorus	ND	mg/L	0.045	0.014	1	10/08/19 16:13	10/09/19 13:13	7723-14-0	N2
Potassium	2.7	mg/L	1.0	0.15	1	10/08/19 16:13	10/09/19 13:13	7440-09-7	
Sodium	15.3	mg/L	2.0	0.27	1	10/08/19 16:13	10/09/19 13:13	7440-23-5	
2320B Alkalinity	Analytical	Method: SM 2	320B						
Alkalinity, Bicarbonate (CaCO3)	182	mg/L	20.0	20.0	1		10/01/19 18:01		
Alkalinity, Total as CaCO3	182	mg/L	20.0	20.0	1		10/01/19 18:01		
4500PE Ortho Phosphorus	Analytical	Method: SM 4	500-P						
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/27/19 11:12		
4500S2D Sulfide Water	Analytical	Method: SM 4	500-S2 D						
Sulfide	ND	mg/L	0.20	0.20	1		09/30/19 15:50	18496-25-8	
5310B Dissolved Organic Carbon	Analytical	Method: SM 5	310B						
Dissolved Organic Carbon	0.72J	mg/L	1.0	0.50	1		10/01/19 20:41		



Project: Plant Hammond AP GW6581

Pace Project No.: 2623638

Sample: MW-21d	Lab ID:	2623638003	Collecte	d: 09/25/19	9 16:12	Received: 09/	26/19 15:22 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical	Method: EPA	6010 Prepa	ration Meth	od: EPA	3010			
Iron	14.6	mg/L	0.040	0.0092	1	10/08/19 16:13	10/09/19 13:17	7439-89-6	
Magnesium	67.0	mg/L	0.50	0.084	1	10/08/19 16:13	10/09/19 13:17	7439-95-4	
Manganese	0.99	mg/L	0.0050	0.00042	1	10/08/19 16:13	10/09/19 13:17	7439-96-5	
Phosphorus	0.032J	mg/L	0.045	0.014	1	10/08/19 16:13	10/09/19 13:17	7723-14-0	N2
Potassium	1.1	mg/L	1.0	0.15	1	10/08/19 16:13	10/09/19 13:17	7440-09-7	
Sodium	15.3	mg/L	2.0	0.27	1	10/08/19 16:13	10/09/19 13:17	7440-23-5	
2320B Alkalinity	Analytical	Method: SM 2	320B						
Alkalinity,Bicarbonate (CaCO3)	62.0	mg/L	20.0	20.0	1		10/01/19 18:04		
Alkalinity, Total as CaCO3	62.0	mg/L	20.0	20.0	1		10/01/19 18:04		
4500PE Ortho Phosphorus	Analytical	Method: SM 4	500-P						
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/27/19 11:12		
4500S2D Sulfide Water	Analytical	Method: SM 4	500-S2 D						
Sulfide	ND	mg/L	0.20	0.20	1		09/30/19 15:51	18496-25-8	
5310B Dissolved Organic Carbon	Analytical	Method: SM 5	310B						
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/01/19 20:54		



Project: Plant Hammond AP GW6581

Pace Project No.: 2623638

Sample: HGWC-18	Lab ID:	2623638004	Collected: 09/25/19 14:38			Received: 09/26/19 15:22 Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analvzed	CAS No.	Qual
Sample: HGWC-18Lab ID: 2623ParametersResultsU6010 MET ICPAnalytical MethIron0.11mMagnesium36.0mManganese3.7mPotassium8.9mSodium10.4mTot Hardness asCaCO3 (SM1060000u2340B0.0028.Jm6020B MET ICPMSAnalytical MethCopper0.0028.JmZinc0.16m7470 MercuryNDmMercuryNDmHEM, Oil and GreaseNDm2320B Alkalinity Low LevelAnalytical MethAlkalinity, Total as CaCO3NDm2540C Total Dissolved SolidsAnalytical MethTotal Suspended Solids6.0m4500PE Ortho PhosphorusAnalytical MethChlorine, Total ResidualNDm4500S2D Sulfide WaterAnalytical MethSulfideNDm5210B BOD, 5 dayNDmTotal Organic Nitrogen Calc.Analytical Meth									
6010 MET ICP	Analytical	Method: EPA	6010 Prepa	iration Meth	od: EPA	3010			
Iron	0.11	mg/L	0.040	0.0092	1	10/08/19 16:13	10/09/19 13:20	7439-89-6	
Magnesium	36.0	mg/L	0.50	0.084	1	10/08/19 16:13	10/09/19 13:20	7439-95-4	
Phosphorus	3.7 ND	mg/L	0.025	0.0021	ว 1	10/08/19 16:13	10/09/19 17:59	7439-90-5	N2
Potassium	8.9	mg/L	1.0	0.15	1	10/08/19 16:13	10/09/19 13:20	7440-09-7	112
Sodium	10.4	mg/L	2.0	0.27	1	10/08/19 16:13	10/09/19 13:20	7440-23-5	
Tot Hardness asCaCO3 (SM 2340B	1060000	ug/L	6420	1010	2	10/08/19 16:13	10/09/19 17:55		
6020B MET ICPMS	Analytical	Method: EPA	6020B Prep	paration Met	hod: EF	PA 3005A			
Copper	0.0028J	mg/L	0.025	0.00019	1	09/30/19 12:43	10/01/19 22:07	7440-50-8	
Zinc	0.16	mg/L	0.010	0.0015	1	09/30/19 12:43	10/01/19 22:07	7440-66-6	
7470 Mercury	Analytical	Method: EPA	7470A Prep	aration Met	hod: EP	A 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	10/03/19 09:37	10/03/19 15:38	7439-97-6	
HEM, Oil and Grease	Analytical	Method: EPA	1664B						
Oil and Grease	ND	mg/L	4.8	4.8	1		10/01/19 07:30		
2320B Alkalinity Low Level	Analytical	Method: SM 2	320B						
Alkalinity,Bicarbonate (CaCO3)	ND	mg/L	1.0	1.0	1		10/03/19 17:39		
Alkalinity, Total as CaCO3	ND	mg/L	1.0	1.0	1		10/03/19 17:39		
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	1950	mg/L	10.0	10.0	1		10/02/19 12:05		
2540D Total Suspended Solids	Analytical	Method: SM 2	540D						
Total Suspended Solids	6.0	mg/L	5.0	5.0	1		09/27/19 18:18		
4500CL G Chlorine, Residual	Analytical	Method: SM 4	500-CI G						
Chlorine, Total Residual	ND	mg/L	0.1	0.1	1		09/27/19 15:40	7782-50-5	H3,H6
4500PE Ortho Phosphorus	Analytical	Method: SM 4	500-P						
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/27/19 11:13		
4500S2D Sulfide Water	Analytical	Method: SM 4	500-S2 D						
Sulfide	ND	mg/L	0.20	0.20	1		09/30/19 15:52	18496-25-8	
5210B BOD, 5 day	Analytical	Method: SM 5	210B Prepa	aration Meth	nod: SM	5210B			
BOD, 5 day	ND	mg/L	2.0	2.0	1	09/27/19 10:01	10/02/19 12:23		1A
Total Organic Nitrogen Calc.	Analytical	Method: TKN-	NH3 Calcula	ation					
Total Organic Nitrogen	ND	ma/L	0.40	0.40	1		10/03/19 00:55		

REPORT OF LABORATORY ANALYSIS

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



Project: Plant Hammond AP GW6581

Pace Project No.: 2623638

Sample: HGWC-18	Lab ID:	2623638004	Collected: 09/25/19 14:38			Received: 09/	/26/19 15:22 Ma	Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical	Method: EPA	300.0						
Nitrate as N	0.081	mg/L	0.050	0.0050	1		09/27/19 05:10	14797-55-8	В
Nitrite as N	0.013J	mg/L	0.050	0.011	1		09/27/19 05:10	14797-65-0	В
350.1 Ammonia	Analytical	Method: EPA	350.1						
Nitrogen, Ammonia	0.56	mg/L	0.10	0.10	1		09/30/19 10:45	7664-41-7	
351.2 Total Kjeldahl Nitrogen	Analytical	Method: EPA	351.2 Prepa	ration Meth	nod: EP	A 351.2			
Nitrogen, Kjeldahl, Total	0.40	mg/L	0.40	0.40	1	09/30/19 08:40	10/01/19 11:59	7727-37-9	
5310B Dissolved Organic Carbon	Analytical	Method: SM 5	5310B						
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/01/19 21:12		



Project:	Plant Hammond A	P GW6581										
Pace Project No.:	2623638											
QC Batch:	36410		Analy	sis Me	thod: E	PA 7470A						
QC Batch Method:	EPA 7470A		Analy	sis Des	scription: 7	470 Mercu	ıry					
Associated Lab Sar	nples: 26236380	04										
METHOD BLANK:	164385			Matrix:	Water							
Associated Lab Sar	nples: 26236380	04										
			Blan	k	Reporting							
Paran	neter	Units	Resu	ılt	Limit	MD	L	Analyzed	d Q	ualifiers	;	
Mercury		mg/L		ND	0.00050	0	.00014	10/03/19 14	4:32			
LABORATORY CO	NTROL SAMPLE:	164386										
_			Spike		LCS	LCS	%	6 Rec				
Paran	neter	Units	Conc.		Result	% Rec	L	imits	Qualifiers	_		
Mercury		mg/L	0.002	5	0.0024	9	5	80-120				
MATRIX SPIKE & M	IATRIX SPIKE DUP	LICATE: 1643	87		164388							
		000000000	MS	MSD	MC	MOD	MC	MCD	0/		Mari	
Parameter	r Units	2623623008 Result	Spike Conc.	Spike Conc.	Result	Result	MS % Red	c % Rec	% Rec Limits	RPD	RPD	Qual
Mercury	mg/L				0.0024	0.0024				3	20	

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



Project: Plant Hammond AP GW6581

Pace Project No.: 2623638

QC Batch:	576681	Analysis Method:	EPA 6010
QC Batch Method:	EPA 3010	Analysis Description:	6010 MET
Associated Lab Samp	oles: 262363800	1, 2623638002, 2623638003, 2623638004	

METHOD BLANK: 3134011 Matrix: Water Associated Lab Samples: 2623638001, 2623638002, 2623638003, 2623638004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Iron	mg/L	ND	0.040	0.0092	10/09/19 12:43	
Magnesium	mg/L	ND	0.50	0.084	10/09/19 12:43	
Manganese	mg/L	ND	0.0050	0.00042	10/09/19 12:43	
Phosphorus	mg/L	ND	0.045	0.014	10/09/19 12:43	N2
Potassium	mg/L	ND	1.0	0.15	10/09/19 12:43	
Sodium	mg/L	ND	2.0	0.27	10/09/19 12:43	
Tot Hardness asCaCO3 (SM 2340B	ug/L	ND	3210	506	10/09/19 12:43	

LABORATORY CONTROL SAMPLE: 3134012

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Iron	mg/L	2.5	2.5	98	80-120	
Magnesium	mg/L	12.5	12.2	98	80-120	
Manganese	mg/L	0.25	0.25	98	80-120	
Phosphorus	mg/L	0.25	0.23	92	80-120	N2
Potassium	mg/L	12.5	12.1	97	80-120	
Sodium	mg/L	12.5	12.3	98	80-120	
Tot Hardness asCaCO3 (SM 2340B	ug/L	82700	81100	98	80-120	

MATRIX SPIKE & MATRIX S	ATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3134013 3134014											
			MS	MSD								
		2623635003	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Iron	mg/L	3.1	2.5	2.5	5.6	5.6	98	100	75-125	1	20	
Magnesium	mg/L	8.6	12.5	12.5	21.1	21.2	99	101	75-125	1	20	
Manganese	mg/L	0.17	0.25	0.25	0.42	0.42	98	99	75-125	1	20	
Phosphorus	mg/L	0.083	0.25	0.25	0.33	0.33	98	99	75-125	1	20	N2
Potassium	mg/L	0.31J	12.5	12.5	13.1	13.1	102	103	75-125	0	20	
Sodium	mg/L	11.0	12.5	12.5	23.7	23.8	101	103	75-125	1	20	
Tot Hardness asCaCO3 (SM 2340B	ug/L	337000	82700	82700	418000	421000	99	102	75-125	1	20	

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REPORT OF LABORATORY ANALYSIS

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Project:	Plant Hammond AP	GW6581

,												
Pace Project No.: 26236	38											
QC Batch: 3617	0		Analy	/sis Meth	od: E	EPA 6020B						
QC Batch Method: EPA	3005A		Analy	/sis Desc	ription: 6	6020B MET						
Associated Lab Samples:	262363800	4										
METHOD BLANK: 16333	6			Matrix: \	Water							
Associated Lab Samples:	262363800	4										
			Blar	nk	Reporting							
Parameter		Units	Res	ult	Limit	MD	L	Analyzed	Qı	ualifiers		
Copper		mg/L		ND	0.02	50.	00019 1	0/01/19 18:	14			
Zinc		mg/L		ND	0.010) (0.0015 1	0/01/19 18:	14			
LABORATORY CONTROL	SAMPLE:	163337										
Devenueter		l laite	Spike	L	_CS	LCS	% R	lec				
Parameter		Units	Conc.	R		% Rec			Juaimers	_		
Copper		mg/L	0.	.1	0.10	10	0	80-120				
ZINC		mg/L	0.	.1	0.10	10.	2	80-120				
MATRIX SPIKE & MATRIX	SPIKE DUPL	ICATE: 1633	38		163339							
			MS	MSD								
		2623623007	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	o <i>i</i>
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Copper	mg/L	ND	0.1	0.1	1 0.10	0.10	105	102	75-125	2	20	
Zinc	mg/L	0.0017J	0.1	0.1	1 0.10	0.10	103	102	75-125	1	20	

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Project: Plant Hammond / Pace Project No.: 2623638	AP GW6581						
QC Batch: 36214		Analysis Meth	nod: E	EPA 1664B			
Associated Lab Samples: 2623638	004	Analysis Desc	inption: 1	664 HEM, OII a	nd Grease		
METHOD BLANK: 163592		Matrix:	Water				
Associated Lab Samples: 2623638	004						
Deremeter	Linita	Blank	Reporting	MDI	Applyzod	Qualifia	
Parameter			Limit				rs
Oil and Grease	mg/L	ND	5.0) 5.	0 10/01/19 07:30)	
LABORATORY CONTROL SAMPLE:	163593						
Demonster	11-26-	Spike L	CS	LCS	% Rec		
Parameter	Units	Conc		% Rec		Jaimers	
Oil and Grease	mg/L	40	39.9	100	78-114		
MATRIX SPIKE SAMPLE:	163595						
		2623546004	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Oil and Grease	mg/L	N	D 50	24.6	44	78-114	M3
MATRIX SPIKE SAMPLE:	163596						
		2623680002	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Oil and Grease	mg/L	N	D 50	27.5	50	78-114	M3
SAMPLE DUPLICATE: 163594							
5		2623546002	Dup		Max	0 117	
Parameter	Units	Result	Result		RPD	Qualifiers	_
Oil and Grease	mg/L	ND	NE)	75		
SAMPLE DUPLICATE: 163597							
-		2623680004	Dup		Max	o ""	
Parameter	Units	Result	Result	RPD	KPD	Qualifiers	_
Oil and Grease	mg/L	ND	ND)	75		

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



Project: Pace Project No.:	Plant Hammond A 2623638	P GW6581						
QC Batch:	36284		Analysis N	lethod:	SM 2320B			
QC Batch Method:	SM 2320B		Analysis D	escription:	2320B Alkalin	ty		
Associated Lab San	nples: 26236380	01, 2623638002, 26	623638003					
METHOD BLANK:	163853		Matri	ix: Water				
Associated Lab San	nples: 26236380	01, 2623638002, 20	623638003					
			Blank	Reporting				
Paran	neter	Units	Result	Limit	MDL	Analy	zed Qualifiers	
Alkalinity, Total as C	aCO3	mg/L	NI	D 20	0.0	20.0 10/01/19	17:35	
LABORATORY COM	NTROL SAMPLE:	163854						
			Spike	LCS	LCS	% Rec		
Paran	neter	Units	Conc.	Result	% Rec	Limits	Qualifiers	
Alkalinity, Total as C	aCO3	mg/L	100	98.0	98	85-115		
SAMPLE DUPLICA	TE: 163855							
			2623635002	Dup		Max		
Paran	neter	Units	Result	Result	RPD	RPD	Qualifiers	
Alkalinity, Total as C	aCO3	mg/L	16	5 1	64	1	10	

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



Project:	Plant Hammond A	P GW6581						
Pace Project No.:	2623638							
QC Batch:	36448		Analysis	Method:	SM 2320B			
QC Batch Method: SM 2320B			Analysis	Description:	2320B Alkalin			
Associated Lab San	nples: 26236380	04						
METHOD BLANK:	164641		Mat	trix: Water				
Associated Lab San	nples: 26236380	04						
			Blank	Reporting	g			
Paran	neter	Units	Result	Limit	MDL	Analyz	zed Qualifier	s
Alkalinity, Total as C	aCO3	mg/L	1	ND	1.0	1.0 10/03/19	17:36	
LABORATORY COM	NTROL SAMPLE:	164642						
			Spike	LCS	LCS	% Rec		
Paran	neter	Units	Conc.	Result	% Rec	Limits	Qualifiers	
Alkalinity, Total as C	aCO3	mg/L	50	47.0	94	85-115		

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Project:	Plant Hammond A	P GW6581						
Pace Project No.:	2623638							
QC Batch:	36325		Analysis	Method:	SM 2540C			
QC Batch Method:	SM 2540C		Analysis	Analysis Description: 2540C Total Dissolved Solids				
Associated Lab Sar	mples: 26236380	04						
LABORATORY CO	NTROL SAMPLE:	164004						
			Spike	LCS	LCS	% Rec		
Para	meter	Units	Conc.	Result	% Rec	Limits	Qualifiers	
Total Dissolved Sol	ids	mg/L	400	421	105	84-108		
SAMPLE DUPLICA	TE: 164005							
			262362000	5 Dup		Max		
Para	meter	Units	Result	Result	RPD	RPD	Qualifiers	
Total Dissolved Sol	ids	mg/L	1	59	152	5	10	
SAMPLE DUPLICA	TE: 164006							
			262362300	5 Dup		Max		
Para	meter	Units	Result	Result	RPD	RPD	Qualifiers	
Total Dissolved Sol	ids	mg/L	81	.0 8	3.0	2	10	

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Project:	Plant Hammond A	P GW6581							
Pace Project No .:	2623638								
QC Batch:	36106		Analysis M	lethod:	SM 2540D				
QC Batch Method:	SM 2540D		Analysis D	Analysis Description: 2540D Total Suspended Solids					
Associated Lab Sam	nples: 26236380	04							
METHOD BLANK:	162939		Matr	ix: Water					
Associated Lab Sam	nples: 26236380	04							
Param	neter	Units	Blank Result	Reporting Limit) MDL	Analyz	zed	Qualifiers	
Total Suspended So	lids	mg/L	N	D	5.0	5.0 09/27/19	18:18		
LABORATORY CON	ITROL SAMPLE:	162940							
Param	neter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qua	lifiers	
Total Suspended So	lids	mg/L	100	103	103	90-110			
SAMPLE DUPLICAT	TE: 162941								
			2623617001	Dup		Max			
Param	neter	Units	Result	Result	RPD	RPD		Qualifiers	
Total Suspended So	lids	mg/L	48.	.0 5	1.0	6	10		
SAMPLE DUPLICAT	TE: 162942								
Param	neter	Units	2623593001 Result	Dup Result	RPD	Max RPD		Qualifiers	
Total Suspended So	lids	mg/L	82.	5 8	0.0	3	10		

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



Project:	Plant Hammond A	P GW6581								
Pace Project No.:	2623638									
QC Batch:	36088		Analysis M	lethod:	SM 4500-CI 0	3				
QC Batch Method: SM 4500-Cl G			Analysis D	escription:	4500CL G Ch	nlorine,	, Total Resid	lual		
Associated Lab Sar	nples: 26236380	04								
METHOD BLANK:	162851		Matri	x: Water						
Associated Lab Sar	nples: 26236380	04								
			Blank	Reportin	g					
Parar	neter	Units	Result	Limit	MDL		Analyze	ed	Qualifiers	
Chlorine, Total Resi	dual	mg/L	N	C	0.1	0.1	09/27/19 1	5:35	H6	
		400050								
LABORATORY CO	NTROL SAMPLE:	162852	Snike	105	105	%	Rec			
Parar	neter	Units	Conc.	Result	% Rec	L	imits	Quali	fiers	
Chlorine, Total Resi	dual	mg/L	1	1	100		86-116 H	16		
SAMPLE DUPLICA	TE: 162870									
			2623664001	Dup			Max			
Parar	neter	Units	Result	Result	RPD		RPD		Qualifiers	
Chlorine, Total Resi	dual	mg/L	0.	1	0.1	0		10 H3	,H6	

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



Project:	Plant Hammond A	P GW6581										
Pace Project No.:	2623638											
QC Batch:	36055		Analy	ysis Metho	d:	SM 4500-P						
QC Batch Method:	SM 4500-P		Analy	ysis Descri	ption:	4500PE Ortho Phosphorus						
Associated Lab San	nples: 26236380	01, 2623638002,	262363800)3, 262363	8004							
METHOD BLANK:	162666			Matrix: W	/ater							
Associated Lab San	nples: 26236380	01, 2623638002,	262363800)3, 262363	8004							
			Blar	nk	Reporting							
Paran	neter	Units	Res	ult	Limit	MD	L	Analyzed	Qu	ualifiers		
Orthophosphate as	P	mg/L		ND	0.02	0	0.020	09/27/19 10	:41			
LABORATORY COM	NTROL SAMPLE:	162667										
			Spike	LC	S	LCS	%	Rec				
Paran	neter	Units	Conc.	Re	sult	% Rec	Lin	nits	Qualifiers			
Orthophosphate as	Р	mg/L	0	.5	0.52	10	3	80-120				
MATRIX SPIKE & M	IATRIX SPIKE DUF	PLICATE: 1626	68		162669							
			MS	MSD								
		2623638001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	· Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Orthophosphate as	P mg/L	0.021	0.5	0.5	0.53	0.53	10 ⁻	1 102	80-120	1	10	

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Project:	Plant Hammond A	P GW6581										
Pace Project No.:	2623638											
QC Batch:	36186		Anal	sis Metho	d: 5	SM 4500-S2	2 D					
QC Batch Method:	SM 4500-S2 D		Analy	ysis Descri	iption: 4	4500S2D Sulfide Water						
Associated Lab San	nples: 26236380	01, 2623638002,	262363800)3, 262363	8004							
METHOD BLANK:	163399			Matrix: W	/ater							
Associated Lab San	nples: 26236380	01, 2623638002,	262363800	3, 262363	8004							
			Blai	nk	Reporting							
Paran	neter	Units	Res	ult	Limit	MD	L	Analyzed	Qı	ualifiers		
Sulfide		mg/L		ND	0.20	0	0.20	09/30/19 14	:59			
LABORATORY COM	NTROL SAMPLE:	163400										
			Spike	LC	S	LCS	%	Rec				
Paran	neter	Units	Conc.	Re	sult	% Rec	Lir	nits	Qualifiers			
Sulfide		mg/L	0	.5	0.51	10	1	80-120				
MATRIX SPIKE & M	IATRIX SPIKE DUP	PLICATE: 1634	01		163402							
			MS	MSD					_			
Parameter	· Units	2623644003 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide	mg/L	ND	0.5	0.5	0.49	0.50	98	8 100	30-129	2	10	

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



Project:	Plant Hammond A	P GW6581							
Pace Project No.:	2623638								
QC Batch:	36054		Analysis N	lethod:	SM 5210B				
QC Batch Method:	SM 5210B		Analysis D	escription:	5210B BOD,	5 day			
Associated Lab Sar	nples: 26236380	04							
METHOD BLANK:	162663		Matri	x: Water					
Associated Lab Sar	nples: 26236380	04							
			Blank	Reportin	g				
Parar	neter	Units	Result	Limit	MDL	Analy	zed	Qualifiers	
BOD, 5 day		mg/L	NI	D	2.0	2.0 10/02/19) 12:17	1A	
LABORATORY CO	NTROL SAMPLE:	162665							
			Spike	LCS	LCS	% Rec			
Parar	neter	Units	Conc.	Result	% Rec	Limits	Qua	lifiers	
BOD, 5 day		mg/L	198	196	99	85-115	1A		
SAMPLE DUPLICA	TE: 162714								
			2623603001	Dup		Max			
Parar	neter	Units	Result	Result	RPD	RPD		Qualifiers	
BOD, 5 day		mg/L	36	4	396	8	20 1/	4	

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



Project:	Plant Hammond AP	GW6581

Pace Project No.: 262363	8											
QC Batch: 36045			Anal	ysis Metho	od:	EPA 300.0						
QC Batch Method: EPA 3	00.0		Anal	ysis Desci	ription:	300.0 IC An	ions					
Associated Lab Samples:	262363800)4										
METHOD BLANK: 162623				Matrix: V	Vater							
Associated Lab Samples:	262363800)4										
			Bla	nk	Reporting							
Parameter		Units	Res	ult	Limit	MD	L	Analyzed	Qı	ualifiers		
Nitrate as N		mg/L		0.013J	0.05	0 0	0.0050	09/27/19 01	:45			
Nitrite as N		mg/L		0.020J	0.05	0	0.011	09/27/19 01	:45			
LABORATORY CONTROL S	AMPLE:	162624										
Demonster		1.1.5.1.5	Spike	L	CS	LCS	%	Rec	0			
Parameter		Units	Conc.		esult	% Rec	LI	imits	Qualifiers	_		
Nitrate as N		mg/L	1	10	10.6	10	6	90-110				
Nitrite as N		mg/L	1	10	10.9	10	9	90-110				
MATRIX SPIKE & MATRIX S		LICATE: 1626	25		162626							
			MS	MSD								
		2623614003	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Nitrate as N	mg/L	0.66	10	10	11.2	11.2	10	05 105	90-110	0	15	
Nitrite as N	mg/L	0.020J	10	10	10.9	10.9	10	09 108	90-110	1	15	

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



Project:	Plant Hammond A	AP GW6581						
Pace Project No .:	2623638							
QC Batch:	36095		Analysis Me	ethod:	EPA 350.1			
QC Batch Method:	EPA 350.1		Analysis De	scription:	350.1 Ammonia			
Associated Lab San	nples: 26236380	004						
METHOD BLANK:	162900		Matrix	: Water				
Associated Lab San	nples: 26236380	004						
Paran	neter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifier	S
Nitrogen, Ammonia		mg/L	ND	0.1	0 0.1	0 09/30/19 10	:18	
LABORATORY CON	NTROL SAMPLE:	162901						
Paran	neter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers	
Nitrogen, Ammonia		mg/L	10	10.3	103	90-110		
MATRIX SPIKE SAM	MPLE:	162902						
Paran	neter	Units	2623600001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia		mg/L	I	ND 10	10.2	102	90-110	
MATRIX SPIKE SAM	MPLE:	162903						
			2623679001	Spike	MS	MS	% Rec	
Paran	neter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Nitrogen, Ammonia		mg/L	0.	.33 10	12.1	118	90-110 I	И1

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



Project:	Plant Hammond A	P GW6581						
Pace Project No.:	2623638							
QC Batch:	36141		Analysis Met	thod:	EPA 351.2			
QC Batch Method:	EPA 351.2		Analysis Des	scription:	351.2 TKN			
Associated Lab Sam	ples: 26236380	04						
METHOD BLANK:	163259		Matrix:	Water				
Associated Lab Sam	ples: 26236380	04						
Param	neter	Units	Blank Result	Reporting Limit	MDL	Analyz	ed Qualif	iers
Nitrogen, Kjeldahl, T	otal	mg/L	ND	0.4	0 0.4	0 10/01/19	11:44	
LABORATORY CON	ITROL SAMPLE:	163260						
Param	ieter	Units	Spike Conc. I	LCS Result	LCS % Rec	% Rec Limits	Qualifiers	
Nitrogen, Kjeldahl, T	otal	mg/L	10	9.6	96	90-110		
MATRIX SPIKE SAM	IPLE:	163261						
Param	ieter	Units	2623556001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, T	otal	mg/L	N	ND 10	8.8	8	8 90-11	0 M1
MATRIX SPIKE SAM	IPLE:	163262						
_			2623649002	Spike	MS	MS	% Rec	
Param	neter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Nitrogen, Kjeldahl, T	otal	mg/L	25	5.8 10	35.3	9	5 90-11	0

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Project:	Plant Ha	mmond AF	GW6581											
Pace Project No.:	2623638													
QC Batch:	574634	ļ			Analy	sis Metho	d:	SM 5310B						
QC Batch Method:	SM 531	10B			Analy	sis Descri	ption:	5310B Diss	olved Or	rganic Carbon	ı			
Associated Lab Sar	mples: 2	262363800	1, 2623638	002,	262363800	3, 262363	8004							
METHOD BLANK:	3122436					Matrix: W	ater							
Associated Lab Sar	nples: 2	262363800	1, 2623638	002,	262363800	3, 262363	8004							
					Blan	k	Reporting							
Parar	neter		Units		Resu	ult	Limit	MD	L	Analyzed	Qı	ualifiers		
Dissolved Organic (Carbon		mg/L			ND	1.	0	0.50	10/01/19 14:	32			
LABORATORY CO	NTROL SA	MPLE:	3122437											
_					Spike	LC	S	LCS	%	Rec				
Parar	neter		Units		Conc.	Res	sult	% Rec	Li	imits (Qualifiers			
Dissolved Organic (Carbon		mg/L		20	0	18.6	9	3	90-110				
MATRIX SPIKE & N	ATRIX SF		ICATE: 3	3122	438		3122439)						
					MS	MSD								
			26235560	01	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	r	Units	Resul	t	Conc.	Conc.	Result	Result	% Rec	: % Rec	Limits	RPD	RPD	Qual
Dissolved Organic (Carbon	mg/L		ND	20	20	19.6	19.5	ę	96 95	80-120	1	20	
MATRIX SPIKE & N	ATRIX SF		ICATE: 3	3122	440		3122441							
					MS	MSD								
			26236350	01	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	r	Units	Resul	t	Conc.	Conc.	Result	Result	% Rec	c % Rec	Limits	RPD	RPD	Qual
Dissolved Organic C	Carbon	mg/L		ND	20	20	19.6	19.5	ç	96 95	80-120	1	20	

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



QUALIFIERS

Project: Plant Hammond AP GW6581

Pace Project No.: 2623638

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-GA Pace Analytical Services - Atlanta, GA

PASI-O Pace Analytical Services - Ormond Beach

BATCH QUALIFIERS

Batch: 36328

[1] The calculated SCF was below the desired range of 0.6 to 1.0 mg/L. All other QC indicators, including the LCS, were within acceptance criteria

ANALYTE QUALIFIERS

- 1A The calculated SCF was below the desired range of 0.6 to 1.0 mg/L. All other QC indicators, including the LCS, were within acceptance criteria
- B Analyte was detected in the associated method blank.
- H3 Sample was received or analysis requested beyond the recognized method holding time.
- H6 Analysis initiated outside of the 15 minute EPA required holding time.
- M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- M3 Matrix spike recovery was outside laboratory control limits due to matrix interferences.
- N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond AP GW6581

Pace Project No.: 2623638

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623638001	HGWC-16	EPA 3010	576681	EPA 6010	576722
2623638002	HGWC-17	EPA 3010	576681	EPA 6010	576722
2623638003	MW-21d	EPA 3010	576681	EPA 6010	576722
2623638004	HGWC-18	EPA 3010	576681	EPA 6010	576722
2623638004	HGWC-18	EPA 3005A	36170	EPA 6020B	36202
2623638004	HGWC-18	EPA 7470A	36410	EPA 7470A	36427
2623638004	HGWC-18	EPA 1664B	36214		
2623638001	HGWC-16	SM 2320B	36284		
2623638002	HGWC-17	SM 2320B	36284		
2623638003	MW-21d	SM 2320B	36284		
2623638004	HGWC-18	SM 2320B	36448		
2623638004	HGWC-18	SM 2540C	36325		
2623638004	HGWC-18	SM 2540D	36106		
2623638004	HGWC-18	SM 4500-CI G	36088		
2623638001	HGWC-16	SM 4500-P	36055		
2623638002	HGWC-17	SM 4500-P	36055		
2623638003	MW-21d	SM 4500-P	36055		
2623638004	HGWC-18	SM 4500-P	36055		
2623638001	HGWC-16	SM 4500-S2 D	36186		
2623638002	HGWC-17	SM 4500-S2 D	36186		
2623638003	MW-21d	SM 4500-S2 D	36186		
2623638004	HGWC-18	SM 4500-S2 D	36186		
2623638004	HGWC-18	SM 5210B	36054	SM 5210B	36328
2623638004	HGWC-18	TKN-NH3 Calculation	36406		
2623638004	HGWC-18	EPA 300.0	36045		
2623638004	HGWC-18	EPA 350.1	36095		
2623638004	HGWC-18	EPA 351.2	36141	EPA 351.2	36143
2623638001	HGWC-16	SM 5310B	574634		
2623638002	HGWC-17	SM 5310B	574634		
2623638003	MW-21d	SM 5310B	574634		
2623638004	HGWC-18	SM 5310B	574634		

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

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Phone:	(404)506-7239 Fax:	Project Name:	Ľ	Plant Ha	puouu				٩.	ace Pro	oject Ma	anager		oetsy.rr	cdanie	Øpace	alabs.co	'n,						State	//Looat	y uq			
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Pace Analytical

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ourier: 🔲 Fed Ex 🛄 UPS 🗍 USPS 🗍	Client Commercial	Pace Othe	 Proj. Due 1	 Date:
ustody Seal on Cooler/Box Present:	Tves I nõ Šeals i	ntact: 🗌 ves		
		Cther	_	
		Blue None		n process has begun
	- Biological Tissue i	S Frozen: Yes No.	Date and Initials	f person examining
emp should be above freezing to 6°C		Comments:	contents: 77	FORGE
hain of Custody Present:	BYes INO IN/A	1.		
hain of Custody Filled Out:	THES INO IN/A	2.		
Chain of Custody Relinquished:	THES INO IN/A	3.		
Sampler Name & Signature on COC:	THES DNO DN/A	4.	•	
Samples Arrived within Hold Time:		5.		
Short Hold Time Analysis (<72hr):		6.		
Rush Turn Around Time Requested:		7.		
Sufficient Volume:		8.	ę	
Correct Containers Used:		9.		
-Pace Containers Used:				
Containers Intact:		10.		
Filtered volume received for Dissolved tests	GYes □No □N/A	11.		
Sample Labels match COC:		12.		
-Includes date/time/ID/Analysis Mat	rix:			
All containers needing preservation have been chee	cked.	13.		
All containers needing preservation are found to	be in Tyes DNo DN/A			
compliance with EPA recommendation.		Initial when	Lot # of added	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (wate	r) 🛛 Yes 🗋 No	completed	preservative	
Samples checked for dechlorination:	□Yes □No	14.		
Headspace in VOA Vials (>6mm):		15.		
Trip Blank Present:	□Yes □No @N/A	16.		
Trip Blank Custody Seals Present		~		•
Pace Trip Blank Lot # (if purchased):	<u> </u>			
Client Notification/ Resolution:	······	<u></u>	Field Data Required	? Y/N
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F-ALLC003rev.3, 11September2000



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

November 11, 2019

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

RE: Project: Plant Hammond GW6581 Pace Project No.: 2623704

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on September 27, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Kein Hung

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

Enclosures

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





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

CERTIFICATIONS

Project: Plant Hammond GW6581 Pace Project No.: 2623704

Atlanta Certification IDs

Ormond Beach 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

8 East Tower Circle, Ormond Beach, FL 32174 Alaska DEC- CS/UST/LUST Alabama Certification #: 41320 Arizona Certification# AZ0819 Colorado Certification: FL NELAC Reciprocity Connecticut Certification #: PH-0216 Delaware Certification: FL NELAC Reciprocity Florida Certification #: E83079 Georgia Certification #: 955 Guam Certification: FL NELAC Reciprocity Hawaii Certification: FL NELAC Reciprocity Illinois Certification #: 200068 Indiana Certification: FL NELAC Reciprocity Kansas Certification #: E-10383 Kentucky Certification #: 90050 Louisiana Certification #: FL NELAC Reciprocity Louisiana Environmental Certificate #: 05007 Maryland Certification: #346 Michigan Certification #: 9911 Mississippi Certification: FL NELAC Reciprocity

Missouri Certification #: 236 Montana Certification #: Cert 0074 Nebraska Certification: NE-OS-28-14 New Hampshire Certification #: 2958 New Jersey Certification #: FL022 New York Certification #: 11608 North Carolina Environmental Certificate #: 667 North Carolina Certification #: 12710 North Dakota Certification #: R-216 Oklahoma Certification #: D9947 Pennsylvania Certification #: 68-00547 Puerto Rico Certification #: FL01264 South Carolina Certification: #96042001 Tennessee Certification #: TN02974 Texas Certification: FL NELAC Reciprocity US Virgin Islands Certification: FL NELAC Reciprocity Virginia Environmental Certification #: 460165 West Virginia Certification #: 9962C Wisconsin Certification #: 399079670 Wyoming (EPA Region 8): FL NELAC Reciprocity



SAMPLE SUMMARY

Project: Plant Hammond GW6581

Pace Project No.: 2623704

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623704001	EB-02	Water	09/26/19 17:50	09/27/19 13:15
2623704002	FB-02	Water	09/26/19 18:25	09/27/19 13:15



SAMPLE ANALYTE COUNT

Project: Plant Hammond GW6581 Pace Project No.: 2623704

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2623704001	EB-02	EPA 6010D	KLH	7	PASI-GA
		EPA 6020B	CSW	2	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 1664B	SJS	1	PASI-GA
		SM 2320B	S1A	2	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		SM 2540D	ALW	1	PASI-GA
		SM 4500-CI G	KN	1	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5210B	KN	1	PASI-GA
		TKN-NH3 Calculation	LPH	1	PASI-GA
		EPA 300.0	MWB	2	PASI-GA
		EPA 350.1	ANB	1	PASI-GA
		EPA 351.2	ANB	1	PASI-GA
		SM 5310B	SA1	1	PASI-O
2623704002	FB-02	EPA 6010D	KLH	7	PASI-GA
		EPA 6020B	CSW	2	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 1664B	SJS	1	PASI-GA
		SM 2320B	S1A	2	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		SM 2540D	ALW	1	PASI-GA
		SM 4500-CI G	KN	1	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5210B	KN	1	PASI-GA
		TKN-NH3 Calculation	LPH	1	PASI-GA
		EPA 300.0	MWB	2	PASI-GA
		EPA 350.1	ANB	1	PASI-GA
		EPA 351.2	ANB	1	PASI-GA
		SM 5310B	SA1	1	PASI-O



Project: Plant Hammond GW6581

Pace Project No.: 2623704

Sample: EB-02	Lab ID:	2623704001	Collecte	d: 09/26/19	9 17:50	Received: 09/	27/19 13:15 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP		Method: EPA	6010D Prep	paration Met	hod: El	 PA 3010A			
Iron	ND	ma/l	0.040	0.015	1	10/01/19 12.18	10/06/19 16:59	7439-89-6	
Magnesium	ND	mg/L	0.050	0.011	1	10/01/19 12:18	10/06/19 16:59	7439-95-4	
Manganese	ND	mg/L	0.040	0.0061	1	10/01/19 12:18	10/06/19 16:59	7439-96-5	
Phosphorus	0.041J	mg/L	0.050	0.023	1	10/01/19 12:18	10/06/19 16:59	7723-14-0	
Potassium	ND	mg/L	0.20	0.026	1	10/01/19 12:18	10/06/19 16:59	7440-09-7	
Sodium	ND	mg/L	1.0	0.19	1	10/01/19 12:18	10/06/19 16:59	7440-23-5	
Total Hardness by 2340B	ND	mg/L	2.7	0.40	1	10/01/19 12:18	10/06/19 16:59		
6020B MET ICPMS	Analytical	Method: EPA	6020B Prep	aration Met	hod: El	PA 3005A			
Copper	ND	mg/L	0.025	0.00019	1	09/30/19 13:30	10/03/19 20:25	7440-50-8	
Zinc	0.0016J	mg/L	0.010	0.0015	1	09/30/19 13:30	10/03/19 20:25	7440-66-6	В
7470 Mercury	Analytical	Method: EPA	7470A Prep	aration Met	hod: El	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	10/03/19 17:10	10/04/19 11:50	7439-97-6	
HEM, Oil and Grease	Analytical	Method: EPA	1664B						
Oil and Grease	ND	mg/L	4.9	4.9	1		10/02/19 08:00		
2320B Alkalinity Low Level	Analytical	Method: SM 2	320B						
Alkalinity, Bicarbonate (CaCO3)	ND	mg/L	1.0	1.0	1		10/04/19 14:47		
Alkalinity, Total as CaCO3	ND	mg/L	1.0	1.0	1		10/04/19 14:47		
2540C Total Dissolved Solids	Analytical	Method: SM 2	2540C						
Total Dissolved Solids	16.0	mg/L	10.0	10.0	1		10/03/19 16:28		
2540D Total Suspended Solids	Analytical	Method: SM 2	540D						
Total Suspended Solids	ND	mg/L	5.0	5.0	1		09/30/19 12:16		
4500CL G Chlorine, Residual	Analytical	Method: SM 4	500-CI G						
Chlorine, Total Residual	ND	mg/L	0.1	0.1	1		10/01/19 12:28	7782-50-5	H3,H6
4500PE Ortho Phosphorus	Analytical	Method: SM 4	500-P						
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/28/19 13:59		
4500S2D Sulfide Water	Analytical	Method: SM 4	500-S2 D						
Sulfide	ND	mg/L	0.20	0.20	1		09/30/19 17:42	18496-25-8	
5210B BOD, 5 day	Analytical	Method: SM 5	210B Prepa	aration Meth	nod: SN	1 5210B			
BOD, 5 day	ND	mg/L	2.0	2.0	1	09/27/19 21:37	10/02/19 14:49		1A
Total Organic Nitrogen Calc.	Analytical	Method: TKN-	NH3 Calcul	ation					
Total Organic Nitrogen	ND	mg/L	0.40	0.40	1		10/03/19 22:50		

REPORT OF LABORATORY ANALYSIS

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Project: Plant Hammond GW6581

Pace Project No.: 2623704

Sample: EB-02	Lab ID:	2623704001	Collected	d: 09/26/19	9 17:50	Received: 09/	27/19 13:15 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical	Method: EPA	300.0						
Nitrate as N Nitrite as N	ND 0.017J	mg/L mg/L	0.050 0.050	0.0050 0.011	1 1		09/28/19 10:57 09/28/19 10:57	14797-55-8 14797-65-0	
350.1 Ammonia	Analytical	Method: EPA	350.1						
Nitrogen, Ammonia	ND	mg/L	0.10	0.10	1		09/30/19 11:30	7664-41-7	
351.2 Total Kjeldahl Nitrogen	Analytical	Method: EPA	351.2 Prepa	ration Meth	nod: EP	A 351.2			
Nitrogen, Kjeldahl, Total	ND	mg/L	0.40	0.40	1	10/01/19 09:05	10/01/19 13:15	7727-37-9	
5310B Dissolved Organic Carbon	Analytical	Method: SM 5	5310B						
Dissolved Organic Carbon	0.65J	mg/L	1.0	0.50	1		10/02/19 15:32		


ANALYTICAL RESULTS

Project: Plant Hammond GW6581

Pace Project No.: 2623704

Sample: FB-02	Lab ID:	2623704002	Collecte	d: 09/26/19	9 18:25	Received: 09/	27/19 13:15 Ma	atrix: Water	
Doromotoro	Populto	Linito	Report	MDI	DE	Broporod	Applyzod		Qual
Parameters		Units					Analyzed		
6010D MET ICP	Analytical	Method: EPA	6010D Prep	paration Met	thod: E	PA 3010A			
Iron	ND	mg/L	0.040	0.015	1	10/01/19 12:18	10/06/19 17:04	7439-89-6	
Magnesium	ND	mg/L	0.050	0.011	1	10/01/19 12:18	10/06/19 17:04	7439-95-4	
Manganese	ND	mg/L	0.040	0.0061	1	10/01/19 12:18	10/06/19 17:04	7439-96-5	
Phosphorus	ND	mg/L	0.050	0.023	1	10/01/19 12:18	10/06/19 17:04	7723-14-0	
Potassium	ND	mg/L	0.20	0.026	1	10/01/19 12:18	10/06/19 17:04	7440-09-7	
Sodium	ND	mg/L	1.0	0.19	1	10/01/19 12:18	10/06/19 17:04	7440-23-5	
Total Hardness by 2340B	ND	mg/L	2.7	0.40	1	10/01/19 12:18	10/06/19 17:04		
6020B MET ICPMS	Analytical	Method: EPA	6020B Prep	paration Met	hod: El	PA 3005A			
Copper	0.00030J	mg/L	0.025	0.00019	1	09/30/19 13:30	10/03/19 20:30	7440-50-8	
Zinc	0.0019J	mg/L	0.010	0.0015	1	09/30/19 13:30	10/03/19 20:30	7440-66-6	В
7470 Mercury	Analytical	Method: EPA	7470A Prep	aration Met	hod: El	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	10/03/19 17:10	10/04/19 11:53	7439-97-6	
HEM, Oil and Grease	Analytical	Method: EPA	1664B						
Oil and Grease	ND	mg/L	4.9	4.9	1		10/02/19 08:00		
2320B Alkalinity Low Level	Analytical	Method: SM 2	2320B						
Alkalinity,Bicarbonate (CaCO3)	ND	mg/L	1.0	1.0	1		10/04/19 15:01		
Alkalinity, Total as CaCO3	ND	mg/L	1.0	1.0	1		10/04/19 15:01		
2540C Total Dissolved Solids	Analytical	Method: SM 2	2540C						
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		10/03/19 16:28		
2540D Total Suspended Solids	Analytical	Method: SM 2	2540D						
Total Suspended Solids	ND	mg/L	5.0	5.0	1		09/30/19 12:16		
4500CL G Chlorine, Residual	Analytical	Method: SM 4	1500-CI G						
Chlorine, Total Residual	ND	mg/L	0.1	0.1	1		10/01/19 12:29	7782-50-5	H3,H6
4500PE Ortho Phosphorus	Analytical	Method: SM 4	1500-P						
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/28/19 13:59		
4500S2D Sulfide Water	Analytical	Method: SM 4	1500-S2 D						
Sulfide	ND	mg/L	0.20	0.20	1		09/30/19 17:43	18496-25-8	
5210B BOD, 5 day	Analytical	Method: SM 5	5210B Prepa	aration Meth	nod: SM	1 5210B			
BOD, 5 day	ND	mg/L	2.0	2.0	1	09/27/19 21:37	10/02/19 14:50		1A
Total Organic Nitrogen Calc.	Analytical	Method: TKN	-NH3 Calcula	ation					
Total Organic Nitrogen	ND	mg/L	0.40	0.40	1		10/03/19 22:50		

REPORT OF LABORATORY ANALYSIS



ANALYTICAL RESULTS

Project: Plant Hammond GW6581

Pace Project No.: 2623704

Sample: FB-02	Lab ID:	Lab ID: 2623704002		Collected: 09/26/19 18:25 F		Received: 09/	27/19 13:15 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical	Method: EPA	300.0						
Nitrate as N Nitrite as N	0.011J 0.018J	mg/L mg/L	0.050 0.050	0.0050 0.011	1 1		09/28/19 11:39 09/28/19 11:39	14797-55-8 14797-65-0	
350.1 Ammonia	Analytical	Method: EPA	350.1						
Nitrogen, Ammonia	0.16	mg/L	0.10	0.10	1		09/30/19 11:31	7664-41-7	
351.2 Total Kjeldahl Nitrogen	Analytical	Method: EPA	351.2 Prepa	ration Meth	nod: EP	A 351.2			
Nitrogen, Kjeldahl, Total	ND	mg/L	0.40	0.40	1	10/01/19 09:05	10/01/19 13:16	7727-37-9	
5310B Dissolved Organic Carbon	Analytical	Method: SM 5	310B						
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/02/19 16:13		



Project:	Plant Hammond G	N6581										
Pace Project No.: 2	2623704											
QC Batch:	36428		Analy	sis Meth	nod: E	EPA 7470A						
QC Batch Method:	EPA 7470A		Analy	sis Desc	cription: 7	470 Mercu	iry					
Associated Lab Samp	oles: 262370400	1, 2623704002										
METHOD BLANK:	164509			Matrix:	Water							
Associated Lab Samp	oles: 262370400	1, 2623704002										
			Blar	ık	Reporting							
Parame	eter	Units	Resu	ult	Limit	MD	L	Analyzed	l Qi	ualifiers		
Mercury		mg/L		ND	0.00050	0 0.	00014	10/04/19 10	:46			
LABORATORY CON	TROL SAMPLE:	164510										
			Spike	L	LCS	LCS	%	Rec				
Parame	eter	Units	Conc.	R	esult	% Rec		imits	Qualifiers	_		
Mercury		mg/L	0.002	5	0.0025	10	1	80-120				
MATRIX SPIKE & MA	TRIX SPIKE DUP	_ICATE: 1645	11		164512							
			MS	MSD					_			
Parameter	Units	2623696001 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	ND	0.0025	0.002	5 0.0022	0.0022	8	88 88	3 75-125	0	20	

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



Project: Plant Hammond GW6581

Pace Project No.: 2623704

QC Batch:	36168		Analysis Meth	nod:	EPA 6010D		
QC Batch Method:	EPA 3010A		Analysis Des	cription:	6010D MET		
Associated Lab Samp	les: 262370400	1, 2623704002					
METHOD BLANK: 1	63328		Matrix:	Water			
Associated Lab Samp	les: 262370400	1, 2623704002					
			Blank	Reporting			
Parame	ter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Iron		mg/L	ND	0.0	40 0.015	10/06/19 16:50	
Magnesium		mg/L	ND	0.0	50 0.011	10/06/19 16:50	
Manganese		mg/L	ND	0.0	40 0.0061	10/06/19 16:50	
Phosphorus		mg/L	ND	0.0	50 0.023	10/06/19 16:50	
Potassium		mg/L	ND	0.	20 0.026	10/06/19 16:50	
Sodium		mg/L	ND	1	.0 0.19	10/06/19 16:50	
Total Hardness by 2340B mg/L			ND	2	0.40	10/06/19 16:50	

LABORATORY CONTROL SAMPLE: 163329

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Iron	mg/L	1	1.0	100	80-120	
Magnesium	mg/L	1	1.0	102	80-120	
Manganese	mg/L	1	1.0	100	80-120	
Phosphorus	mg/L	1	1.0	103	80-120	
Potassium	mg/L	1	1.1	110	80-120	
Sodium	mg/L	1	1.1	108	80-120	
Total Hardness by 2340B	mg/L	6.6	6.8	103	80-120	

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

REPORT OF LABORATORY ANALYSIS



Project:	Plant Hammond G	W6581										
Pace Project No .:	2623704											
QC Batch:	36173		Anal	ysis Meth	iod: E	PA 6020B						
QC Batch Method:	EPA 3005A		Anal	ysis Desc	cription: 6	020B MET	-					
Associated Lab Sa	mples: 26237040	01, 2623704002										
METHOD BLANK:	163347			Matrix:	Water							
Associated Lab Sa	mples: 26237040	01, 2623704002										
			Bla	nk	Reporting							
Para	meter	Units	Res	ult	Limit	MD	L	Analyzed	Q	ualifiers	i	
Copper		mg/L		ND	0.025	5 0.	00019	10/03/19 16	:32			
Zinc		mg/L	C	.0016J	0.010) (0.0015	10/03/19 16	:32			
LABORATORY CO	NTROL SAMPLE:	163348										
			Spike	L	CS	LCS	%	Rec				
Para	neter	Units	Conc.	R	esult	% Rec	Li	mits	Qualifiers			
Copper		mg/L	0	.1	0.099	9	9	80-120				
Zinc		mg/L	0	.1	0.10	10	0	80-120				
MATRIX SPIKE & I	ATRIX SPIKE DUF	PLICATE: 1633	49		163350							
			MS	MSD								
		2623696001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	r Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Copper	mg/L	ND	0.1	0.1	1 0.088	0.090	8	38 90	75-125	3	20	
Zinc	mg/L	0.0040J	0.1	0.1	1 0.091	0.096	8	37 91	75-125	5	20	

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

REPORT OF LABORATORY ANALYSIS



Project: Plant Hammond G	GW6581						
Pace Project No.: 2623704							
QC Batch: 36282		Analysis Met	hod: E	EPA 1664B			
QC Batch Method: EPA 1664B		Analysis Des	cription: 1	664 HEM, Oil a	and Grease		
Associated Lab Samples: 26237040	001, 2623704002						
METHOD BLANK: 163839		Matrix:	Water				
Associated Lab Samples: 26237040	001, 2623704002						
		Blank	Reporting				
Parameter	Units	Result	Limit	MDL	Analyzeo	d Qualifie	rs
Oil and Grease	mg/L	ND	5.0	5 5	.0 10/02/19 08	3:00	
LABORATORY CONTROL SAMPLE:	163840						
Parameter	Units	Spike Conc. F	LCS Result	LCS % Rec	% Rec Limits	Qualifiers	
Oil and Grease	mg/L	40	39.8	100	78-114		
MATRIX SPIKE SAMPLE:	163842						
		2623558001	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Oil and Grease	mg/L	23	.1 40	80.3	143	78-114	M3
SAMPLE DUPLICATE: 163841			-				
Dorometer	Linita	2623698001	Dup		Max	Qualificat	
Parameter		Kesuit	Result	KPD	KPD		_
Oil and Grease	mg/L	ND	NE)	-	75	

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

REPORT OF LABORATORY ANALYSIS



Project:	Plant Hammond G	W6581						
Pace Project No.:	2623704							
QC Batch:	36503		Analysis N	lethod:	SM 2320B			
QC Batch Method:	SM 2320B		Analysis D	escription:	2320B Alkalir	iity, Low Level		
Associated Lab Sat	mples: 26237040	01, 2623704002						
METHOD BLANK:	164938		Matr	ix: Water				
Associated Lab Sar	mples: 26237040	01, 2623704002						
			Blank	Reportin	g			
Para	meter	Units	Result	Limit	MDL	Analyz	zed Qua	alifiers
Alkalinity, Total as 0	CaCO3	mg/L	Ν	D	1.0	1.0 10/04/19	14:44	
LABORATORY CO	NTROL SAMPLE:	164939						
			Spike	LCS	LCS	% Rec		
Para	meter	Units	Conc.	Result	% Rec	Limits	Qualifiers	
Alkalinity, Total as C	CaCO3	mg/L	50	47.5	95	85-115		
SAMPLE DUPLICA	TE: 164940							
			2623704001	Dup		Max		
Para	meter	Units	Result	Result	RPD	RPD	Qualifie	ers
Alkalinity, Total as 0	CaCO3	mg/L	N	D	ND	-	10	

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



Project:	Plant Hammond G	W6581								
Pace Project No.:	2623704									
QC Batch:	36437		Analysis M	lethod:	SM 2540C					
QC Batch Method:	SM 2540C		Analysis D	escription:	2540C Tota	l Dissolv	ved Solids			
Associated Lab Sar	mples: 26237040	01, 2623704002								
LABORATORY CO	NTROL SAMPLE:	164569								
			Spike	LCS	LCS	%	Rec			
Parar	neter	Units	Conc.	Result	% Rec	L	imits	Qu	alifiers	
Total Dissolved Sol	ids	mg/L	400	412	10	3	84-108			
SAMPLE DUPLICA	TE: 164570									
_			2623700006	Dup		_	Max			
Para	neter	Units	Result	Result	RP) 	RPD		Qualifiers	
Total Dissolved Sol	ids	mg/L	22	5 2	219	3		10		
SAMPLE DUPLICA	TE: 164571									
			2623710002	Dup			Max			
Para	neter	Units	Result	Result	RP)	RPD		Qualifiers	
Total Dissolved Sol	ids	mg/L	145	0 13	330	9		10		

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



Project:	Plant Hammond C	GW6581					
Pace Project No.: 2	2623704						
QC Batch:	36165		Analysis N	lethod:	SM 2540D		
QC Batch Method:	SM 2540D		Analysis D	escription:	2540D Total S	suspended Solids	;
Associated Lab Samp	oles: 26237040	001, 2623704002					
METHOD BLANK:	163320		Matr	ix: Water			
Associated Lab Samp	oles: 26237040	001, 2623704002					
			Blank	Reporting	g		
Parame	eter	Units	Result	Limit	MDL	Analyz	ed Qualifiers
Total Suspended Soli	ds	mg/L	N	D	5.0	5.0 09/30/19	12:16
LABORATORY CON	TROL SAMPLE:	163321					
			Spike	LCS	LCS	% Rec	
Parame	eter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Total Suspended Soli	ds	mg/L	100	99.5	100	90-110	
SAMPLE DUPLICATE	E: 163322						
			2623465001	Dup		Max	
Parame	eter	Units	Result	Result	RPD	RPD	Qualifiers
Total Suspended Soli	ds	mg/L	10.	0	ND		10
	-: 163323						
			2623682001	Dup		Max	
Parame	eter	Units	Result	Result	RPD	RPD	Qualifiers
Total Suspended Soli	ds	mg/L	6	5	ND		10

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



Project:	Plant Hammond G	W6581						
Pace Project No.:	2623704							
QC Batch:	36248		Analysis M	lethod:	SM 4500-CI 0	3		
QC Batch Method:	SM 4500-CI G		Analysis D	escription:	4500CL G Ch	lorine, Total Res	idual	
Associated Lab Sar	mples: 26237040	01, 2623704002						
METHOD BLANK:	163705		Matri	ix: Water				
Associated Lab Sar	mples: 26237040	01, 2623704002						
			Blank	Reporting	g			
Para	neter	Units	Result	Limit	MDL	Analyz	zed Qua	lifiers
Chlorine, Total Res	dual	mg/L	N	D	0.1	0.1 10/01/19	12:26 H6	
LABORATORY CO	NTROL SAMPLE:	163706						
			Spike	LCS	LCS	% Rec		
Para	neter	Units	Conc.	Result	% Rec	Limits	Qualifiers	
Chlorine, Total Res	dual	mg/L	1	1	100	86-116	H6	
SAMPLE DUPLICA	TE: 163724							
			2623782001	Dup		Max		
Parar	neter	Units	Result	Result	RPD	RPD	Qualifie	rs
Chlorine, Total Res	dual	mg/L	0.	3	0.3	0	10 H3,H6	

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



Project:	Plant Hammond G	W6581										
Pace Project No.:	2623704											
QC Batch:	36125		Analy	sis Meth	iod: S	SM 4500-P						
QC Batch Method:	SM 4500-P		Analy	sis Desc	ription: 4	500PE Ort	ho Phos	sphorus				
Associated Lab San	nples: 26237040	01, 2623704002										
METHOD BLANK:	163138			Matrix: \	Water							
Associated Lab San	nples: 26237040	01, 2623704002										
_			Blan	k	Reporting							
Paran	neter	Units	Resu	ult	Limit	MD		Analyzed	l Qu	ualifiers		
Orthophosphate as	P	mg/L		ND	0.020)	0.020	09/28/19 13	:30			
LABORATORY CON	NTROL SAMPLE:	163139										
			Spike	L	CS	LCS	%	Rec				
Paran	neter	Units	Conc.	R	esult	% Rec	L	imits	Qualifiers	_		
Orthophosphate as	Р	mg/L	0.	5	0.51	10	1	80-120				
MATRIX SPIKE & M	IATRIX SPIKE DUP	LICATE: 1631	40		163141							
			MS	MSD								
Denersita		2623698004	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	0
Parameter		Result	Conc.	Conc.	Result	Result	% Rec	C % Rec		RPD	RPD	Qual
Orthophosphate as	P mg/L	ND	0.5	0.8	5 0.50	0.50	1	00 101	80-120	1	10	

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



Project:	Plant Hammond G	W6581										
Pace Project No .:	2623704											
QC Batch:	36187		Analy	sis Meth	iod:	SM 4500-S	2 D					
QC Batch Method:	SM 4500-S2 D		Analy	ysis Desc	cription:	4500S2D S	ulfide Wa	ater				
Associated Lab San	nples: 262370400	01, 2623704002										
METHOD BLANK:	163403			Matrix:	Water							
Associated Lab San	nples: 262370400	01, 2623704002										
			Blai	nk	Reporting							
Paran	neter	Units	Res	ult	Limit	MD	L	Analyzed	d Qi	ualifiers		
Sulfide		mg/L		ND	0.2	0	0.20	09/30/19 17	:04			
LABORATORY COM	ITROL SAMPLE:	163404										
			Spike	L	CS	LCS	%	Rec				
Paran	neter	Units	Conc.	R	esult	% Rec	Li	mits	Qualifiers			
Sulfide		mg/L	0	.5	0.45	9	0	80-120				
MATRIX SPIKE & M	IATRIX SPIKE DUP	LICATE: 1634	05		163406							
			MS	MSD								
Parameter	Units	2623614004 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide	mg/L	ND	0.5	0.8	5 0.40	0.40	8	1 80	30-129	1	10	

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



Project: Plant Hammond G	SW6581							
Pace Project No.: 2623704								
QC Batch: 36102		Analysis M	lethod:	SM 5210B				
QC Batch Method: SM 5210B		Analysis D	escription:	5210B BOD,	5 day			
Associated Lab Samples: 26237040	01, 2623704002							
METHOD BLANK: 162918		Matri	x: Water					
Associated Lab Samples: 26237040	01, 2623704002							
		Blank	Reporting	I				
Parameter	Units	Result	Limit	MDL	A	nalyzed	Qualifiers	
BOD, 5 day	mg/L	NI	C	2.0	2.0 10/0	2/19 14:17	1A	
LABORATORY CONTROL SAMPLE:	162920							
		Spike	LCS	LCS	% Rec			
Parameter	Units	Conc.	Result	% Rec	Limits	Qua	alifiers	
BOD, 5 day	mg/L	198	205	104	85-	115 1A		
SAMPLE DUPLICATE: 163019								
		2623686001	Dup		Ν	Лах		
Parameter	Units	Result	Result	RPD	R	RPD	Qualifiers	
BOD, 5 day	mg/L	83	1 6	<u>590</u>	19	20 1	A	

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



Project:	Plant Hammond	GW6581										
Pace Project No.:	2623704											
QC Batch:	36067		Analysis	Metho	d: E	PA 300.0						
QC Batch Method:	EPA 300.0		Analysis	Descri	ption: 3	00.0 IC An	ions					
Associated Lab Sar	mples: 2623704	001, 2623704002										
METHOD BLANK:	162737		Ма	atrix: W	ater							
Associated Lab Sar	mples: 2623704	001, 2623704002										
Parar	neter	Units	Blank Result		Reporting Limit	MD	L	Analyze	d C	ualifiers		
Nitrate as N		mg/L		ND	0.050) (0.0050	09/27/19 18	8:48 8:48			
		iiig/L			0.000		0.011	00/21/10 10	5.40			
LABORATORY CO	NTROL SAMPLE:	162738										
Parar	neter	Units	Spike Conc.	LC Res	:S sult	LCS % Rec	9 L	6 Rec ₋imits	Qualifiers			
Nitrate as N		mg/L	10		10.5	10	5	90-110				
Nitrite as N		mg/L	10		10.7	10	7	90-110				
MATRIX SPIKE & N	ATRIX SPIKE DU	PLICATE: 1627	/39		162740							
			MS N	ISD								
		2623562005	Spike S	pike	MS	MSD	MS	MSD	% Rec		Max	• •
Paramete	r Uni	ts Result	Conc	onc.	Result	Result	% Re	c % Rec				Qual
Nitrate as N	mg/	L 0.74			11.2	11.2				0	15	H1
NITITE as N	mg/	L 0.030J			10.7	10.5				2	15	H1
MATRIX SPIKE SA	MPLE:	163021										
			2623704	001	Spike	MS		MS	% Re	С		
Parar	neter	Units	Resul	t	Conc.	Result		% Rec	Limit	s	Qualit	fiers
Nitrate as N		mg/L		ND	10		10.5	105	9	0-110		
Nitrite as N		mg/L		0.017J	10		10.8	108	9	0-110		

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



Project:	Plant Hammond (GW6581								
Pace Project No.:	2623704									
QC Batch:	36150		Analysis I	Method	1:	EPA 350.1				
QC Batch Method:	EPA 350.1		Analysis I	Descrip	otion:	350.1 Ammonia				
Associated Lab Sam	ples: 26237040	001, 2623704002								
METHOD BLANK:	163273		Mat	rix: Wa	ater					
Associated Lab Sam	ples: 26237040	01, 2623704002								
Param	eter	Units	Blank Result	F	Reporting Limit	MDL	Analyz	ed	Qualifiers	3
Nitrogen, Ammonia		mg/L	N	ID	0.1	0 0.4	09/30/19	11:18		
LABORATORY CON	TROL SAMPLE:	163274								
Param	eter	Units	Spike Conc.	LC Res	S ult	LCS % Rec	% Rec Limits	Qual	ifiers	
Nitrogen, Ammonia		mg/L	10		10.3	103	90-110			
MATRIX SPIKE SAM	IPLE:	163275								
Param	eter	Units	26236980 Result	01	Spike Conc.	MS Result	MS % Rec		% Rec Limits	Qualifiers
Nitrogen, Ammonia		mg/L		1.4	10	12.0	10	06	90-110	
MATRIX SPIKE SAM	IPLE:	163276								
			26236820	01	Spike	MS	MS		% Rec	
Param	eter	Units	Result		Conc.	Result	% Rec		Limits	Qualifiers
Nitrogen, Ammonia		mg/L		0.96	10	11.5	10)5	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



Project:	Plant Hammond (GW6581						
Pace Project No.:	2623704							
QC Batch:	36222		Analysis M	ethod:	EPA 351.2			
QC Batch Method:	EPA 351.2		Analysis De	escription:	351.2 TKN			
Associated Lab San	nples: 26237040	001, 2623704002						
METHOD BLANK:	163614		Matrix	: Water				
Associated Lab San	nples: 26237040	001, 2623704002						
Paran	neter	Linits	Blank Result	Reporting	MDI	Analyz	ed Qual	ifiers
Nitrogen, Kjeldani, I	Iotal	mg/L	NL	0.2	40 0.	.40 10/01/19	13:03	
LABORATORY COM	NTROL SAMPLE:	163615						
Paran	neter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers	
Nitrogen, Kjeldahl, T	Fotal	mg/L	10	10.7	107	90-110		
MATRIX SPIKE SAI	MPLE:	163616						
			262368000	1 Spike	MS	MS	% Rec	
Paran	neter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Nitrogen, Kjeldahl, T	Fotal	mg/L		2.3 10	10.5	5 8	2 90-1	10 M1
MATRIX SPIKE SAM	MPLE:	163621						
			262368000	3 Spike	MS	MS	% Rec	
Paran	neter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Nitrogen, Kjeldahl, T	Fotal	mg/L		3.5 10	12.3	3 8	,8 90-1	10 M1

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

REPORT OF LABORATORY ANALYSIS



Project: Plant H	ammond GV	V6581										
Pace Project No.: 262370	4											
QC Batch: 57501	7		Anal	ysis Method	d:	SM 5310B						
QC Batch Method: SM 53	310B		Anal	ysis Descrij	ption:	5310B Diss	olved Orga	nic Carbon	l			
Associated Lab Samples:	262370400	1, 2623704002										
METHOD BLANK: 312498	6			Matrix: W	ater							
Associated Lab Samples:	262370400	1, 2623704002										
			Bla	nk l	Reporting							
Parameter		Units	Res	ult	Limit	MD	L	Analyzed	Qı	ualifiers		
Dissolved Organic Carbon		mg/L		ND	1.	.0	0.50 10	0/02/19 15:	06			
LABORATORY CONTROL S	SAMPLE: 3	3124987										
			Spike	LC	S	LCS	% R	ec				
Parameter		Units	Conc.	Res	sult	% Rec	Limi	ts (Qualifiers	_		
Dissolved Organic Carbon		mg/L	2	20	19.0	9	5	90-110				
MATRIX SPIKE & MATRIX S		ICATE: 3124	988		3124989	9						
			MS	MSD								
Parameter	l Inite	2623704001 Result	Spike	Spike	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec	RPD	Max	Qual
Dissolved Organic Carbon	mg/L		20	20	19.6	19.8	95		80-120	1	20	Quai
J. J	C C											
MATRIX SPIKE & MATRIX S	SPIKE DUPL	ICATE: 3124	990		312499 [,]	1						
			MS	MSD								
Parameter	Units	2623708004 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Dissolved Organic Carbon	ma/L	ND	20	20	19.6	19.4	96	96	80-120	1	20	

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

REPORT OF LABORATORY ANALYSIS



QUALIFIERS

Project: Plant Hammond GW6581

Pace Project No.: 2623704

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-GA Pace Analytical Services - Atlanta, GA

PASI-O Pace Analytical Services - Ormond Beach

BATCH QUALIFIERS

Batch: 36345

[1] The calculated SCF was below the desired range of 0.6 to 1.0 mg/L. All other QC indicators, including the LCS, were within acceptance criteria

ANALYTE QUALIFIERS

- 1A The calculated SCF was below the desired range of 0.6 to 1.0 mg/L. All other QC indicators, including the LCS, were within acceptance criteria
- B Analyte was detected in the associated method blank.
- H1 Analysis conducted outside the EPA method holding time.
- H3 Sample was received or analysis requested beyond the recognized method holding time.
- H6 Analysis initiated outside of the 15 minute EPA required holding time.
- M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- M3 Matrix spike recovery was outside laboratory control limits due to matrix interferences.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond GW6581

Pace Project No.: 2623704

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623704001 2623704002	EB-02 FB-02	EPA 3010A EPA 3010A	36168 36168	EPA 6010D EPA 6010D	36254 36254
2623704001 2623704002	EB-02 FB-02	EPA 3005A EPA 3005A	36173 36173	EPA 6020B EPA 6020B	36203 36203
2623704001 2623704002	EB-02 FB-02	EPA 7470A EPA 7470A	36428 36428	EPA 7470A EPA 7470A	36481 36481
2623704001 2623704002	EB-02 FB-02	EPA 1664B EPA 1664B	36282 36282		
2623704001 2623704002	EB-02 FB-02	SM 2320B SM 2320B	36503 36503		
2623704001 2623704002	EB-02 FB-02	SM 2540C SM 2540C	36437 36437		
2623704001 2623704002	EB-02 FB-02	SM 2540D SM 2540D	36165 36165		
2623704001 2623704002	EB-02 FB-02	SM 4500-CI G SM 4500-CI G	36248 36248		
2623704001 2623704002	EB-02 FB-02	SM 4500-P SM 4500-P	36125 36125		
2623704001 2623704002	EB-02 FB-02	SM 4500-S2 D SM 4500-S2 D	36187 36187		
2623704001 2623704002	EB-02 FB-02	SM 5210B SM 5210B	36102 36102	SM 5210B SM 5210B	36345 36345
2623704001 2623704002	EB-02 FB-02	TKN-NH3 Calculation TKN-NH3 Calculation	36472 36472		
2623704001 2623704002	EB-02 FB-02	EPA 300.0 EPA 300.0	36067 36067		
2623704001 2623704002	EB-02 FB-02	EPA 350.1 EPA 350.1	36150 36150		
2623704001 2623704002	EB-02 FB-02	EPA 351.2 EPA 351.2	36222 36222	EPA 351.2 EPA 351.2	36226 36226
2623704001 2623704002	EB-02 FB-02	SM 5310B SM 5310B	575017 575017		

Pace Analytical

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

Section A		Section B	Section C	
Required	Client Information:	Required Project Information:	Invoice Information: Page : 0 Of	_
Company	: Genrula Power - Coal Combustion Residuals	Report To: Join Abraham	Attention: scsinvoices@southernco.com	
Address:	2480 Maner Boad	Copy To: Lauren Petty, Geosyntec	Company Name:	
			Address:	
Alianta, c	A 30339	Duration Order #. COCLEMENTS		
Email:	jabraham@southernco.com		Providential Annual Statements (1997)	
Phone:	(404)506-7239 Fax		Process regent wareger . Delay modanely paceados com, Process	
Requeste	A DUE DATE: Spruder TKT	Froget a. QW 61 PI		
		COLLECTED		
# WƏTI	Sample ids mutue in the mutue mutue iteration is an interval in the mutue mutue iteration is an interval in the mutue mutue iteration is an interval in the mutue mutue iteration is a superval in the mutue mutue iteration is a superval in the mutue mutue mutue mutue iteration is a superval in the mutue	Sample Temp A Correction Sample Temp A Correction Sample Temp A Correction	 A C CONTANLERS A C CONTANLERS Unpreserved HCI HCI HCI Nacht + Zn Ac Nac Nacht + Zn Ac Nacht + Zn Ac	
L.	EB-02	WITC 9/26/14 (775 9/26/14 1750 2)	x 10 3 1 5 1 7 4 4 4 4 4 4 4 4 4 4 4 4 4 4	
8	t0-02	MTG 9/2/19 1800 9/2/19 12525		4
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		Lioni. While and targer blat monoral	Classic force aprilia 1715 2.0 4 >	X
Page	IO# : 2623704			
26		SAVE SERVICE AND SAME		
of 27		PRINT Name of SAMPLEI SIGNATURE of SAMPLEF	$\frac{R}{N/n} = \frac{1}{n} $	/N) BCL SØJØØZ (N/)
26	;23704		(1/allia Munim -1/colil Flagepag	ス) 241 25 21

San	nle Condition L	Inon Receipt	LIN# · 2622704		
Pace Analytical Client Name:	GABW	e/((R	PM: BM Due Date: CLIENT: GAPower-CCR	10/04	1/1:
Courier: 🗈 Fed Ex 🔲 UPS 🗌 USPS 🗍 Clien	t Commercial a	Pace Other	Proj. Due Date:		
Custody Seal on Cooler/Box Present:	Í nố Sevelsin	itact: Dyes			
Packing Material: FIBubble Wrap TBubble	Bags Nor	Other			
Thermometer Used 2/4	Type of Ice: Wet	Blue None	Samples on ice, cooling process has be	egur	
Cooler Temperature	Biological Tissue is	s Frozen: Yes No Comments:	Date and Initials of person exami contents:	ning 	
Chain of Custody Present:		l.			
Chain of Custody Filled Out:		2.			
Chain of Custody Relinquished:		3.			
Sampler Name & Signature on COC:		4.			
Samples Arrived within Hold Time:		5			
Short Hold Time Analysis (<72hr):		6			
Rush Turn Around Time Requested:	□Yes ☑No □N/A	7.			
Sufficient Volume:		8	4		╢
Correct Containers Used:		9.			
-Pace Containers Used:	PYes INO IN/A				Щ
Containers Intact:	ZYes No N/A	10.			
Filtered volume received for Dissolved tests		11.			4
Sample Labels match COC:	IYes □No □N/A	12.			
-Includes date/time/ID/Analysis Matrix:	<u>W</u>				
All containers needing preservation have been checked.	Eres Ono On/A	13.			
All containers needing preservation are found to be in compliance with EPA recommendation.					
exceptions: VOA. coliform, TOO, 08G WI-DRO (water)	Yes ENO	Initial when completed	Lot # of added preservative		
Samples checked for dechlorination:		14.			Τ
Headspace in VOA Vials (>6mm):	UYes DNo Child	15.			Τ
Trip Blank Present:		.16.			Ţ
Trip Blank Custody Seals Present	□Yes □No ☑N/A	1 .	•		
Pace Trip Blank Lot # (if purchased):					
Client Notification/ Resolution:			Field Data Required? Y /	N	Ť
Person Contacted:	Date/	Time:		ł	
. Comments/ Resolution:					+
	······				╀
		·····			+
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Project Manager Review:			Date:		╞

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



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

November 02, 2019

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

RE: Project: Plant Hammond GW6581 Pace Project No.: 2623705

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on September 27, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Batery Mr Damil

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

Enclosures

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





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

CERTIFICATIONS

Project: Plant Hammond GW6581 Pace Project No.: 2623705

Atlanta Certification IDs

Ormond Beach 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

8 East Tower Circle, Ormond Beach, FL 32174 Alaska DEC- CS/UST/LUST Alabama Certification #: 41320 Arizona Certification# AZ0819 Colorado Certification: FL NELAC Reciprocity Connecticut Certification #: PH-0216 Delaware Certification: FL NELAC Reciprocity Florida Certification #: E83079 Georgia Certification #: 955 Guam Certification: FL NELAC Reciprocity Hawaii Certification: FL NELAC Reciprocity Illinois Certification #: 200068 Indiana Certification: FL NELAC Reciprocity Kansas Certification #: E-10383 Kentucky Certification #: 90050 Louisiana Certification #: FL NELAC Reciprocity Louisiana Environmental Certificate #: 05007 Maryland Certification: #346 Michigan Certification #: 9911 Mississippi Certification: FL NELAC Reciprocity

Missouri Certification #: 236 Montana Certification #: Cert 0074 Nebraska Certification: NE-OS-28-14 New Hampshire Certification #: 2958 New Jersey Certification #: FL022 New York Certification #: 11608 North Carolina Environmental Certificate #: 667 North Carolina Certification #: 12710 North Dakota Certification #: R-216 Oklahoma Certification #: D9947 Pennsylvania Certification #: 68-00547 Puerto Rico Certification #: FL01264 South Carolina Certification: #96042001 Tennessee Certification #: TN02974 Texas Certification: FL NELAC Reciprocity US Virgin Islands Certification: FL NELAC Reciprocity Virginia Environmental Certification #: 460165 West Virginia Certification #: 9962C Wisconsin Certification #: 399079670 Wyoming (EPA Region 8): FL NELAC Reciprocity



SAMPLE SUMMARY

Project: Plant Hammond GW6581 Pace Project No.: 2623705

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623705001	 MW-23d	Water	09/26/19 10:25	09/27/19 13:15



SAMPLE ANALYTE COUNT

Project: Plant Hammond GW6581 Pace Project No.: 2623705

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2623705001	MW-23d	EPA 6010D	KLH	6	PASI-GA
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	MWB	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O



ANALYTICAL RESULTS

Project: Plant Hammond GW6581

Pace Project No.: 2623705

Sample: MW-23d	Lab ID:	2623705001	Collected	d: 09/26/19	9 10:25	Received: 09/	27/19 13:15 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP	Analytical	Method: EPA 6	6010D Prep	aration Met	hod: Ef	PA 3010A			
Iron	0.17	mg/L	0.040	0.015	1	10/31/19 16:05	11/01/19 01:03	7439-89-6	
Magnesium	35.4	mg/L	0.050	0.011	1	10/31/19 16:05	11/01/19 01:03	7439-95-4	M1
Manganese	9.0	mg/L	0.040	0.0061	1	10/31/19 16:05	11/01/19 01:03	7439-96-5	M1
Phosphorus	0.025J	mg/L	0.050	0.023	1	10/31/19 16:05	11/01/19 01:03	7723-14-0	
Potassium	2.1	mg/L	0.20	0.026	1	10/31/19 16:05	11/01/19 01:03	7440-09-7	
Sodium	13.1	mg/L	1.0	0.19	1	10/31/19 16:05	11/01/19 01:03	7440-23-5	
2320B Alkalinity	Analytical	Method: SM 2	320B						
Alkalinity,Bicarbonate (CaCO3)	216	mg/L	20.0	20.0	1		10/01/19 18:59		
Alkalinity, Total as CaCO3	216	mg/L	20.0	20.0	1		10/01/19 18:59		
4500PE Ortho Phosphorus	Analytical	Method: SM 4	500-P						
Orthophosphate as P	ND	mg/L	0.020	0.020	1		09/27/19 20:41		
4500S2D Sulfide Water	Analytical	Method: SM 4	500-S2 D						
Sulfide	ND	mg/L	0.20	0.20	1		09/30/19 17:44	18496-25-8	
5310B Dissolved Organic Carbon	Analytical	Method: SM 5	310B						
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/02/19 16:31		



Project: Plant Hammond GW6581

Pace Project No.: 2623705

QC Batch:	37765		Analysis Meth	iod: EPA	6010D		
QC Batch Method:	EPA 3010A		Analysis Desc	cription: 601	0D MET		
Associated Lab Sar	mples: 2623705001						
METHOD BLANK:	171372		Matrix:	Water			
Associated Lab Sar	nples: 2623705001						
			Blank	Reporting			
Parar	neter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Iron		mg/L	 ND	0.040	0.015	11/01/19 00:53	
Magnesium		mg/L	ND	0.050	0.011	11/01/19 00:53	
Manganese		mg/L	ND	0.040	0.0061	11/01/19 00:53	
Phosphorus		mg/L	ND	0.050	0.023	11/01/19 00:53	
Potassium		mg/L	ND	0.20	0.026	11/01/19 00:53	
Sodium		mg/L	ND	1.0	0.19	11/01/19 00:53	

Spike LCS LCS % Rec Conc. Limits Qualifiers Parameter Units Result % Rec 103 80-120 Iron mg/L 1 1.0 80-120 Magnesium mg/L 1 1.0 104 Manganese mg/L 1.0 104 80-120 1 Phosphorus mg/L 80-120 1 1.0 104 Potassium mg/L 0.99 99 80-120 1 Sodium 103 80-120 mg/L 1 1.0

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 171374

Parameter	Units	2623705001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron	mg/L	0.17	1	1	1.2	1.2	104	102	75-125	2	20	
Magnesium	mg/L	35.4	1	1	36.7	36.1	130	75	75-125	2	20	M1
Manganese	mg/L	9.0	1	1	10.3	10.1	126	110	75-125	2	20	M1
Phosphorus	mg/L	0.025J	1	1	1.1	1.1	107	107	75-125	0	20	
Potassium	mg/L	2.1	1	1	3.3	3.3	119	119	75-125	0	20	
Sodium	mg/L	13.1	1	1	14.3	14.1	125	100	75-125	2	20	

171375

Results presented on 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



Project: Plant Hammond	GW6581						
Pace Project No.: 2623705							
QC Batch: 36284		Analysis M	lethod:	SM 2320B			
QC Batch Method: SM 2320B		Analysis D	escription:	2320B Alkalini	ty		
Associated Lab Samples: 262370	5001						
METHOD BLANK: 163853		Matri	ix: Water				
Associated Lab Samples: 2623708	5001						
		Blank	Reporting				
Parameter	Units	Result	Limit	MDL	Analyz	ed Qualifiers	
Alkalinity, Total as CaCO3	mg/L	N	D 20	0.0 2	20.0 10/01/19	17:35	
LABORATORY CONTROL SAMPLE:	163854						
		Spike	LCS	LCS	% Rec		
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers	
Alkalinity, Total as CaCO3	mg/L	100	98.0	98	85-115		
SAMPLE DUPLICATE: 163855							
_		2623635002	Dup		Max		
Parameter	Units	Result	Result		RPD	Qualifiers	
Alkalinity, Total as CaCO3	mg/L	16	5 1	64	1	10	

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



Project:	Plant Hammond G	W6581										
Pace Project No.:	2623705											
QC Batch:	36119		Analy	sis Metho	od: S	SM 4500-P						
QC Batch Method:	SM 4500-P		Analy	sis Desci	ription: 4	500PE Ort	ho Phosp	norus				
Associated Lab San	nples: 26237050	01										
METHOD BLANK:	163046			Matrix: V	Vater							
Associated Lab San	nples: 26237050	01										
			Blar	k	Reporting							
Paran	neter	Units	Resu	ult	Limit	MD	L	Analyzec	l Qu	ualifiers		
Orthophosphate as	Ρ	mg/L		ND	0.020)	0.020 0	9/27/19 20	:37			
LABORATORY COM	NTROL SAMPLE:	163047										
			Spike	L	CS	LCS	% F	Rec				
Paran	neter	Units	Conc.	Re	esult	% Rec	Lim	its	Qualifiers	_		
Orthophosphate as	Р	mg/L	0.	5	0.52	10	5	80-120				
MATRIX SPIKE & M	IATRIX SPIKE DUP	LICATE: 1630	48		163049							
			MS	MSD								
D		2623707001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	o <i>i</i>
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Orthophosphate as	P mg/L	ND	0.5	0.5	0.50	0.51	100	102	80-120	2	10	

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



Project:	Plant Hammond G	V6581										
Pace Project No .:	2623705											
QC Batch:	36187		Analy	/sis Meth	nod:	SM 4500-S	2 D					
QC Batch Method:	SM 4500-S2 D		Analy	sis Deso	cription:	4500S2D S	ulfide Wa	ater				
Associated Lab San	nples: 262370500	1										
METHOD BLANK:	163403			Matrix:	Water							
Associated Lab San	nples: 262370500	1										
			Blar	nk	Reporting							
Paran	neter	Units	Res	ult	Limit	MD	L	Analyzed	d Qi	ualifiers		
Sulfide		mg/L		ND	0.2	0	0.20	09/30/19 17	7:04			
LABORATORY COM	NTROL SAMPLE:	163404										
			Spike	l	LCS	LCS	%	Rec				
Paran	neter	Units	Conc.	R	esult	% Rec	Li	imits	Qualifiers	_		
Sulfide		mg/L	0.	5	0.45	9	0	80-120				
MATRIX SPIKE & M	IATRIX SPIKE DUPL	ICATE: 1634	05		163406							
			MS	MSD								
Parameter	Units	2623614004 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide	mg/L	ND	0.5	0.	5 0.40	0.40	8	81 80	0 30-129	1	10	

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



Project: Plant Ha	ammond GV	V6581										
Pace Project No.: 262370	5											
QC Batch: 57501	7		Anal	ysis Method	d: St	SM 5310B						
QC Batch Method: SM 53	10B		Anal	ysis Descrij	otion:	5310B Disse	olved Orga	nic Carbon				
Associated Lab Samples:	262370500	1										
METHOD BLANK: 312498	6			Matrix: W	ater							
Associated Lab Samples:	262370500	1										
			Bla	nk l	Reporting							
Parameter		Units	Res	ult	Limit	MDI		Analyzed	Qı	ualifiers		
Dissolved Organic Carbon		mg/L		ND	1.	0	0.50 10	0/02/19 15:	06			
LABORATORY CONTROL S	AMPLE:	3124987										
_			Spike	LC	S	LCS	% R	ec				
Parameter		Units	Conc.	Res	sult	% Rec	Lim	ts (Qualifiers	_		
Dissolved Organic Carbon		mg/L	2	20	19.0	95	5	90-110				
MATRIX SPIKE & MATRIX S		ICATE: 3124	988		3124989)						
			MS	MSD								
		2623704001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	<u> </u>
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Dissolved Organic Carbon	mg/L	0.65J	20	20	19.6	19.8	95	96	80-120	1	20	
MATRIX SPIKE & MATRIX S		ICATE: 3124	990		3124991							
			MS	MSD								
-		2623708004	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	. .
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Dissolved Organic Carbon	mg/L	ND	20	20	19.6	19.4	96	96	80-120	1	20	

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



QUALIFIERS

Project: Plant Hammond GW6581

Pace Project No.: 2623705

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-GA Pace Analytical Services - Atlanta, GA

PASI-O Pace Analytical Services - Ormond Beach

ANALYTE QUALIFIERS

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



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:Plant Hammond GW6581Pace Project No.:2623705

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623705001	MW-23d	EPA 3010A	37765	EPA 6010D	37960
2623705001	MW-23d	SM 2320B	36284		
2623705001	MW-23d	SM 4500-P	36119		
2623705001	MW-23d	SM 4500-S2 D	36187		
2623705001	MW-23d	SM 5310B	575017		

Pace Analytical

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

- •			n active C	
Section A Required (Client Information:	Required Project Information:	Invoice information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To: Joju Abraham	Attention: scsinvoices@southernco.com	
Address:	2480 Maner Road	Copy To: Lauren Petty, Geosyntec	Company Name:	
Atlanta, G/	A 30339		Address:	Regulationy/Ageney
Email: ja	abraham@southernco.com	Purchase Order #: SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name: Plant Hammond	Pace Project Manager: betsy.mcdaniel@pacelabs.com,	State//Locetton
Requested	I Due Date: STunderd TAT	Project #: 6W6581	Pace Profile #: 327 (AP)	GA
				(N)
		COLLECTED	Preservatives	
# W3.	Sample Ids mutue Mater Market Mater Water Mater Water Mater Market Mater Market	الله الله الله الله الله الله الله الل	MPPLE TEMP AT COLLECTION DF CONTRINERS To F CONTRINERS To Proserved ADD A COLLECTION ADD AD	(V/Y) entrotido (V/V)
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	ABDITIONAL COMMENTS	RELINCTION DATA AFFILIATION DAT	E TIME ACCRETED BY/ARRUNATION DATE	TIME SAMPLE CONDITIONS
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		Mollia Munder/ Creventer 9/20	in ross O'Muller Mare ' Rimin II	-lr
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1			08-36-2019	

- France -	Sam	ple Conc	lition l	Jpon Receip		· 2623705	-
Pace Analytical Cl	lient Name:	GA	-Bu	re/CR_	MUTT PM: BM CLIENT:	• ZOZJIUJ Due Date: 10 GAPower-CCR	0/04/
Courier: 1) Fed Ex 🗌 UPS 🗌]USPS 🗌 Client	Comm	nercial	Pace Other		Proj. Due Date: Proj. Name:	
Custody Seal on Cooler/Box Pre	esent: yes	🗌 nõ	Seals į	ntact: Ves	🗌 no		
Packing Material: Bubble Wi		Bags 🔲 I	None	Other			
Thermometer Used2	14	Type of Ice	: Wot	Blue None		es on ice, cooling process has be	egun
Cooler Temperature Temp should be above freezing to 6°C	ĎČ S	Biological	Tissue i	s Frozen: Yes No Comments:		ite and Initials of person exami contents:	ning
Chain of Custody Present:			D □N/A	1.			
Chain of Custody Filled Out:			5 □N/A	2.			
Chain of Custody Relinquished:	· · · · · · · · · · · · · · · · · · ·		5 □N/A	3.			
Sampler Name & Signature on Co			o ⊡n/A	4.		•	
Samples Arrived within Hold Time	Ð:		₀ □n/a	5.			
Short Hold Time Analysis (<72	nr):		0 🗆 N/A	6.			
Rush Turn Around Time Reque	ested:	🗆 Yes 🖾 N	o □n/A	7.			
Sufficient Volume:			o □n/a	8.		ŧ	
Correct Containers Used:			o □n/a	9.			
-Pace Containers Used:			lo □n/A				
Containers Intact:			lo 🗆 N/A	10.			
Filtered volume received for Diss	olved tests			11.			
Sample Labels match COC:			io 🗆 N/A	12.			
-Includes date/time/ID/Analys	is Matrix:	W					
All containers needing preservation ha	ve been checked.		ło ⊡n/A	13.			
All containers needing preservation a compliance with EPA recommendation	are found to be in on.	BYes DA	io ⊡n/A				
exceptions: VOA. coliform, TOC, O&G, V	VI-DRO (water)	🗆 Yes 🖬	No	Initial when completed	Lot #	t of added ervative	
Samples checked for dechlorinal	tion:			14.	I		
Headspace in VOA Vials (>6mn		□Yes □!	NO ENIA	15.			
Trip Blank Present:	<u></u>	□Yes □!		.16.			
Trip Blank Custody Seals Prese	nt	□Yes □I	No ⊠N/A	1		*	
Pace Trip Blank Lot # (if purchas	sed):						
Client Notification/ Resolution	:				Field	1 Data Required? Y /	
Person Contacted:			Date	/Time:			
Comments/ Resolution:						_	
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N.							$\downarrow \downarrow$
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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)

Page 14 of 14 F-ALLC003rev.3, 11September2006



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

October 07, 2019

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

RE: Project: Plant Hammond Pace Project No.: 2623750

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on September 30, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Batery Mr Damil

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

Enclosures






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

CERTIFICATIONS

Project: Plant Hammond Pace Project No.: 2623750

Atlanta Certification IDs

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

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174 Alaska DEC- CS/UST/LUST Alabama Certification #: 41320 Arizona Certification# AZ0819 Colorado Certification: FL NELAC Reciprocity Connecticut Certification #: PH-0216 Delaware Certification: FL NELAC Reciprocity Florida Certification #: E83079 Georgia Certification #: 955 Guam Certification: FL NELAC Reciprocity Hawaii Certification: FL NELAC Reciprocity Illinois Certification #: 200068 Indiana Certification: FL NELAC Reciprocity Kansas Certification #: E-10383 Kentucky Certification #: 90050 Louisiana Certification #: FL NELAC Reciprocity Louisiana Environmental Certificate #: 05007 Maryland Certification: #346 Michigan Certification #: 9911 Mississippi Certification: FL NELAC Reciprocity

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

Missouri Certification #: 236 Montana Certification #: Cert 0074 Nebraska Certification: NE-OS-28-14 New Hampshire Certification #: 2958 New Jersey Certification #: FL022 New York Certification #: 11608 North Carolina Environmental Certificate #: 667 North Carolina Certification #: 12710 North Dakota Certification #: R-216 Oklahoma Certification #: D9947 Pennsylvania Certification #: 68-00547 Puerto Rico Certification #: FL01264 South Carolina Certification: #96042001 Tennessee Certification #: TN02974 Texas Certification: FL NELAC Reciprocity US Virgin Islands Certification: FL NELAC Reciprocity Virginia Environmental Certification #: 460165 West Virginia Certification #: 9962C Wisconsin Certification #: 399079670 Wyoming (EPA Region 8): FL NELAC Reciprocity



SAMPLE SUMMARY

Project:Plant HammondPace Project No.:2623750

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623750001	MW-22	Water	09/27/19 10:55	09/30/19 12:39



SAMPLE ANALYTE COUNT

Project: Plant Hammond Pace Project No.: 2623750

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2623750001	MW-22	EPA 6010D	KLH	6	PASI-GA
		SM 2320B	S1A	2	PASI-GA
		SM 4500-P	JAD	1	PASI-GA
		SM 4500-S2 D	KN	1	PASI-GA
		SM 5310B	SA1	1	PASI-O



ANALYTICAL RESULTS

Project: P	Plant Hammond
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Pace Project No.: 2623750

Sample: MW-22	Lab ID:	2623750001	Collecte	d: 09/27/19	9 10:55	Received: 09/	30/19 12:39 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP	Analytical	Method: EPA	6010D Prep	aration Met	thod: Ef	PA 3010A			
Iron	0.66	mg/L	0.040	0.015	1	10/02/19 13:49	10/06/19 16:25	7439-89-6	
Magnesium	46.3	mg/L	0.050	0.011	1	10/02/19 13:49	10/06/19 16:25	7439-95-4	M1
Manganese	16.7	mg/L	0.040	0.0061	1	10/02/19 13:49	10/06/19 16:25	7439-96-5	M1
Phosphorus	0.054	mg/L	0.050	0.023	1	10/02/19 13:49	10/06/19 16:25	7723-14-0	
Potassium	1.0	mg/L	0.20	0.026	1	10/02/19 13:49	10/06/19 16:25	7440-09-7	
Sodium	15.0	mg/L	1.0	0.19	1	10/02/19 13:49	10/06/19 16:25	7440-23-5	M1
2320B Alkalinity	Analytical	Method: SM 2	320B						
Alkalinity, Bicarbonate (CaCO3)	93.0	mg/L	20.0	20.0	1		10/03/19 14:24		
Alkalinity, Total as CaCO3	93.0	mg/L	20.0	20.0	1		10/03/19 14:24		
4500PE Ortho Phosphorus	Analytical	Method: SM 4	500-P						
Orthophosphate as P	ND	mg/L	0.020	0.020	1		10/01/19 15:37		H3
4500S2D Sulfide Water	Analytical	Method: SM 4	500-S2 D						
Sulfide	ND	mg/L	0.20	0.20	1		10/03/19 13:49	18496-25-8	
5310B Dissolved Organic Carbon	Analytical	Method: SM 5	310B						
Dissolved Organic Carbon	ND	mg/L	1.0	0.50	1		10/04/19 09:43		



Project: F	Plant Hammond
------------	---------------

Pace Project No.: 2623750

Manganese

Phosphorus

Potassium

Potassium

Sodium

Sodium

QC Batch: 36332		Analysis Met	hod: EP	A 6010D		
QC Batch Method: EPA 3010A		Analysis Des	cription: 601	IOD MET		
Associated Lab Samples: 262375	0001					
METHOD BLANK: 164020		Matrix:	Water			
Associated Lab Samples: 262375	0001					
		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Iron	mg/L	ND	0.040	0.015	10/06/19 16:06	
Magnesium	mg/L	ND	0.050	0.011	10/06/19 16:06	
Manganese	mg/L	ND	0.040	0.0061	10/06/19 16:06	
Phosphorus	mg/L	ND	0.050	0.023	10/06/19 16:06	
Potassium	mg/L	ND	0.20	0.026	10/06/19 16:06	
Sodium	mg/L	ND	1.0	0.19	10/06/19 16:06	
LABORATORY CONTROL SAMPLE	: 164021					
		Spike	LCS	LCS S	% Rec	
Parameter	Units	Conc. F	Result %	Rec	Limits Qua	lifiers
Iron	mg/L	1	0.96	96	80-120	
Magnesium	ma/L	1	0.98	98	80-120	

0.96

1.0

1.0

1.0

2.3

16.8

80-120

80-120

80-120

80-120

96

102

103

101

2.2

16.3

122

184

113

131

75-125

75-125

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 164022 164023 MS MSD 2623750001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD RPD 1.7 75-125 Iron mg/L 0.66 1 1 1.7 105 100 3 Magnesium mg/L 46.3 1 1 50.2 48.4 389 209 75-125 4 Manganese 16.7 18.6 17.7 189 101 75-125 5 mg/L 1 1 Phosphorus 0.054 75-125 0 mg/L 1 1 1.1 1.1 109 109

1

1

1

1

1

1

1

1

mg/L

mg/L

mg/L

mg/L

1.0

15.0

mg/L

mg/L

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

REPORT OF LABORATORY ANALYSIS

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

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4 20

3

20 M1

20 M1

20 M1



Project: I	Plant Hammond							
Pace Project No.:	2623750							
QC Batch:	36366		Analysis M	lethod:	SM 2320B			
QC Batch Method:	SM 2320B		Analysis D	escription:	2320B Alkalini	ty		
Associated Lab Samp	oles: 26237500	01						
METHOD BLANK:	164227		Matri	ix: Water				
Associated Lab Samp	oles: 26237500	01						
			Blank	Reporting	J			
Parame	eter	Units	Result	Limit	MDL	Analyz	zed	Qualifiers
Alkalinity, Total as Ca	CO3	mg/L	N	D 2	0.0	20.0 10/03/19	11:56	
LABORATORY CON	TROL SAMPLE:	164228						
			Spike	LCS	LCS	% Rec		
Parame	eter	Units	Conc.	Result	% Rec	Limits	Qualifier	S
Alkalinity, Total as Ca	CO3	mg/L	100	96.0	96	85-115		
SAMPLE DUPLICATI	E: 164468							
_			2623706006	Dup		Max	_	
Parame	eter	Units	Result	Result	RPD	RPD	Qu	alifiers
Alkalinity, Total as Ca	CO3	mg/L	17	3 1	172	1	10	

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



Project:	Plant Hammond											
Pace Project No.:	2623750											
QC Batch:	36245		Anal	ysis Metho	d: 5	SM 4500-P						
QC Batch Method:	SM 4500-P		Analy	ysis Descri	iption: 4	4500PE Or	ho Phosph	norus				
Associated Lab Sar	mples: 26237500	01										
METHOD BLANK:	163688			Matrix: W	/ater							
Associated Lab Sar	mples: 26237500	01										
			Blai	nk	Reporting							
Parar	neter	Units	Res	ult	Limit	MD	L	Analyzec		ualifiers		
Orthophosphate as	Ρ	mg/L		ND	0.020	0	0.020 1	0/01/19 15	:34			
LABORATORY CO	NTROL SAMPLE:	163689										
			Spike	LC	S	LCS	% R	ec				
Parar	neter	Units	Conc.	Re	sult	% Rec	Lim	its	Qualifiers	_		
Orthophosphate as	Р	mg/L	0	.5	0.52	10	3	80-120				
MATRIX SPIKE & N	ATRIX SPIKE DUP	LICATE: 1636	90		163691							
			MS	MSD								
		2623750001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	r Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Orthophosphate as	P mg/L	ND	0.5	0.5	0.50	0.51	100	101	80-120	2	10	H3

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



Project:	Plant Hammond											
Pace Project No.:	2623750											
QC Batch:	36416		Analy	sis Metho	od: S	SM 4500-S2	2 D					
QC Batch Method:	SM 4500-S2 D		Analy	sis Desci	ription: 4	500S2D S	ulfide Wa	ter				
Associated Lab Sar	nples: 262375000)1										
METHOD BLANK:	164448			Matrix: V	Vater							
Associated Lab Sar	nples: 262375000)1										
			Blar	k	Reporting							
Parar	neter	Units	Resu	ult	Limit	MDI		Analyzed	Qi	ualifiers	5	
Sulfide		mg/L		ND	0.20)	0.20	10/03/19 13	:40			
LABORATORY CO	NTROL SAMPLE:	164449										
			Spike	L	CS	LCS	%	Rec				
Parar	neter	Units	Conc.	Re	esult	% Rec	Lir	nits	Qualifiers			
Sulfide		mg/L	0.	5	0.43	87	7	80-120				
MATRIX SPIKE & M	IATRIX SPIKE DUP	LICATE: 1644	50		164451							
			MS	MSD								
		2623698001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	r Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Sulfide	mg/L	ND	0.5	0.5	5 ND	ND	1	7 15	30-129		10	M1

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



Project:	Plant Hammond											
Pace Project No.:	2623750											
QC Batch:	575346		Analy	sis Metho	od:	SM 5310B						
QC Batch Method:	SM 5310B		Analy	/sis Descr	ription:	5310B Diss	olved Org	anic Carbo	n			
Associated Lab Sam	nples: 26237500	01										
METHOD BLANK:	3126906			Matrix: V	Vater							
Associated Lab Sam	nples: 26237500	01										
			Blar	nk	Reporting							
Param	neter	Units	Res	ult	Limit	MD	L	Analyzec	l Qi	ualifiers		
Dissolved Organic C	Carbon	mg/L		ND	1	.0	0.50 1	0/04/19 06	:33			
LABORATORY COM	TROL SAMPLE:	3126907										
_			Spike	L	CS	LCS	% F	Rec				
Param	neter	Units	Conc.	Re	sult	% Rec	Lin	nits	Qualifiers	_		
Dissolved Organic C	Carbon	mg/L	2	20	18.9	9	5	90-110				
MATRIX SPIKE & M	IATRIX SPIKE DUF	PLICATE: 3126	908		312690	9						
			MS	MSD								
_		2623752004	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	- ·
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Dissolved Organic C	arbon mg/L	. 1.8	20	20	21.1	20.9	97	96	80-120	1	20	

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



QUALIFIERS

Project: Plant Hammond Pace Project No.: 2623750

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-GA Pace Analytical Services - Atlanta, GA

PASI-O Pace Analytical Services - Ormond Beach

ANALYTE QUALIFIERS

- H3 Sample was received or analysis requested beyond the recognized method holding time.
- M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:Plant HammondPace Project No.:2623750

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623750001	MW-22	EPA 3010A	36332	EPA 6010D	36376
2623750001	MW-22	SM 2320B	36366		
2623750001	MW-22	SM 4500-P	36245		
2623750001	MW-22	SM 4500-S2 D	36416		
2623750001	MW-22	SM 5310B	575346		

Pace Analytical

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

Section A		Section B							Section	U E																	
Required	Client Information:	Required P	rojeci	t Informati	ion:				Invoic	e Info	matio									ſ		-	age		┛	ð	_
Company:	Georgia Power - Coal Combustion Residuals	Report To:	ġ	u Abraham					Atten	ë	scsim	roices@	Southe	mco.cc	Ē					Т							
Address:	2480 Maner Road	Copy To:	Lau	uren Petty,	Geosyntec				Comp	any Na	ë									┥							
Atlanta, G	A 30339								Addre	:ss										麣				IDIOT			
Email: j	abraham@southernco.com	Purchase O)rder #	: SCS	10382775				Pace	Quote:										-							
Phone:	(404)506-7239 Fax	Project Nam	ne:	Plant Ha	promm				Pace	Project	Manag	er:	betsy.r	nodani	el@pa	celabs	Ē						る原源	O H C	uopa.		
Requester	d Due Date: Structory TPT	Project #:	-	$\frac{1}{2}$	181				Pace	Profile	5 5	27 (AP	÷							_				Ş			
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Client Name	e: <u>G</u> (A	: /	ower		
		vial	Race Other		JO#:2623750
Tracking #:				-	M: BM Due Date: 10/07/19
Custody Seal on Cooler/Box Present:	; 🗌 no	Seals	intact: ves	C	LIENT: GAPower-CCR
Packing Material: 🔲 Bubble Wrap 🖉 Bubbl	e Bags 🛛 🗌 N	one (Other		
Thermometer Used 23	Type of Ice:	Wet	Blue None		Samples on ice, cooling process has begun
Cooler Temperature 2:9	Biological T	issue i	is Frozen: Yes Comments:	No	Date and initials of person examining contents: 9/30/19/14
Chain of Custody Present:			1.		
Chain of Custody Filled Out:			2.		
Chain of Custody Relinquished:	Bres ONO	□n/a	3.		
Sampler Name & Signature on COC:	 	□n/A	4.		
Samples Arrived within Hold Time:			5. Oretho	- P	out of hold.
Short Hold Time Analysis (<72hr):	Yes to	ON/A	6.		
Rush Turn Around Time Requested:		□n/A	7.		
Sufficient Volume:	-EYés ONO	□n/A	8.		
Correct Containers Used:	-EYes DNo	□n/A	9.		
-Pace Containers Used:	PYes ONo	On/A	<u> </u>		
Containers Intact:	Pres INO		10.		
Filtered volume received for Dissolved tests	PYes DNo		11.		
Sample Labels match COC:		□n/A	12.		
-Includes date/time/ID/Analysis Matrix:	W	•			
All containers needing preservation have been checked.	-EYes DNo	⊡n/A	13.		
All containers needing preservation are found to be in compliance with EPA recommendation.	Pres ONo	□n/a			
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	Yes No		Initial when completed		Lot # of added preservative
Samples checked for dechlorination:	□Yes □No	-EN/A	14.		
Headspace in VOA Vials (>6mm):	□Yes □No		15.		
Trip Blank Present:	□Yes □No		16.		
Trip Blank Custody Seals Present	□Yes □No				
Pace Trip Blank Lot # (if purchased):					
Client Notification/ Resolution:					Field Data Required? Y / N
Person Contacted:		_Date/	Time:		
Comments/ Resolution:					
<u> </u>					
Project Manager Revlew:					Date:

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



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

October 09, 2019

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

RE: Project: Plant Hammond AP GW6581 Pace Project No.: 2623792

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on October 01, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Batery Mr Damil

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





CERTIFICATIONS

Project: Plant Hammond AP GW6581 Pace Project No.: 2623792

Atlanta Certification IDs

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



SAMPLE SUMMARY

Project:Plant Hammond AP GW6581Pace Project No.:2623792

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623792001		Water	09/30/19 14:32	10/01/19 12:05



SAMPLE ANALYTE COUNT

Project:Plant Hammond AP GW6581Pace Project No.:2623792

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2623792001	PMW-04	EPA 6020B	CSW	2
		EPA 300.0	MWB	1



ANALYTICAL RESULTS

Project: Plant Hammond AP GW6581

Pace Project No.: 2623792

Sample: PMW-04	Lab ID:	2623792001	Collecte	d: 09/30/19	14:32	Received: 10/	01/19 12:05 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical I	Method: EPA 6	6020B Prep	aration Met	nod: EF	PA 3005A			
Boron	20.6	mg/L	2.0	0.25	50	10/03/19 17:28	10/07/19 14:30	7440-42-8	
Cobalt	ND	mg/L	0.0025	0.00030	1	10/03/19 17:28	10/05/19 16:51	7440-48-4	
300.0 IC Anions 28 Days	Analytical I	Method: EPA 3	300.0						
Sulfate	880	mg/L	100	1.7	100		10/09/19 00:46	14808-79-8	



QUALITY CONTROL DATA

Project:	Plant I	-lammond Al	P GW6581									
Pace Project No.:	26237	92										
QC Batch:	3643	4		Anal	ysis Meth	od: I	EPA 6020B					
QC Batch Method:	EPA	3005A		Anal	ysis Desc	ription:	6020B ME1	Г				
Associated Lab Sar	nples:	26237920	01									
METHOD BLANK:	16454	7			Matrix:	Water						
Associated Lab Sar	nples:	26237920	01									
				Bla	nk	Reporting						
Parameter Uni			Units	Res	sult	Limit	MD	L	Analyze	d Q	ualifiers	;
Boron			mg/L		ND	0.04	0	0.0049	10/05/19 14	4:53		
Cobalt			mg/L		ND	0.002	5 0	.00030	10/05/19 14	4:53		
LABORATORY CO	NTROL	SAMPLE:	164548									
				Spike	L	CS	LCS	%	Rec			
Parar	neter		Units	Conc.	R	esult	% Rec	Lir	nits	Qualifiers		
Boron			mg/L		1	1.0	10	4	80-120			
Cobalt			mg/L	0	.1	0.099	9	9	80-120			
MATRIX SPIKE & N	IATRIX	SPIKE DUP	LICATE: 1645	49		164550						
				MS	MSD							
			2623793002	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max
Paramete	r	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD
Boron		mg/L	0.025J	1		1 1.1	1.0	10	3 10	0 75-125	, 4	20
Cobalt		mg/L	0.00042J	0.1	0.1	1 0.10	0.097	10	29	6 75-125	, 6	; 20

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

REPORT OF LABORATORY ANALYSIS

Qual



Project:	Plant Hammond A	P GW6581										
Pace Project No.:	2623792											
QC Batch:	36584		Anal	ysis Metho	d:	EPA 300.0						
QC Batch Method:	EPA 300.0		Analysis Description:		ption:	300.0 IC Ani	ions					
Associated Lab Sar	mples: 26237920	01										
METHOD BLANK:	165271			Matrix: W	ater							
Associated Lab Sar	nples: 26237920	01										
			Bla	nk	Reporting							
Parar	neter	Units	Res	ult	Limit	MDI	L	Analyzed	Qu	alifiers		
Sulfate		mg/L		ND	1.	.0	0.017 10)/09/19 00:()4			
LABORATORY CO	NTROL SAMPLE:	165272										
_			Spike	LC	S	LCS	% R	ec				
Parar	neter	Units	Conc.	Res	sult	% Rec	Limi	ts (Qualifiers	_		
Sulfate		mg/L		10	10.4	104	4 9	90-110				
MATRIX SPIKE & N	ATRIX SPIKE DUF	PLICATE: 1652	73		165274							
			MS	MSD								
		2623792001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	r Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Sulfate	mg/L	. 880	1000	1000	1860	1860	98	98	90-110	0	15	
MATRIX SPIKE SA	MPLE:	165275										
			2623	793001	Spike	MS		MS	% Rec			
Parar	neter	Units	Re	esult	Conc.	Result	%	Rec	Limits		Qualif	iers
Sulfate		mg/L		17.5	10	2	26.4	89	90	-110 M	1	

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



QUALIFIERS

Project: Plant Hammond AP GW6581

Pace Project No.: 2623792

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

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



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:Plant Hammond AP GW6581Pace Project No.:2623792

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623792001	PMW-04	EPA 3005A	36434	EPA 6020B	36455
2623792001	PMW-04	EPA 300.0	36584		

Face Analytical

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

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PRINT Name of SAMPLER: No.01 NU	2623792		
	2623792	PRINT NAMO OL SAMPLER. MOCK, MUS KUS) וו שני שני שני שני שני שני שני שני שני שני
		SIGNATURE OF SAMPLER: C DU LLC N MULLON DATE Signed: 9/30 1/9	TEM TEM Cust Cost Cost Cost Cost Cost Cost Cost Co

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Custody Seal on Cooler/Box Present: Uses	🗌 no Śejals i	ntact: 🗗 yes 🗌] no 🗋		
Packing Material: EtBubble Wrap	e Baos 🗌 Nomé 🗍	Other			
	Type of Ice: Wet	Blue None	Samples on	- ice, cooling process has be	egun
	Biological Tissue is	s Frozen: Yes No	Date an	d Initials of person exami	ining
Temp should be above freezing to 6°C		Comments:	contei	nts: <u>[[]][[] 4 (]</u>]	4
Chain of Custody Present:		1.			
Chain of Custody Filled Out:		2.			
Chain of Custody Relinquished:		3.			
Sampler Name & Signature on COC:		4.			
Samples Arrived within Hold Time:		5.			
Short Hold Time Analysis (<72hr):		6.			
Rush Turn Around Time Requested:		7.			
Sufficient Volume:		8.		4	
Correct Containers Used:		9.			
-Pace Containers Used		•			
Containers Intact:		10			
Filtered volume received for Dissolved tests		11		<u>,</u>	
Sample Labels match COC:		12			
-Includes date/time/ID/Analysis Matrix	$\overline{\lambda}$				
All containers needing preservation have been checked.		13			
All containers needing preservation are found to be in		15.			
compliance with EPA recommendation.	Dres 🛛 No 🖾 N/A				
		Initial when completed	Lot # of add	ded e	
Samples checked for dechlorination:		14			
Headspace in VOA Vials (>6mm):		15			++
Trin Blank Present:		16	· · · · · · · · · · · · · · · · · · ·		
Trip Blank Fresent.		10.			
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Client Notification/ Resolution:			Field Data	Required? Y /	N
Person Contacted:	Date/	Time:			
Comments/ Resolution:		· · · ·			+ +
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Project Manager Review				te:	
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Pace Analytical Services, LLC 110 Technology Parkway Peachtree Corners, GA 30092 (770)734-4200

October 15, 2019

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

RE: Project: Plant Hammond AP GW6581 Pace Project No.: 2623869

Dear Joju Abraham:

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

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

Sincerely,

Batery Mr Damil

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

Enclosures

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





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

CERTIFICATIONS

Project: Plant Hammond AP GW6581

Pace Project No.: 2623869

Atlanta Certification IDs

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

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

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



SAMPLE SUMMARY

Project:Plant Hammond AP GW6581Pace Project No.:2623869

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2623869001	PMW-03	Water	10/01/19 09:04	10/02/19 13:52



SAMPLE ANALYTE COUNT

Project:Plant Hammond AP GW6581Pace Project No.:2623869

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory	
2623869001	PMW-03	EPA 6020B	CSW	2	PASI-GA	
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A	



ANALYTICAL RESULTS

Project: Plant Hammond AP GW6581

Pace Project No.: 2623869

Sample: PMW-03	Lab ID:	2623869001	Collecte	d: 10/01/19	09:04	Received: 10/	02/19 13:52 Ma	trix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical I	Method: EPA 6	6020B Prep	aration Met	hod: EF	PA 3005A			
Boron	2.8	mg/L	0.040	0.0049	1	10/04/19 14:03	10/07/19 19:16	7440-42-8	
Cobalt	0.053	mg/L	0.0025	0.00030	1	10/04/19 14:03	10/07/19 19:16	7440-48-4	
300.0 IC Anions 28 Days	Analytical I	Method: EPA 3	300.0 Rev 2.	.1 1993					
Sulfate	420	mg/L	14.0	7.0	14		10/13/19 10:30	14808-79-8	



Project:	Plant Hammond AP GW6581

Pace Project No.: 26	523869											
QC Batch:	36492		Anal	ysis Metho	od: E	PA 6020B						
QC Batch Method:	EPA 3005A		Anal	ysis Desci	ription: 6	020B MET						
Associated Lab Sample	es: 262386900	1										
METHOD BLANK: 16	64870			Matrix: V	Vater							
Associated Lab Sample	es: 262386900	1										
			Bla	nk	Reporting							
Paramete	er	Units	Res	ult	Limit	MD	L	Analyzed	Qu	ualifiers		
Boron		mg/L		ND	0.040) (0.0049 [°]	10/07/19 17	:47			
Cobalt		mg/L		ND	0.0025	5 O.	00030	10/07/19 17	:47			
LABORATORY CONT	ROL SAMPLE:	164871										
			Spike	L	CS	LCS	% F	Rec				
Paramete	er	Units	Conc.	Re	esult	% Rec	Lin	nits	Qualifiers			
Boron		mg/L		1	1.0	10	1	80-120				
Cobalt		mg/L	0	.1	0.10	10	0	80-120				
MATRIX SPIKE & MAT	RIX SPIKE DUPL	ICATE: 1648	72		164873							
			MS	MSD								
_		2623808004	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Boron	mg/L	0.048	1	1	1.0	1.0	99	9 99	75-125	0	20	
Cobalt	mg/L	0.00049J	0.1	0.1	0.095	0.10	94	1 99	75-125	5	20	

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



Project:	Plant Hammond A	P GW6581										
Pace Project No.:	2623869											
QC Batch:	503241		Analy	/sis Method	d:	EPA 300.0 I	Rev 2.1 19	93				
QC Batch Method:	EPA 300.0 Rev 2	2.1 1993	Analy	/sis Descrip	ption:	300.0 IC An	ions					
Associated Lab Sar	mples: 26238690	01										
METHOD BLANK:	2705166			Matrix: Wa	ater							
Associated Lab Sar	mples: 26238690	01										
			Blar	nk I	Reporting							
Para	neter	Units	Res	ult	Limit	MD	L	Analyzed	Qı	ualifiers		
Sulfate		mg/L		ND	1.	0	0.50 1	0/12/19 15::	31			
LABORATORY CO	NTROL SAMPLE:	2705167										
			Spike	LC	S	LCS	% R	ec				
Para	neter	Units	Conc.	Res	sult	% Rec	Lim	its C	Qualifiers	_		
Sulfate		mg/L	5	50	50.3	10	1	90-110				
MATRIX SPIKE & M	ATRIX SPIKE DUF	PLICATE: 2705	168		2705169)						
			MS	MSD								
		2624007001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	r Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Sulfate	mg/L	13.6	50	50	62.1	58.4	97	90	90-110	6	10	
MATRIX SPIKE & M	ATRIX SPIKE DUF	LICATE: 2705	5170		2705171							
			MS	MSD								
		92449004022	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Paramete	r Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Sulfate	mg/L	466	50	50	501	506	70	79	90-110	1	10	M6

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



QUALIFIERS

Project: Plant Hammond AP GW6581

Pace Project No.: 2623869

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-A Pace Analytical Services - Asheville

PASI-GA Pace Analytical Services - Atlanta, GA

ANALYTE QUALIFIERS

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



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:Plant Hammond AP GW6581Pace Project No.:2623869

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2623869001	PMW-03	EPA 3005A	36492	EPA 6020B	36507
2623869001	PMW-03	EPA 300.0 Rev 2.1 1993	503241		

Pace Analytical

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

Section A		Section B	Section C	
Required (client Information:	Required Project Information:	Invoice Information:	Page: \ Of \
Company:	Georgia Power - Coal Combustion Residuals	Report To: Joju Abraham	Attention: scsinvoices@southernco.com	
Address:	2480 Maner Road	Copy To: Lauren Petty, Geosyntec	Company Name:	ĩ
Atlanta, GA	30339		Address:	Regulatory/Agency
Email: jat	braham@southernco.com	Purchase Order #: SCS10382775	Pace Quote:	
Phone:	(404)506-7239 Fax:	Project Name: Plant Hammond	Pace Project Manager: betsv.mcdaniel@pacelabs.com	Bear Ar Scittlen
Requested	Due Date: Stundard TA	Project #: GW650 \	Pace Profile #: 327 (AP)	GA
ŀ				Filtered (YAO)
	MATRIX	COLLECTED S to left)	Preservatives	
	SAMPLE ID Sourced	ັ້້ ເອີດອາຊາຍ ເອີດອາຊາ ເອີດອາຊາຍ ເອີດອາຊາຍ ເອີດອາຊາ ເອີດອາຊາຍ ເອີດອາຊາ ເອີດອາຊາຍ ເອີດອາຊາຍ ເອີດອາຊາຍ ເອີດອາຊາ ເອີດອາຊາ ເອີດອາຊາ ເອີດອາຊາ ເອີດອາຊາ ເອີດອາຊາ ເອີດອາຊາ ເອີດອາຊາ ເອີດອາຊາ ເອີດອາຊາ ເອີດອາຊາ ເອີດອາຊາ ເອີດອາຊາ ເອີດອາຊາ ເອີດອາຊາ ເອີດອາ ເອີດອາຊາ ເອີດອາຊາ ເອີດອາຊາ ເອີດອາຊາ ເອີອາ ເອີດອາ ເອີດອາ ເອີອາ ເອີອາ ເອີດອາ ເອີອາ	1984 1984 Stanson	(N/A) 81
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Tracking #:	/		Proj. Due Date: Proj. Name	
Custody Seal on Cooler/Box Present: Uyes	🗌 no Seals	intact: 🛛 yes 🗌	no	
Packing Material: Bubble Wrap Bubble	Bags I None [Other		
Thermometer Used <u>214</u>	Type of Ice: Wer	Blue None	Samples on ice, cooling process has beg	un
Cooler Temperature	Biological Tissue	is Frozen : Yes No	Date and Initials of person examini contents:	ng L
Temp should be above freezing to 6°C		Comments:		-
Chain of Custody Present:		1		
Chain of Custody Filled Out:		2		
Chain of Custody Relinquished:	Pres INO IN/A	3		<u>_</u>
Sampler Name & Signature on COC:		4.		+
Samples Arrived within Hold Time:		5.		<u></u>
Short Hold Time Analysis (<72hr):		6.		
Rush Turn Around Time Requested:		7		
Sufficient Volume:		8		+
Correct Containers Used:		9.		
-Pace Containers Used:			······································	┼──╫
Containers Intact:		10.		╉━╋
Filtered volume received for Dissolved tests		11.		+
Sample Labels match COC:		12.		
All containers needing preservation have been checked.		12	· · · · · · · · · · · · · · · · · · ·	++1
All containers needing preservation are found to be in		13.		
compliance with EPA recommendation.				
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	□Yes ØNo	Initial when completed	Lot # of added preservative	
Samples checked for dechlorination:		14.		
Headspace in VOA Vials (>6mm):		15.		
Trip Blank Present:		16.		
Trip Blank Custody Seals Present	□Yes □No ØN/A			
Pace Trip Blank Lot # (if purchased):	-			
Client Notification/ Resolution:		· · · · · ·	Field Data Required? Y / N	
Person Contacted:	Date/	Time:		
Comments/ Resolution:				
			·/ ··· ··· ··· ··· ··· ··· ··· ··· ···	<u> </u>
				
Project Manager Review:			Date:	
Note: whenever there is a discrepancy affecting North C Certification Office (i.e. out of hold, incorrect preservative	arolina compliance san e, out of temp, incorrect	ples, a copy of this form wi containers)	I be sent to the North Carolina DEHNR	

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