

Georgia Power Company

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2020 ANNUAL GROUNDWATER MONITORING & CORRECTIVE ACTION REPORT

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

Prepared by



engineers | scientists | innovators

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Project Number GW6581



CERTIFICATION STATEMENT

This 2020 Annual Groundwater Monitoring & Corrective Action Report, Georgia Power Company - Plant Hammond – Ash Pond 4 (AP-4) has been prepared in compliance with the United States Environmental Protection Agency coal combustion residual rule [40 Code of Federal Regulations (CFR) 257 Subpart D] and the Georgia Environmental Protection Division Rules for Solid Waste Management 391-3-4-.10 by a qualified groundwater scientist or engineer with Geosyntec Consultants.



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July 31, 2020

Date



TABLE OF CONTENTS

1.0	INT	RODUCTION	1
	1.1	Site Description and Background	2
	1.2	Regional Geology & Hydrogeologic Setting	2
		1.2.1 Regional and Site Geology	2
		1.2.2 Hydrogeologic Setting	3
	1.3	Groundwater Monitoring Well Network	3
2.0	GRO	OUNDWATER MONITORING ACTIVITIES	5
	2.1	Monitoring Well Installation and Maintenance	5
	2.2	Assessment Monitoring	5
3.0	SAN	MPLING METHODOLOGY & ANALYSES	7
	3.1	Groundwater Level Measurement	7
	3.2	Groundwater Gradient and Flow Velocity	7
	3.3	Groundwater Sampling Procedures	9
	3.4	Laboratory Analyses	9
	3.5	Quality Assurance & Quality Control Summary	10
4.0	STA	ATISTICAL ANALYSIS	11
	4.1	Statistical Methods	11
		4.1.1 Appendix III Statistical Methods	11
		4.1.2 Appendix IV Statistical Methods	12
	4.2	Statistical Analyses Results	12
5.0	MO	NITORING PROGRAM STATUS	14
6.0	COl	NCLUSIONS & FUTURE ACTIONS	15
7.0	REF	FERENCES	16



LIST OF TABLES

Table 1	Monitoring Well Network Summary
Table 2	Groundwater Sampling Event Summary
Table 3	Summary of Groundwater Elevations
Table 4	Groundwater Gradient and Flow Velocity Calculations
Table 5	Summary of Groundwater Analytical Data
Table 6	Summary of Background Concentrations and Groundwater Protection
	Standards – October 2019 and March 2020 Events

LIST OF FIGURES

Figure 1	Site Location Map
Figure 2	Monitoring Well Network Map
Figure 3	Potentiometric Surface Contour Map – August 2019
Figure 4	Potentiometric Surface Contour Map – October 2019
Figure 5	Potentiometric Surface Contour Map – March 2020

LIST OF APPENDICES

Appendix A	Well Inspection Forms
Appendix B1	Certified Survey Data
Appendix B2	Updated Boring and Well Construction Logs
Appendix C	Laboratory Analytical and Field Sampling Reports
Appendix D	Statistical Analyses



LIST OF ACRONYMS

AP ash pond

CCR coal combustion residuals
CFR Code of Federal Regulations

cm/sec centimeters per second DO dissolved oxygen

ft MSL feet above mean sea level

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

GA EPD Georgia Environmental Protection Division

GCL geosynthetic clay liner GPC Georgia Power Company

GWPS Groundwater Protection Standard
HAR Hydrogeologic Assessment Report
Kh horizontal hydraulic conductivity

mg/L milligram per liter
NAD North American Datum

NAVD North American Vertical Datum

NELAP National Environmental Laboratory Accreditation Program

NTU Nephelometric turbidity units
Pace Analytical Pace Analytical Services, LLC.

PL prediction limit

QA/QC Quality Assurance/Quality Control

SCS Southern Company Services
SSI statistically significant increase
SSL statistically significant level

s.u. standard unit

TDS total dissolved solids

USEPA United States Environmental Protection Agency

1.0 INTRODUCTION

In accordance with the Georgia Environmental Protection Division (GA EPD) Rules for Solid Waste Management 391-3-4-.10, Geosyntec Consultants (Geosyntec) has prepared this 2020 Annual Groundwater Monitoring & Corrective Action Report to document groundwater monitoring activities conducted at Georgia Power Company (GPC) Plant Hammond (Site) Ash Pond 4 (AP-4) for the reporting period of August 2019 through July 2020.

Groundwater monitoring and reporting for the CCR unit is performed in accordance with the monitoring requirements of the GA EPD Rules for Solid Waste Management 391-3-4-.10(6), but also in accordance with the United States Environmental Protection Agency (USEPA) coal combustion residual (CCR) rule [40 Code of Federal Regulations (CFR) Part 257, Subpart D], specifically § 257.90 through 257.95 of the Federal CCR rule. To specify groundwater monitoring requirements, GA EPD rule 391-3-4-.10(6)(a) incorporates by reference the USEPA CCR Rule. For ease of reference, the USEPA CCR rules are cited within this report.

AP-4 was closed in 2012; therefore, AP-4 is not subject to the Federal monitoring requirements. A permit application for AP-4 was submitted to GA EPD in November 2018 and is currently under review. Groundwater monitoring has been initiated in order to meet the GA EPD CCR requirements.

Due to statistically significant increases (SSIs) of Appendix III constituents identified in the 2019 Annual Groundwater Monitoring and Corrective Action Report (Geosyntec, 2019a), GPC initiated an assessment monitoring program for AP-4 in August 2019. Pursuant to § 257.95(b), samples were collected from the compliance monitoring well network in August 2019, within 90 days of initiating the assessment monitoring program. The samples were analyzed for the complete list of Appendix IV constituents. Pursuant to § 257.95(d)(1), the AP-4 compliance wells were resampled semiannually in October 2019 and March 2020. The groundwater samples collected during these events were analyzed for Appendix III constituents and the Appendix IV constituents detected during the August 2019 event. This report includes the results of the initial annual monitoring event conducted in August 2019 and the subsequent semiannual assessment monitoring events conducted in October 2019 and March 2020.

1

1.1 Site Description and Background

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

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

AP-4 was commissioned in 1986 as a surface impoundment with a corresponding surface area of approximately 54 acres. Dry ash stacking operations in AP-4 began in 1994 and continued until 2010; AP-4 received both fly ash and bottom ash during this period. AP-4 was capped in place in 2011-2012 in accordance with the GA EPD regulations regarding landfill closures. AP-4 was graded, engineered with drainage, and capped with a geosynthetic clay liner (GCL) and soil cover.

1.2 Regional Geology & Hydrogeologic Setting

The following section summarizes the geologic and hydrogeologic conditions at AP-4 as described in the *Hydrogeologic Assessment Report Revision 01 – Ash Pond 4* (HAR Rev 01) submitted to GA EPD under separate cover in support of the AP-4 closure permit application (Geosyntec, 2020c).

1.2.1 Regional and Site Geology

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

2

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

1.2.2 Hydrogeologic Setting

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

1.3 **Groundwater Monitoring Well Network**

In accordance with § 257.91, a groundwater monitoring system was installed at AP-4 that (1) consists of a sufficient number of wells, (2) is installed at appropriate locations and depths to yield groundwater samples from the uppermost aquifer, and (3) represents the groundwater quality both upgradient of the units (i.e., background conditions) and passing the waste boundary of the units. The number, spacing, and depths of the groundwater monitoring wells were selected based on the characterization of site-specific hydrogeologic conditions.

The compliance monitoring well network for AP-4 consists of eleven monitoring wells. A network of piezometers has been installed at the Site that are used to gauge water levels to define groundwater flow direction and gradients. The locations of the compliance



monitoring well network and piezometers associated with AP-4 are shown on **Figure 2**; well construction details are listed in **Table 1**.

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

2.0 GROUNDWATER MONITORING ACTIVITIES

In accordance with § 257.90(e), the following describes groundwater monitoring-related activities performed for AP-4 during annual period between August 2019 and July 2020. All groundwater sampling was performed in accordance with § 257.93.

2.1 Monitoring Well Installation and Maintenance

The well and piezometer networks are inspected during each groundwater monitoring event using GA EPD-based inspection criteria. Any issues identified with the wells (e.g., clogged weep holes within the outer protective casing, faded well identification signage, rusted locks and/or latches, etc.) are addressed before the subsequent groundwater sampling event. The well inspection forms for the August and October 2019, and March 2020 events are provided in **Appendix A**.

The AP-4 monitoring well network was re-surveyed by GEL Solutions in May 4-6, 2020. The top of the PVC well casing [top of casing (TOC) elevation] and the survey pin installed at each well pad were surveyed to within 0.5-foot horizontal accuracy and to 0.01-foot vertical accuracy. The horizontal location (i.e., northings and eastings) was recorded in feet relative to the North America Datum of 1983 (NAD) with the vertical elevation recorded in feet relative to the North American Vertical Datum (NAVD) of 1988. The new survey data are incorporated into this report's applicable tables; a copy of the well survey data certified by a Georgia-licensed surveyor is provided in **Appendix B1**. Included in **Appendix B2** are revised AP-4 boring and well construction logs that incorporate the new survey data. The revised set of logs include the wells listed on Table 1 of this annual report.

In addition to completing routine maintenance of the well network during the reporting period, SCS Civil Field Services (CFS) installed dedicated QED bladder pumps in wells HGWA-111, HGWA-112, HGWA-113, HGWC-101, HGWC-103, HGWC-105, HGWC-107, HGWC-109, HGWC-117, and HGWC-118 in September 2019.

2.2 Assessment Monitoring

In response to identified SSIs of Appendix III constituents during the first detection monitoring event conducted in April 2019, GPC initiated an assessment monitoring program for groundwater at AP-4 in August 2019. An Assessment Monitoring Program Notification was prepared for AP-4 on November 13, 2019, pursuant to § 257.94(e)(3) and placed in the Operating Record as required by § 257.105(h)(5).

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Pursuant to § 257.95(b), samples were collected from the compliance monitoring well network (**Figure 2**) within 90 days of initiating the assessment monitoring program; the event was conducted in August 2019. The collected samples were analyzed for the complete list of Appendix IV constituents. The compliance well network was subsequently resampled in October 2019 and March 2020. The samples from the semiannual events were analyzed for Appendix III constituents and the following Appendix IV constituents detected during the August 2019 event: arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, and combined radium 226/228. Laboratory and field data reports for the August 2019, October 2019, and March 2020 monitoring events are included in **Appendix C**. The number of AP-4 groundwater samples collected for analysis and the sample collection dates are summarized in **Table 2**.

Pursuant to § 257.94(b), eight independent groundwater samples (i.e., background monitoring events) should be collected from new compliance well HGWC-102 to statistically establish background conditions in the wells. Five of the eight sampling events were completed since August 2019 and statistics were run using the abbreviated background dataset; the date of these events is provided in **Table 2**. For each event, the samples are analyzed for the complete list of Appendix III and Appendix IV constituents. The background sampling events are anticipated to conclude in September 2020.

3.0 SAMPLING METHODOLOGY & ANALYSES

The following section presents a summary of the field sampling procedures that were implemented in connection with the assessment monitoring program conducted at AP-4 during the reporting period.

3.1 Groundwater Level Measurement

Prior to each sampling event, a synoptic round of depth-to-groundwater level measurements were recorded from the AP-4 wells and piezometers and used to calculate the groundwater elevations. The calculated groundwater elevations for the August 2019, October 2019, and March 2020 sampling events are presented in **Table 3**. The May 2020 survey data was used to calculate the groundwater elevations for the March 2020 event, but not the two prior events. The August 2019 and October 2019 groundwater elevations were calculated using the prior survey data and previously submitted to GA EPD in March 2020 as part of the 2019 semiannual report (Geosyntec, 2020a). The March 2020 elevations reported using the new survey data are generally representative of the groundwater elevations reported for prior monitoring events.

The groundwater elevation data were used to prepare potentiometric surface contour maps for the August 2019, October 2019, and March 2020 events, which are presented on **Figures 3**, **4**, and **5** respectively. Groundwater in the AP-4 area flows under the influence of topography from slightly higher ground surface elevations on the northern side of AP-4 towards lower elevations to the south of AP-4 along the Coosa River.

3.2 Groundwater Gradient and Flow Velocity

The representative groundwater hydraulic gradients within the uppermost aquifer beneath AP-4 were calculated using the August, October 2019, and March 2020 groundwater elevation data. The hydraulic gradient is commonly calculated along the groundwater flow path perpendicular to contours of equal hydraulic head using elevations of two equipotential lines. However, at the request of GA EPD, the hydraulic gradients in this report have been calculated between upgradient and downgradient wells selected to provide the most accurate alignment possible relative to the interpreted groundwater flow path. Given the surface area covered by AP-4, hydraulic gradients were calculated along the eastern, central, and western portions of the unit. The well pairs correlating to these flow areas are, respectively: GWA-14 and HGWC-118; HGWA-113 and HGWC-103; HGWA-111 and HGWC-107. **Table 4** provides the calculated hydraulic gradients. The calculated gradients from the three portions were averaged for each sampling event and

then averaged for the reporting period to provide a representative gradient of 0.016 feet per foot (ft/ft) across AP-4.

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

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

where:

$$V = ext{Groundwater flow velocity} \left(rac{feet}{day}
ight)$$
 $K = ext{Average hydraulic conductivity} \left(rac{feet}{day}
ight)$
 $i = ext{Horizontal hydraulic gradient} \left(rac{feet}{feet}
ight)$
 $n_e = ext{Effective porosity}$

Aquifer testing was conducted by Southern Company Services (SCS) in 2013 to evaluate hydraulic conditions in the vicinity of AP-4. Results of these field events are discussed in detail in the HAR Rev 01. Horizontal hydraulic conductivity (K_h) was estimated for units above the top of bedrock by performing slug tests. The tests were conducted at wells screened in the terrace alluvium or colluvial material; a geometric mean for K_h of 5.86 x 10⁻⁴ centimeters per second (cm/sec) [1.67 feet per day (ft/day)] was calculated from the slug test data for the two units. Since majority of the wells are screened in either alluvial or alluvial/colluvial materials, no hydraulic conductivity testing was conducted on the residuum, weathered shale, or unweathered shale.

The groundwater flow velocity calculation is performed using the geometric mean for K_h of 1.67 ft/day. An estimated effective porosity of 0.15 is used to represent average conditions for the silty clay alluvium/colluvium, derived based on review of literature, observed site lithology, and professional judgement. With these variables determined, and accounting for the representative hydraulic gradient discussed above, the representative groundwater flow velocity underneath AP-4 was calculated to be 0.18 ft/day for the reporting period.

3.3 **Groundwater Sampling Procedures**

Groundwater samples were collected from the compliance monitoring network using low-flow sampling procedures in accordance with § 257.93(a). For the August 2019 event, the wells were purged and sampled using a peristaltic pump equipped with new disposable polyethylene tubing. For the October 2019 and March 2020 event, a dedicated bladder pump equipped with dedicated tubing was used to sample the compliance wells, except for newly reclassified well HGWC-102, which was sampled using a peristaltic pump. All non-disposable equipment was decontaminated before use and between well locations.

A SmarTroll (In-Situ field instrument) was used to monitor and record field water quality parameters listed below during well purging to verify stabilization prior to sampling. Turbidity was measured using a LaMotte 2020we® portable turbidimeter. Groundwater samples were collected when the following stabilization criteria were met:

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

Following purging, and once stabilization was achieved, samples were collected into appropriately preserved laboratory-supplied sample containers. Sample bottles were placed in ice-packed coolers and submitted to Pace Analytical Services, LLC. in Norcross, Georgia following chain-of-custody protocol. The field sampling forms generated during the monitoring events conducted in August 2019, October 2019, and March 2020, as well as forms from additional baseline sampling events for HGWC-102, are provided in **Appendix C**.

3.4 Laboratory Analyses

Laboratory analyses were performed by Pace Analytical Services, LLC. (Pace Analytical), which is accredited by the National Environmental Laboratory Accreditation Program (NELAP). Pace Analytical maintains a NELAP certification for the Appendix III and Appendix IV constituents analyzed for this project. Analytical methods used for

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groundwater sample analysis are listed in the analytical laboratory reports included in **Appendix C.**

The groundwater analytical results from the August 2019, October 2019, March 2020 sampling events, and additional background sampling events for HGWC-102, are summarized in **Table 5**. The associated Pace Analytical laboratory reports are provided in **Appendix C**.

3.5 Quality Assurance & Quality Control Summary

Quality assurance/quality control (QA/QC) samples were collected during the groundwater monitoring events and included the following: field duplicates, equipment blanks, and field blank samples. QA/QC samples were collected in laboratory-provided bottles and submitted under the same chain of custody as the primary samples for analysis of the same constituents by Pace Analytical.

In addition to collecting QA/QC samples, the data were validated based on the pertinent methods referenced in the laboratory reports, professional and technical judgment and applicable federal guidance documents (USEPA, 2001, 2011, and 2017). The associated data validation report is provided in **Appendix C** with the laboratory reports.

4.0 STATISTICAL ANALYSIS

The following section summarizes the statistical analysis of Appendix III groundwater monitoring data performed pursuant to § 257.93. In addition, pursuant to § 257.95(d)(2), GPC established groundwater protection standards (GWPS) for the Appendix IV monitoring constituents and completed statistical analyses of the Appendix IV groundwater monitoring data obtained during the assessment monitoring events. Reports generated from the analyses are provide in **Appendix D**. The October 2019 data were analyzed by Geosyntec (Geosyntec, 2020b) and the March 2020 data analyzed by Groundwater Stats Consulting (GSC) (GSC, 2020).

4.1 Statistical Methods

Analytical data from the October 2019 and March 2020 semiannual monitoring events were statistically analyzed in accordance with the PE-certified Statistical Analysis Method Certification (October 2017, revised January 2020). The Sanitas groundwater statistical software was used to perform the statistical analyses. Sanitas is a decision-support software package, that incorporates the statistical tests required of Subtitle C and D facilities by USEPA regulations and guidance as recommended in the USEPA document *Statistical Analysis of Groundwater Data at RCRA Facilities Unified Guidance* (Unified Guidance) (USEPA, 2009).

Appendix III statistical analysis was performed to determine if Appendix III constituents have returned to background levels. Appendix IV assessment monitoring constituents were evaluated to determine if concentrations statistically exceeded the established state and federal GWPS. Detailed statistical methods used for Appendix III and Appendix IV constituents are discussed in statistical analysis packages provided in **Appendix D** and summarized in Sections 4.1.1 and 4.1.2. The GWPS were finalized pursuant to § 257.95(d)(2) and presented in **Table 6**.

4.1.1 Appendix III Statistical Methods

Based on guidance from GA EPD, statistical tests used to evaluate the groundwater monitoring data consist of interwell prediction limits combined with a 1-of-2 verification resample plan for each of the Appendix III constituents. Interwell prediction limits (PLs) are constructed pooling upgradient well data from wells HGWA-111, HGWA-112, and HGWA-113 to establish a background limit for an individual constituent. The most recent sample from each downgradient well is compared to the background limit to determine whether there are SSIs. An "initial exceedance" occurs when an Appendix III

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constituent reported in the groundwater of a downgradient compliance monitoring well exceeds the constituent's associated PL. The 1-of-2 resample plan allows for collection of an independent resample. A confirmed exceedance is noted only when the resample confirms the initial exceedance by also exceeding the statistical limit. If the resample falls within its respective prediction limit, no exceedance is declared.

4.1.2 Appendix IV Statistical Methods

To statistically compare groundwater data to GWPS, confidence intervals are constructed for each of the detected Appendix IV constituents in each downgradient compliance monitoring well. Those confidence intervals are compared to the state GWPS. Only when the entire confidence interval is above a GWPS is the well/constituent pair considered to exceed its GWPS. If a confidence interval exceeds a GWPS, a statistically significant level (SSL) exceedance is identified.

As described in the GA EPD CCR Rule, the GWPS is:

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

USEPA revised the Federal CCR Rule on July 30, 2018, specifying GWPS for cobalt, lead, lithium, and molybdenum as described in § 257.95(h)(2). Presently those rule-specified GWPS have not yet been incorporated into the current GA EPD Rules for Solid Waste Management 391-3-4-.10(6)(a).

Following the above state rule requirements, GWPS have been established for statistical comparison of Appendix IV constituents and are presented in **Table 6**.

4.2 Statistical Analyses Results

Based on review of the statistical analyses, Appendix III constituents continue to exceed background PLs for the indicated assessment monitoring events. Pursuant to § 257.95(f), assessment monitoring should continue based on these statistical results.

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No SSL of Appendix IV constituents was identified during the reporting period using the established state GWPS. Note that the new downgradient well, HGWC-102 is still undergoing background evaluation.



5.0 MONITORING PROGRAM STATUS

Based on the statistical evaluation results presented for the reporting period, SSIs of Appendix III constituents have not returned to background levels; however, no SSLs of Appendix IV constituents were identified. Pursuant to § 257.95(f), GPC will continue to monitor groundwater at AP-4 in accordance with the assessment monitoring program regulations of § 257.95.

Pursuant to § 257.94(b), eight independent groundwater samples (i.e., background monitoring events) will be collected from new compliance well HGWC-102 to statistically establish background conditions in the wells. The background groundwater sampling events are anticipated to conclude in September 2020.



6.0 CONCLUSIONS & FUTURE ACTIONS

This 2020 Annual Groundwater Monitoring & Corrective Action Report for GPC's Plant Hammond AP-4 was prepared to fulfill the requirements of GA EPD Rules for Solid Waste Management 391-3-4-.10, and indirectly by reference the USEPA's CCR Rule.

In August 2019, GPC initiated assessment monitoring in accordance with the requirements of § 257.95. Semiannual assessment monitoring events were conducted in October 2019 and March 2020. Statistical evaluations of the October 2019 and March 2020 groundwater monitoring data identified SSIs of Appendix III groundwater monitoring constituents in each of the eight established downgradient compliance wells. However, no SSL of an Appendix IV constituent was identified during the reporting period. GPC will continue to monitor groundwater in accordance with the assessment monitoring program as specified in § 257.95.

7.0 REFERENCES

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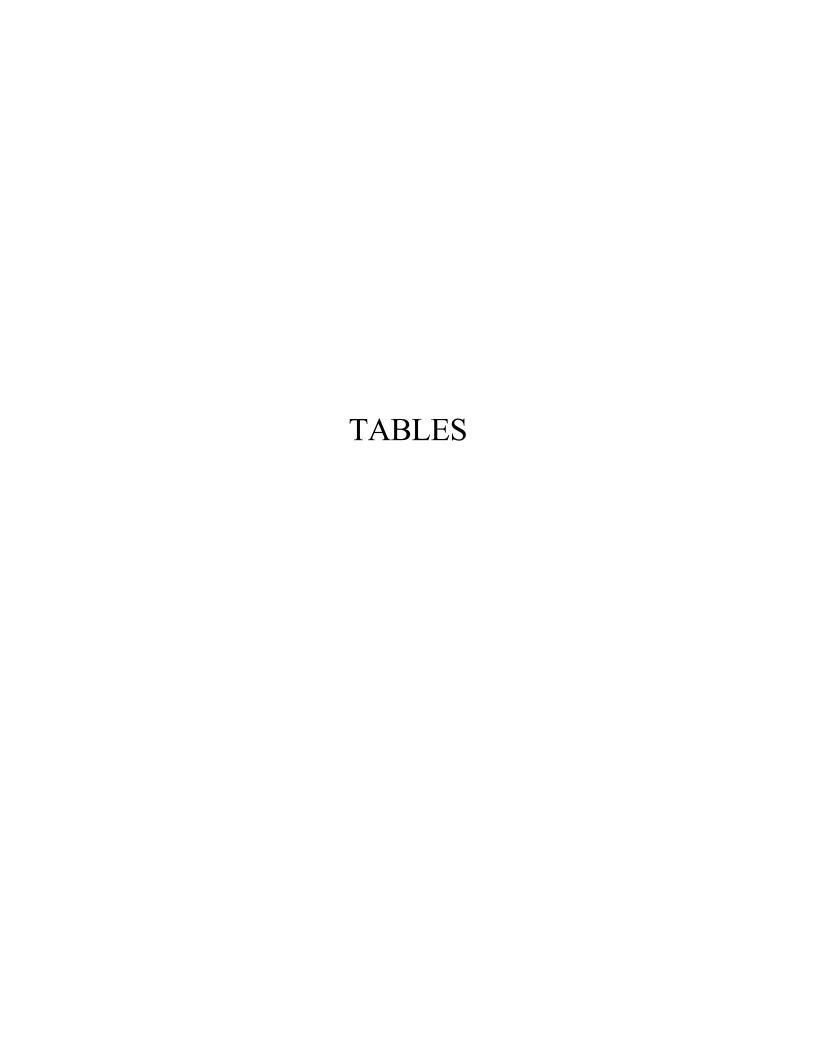


Table 1
Monitoring Well Network Summary
Plant Hammond AP-4, Floyd County, Georgia

Well ID	Hydraulic Location	Installation Date	Northing (1)	Easting (1)	Top of Casing Elevation ⁽²⁾ (ft NAVD88)	Top of Screen Elevation (ft NAVD88)	Bottom of Screen Elevation (ft NAVD88)	Well Depth (ft BTOC) (3)	Screen Interval Length
Compliance Monitoring Well	l								
HGWA-111	Upgradient	8/21/2012	1548834.26	1935222.81	591.75	558.48	548.48	43.67	10
HGWA-112	Upgradient	8/21/2012	1548885.63	1935647.00	596.27	566.52	556.52	40.15	10
HGWA-113	Upgradient	10/2/2012	1548944.62	1935990.09	594.58	568.87	558.87	36.11	10
HGWC-101	Downgradient	8/7/2012	1547725.50	1936369.58	578.85	551.31	541.31	37.94	10
HGWC-102	Downgradient	8/7/2012	1547713.50	1936033.33	577.54	550.51	540.51	37.43	10
HGWC-103	Downgradient	8/8/2012	1547848.88	1935732.96	580.79	553.51	543.51	37.68	10
HGWC-105	Downgradient	8/8/2012	1547855.56	1935110.36	582.09	547.72	537.72	44.67	10
HGWC-107	Downgradient	8/8/2012	1547909.99	1934442.24	579.31	551.51	541.51	38.20	10
HGWC-109	Downgradient	8/15/2012	1548627.41	1934362.77	576.77	555.81	545.81	31.36	10
HGWC-117	Downgradient	8/14/2012	1548100.77	1937180.43	581.98	552.12	542.12	40.26	10
HGWC-118	Downgradient	10/1/2012	1547980.56	1936946.37	579.02	548.51	538.51	40.91	10
Piezometer									
MW-12	Downgradient	10/21/2014	1547853.78	1937525.46	583.27	555.84	545.84	37.83	10
GWC-4	Downgradient	8/8/2012	1547898.31	1935398.70	580.65	543.47	533.47	47.58	10
GWC-6	Downgradient	8/13/2012	1547843.93	1934800.45	581.63	553.90	543.90	38.13	10
GWC-8	Downgradient	8/9/2012	1548167.13	1934342.94	579.99	549.47	539.47	40.92	10
GWA-14	Upgradient	10/2/2012	1548982.59	1936642.58	592.14	561.40	551.40	41.14	10
GWA-15	Upgradient	8/22/2012	1548766.17	1936808.47	591.56	571.44	561.44	30.52	10
GWA-16	Upgradient	8/21/2012	1548592.74	1937210.99	582.55	569.94	559.94	23.01	10
GWC-19	Upgradient	8/14/2012	1547892.89	1936572.97	579.83	554.04	544.04	36.19	10

Notes:

ft = feet.

ft BTOC = feet below top of casing.

The northing, easting, and elevations presented in this table are based on survey data obtained on May 11, 2020.

- (1) Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet.
- (2) Elevations referenced to the North American Vertical Datum of 1988 (NAVD88).
- (3) Total well depth accounts for sump if data provided on well construction logs.

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

Well ID	Hydraulic Location	Aug 21-23, 2019	Oct 21-23, 2019	Jan 3, 2020	Mar 4, 2020	Mar 24-25, 2020	Jun 18, 2020	Status of Monitoring Well
Purpose of S	ampling Event:	Initial App. IV Annual	Assessment	Background	Background	Assessment	Background	With the state of
HGWA-111	Upgradient	S01	A01			A02		Assessment
HGWA-112	Upgradient	S01	A01			A02		Assessment
HGWA-113	Upgradient	S01	A01			$A02^{(1)}$		Assessment
HGWC-101	Downgradient	S01	A01			A02		Assessment
HGWC-102	Downgradient		BG01	BG02	BG03	BG04	BG05	Assessment ⁽²⁾
HGWC-103	Downgradient	S01	A01	-	-	A02	-	Assessment
HGWC-105	Downgradient	S01	A01	-	-	A02	-	Assessment
HGWC-107	Downgradient	S01	A01	1		A02	1	Assessment
HGWC-109	Downgradient	S01	A01	-		A02	-	Assessment
HGWC-117	Downgradient	S01	A01	-		A02	-	Assessment
HGWC-118	Downgradient	S01	A01			A02		Assessment

Notes:

-- = Not applicable

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

BG## = Background monitoring event number

S## = Initial annual Appendix IV sampling event

- (1) Due to an error in sampling, the well was resampled on April 9, 2020.
- (2) Pursuant to § 257.94(b), a minimum of eight independent groundwater samples (i.e., background monitoring events) should be collected from the new compliance well to statistically establish background conditions in the wells.

1 of 1 July 2020

Table 3
Summary of Groundwater Elevations
Plant Hammond AP-4, Floyd County, Georgia

	Top of Casing	Aug 2	1, 2019	Oct 2	1, 2019	Top of Casing	March	23, 2020
Well ID	Elevation (1) (ft NAVD88)	Depth to Groundwater Water Elevations (ft BTOC) (ft NAVD88)		Depth to Water (ft BTOC)	Groundwater Elevations (ft NAVD88)	Elevation (2) (ft NAVD88)	Depth to Water (ft BTOC)	Groundwater Elevations (ft NAVD88)
Compliance Mo	nitoring Well							
HGWA-111	592.24	14.61	577.63	15.95	576.29	591.75	9.90	581.85
HGWA-112	596.75	15.18	581.57	16.90	579.85	596.27	7.30	588.97
HGWA-113	595.13	12.45	582.68	14.05	581.08	594.58	3.05	591.53
HGWC-101	579.26	13.70	565.56	15.23	564.03	578.85	9.82	569.03
HGWC-102	577.91	13.31	564.60	15.56	562.35	577.54	11.92	565.62
HGWC-103	581.16	14.41	566.75	15.64	565.52	580.79	9.94	570.85
HGWC-105	582.46	18.18	564.28	20.42	562.04	582.09	16.53	565.56
HGWC-107	579.76	15.49	564.27	17.60	562.16	579.31	12.93	566.38
HGWC-109	577.33	10.06	567.27	11.45	565.88	576.77	7.20	569.57 ⁽³⁾
HGWC-117	582.32	17.00	565.32	18.89	563.43	581.98	15.03	566.95
HGWC-118	579.48	13.85	565.63	15.54	563.94	579.02	11.24	567.78
Piezometer								
MW-12	584.33	18.97	565.36	20.72	563.61	583.27	16.79	566.48
GWC-4	581.02	14.21	566.81	16.41	564.61	580.65	9.61	571.04
GWC-6	582.01	17.62	564.39	19.68	562.33	581.63	14.92	566.71
GWC-8	580.50	15.05	565.45	16.25	564.25	579.99	8.88	571.11
GWA-14	592.58	8.64	583.94	9.28	583.30	592.14	1.23	590.91
GWA-15	592.03	11.27	580.76	11.25	580.78	591.56	7.25	584.31
GWA-16	583.04	5.32	577.72	(dry)		582.55	4.75	577.80
GWC-19	581.31	13.74	567.57	15.05	566.26	579.83	10.01	569.82

Notes:

-- = Not applicable

ft = feet

ft BTOC = feet below top of casing

- (1) Elevations referenced to the North American Vertical Datum of 1988 (NAVD88). Elevations based on original survey
- (2) Elevations referenced to the North American Vertical Datum of 1988 (NAVD88). Elevations based on re-survey of monitoring well network certified May 11,2020.
- (3) Elevation was not used in the development of groundwater contours due to error in gauging.

1 of 1 July 2020

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

	Н	Hydraulic Gradient - August 21, 2019 Data				Нус	lraulic Grad	ient - Octobo	er 21, 2019 D	ata	Hydraulic Gradient - March 23, 2020 Data				
Flow Path Direction (1)	h ₁ (ft)	h ₂ (ft)	Δl (ft)	Δh/Δl (ft/ft)	Avg Δh/Δl (ft/ft)	h ₁ (ft)	h ₂ (ft)	Δl (ft)	Δh/Δl (ft/ft)	Avg Δh/Δl (ft/ft)	h ₁ (ft)	h ₂ (ft)	Δl (ft)	Δh/Δl (ft/ft)	Avg Δh/Δl (ft/ft)
Eastern Flow Path (GWA-14 to HGWC-118)	583.94	565.63	1,050	0.017		583.30	563.94	1,050	0.018		590.91	567.78	1,050	0.022	
Central Flow Path (HGWA-113 to HGWC-103)	582.68	566.75	1,110	0.014	0.014	581.08	565.52	1,110	0.014	0.015	591.53	570.85	1,110	0.019	0.018
Western Flow Path (HGWA-111 to HGWC-107)	577.63	564.27	1,250	0.011		576.29	562.16	1,250	0.011		581.85	566.38	1,250	0.012	

			Average	2019/2020
Flow Path Direction (1)	K (ft/d)	n	Δh/Δl (ft/ft)	V (ft/d) ⁽²⁾
Eastern Flow Path (GWA-14 to HGWC-118)				
Central Flow Path (HGWA-113 to HGWC-103)	1.67	0.15	0.016	0.18
Western Flow Path (HGWA-111 to HGWC-107)				

Notes:

ft = feet.

ft/d = feet per day.

ft/ft = feet per foot.

 h_1, h_2 = groundwater elevation for identified location.

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

K = hydraulic conductivity.

 Δl = distance between identified location 1 and 2.

n = effective porosity.

V = groundwater flow velocity.

(1) Flow path direction relative to the orientation of AP-4 and illustrated on Figures 3, 4, and 5 of associated report.

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

1 of 1 July 2020

Table 5 Summary of Groundwater Analytical Data Plant Hammond AP-4, Floyd County, Georgia

	Well ID:	HGWA-111	HGWA-111	HGWA-111	HGWA-112	HGWA-112	HGWA-112	HGWA-113	HGWA-113	HGWA-113	HGWC-101	HGWC-101	HGWC-101	HGWC-102 ⁽⁴⁾				
	Sample Date:	8/21/2019	10/21/2019	3/24/2020	8/21/2019	10/22/2019	3/24/2020	8/21/2019	10/22/2019	4/9/2020	8/22/2019	10/23/2019	3/25/2020	10/23/2019	1/3/2020	3/4/2020	3/24/2020	6/18/2020
	Parameter (1,2)																•	
	Boron		0.0097 J	0.011 J		0.016 J	0.012 J		0.010 J	0.012 J		0.10	0.080 J	3.1	3.4	3.7	2.4	2.9
E	Calcium		51.0	61.2		6.3	7.0		7.2	8.3		21.9	18.4	136	118	144	103	124
×	Chloride		3.9	3.6		5.5	5.2		1.9	1.4		5.5	5.2	7.9	7.0	7.1	6.5	6.9
R	Fluoride	0.048 J	0.12 J	0.076 J	< 0.029	0.050 J	< 0.050	0.11 J	0.18 J	0.14 J	< 0.029	< 0.029	< 0.050	0.22 J	< 0.050	< 0.050	< 0.050	< 0.050
PPE	pH ⁽³⁾	6.60	7.02	7.37	5.80	5.70	5.64	6.05	5.98	6.08	5.39	5.33	5.53	5.68	5.64	5.75	5.58	5.67
¥	Sulfate		1.8	1.6		0.60 J	< 0.50		6.8	6.6		101	85.5	< 0.017	380	400	311	349
	TDS		187	207		81.0	52.0		95.0	48.0		221	187	736	714	764	521	652
	Antimony	< 0.00027			< 0.00027			< 0.00027			< 0.00027			< 0.00027	0.00076 J	< 0.00027	< 0.00027	< 0.00027
	Arsenic	< 0.00035	< 0.00035	0.00042 J	< 0.00035	< 0.00035	< 0.00035	< 0.00035	< 0.00035	0.00074 J	< 0.00035	< 0.00035	0.00039 J	< 0.00035	0.00065 J	0.00036 J	< 0.00035	0.00092 J
	Barium	0.029	0.033	0.032	0.027	0.028	0.029	0.027	0.027	0.034	0.043	0.043	0.038	0.037	0.036	0.033	0.024	0.029
	Beryllium	< 0.000074	< 0.000074	< 0.000074	< 0.000074	< 0.000074	< 0.000074	< 0.000074	< 0.000074	< 0.000074	< 0.000074	0.000075 J	< 0.000074	< 0.000074	< 0.000074	< 0.000074	< 0.000074	< 0.000074
	Cadmium	< 0.00011	< 0.00011	< 0.00011	< 0.00011	< 0.00011	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.00014 J	0.00020 J	0.00014 J	0.00026 J	0.00020 J	0.00026 J	0.00068 J	0.00047 J
≥	Chromium	0.00061 J	0.0012 J	0.0019 J	0.0039 J	0.0040 J	0.0044 J	0.0022 J	0.0023 J	0.0031 J	0.00064 J	< 0.00039	0.00098 J	< 0.00039	0.00063 J	< 0.00039	0.00051 J	< 0.00039
X	Cobalt	< 0.00030	< 0.00030	< 0.00030	< 0.00030	< 0.00030	< 0.00030	< 0.00030	< 0.00030	0.00037 J	< 0.00030	0.0023 J	0.0021 J	0.0018 J	0.0038 J	0.0021 J	0.0019 J	0.0012 J
ND N	Fluoride	0.048 J	0.12 J	0.076 J	< 0.029	0.050 J	< 0.050	0.11 J	0.18 J	0.14 J	< 0.029	< 0.029	< 0.050	0.22 J	< 0.050	< 0.050	< 0.050	< 0.050
PPI	Lead	< 0.000046	0.00016 J	0.00058 J	< 0.000046	< 0.000046	0.00016 J	0.000071 J	0.000073 J	0.00039 J	< 0.000046	< 0.000046	< 0.000046	< 0.000046	< 0.000046	0.00011 J	< 0.000046	< 0.000046
V	Lithium	0.0018 J	0.0026 J	0.0039 J	< 0.00078	< 0.00078	< 0.00078	0.0011 J	0.0011 J	0.0017 J	< 0.00078	< 0.00078	< 0.00078	0.0012 J	0.0011 J	0.0013 J	0.00084 J	0.0013 J
	Mercury	< 0.00014			< 0.00014			< 0.00014			< 0.00014			< 0.00014	< 0.00014	< 0.00014	< 0.00014	< 0.00014
	Molybdenum	< 0.00095			< 0.00095			< 0.00095			< 0.00095			< 0.00095	< 0.00095	< 0.00095	< 0.00095	< 0.00095
	Comb. Radium 226/228	0.553 U	0.351 U	0.260 U	0.514 U	0.828 U	0.677 U	0.492 U	0.523 U	0.617 U	0.474 U	0.776 U	0.603 U	0.858 U	1.04 U ⁽⁵⁾	1.32	1.23 U	
	Selenium	< 0.0013			< 0.0013			0.0025 J			< 0.0013			< 0.0013	0.0015 J	< 0.0013	< 0.0013	< 0.0013
	Thallium	< 0.000052			< 0.000052	-	-	< 0.000052			< 0.000052			< 0.000052	0.000080 J	< 0.000052	< 0.000052	< 0.000052

1 of 2

Notes:

- -- = Parameter was not analyzed.
- J = Indicates the parameter was estimated and detected between the method detection limit (MDL) and the reporting limit (RL).
- < = Indicates the parameter was not detected above the analytical MDL.

TDS = Total dissolved solids.

- U = Indicates the parameter was not detected above the minimum detection concentration (MDC, specific to combined radium).
- (1) Appendix III/IV parameter per 40 CFR 257 Subpart D. Parameters are reported in units of milligrams per liter (mg/L), except for pH reported as s.u. (standard units) and combined radium reported as picocuries per liter (pCi/L).
- (2) Metals were analyzed by EPA Method 6010D/6020B, Mercury was analyzed by EPA Method 7470A, anions were analyzed by EPA Method 300.0, TDS was analyzed by SM2540C, and combined radium by EPA Methods 9315/9320.
- (3) The pH value presented was recorded at the time of sample collection in the field.
- (4) Monitoring well HGWC-102 was analyzed for the complete list of Appendix III and Appendix IV constituents to establish background groundwater quality in compliance with 40 CFR 257.93. The wells will be sampled in this manner for eight independent events.
- (5) Due to lack of appropriate bottles, well was sampled for Radium on January 22, 2020.

Table 5Summary of Groundwater Analytical Data
Plant Hammond AP-4, Floyd County, Georgia

Well ID:	HGWC-103	HGWC-103	HGWC-103	HGWC-105	HGWC-105	HGWC-105	HGWC-107	HGWC-107	HGWC-107	HGWC-109	HGWC-109	HGWC-109	HGWC-117	HGWC-117	HGWC-117	HGWC-118	HGWC-118	HGWC-118
Sample Date:	8/22/2019	10/23/2019	3/25/2020	8/22/2019	10/23/2019	3/25/2020	8/23/2019	10/22/2019	3/25/2020	8/23/2019	10/22/2019	3/25/2020	8/22/2019	10/22/2019	3/24/2020	8/22/2019	10/22/2019	3/25/2020
Parameter (1,2)																		
Boron		2.3	2.3		1.3	1.4		0.91	0.87		0.32	0.36		1.0	1.0		0.65	0.70
Calcium		86.5	86.8		89.4	91.4		58.1	59.5		42.6	42.6		70.9	68.0		84.2	86.8
Chloride		6.1	5.1		3.6	3.2		3.6	3.0		4.6	3.9		12.1	12.5		4.5	3.6
Fluoride	< 0.029	< 0.029	< 0.050	< 0.029	< 0.029	< 0.050	< 0.029	0.047 J	< 0.050	0.034 J	0.099 J	0.075 J	< 0.029	0.042 J	< 0.050	0.070 J	0.087 J	0.078 J
pH ⁽³⁾	5.55	5.49	5.49	6.04	6.46	6.47	6.26	6.19	6.13	6.76	6.58	6.56	5.53	6.17	5.99	6.93	7.03	6.89
Sulfate		248	251		162	161		123	116		23.2	27.9		133	129		80.9	78.4
TDS		507	507		419	417		308	297		212	213		348	331		354	347
Antimony	< 0.00027			< 0.00027			< 0.00027			< 0.00027			< 0.00027			< 0.00027		
Arsenic	< 0.00035	< 0.00035	< 0.00035	< 0.00035	< 0.00035	< 0.00035	< 0.00035	< 0.00035	< 0.00035	0.0035 J	0.0019 J	0.0025 J	< 0.00035	< 0.00035	0.00037 J	< 0.00035	< 0.00035	< 0.00035
Barium	0.036	0.039	0.036	0.066	0.066	0.074	0.038	0.039	0.037	0.088	0.087	0.084	0.036	0.049	0.051	0.052	0.054	0.060
Beryllium	< 0.000074	< 0.000074	< 0.000074	< 0.000074	< 0.000074	< 0.000074	< 0.000074	< 0.000074	< 0.000074	< 0.000074	< 0.000074	< 0.000074	0.000079 J	< 0.000074	< 0.000074	< 0.000074	< 0.000074	< 0.000074
Cadmium	0.00080 J	0.00091 J	0.00068 J	< 0.00011	< 0.00011	< 0.00011	0.00011 J	< 0.00011	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.00064 J	0.00068 J	0.00079 J	< 0.00011	< 0.00011	< 0.00011
Chromium	0.00063 J	0.0015 J	0.00045 J	< 0.00039	0.00040 J	0.0013 J	< 0.00039	< 0.00039	0.00074 J	< 0.00039	0.00062 J	0.0014 J	< 0.00039	< 0.00039	0.0012 J	< 0.00039	0.00066 J	0.00081 J
Cobalt	0.0019 J	0.0021 J	0.0022 J	< 0.00030	0.00038 J	0.00047 J	< 0.00030	< 0.00030	< 0.00030	0.0027 J	0.0022 J	0.0022 J	0.012	0.0064	0.0087	0.00030 J	0.00061 J	< 0.00030
Fluoride	< 0.029	< 0.029	< 0.050	< 0.029	< 0.029	< 0.050	< 0.029	0.047 J	< 0.050	0.034 J	0.099 J	0.075 J	< 0.029	0.042 J	< 0.050	0.070 J	0.087 J	0.078 J
Lead	< 0.000046	0.00043 J	0.000076 J	< 0.000046	0.000068 J	0.000085 J	< 0.000046	0.000079 J	0.00021 J	0.000058 J	0.000054 J	< 0.000046	< 0.000046	0.00016 J	0.00025 J	< 0.000046	0.00025 J	0.00010 J
Lithium	0.0015 J	0.0020 J	0.0016 J	0.0040 J	0.0039 J	0.0041 J	0.00092 J	0.00094 J	0.00091 J	0.00090 J	0.00088 J	< 0.00078	0.0012 J	0.0028 J	0.0029 J	0.0018 J	0.0027 J	0.0017 J
Mercury	< 0.00014			< 0.00014			< 0.00014			< 0.00014			< 0.00014			< 0.00014		
Molybdenum	< 0.00095			< 0.00095			< 0.00095			< 0.00095			< 0.00095			< 0.00095		
Comb. Radium 226/228	0.946 U	0.571 U	0.403 U	0.694 U	0.584 U	0.663 U	1.69	0.705 U	0.673 U	0.470 U	0.545 U	0.508 U	0.333 U	0.827 U	0.815 U	0.904 U	0.424 U	0.915 U
Selenium	< 0.0013			< 0.0013			< 0.0013			< 0.0013			< 0.0013			< 0.0013		
Thallium	< 0.000052			< 0.000052			< 0.000052			< 0.000052			< 0.000052			< 0.000052		

2 of 2

Table 6

Summary of Background Concentrations and Groundwater Protection Standards October 2019 and March 2020 Events Plant Hammond AP-4, Floyd County, Georgia

Analyte	Units	Background ⁽¹⁾	State GWPS ⁽²⁾
Antimony	mg/L	0.003	0.006
Arsenic	mg/L	0.005	0.01
Barium	mg/L	0.033, 0.034	2
Beryllium	mg/L	0.003	0.004
Cadmium	mg/L	0.0025	0.005
Chromium	mg/L	0.0086, 0.01	0.1
Cobalt	mg/L	0.005	0.005
Fluoride	mg/L	0.25, 0.24	4
Lead	mg/L	0.005	0.005
Lithium	mg/L	0.03	0.03
Mercury	mg/L	0.0005	0.002
Molybdenum	mg/L	0.01	0.01
Selenium	mg/L	0.01	0.05
Thallium	mg/L	0.001	0.002
Combined Radium-226/228	pCi/L	1.37, 1.3	5

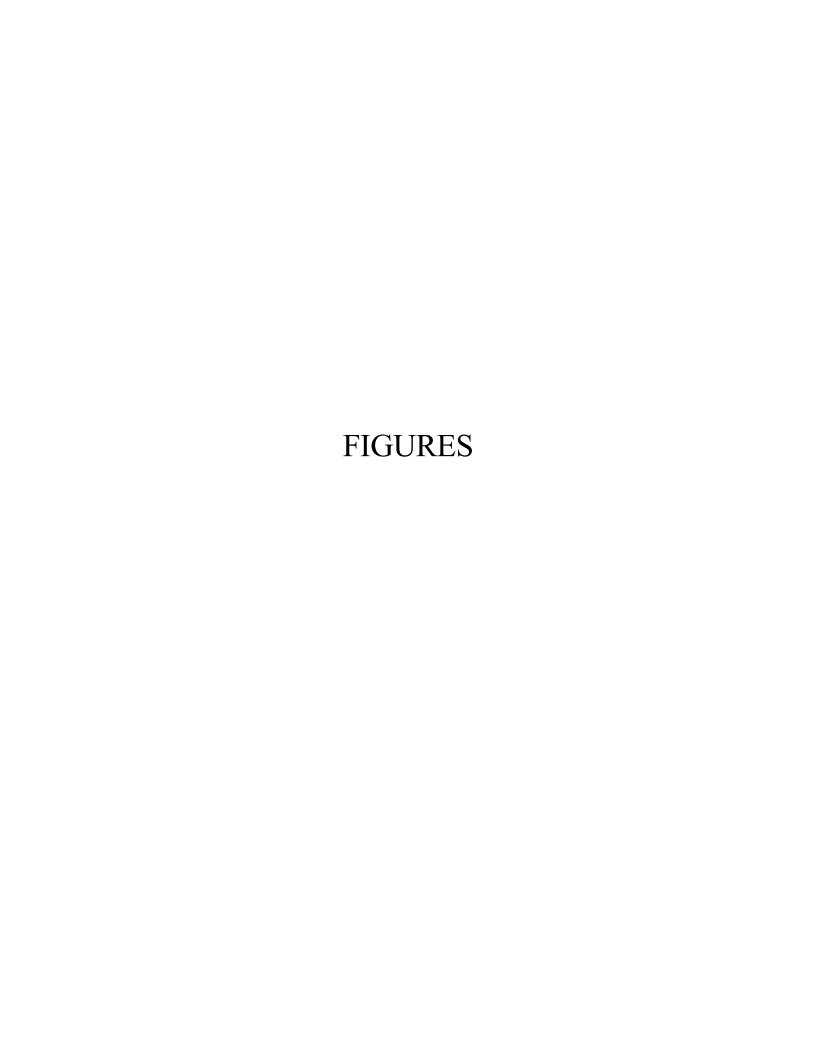
Notes:

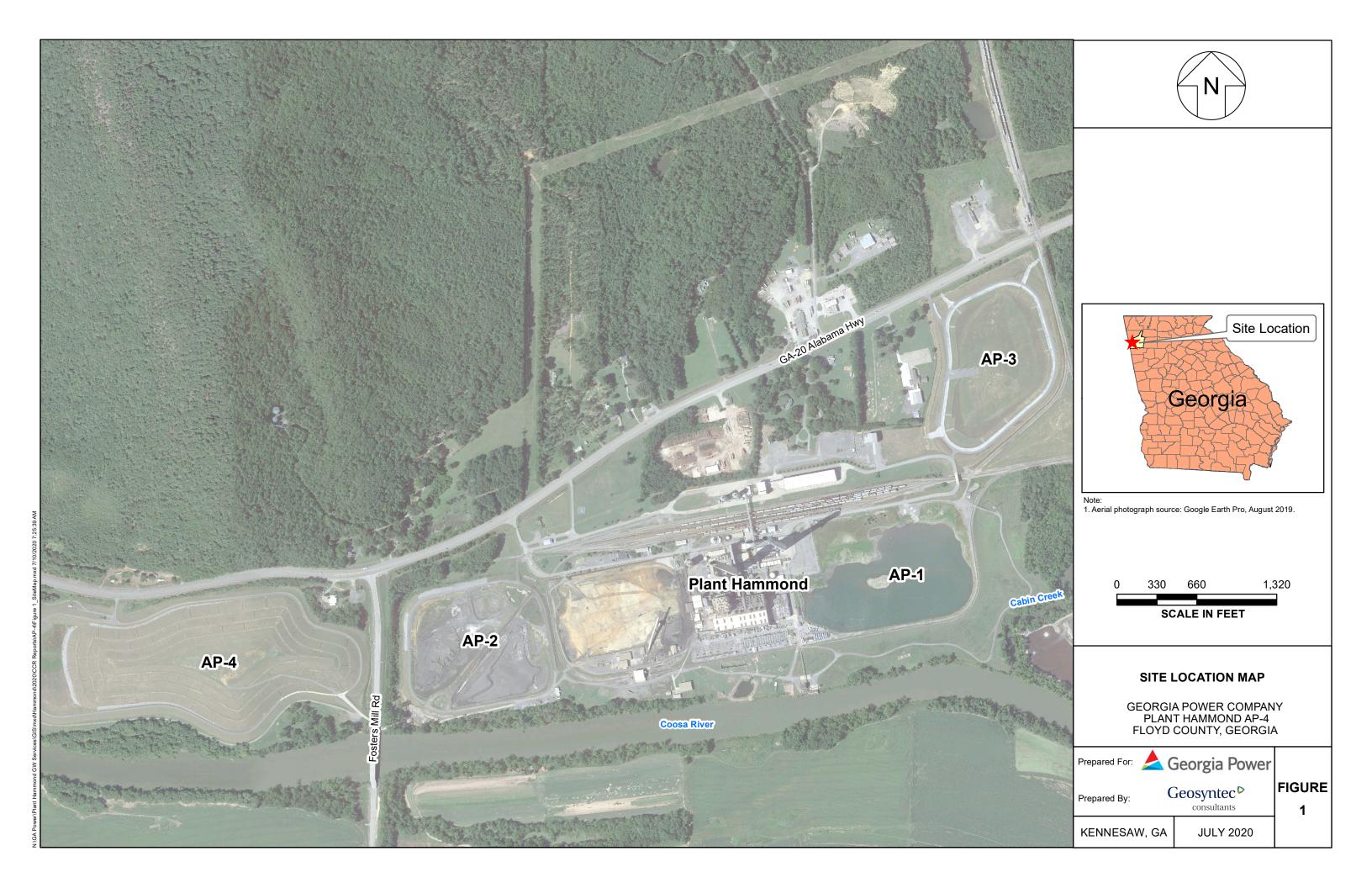
- 1. The background limits were used when determining the groundwater protection standard (GWPS) under 40 CFR §257.95(h) and Georgia Environmental Protection Division (EPD) Rule 391-3-4-.10(6)(a). Where two numbers are present, they denote the different background levels for each of the two semiannual monitoring events in the order that they were determined.
- 2. Under the existing Georgia EPD rules, the GWPS is: (i) the MCL, (ii) where the MCL is not established, the background concentration, or (iii) background concentrations for constituents where the background level is higher than the MCL.

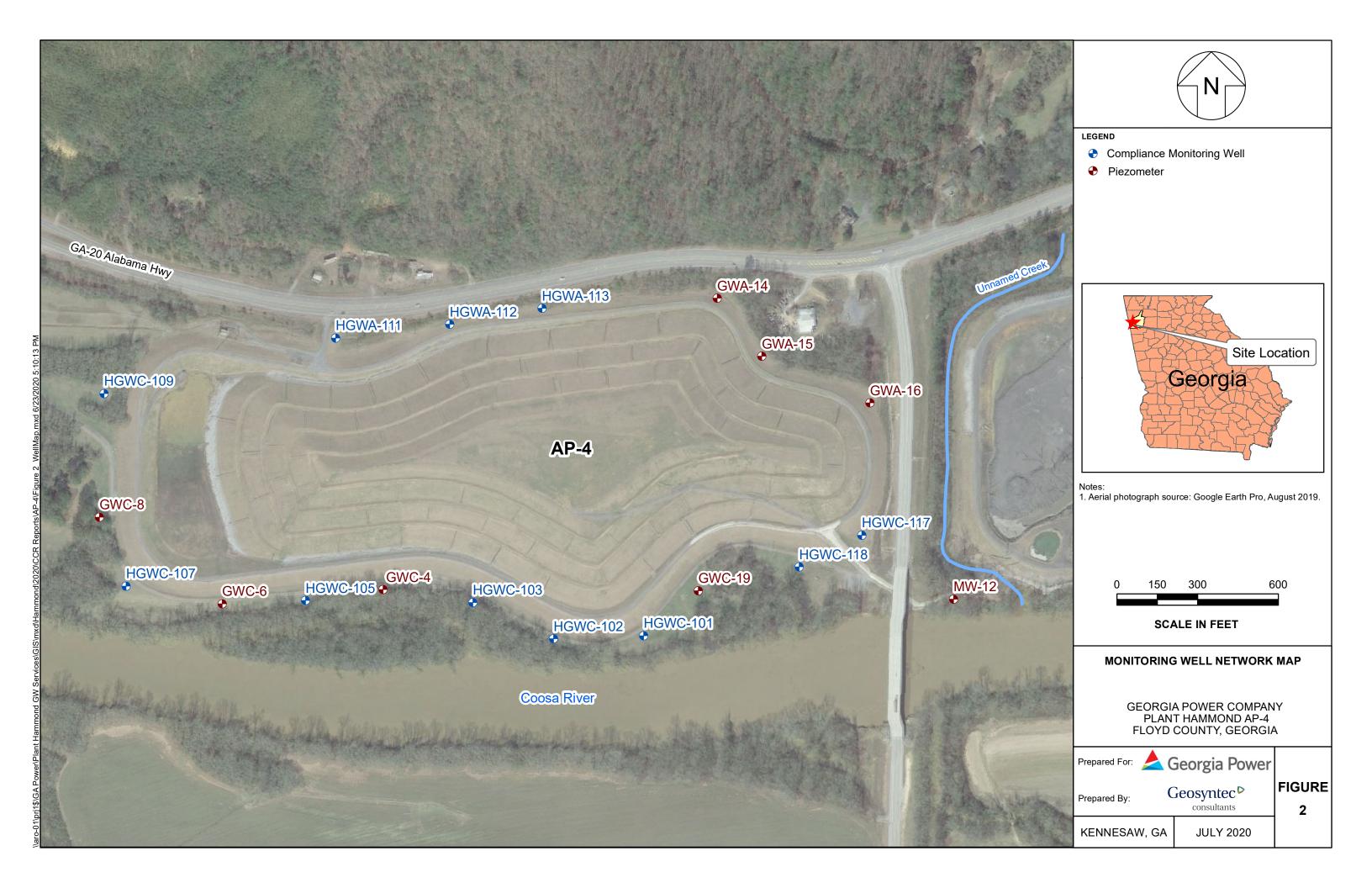
1 of 1

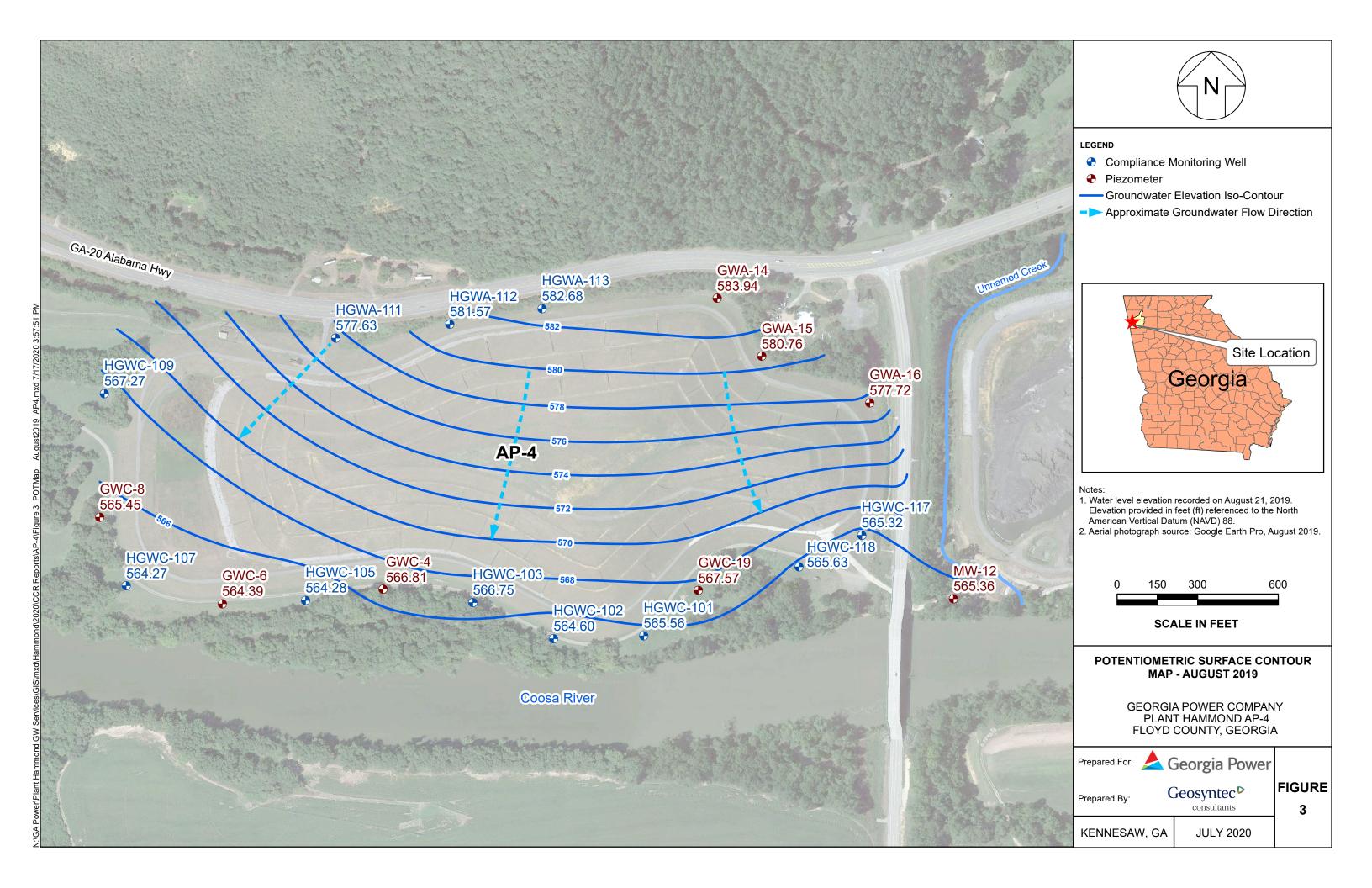
[&]quot;mg/L" = milligrams per liter

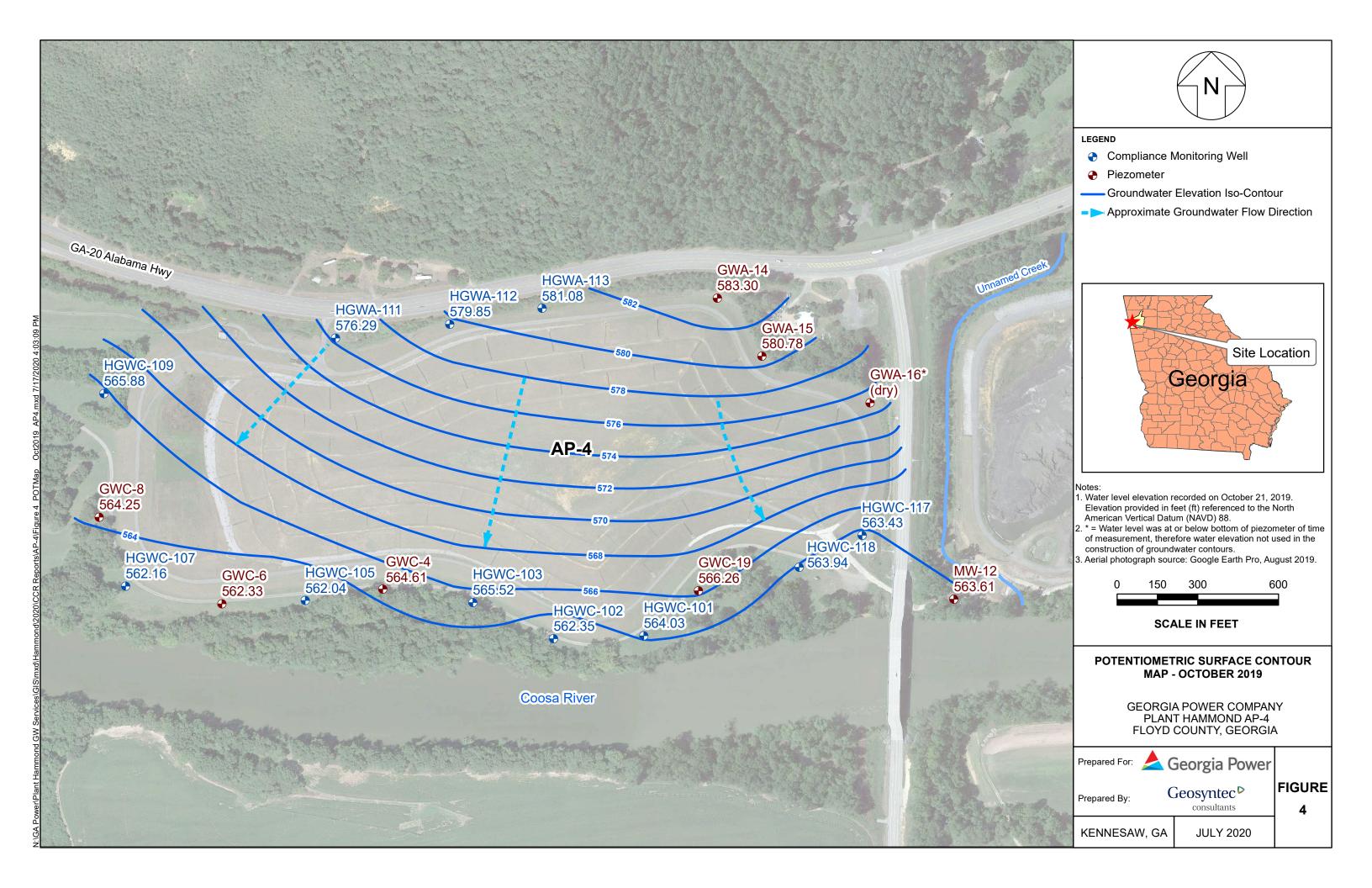
[&]quot;pCi/L" = picocuries per liter

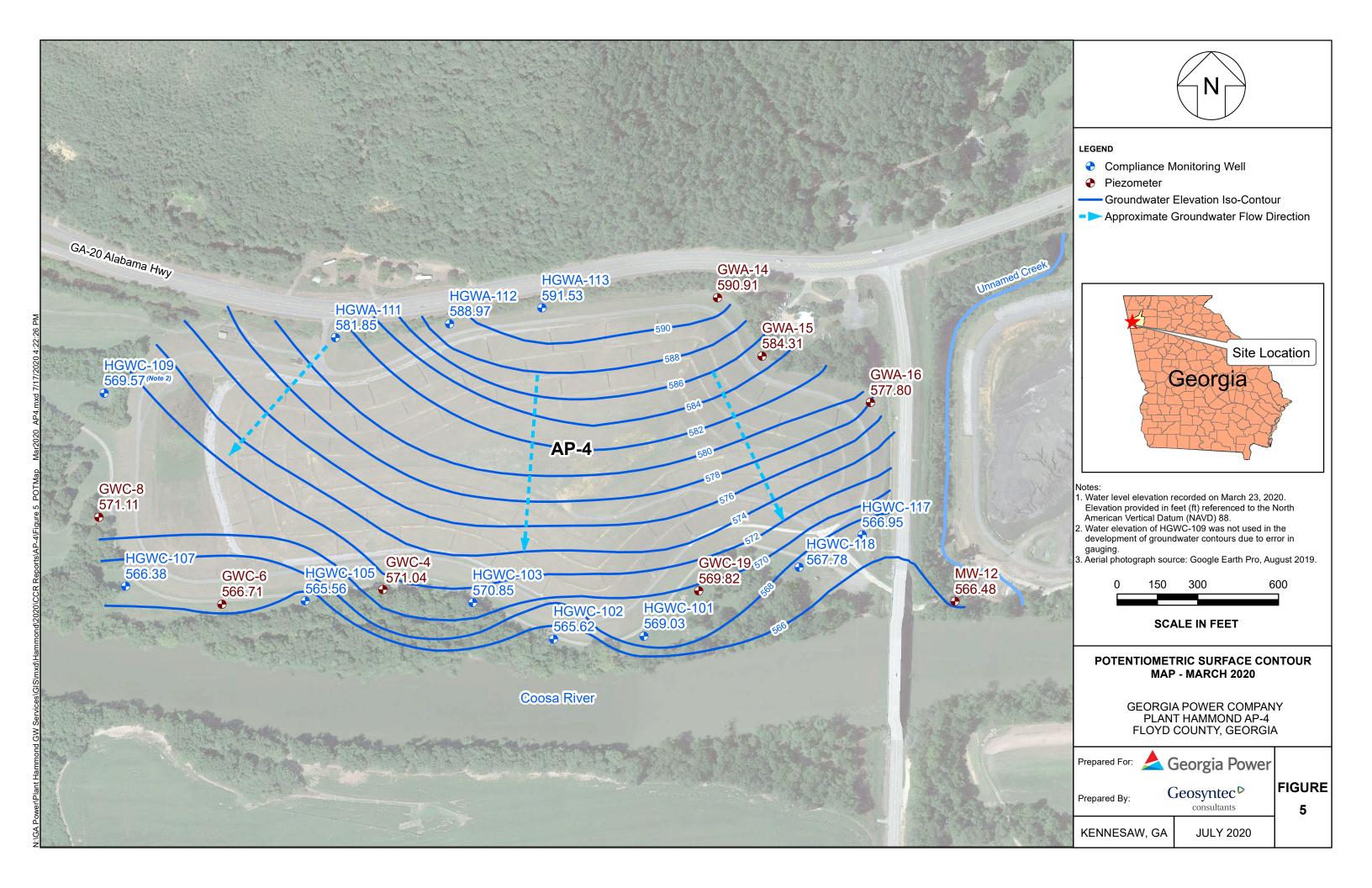












APPENDIX A

Well Inspection Forms

Geosyntec ^c				W	ELL INSPECT	TION FORM		
Field Technicia	an: Chad Ri	U550	Site/Location	1: Plant		nd AP-4		Inspection Date: 8/21/19
					Well Inspect	ion Items		
XIV. II YES	Inspection			Prese	ent (Y/N)			
Well ID	Time	Lock	Locking Cap	Bollards	Concrete Pad	Protective Casing	Vegetation	Comments regarding well condition
GWC-8	0852	Y	Y	Y	Ų	4	Y	Good condition
HENA-11	0817	Ÿ	Y	Y	Y	Y	Y	Good condition
116WC-1891	0827	Y	Y	Y	Y	Y	7	Tall grass; potential for snakes
H6WC-107	0901	Y	Y	4	Y	Y	Y.	Good condition
GWC-6	0914	Y	Y	4	Ŋ	γ	Ĭ	smo Some spider wets in asing
HEWC-105	0919	Y	7	4	Y	Y	Y	Some abundanced ways nosts in costing
GWC-4	0934	4	Y	Y	Y	4	Υ	Spider web in casing.
HGWC163	0940	ý	7	4	Y	Y	Y	Good condition
GWC-Z	0150	Y	7	V,	ý	Å.	У	Good condition
HGMC-101	0955	4	ú	1	Ÿ	ý	N	Tall grass
GWC-19	1009	У	4	y	У	y	4	Spider web on well cap
HGWC-118	1015	У	Y	y	Y	Y	Ý	Goal condition
HGWC-117	V	Y	Y	y	Ý	y	y	Good Condition
GWA-16	1039	Í	y	N	Ý	g	7	Good Constion
CWA-15	1052	Y	4	7	Y	Y	4	Good corditions
GWA-14	1109	y	У	4	Y	7	y	Good condition
HGNA-113		1	Y	7	y	Ý	Y	Good condition
H6WA-112	1120	7	Y	4	Y	4	9	Good condition

Name	Plant Hammond			
mit Number	The second second	→ 5°		
II ID	MGWA-III	-		
e, field conditions	8/21/19 9100 partly douby			. 1
1 Location/	Identification	yes	no	n/a
a	Is the well visible and accessible?			
b	Is the well properly identified with the correct well ID?	<u></u>		
С	Is the well in a high traffic area and does the well require protection from traffic?	The same of the sa	~	
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	<u> </u>		
2 Protective	e Casing			
a	Is the protective casing free from apparent damage and able to be secured?	/		
b	Is the casing free of degradation or deterioration?	/		
С	Does the casing have a functioning weep hole?	V		
d	Is the annular space between casings clear of debris and water,			
	or filled with pea gravel/sand?			
е	Is the well locked and is the lock in good condition?			
3 <u>Surface p</u>	<u>ad</u>			
а	Is the well pad in good condition (not cracked or broken)?			
b	Is the well pad sloped away from the protective casing?	3	V	
С	Is the well pad in complete contact with the protective casing?			
d	Is the well pad in complete contact with the ground surface and			
	stable? (not undermined by erosion, animal burrows, and does not	./		
	move when stepped on)	<u> </u>		
е	Is the pad surface clean (not covered with sediment or debris)?			
4 Internal ca	asing	. 1		
а	Does the cap prevent entry of foreign material into the well?	\angle		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	V		
С	Is the well properly vented for equilibration of air pressure?	V,		
d	Is the survey point clearly marked on the inner casing?	~		
е	Is the depth of the well consistent with the original well log?	1		
f	Is the casing stable? (or does the pvc move easily when touched	/		
	or can it be taken apart by hand due to lack of grout or use of slip			
	couplings in construction)	<u>~</u>	-	
	Groundwater Wells Only:			
а	Does well recharge adequately when purged?			
b	If dedicated sampling equipment installed, is it in good condition			.1
0	and specified in the approved groundwater plan for the facility?			
С	Does the well require redevelopment (low flow, turbid)?			
6 Based on	your professional judgement, is the well construction / location			
	appropriate to 1) achieve the objectives of the Groundwater			
	Monitoring Program and 2) comply with the applicable regulatory requirements?	\checkmark		
7 Corrective	actions as needed, by date:			
· Concoure	actions as flooded, by date.			

lame	Plant Hammond	2		
it Number		8		
D	HGUA-112	60		
field conditions	8/21/19 91° F partly cloudy	ř.		,
1 Location/L	Nontification	yes	no	n/a
1 Location/I	Is the well visible and accessible?	./		
a b	Is the well visible and accessible? Is the well properly identified with the correct well ID?			-
C	Is the well in a high traffic area and does the well require			
V	protection from traffic?		\int	
d	Is the drainage around the well acceptable? (no standing water,			
	nor is well located in obvious drainage flow path)			
2 Protective	Casing			
а	Is the protective casing free from apparent damage and able to be			
	secured?	1		
b	Is the casing free of degradation or deterioration?	/		
С	Does the casing have a functioning weep hole?	1		
d	Is the annular space between casings clear of debris and water,	,		AT-
	or filled with pea gravel/sand?			
е	Is the well locked and is the lock in good condition?		-	
3 Surface pa		,		
а	Is the well pad in good condition (not cracked or broken)?			
b	Is the well pad sloped away from the protective casing?		<u> </u>	
С	Is the well pad in complete contact with the protective casing?			
d	Is the well pad in complete contact with the ground surface and			
	stable? (not undermined by erosion, animal burrows, and does not	./		
е	move when stepped on) Is the pad surface clean (not covered with sediment or debris)?			
		~		
4 <u>Internal ca</u>		,		
	Does the cap prevent entry of foreign material into the well?	:/		
	Is the casing free of kinks or bends, or any obstructions from	./		
	foreign objects (such as bailers)?			
C	Is the well properly vented for equilibration of air pressure?		,	_
	Is the survey point clearly marked on the inner casing? Is the depth of the well consistent with the original well log?	<u> </u>	-	
	Is the casing stable? (or does the pvc move easily when touched			
	or can it be taken apart by hand due to lack of grout or use of slip			
	couplings in construction)	/		
5 Sampling:	Groundwater Wells Only:	1		
	Does well recharge adequately when purged?	1		
	f dedicated sampling equipment installed, is it in good condition			$\overline{}$
	and specified in the approved groundwater plan for the facility?			
С	Does the well require redevelopment (low flow, turbid)?			
6 Based on y	our professional judgement, is the well construction / location			
	appropriate to 1) achieve the objectives of the Groundwater			
	Monitoring Program and 2) comply with the applicable regulatory			
	requirements?	V		
7 Corrective	actions as needed, by date:			
, conective	actions as needed, by date.			

lame it Nur	nhor	AP-4	•		
it ivun ID	nber	A way a way and	•		
	a a p diti a p a	1+6WA-113			
neid	conditions	08/21/19 clear, sunny \$200 90"	VOC	no	n/a
1	Location/	Identification	yes	no	11/a
	a	Is the well visible and accessible?	Y		
	b	Is the well properly identified with the correct well ID?	×		
	С	Is the well in a high traffic area and does the well require		-	· —
		protection from traffic?		X	
	d	Is the drainage around the well acceptable? (no standing water,		· · · · · · · · · · · · · · · · · · ·	
		nor is well located in obvious drainage flow path)	_X_		
2	Protective	e Casing			
	a	Is the protective casing free from apparent damage and able to be			
		secured?	×		
	b	Is the casing free of degradation or deterioration?	X		
	С	Does the casing have a functioning weep hole?	$\frac{1}{\sqrt{2}}$		
	d	Is the annular space between casings clear of debris and water,			-
		or filled with pea gravel/sand?	X		
	е	Is the well locked and is the lock in good condition?	X		
3	Surface p	ad			
	a	Is the well pad in good condition (not cracked or broken)?	×		
	b	Is the well pad sloped away from the protective casing?	×	***************************************	
	С	Is the well pad in complete contact with the protective casing?	x		
	d	Is the well pad in complete contact with the ground surface and			
		stable? (not undermined by erosion, animal burrows, and does not			
		move when stepped on)			
	е	Is the pad surface clean (not covered with sediment or debris)?	_×_		
4	Internal ca	asing			
	а	Does the cap prevent entry of foreign material into the well?	X		
	b	Is the casing free of kinks or bends, or any obstructions from			
		foreign objects (such as bailers)?	X		
	С	Is the well properly vented for equilibration of air pressure?	$\overline{\mathbf{x}}$		
	d	Is the survey point clearly marked on the inner casing?	\overline{X}		
	е	Is the depth of the well consistent with the original well log?	_×_		
	f	Is the casing stable? (or does the pvc move easily when touched			
		or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	×		
		,			
		Groundwater Wells Only:			
	a	Does well recharge adequately when purged?	<u>×</u> _		
	b	If dedicated sampling equipment installed, is it in good condition			
,	0	and specified in the approved groundwater plan for the facility? Does the well require redevelopment (low flow, turbid)?			
(С	boes the well require redevelopment (low now, turbid)?		_×_	
6 I	Based on	your professional judgement, is the well construction / location			
		appropriate to 1) achieve the objectives of the Groundwater			
		Monitoring Program and 2) comply with the applicable regulatory	V		
		requirements?	Δ		
7 (Corrective	actions as needed, by date:			
		, -,			

ame t Number	Plant Hammond	8		
D	HGWC-101	0		
	8/22/19; 86°F sunny			
noid doridition	01241-17, 00 1- 50 119	yes	no	n/a
1 Location	/Identification	yes	110	11/a
a	Is the well visible and accessible?	1		
b	Is the well properly identified with the correct well ID?			
С	Is the well in a high traffic area and does the well require			
	protection from traffic?		\	
d	Is the drainage around the well acceptable? (no standing water,			
	nor is well located in obvious drainage flow path)	V		
0.5:				
2 <u>Protectiv</u>				
а	Is the protective casing free from apparent damage and able to be			
b	secured?	_		
b	Is the casing free of degradation or deterioration? Does the casing have a functioning weep hole?			
C				
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	./		
е	Is the well locked and is the lock in good condition?			
G	is the well locked and is the lock in good condition:			
3 <u>Surface</u> p	<u>pad</u>			
а	Is the well pad in good condition (not cracked or broken)?			
b	Is the well pad sloped away from the protective casing?			
С	Is the well pad in complete contact with the protective casing?	<u></u>		
d	Is the well pad in complete contact with the ground surface and		:	
	stable? (not undermined by erosion, animal burrows, and does not			
	move when stepped on)			
е	Is the pad surface clean (not covered with sediment or debris)?			
4 Internal o	asing			
a	Does the cap prevent entry of foreign material into the well?	./		
b	Is the casing free of kinks or bends, or any obstructions from			
~	foreign objects (such as bailers)?	/		
С	Is the well properly vented for equilibration of air pressure?			-
d	Is the survey point clearly marked on the inner casing?	—		
е	Is the depth of the well consistent with the original well log?	-1/		
f	Is the casing stable? (or does the pvc move easily when touched			-
	or can it be taken apart by hand due to lack of grout or use of slip			
	couplings in construction)			
E Committee	Out on the Malla Oak			
-	: Groundwater Wells Only: Does well recharge adequately when purged?	/		
a b	If dedicated sampling equipment installed, is it in good condition			
D	and specified in the approved groundwater plan for the facility?			./
С	Does the well require redevelopment (low flow, turbid)?			
C	boes the well require redevelopment (low now, turblu)?		<u>V</u>	
6 Based on	your professional judgement, is the well construction / location			
	appropriate to 1) achieve the objectives of the Groundwater	-		
	Monitoring Program and 2) comply with the applicable regulatory	,/		
	requirements?	V		

Groundwater Monitoring Well Integrity Form Hammond Mant Site Name Permit Number Well ID HG01C-103 ate, field conditions 9106 yes n/a 1 Location/Identification а Is the well visible and accessible? b Is the well properly identified with the correct well ID? Is the well in a high traffic area and does the well require С protection from traffic? d Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path) 2 Protective Casing Is the protective casing free from apparent damage and able to be а secured? b Is the casing free of degradation or deterioration? Does the casing have a functioning weep hole? С Is the annular space between casings clear of debris and water, d or filled with pea gravel/sand? Is the well locked and is the lock in good condition? е 3 Surface pad а Is the well pad in good condition (not cracked or broken)? Is the well pad sloped away from the protective casing? b Is the well pad in complete contact with the protective casing? С Is the well pad in complete contact with the ground surface and d stable? (not undermined by erosion, animal burrows, and does not move when stepped on) Is the pad surface clean (not covered with sediment or debris)? е 4 Internal casing Does the cap prevent entry of foreign material into the well? а Is the casing free of kinks or bends, or any obstructions from b foreign objects (such as bailers)? Is the well properly vented for equilibration of air pressure? С Is the survey point clearly marked on the inner casing? d Is the depth of the well consistent with the original well log? е Is the casing stable? (or does the pvc move easily when touched f or can it be taken apart by hand due to lack of grout or use of slip couplings in construction) 5 Sampling: Groundwater Wells Only: Does well recharge adequately when purged? a If dedicated sampling equipment installed, is it in good condition b and specified in the approved groundwater plan for the facility? Does the well require redevelopment (low flow, turbid)? С 6 Based on your professional judgement, is the well construction / location

appropriate to 1) achieve the objectives of the Groundwater

Monitoring Program and 2) comply with the applicable regulatory

Signature and Seal of PE/PG responsible for inspection

requirements?

7 Corrective actions as needed, by date:

	0			
e Name	Plant Hammon	_		
rmit Number		_		
ell ID	HCWC-165	-		
te, field conditions	8/24/A 91.F partly cloudy	_		
4.1	Annal Constitution	yes	no	n/a
1 Location/le		. /		
a	Is the well visible and accessible?			
b	Is the well properly identified with the correct well ID?			
С	Is the well in a high traffic area and does the well require			
ما	protection from traffic?		<u>v</u>	
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	<u> </u>		
2 Protective	Casing			
a	Is the protective casing free from apparent damage and able to be)		
	secured?	5		
b	Is the casing free of degradation or deterioration?	~	3 	
C	Does the casing have a functioning weep hole?			
d	Is the annular space between casings clear of debris and water,		-	
-	or filled with pea gravel/sand?			
е	Is the well locked and is the lock in good condition?			
3 Surface pa		/		
a	Is the well pad in good condition (not cracked or broken)?			
b	Is the well pad sloped away from the protective casing?			
C	Is the well pad in complete contact with the protective casing?			
d	Is the well pad in complete contact with the ground surface and			
	stable? (not undermined by erosion, animal burrows, and does not	t ,		
	move when stepped on)			
е	Is the pad surface clean (not covered with sediment or debris)?			
4 Internal ca	sing	_		
	Does the cap prevent entry of foreign material into the well?			
	Is the casing free of kinks or bends, or any obstructions from			
	foreign objects (such as bailers)?			
С	Is the well properly vented for equilibration of air pressure?	~		
	Is the survey point clearly marked on the inner casing?	1/		
	Is the depth of the well consistent with the original well log?	-		
	Is the casing stable? (or does the pvc move easily when touched			
	or can it be taken apart by hand due to lack of grout or use of slip	1		
	couplings in construction)			
5 O				
	Groundwater Wells Only:	. /		
	Does well recharge adequately when purged?	\underline{v}_{-}		
	If dedicated sampling equipment installed, is it in good condition			/
	and specified in the approved groundwater plan for the facility?			
С	Does the well require redevelopment (low flow, turbid)?			
	our professional judgement, is the well construction / location			
6 Based on v	out professional judgetherit, to the well constitution / location			
	appropriate to 1) achieve the objectives of the Groundwater	/		
	appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory			
	appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	\int		

nit Number	Harris	20		
ID	H6WC-107	8		
, field conditions	3/23/19; 73°F; elosdy			- /-
1 Location/le	dentification	yes	no	n/a
a	Is the well visible and accessible?	1/		
b	Is the well properly identified with the correct well ID?		$\overline{}$	
C	Is the well in a high traffic area and does the well require			
Ū	protection from traffic?		1	
d	Is the drainage around the well acceptable? (no standing water,	_		
_	nor is well located in obvious drainage flow path)			
2 Protective	Casing		÷	,
a a	Is the protective casing free from apparent damage and able to be	_		
u	secured?	· V		
b	Is the casing free of degradation or deterioration?	_		
C	Does the casing have a functioning weep hole?			
d	Is the annular space between casings clear of debris and water,		-	-
	or filled with pea gravel/sand?	V		
е	Is the well locked and is the lock in good condition?			
3 Surface pa	ad .			
а	Is the well pad in good condition (not cracked or broken)?		•	
b	Is the well pad sloped away from the protective casing?			
С	Is the well pad in complete contact with the protective casing?	1		
d	Is the well pad in complete contact with the ground surface and			
	stable? (not undermined by erosion, animal burrows, and does not			
	move when stepped on)	₩		
е	Is the pad surface clean (not covered with sediment or debris)?			
4 Internal ca	sina			
a	Does the cap prevent entry of foreign material into the well?	\mathcal{I}		
b	Is the casing free of kinks or bends, or any obstructions from	- /		
	foreign objects (such as bailers)?			
С	Is the well properly vented for equilibration of air pressure?	1	-	
d	Is the survey point clearly marked on the inner casing?			
е	Is the depth of the well consistent with the original well log?	~		
f	Is the casing stable? (or does the pvc move easily when touched			
	or can it be taken apart by hand due to lack of grout or use of slip	/		
	couplings in construction)	<u>,</u>		
5 Sampling:	Groundwater Wells Only:	1		
	Does well recharge adequately when purged?	V	_	
	If dedicated sampling equipment installed, is it in good condition			
	and specified in the approved groundwater plan for the facility?		_ /	
С	Does the well require redevelopment (low flow, turbid)?			
6 Based on v	our professional judgement, is the well construction / location			
	appropriate to 1) achieve the objectives of the Groundwater		/	
	Monitoring Program and 2) comply with the applicable regulatory	/		
	requirements?	V		

	01 11			
Name	Plant Hammond	<		
nit Number		-		
ID field conditions	16NC-109	-		
, field conditions	8/2/10 75 - 6/00/09			/
1 Location/le	- tentification	yes	no	n/a
a	Is the well visible and accessible?	\int		
b	Is the well properly identified with the correct well ID?			-
C	Is the well in a high traffic area and does the well require			
Ū	protection from traffic?		\checkmark	
d	Is the drainage around the well acceptable? (no standing water,	-/		
	nor is well located in obvious drainage flow path)			
2 Protective	Casing			
a	Is the protective casing free from apparent damage and able to be			
	secured?	V		
b	Is the casing free of degradation or deterioration?	-,//	-	-
С	Does the casing have a functioning weep hole?	7		
d	Is the annular space between casings clear of debris and water,			
	or filled with pea gravel/sand?	Ų		
е	Is the well locked and is the lock in good condition?			::
3 Surface pa	ad			
a	Is the well pad in good condition (not cracked or broken)?	1		
b	Is the well pad sloped away from the protective casing?		1/	
С	Is the well pad in complete contact with the protective casing?			
d	Is the well pad in complete contact with the ground surface and			
	stable? (not undermined by erosion, animal burrows, and does not			
	move when stepped on)			
е	Is the pad surface clean (not covered with sediment or debris)?			
4 <u>Internal ca</u>	sing			
	Does the cap prevent entry of foreign material into the well?	V		
	Is the casing free of kinks or bends, or any obstructions from			
	foreign objects (such as bailers)?	/		
С	Is the well properly vented for equilibration of air pressure?	7		
d	Is the survey point clearly marked on the inner casing?	7	-	
е	Is the depth of the well consistent with the original well log?			
f	Is the casing stable? (or does the pvc move easily when touched			
	or can it be taken apart by hand due to lack of grout or use of slip	/		
	couplings in construction)			
5 Sampling:	Groundwater Wells Only:			
	Does well recharge adequately when purged?	\		
b	If dedicated sampling equipment installed, is it in good condition			
	and specified in the approved groundwater plan for the facility?		,	م
С	Does the well require redevelopment (low flow, turbid)?			
6 Based on v	our professional judgement, is the well construction / location			
	appropriate to 1) achieve the objectives of the Groundwater	*200		
	Monitoring Program and 2) comply with the applicable regulatory			
	requirements?	1		
	•			
	actions as needed, by date:			

Name nit Number	Plant Klammond	-0		
ID	116116-07	-0		
, field conditions	ACHO-117 Rhain: 77 OF ALMOU	-0		
, neia conditions	Bhair; 77 of sumy	yes	no	n/a
1 Location/	dentification	yes	110	II/a
a	Is the well visible and accessible?	\checkmark		
b	Is the well properly identified with the correct well ID?			
C	Is the well in a high traffic area and does the well require			
C	protection from traffic?			
d	Is the drainage around the well acceptable? (no standing water,			
u	nor is well located in obvious drainage flow path)			
	The is well located in obvious drainage now pathy			
2 Protective	Casing			
а	Is the protective casing free from apparent damage and able to be	1		
	secured?	V		
b	Is the casing free of degradation or deterioration?	7		
С	Does the casing have a functioning weep hole?	/		
d	Is the annular space between casings clear of debris and water,	/		
	or filled with pea gravel/sand?			
е	Is the well locked and is the lock in good condition?			
0.0	- 4			3
3 <u>Surface p</u>		/		
a	Is the well pad in good condition (not cracked or broken)?	- W.		
b	Is the well pad sloped away from the protective casing?		<u> </u>	
C	Is the well pad in complete contact with the protective casing?	_		
d	Is the well pad in complete contact with the ground surface and	,		
	stable? (not undermined by erosion, animal burrows, and does not			
	move when stepped on)	<u> </u>		
е	Is the pad surface clean (not covered with sediment or debris)?			
4 Internal ca	asing			
a	Does the cap prevent entry of foreign material into the well?			
b	Is the casing free of kinks or bends, or any obstructions from		-	
	foreign objects (such as bailers)?			
С	Is the well properly vented for equilibration of air pressure?		-	
d	Is the survey point clearly marked on the inner casing?	$\overline{}$		3
е	Is the depth of the well consistent with the original well log?	1		
f	Is the casing stable? (or does the pvc move easily when touched			
	or can it be taken apart by hand due to lack of grout or use of slip	/		
	couplings in construction)	<u> </u>		
E Complia	Croundwater Walla Only			
	Groundwater Wells Only: Does well recharge adequately when purged?			
a b	If dedicated sampling equipment installed, is it in good condition	-		
D	and specified in the approved groundwater plan for the facility?			1
_	Does the well require redevelopment (low flow, turbid)?			3
С	boes the well require redevelopment (low now, turbid):	-		
6 Based on	your professional judgement, is the well construction / location			
	appropriate to 1) achieve the objectives of the Groundwater			
	Monitoring Program and 2) comply with the applicable regulatory	,		
	requirements?			
				$\overline{}$
	actions as needed, by date:			

Site Name	Plant Hammond			
ermit Number		- 3		
Vell ID	HGWC = 118	-		
ate, field conditions		5 8		
		yes	no	n/a
1 Location/I	dentification	,		
a	Is the well visible and accessible?	1		
b	Is the well properly identified with the correct well ID?			3
С	Is the well in a high traffic area and does the well require protection from traffic?		1	
d	Is the drainage around the well acceptable? (no standing water,		—	
ŭ	nor is well located in obvious drainage flow path)	<u> </u>		S
2 Protective	Casing			
a a	Is the protective casing free from apparent damage and able to be			
u	secured?	/		
b	Is the casing free of degradation or deterioration?			
c	Does the casing have a functioning weep hole?	<u></u>		
d	Is the annular space between casings clear of debris and water,			
-	or filled with pea gravel/sand?	√ .		
е	Is the well locked and is the lock in good condition?			
	·			
3 Surface pa				
а	Is the well pad in good condition (not cracked or broken)?			
b	Is the well pad sloped away from the protective casing?		\checkmark	
С	Is the well pad in complete contact with the protective casing?			
d	Is the well pad in complete contact with the ground surface and	,		
	stable? (not undermined by erosion, animal burrows, and does not			
	move when stepped on)	<u> </u>		
е	Is the pad surface clean (not covered with sediment or debris)?	_		
4 Internal ca	sina			
a	Does the cap prevent entry of foreign material into the well?	/		
b	Is the casing free of kinks or bends, or any obstructions from			
-	foreign objects (such as bailers)?	/		
С	Is the well properly vented for equilibration of air pressure?	$\overline{\mathcal{N}}$		10
d	Is the survey point clearly marked on the inner casing?	1		
е	Is the depth of the well consistent with the original well log?	.,/		
f	Is the casing stable? (or does the pvc move easily when touched			-
	or can it be taken apart by hand due to lack of grout or use of slip	,		
	couplings in construction)			
5 Sampling:	Groundwater Wells Only:	,		
а	Does well recharge adequately when purged?	/		
b	If dedicated sampling equipment installed, is it in good condition			
	and specified in the approved groundwater plan for the facility?			
С	Does the well require redevelopment (low flow, turbid)?			
6 Based on	your professional judgement, is the well construction / location			
	appropriate to 1) achieve the objectives of the Groundwater			
	Monitoring Program and 2) comply with the applicable regulatory	1		
	requirements?			
7.0	and an accorded by the			
/ Corrective	actions as needed, by date:			

Groundwater Monitoring Well Integrity Form Plant Hammond Site Name Permit Number Well ID Pate, field conditions 8/21/19 ves no n/a 1 Location/Identification Is the well visible and accessible? а Is the well properly identified with the correct well ID? b Is the well in a high traffic area and does the well require С protection from traffic? d Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path) 2 Protective Casing Is the protective casing free from apparent damage and able to be а secured? b Is the casing free of degradation or deterioration? Does the casing have a functioning weep hole? С Is the annular space between casings clear of debris and water, d or filled with pea gravel/sand? Is the well locked and is the lock in good condition? е 3 Surface pad Is the well pad in good condition (not cracked or broken)? а Is the well pad sloped away from the protective casing? b Is the well pad in complete contact with the protective casing? С d Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on) Is the pad surface clean (not covered with sediment or debris)? е 4 Internal casing а Does the cap prevent entry of foreign material into the well? Is the casing free of kinks or bends, or any obstructions from b foreign objects (such as bailers)? Is the well properly vented for equilibration of air pressure? С d Is the survey point clearly marked on the inner casing? Is the depth of the well consistent with the original well log? е Is the casing stable? (or does the pvc move easily when touched f or can it be taken apart by hand due to lack of grout or use of slip couplings in construction) 5 Sampling: Groundwater Wells Only: а Does well recharge adequately when purged? b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? Does the well require redevelopment (low flow, turbid)? С 6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater

Signature and Seal of PE/PG responsible for inspection

Monitoring Program and 2) comply with the applicable regulatory

requirements?

7 Corrective actions as needed, by date:

ame	Plant Hammond	= 8		
Number	7.1.	•0		
) : . ! . ! !!!!	GWC-4	-		
iela conditions	8/21/19; 75° 15 cloudy			/-
1 Location/I	dentification	yes	no	n/a
a	Is the well visible and accessible?			
b	Is the well properly identified with the correct well ID?	<u> </u>		
C	Is the well in a high traffic area and does the well require			$\overline{}$
O	protection from traffic?	~	1	
d	Is the drainage around the well acceptable? (no standing water,			
u	nor is well located in obvious drainage flow path)	V		
0.0				
2 Protective				
а	Is the protective casing free from apparent damage and able to be secured?			
b	Is the casing free of degradation or deterioration?			ā
С	Does the casing have a functioning weep hole?		<u></u>	
d	Is the annular space between casings clear of debris and water,			
	or filled with pea gravel/sand?	_		/ <u>-</u>
е	Is the well locked and is the lock in good condition?			
3 Surface pa	ad			
а	Is the well pad in good condition (not cracked or broken)?			
b	Is the well pad sloped away from the protective casing?			
С	Is the well pad in complete contact with the protective casing?	5		
d	Is the well pad in complete contact with the ground surface and			
	stable? (not undermined by erosion, animal burrows, and does not	,		
	move when stepped on)	V		
е	Is the pad surface clean (not covered with sediment or debris)?	<u> </u>		
4 Internal ca	sina			
a	Does the cap prevent entry of foreign material into the well?			
b	Is the casing free of kinks or bends, or any obstructions from	<u> </u>		
	foreign objects (such as bailers)?			
С	Is the well properly vented for equilibration of air pressure?			
d	Is the survey point clearly marked on the inner casing?		<u></u>	
е	Is the depth of the well consistent with the original well log?	7		
f	Is the casing stable? (or does the pvc move easily when touched			
	or can it be taken apart by hand due to lack of grout or use of slip	1		
	couplings in construction)			
5 <u>S</u> ampling:	Groundwater Wells Only:			
a	Does well recharge adequately when purged?			
b	If dedicated sampling equipment installed, is it in good condition			
	and specified in the approved groundwater plan for the facility?			
С	Does the well require redevelopment (low flow, turbid)?			
6 Based on	your professional judgement, is the well construction / location			
	appropriate to 1) achieve the objectives of the Groundwater	w.		
	Monitoring Program and 2) comply with the applicable regulatory	/		
	requirements?	J		
	actions as needed, by date:			

Site Name	Plant Hammond	_		
ermit Number	*	-8		
Vell ID	GNC-0	_		
Pate, field conditions	8/21/19) 75°F overrast	- yes	no	n/a
1 Location/	Identification	y00	110	11/4
а	Is the well visible and accessible?			
b	Is the well properly identified with the correct well ID?	<u> </u>		
С	Is the well in a high traffic area and does the well require protection from traffic?	/	7	
d	Is the drainage around the well acceptable? (no standing water,			-
	nor is well located in obvious drainage flow path)	_		
2 Protective	e Casing			
а	Is the protective casing free from apparent damage and able to be)		
	secured?	<u> </u>		
b	Is the casing free of degradation or deterioration?			
С	Does the casing have a functioning weep hole?			
d	Is the annular space between casings clear of debris and water,	1		
0	or filled with pea gravel/sand?		-	
е	Is the well locked and is the lock in good condition?		-	
3 <u>Surface p</u>		/		
a	Is the well pad in good condition (not cracked or broken)?			:
b	Is the well pad sloped away from the protective casing?			
C	Is the well pad in complete contact with the protective casing?	_		
d	Is the well pad in complete contact with the ground surface and			
	stable? (not undermined by erosion, animal burrows, and does not	')		
0	move when stepped on) Is the pad surface clean (not covered with sediment or debris)?			
е	,			
4 <u>Internal c</u>		1		
a	Does the cap prevent entry of foreign material into the well?			
b	Is the casing free of kinks or bends, or any obstructions from	/		
	foreign objects (such as bailers)?	<u>v</u>		
C	Is the well properly vented for equilibration of air pressure?			(
d	Is the survey point clearly marked on the inner casing? Is the depth of the well consistent with the original well log?			(********):
e f	Is the casing stable? (or does the pvc move easily when touched			
L,	or can it be taken apart by hand due to lack of grout or use of slip	1		
	couplings in construction)	<u>/_</u>		
5 <u>Sampling</u>	: Groundwater Wells Only:			
а	Does well recharge adequately when purged?			
b	If dedicated sampling equipment installed, is it in good condition			
	and specified in the approved groundwater plan for the facility?			
С	Does the well require redevelopment (low flow, turbid)?			
6 Based on	your professional judgement, is the well construction / location			
	appropriate to 1) achieve the objectives of the Groundwater	797		
	Monitoring Program and 2) comply with the applicable regulatory	/		
	requirements?	<u>~</u>		
7 Corrective	e actions as needed, by date:			
	· • · · · · · · · · · · · · · · · · · ·			
-				

Name	Plant Hammond			
nit Number		- 2		
ID	GWC-8			
, field conditions		_		
1 Location/I	dentification	yes /	no	n/a
а	Is the well visible and accessible?	V		
b	Is the well properly identified with the correct well ID?	1		
С	Is the well in a high traffic area and does the well require			2
	protection from traffic?	\checkmark	1	
d	Is the drainage around the well acceptable? (no standing water,			3
	nor is well located in obvious drainage flow path)	_		
2 Protective	Casing			
а	Is the protective casing free from apparent damage and able to be	,		
	secured?			
b	Is the casing free of degradation or deterioration?			
С	Does the casing have a functioning weep hole?	X	_	
d	Is the annular space between casings clear of debris and water,			-
	or filled with pea gravel/sand?	<u> </u>		
е	Is the well locked and is the lock in good condition?			
3 <u>Surface pa</u>		/		
а	Is the well pad in good condition (not cracked or broken)?	✓		
b	Is the well pad sloped away from the protective casing?			
С	Is the well pad in complete contact with the protective casing?	/		
d	Is the well pad in complete contact with the ground surface and			
	stable? (not undermined by erosion, animal burrows, and does no	t ,		
	move when stepped on)	<u> </u>		
е	Is the pad surface clean (not covered with sediment or debris)?			
4 Internal ca	asing	,		
а	Does the cap prevent entry of foreign material into the well?			
b	Is the casing free of kinks or bends, or any obstructions from			
	foreign objects (such as bailers)?	V		
С	Is the well properly vented for equilibration of air pressure?	~		
d	Is the survey point clearly marked on the inner casing?		$\overline{}$	
е	Is the depth of the well consistent with the original well log?	√		
f	Is the casing stable? (or does the pvc move easily when touched			
	or can it be taken apart by hand due to lack of grout or use of slip	,		
	couplings in construction)			
5 Sampling:	Groundwater Wells Only:			
a	Does well recharge adequately when purged?			
b	If dedicated sampling equipment installed, is it in good condition			
	and specified in the approved groundwater plan for the facility?			
С	Does the well require redevelopment (low flow, turbid)?			:
	your professional judgement, is the well construction / location			
	appropriate to 1) achieve the objectives of the Groundwater			
	Monitoring Program and 2) comply with the applicable regulatory			
	requirements?			
				_
7 Corrective	actions as needed, by date:			

ame	Mant Hammond			
t Number				
)	6NA~14			
field conditions	8/21/19:79 + portly dough	-		
		yes	no	n/a
1 Location/I	<u>dentification</u>	1		
а	Is the well visible and accessible?	4,	4	
b	Is the well properly identified with the correct well ID?	7		
С	Is the well in a high traffic area and does the well require			·
	protection from traffic?			
d	Is the drainage around the well acceptable? (no standing water,	1		<u></u>
	nor is well located in obvious drainage flow path)	V_	·	
2 Protective	Casing			
a <u>Frotective</u>	Is the protective casing free from apparent damage and able to be			
а	secured?	/		
h	Is the casing free of degradation or deterioration?			
b	Does the casing have a functioning weep hole?	4		
С	Is the annular space between casings clear of debris and water,			
d	or filled with pea gravel/sand?	1		
е	Is the well locked and is the lock in good condition?	<u> </u>		-
C	13 the Well locked and 13 the lock in good condition:			
3 Surface pa		,		
а	Is the well pad in good condition (not cracked or broken)?			
b	Is the well pad sloped away from the protective casing?			
С	Is the well pad in complete contact with the protective casing?			
d	Is the well pad in complete contact with the ground surface and			
	stable? (not undermined by erosion, animal burrows, and does no	t .		
	move when stepped on)			
е	Is the pad surface clean (not covered with sediment or debris)?			
4 Internal ca	sing			
a	Does the cap prevent entry of foreign material into the well?			
b	Is the casing free of kinks or bends, or any obstructions from			
D	foreign objects (such as bailers)?	/		
С	Is the well properly vented for equilibration of air pressure?	_	•—	
d	Is the survey point clearly marked on the inner casing?	7		.
e	Is the depth of the well consistent with the original well log?			
f	Is the casing stable? (or does the pvc move easily when touched			
·	or can it be taken apart by hand due to lack of grout or use of slip			
	couplings in construction)	/		
F Co!	Over malicration IM-III- Over	32 TA		
	Groundwater Wells Only:			
a	Does well recharge adequately when purged?			
b	If dedicated sampling equipment installed, is it in good condition			
_	and specified in the approved groundwater plan for the facility?		·	
С	Does the well require redevelopment (low flow, turbid)?		:	
6 Based on	your professional judgement, is the well construction / location			
	appropriate to 1) achieve the objectives of the Groundwater			
	Monitoring Program and 2) comply with the applicable regulatory	1		
	requirements?	/		
	actions as needed, by date:			

lame	Plant Hammond			
t Number				
D	GWA-15	=		
field conditions	shills; the partly cloudy	-	200	n/a
1 Location/	Identification	yes	no	n/a
а	Is the well visible and accessible?	√		
b	Is the well properly identified with the correct well ID?			
С	Is the well in a high traffic area and does the well require			
	protection from traffic?		*	
d	Is the drainage around the well acceptable? (no standing water,	$\overline{}$		
	nor is well located in obvious drainage flow path)	<u>J</u>		
2 Protective	e Casing			
а	Is the protective casing free from apparent damage and able to be	•		
	secured?	V		
b	Is the casing free of degradation or deterioration?	J		
С	Does the casing have a functioning weep hole?	J		
d	Is the annular space between casings clear of debris and water,	,		-
	or filled with pea gravel/sand?	<u> </u>		
е	Is the well locked and is the lock in good condition?			
3 <u>Surface p</u>				
а	Is the well pad in good condition (not cracked or broken)?	<u> </u>		
b	Is the well pad sloped away from the protective casing?		_#	
С	Is the well pad in complete contact with the protective casing?	<u> </u>	1	
d	Is the well pad in complete contact with the ground surface and			
	stable? (not undermined by erosion, animal burrows, and does not			
	move when stepped on)			
е	Is the pad surface clean (not covered with sediment or debris)?	L)		
4 Internal c	asing			
а	Does the cap prevent entry of foreign material into the well?			
b	Is the casing free of kinks or bends, or any obstructions from			
	foreign objects (such as bailers)?	V		
С	Is the well properly vented for equilibration of air pressure?	11		
d	Is the survey point clearly marked on the inner casing?	./		
е	Is the depth of the well consistent with the original well log?	/		
f	Is the casing stable? (or does the pvc move easily when touched			
	or can it be taken apart by hand due to lack of grout or use of slip	./		
	couplings in construction)		-	
5 Sampling	: Groundwater Wells Only:			
а	Does well recharge adequately when purged?			
b	If dedicated sampling equipment installed, is it in good condition			
	and specified in the approved groundwater plan for the facility?			
С	Does the well require redevelopment (low flow, turbid)?			
6 Based on	your professional judgement, is the well construction / location	1		
	appropriate to 1) achieve the objectives of the Groundwater	1		
	Monitoring Program and 2) comply with the applicable regulatory	1		
	requirements?	V		
7 Corrective	e actions as needed, by date:			
, conective	actions as needed, by date.			
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lame	Plant Himmend			
it Number		-0		
D	GWA-16	=0		
field conditions	0/21/19: 29 F Partly cloudy	- 0		
		yes	no	n/a
1 Location/le	<u>dentification</u>			
а	Is the well visible and accessible?			
b	Is the well properly identified with the correct well ID?	—		
С	Is the well in a high traffic area and does the well require			
	protection from traffic?			
d	Is the drainage around the well acceptable? (no standing water,	1	3	
	nor is well located in obvious drainage flow path)	<u></u>		
2 Protective	Cacina			
2 <u>Protective</u> a	Is the protective casing free from apparent damage and able to be	,		
α	secured?			
b	Is the casing free of degradation or deterioration?			
C	Does the casing have a functioning weep hole?			
d	Is the annular space between casings clear of debris and water,		-	-
J	or filled with pea gravel/sand?	/		
е	Is the well locked and is the lock in good condition?			
3 <u>Surface pa</u>		./		
а	Is the well pad in good condition (not cracked or broken)?			
b	Is the well pad sloped away from the protective casing?			
С	Is the well pad in complete contact with the protective casing?	~		
d	Is the well pad in complete contact with the ground surface and			
	stable? (not undermined by erosion, animal burrows, and does not			
	move when stepped on)			
е	Is the pad surface clean (not covered with sediment or debris)?			
4 Internal ca	sina	,		
a	Does the cap prevent entry of foreign material into the well?			
b	Is the casing free of kinks or bends, or any obstructions from			:
	foreign objects (such as bailers)?	✓		
С	Is the well properly vented for equilibration of air pressure?	1		
d	Is the survey point clearly marked on the inner casing?	J		
е	Is the depth of the well consistent with the original well log?	13		
f	Is the casing stable? (or does the pvc move easily when touched			.——
	or can it be taken apart by hand due to lack of grout or use of slip	/		
	couplings in construction)	1		<u></u>
E C!	Cucum du atau Malla Contra			
	Groundwater Wells Only:			
	Does well recharge adequately when purged?			
	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?			
	Does the well require redevelopment (low flow, turbid)?			-
C	boes the well require redevelopment (low now, turbid):			
6 Based on	our professional judgement, is the well construction / location			
	appropriate to 1) achieve the objectives of the Groundwater			
	Monitoring Program and 2) comply with the applicable regulatory	,		
	requirements?	N		
	roquironionio.			

Groundwater Monitoring Well Integrity Form plant Hammond Site Name Permit Number CWC-19 Well ID ate, field conditions yes n/a 1 Location/Identification Is the well visible and accessible? а b Is the well properly identified with the correct well ID? Is the well in a high traffic area and does the well require С protection from traffic? Is the drainage around the well acceptable? (no standing water, d nor is well located in obvious drainage flow path) 2 Protective Casing Is the protective casing free from apparent damage and able to be а secured? b Is the casing free of degradation or deterioration? Does the casing have a functioning weep hole? C Is the annular space between casings clear of debris and water, d or filled with pea gravel/sand? Is the well locked and is the lock in good condition? е 3 Surface pad а Is the well pad in good condition (not cracked or broken)? Is the well pad sloped away from the protective casing? b Is the well pad in complete contact with the protective casing? C d Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on) Is the pad surface clean (not covered with sediment or debris)? е 4 Internal casing Does the cap prevent entry of foreign material into the well? а Is the casing free of kinks or bends, or any obstructions from b foreign objects (such as bailers)? Is the well properly vented for equilibration of air pressure? С Is the survey point clearly marked on the inner casing? d Is the depth of the well consistent with the original well log? е Is the casing stable? (or does the pvc move easily when touched f or can it be taken apart by hand due to lack of grout or use of slip couplings in construction) 5 Sampling: Groundwater Wells Only: Does well recharge adequately when purged? а If dedicated sampling equipment installed, is it in good condition b and specified in the approved groundwater plan for the facility? Does the well require redevelopment (low flow, turbid)? 6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater

Monitoring Program and 2) comply with the applicable regulatory

7 Corrective actions as needed, by date:

requirements?

Field Technicia	n: Chaci I	20450	Site/Location	Plank	Hama	WAS APA	j Ir	spection Date: 10/21/19
					Well Inspect	ion Items		
Well ID	Inspection			Prese	ent (Y/N)			Comments regarding well condition
Well ID	Time	Lock	Locking Cap	Bollards	Concrete Pad	Protective Casing	Vegetation	Comments regarding well condition
H GWK-109	0905	Y	N	4	Y	4	Ý	
CLWC-8	0925	Ý	У	y	9	4	4	
16WC-103	0435	Y	N	7	7	4	4	
5WG-6	04.40	Y	4	Y	.4	4	Y	
H GWC-105	0950	Y	N	Y	y	Y	Y	
3WC-4		γ	y	Ý	Y	Y	Y	
16,WC-103	1000	4	N	4	y	y	γ	···
HGY C-102	(005	Y	Y	P	9	Y	Y	
it 610×-161	1010	Y	N	Y	Y	Ý	4	
GWC-19		Υ	Y	У	Ý	У	Y	
HGWC-113		Y	N	4	y	4	7	
MW-12	1025	У	Y	4	Y	y	Y	
HGWC-117	1040	4	N	Y	y	4	<i>y</i>	
GWA-16	1045	Ý	Y	4	4	Y	9	
11GWA-5		4	N	4	Y	Y	y	
YGWA-6		У	~	Y	У	y	4	
GWA-15	1115	7	4	ý	У	4	4	× ====================================
SWA-14	1125	Y	ع	4	4	Y	7	
46WA-113		y	N	J	7	Y	y	
H COWATILZ		7	N	γ	7	1	Y	
16-44-111	1156	1	\mathcal{N}	9	Y	7	7	

plant Hammond				
	_			
	_			
10/21/19 GET darly	- 400	no	n/o	
	yes	no	II/a	
Is the well visible and accessible?	./			
Is the well properly identified with the correct well ID?				
Is the well in a high traffic area and does the well require			-	
protection from traffic?		1		
Is the drainage around the well acceptable? (no standing water,) 	
nor is well located in obvious drainage flow path)				
Casing				
	,			
secured?	J			
Is the casing free of degradation or deterioration?	1	-		
	✓			
Is the well locked and is the lock in good condition?				
ad	_			
	/			
	<u> </u>			
Is the well pad in complete contact with the protective casing?	-			
Is the well pad in complete contact with the ground surface and	<u>~</u>			
	F.	,		minor
move when stepped on)				610314
Is the pad surface clean (not covered with sediment or debris)?				
sing				
Does the cap prevent entry of foreign material into the well?	1			
foreign objects (such as bailers)?	/			
	-			
Is the depth of the well consistent with the original well log?				
couplings in construction)				
Groundwater Wells Only:				
Does well recharge adequately when purged?	/			
Our professional judgement is the well construction / location	_			
actions as needed, by date:				
	Is the well properly identified with the correct well ID? Is the well in a high traffic area and does the well require protection from traffic? Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path) Casing Is the protective casing free from apparent damage and able to be secured? Is the casing free of degradation or deterioration? Does the casing have a functioning weep hole? Is the annular space between casings clear of debris and water, or filled with pea gravel/sand? Is the well locked and is the lock in good condition? ad Is the well pad in good condition (not cracked or broken)? Is the well pad in complete contact with the protective casing? Is the well pad in complete contact with the ground surface and	dentification Is the well visible and accessible? Is the well properly identified with the correct well ID? Is the well properly identified with the correct well require protection from traffic? Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path) Casing Is the protective casing free from apparent damage and able to be secured? Is the casing free of degradation or deterioration? Does the casing have a functioning weep hole? Is the annular space between casings clear of debris and water, or filled with pea gravel/sand? Is the well locked and is the lock in good condition? Is the well pad in good condition (not cracked or broken)? Is the well pad in complete contact with the protective casing? Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on) Is the pad surface clean (not covered with sediment or debris)? Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)? Is the easing free of kinks or bends, or any obstructions from foreign objects (such as bailers)? Is the easing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction) Groundwater Wells Only: Does well recharge adequately when purged? If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? Does the well require redevelopment (low flow, turbid)? Your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory	dentification Is the well visible and accessible? Is the well properly identified with the correct well ID? Is the well in a high traffic area and does the well require protection from traffic? Is the well in a high traffic area and does the well require protection from traffic? Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path) **Casing** Is the protective casing free from apparent damage and able to be secured? Is the casing free of degradation or deterioration? Does the casing have a functioning weep hole? Is the annular space between casings clear of debris and water, or filled with pea gravel/sand? Is the well pad in good condition (not cracked or broken)? Is the well pad in good condition (not cracked or broken)? Is the well pad in complete contact with the protective casing? Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on) Is the pad surface clean (not covered with sediment or debris)? Is the acsing free of kinks or bends, or any obstructions from foreign objects (such as bailers)? Is the survey point clearly marked on the inner casing? Is the easing stable? 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ite Name	Plant Hammond	e.		
ermit Number				
Vell ID	11GWA-113	•		
ate, field conditions	10/22/14; 61°F; SURDY	-:		
4.1		yes	no	n/a
1 Location/I		/		
a	Is the well visible and accessible?			
b	Is the well properly identified with the correct well ID?			
С	Is the well in a high traffic area and does the well require		,	
	protection from traffic?			
d	Is the drainage around the well acceptable? (no standing water,	,		
	nor is well located in obvious drainage flow path)			
2 Protective	Casing			
а	Is the protective casing free from apparent damage and able to be			
	secured?	√		
b	Is the casing free of degradation or deterioration?	(
С	Does the casing have a functioning weep hole?	<u></u>		
d	Is the annular space between casings clear of debris and water,			
	or filled with pea gravel/sand?			
е	Is the well locked and is the lock in good condition?			
3 Surface pa	ad			
а	Is the well pad in good condition (not cracked or broken)?	1		
b	Is the well pad sloped away from the protective casing?	1		
С	Is the well pad in complete contact with the protective casing?			
d	Is the well pad in complete contact with the ground surface and			-
	stable? (not undermined by erosion, animal burrows, and does not	/		
	move when stepped on)			
е	Is the pad surface clean (not covered with sediment or debris)?			
4 Internal ca	sina			
a	Does the cap prevent entry of foreign material into the well?	1		
b	Is the casing free of kinks or bends, or any obstructions from			
	foreign objects (such as bailers)?	/		
С	Is the well properly vented for equilibration of air pressure?	_		
d	Is the survey point clearly marked on the inner casing?	J		
е	Is the depth of the well consistent with the original well log?	7		
f	Is the casing stable? (or does the pvc move easily when touched			
	or can it be taken apart by hand due to lack of grout or use of slip	/		
	couplings in construction)	<u>:√</u>		
5 Sampling:	Groundwater Wells Only:	7		
	Does well recharge adequately when purged?			
b	If dedicated sampling equipment installed, is it in good condition	1		
	and specified in the approved groundwater plan for the facility?	<u>/</u>		
С	Does the well require redevelopment (low flow, turbid)?		$\overline{\mathcal{L}}$	
6 Based on v	our professional judgement, is the well construction / location			
	appropriate to 1) achieve the objectives of the Groundwater			
	Monitoring Program and 2) comply with the applicable regulatory	1		
	requirements?	/		
7 Correction	actions as needed by deta-			
/ Corrective	actions as needed, by date:			
-				

Site Name	Hammond			
Permit Number				
Well ID	HGWA-113	=0		
Pate, field conditions	10/22/2014 Dump / Clew	→: =:		
1 Location/le		yes	no	n/a
а	Is the well visible and accessible?	1		
b	Is the well properly identified with the correct well ID?	J		
С	Is the well in a high traffic area and does the well require protection from traffic?	J		
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	J		
2 Protective	Casing			
a	Is the protective casing free from apparent damage and able to be secured?			
b	Is the casing free of degradation or deterioration?			-
С	Does the casing have a functioning weep hole?			
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	-V		
е	Is the well locked and is the lock in good condition?	-J		
3 Surface pa	ad		-	
	Is the well pad in good condition (not cracked or broken)?			
b	Is the well pad sloped away from the protective casing?			
С	Is the well pad in complete contact with the protective casing?			
	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not			
	move when stepped on) Is the pad surface clean (not covered with sediment or debris)?	-	-	
4 Internal ca	sing			
a	Does the cap prevent entry of foreign material into the well?			
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?			
С	Is the well properly vented for equilibration of air pressure?	J		
	Is the survey point clearly marked on the inner casing?	V		
	Is the depth of the well consistent with the original well log?	1		
	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)			
	Groundwater Wells Only:			
	<u>Groundwater Wells Only:</u> Does well recharge adequately when purged?	,		
	If dedicated sampling equipment installed, is it in good condition			,
	and specified in the approved groundwater plan for the facility?	./		
	Does the well require redevelopment (low flow, turbid)?	<u></u>	_	
1	rour professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	/		
7 Corrective	actions as needed, by date:			

lame	Plant Hammand	_		
it Number D	Trees	_		
	HGWC-101	_		
field conditions	10/27/19 runny 520F			
1 Location/I	dentification	yes	no	n/a
а	Is the well visible and accessible?			
b	Is the well properly identified with the correct well ID?	-,/	_	
С	Is the well in a high traffic area and does the well require		~	_
	protection from traffic?		./	
d	Is the drainage around the well acceptable? (no standing water,		_~_	
	nor is well located in obvious drainage flow path)	1		
2 Protective	Casing			
a	Is the protective casing free from apparent damage and able to be	2 20		
	secured?			
b	Is the casing free of degradation or deterioration?			
С	Does the casing have a functioning weep hole?			
d	Is the annular space between casings clear of debris and water,	<u> </u>		
	or filled with pea gravel/sand?	/		
е	Is the well locked and is the lock in good condition?		*****	
3 Surface pa	ad		-	
а	Is the well pad in good condition (not cracked or broken)?	. /		
b	Is the well pad sloped away from the protective casing?		-	
С	Is the well pad in complete contact with the protective casing?	~		
d	Is the well pad in complete contact with the ground surface and			
	stable? (not undermined by erosion, animal burrows, and does no	t		
	move when stepped on)	1		
	Is the pad surface clean (not covered with sediment or debris)?	~		
4 Internal ca	sina			
	Does the cap prevent entry of foreign material into the well?	/		
	Is the casing free of kinks or bends, or any obstructions from		-	_
	foreign objects (such as bailers)?	1		
	Is the well properly vented for equilibration of air pressure?		-	
d	Is the survey point clearly marked on the inner casing?			
	Is the depth of the well consistent with the original well log?			-
f	Is the casing stable? (or does the pvc move easily when touched		-	
	or can it be taken apart by hand due to lack of grout or use of slip			
	couplings in construction)			
	Groundwater Wells Only:	, norm		
	Does well recharge adequately when purged?	1		
	f dedicated sampling equipment installed, is it in good condition			
	and specified in the approved groundwater plan for the facility?		/	
С	Does the well require redevelopment (low flow, turbid)?	<u> </u>		
6 Based on y	our professional judgement, is the well construction / location			
á	appropriate to 1) achieve the objectives of the Groundwater			
	Monitoring Program and 2) comply with the applicable regulatory	/		
	requirements?	/		
	equirements:	0		

Number)	Plant Hammond	_		
	HGWC-162 8 1612719 39°F CLAR	_		
ield condition	5 16/27/19 34°F Clear	- 1/00	20	2/0
1 Location	/Identification	yes	no	n/a
а	Is the well visible and accessible?	/		
b	Is the well properly identified with the correct well ID?	A.		
С	Is the well in a high traffic area and does the well require			
	protection from traffic?		V	
d	Is the drainage around the well acceptable? (no standing water,			
	nor is well located in obvious drainage flow path)	J		
2 Protectiv	re Casing		******	
a	Is the protective casing free from apparent damage and able to be			
~	secured?	/		
b	Is the casing free of degradation or deterioration?		-	
C	Does the casing have a functioning weep hole?	~		
d	Is the annular space between casings clear of debris and water,		-	
	or filled with pea gravel/sand?	/		
е	Is the well locked and is the lock in good condition?	_		
3 Surface	pad			
a	Is the well pad in good condition (not cracked or broken)?	/		
b	Is the well pad sloped away from the protective casing?			
C	Is the well pad in complete contact with the protective casing?	-		-
d	Is the well pad in complete contact with the ground surface and		-	
	stable? (not undermined by erosion, animal burrows, and does not			
	move when stepped on)	1		
е	Is the pad surface clean (not covered with sediment or debris)?			
4 Internal of	asing			
a	Does the cap prevent entry of foreign material into the well?	/		
b	Is the casing free of kinks or bends, or any obstructions from			
~	foreign objects (such as bailers)?	1		
С	Is the well properly vented for equilibration of air pressure?		-	
d	Is the survey point clearly marked on the inner casing?	-		
e	Is the depth of the well consistent with the original well log?	<u> </u>		
f	Is the casing stable? (or does the pvc move easily when touched			
	or can it be taken apart by hand due to lack of grout or use of slip	1		
	couplings in construction)			
5 Sampling	: Groundwater Wells Only:	/		
а	Does well recharge adequately when purged?	1		
b	If dedicated sampling equipment installed, is it in good condition			
	and specified in the approved groundwater plan for the facility?			/
С	Does the well require redevelopment (low flow, turbid)?		8/	
6 Based on	your professional judgement, is the well construction / location			
	appropriate to 1) achieve the objectives of the Groundwater			
	Monitoring Program and 2) comply with the applicable regulatory	1		
	requirements?	/		
7.00	a anti-man and a state of the s			
/ Corrective	e actions as needed, by date:			

Name	Hammond	_		
nit Number		_		
ID	-H6WC-103	_		
, field conditions	10-23-2019 Cold / Clew	- 400	no	n/o
1 Location/I		yes	no	n/a
а	Is the well visible and accessible?			
b	Is the well properly identified with the correct well ID?	1		
С	Is the well in a high traffic area and does the well require			
	protection from traffic?	V		
d	Is the drainage around the well acceptable? (no standing water,			
	nor is well located in obvious drainage flow path)			
2 Protective				
а	Is the protective casing free from apparent damage and able to be secured?	./		
b	Is the casing free of degradation or deterioration?			
C	Does the casing have a functioning weep hole?			
d	Is the annular space between casings clear of debris and water,	_;		
	or filled with pea gravel/sand?	./		
е	Is the well locked and is the lock in good condition?			
3 Surface pa	ad			
a	Is the well pad in good condition (not cracked or broken)?	/		
b	Is the well pad sloped away from the protective casing?		-	
С	Is the well pad in complete contact with the protective casing?	-		
d	Is the well pad in complete contact with the ground surface and			
	stable? (not undermined by erosion, animal burrows, and does no			
	move when stepped on)	V		
е	Is the pad surface clean (not covered with sediment or debris)?	_/_		
4 Internal ca	sing			
	Does the cap prevent entry of foreign material into the well?	V		
b	Is the casing free of kinks or bends, or any obstructions from		-	
	foreign objects (such as bailers)?			
	Is the well properly vented for equilibration of air pressure?	1		
d	Is the survey point clearly marked on the inner casing?	1		
е	Is the depth of the well consistent with the original well log?			
	Is the casing stable? (or does the pvc move easily when touched			
	or can it be taken apart by hand due to lack of grout or use of slip	/		
	couplings in construction)			
	Groundwater Wells Only:			
	Does well recharge adequately when purged?			
	If dedicated sampling equipment installed, is it in good condition	./		
	and specified in the approved groundwater plan for the facility?			
С	Does the well require redevelopment (low flow, turbid)?			-
6 Based on y	rour professional judgement, is the well construction / location			
	appropriate to 1) achieve the objectives of the Groundwater			
	Monitoring Program and 2) comply with the applicable regulatory	./		
	requirements?			

e Name mit Number	Hartikeis	_		
ell ID	HGWC-105	-5		
	10-23-2019 (dd /c/an	-		
		yes	no	n/a
1 Location/Id		_		
а	Is the well visible and accessible?			
b	Is the well properly identified with the correct well ID?	ν		
С	Is the well in a high traffic area and does the well require protection from traffic?	V		
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)		_	
2 Protective	Casing			
a	Is the protective casing free from apparent damage and able to be secured?	ı. T		
b	Is the casing free of degradation or deterioration?	1		
С	Does the casing have a functioning weep hole?	V		
d	Is the annular space between casings clear of debris and water,			-
	or filled with pea gravel/sand?	_/_		
е	Is the well locked and is the lock in good condition?	1		
3 Surface pa	ad			
	ls the well pad in good condition (not cracked or broken)?	J		
	Is the well pad sloped away from the protective casing?		-	-
	Is the well pad in complete contact with the protective casing?		-	
	Is the well pad in complete contact with the ground surface and		*	
	stable? (not undermined by erosion, animal burrows, and does not			
	move when stepped on)	1		
	Is the pad surface clean (not covered with sediment or debris)?	V		
4 Internal ca	sing			
	Does the cap prevent entry of foreign material into the well?	./		
	Is the casing free of kinks or bends, or any obstructions from			
	foreign objects (such as bailers)?	200		
	Is the well properly vented for equilibration of air pressure?			
	Is the survey point clearly marked on the inner casing?			
	Is the depth of the well consistent with the original well log?			
	Is the casing stable? (or does the pvc move easily when touched	$\overline{}$		_
	or can it be taken apart by hand due to lack of grout or use of slip			
	couplings in construction)	V		
5 Compliant	Croundwater Malle Only			
	Groundwater Wells Only: Does well recharge adequately when purged?	,		
	If dedicated sampling equipment installed, is it in good condition			
	and specified in the approved groundwater plan for the facility? Does the well require redevelopment (low flow, turbid)?		-	
С	Does the well require redevelopment (low flow, turbid)?		<u></u>	
6 Based on y	our professional judgement, is the well construction / location			
	appropriate to 1) achieve the objectives of the Groundwater			
	Monitoring Program and 2) comply with the applicable regulatory	/		
	requirements?			

ite Name ermit Number	Hammond	9			
/ell ID	HGWL-107	5.2			
ate, field conditions		- :			
ato, nela conditione	10.22.2019 DARED / WEST		no	n/o	
1 Location/	Identification	yes	no	n/a	
a	Is the well visible and accessible?	,			
b	Is the well properly identified with the correct well ID?				
C	Is the well in a high traffic area and does the well require				
· ·	protection from traffic?	./			
d	Is the drainage around the well acceptable? (no standing water,			-	
ű.	nor is well located in obvious drainage flow path)	1/			
	The tree tree testing in obvious drainage now pains				
2 Protective					
а	Is the protective casing free from apparent damage and able to be				
	secured?				
b	Is the casing free of degradation or deterioration?	-V			
С	Does the casing have a functioning weep hole?	1			
d	Is the annular space between casings clear of debris and water,				
	or filled with pea gravel/sand?				
е	Is the well locked and is the lock in good condition?				
2 Curtoso m	and				
3 <u>Surface p</u>		./			
a	Is the well pad in good condition (not cracked or broken)?		-		
b	Is the well pad sloped away from the protective casing?				
C	Is the well pad in complete contact with the protective casing?				
d	Is the well pad in complete contact with the ground surface and				
	stable? (not undermined by erosion, animal burrows, and does not	/			31
0	move when stepped on)				minor dibns form vegetation
е	Is the pad surface clean (not covered with sediment or debris)?				town rede
4 Internal ca	asing	,			
а	Does the cap prevent entry of foreign material into the well?				
b	Is the casing free of kinks or bends, or any obstructions from				
	foreign objects (such as bailers)?	V			
С	Is the well properly vented for equilibration of air pressure?	J			
d	Is the survey point clearly marked on the inner casing?	V			
е	Is the depth of the well consistent with the original well log?	J			
f	Is the casing stable? (or does the pvc move easily when touched				
	or can it be taken apart by hand due to lack of grout or use of slip				
	couplings in construction)				
5 Complina	Groundwater Wells Only:				
	Does well recharge adequately when purged?	./			
a b	If dedicated sampling equipment installed, is it in good condition				
D	and specified in the approved groundwater plan for the facility?	-1			
С	Does the well require redevelopment (low flow, turbid)?				
O	boos the well require redevelopment (low now, turbla):			-	
6 Based on	your professional judgement, is the well construction / location				
	appropriate to 1) achieve the objectives of the Groundwater				
	Monitoring Program and 2) comply with the applicable regulatory				
	requirements?	V			
- •					
7 Corrective	actions as needed, by date:				
÷					

Site Name	Hammond	_		
Permit Number		_		
Well ID	HGWC-109	_		
ate, field conditions	10-22-2019 Damp / Clear	_		
1 Location/I		yes	no	n/a
a	Is the well visible and accessible?	/		
b	Is the well properly identified with the correct well ID?	7		·——
С	Is the well in a high traffic area and does the well require protection from traffic?	J	:	
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)			_
2 Protective	Casing			
а	Is the protective casing free from apparent damage and able to be secured?	•		
b	Is the casing free of degradation or deterioration?	- - -		
С	Does the casing have a functioning weep hole?	1	3	
d	Is the annular space between casings clear of debris and water,			
	or filled with pea gravel/sand?			
е	Is the well locked and is the lock in good condition?			
3 <u>Surface pa</u>		4		
a	Is the well pad in good condition (not cracked or broken)?	_/_		
b	Is the well pad sloped away from the protective casing?	J		
C	Is the well pad in complete contact with the protective casing?			
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does no	+		
	move when stepped on)			
е	Is the pad surface clean (not covered with sediment or debris)?			
4 Internal ca	sing			
а	Does the cap prevent entry of foreign material into the well?	1/		
	Is the casing free of kinks or bends, or any obstructions from			
	foreign objects (such as bailers)?	V		
С	Is the well properly vented for equilibration of air pressure?		-	-
	Is the survey point clearly marked on the inner casing?	$\overline{\mathcal{J}}$		
	Is the depth of the well consistent with the original well log?			
f	Is the casing stable? (or does the pvc move easily when touched			2 2
	or can it be taken apart by hand due to lack of grout or use of slip	,		
	couplings in construction)			
5 Sampling:	Groundwater Wells Only:			
	Does well recharge adequately when purged?	/		
	If dedicated sampling equipment installed, is it in good condition			
	and specified in the approved groundwater plan for the facility?	1		
	Does the well require redevelopment (low flow, turbid)?		<u></u>	
	our professional judgement, is the well construction / location			
	appropriate to 1) achieve the objectives of the Groundwater			
	Monitoring Program and 2) comply with the applicable regulatory			
	requirements?			
	actions as needed, by date:	a — : — š	·	-

lame it Nur	nhar	plant flammond	-		
it Nui D	nber		-		
	aanditiana	11646-117	-	20	
neia	conditions	10/22/19 40°E SUNNY	2		
1	Location/I	dentification	yes	no	n/a
•	a	Is the well visible and accessible?	./		
	b	Is the well properly identified with the correct well ID?			
	C	Is the well in a high traffic area and does the well require			
		protection from traffic?		1	
	d	Is the drainage around the well acceptable? (no standing water,			
		nor is well located in obvious drainage flow path)			
2	Protective	Casing			
	a	Is the protective casing free from apparent damage and able to be			
		secured?	/		
	b	Is the casing free of degradation or deterioration?		-	-
	С	Does the casing have a functioning weep hole?			
	d	Is the annular space between casings clear of debris and water,			
		or filled with pea gravel/sand?	<u> </u>		
	е	Is the well locked and is the lock in good condition?			-
3	Surface pa	ad ad	12		
	а	Is the well pad in good condition (not cracked or broken)?	/		
	b	Is the well pad sloped away from the protective casing?	1		
	С	Is the well pad in complete contact with the protective casing?			
	d	Is the well pad in complete contact with the ground surface and			
		stable? (not undermined by erosion, animal burrows, and does not	1		
	_	move when stepped on)	_/		
'	е	Is the pad surface clean (not covered with sediment or debris)?			
4	Internal ca	sing			
i	a	Does the cap prevent entry of foreign material into the well?	V		
I	b	Is the casing free of kinks or bends, or any obstructions from			
		foreign objects (such as bailers)?	<u> </u>		
	C	Is the well properly vented for equilibration of air pressure?	1		
	d	Is the survey point clearly marked on the inner casing?			
	e	Is the depth of the well consistent with the original well log?			
1		Is the casing stable? (or does the pvc move easily when touched			
		or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	1		
5 5		Groundwater Wells Only:			
		Does well recharge adequately when purged?			
k		If dedicated sampling equipment installed, is it in good condition	/		
		and specified in the approved groundwater plan for the facility?	<u> </u>		
C		Does the well require redevelopment (low flow, turbid)?	<u> </u>	of Con	
6 E		our professional judgement, is the well construction / location			
		appropriate to 1) achieve the objectives of the Groundwater			
		Monitoring Program and 2) comply with the applicable regulatory	1		
		requirements?			

Name nit Number	Plant Hammond	- 2		
in Number	Turner 10			
	HGWC-118	_		
, field conditions	10/22/19 60°F SUNNY	→ 1		,
1 Location/Id	dentification	yes	no	n/a
	Is the well visible and accessible?	/		
	Is the well properly identified with the correct well ID?	1		:
	Is the well in a high traffic area and does the well require			\———
	protection from traffic?		./	
	Is the drainage around the well acceptable? (no standing water,			-
	nor is well located in obvious drainage flow path)	/		
	· · ·	<u> </u>		-
2 Protective				
а	Is the protective casing free from apparent damage and able to be	/		
	secured?	~		
	Is the casing free of degradation or deterioration?	/		
	Does the casing have a functioning weep hole?	/		
d	Is the annular space between casings clear of debris and water,	1/		
	or filled with pea gravel/sand?			
е	Is the well locked and is the lock in good condition?	~		
3 Surface pa	d			
	Is the well pad in good condition (not cracked or broken)?			
	Is the well pad sloped away from the protective casing?	7		
	Is the well pad in complete contact with the protective casing?	-		-
	Is the well pad in complete contact with the ground surface and			-
	stable? (not undermined by erosion, animal burrows, and does no	t		
	move when stepped on)			
	Is the pad surface clean (not covered with sediment or debris)?			
4 Internal cas				
	Does the cap prevent entry of foreign material into the well?			
	Is the casing free of kinks or bends, or any obstructions from	/		
	foreign objects (such as bailers)?		_	
	Is the well properly vented for equilibration of air pressure?			
	Is the survey point clearly marked on the inner casing?			-
	Is the depth of the well consistent with the original well log? Is the casing stable? (or does the pvc move easily when touched			
	or can it be taken apart by hand due to lack of grout or use of slip			
	couplings in construction)			
·	ocapiii go iii oonon donon			
5 <u>Sampling:</u> (Groundwater Wells Only:			
	Does well recharge adequately when purged?			
	f dedicated sampling equipment installed, is it in good condition			
	and specified in the approved groundwater plan for the facility?	<u> </u>		
c [Does the well require redevelopment (low flow, turbid)?		5/	
6 Paged ar	our professional judgement is the well assestment of the coll		(P)	
	our professional judgement, is the well construction / location			
	appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory	ر		
	vionitorina e toatam ana za combiv with the applicable redilatory			
N	requirements?			

ame	Plant Hampond				
Number		_			
)	GWC 4	_			
ield conditions	10/21/11 63:4	_			
1 Leastion/L	donalification	yes	no	n/a	
1 Location/I	dentification Is the well visible and accessible?				
a		<u>~</u>	-	.—-	
b	Is the well properly identified with the correct well ID?				
С	Is the well in a high traffic area and does the well require protection from traffic?		1		
d	Is the drainage around the well acceptable? (no standing water,		<u> </u>		
d	nor is well located in obvious drainage flow path)	/			
	· · ·				
2 Protective	Casing				
а	Is the protective casing free from apparent damage and able to be				
	secured?				
b	Is the casing free of degradation or deterioration?	V			
С	Does the casing have a functioning weep hole?				
d	Is the annular space between casings clear of debris and water,				
	or filled with pea gravel/sand?				
е	Is the well locked and is the lock in good condition?	$\sqrt{}$			
3 Surface pa	ad				
a	Is the well pad in good condition (not cracked or broken)?	1/			
b	Is the well pad sloped away from the protective casing?	-1/			
С	Is the well pad in complete contact with the protective casing?	1/			
d	Is the well pad in complete contact with the ground surface and				
	stable? (not undermined by erosion, animal burrows, and does not				
	move when stepped on)				
е	Is the pad surface clean (not covered with sediment or debris)?	<u> </u>			
4 Internal ca	eing				
a	Does the cap prevent entry of foreign material into the well?	/			
b	Is the casing free of kinks or bends, or any obstructions from				
	foreign objects (such as bailers)?	/			
С	Is the well properly vented for equilibration of air pressure?				
d	Is the survey point clearly marked on the inner casing?				
е	Is the depth of the well consistent with the original well log?				
f	Is the casing stable? (or does the pvc move easily when touched				
	or can it be taken apart by hand due to lack of grout or use of slip	1			
	couplings in construction)	<u></u>			
5 Sampling	Groundwater Wells Only:		·	(
	Does well recharge adequately when purged?				141
	If dedicated sampling equipment installed, is it in good condition				٠.
	and specified in the approved groundwater plan for the facility?				6
	Does the well require redevelopment (low flow, turbid)?		-		
-	,		-		
	our professional judgement, is the well construction / location				
	appropriate to 1) achieve the objectives of the Groundwater				
	Monitoring Program and 2) comply with the applicable regulatory	/			
	requirements?				

Name	Plant Hammond	_=			
it Number	(Management of the Control of the Co				
ID	CINCC	======================================			
field conditions	63°F; Cloudy 10/21/19	-		- /-	
1 Location/Id	dentification	yes	no	n/a	
а	Is the well visible and accessible?				
b	Is the well properly identified with the correct well ID?	1		S	
С	Is the well in a high traffic area and does the well require				
	protection from traffic?		1		
d	Is the drainage around the well acceptable? (no standing water,				
	nor is well located in obvious drainage flow path)				
2 Protective	Casing				
а	Is the protective casing free from apparent damage and able to be	1940			
	secured?	/			
b	Is the casing free of degradation or deterioration?	V			
С	Does the casing have a functioning weep hole?				
	Is the annular space between casings clear of debris and water,				
	or filled with pea gravel/sand?				
е	Is the well locked and is the lock in good condition?				
3 Surface pa	<u>d</u>				
а	is the well pad in good condition (not cracked or broken)?				
b	Is the well pad sloped away from the protective casing?	~			
С	Is the well pad in complete contact with the protective casing?			-	
d	Is the well pad in complete contact with the ground surface and				
	stable? (not undermined by erosion, animal burrows, and does not				
	move when stepped on)	V			
е	Is the pad surface clean (not covered with sediment or debris)?				
4 Internal cas	sing				
	Does the cap prevent entry of foreign material into the well?				
	Is the casing free of kinks or bends, or any obstructions from				
	foreign objects (such as bailers)?	V			
С	Is the well properly vented for equilibration of air pressure?	$\overline{}$			
	Is the survey point clearly marked on the inner casing?	W			
е	Is the depth of the well consistent with the original well log?	-1			
f	Is the casing stable? (or does the pvc move easily when touched				
	or can it be taken apart by hand due to lack of grout or use of slip				
•	couplings in construction)				
5 Sampling:	Groundwater Wells Only:				114
a	Does well recharge adequately when purged?				VO
b l	f dedicated sampling equipment installed, is it in good condition				ON
i	and specified in the approved groundwater plan for the facility?				
c l	Does the well require redevelopment (low flow, turbid)?				
6 Based on v	our professional judgement, is the well construction / location				
	appropriate to 1) achieve the objectives of the Groundwater				
	Monitoring Program and 2) comply with the applicable regulatory	-			
	requirements?	/			

lame	Mant Haumand	_			
it Number	7114 40	-0			
D field conditions	CNA-04	- 2			
field conditions	10/21/11 63°F eloudy	<u>-</u> :			
1 Location/le	dentification	yes	no	n/a	
	Is the well visible and accessible?	/			
a					
b	Is the well properly identified with the correct well ID?				
С	Is the well in a high traffic area and does the well require		1		
الم	protection from traffic?		<u>J</u>		
d	Is the drainage around the well acceptable? (no standing water,				
	nor is well located in obvious drainage flow path)				
2 Protective	Casing				
a	Is the protective casing free from apparent damage and able to be				
	secured?	J			
b	Is the casing free of degradation or deterioration?	$\overline{}$		-	
С	Does the casing have a functioning weep hole?				
d	Is the annular space between casings clear of debris and water,	-		=	
	or filled with pea gravel/sand?				
е	Is the well locked and is the lock in good condition?				
0.0	od.				
3 Surface pa		,			
	Is the well pad in good condition (not cracked or broken)?				
	Is the well pad sloped away from the protective casing?				
	Is the well pad in complete contact with the protective casing?				
	Is the well pad in complete contact with the ground surface and				
	stable? (not undermined by erosion, animal burrows, and does not				
	move when stepped on)				
е	Is the pad surface clean (not covered with sediment or debris)?				
4 Internal ca	sing				
а	Does the cap prevent entry of foreign material into the well?				
	Is the casing free of kinks or bends, or any obstructions from			====	
	foreign objects (such as bailers)?	V			
С	Is the well properly vented for equilibration of air pressure?	~			
	Is the survey point clearly marked on the inner casing?				
	Is the depth of the well consistent with the original well log?	1		-	
	Is the casing stable? (or does the pvc move easily when touched				
	or can it be taken apart by hand due to lack of grout or use of slip	/			
	couplings in construction)	~			
5 Sampling:	Groundwater Wells Only:				
	Does well recharge adequately when purged?				
	If dedicated sampling equipment installed, is it in good condition		-		00
	and specified in the approved groundwater plan for the facility?				(
	Does the well require redevelopment (low flow, turbid)?		_		
· ·	boos the well require redevelopment (low now, turbid):		-		
6 Based on y	our professional judgement, is the well construction / location				
	appropriate to 1) achieve the objectives of the Groundwater	1			
	Monitoring Program and 2) comply with the applicable regulatory				
	requirements?	V			

Site Name	Plant	Hammond	AP-4		_			
Permit Number								
Well ID	GV2C-8							
ate, field conditions	-63°F;	cloudy	16/2/10		-	no	2/2	
1 Location/l	dentification	1			yes	no	n/a	
а	Is the well	visible and acce	essible?		V			
b	Is the well	properly identifie	ed with the	correct well ID?				
С			area and d	oes the well require				
	•	from traffic?				V		
d				table? (no standing water,	1			
	nor is well	located in obvio	us drainag	e flow path)				
2 Protective	1.71							
а		ective casing fre	e from app	arent damage and able to be	9 /			
	secured?							
b		ng free of degra			<u> </u>			
C		asing have a ful				<u> </u>		
d		nar space betwe h pea gravel/sar		s clear of debris and water,	. /			
е		locked and is th		and condition?				
		iocked and is in	e look iii ge	ood condition:				
3 Surface pa					,			
a				cracked or broken)?	<u> </u>			
b				protective casing?				
c d		•		th the protective casing?				
u				th the ground surface and animal burrows, and does no	+ ,			
		n stepped on)	y erosion, a	animai burrows, and does no	' /			
е			ot covered	with sediment or debris)?	<u></u>			
1 Internal co		· ·		,				
4 <u>Internal ca</u>		an provent entr	of foreign	material into the well?				
a b		· · ·	-	material into the well? r any obstructions from				
		ects (such as ba		any obstructions from	/			
С				ation of air pressure?	$\overline{\mathcal{L}}$			
d	_	• •		the inner casing?			-	
e				the original well log?			-	
				move easily when touched	<u> </u>			
				o lack of grout or use of slip	1			
	couplings in	n construction)						
5 Sampling:	Groundwat	er Wells Only:						
		echarge adequa	ately when	purged?				. 11.
b	If dedicated	d sampling equip	oment insta	alled, is it in good condition				W 2
	and specific	ed in the approv	ed ground	water plan for the facility?				ony
С	Does the w	ell require redev	/elopment	(low flow, turbid)?		-		V
6 Based on y	your profess	sional judgemen	nt, is the we	ell construction / location				
	appropriate	to 1) achieve th	ne objective	es of the Groundwater				
			comply wi	th the applicable regulatory	/			
	requiremen	ts?						
7 Corrective	actions as	needed, by date	:					
. 231100470			•					

	Plant Hannord				
nit Number		-			
I ID	GWN-15				
e, field conditions	10/21/19 C306 Clauky	- 1/00	no	n/o	
1 Location/	dentification	yes	no	n/a	
а	Is the well visible and accessible?	V			
b	Is the well properly identified with the correct well ID?	$\overline{\hspace{1cm}}$			
С	Is the well in a high traffic area and does the well require				
	protection from traffic?		$\overline{\mathcal{L}}$		
d	Is the drainage around the well acceptable? (no standing water,	- /			
	nor is well located in obvious drainage flow path)	~	-		
2 Protective					
а	Is the protective casing free from apparent damage and able to be	./			
	secured?				
b	Is the casing free of degradation or deterioration?	1			
C	Does the casing have a functioning weep hole?	-1			
d	Is the annular space between casings clear of debris and water,	1			
0	or filled with pea gravel/sand? Is the well locked and is the lock in good condition?			:	
е	is the well locked and is the lock in good condition?			·	
3 Surface p		/			
a	Is the well pad in good condition (not cracked or broken)?				
b	Is the well pad sloped away from the protective casing?	J,			
C	Is the well pad in complete contact with the protective casing?				
d	Is the well pad in complete contact with the ground surface and	1			
	stable? (not undermined by erosion, animal burrows, and does not				
0	move when stepped on) Is the pad surface clean (not covered with sediment or debris)?				
е	is the pad surface clean (not covered with sediment of debris):				
4 Internal ca	- 70	,			
a	Does the cap prevent entry of foreign material into the well?				
b	Is the casing free of kinks or bends, or any obstructions from	/			
_	foreign objects (such as bailers)?		_		
C	Is the well properly vented for equilibration of air pressure?				
d	Is the survey point clearly marked on the inner casing? Is the depth of the well consistent with the original well log?	<u> </u>			
e f	Is the casing stable? (or does the pvc move easily when touched		-		
•	or can it be taken apart by hand due to lack of grout or use of slip				
	couplings in construction)				
5 Sampling:	Groundwater Wells Only:				
a	Does well recharge adequately when purged?				11
b	If dedicated sampling equipment installed, is it in good condition		-		M
2	and specified in the approved groundwater plan for the facility?				
С	Does the well require redevelopment (low flow, turbid)?				OM
6 Rased on	your professional judgement, is the well construction / location				,
o basea on	appropriate to 1) achieve the objectives of the Groundwater				
	Monitoring Program and 2) comply with the applicable regulatory	y.			
	requirements?				
	requirements.				

Groundwater Monitoring Well Integrity Form Plant Hammond Site Name Permit Number Well ID GWA-16 €30 E ົ່າate, field conditions (ປ/ບ/)(ໆ ves no n/a 1 Location/Identification Is the well visible and accessible? а Is the well properly identified with the correct well ID? b С Is the well in a high traffic area and does the well require protection from traffic? Is the drainage around the well acceptable? (no standing water, d nor is well located in obvious drainage flow path) 2 Protective Casing Is the protective casing free from apparent damage and able to be а secured? b Is the casing free of degradation or deterioration? Does the casing have a functioning weep hole? C Is the annular space between casings clear of debris and water, d or filled with pea gravel/sand? Is the well locked and is the lock in good condition? 3 Surface pad Is the well pad in good condition (not cracked or broken)? а Is the well pad sloped away from the protective casing? b Is the well pad in complete contact with the protective casing? С Is the well pad in complete contact with the ground surface and d stable? (not undermined by erosion, animal burrows, and does not move when stepped on) Is the pad surface clean (not covered with sediment or debris)? е 4 Internal casing Does the cap prevent entry of foreign material into the well? а Is the casing free of kinks or bends, or any obstructions from b foreign objects (such as bailers)? Is the well properly vented for equilibration of air pressure? С Is the survey point clearly marked on the inner casing? d Is the depth of the well consistent with the original well log? 6 Is the casing stable? (or does the pvc move easily when touched f or can it be taken apart by hand due to lack of grout or use of slip couplings in construction) 5 Sampling: Groundwater Wells Only: Does well recharge adequately when purged? а If dedicated sampling equipment installed, is it in good condition b and specified in the approved groundwater plan for the facility? Does the well require redevelopment (low flow, turbid)? С 6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater

Monitoring Program and 2) comply with the applicable regulatory

Signature and Seal of PE/PG responsible for inspection

requirements?

7 Corrective actions as needed, by date:

Vame	Plant Warmon	E			
nit Number	715.2				
ID	GNC-19	•			
, field conditions	10/21/11 63°F cloudy	•		/-	
1 Leastion/I	dontification	yes	no	n/a	
-	dentification Is the well visible and accessible?	1			
a					
b	Is the well properly identified with the correct well ID? Is the well in a high traffic area and does the well require				
С	protection from traffic?				
d	Is the drainage around the well acceptable? (no standing water,				
u	nor is well located in obvious drainage flow path)	/			
	The new results and several standard new path,				
2 Protective					
а	Is the protective casing free from apparent damage and able to be	_			
	secured?				
b	Is the casing free of degradation or deterioration?				
C	Does the casing have a functioning weep hole?				
d	Is the annular space between casings clear of debris and water,	1			
_	or filled with pea gravel/sand?				
е	Is the well locked and is the lock in good condition?			_	
3 Surface p	ad				
a	Is the well pad in good condition (not cracked or broken)?				
b	Is the well pad sloped away from the protective casing?	V			
С	Is the well pad in complete contact with the protective casing?	$\overline{\checkmark}$		7.	
d	Is the well pad in complete contact with the ground surface and				
	stable? (not undermined by erosion, animal burrows, and does not				
	move when stepped on)				
е	Is the pad surface clean (not covered with sediment or debris)?	/			
4 Internal of	acina				
4 Internal ca	Does the cap prevent entry of foreign material into the well?	1/			
a b	Is the casing free of kinks or bends, or any obstructions from				
D	foreign objects (such as bailers)?				
С	Is the well properly vented for equilibration of air pressure?		$\overline{}$		
d	Is the survey point clearly marked on the inner casing?	<u> </u>			
e	Is the depth of the well consistent with the original well log?	7			
f	Is the casing stable? (or does the pvc move easily when touched				
·	or can it be taken apart by hand due to lack of grout or use of slip	/			
	couplings in construction)	✓			
F 0	0 W H 0 H				
.======================================	Groundwater Wells Only: Does well recharge adequately when purged?				
a	If dedicated sampling equipment installed, is it in good condition				V
b	and specified in the approved groundwater plan for the facility?				0
0	Does the well require redevelopment (low flow, turbid)?			-	
С	boes the well require redevelopment (low now, turbia):		-		
6 Based on	your professional judgement, is the well construction / location				
	appropriate to 1) achieve the objectives of the Groundwater				
	Monitoring Program and 2) comply with the applicable regulatory	1			
	requirements?				

Groundwater Monitoring Well Integrity Form Mant Hammand Site Name Permit Number Well ID ate, field conditions 3/2 yes no n/a 1 Location/Identification а Is the well visible and accessible? Is the well properly identified with the correct well ID? b Is the well in a high traffic area and does the well require С protection from traffic? d Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path) 2 Protective Casing Is the protective casing free from apparent damage and able to be а secured? Is the casing free of degradation or deterioration? b Does the casing have a functioning weep hole? С Is the annular space between casings clear of debris and water, d or filled with pea gravel/sand? Is the well locked and is the lock in good condition? е 3 Surface pad Is the well pad in good condition (not cracked or broken)? а Is the well pad sloped away from the protective casing? b Is the well pad in complete contact with the protective casing? С Is the well pad in complete contact with the ground surface and d stable? (not undermined by erosion, animal burrows, and does not move when stepped on) Is the pad surface clean (not covered with sediment or debris)? e 4 Internal casing а Does the cap prevent entry of foreign material into the well? b Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)? Is the well properly vented for equilibration of air pressure? C Is the survey point clearly marked on the inner casing? d Is the depth of the well consistent with the original well log? е Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction) 5 Sampling: Groundwater Wells Only: Does well recharge adequately when purged? a If dedicated sampling equipment installed, is it in good condition b and specified in the approved groundwater plan for the facility? С Does the well require redevelopment (low flow, turbid)? 6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements? 7 Corrective actions as needed, by date:

Site Name	Plant Hammond AR-4				
Permit Number	2-years				
Well ID	HEVA-112				
ate, field conditions	3-24-2020 Rain/Wet				
		yes	no	n/a	
1 Location/I		-			
а	Is the well visible and accessible?	$\sqrt{}$			
b	Is the well properly identified with the correct well ID?				
С	Is the well in a high traffic area and does the well require				
	protection from traffic?				
d	Is the drainage around the well acceptable? (no standing water,				
	nor is well located in obvious drainage flow path)				
2 Protective	Casing				
a <u>r rotective</u>	Is the protective casing free from apparent damage and able to be				
а	secured?	. [
h	Is the casing free of degradation or deterioration?				
b	Does the casing have a functioning weep hole?				
C					
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	1			
	, ,				
е	Is the well locked and is the lock in good condition?	V			
3 Surface pa		,			
а	Is the well pad in good condition (not cracked or broken)?				
b	Is the well pad sloped away from the protective casing?	V			
С	Is the well pad in complete contact with the protective casing?				
d	Is the well pad in complete contact with the ground surface and				
	stable? (not undermined by erosion, animal burrows, and does not	_			
	move when stepped on)				
е	Is the pad surface clean (not covered with sediment or debris)?				
4 Internal ca	asing				
a	Does the cap prevent entry of foreign material into the well?	./			
b	Is the casing free of kinks or bends, or any obstructions from				
D	foreign objects (such as bailers)?	1			
С	Is the well properly vented for equilibration of air pressure?				
d	Is the survey point clearly marked on the inner casing?	\rightarrow			
	Is the depth of the well consistent with the original well log?				
e f	Is the casing stable? (or does the pvc move easily when touched				
	or can it be taken apart by hand due to lack of grout or use of slip				
	couplings in construction)				
5 Sampling	Groundwater Wells Only:				
	Does well recharge adequately when purged?				
a b	If dedicated sampling equipment installed, is it in good condition	_V			
D	and specified in the approved groundwater plan for the facility?	./			
С	Does the well require redevelopment (low flow, turbid)?		$\overline{}$		
C	book the well require redevelopment (low new, tarbla).				
6 Based on	your professional judgement, is the well construction / location				
	appropriate to 1) achieve the objectives of the Groundwater				
	Monitoring Program and 2) comply with the applicable regulatory				
	requirements?	$\overline{}$			
7 Corrective	e actions as needed, by date:				
	•				
Nonz	as of nov.				

ite Name ermit Number	Plant Hammond AR4			
/ell ID	MG WH - 113			
ate, field conditions	3-24-2020 Vet Conditions			
1 Leastien/	dantification	yes	no	n/a
•	Identification Is the well visible and accessible?	_		
а				
b	Is the well properly identified with the correct well ID?	\sim		
С	Is the well in a high traffic area and does the well require		_	
	protection from traffic?			
d	Is the drainage around the well acceptable? (no standing water,			
	nor is well located in obvious drainage flow path)			
2 Death at	O and in an			
2 Protective				
а	Is the protective casing free from apparent damage and able to be			
	secured?			
b	Is the casing free of degradation or deterioration?			
С	Does the casing have a functioning weep hole?			
d	Is the annular space between casings clear of debris and water,	1		
	or filled with pea gravel/sand?			
е	Is the well locked and is the lock in good condition?			
2 Curfoss n				
3 <u>Surface p</u>		/		
a	Is the well pad in good condition (not cracked or broken)?			
b	Is the well pad sloped away from the protective casing?			
C .	Is the well pad in complete contact with the protective casing?			
d	Is the well pad in complete contact with the ground surface and			
	stable? (not undermined by erosion, animal burrows, and does not	_		
	move when stepped on)			
е	Is the pad surface clean (not covered with sediment or debris)?			
4 Internal c	asing			
	Does the cap prevent entry of foreign material into the well?			
a	Is the casing free of kinks or bends, or any obstructions from			
b	foreign objects (such as bailers)?			
C	Is the well properly vented for equilibration of air pressure?			
d	Is the survey point clearly marked on the inner casing?			
e	Is the depth of the well consistent with the original well log?	/_		
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip			
		/		
	couplings in construction)	V		
5 Sampling	: Groundwater Wells Only:			
a <u>Sampining</u>	Does well recharge adequately when purged?			
b	If dedicated sampling equipment installed, is it in good condition	V		
b	and specified in the approved groundwater plan for the facility?	/		
С	Does the well require redevelopment (low flow, turbid)?			·
C	2000 the well require redevelopment (low flow, turbia):		/	0
6 Based on	your professional judgement, is the well construction / location			
20000	appropriate to 1) achieve the objectives of the Groundwater			
	Monitoring Program and 2) comply with the applicable regulatory			
	requirements?			
	10quiloniono.	V		
7 Corrective	e actions as needed, by date:			
	dina Water aroud Vell.			
. 1 1 1/2 1 1	ALLIN WILL IN MAN VILLA II.			

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

6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements? 7 Corrective actions as needed, by date: Signature and Seal of PE/PG responsible for inspection

Site Name Permit Number	Plant Hammond AP-4	_			
Vell ID	765/50	_			
Pate, field conditions	HGWC-102	_			
ate, neid conditions	5-3/9/20 , SUMMY, 55-19				
	Identification	yes	no	n/a	
a	Is the well visible and accessible?	X			
b	Is the well properly identified with the correct well ID?	V			
С	Is the well in a high traffic area and does the well require				
	protection from traffic?	X			
d	Is the drainage around the well acceptable? (no standing water,				
	nor is well located in obvious drainage flow path)	X			
2 Protective	e Casing				
a	Is the protective casing free from apparent damage and able to be				
_	secured?	V			
b	Is the casing free of degradation or deterioration?	<u> </u>			
C	Does the casing have a functioning weep hole?	<u>X</u>			
d	Is the annular space between casings clear of debris and water,	<u>×</u>			
-	or filled with pea gravel/sand?				
е	Is the well locked and is the lock in good condition?	<u>×</u>			
		<u>X</u>			
3 <u>Surface p</u>					
а	Is the well pad in good condition (not cracked or broken)?	X			
b	Is the well pad sloped away from the protective casing?	X			
С	Is the well pad in complete contact with the protective casing?	X			
d	Is the well pad in complete contact with the ground surface and				
	stable? (not undermined by erosion, animal burrows, and does not				
	move when stepped on)	×			
е	Is the pad surface clean (not covered with sediment or debris)?	X			
4 Internal ca	asing				
а	Does the cap prevent entry of foreign material into the well?	×			
b	Is the casing free of kinks or bends, or any obstructions from				
	foreign objects (such as bailers)?	X			
С	Is the well properly vented for equilibration of air pressure?	X			
d	Is the survey point clearly marked on the inner casing?	×			
е	Is the depth of the well consistent with the original well log?			J	Dru onte
f	is the casing stable? (or does the pvc move easily when touched				1100 010
	or can it be taken apart by hand due to lack of grout or use of slip	./			
	couplings in construction)	X			
5 Sampling:	Groundwater Wells Only:		xx		
а	Does well recharge adequately when purged?	X			
b	If dedicated sampling equipment installed, is it in good condition	_			
	and specified in the approved groundwater plan for the facility?	DAY		X	
С	Does the well require redevelopment (low flow, turbid)?		X		
6 Based on	your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater			_	
	Monitoring Program and 2) comply with the applicable regulatory requirements?	X			
7 Corrective	actions as needed, by date:				

Site Name Permit Number	Plant Hammond, AP-4	_			
Well ID	HGWC-103	-			
ate, field conditions		-			
	- clear, 57°F	-		,	
1 Location/	Identification	yes	no	n/a	
a	Is the well visible and accessible?	√			
b	Is the well properly identified with the correct well ID?				
C	Is the well in a high traffic area and does the well require	<u>_x</u>			
7	protection from traffic?	~			
d	Is the drainage around the well acceptable? (no standing water,	_X_			
ď	nor is well located in obvious drainage flow path)				
	nor to well located in obvious drainage flow patiff	<u>_X</u>			
2 Protective	e Casing				
а	Is the protective casing free from apparent damage and able to be				
	secured?	X			
b	Is the casing free of degradation or deterioration?	_/			
С	Does the casing have a functioning weep hole?	~			
d	Is the annular space between casings clear of debris and water,				
	or filled with pea gravel/sand?	Y			
е	Is the well locked and is the lock in good condition?				
3 <u>Surface p</u>					
а	Is the well pad in good condition (not cracked or broken)?	X			
b	Is the well pad sloped away from the protective casing?	×			
С	Is the well pad in complete contact with the protective casing?	X			
d	Is the well pad in complete contact with the ground surface and				
	stable? (not undermined by erosion, animal burrows, and does not				
	move when stepped on)	X			
е	Is the pad surface clean (not covered with sediment or debris)?	X			
4 Internal ca	ocina				
a b	Does the cap prevent entry of foreign material into the well?	_X_			
D	Is the casing free of kinks or bends, or any obstructions from				
•	foreign objects (such as bailers)?	<u>×</u>			
C	Is the well properly vented for equilibration of air pressure?	X			
d	Is the survey point clearly marked on the inner casing?	_ <u>×</u> _			1
e f	Is the depth of the well consistent with the original well log? Is the casing stable? (or does the pvc move easily when touched			X	WL oul
1	or can it be taken apart by hand due to lack of grout or use of slip				
	couplings in construction)	~			
	· · · · · · · · · · · · · · · · · · ·				
5 Sampling:	Groundwater Wells Only:				
а	Does well recharge adequately when purged?	1			
b	If dedicated sampling equipment installed, is it in good condition	~			
	and specified in the approved groundwater plan for the facility?	×			
С	Does the well require redevelopment (low flow, turbid)?				
6 Based on	your professional judgement, is the well construction / location				
	appropriate to 1) achieve the objectives of the Groundwater				
	Monitoring Program and 2) comply with the applicable regulatory				
	requirements?	X			
7 Corrective	actions as needed, by date:				
· Someonive	additional needed, by date.				

Site Name Permit Number	Plut Hammond Ap-21	_			
Well ID	HGW (-11)5	_			
ate, field conditions	PC, 6017 3trsho	-			
1 Location/I	dentification	yes	no	n/a	
a	Is the well visible and accessible?	./			
b	Is the well properly identified with the correct well ID?	<u></u>			
C	Is the well in a high traffic area and does the well require	/			
ŭ	protection from traffic?	/			
d	Is the drainage around the well acceptable? (no standing water,				
-	nor is well located in obvious drainage flow path)				
2 Dratastica					
2 Protective					
а	Is the protective casing free from apparent damage and able to be secured?				
		2/		_	
C	Is the casing free of degradation or deterioration?	1/			
d	Does the casing have a functioning weep hole?				
ď	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	/			
е	Is the well locked and is the lock in good condition?				
3 Surface pa					
а	Is the well pad in good condition (not cracked or broken)?	V			
b	Is the well pad sloped away from the protective casing?				
C	Is the well pad in complete contact with the protective casing?	_/			
d	Is the well pad in complete contact with the ground surface and				
	stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	/			
е	Is the nad surface clean (not covered with codiment or debuis)				
	Is the pad surface clean (not covered with sediment or debris)?	/			
4 Internal cas					
a	Does the cap prevent entry of foreign material into the well?	1			
b	s the casing free of kinks or bends, or any obstructions from				
	foreign objects (such as bailers)?	/			
C	s the well properly vented for equilibration of air pressure?	/			
d l	s the survey point clearly marked on the inner casing?				
e f	s the depth of the well consistent with the original well log? s the casing stable? (or does the pvc move easily when touched			/	DTW onle
,	or can it be taken apart by hand due to lack of grout or use of slip				
	couplings in construction)	1			
F 0					
5 Sampling: (Groundwater Wells Only:				
a l	Does well recharge adequately when purged?	V			
b I	f dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?	1			
c [Does the well require redevelopment (low flow, turbid)?	- Aile	_/		
	•		-		
6 Based on y	our professional judgement, is the well construction / location				
8	appropriate to 1) achieve the objectives of the Groundwater				
Ŋ	Monitoring Program and 2) comply with the applicable regulatory	1/			
r	equirements?				
7 Corrective a	actions as needed, by date:				
	and the same of th				

Groundwater Monitoring Well Integrity Form Site Name Permit Number Well ID CHEWC ate, field conditions 20 Sunny n/a ves no 1 Location/Identification Is the well visible and accessible? а b Is the well properly identified with the correct well ID? Is the well in a high traffic area and does the well require С protection from traffic? Is the drainage around the well acceptable? (no standing water, d nor is well located in obvious drainage flow path) 2 Protective Casing Is the protective casing free from apparent damage and able to be а secured? b Is the casing free of degradation or deterioration? Does the casing have a functioning weep hole? С Is the annular space between casings clear of debris and water, d or filled with pea gravel/sand? Is the well locked and is the lock in good condition? е 3 Surface pad Is the well pad in good condition (not cracked or broken)? а Is the well pad sloped away from the protective casing? b Is the well pad in complete contact with the protective casing? C Is the well pad in complete contact with the ground surface and d stable? (not undermined by erosion, animal burrows, and does not move when stepped on) Is the pad surface clean (not covered with sediment or debris)? е 4 Internal casing Does the cap prevent entry of foreign material into the well? a Is the casing free of kinks or bends, or any obstructions from b foreign objects (such as bailers)? Is the well properly vented for equilibration of air pressure? С Is the survey point clearly marked on the inner casing? d Is the depth of the well consistent with the original well log? е Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction) 5 Sampling: Groundwater Wells Only: a Does well recharge adequately when purged? b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? Does the well require redevelopment (low flow, turbid)? C 6 Based on your professional judgement, is the well construction / location

appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory

Signature and Seal of PE/PG responsible for inspection

requirements?

7 Corrective actions as needed, by date:

Groundwater Monitoring Well Integrity Form Site Name Permit Number Well ID ate, field conditions n/a yes 1 Location/Identification Is the well visible and accessible? а b Is the well properly identified with the correct well ID? Is the well in a high traffic area and does the well require C protection from traffic? Is the drainage around the well acceptable? (no standing water, d nor is well located in obvious drainage flow path) 2 Protective Casing Is the protective casing free from apparent damage and able to be а secured? Is the casing free of degradation or deterioration? b Does the casing have a functioning weep hole? С d Is the annular space between casings clear of debris and water. or filled with pea gravel/sand? Is the well locked and is the lock in good condition? е 3 Surface pad Is the well pad in good condition (not cracked or broken)? a Is the well pad sloped away from the protective casing? b Is the well pad in complete contact with the protective casing? C Is the well pad in complete contact with the ground surface and d stable? (not undermined by erosion, animal burrows, and does not move when stepped on) Is the pad surface clean (not covered with sediment or debris)? е 4 Internal casing а Does the cap prevent entry of foreign material into the well? b Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)? Is the well properly vented for equilibration of air pressure? C d Is the survey point clearly marked on the inner casing? Is the depth of the well consistent with the original well log? е Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction) 5 Sampling: Groundwater Wells Only: Does well recharge adequately when purged? а If dedicated sampling equipment installed, is it in good condition b and specified in the approved groundwater plan for the facility? С Does the well require redevelopment (low flow, turbid)? 6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements? 7 Corrective actions as needed, by date:

Groundwater Monitoring Well Integrity Form Site Name Permit Number Well ID ate, field conditions yes no n/a 1 Location/Identification Is the well visible and accessible? а Is the well properly identified with the correct well ID? b С Is the well in a high traffic area and does the well require protection from traffic? Is the drainage around the well acceptable? (no standing water, d nor is well located in obvious drainage flow path) 2 Protective Casing Is the protective casing free from apparent damage and able to be а Is the casing free of degradation or deterioration? b Does the casing have a functioning weep hole? C Is the annular space between casings clear of debris and water, d or filled with pea gravel/sand? Is the well locked and is the lock in good condition? е 3 Surface pad Is the well pad in good condition (not cracked or broken)? a Is the well pad sloped away from the protective casing? b Is the well pad in complete contact with the protective casing? С Is the well pad in complete contact with the ground surface and d stable? (not undermined by erosion, animal burrows, and does not move when stepped on) Is the pad surface clean (not covered with sediment or debris)? е 4 Internal casing Does the cap prevent entry of foreign material into the well? а b Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)? Is the well properly vented for equilibration of air pressure? C Is the survey point clearly marked on the inner casing? d Is the depth of the well consistent with the original well log? е Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction) 5 Sampling: Groundwater Wells Only: Does well recharge adequately when purged? а If dedicated sampling equipment installed, is it in good condition b and specified in the approved groundwater plan for the facility? Does the well require redevelopment (low flow, turbid)? С 6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements? 7 Corrective actions as needed, by date:

Site Name Permit Number	. 10				
Well ID	HGWC-IIP				
ate, field con-	ditions Sunny 157°P				
1 1 00	cation/Identification	yes	no	n/a	
a	Is the well visible and accessible?	16			
b	Is the well properly identified with the correct well ID?				
C	Is the well in a high traffic area and does the well require				
O	protection from traffic?	1/			
d	Is the drainage around the well acceptable? (no standing water,	X			
u	nor is well located in obvious drainage flow path)	<u></u>			
2 Pro	otective Casing				
a	Is the protective casing free from apparent damage and able to be				
	secured?	Y			
b	Is the casing free of degradation or deterioration?	Ý			
С	Does the casing have a functioning weep hole?	×		_	
d	Is the annular space between casings clear of debris and water,				
	or filled with pea gravel/sand?	X			
е	Is the well locked and is the lock in good condition?	<u>×</u>		_	
3 <u>Sur</u>	face pad				
а	Is the well pad in good condition (not cracked or broken)?	X			
b	Is the well pad sloped away from the protective casing?	\times			
С	Is the well pad in complete contact with the protective casing?	X			
d	Is the well pad in complete contact with the ground surface and				
	stable? (not undermined by erosion, animal burrows, and does not				
	move when stepped on)	X			
е	Is the pad surface clean (not covered with sediment or debris)?	X			
4 Inte	ernal casing				
а	Does the cap prevent entry of foreign material into the well?	_X_			
b	Is the casing free of kinks or bends, or any obstructions from	~			
	foreign objects (such as bailers)?				
C	Is the well properly vented for equilibration of air pressure?				
d	Is the survey point clearly marked on the inner casing?	X			., ,
e	Is the depth of the well consistent with the original well log? Is the casing stable? (or does the pvc move easily when touched			_X	WL only
f	or can it be taken apart by hand due to lack of grout or use of slip				-
	couplings in construction)	X			
5 Sar	mpling: Groundwater Wells Only:				
a	Does well recharge adequately when purged?	V			
b	If dedicated sampling equipment installed, is it in good condition				
~	and specified in the approved groundwater plan for the facility?	X			
С	Does the well require redevelopment (low flow, turbid)?		X		
6 Bas	sed on your professional judgement, is the well construction / location				
	appropriate to 1) achieve the objectives of the Groundwater				
	Monitoring Program and 2) comply with the applicable regulatory				
	requirements?	X			
7.0	rroctive actions as needed by date:				
/ Cor	rrective actions as needed, by date:				

	Groundwater Monitoring Well Integrity Form				
Site Name	AP-H				
Permit Number		•			
Well ID	GWC-4	•			
Pate, field conditions	3 /23/20 - Rain, 530	•			
		yes	no	n/a	
1 <u>Location/I</u>	dentification				
а	Is the well visible and accessible?				
b	Is the well properly identified with the correct well ID?				
С	Is the well in a high traffic area and does the well require				
	protection from traffic?		/		
d	Is the drainage around the well acceptable? (no standing water,				
	nor is well located in obvious drainage flow path)	1/			
2 Protective	Cacina				
a <u>Protective</u>	Is the protective casing free from apparent damage and able to be				
a	secured?	/			
b	Is the casing free of degradation or deterioration?				
c	Does the casing have a functioning weep hole?				
d	Is the annular space between casings clear of debris and water,				
_	or filled with pea gravel/sand?	./			
е	Is the well locked and is the lock in good condition?				
3 Surface pa		. /			
а	Is the well pad in good condition (not cracked or broken)?				
b	Is the well pad sloped away from the protective casing?				
C	Is the well pad in complete contact with the protective casing?				
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not				
	move when stepped on)				
е	Is the pad surface clean (not covered with sediment or debris)?				
C	the pad samace sican (not covered with sediment of debits):				
4 Internal ca					
а	Does the cap prevent entry of foreign material into the well?				
b	Is the casing free of kinks or bends, or any obstructions from	/			
	foreign objects (such as bailers)?				
C	Is the well properly vented for equilibration of air pressure?	/			(PG)
d	Is the survey point clearly marked on the inner casing?	Media		activities	
e	Is the depth of the well consistent with the original well log? Is the casing stable? (or does the pvc move easily when touched	WAR	9		DIMO
f	or can it be taken apart by hand due to lack of grout or use of slip	/			
	couplings in construction)	/			
F 0 "					
_	Groundwater Wells Only:				
а	Does well recharge adequately when purged? If dedicated sampling equipment installed, is it is good condition.			1/	
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?			* : /	
0	Does the well require redevelopment (low flow, turbid)?				
С	2003 the well require redevelopment (low flow, turbid)?			-	

Signature and Seal of PE/PG responsible for inspection

requirements?

7 Corrective actions as needed, by date:

6 Based on your professional judgement, is the well construction / location

appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory

Permit Number Well ID Pate, field conditions 1 Location/Identification a Is the well visible and accessible? b Is the well properly identified with the correct well ID? c Is the well in a high traffic area and does the well require protection from traffic? d Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path) 2 Protective Casing a Is the protective casing free from apparent damage and able to be secured? b Is the casing free of degradation or deterioration? c Does the casing have a functioning weep hole? d Is the annular space between casings clear of debris and water, or filled with pea gravel/sand? e Is the well locked and is the lock in good condition? 3 Surface pad a Is the well pad in good condition (not cracked or broken)? b Is the well pad sloped away from the protective casing? c Is the well pad in complete contact with the protective casing? d Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on) e Is the pad surface clean (not covered with sediment or debris)? 4 Internal casing a Does the cap prevent entry of foreign material into the well? b Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)? c Is the well properly vented for equilibration of air pressure? d Is the survey point clearly marked on the inner casing? f Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction) 5 Sampling Groundwater Wells Only: a Does well recharge adequately when purged? b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? C Does the well require redevelopment (low flow, turbid)? 6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program a	Site Name	Plant Hammond AP-4				
Tate, field conditions 1 Location/Identification a Is the well visible and accessible? b Is the well properly identified with the correct well ID? c Is the well in a high traffic area and does the well require protection from traffic? d Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path) 2 Protective Casing a Is the protective casing free from apparent damage and able to be secured? b Is the casing free of degradation or deterioration? c Does the casing have a functioning weep hole? d Is the annular space between casings clear of debris and water, or filled with pea gravel/sand? e Is the well pad in good condition (not cracked or broken)? b Is the well pad in good condition (not cracked or broken)? b Is the well pad in good away from the protective casing? c Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on) e Is the pad surface clean (not covered with sediment or debris)? 4 Internal casing a Does the cap prevent entry of foreign material into the well? b Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)? c Is the well properly vented for equilibration of air pressure? d Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction) 5 Sampling: Groundwater Wells Only: a Does well recharge adequately when purged? b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? c Does the well require redevelopment (low flow, turbid)? 6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	Permit Number		_			
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b Is the well properly identified with the correct well ID? c Is the well in a high traffic area and does the well require protection from traffic? d Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path) 2 Protective Casing a Is the protective casing free from apparent damage and able to be secured? b Is the casing free of degradation or deterioration? c Does the casing have a functioning weep hole? d Is the annular space between casings clear of debris and water, or filled with pea gravel/sand? e Is the well locked and is the lock in good condition? 3 Surface pad a Is the well pad in good condition (not cracked or broken)? b Is the well pad in good condition (not cracked or broken)? b Is the well pad in complete contact with the protective casing? c Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on) e Is the pad surface clean (not covered with sediment or debris)? 4 Internal casing a Does the cap prevent entry of foreign material into the well? b Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)? c Is the well properly vented for equilibration of air pressure? d Is the survey point clearly marked on the inner casing? e Is the depth of the well consistent with the original well log? f Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)? 5 Sampling: Groundwater Wells Only: a Does well recharge adequately when purged? b if dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? c Does the well require redevelopment (low flow, turbid)? 6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?			1			
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f Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction) 5 Sampling: Groundwater Wells Only: a Does well recharge adequately when purged? b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? c Does the well require redevelopment (low flow, turbid)? 6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements? 7 Corrective actions as needed, by date:	е	Is the depth of the well consistent with the original well loca				
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7 Corrective actions as needed, by date:		Manifering Development (a) achieve the objectives of the Groundwater				
7 Corrective actions as needed, by date:		Monitoring Program and 2) comply with the applicable regulatory				
		requirements?	V			
	7 Corrective	actions as needed, by date:				
1901 - 10 1104,						
	79011 6	V- VI 11VV ,				

Site Name Permit Number	AP-4				
Well ID	1 In C = 2				
ate, field conditions	7/23/20 - Rain 530				
ste, nera contattorio	5 25 20 12914, 13	yes	no	n/a	
1 Location/Id	dentification	yes	/ 110	11/a	
	Is the well visible and accessible?	1/			
	Is the well properly identified with the correct well ID?		1		
C	Is the well in a high traffic area and does the well require	ŧ	<u></u>		
	protection from traffic?		1		
	Is the drainage around the well acceptable? (no standing water,				
	nor is well located in obvious drainage flow path)	/			
	Tion is well located in obvious drainage flow patin)				
2 Protective	Casing				
	Is the protective casing free from apparent damage and able to be				
	secured?	i/			
	Is the casing free of degradation or deterioration?		ANCI		DX 7
c	Does the casing have a functioning weep hole?		HARAMA		70
d	Is the annular space between casings clear of debris and water,		-,0		
100	or filled with pea gravel/sand?		1/		
е	Is the well locked and is the lock in good condition?		1		nolock
C	to the well looked and lo the look in good condition.			· —	Me Tour
3 Surface pa	ad .	,			
а	Is the well pad in good condition (not cracked or broken)?	V .		4	
b	Is the well pad sloped away from the protective casing?	V		M	
С	Is the well pad in complete contact with the protective casing?	1		NE	
d	Is the well pad in complete contact with the ground surface and				
	stable? (not undermined by erosion, animal burrows, and does not	/		^	
	move when stepped on)			1	
е	Is the pad surface clean (not covered with sediment or debris)?			16/NS	
4 Internal ca		/			
а	Does the cap prevent entry of foreign material into the well?				
b	Is the casing free of kinks or bends, or any obstructions from	./			
	foreign objects (such as bailers)?	¥,			
С	Is the well properly vented for equilibration of air pressure?	/_			
d	Is the survey point clearly marked on the inner casing?	/			
е	Is the depth of the well consistent with the original well log?				
f	Is the casing stable? (or does the pvc move easily when touched			•	
	or can it be taken apart by hand due to lack of grout or use of slip	/			
	couplings in construction)	·/			
5 Campling	Groundwater Wells Only:				
	Groundwater Wells Only: Does well recharge adequately when purged?			:/	
a	If dedicated sampling equipment installed, is it in good condition				Il si
b	and specified in the approved groundwater plan for the facility?			./	000
6	Does the well require redevelopment (low flow, turbid)?				only
С	boes the well require redevelopment (low now, turble):				
6 Based on	your professional judgement, is the well construction / location				
	appropriate to 1) achieve the objectives of the Groundwater				
	Monitoring Program and 2) comply with the applicable regulatory	/			
	requirements?				
7 Corrective	actions as needed, by date:				

De masit Nicosale and				
Permit Number —				
Well ID G V A - 14				
Tate, field conditions 3-23-2020 Rain / Wet				
1 Location/Identification	yes	no	n/a	
a Is the well visible and accessible?	1			
b Is the well properly identified with the correct well ID?	1			
c Is the well in a high traffic area and does the well require				
protection from traffic?		1		
d Is the drainage around the well acceptable? (no standing water,				
nor is well located in obvious drainage flow path)		1		
-				
2 Protective Casing				
a Is the protective casing free from apparent damage and able to be	,			
secured?				
b Is the casing free of degradation or deterioration?				
c Does the casing have a functioning weep hole?				
d Is the annular space between casings clear of debris and water,	1			
or filled with pea gravel/sand? e Is the well locked and is the lock in good condition?	V			
e Is the well locked and is the lock in good condition?				
3 Surface pad				
a Is the well pad in good condition (not cracked or broken)?	1			
b Is the well pad sloped away from the protective casing?	/			
c Is the well pad in complete contact with the protective casing?				
d Is the well pad in complete contact with the ground surface and				
stable? (not undermined by erosion, animal burrows, and does not				
move when stepped on)				
e Is the pad surface clean (not covered with sediment or debris)?	$\sqrt{}$			
4 Internal casing				
a Does the cap prevent entry of foreign material into the well?	/			
b Is the casing free of kinks or bends, or any obstructions from	V			
foreign objects (such as bailers)?	1			
c Is the well properly vented for equilibration of air pressure?	/			
d Is the survey point clearly marked on the inner casing?	/			
e Is the depth of the well consistent with the original well log?	/			
f Is the casing stable? (or does the pvc move easily when touched				
or can it be taken apart by hand due to lack of grout or use of slip	,			
couplings in construction)				
5 Sampling: Groundwater Wells Only:				
a Does well recharge adequately when purged?				. 11
b If dedicated sampling equipment installed, is it in good condition				100
and specified in the approved groundwater plan for the facility?				onle
c Does the well require redevelopment (low flow, turbid)?				
6 Based on your professional judgement, is the well construction / location	_			
appropriate to 1) achieve the objectives of the Groundwater				
Monitoring Program and 2) comply with the applicable regulatory				
requirements?				
<u> </u>				
7 Corrective actions as needed, by date:				
Standing Vater.				

Site Name	Plan+ Hammond AP-4				
Permit Number					
Well ID	GWA-15				
ate, field condition	15 3-23-2020 Rain/Vet				
4.1		yes	no	n/a	
	n/Identification				
а	Is the well visible and accessible?	V			
b	Is the well properly identified with the correct well ID?				
С	Is the well in a high traffic area and does the well require	_			
	protection from traffic?				
d	Is the drainage around the well acceptable? (no standing water,		1		
	nor is well located in obvious drainage flow path)				
2 Protectiv	ve Casina				
a Protective	Is the protective casing free from apparent damage and able to be				
a	secured?	./			
b	Is the casing free of degradation or deterioration?		(-	
	Does the casing have a functioning weep hole?		0		
C	Is the annular space between casings clear of debris and water,	V			
d	or filled with pea gravel/sand?				
•	Is the well locked and is the lock in good condition?	<u> </u>			
е	is the well locked and is the lock in good condition?				
3 Surface	pad				
а	Is the well pad in good condition (not cracked or broken)?	V			
b	Is the well pad sloped away from the protective casing?	1			
С	Is the well pad in complete contact with the protective casing?				
d	Is the well pad in complete contact with the ground surface and				
	stable? (not undermined by erosion, animal burrows, and does not				
	move when stepped on)				
е	Is the pad surface clean (not covered with sediment or debris)?				
1 Internal	casing				
4 <u>Internal</u>	Does the cap prevent entry of foreign material into the well?				
a	Is the casing free of kinks or bends, or any obstructions from		1		
b	foreign objects (such as bailers)?				
•	Is the well properly vented for equilibration of air pressure?				
c d	Is the survey point clearly marked on the inner casing?				
	Is the depth of the well consistent with the original well log?				
e	Is the casing stable? (or does the pvc move easily when touched	V			
	or can it be taken apart by hand due to lack of grout or use of slip				
	couplings in construction)				
5 <u>Samplin</u>	g: Groundwater Wells Only:			/	. 11
а	Does well recharge adequately when purged?			\sim	W
b	If dedicated sampling equipment installed, is it in good condition			/	16.
	and specified in the approved groundwater plan for the facility?				ONH
С	Does the well require redevelopment (low flow, turbid)?				
6 Based o	n your professional judgement, is the well construction / location				
o Basca o	appropriate to 1) achieve the objectives of the Groundwater				
	Monitoring Program and 2) comply with the applicable regulatory				
	requirements?				
	ve actions as needed, by date:				
1 (11	is in Standing 1/01-r				

Site Name Permit Number	Plant Hammond AP. 4				
Well ID	()() 1/	_			
ate, field conditions	3-23-2020 Rain / Wet	-			
ato, nota contattorio	3-23-2020 Rain / Wet			,	
1 Location/	Identification	yes	no	n/a	
a	Is the well visible and accessible?				
b	Is the well properly identified with the correct well ID?				
C	Is the well in a high traffic area and does the well require				
	protection from traffic?		/		
d	Is the drainage around the well acceptable? (no standing water,				
~	nor is well located in obvious drainage flow path)	1			
2 Protective					
а	Is the protective casing free from apparent damage and able to be				
	secured?	$\sqrt{}$			
b	Is the casing free of degradation or deterioration?				
С	Does the casing have a functioning weep hole?				
d	Is the annular space between casings clear of debris and water,				
	or filled with pea gravel/sand?				
е	Is the well locked and is the lock in good condition?				
3 Surface p	ad				
a <u>Surface p</u>					
b	Is the well pad in good condition (not cracked or broken)?				
C	Is the well pad sloped away from the protective casing?				
d	Is the well pad in complete contact with the protective casing? Is the well pad in complete contact with the ground surface and				
ŭ	stable? (not undermined by erosion, animal burrows, and does not				
	move when stepped on)	1			
е	Is the pad surface clean (not covered with sediment or debris)?				
•	in the part of debits);	V			
4 Internal ca					
а	Does the cap prevent entry of foreign material into the well?				
b	Is the casing free of kinks or bends, or any obstructions from				
	foreign objects (such as bailers)?	1			
С	Is the well properly vented for equilibration of air pressure?				
d	Is the survey point clearly marked on the inner casing?	1			
е	Is the depth of the well consistent with the original well log?	1		./	
f	Is the casing stable? (or does the pvc move easily when touched				
	or can it be taken apart by hand due to lack of grout or use of slip	,			
	couplings in construction)	5			
5 Sampling:	Groundwater Wells Only:				
a	Does well recharge adequately when purged?			/	1,)(
b	If dedicated sampling equipment installed, is it in good condition				00
	and specified in the approved groundwater plan for the facility?			./	ont
С	Does the well require redevelopment (low flow, turbid)?				
0 -	-				
6 Based on	your professional judgement, is the well construction / location				
	appropriate to 1) achieve the objectives of the Groundwater				
	Monitoring Program and 2) comply with the applicable regulatory	1			
	requirements?	/			
7 Corrective	actions as needed, by date:				
	as of now.				
7.77.11.0					

Name	AP-4	_			
it Number					
D	GCW-19 GWC-19	_			
field conditions	3/23/20 - Ran , 53°	_			
1 Location/Id	dontification	yes	no	n/a	
a	Is the well visible and accessible?	. /			
		1/			
	Is the well properly identified with the correct well ID?	9/			
	Is the well in a high traffic area and does the well require				
	protection from traffic?		1/		
d	Is the drainage around the well acceptable? (no standing water,	_			
	nor is well located in obvious drainage flow path)	1/			
2 Protective	Casing				
	Is the protective casing free from apparent damage and able to be				
	secured?	/			
	Is the casing free of degradation or deterioration?				
	Does the casing have a functioning weep hole?		-		
	Is the annular space between casings clear of debris and water,	1/			
-	or filled with pea gravel/sand?	./			
	Is the well locked and is the lock in good condition?				
•	and the state delicated to the foot in good containent;				
3 Surface pa	<u>d</u>				
	Is the well pad in good condition (not cracked or broken)?	V			
	Is the well pad sloped away from the protective casing?	/			
С	Is the well pad in complete contact with the protective casing?	1			
	Is the well pad in complete contact with the ground surface and				
	stable? (not undermined by erosion, animal burrows, and does not	,			
	move when stepped on)	/			
е	Is the pad surface clean (not covered with sediment or debris)?	1/			
4 Internal cas	sina				
	Does the cap prevent entry of foreign material into the well?				
	Is the casing free of kinks or bends, or any obstructions from	<u></u>			
	foreign objects (such as bailers)?	/			
	Is the well properly vented for equilibration of air pressure?	<u></u>			
	Is the survey point clearly marked on the inner casing?	1/			
	Is the depth of the well consistent with the original well log?				DLM
	Is the casing stable? (or does the pvc move easily when touched			1	Dino
	or can it be taken apart by hand due to lack of grout or use of slip				
	couplings in construction)	1 -			
	, -				
	Groundwater Wells Only:				. 11
	Does well recharge adequately when purged?			1	W
	If dedicated sampling equipment installed, is it in good condition				
	and specified in the approved groundwater plan for the facility?				01
С	Does the well require redevelopment (low flow, turbid)?				
6 Based on v	our professional judgement, is the well construction / location				
o based on y	appropriate to 1) achieve the objectives of the Groundwater				
	Monitoring Program and 2) comply with the applicable regulatory requirements?	, _			
Į.	equirements?				
7 Corrective	actions as needed, by date:				

APPENDIX B

Appendix B1: Certified Survey Data

Appendix B2: Updated Boring and Well Construction Logs

APPENDIX B1

Certified Survey Data

Well ID	Casing Northing	Casing Easting	Top of Casing Elevation	Nail on Pad Northing	Nail on Pad Easting	Nail on Pad Elevation
GWA-14	1548982.5890	1936642.5820	592.14	1548981.4550	1936642.2230	589.70
GWA-15	1548766.1700	1936808.4740	591.56	1548765.2100	1936807.8670	588.37
GWA-16	1548592.7400	1937210.9880	582.55	1548592.0540	1937209.9470	579.58
GWC-19	1547892.8940	1936572.9730	579.83	1547893.7790	1936572.0390	576.90
GWC-4	1547898.3050	1935398.6960	580.65	1547899.6900	1935398.5510	577.73
GWC-6	1547843.9320	1934800.4510	581.63	1547845.1020	1934800.3890	578.55
GWC-8	1548167.1270	1934342.9370	579.99	1548167.2960	1934344.1910	577.13
HGWA-111	1548834.2570	1935222.8050	591.75	1548833.1050	1935222.9840	588.79
HGWA-112	1548885.6280	1935646.9960	596.27	1548884.5350	1935647.2640	593.46
HGWA-113	1548944.6240	1935990.0870	594.58	1548943.4750	1935990.3010	592.07
HGWC-101	1547725.4970	1936369.5810	578.85	1547726.4760	1936369.0200	575.91
HGWC-102	1547713.5040	1936033.3300	577.54	1547714.8560	1936033.7180	574.54
HGWC-103	1547848.8830	1935732.9610	580.79	1547850.1990	1935733.3030	577.76
HGWC-105	1547855.5570	1935110.3560	582.09	1547856.9860	1935110.3600	579.08
HGWC-107	1547909.9900	1934442.2410	579.31	1547911.2040	1934442.9490	576.43
HGWC-109	1548627.4120	1934362.7670	576.77	1548627.0470	1934361.5230	573.66
HGWC-117	1548100.7710	1937180.4260	581.98	1548099.5300	1937180.3100	579.31
HGWC-118	1547980.5610	1936946.3660	579.02	1547981.8380	1936946.8290	576.52
MW-12	1547853.7790	1937525.4620	583.27	1547855.2080	1937525.2430	580.59

Benchmark	Northing	Easting	Elevation
BM H-1	1547964.9650	1937219.0690	579.02

SURVEY DATA CERTIFICATION FOR SOUTHERN COMPANY TO DETERMINE NORTHING, EASTING, AND VERTICAL ELEVATION OF THE NAIL IN THE CONCRETE PAD & THE PVC WELL CASING.

DATE OF FIELD SURVEY & INSPECTION: 05/04/2020-05/06/2020

FIELD SURVEY POSITIONAL TOLERANCE=0.5 FEET HORIZONTAL-NAD'83, 0.01 VERTICAL-NAVD'88
EQUIPMENT USED FOR HORIZONTAL LOCATION: TRIMBLE R10 RTK GPS & TRIMBLE S5 ROBOTIC TOTAL
STATION. THE VERTICAL LOCATION OF EACH SURVEYED POINT WAS ESTABLISHED BASED UPON LEVEL RUNS
WITH A DIGITAL LEVEL LOOP FROM VERTICAL CONTROL ESTABLISHED BY ON-SITE BENCHMARK BM H-1 SET BY
GEL SOLUTIONS USING A TRIMBLE DINI LEVEL

7 RIL



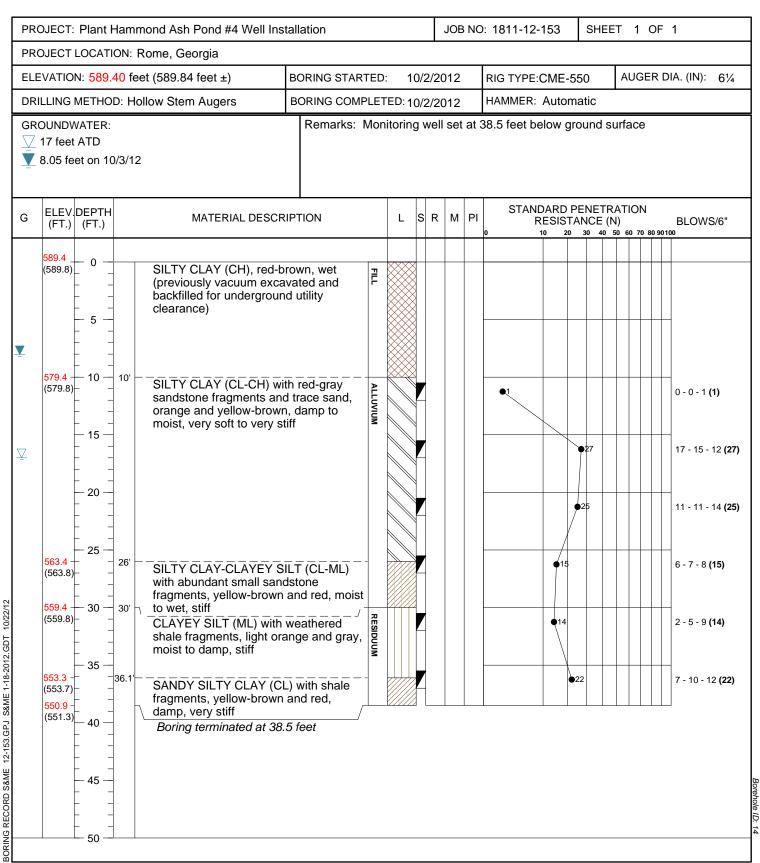
5/11/2020

APPENDIX B2

Updated Boring and Well Construction Logs



BORING NO.: GWA-14



Well Construction Log revised with new survey data dated 5/11/2020. Original elevation data in parenthesis.

GEORGIA POWER PLANT HAMMOND ASH POND #4 ROME, GEORGIA

WELL CONSTRUCTION LOG

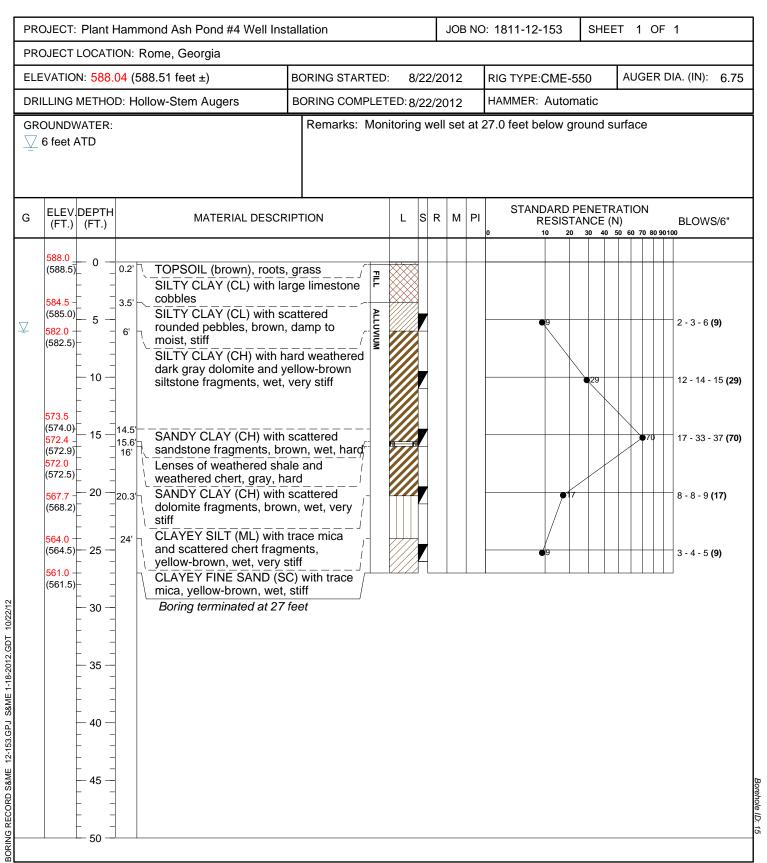


Locking Hinged Top TOP OF RISER 1/4-inch Vent 1/4-inch Weep Hole 4-ft x 4-ft concrete pad GROUND SURFACE PROTECTIVE CASING	GERS DEPTH FEET 2.74	GWA-14 ELEVATION FT, MSL 592.14 (592.58)
DATE CONSTRUCTED: October 2, 2012 Locking Hinged Top 1/4-inch Vent 1/4-inch Weep Hole 4-ft x 4-ft concrete pad GROUND SURFACE PROTECTIVE CASING	DEPTH FEET	ELEVATION FT, MSL 592.14
Locking Hinged Top TOP OF RISER 1/4-inch Vent 1/4-inch Weep Hole 4-ft x 4-ft concrete pad GROUND SURFACE PROTECTIVE CASING	FEET	FT, MSL 592.14
Locking Hinged Top TOP OF RISER 1/4-inch Vent 1/4-inch Weep Hole 4-ft x 4-ft concrete pad GROUND SURFACE PROTECTIVE CASING	FEET	FT, MSL 592.14
Locking Hinged Top TOP OF RISER 1/4-inch Vent 1/4-inch Weep Hole 4-ft x 4-ft concrete pad GROUND SURFACE PROTECTIVE CASING		592.14
1/4-inch Vent 1/4-inch Weep Hole 4-ft x 4-ft concrete pad PROTECTIVE CASING	2.74	
1/4-inch Vent 1/4-inch Weep Hole 4-ft x 4-ft concrete pad PROTECTIVE CASING	2.74	
1/4-inch Vent 1/4-inch Weep Hole 4-ft x 4-ft concrete pad PROTECTIVE CASING	2.74	
1/4-inch Vent 1/4-inch Weep Hole 4-ft x 4-ft concrete pad PROTECTIVE CASING		
1/4-inch Weep Hole 4-ft x 4-ft concrete pad PROTECTIVE CASING		, ,
4-ft x 4-ft concrete pad GROUND SURFACE PROTECTIVE CASING		İ
PROTECTIVE CASING		F00 40
PROTECTIVE CASING		589.40
	0.0	(589.84)
		İ
		l
TYPE: STAINLESS STEEL LOCKING		507.60
		587.60
BOTTOM OF PROTECTIVE CASING	-1.8	(588.04)
◆ BACKFILL MATERIAL		l
TVPE: Portland Cement Grout		İ
Water Level @ AMOUNT: 37.5 gallons		l
time of completion: 417.0 feet AMOONT. 37.3 gallotis		l
RISER CASING		l
DIA: 2-inch Delayed water level -8.05 feet TYPE: Schedule 40 PVC		l
Date and time: 10/3/12 JOINT TYPE: Flush Threaded		l
		571.00
	-18.4	(571.44)
ANNULAR SEAL		l
TYPE: 3/8-inch coated bentonite pellets 5-gal buckets		l
AMOUNT: 50 lbs		l
PLACEMENT: 5.7 feet		565.30
	-24.1	(565.74)
FILTER PACK TYPE: DSI Sand - 1A (20/20)		ı
TYPE: DSI Sand - 1A (20/30) Drillers Services, Inc.		ı
AMOUNT: 5.5 bags		ı
PLACEMENT: 14.3 feet		561.40
	20.0	(561.84)
BOTTOM OF RISER/TOP OF SCREEN - SCREEN (10.0')	-28.0	(301.04)
DIA: 2-inch		ı
TYPE: Schedule 40 PVC Prepack		ı
OPENING WIDTH: 0.01-inch		ı
OPENING TYPE: Slotted		ı
SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch		551.40
	-38.0	(551.84)
Flush-threaded end cap		551.00
(0.4') BOTTOM OF CASING	-38.4	(551.44)
		ı
HOLE DIA: 6.75"		ı
		l



TEST BORING RECORD

BORING NO.: GWA-15



Well Construction Log revised with new survey data dated 5/11/2020. Original elevation data in parenthesis.

GEORGIA POWER PLANT HAMMOND ASH POND #4 ROME, GEORGIA

WELL CONSTRUCTION LOG

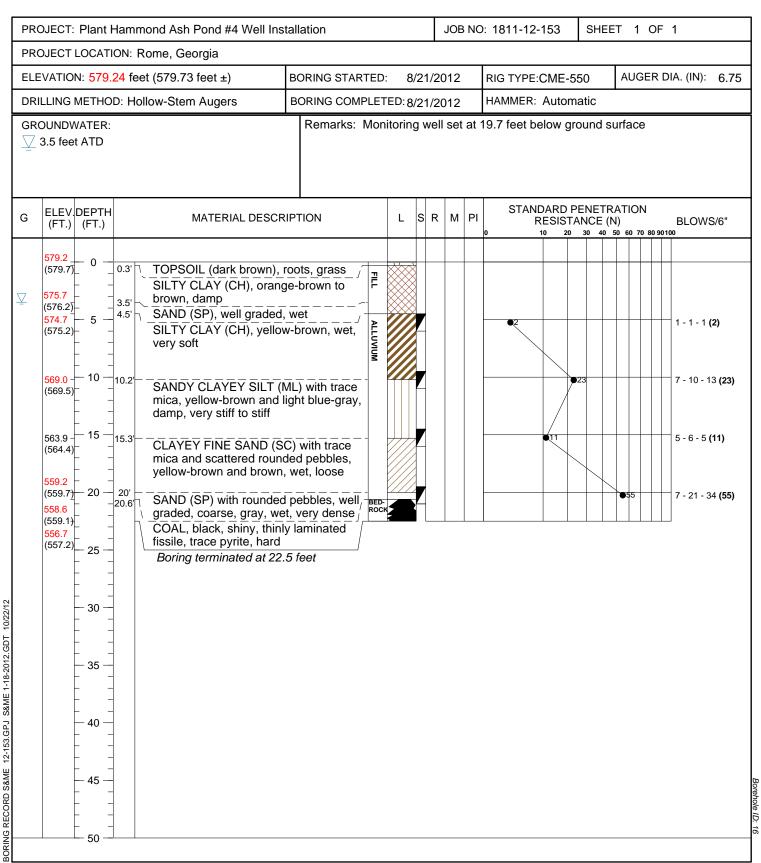


CLIENT: SOUTHERN CO	MPANY		WELL ID:
DRILLED BY: Chad Odom (S&ME) LOGGED BY: PAT GRIBBEN (S&ME)			
RIG TYPE: CME-550	DRILLING METHOD: 4.25" HOLLOW STEM	AUGERS	GWA-15
DATE CONSTRUCTED: Augus	22, 2012		
		DEPTH	ELEVATION
		FEET	FT, MSL
Locking Hinged Top			
			F04 FC
			591.56
	TOP OF RISER	3.52	(592.03)
1/4-inch Vent	Cap Type: Plastic Locking		
1/4-inch Weep Hole	[
1/ / men Weep Hole			588.04
4-ft x 4-ft concrete pad	GROUND SURFACE	0.0	(588.51)
	PROTECTIVE CASING		
	SIZE: 4" x 4" x 5'		
(2)	TYPE: STAINLESS STEEL LOCKING		E06 00
	DOTTOM OF PROTECTIVE CASCING	1 1 5	586.89 (587.36)
	BOTTOM OF PROTECTIVE CASING	-1.15	(387.30)
	BACKFILL MATERIAL		
Material evel O	TYPE: Portland Cement Grout		
Water Level @ time of completion: -6 feet	AMOUNT: 25 gallons		
time of completion.			
	RISER CASING		
Delayed water level N/A	DIA: 2-inch TYPE: Schedule 40 PVC		
Delayed water level N/A Date and time: N/A	JOINT TYPE: Flush Threaded		
	30111 111 2. 11 3 311 1111 cauccu		583.04
	TOP OF SEAL	-5.0	(583.51)
	ANNULAR SEAL		
	TYPE: 3/8-inch coated bentonite pellets		
	5-gal buckets AMOUNT: 50 lbs		
	PLACEMENT: 11.6 feet		573.44
	TOP OF FILTER PACK	-14.6	(573.9)
	FILTER PACK	-	
	TYPE: DSI Sand - 1A (20/30)		
	Drillers Services, Inc.		
	AMOUNT: 5 PLACEMENT: 12.4 feet		
	PLACEIVIENT. 12.4 IEEL		571.44
	BOTTOM OF RISER/TOP OF SCREEN	-16.6	(571.91)
	SCREEN (10.0')	-	
	DIA: 2-inch		
	TYPE: Schedule 40 PVC Prepack		
	OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted		
	SLOT SPACING: 0.25-inch		
	SLOT SPACING. 0.25-Inch		561.44
	BOTTOM OF SCREEN	-26.6	(561.91)
Flush-threaded end cap (0.4')	BOTTOM OF CASING	-27.0	561.04 (561.51)
(0.7)	BOTTOM OF CASING	-27.0	(201.21)
	HOLE DIA: 6.75"		



TEST BORING RECORD

BORING NO.: GWA-16



Well Construction Log revised with new survey data dated 5/11/2020. Original elevation data in parenthesis.

GEORGIA POWER PLANT HAMMOND ASH POND #4 ROME, GEORGIA

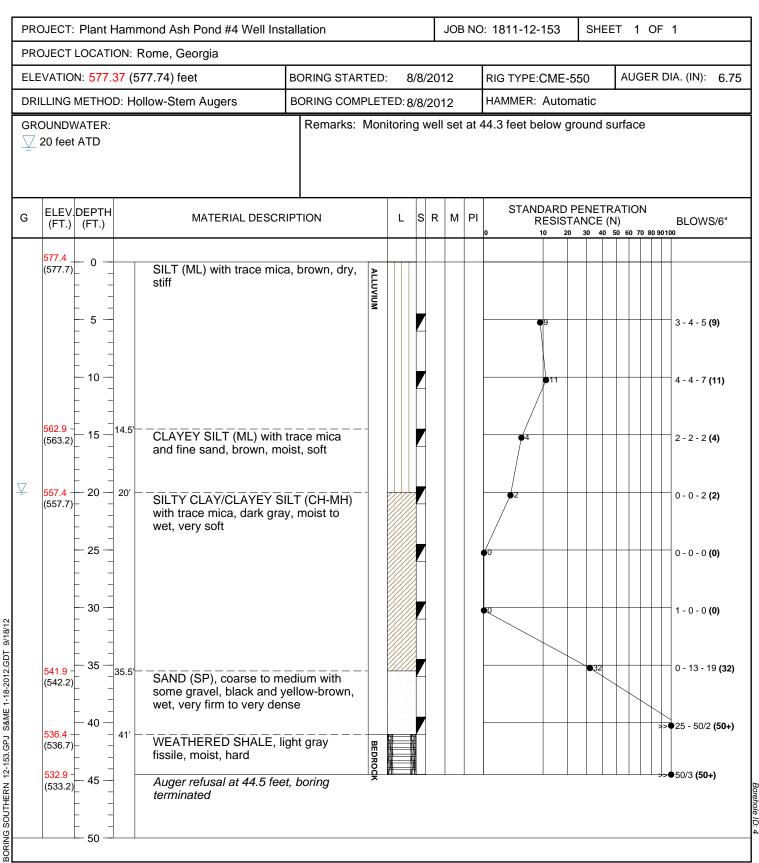
WELL CONSTRUCTION LOG



CLIENT:	SOUTHERN COMPANY		WELL ID:
DRILLED BY: Chad Odom (S&ME) LOGGED BY: PAT GRIBBEN (S&ME)			
RIG TYPE:	CME-550 DRILLING METHOD: 4.25" HOLLOW STEM	AUGERS	GWA-16
DATE CONSTRU	JCTED: August 21, 2012	DEPTH	ELEVATION
			ELEVATION
	, 	FEET	FT, MSL
Locking Hinged To	p		
			582.55
	TOP OF RISER	3.31	(583.04)
1/4-inch Vent	Cap Type: Plastic Locking		(000101)
	 		
1/4-inch Weep Ho	le		
			579.24
4-ft x 4-ft concrete	pad GROUND SURFACE	0.0	(579.73)
	PROTECTIVE CASING SIZE: 4" x 4" x 5'		
	TYPE: STAINLESS STEEL LOCKING		
	BOTTOM OF PROTECTIVE CASING	NA	Not available
	BACKFILL MATERIAL		
Water Level @	TYPE: Portland Cement Grout -3.5 feet AMOUNT: 25 gallons		
time of completion	n: ————————————————————————————————————		
	RISER CASING		
	DIA: 2-inch		
Delayed water lev			
Date and time:	N/A JOINT TYPE: Flush Threaded		574.54
	TOP OF SEAL	-4.7	(575.03)
	ANNULAR SEAL		(0:0:00)
	TYPE: 3/8-inch coated bentonite pellets		
	5-gal buckets		
	AMOUNT: 50 lbs		572.04
	PLACEMENT: 2.5 feet TOP OF FILTER PACK	-7.2	(572.5)
	FILTER PACK	,,,_	, ,
	TYPE: DSI Sand - 1A (20/30)		
	Drillers Services, Inc.		
	AMOUNT: 5.5 bags		
	PLACEMENT: 12.5 feet		569.94
	BOTTOM OF RISER/TOP OF SCREEN	-9.3	(570.43)
	SCREEN (10.0')		, -,
	DIA: 2-inch		
	TYPE: Schedule 40 PVC Prepack		
	OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted		
	SLOT SPACING: 0.25-inch		
	SLOT LENGTH: 1.5-inch		559.94
	BOTTOM OF SCREEN	-19.3	(560.43)
Flush-threaded en			559.54
(0.4')	BOTTOM OF CASING	-19.7	(560.03)
	HOLE DIA: 6.75"		



BORING NO.: GWC-4



Well Construction Log revised with new survey data dated 5/11/2020. Original elevation data in parenthesis.

GEORGIA POWER PLANT HAMMOND ASH POND #4 ROME, GEORGIA

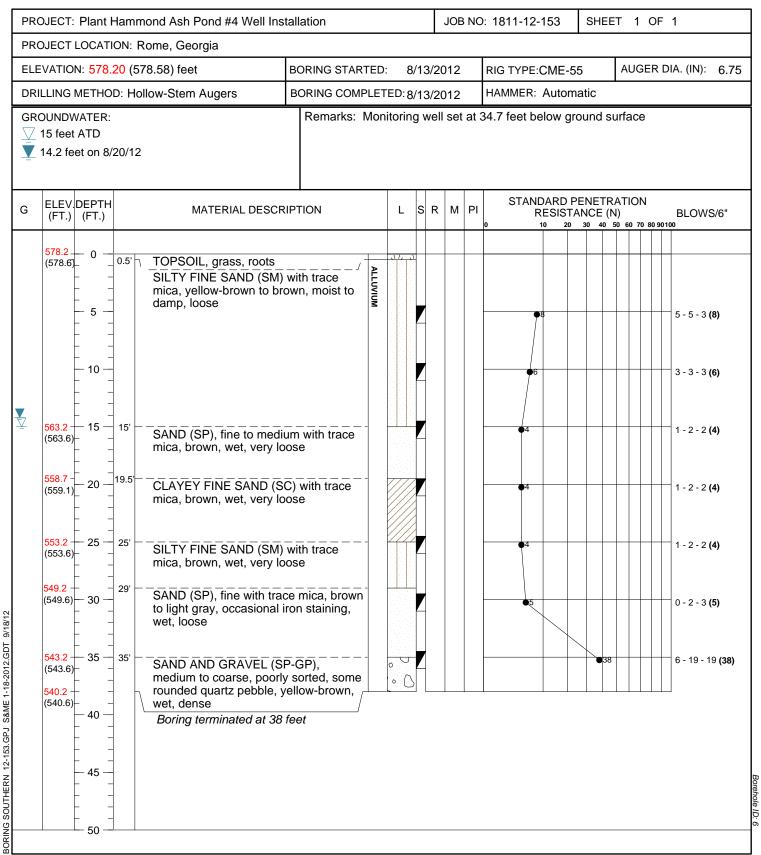
WELL CONSTRUCTION LOG



CLIENT:	SOUTHERN COMPANY		WELL ID:
DRILLED BY: Sean Denty (Southern Co.) LOGGED BY: PAT GRIBBEN (S&ME)			
RIG TYPE:	CME-550 DRILLING METHOD: 4.25" HOLLOW STEM	AUGERS	GWC-4
DATE CONSTRU	CTED: August 8, 2012	5.555	
		DEPTH	ELEVATION
		FEET	FT, MSL
Locking Hinged Top	, 		
	I I		580.65
	TOP OF RISER	3.28	(581.02)
1/4-inch Vent	Cap Type: Plastic Locking		
1/4-inch Weep Hol			
1/4-ilicii weep Hoi			577.37
4-ft x 4-ft concrete	pad GROUND SURFACE	0.0	(577.74)
4 10 X 4 10 CONCICTOR	SSSS GROUND 30 M ACE	0.0	(377.74)
	PROTECTIVE CASING		
	SIZE: 4'" x 4" x 5'		
	TYPE: STAINLESS STEEL LOCKING		F7F 02
		<u>.</u>	575.92 (576.20)
	BOTTOM OF PROTECTIVE CASING	-1.45	(576.29)
	PACYFILI MAATERIAL		
	BACKFILL MATERIAL TYPE: Portland Cement Grout		
Water Level @	-20 feet AMOUNT: 47 gallons		
time of completion	:		
	RISER CASING		
	DIA: 2-inch		
Delayed water leve			
Date and time:	N/A JOINT TYPE: Flush Threaded		549.77
	TOP OF SEAL	-27.6	(550.14)
	✓ ANNULAR SEAL	-27.0	
	TYPE: 3/8-inch coated bentonite pellets		
	5-gal buckets		
	AMOUNT: 50 lbs		545.47
	PLACEMENT: 4.3 feet	24.0	- 10111
	TOP OF FILTER PACK	-31.9	545.8
	FILTER PACK TYPE: DSI Sand - 1A (20/30)		
	Drillers Services, Inc.		
	AMOUNT: 6 bags		
	PLACEMENT: 12.4 feet		E 42 47
		_	543.47 (543.94)
	BOTTOM OF RISER/TOP OF SCREEN	-33.9	(543.84)
	SCREEN (10.0')		
	DIA: 2-inch TYPE: Schedule 40 PVC Prepack		
	OPENING WIDTH: 0.01-inch		
	OPENING TYPE: Slotted		
	SLOT SPACING: 0.25-inch		500 t=
	SLOT LENGTH: 1.5-inch		533.47
	BOTTOM OF SCREEN	-43.9	(533.84)
Flush-threaded end (0.4')		-44.3	533.07 (522.44)
(0.4)	BOTTOM OF CASING	-44 .3	(533.44)
1	HOLE DIA: 6.75"		



BORING NO.: GWC-6



Well Construction Log revised with new elevation survey data dated 5/11/2020. Original elevation data in parenthesis.

GEORGIA POWER PLANT HAMMOND ASH POND #4 ROME, GEORGIA

WELL CONSTRUCTION LOG

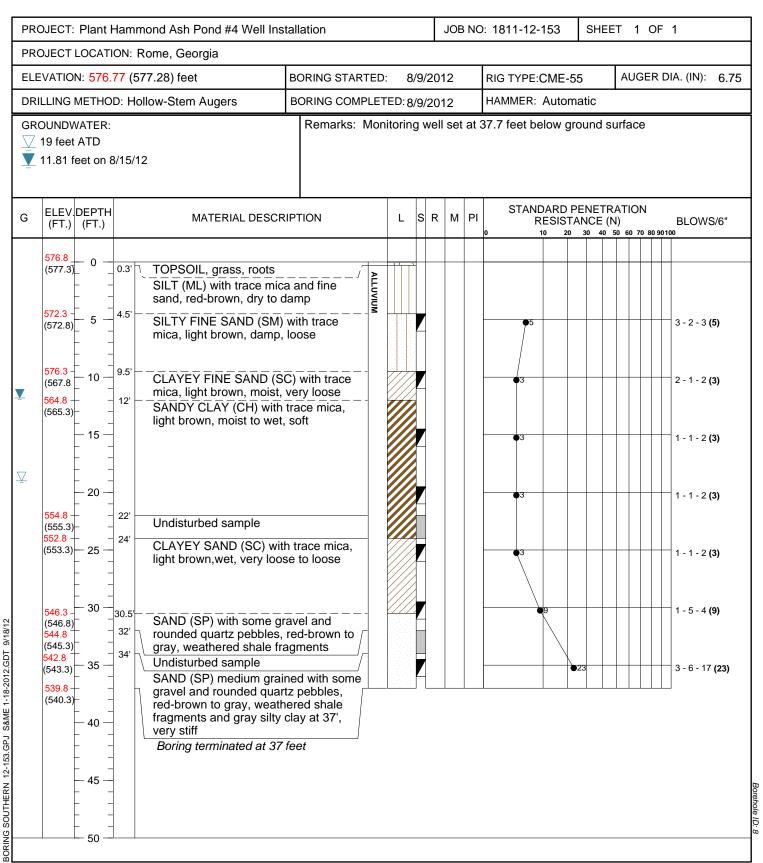


CLIENT: SOUTHERN	COMPANY		WELL ID:
DRILLED BY: Chad Odom (S&ME) LOGGED BY: PAT GRIBBEN (S&ME)			
RIG TYPE: CME-55	DRILLING METHOD: 4.25" HOLLOW STEM	AUGERS	GWC-6
DATE CONSTRUCTED: Aug	ust 13, 2012	2555	
		DEPTH	ELEVATION
		FEET	FT, MSL
Locking Hinged Top	→		
	 _ 		581.63
	TOP OF RISER	3.43	(582.01)
1/4-inch Vent	Cap Type: Plastic Locking		
4/4 : 1	7		
1/4-inch Weep Hole	→ 		578.20
4-ft x 4-ft concrete pad	CDOUND SUBFACE	0.0	
4-it x 4-it concrete pad	GROUND SURFACE	0.0	(578.58)
\(\frac{1}{2}\)	PROTECTIVE CASING		
	SIZE: 4'" x 4" x 5'		
	TYPE: STAINLESS STEEL LOCKING		
			576.90
	BOTTOM OF PROTECTIVE CASING	-1.3	(577.28)
	<u> </u>		
	BACKFILL MATERIAL		
Water Level @ -15 feet	TYPE: Portland Cement Grout AMOUNT: 33 gallons		
time of completion:	- AIVIOUNT. 33 gallotts		
	RISER CASING		
	DIA: 2-inch		
Delayed water level N/A	TYPE: Schedule 40 PVC		
Date and time: N/A	JOINT TYPE: Flush Threaded		FF0 20
		10.0	559.20
	TOP OF SEAL	-19.0	(559.58)
	ANNULAR SEAL TYPE: 3/8-inch coated bentonite pellets		
	5-gal buckets		
	AMOUNT: 50 lbs		
	PLACEMENT: 2 feet		557.20
	TOP OF FILTER PACK	-21.0	(557.6)
	FILTER PACK		
	TYPE: DSI Sand - 1A (20/30)		
	Drillers Services, Inc. AMOUNT: 5.5 bags		
	PLACEMENT: 13.7 feet		
	1 2 622		553.90
	BOTTOM OF RISER/TOP OF SCREEN	-24.3	(554.28)
	SCREEN (10.0')		
	DIA: 2-inch		
	TYPE: Schedule 40 PVC Prepack		
	OPENING WIDTH: 0.01-inch		
	OPENING TYPE: Slotted SLOT SPACING: 0.25-inch		
	SLOT LENGTH: 1.5-inch		543.90
	BOTTOM OF SCREEN	-34.3	(544.28)
Flush-threaded end cap ——	→		543.50
(0.4')	BOTTOM OF CASING	-34.7	(543.88)
	HOLE DIA: 6.75"		
	HOLE DIA. 0.73		
L			



TEST BORING RECORD

BORING NO.: GWC-8



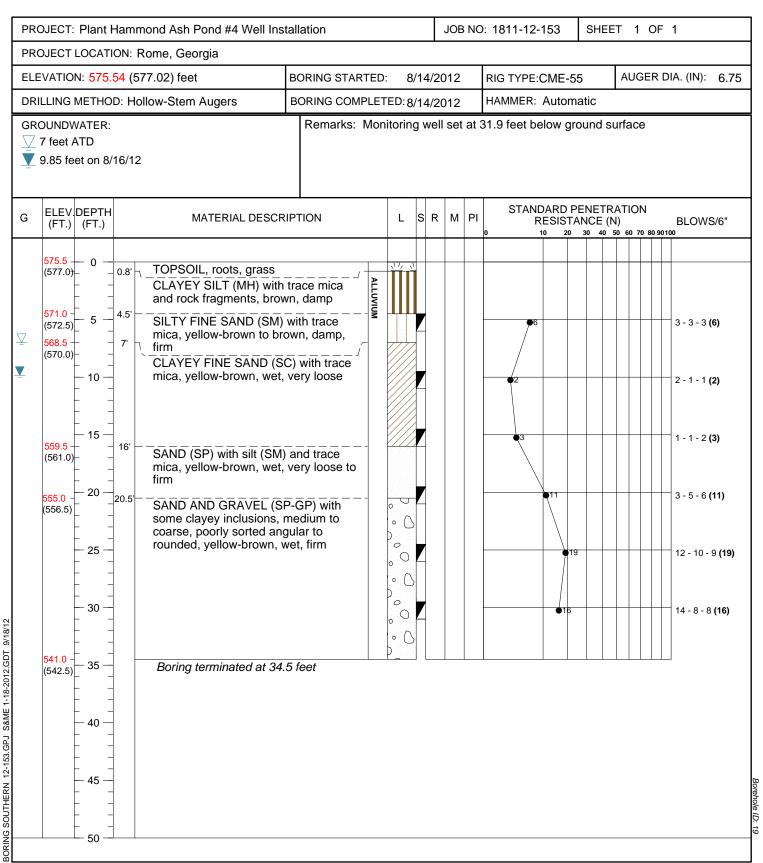
GEORGIA POWER PLANT HAMMOND ASH POND #4 ROME, GEORGIA



CLIENT:	SOUTHERN COMPANY			WELL ID:
DRILLED BY:	Chad Odom (S&ME) LOGGED BY: PAT GRIBBEN			
RIG TYPE:	CME-55 DRILLING METHOD: 4.25" H	HOLLOW STEM	AUGERS	GWC-8
DATE CONSTRU	JCTED: August 9, 2012	1		
			DEPTH	ELEVATION
			FEET	FT, MSL
Locking Hinged To	p			
	- 1			F70 00
				579.99
		TOP OF RISER	3.22	(580.50)
1/4-inch Vent	Cap Type: Plastic Locking			
1/4-inch Weep Ho	le l'Ill			
	" → 			576.77
4-ft x 4-ft concrete	pad GR	OUND SURFACE	0.0	(577.28)
				, ,
	PROTECTIVE CASING			
	SIZE: 4'" x 4" x 5'			
	TYPE: STAINLESS STEEL LO	CKING		575.28
	BOTTOM OF PRO	TECTIVE CASING	1 [(575.78)
	BOTTOM OF PRO	TECTIVE CASING	-1.5	(3/3./6)
	BACKFILL MATERIAL			
Water Level @	TYPE: Portland Cement Grout			
Water Level @ time of completion	AMOUNT: 32 gallons			
time of completion				
	RISER CASING			
Dalawad water law	DIA: 2-inch el -11.81 feet TYPE: Schedule 40 PVC			
Delayed water lev Date and time:	el -11.81 feet TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded			
bate and time.				556.77
		TOP OF SEAL	-20.0	(557.28)
	ANNULAR SEAL			
	TYPE: 3/8-inch coated benton	ite pellets		
	5-gal buckets AMOUNT: 50 lbs			
	PLACEMENT: 2 feet			554.77
		OF FILTER PACK	-22.0	(555.3)
1	FILTER PACK			
1	TYPE: DSI Sand - 1A (20/30)			
1	Drillers Services, Inc.			
	AMOUNT: 5.5 bags PLACEMENT: 15.7 feet			
1	PLACEMENT: 15.7 Teet			549.47
	BOTTOM OF RISER,	TOP OF SCREEN	-27.3	(549.98)
1	SCREEN (10.0')		-	
1	DIA: 2-inch			
1	TYPE: Schedule 40 PVC Prepac	ck		
1	OPENING WIDTH: 0.01-inch			
	OPENING TYPE: Slotted SLOT SPACING: 0.25-inch			
1	SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch			539.47
		TOM OF SCREEN	-37.3	(539.98)
Flush-threaded en				539.07
(0.4')	ВОТ	TOM OF CASING	-37.7	(539.58)
1				
	HOLE DIA: 6.75"			
	HOLE SIM. OUS			



BORING NO.: GWC-19



GEORGIA POWER PLANT HAMMOND ASH POND #4 ROME, GEORGIA

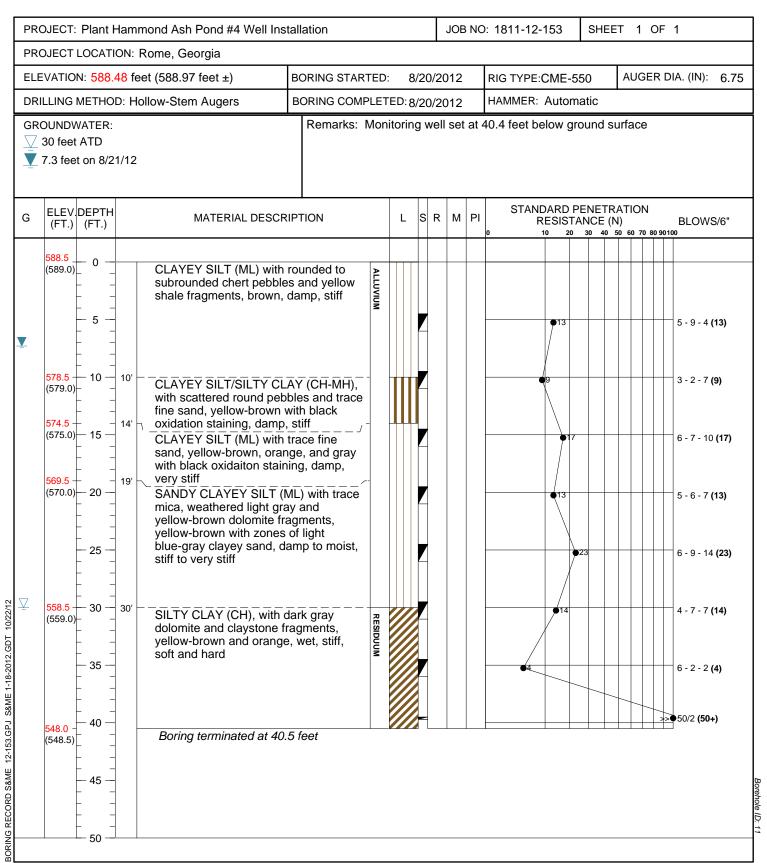


CLIENT: SOUTHERN COMPANY			WELL ID:
DRILLED BY: Chad Odom (S&ME)	LOGGED BY: PAT GRIBBEN (S&ME)		014/0 40
RIG TYPE: CME-55	DRILLING METHOD: 4.25" HOLLOW STEM	AUGERS	GWC-19
DATE CONSTRUCTED: August 14, 2012		DEPTH	ELEVATION
		FEET	
		ILLI	FT, MSL
Locking Hinged Top			
			579.83
	TOP OF RISER	4.29	(581.31)
1/4-inch Vent	Cap Type: Plastic Locking		
 	-		
1/4-inch Weep Hole			
			575.54
4-ft x 4-ft concrete pad	GROUND SURFACE	0.0	(577.02)
	PROTECTIVE CASING		
	SIZE: 4'" x 4" x 5'		
	TYPE: STAINLESS STEEL LOCKING		
			574.29
	BOTTOM OF PROTECTIVE CASING	-1.25	(575.77)
	DACKELL MATERIAL		
	TYPE: Portland Cement Grout		
Water Level @ -7 feet	AMOUNT: 45 gallons		
time of completion:	C		
	RISER CASING		
	DIA: 2-inch		
Delayed water level -9.85 feet Date and time: 8/16/12	TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
Date and time. 8/10/12	JOINT TYPE. Flush Threaded		560.54
	TOP OF SEAL	-15.0	(562.02)
	ANNULAR SEAL		
	TYPE: 3/8-inch coated bentonite pellets		
	5-gal buckets		
	AMOUNT: 50 lbs PLACEMENT: 3.5 feet		557.04
	TOP OF FILTER PACK	-18.5	(558.5)
	FILTER PACK		
	TYPE: DSI Sand - 1A (20/30)		
	Drillers Services, Inc.		
	AMOUNT: 3.5 bags PLACEMENT: 13.4 feet		
	I ENGLINERY. 13.4 ICCL		554.04
	BOTTOM OF RISER/TOP OF SCREEN	-21.5	(555.52)
	SCREEN (10.0')		
	DIA: 2-inch		
	TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch		
	OPENING WIDTH: 0.01-Inch OPENING TYPE: Slotted		
	SLOT SPACING: 0.25-inch		
	SLOT LENGTH: 1.5-inch		544.04
	BOTTOM OF SCREEN	-31.5	(545.52)
Flush-threaded end cap (0.4')	POTTOM OF CASINO	21.0	543.64
(0.4)	BOTTOM OF CASING	-31.9	(545.12)
HOLE DIA:	6.75"		



BORING NO.: HGWA-111

(GWA-11)



GEORGIA POWER PLANT HAMMOND ASH POND #4 ROME, GEORGIA

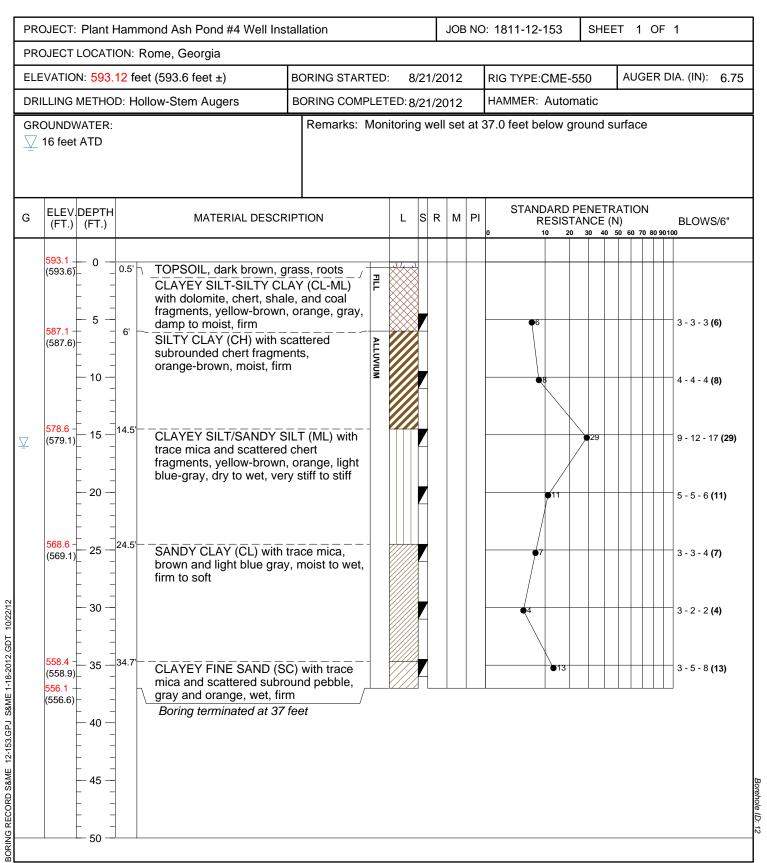


CLIENT:	SOUTHERN COMPANY		WELL ID:
DRILLED BY:	Chad Odom (S&ME) LOGGED BY: PAT GRIBBEN (S&ME)		HGWA-111
RIG TYPE:	CME-550 DRILLING METHOD: 4.25" HOLLOW STEM	AUGERS	(GWA-11)
DATE CONSTRU	JCTED: August 21, 2012	DEPTH	ELEVATION
		FEET	
		ILLI	FT, MSL
Locking Hinged To	p		
			591.75
	TOP OF RISER	3.27	(592.24)
1/4-inch Vent	Cap Type: Plastic Locking		
	 		
1/4-inch Weep Ho	le		
			588.48
4-ft x 4-ft concrete	pad GROUND SURFACE	0.0	(588.97)
	PROTECTIVE CASING		
	SIZE: 4" x 4" x 5'		
	TYPE: STAINLESS STEEL LOCKING		
			587.23
	BOTTOM OF PROTECTIVE CASING	-1.25	(587.72)
	BACKFILL MATERIAL TYPE: Portland Cement Grout		
Water Level @	-30 feet AMOUNT: 50 gallons		
time of completion	n: ————		
	RISER CASING		
	DIA: 2-inch		
Delayed water level Date and time:	el7.3 feet TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded		
Date and time:	JOINT TYPE: Flush Threaded		564.98
	TOP OF SEAL	-23.5	(565.47)
	ANNULAR SEAL		
	TYPE: 3/8-inch coated bentonite pellets		
	5-gal buckets		
	AMOUNT: 50 lbs PLACEMENT: 4.4 feet		560.58
	TOP OF FILTER PACK	-27.9	(561.1)
	FILTER PACK		
	TYPE: DSI Sand - 1A (20/30)		
	Drillers Services, Inc.		
	AMOUNT: 4.5 bags PLACEMENT: 12.5 feet		
	I ENGLIVERY. 12.3 ICC		558.48
	BOTTOM OF RISER/TOP OF SCREEN	-30.0	(558.97)
	SCREEN (10.0')		
	DIA: 2-inch		
	TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch		
	OPENING WIDTH: 0.01-IIICH OPENING TYPE: Slotted		
	SLOT SPACING: 0.25-inch		
	SLOT LENGTH: 1.5-inch		548.48
	BOTTOM OF SCREEN	-40.0	(548.97)
Flush-threaded en (0.4')	· ·	-40.4	548.08
(0.4)	BOTTOM OF CASING	-40.4	(548.57)
	HOLE DIA: 6.75"		



BORING NO.: HGWA-112

(GWA-12)



GEORGIA POWER PLANT HAMMOND ASH POND #4 ROME, GEORGIA

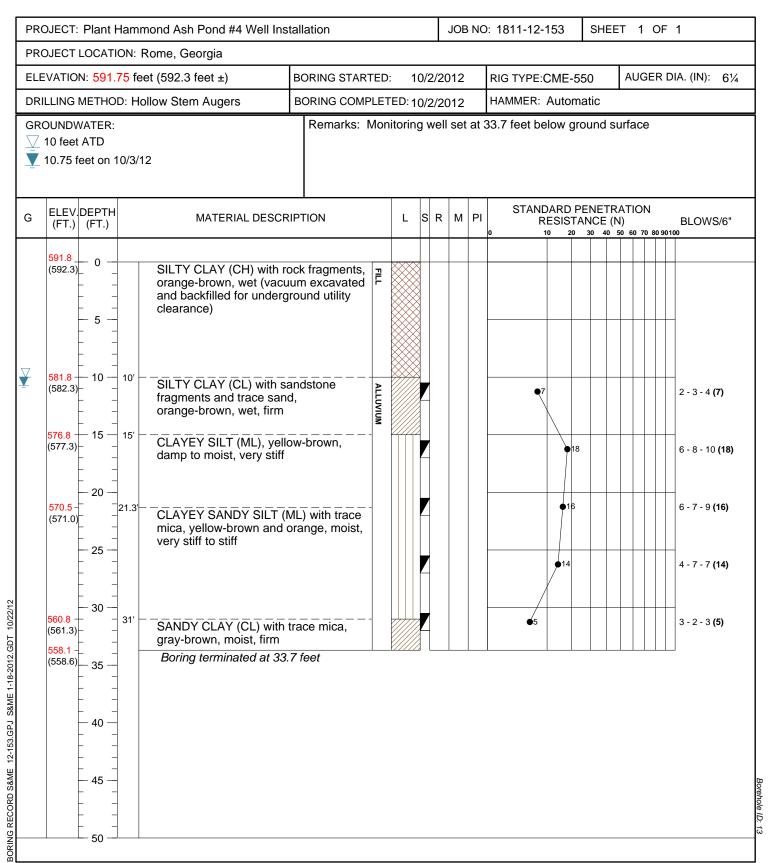


CLIENT: SOUTHERN C			WELL ID:
DRILLED BY: Chad Odom (S			HGWA-112
RIG TYPE: CME-550	DRILLING METHOD: 4.25" HOLLOW STEM	AUGERS	(GWA-12)
DATE CONSTRUCTED: Augus	: 21, 2012	DEPTH	
		FEET	ELEVATION
		FEET	FT, MSL
Locking Hinged Top			
			596.27
	TOP OF RISER	3.15	(596.75)
1/4-inch Vent	Cap Type: Plastic Locking	3.13	(
-,	 ▶ 		
1/4-inch Weep Hole			
			593.12
4-ft x 4-ft concrete pad	GROUND SURFACE	0.0	(593.6)
	PROTECTIVE CASING SIZE: 4'" x 4" x 5'		
() × () ×	SIZE: 4'" x 4" x 5' TYPE: STAINLESS STEEL LOCKING		
Į.	THE. STAINLESS STEEL LOCKING		591.67
	BOTTOM OF PROTECTIVE CASING	-1.45	(592.15)
	◆ BACKFILL MATERIAL		
Water Level @	TYPE: Portland Cement Grout		
time of completion: -16 feet	AMOUNT: 26 gallons		
	RISER CASING		
	DIA: 2-inch		
Delayed water level N/A	TYPE: Schedule 40 PVC		
Date and time: N/A	JOINT TYPE: Flush Threaded		571.62
	TOP OF STALL	24 5	(572.1)
	TOP OF SEAL	-21.5	(372.1)
	TYPE: 3/8-inch coated bentonite pellets		
	5-gal buckets		
	AMOUNT: 50 lbs		500.00
	PLACEMENT: 2.8 feet		568.82
	TOP OF FILTER PACK	-24.3	(569.3)
	TYPE: DSI Sand - 1A (20/30)		
	Drillers Services, Inc.		
	AMOUNT: 5.5 bags		
	PLACEMENT: 12.7 feet		566 50
			566.52
	BOTTOM OF RISER/TOP OF SCREEN SCREEN (10.0')	-26.6	(567.0)
	DIA: 2-inch		
	TYPE: Schedule 40 PVC Prepack		
	OPENING WIDTH: 0.01-inch		
	OPENING TYPE: Slotted		
	SLOT SPACING: 0.25-inch		FF6 F3
	SLOT LENGTH: 1.5-inch	20.0	556.52 (557.0)
Flush-threaded end cap ————	BOTTOM OF SCREEN	-36.6	(557.0) 556.12
(0.4')	BOTTOM OF CASING	-37.0	(556.6)
, ,	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3		(555.5)
	HOLE DIA: 6.75"		



BORING NO.: HGWA-113

(GWA-13)



GEORGIA POWER PLANT HAMMOND ASH POND #4 ROME, GEORGIA

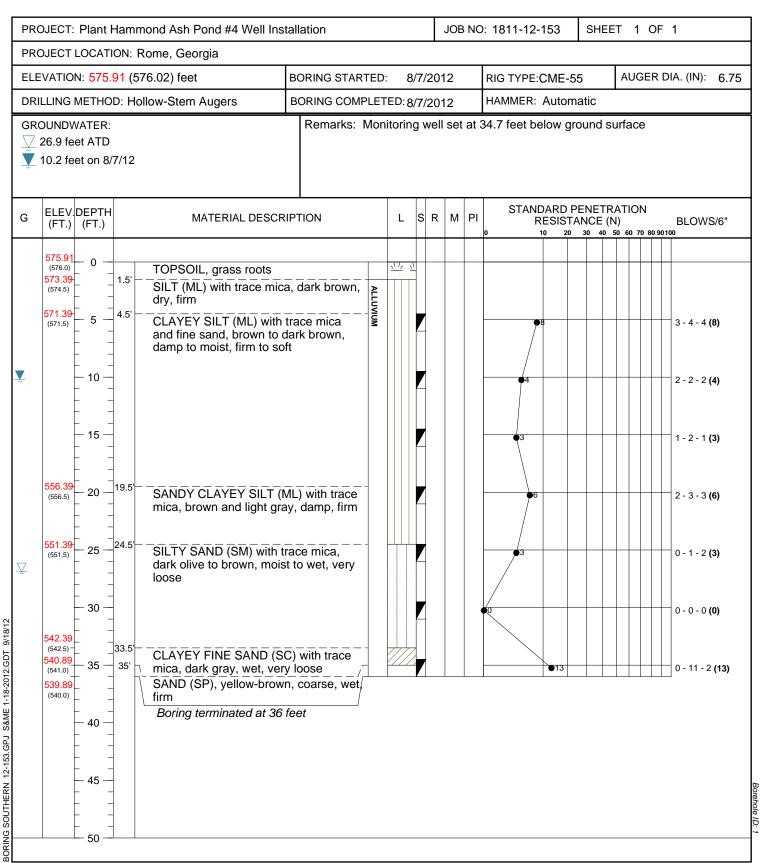


	N COMPANY		WELL ID:
DRILLED BY: Chad Odor	m (S&ME) LOGGED BY: PAT GRIBBEN (S&ME)		HGWA-113
RIG TYPE: CME-550 DATE CONSTRUCTED: O	DRILLING METHOD: 4.25" HOLLOW STEM /	AUGERS	(GWA-13)
DATE CONSTRUCTED: O	ctober 2, 2012	DEPTH	ELEVATION
		FEET	FT, MSL
	→ □		11,10131
Locking Hinged Top	· -		
			594.58
	TOP OF RISER	2.83	(595.13)
1/4-inch Vent —	Cap Type: Plastic Locking		
	1		
1/4-inch Weep Hole	→ 		591.75
4-ft x 4-ft concrete pad	GROUND SURFACE	0.0	(592.30)
Trex ric concrete pad <u>33333</u>	Since Chicago	0.0	(332.30)
	PROTECTIVE CASING		
	SIZE: 4'" x 4" x 5'		
	TYPE: STAINLESS STEEL LOCKING		590.05
	BOTTOM OF PROTECTIVE CASING	-1.7	(590.60)
	BOTTOM OF TROTECTIVE GASING	1.7	(000100)
	◆ BACKFILL MATERIAL		
Water Level @	TYPE: Portland Cement Grout		
time of completion: $\frac{-10.0 \text{ fee}}{}$	AMOUNT: 31.25 gallons		
	RISER CASING		
	DIA: 2-inch		
Delayed water level -10.75			
Date and time: $10/3$	JOINT TYPE: Flush Threaded		573.05
	TOP OF SEAL	-18.7	(573.60)
	ANNULAR SEAL	10.7	(
	TYPE: 3/8-inch coated bentonite pellets		
	5-gal buckets AMOUNT: 50 lbs		
	PLACEMENT: 2.9 feet		570.15
	TOP OF FILTER PACK	-21.6	(570.70)
	FILTER PACK		
	TYPE: DSI Sand - 1A (20/30)		
	Drillers Services, Inc. AMOUNT: 6 bags		
	PLACEMENT: 11.68 feet		560.07
			568.87 (560.42)
	BOTTOM OF RISER/TOP OF SCREEN	-22.88	(569.42)
	SCREEN (10.0') DIA: 2-inch		
	TYPE: Schedule 40 PVC Prepack		
	OPENING WIDTH: 0.01-inch		
	OPENING TYPE: Slotted		
	SLOT SPACING: 0.25-inch		558.87
	SLOT LENGTH: 1.5-inch BOTTOM OF SCREEN	-32.88	(559.42)
Flush-threaded end cap —	→ borrowror scheen	32.00	558.47
(0.4')	BOTTOM OF CASING	-33.28	(559.02)
	HOLE DIA: 6.75"		
-			



BORING NO.: HGWC-101

(GWC-1)



GEORGIA POWER PLANT HAMMOND ASH POND #4 ROME, GEORGIA

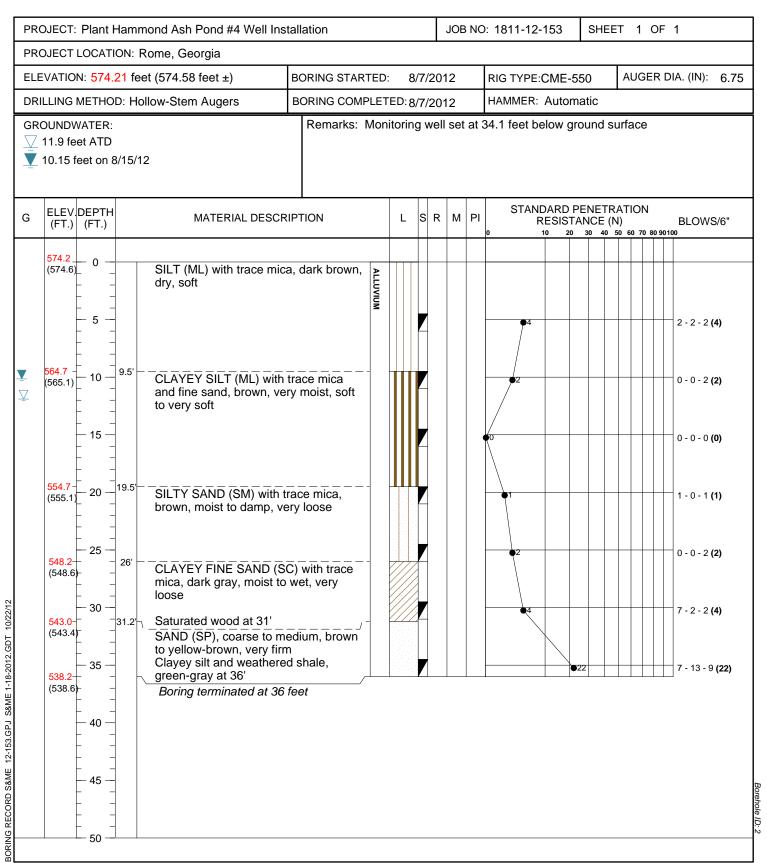


CLIENT: SOUTHERN CO			WELL ID:
DRILLED BY: CHAD ODOM (HGWC-101
RIG TYPE: CME-55	DRILLING METHOD: 4.25" HOLLOW STEM A	AUGERS	(GWC-1)
DATE CONSTRUCTED: Augus	7, 2012	DEPTH	` ,
			ELEVATION FT,
		FEET	MSL
Locking Hinged Top			
			578.85
	TOP OF RISER	3.24	(579.26)
1/4-inch Vent	Cap Type: Plastic Locking		(373.23)
1, i mem vene	▶		
1/4-inch Weep Hole			
			575.61
4-ft x 4-ft concrete pad	GROUND SURFACE	0.0	(576.02)
	PROTECTIVE CASING		
	SIZE: 4'" x 4" x 5' TYPE: STAINLESS STEEL LOCKING		
	STAINLESS STELL LOCKING		574.36
)	BOTTOM OF PROTECTIVE CASING	-1.25	(574.77)
	BACKFILL MATERIAL		
Water Level @	TYPE: Portland Cement Grout		
time of completion: -26.9 feet	AMOUNT: 26 gallons		
	RISER CASING		
	DIA: 2-inch		
Delayed water level10.2 feet	TYPE: Schedule 40 PVC		
Date and time: 8/7/12	JOINT TYPE: Flush Threaded		556.41
			(556.82)
	TOP OF SEAL	-19.2	(330.02)
	ANNULAR SEAL TYPE: 3/8-inch coated bentonite pellets		
	5-gal buckets		
	AMOUNT: 50 lbs		
	PLACEMENT: 2.8 feet		553.91
	TOP OF FILTER PACK	-22.0	(554.0)
	FILTER PACK		
	TYPE: DSI Sand - 1A (20/30) Drillers Services, Inc.		
	AMOUNT: 6 bags		
	PLACEMENT: 12.7 feet		
			551.31
	BOTTOM OF RISER/TOP OF SCREEN	-24.3	(551.72)
	SCREEN (10.0') — DIA: 2-inch		
	TYPE: Schedule 40 PVC Prepack		
	OPENING WIDTH: 0.01-inch		
	OPENING TYPE: Slotted		
	SLOT SPACING: 0.25-inch		541.31
	SLOT LENGTH: 1.5-inch	242	(541.72)
Flush-threaded end cap ————	BOTTOM OF SCREEN	-34.3	540.91
(0.4')	BOTTOM OF CASING	-34.7	(541.32)
,	25		(3.12.32)
	HOLE DIA: 6.75"		



BORING NO.: HGWC-102

(GWC-2)



GEORGIA POWER PLANT HAMMOND ASH POND #4 ROME, GEORGIA

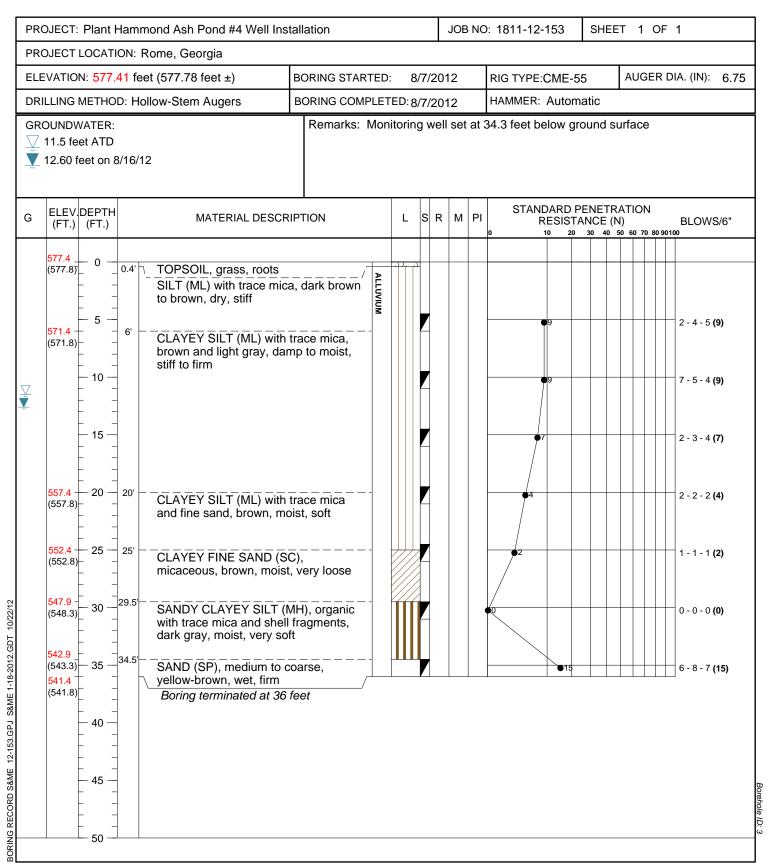


CLIENT: SOUTHERN CO			WELL ID:
DRILLED BY: Sean Denty (So			HGWC-102
RIG TYPE: CME-550	DRILLING METHOD: 4.25" HOLLOW STEM	AUGERS	(GWC-2)
DATE CONSTRUCTED: Augus	7, 2012	DEPTH	ELEVATION
		FEET	
		FEET	FT, MSL
Locking Hinged Top			
			577.54
	TOP OF RISER	3.33	(577.91)
1/4-inch Vent	Cap Type: Plastic Locking		(0.1.10_)
-,	▶ 		
1/4-inch Weep Hole			
			574.21
4-ft x 4-ft concrete pad	GROUND SURFACE	0.0	(574.58)
\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.			
	PROTECTIVE CASING SIZE: 4''' x 4'' x 5'		
()	TYPE: STAINLESS STEEL LOCKING		
Į.	The straint sound		572.86
\s	BOTTOM OF PROTECTIVE CASING	-1.35	(573.23)
	BACKFILL MATERIAL		
Water Level @	TYPE: Portland Cement Grout		
time of completion: -11.9 feet	AMOUNT: 51 gallons		
	RISER CASING		
	DIA: 2-inch		
Delayed water level10.15 feet	TYPE: Schedule 40 PVC		
Date and time: 8/15/12	JOINT TYPE: Flush Threaded		556.01
	TOD OF STAIL	10.2	(556.38)
	TOP OF SEAL ANNULAR SEAL	-18.2	(000100)
	TYPE: 3/8-inch coated bentonite pellets		
	5-gal buckets		
	AMOUNT: 50 lbs		553.31
	PLACEMENT: 2.7 feet	20.0	(553.7)
	TOP OF FILTER PACK FILTER PACK	-20.9	(555.7)
	TYPE: DSI Sand - 1A (20/30)		
	Drillers Services, Inc.		
	AMOUNT: 6.5 bags		
	PLACEMENT: 13.2 feet		550.51
	00-00-00-00-00-00-00-00-00-00-00-00-00-	22.7	(550.88)
	BOTTOM OF RISER/TOP OF SCREEN SCREEN (10.0')	-23.7	(330.00)
	DIA: 2-inch		
	TYPE: Schedule 40 PVC Prepack		
	OPENING WIDTH: 0.01-inch		
	OPENING TYPE: Slotted		
	SLOT SPACING: 0.25-inch		540.51
	SLOT LENGTH: 1.5-inch	_22 7	(540.88)
Flush-threaded end cap ————	BOTTOM OF SCREEN	-33.7	540.11
(0.4')	BOTTOM OF CASING	-34.1	(540.48)
			(5.5.10)
	HOLE DIA: 6.75"		



BORING NO.: HGWC-103

(GWC-3)



GEORGIA POWER PLANT HAMMOND ASH POND #4 ROME, GEORGIA

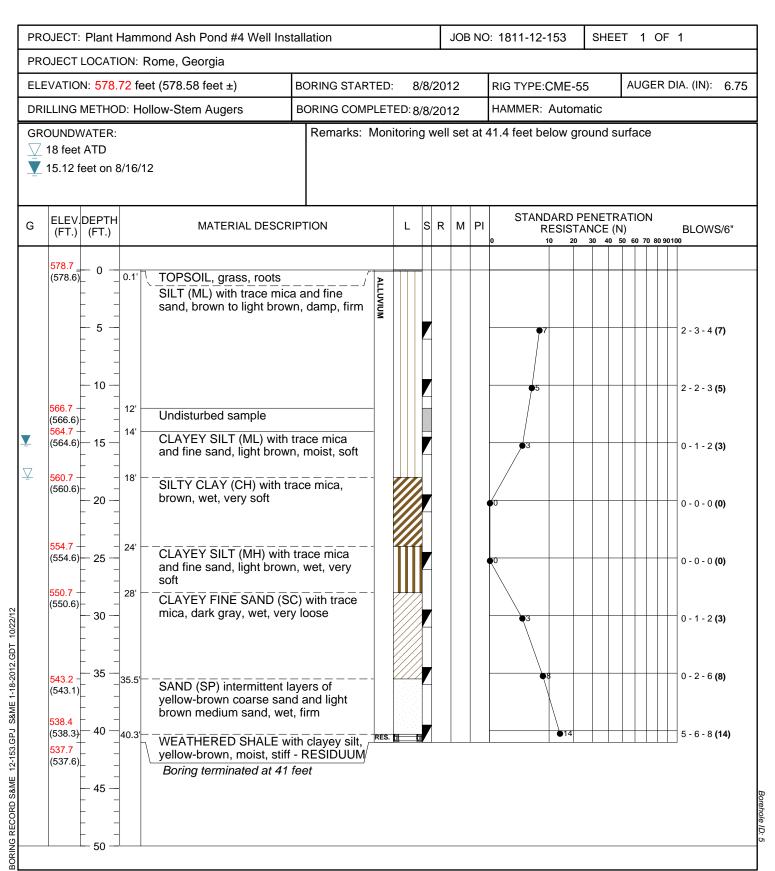


RIG TYPE: CME-55 DATE CONSTRUCTED: August 8, 2012 DEPTH FEET OCIVITY PROPERTIES AUGUST 8.2012 DEPTH FEET TOP OF RISER 3.38 S80.79 (581.16) Cap Type: Plastic Locking Indicate the concrete pad PROTECTIVE CASING SIZE: 4" x 4" x 5" TYPE: STAINLESS STEEL LOCKING SIZE: 4" x 4" x 4" x 5" TYPE: STAINLESS STEEL LOCKING BOTTOM OF PROTECTIVE CASING -1.3 FROM TOP OF RISER 3.38 S77.41 (577.41 (577.78) PROTECTIVE CASING SIZE: 4" x 4" x 5" TYPE: STAINLESS STEEL LOCKING BOTTOM OF PROTECTIVE CASING -1.3 S76.11 TYPE: Portland Cement Grout AMOUNT: 43 gallons RISER CASING DIA: 2-inch TYPE: Schedule 40 PVC	CLIENT: SOUTHERN COMPANY				
### APPLICATION STEEL AURUST 8, 2012 DEPTH FEET FEET			HGWC-103		
DEPTH ELEVATION FEET FI.MSL.			AUGERS		
TOP OF RISER 3.38 S80.79	DATE CONSTRUCTED: August	, 2012	DEDTH		
TOP OF RISER 3.38 580.79 580.79 580.79 580.79 580.79 577.41 577.41 577.78 577.41 577.78 577.78 577.78 577.78 577.78 576.48					
TOP OF RISER 3.38 580.79 (581.16)			FEET	F1, MSL	
TOP OF RISER 3.38 (581.16)	Locking Hinged Top				
TOP OF RISER 3.38 (581.16)				580 79	
Cap Type: Plastic Locking Cap Type: Plastic Locking 577.41 577.41		TOP OF RISER	3.38		
### Additional Properties of Page 12.60 feet Date and time: #### Additional Properties of Page 14.6 feet Date and time: ##### Additional Properties of Page 14.6 feet Date and time: ###################################	1/4-inch Vent			(302.23)	
## Aft concrete pad ## Aft concrete pad ## Aft concrete pad ## Aft concrete pad ## Aft Aft concrete pad ## Aft Aft Concrete pad ## Aft Aft Aft Concrete pad ## Aft Aft Aft Aft Aft Aft Aft Aft Aft Aft	zy i men vene	-			
STAINLESS STEEL LOCKING STAINLESS STAINLESS STEEL LOCKING STAINLESS STAINLESS STEEL LOCKING STAINLESS STAINLESS STAINLESS STAINLESS STAINLESS STAINLESS STAINLESS STAINLESS STAINLESS STAINLESS STAINLESS STAINLESS STAINLESS STAINLESS STAINLESS ST	1/4-inch Weep Hole				
PROTECTIVE CASING SIZE: 4" x 4" x 5" TYPE: STAINLESS STEEL LOCKING BOTTOM OF PROTECTIVE CASING 1.3 (576.48) BACKFILL MATERIAL TYPE: Portland Cement Grout AMOUNT: 43 gallons RISER CASING DIA: 2-inch TYPE: Schedule 40 PVC JOINT TYPE: Hush Threaded TOP OF SEAL -19.7 (558.08) ANNULAR SEAL TYPE: 3/8-inch coated bentonite pellets 5-gal buckets AMOUNT: 50 lbs PLACEMENT: 2.2 feet TOP OF FILTER PACK TYPE: DSI Sand - 1A (20/30) Drilles Services, Inc. AMOUNT: 5.5 bags PLACEMENT: 12.4 feet SCREEN (10.0") DIA: 2-inch TYPE: Schedule 40 PVC Prepack OPENING YIPYE: Siched 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING YIPYE: Siched SLOT EPACK TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING WIDTH: 0.01-inch OPENING YIPYE: Siched SLOT EPACHEN: -33.9 (543.88) Flush-threaded end cap (0.4") BOTTOM OF SCREEN -33.9 (543.88)					
PROTECTIVE CASING SIZE: 4" × 4" × 5' TYPE: STAINLESS STEEL LOCKING BOTTOM OF PROTECTIVE CASING -1.3 (576.48) BACKFILL MATERIAL TYPE: Portland Cement Grout AMOUNT: 43 gallons PRISER CASING DiA: 2-inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded ANULAR SEAL TYPE: 31-inch TOP OF SEAL -19.7 (558.08) ANULAR SEAL TYPE: 35-inch coated bentonite pellets 5-gal buckets AMOUNT: 50 lbs PLACEMENT: 2.2 feet TOP OF FILTER PACK -21.9 (555.9) FILTER PACK TYPE: Schedule 40 PVC prepack OPENING NOTH: 0.01-inch OPENING WIDTH: 0.01-inch OPENING WIDTH: 0.01-inch OPENING WIDTH: 0.01-inch OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch SCHEEN (10.4') BOTTOM OF SCREEN -33.9 (543.48) SCHEEN (0.4')	4-ft x 4-ft concrete pad	GROUND SURFACE	0.0	(577.78)	
SIZE: 4" x 4" x 5" TYPE: STAINLESS STEEL LOCKING S76.11 (S76.48)					
### STAINLESS STEEL LOCKING 576.11					
BOTTOM OF PROTECTIVE CASING -1.3 (576.48) BACKFILL MATERIAL TYPE: Portland Cement Grout AMOUNT: 43 gallons PISER CASING DiA: 2-inch TYPE: Schedule 40 PVC JOINT TYPE: Hush Threaded TOP OF SEAL -19.7 (558.08) ANNULAR SEAL TYPE: 3/8-inch coated bentonite pellets 5-gal buckets AMOUNT: 50 lbs PLACEMENT: 2.2 feet TOP OF FILTER PACK -21.9 (555.9) FILTER PACK TYPE: DSI Sand - 1A (20/30) Drillers Services, Inc. AMOUNT: 5.5 bags PLACEMENT: 12.4 feet SCREEN (10.0') DIA: 2-inch TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING WIDTH: 0.01-inch OPENING WIDTH: 0.01-inch OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch BOTTOM OF CASING -34.3 (543.48)					
Mater Level @ ime of completion: -11.5 feet Type: Portland Cement Grout AMOUNT: 43 gallons AMOUNT: 43 gallons Type: Schedule 40 PVC Joint Type: Schedule 40 PVC Joint Type: Flush Threaded S57.71 (558.08) ANNULAR SEAL Type: 3/8-inch coated bentonite pellets 5-gal buckets AMOUNT: 50 lbs PLACEMENT: 2.2 feet TOP OF FILTER PACK Type: DSI Sand - 1A (20/30) Drillers Services, Inc. AMOUNT: 5.5 bags PLACEMENT: 12.4 feet S53.51 BOTTOM OF RISER/TOP OF SCREEN -23.9 (553.88) SCREEN (10.0") DIA: 2-inch Type: Slotted SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch SA3.11 SA3.11 SA3.48 SOTTOM OF CASING -34.3 (543.48)	*\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	TIPE. STAINLESS STEEL LOCKING		576.11	
Mater Level @ ime of completion: -11.5 feet	V.	BOTTOM OF PROTECTIVE CASING	-1.3	(576.48)	
Water Level @ ime of completion: -11.5 feet Delayed water level Date and time: -12.60 feet Date and time: -12.60 feet Date and time: -12.60 feet Date and time: -12.60 feet Date and time: -12.60 feet Doint Type: Schedule 40 PVC DOINT Type: Flush Threaded -19.7 TOP OF SEAL Type: 3/8-inch coated bentonite pellets S-gal buckets AMOUNT: 50 lbs PLACEMENT: 2.2 feet TOP OF FILTER PACK Type: DSI Sand - 1A (20/30) Drillers Services, Inc. AMOUNT: 5.5 bags PLACEMENT: 12.4 feet -21.9 SCREEN (10.0") DIA: 2-inch Type: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING Type: Slotted SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch BOTTOM OF SCREEN -33.9 SCREEN (0.4") BOTTOM OF CASING -34.3 (543.48)			_		
AMOUNT: 43 gallons AMOUNT: 43 gallons		BACKFILL MATERIAL			
RISER CASING DIA: 2-inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded ANNULAR SEAL TYPE: 3/8-inch coated bentonite pellets 5-gal buckets AMOUNT: 50 lbs PLACEMENT: 2.2 feet TOP OF FILTER PACK TYPE: DSI Sand - 1A (20/30) Drillers Services, Inc. AMOUNT: 5.5 bags PLACEMENT: 12.4 feet SCREEN (10.0") DIA: 2-inch TYPE: Schedule 40 PVC TYPE: Schedule 40 PVC TYPE: Schedule 40 PVC TYPE: DSI Sand - 1A (20/30) Drillers Services, Inc. AMOUNT: 5.5 bags PLACEMENT: 12.4 feet SCREEN (10.0") DIA: 2-inch TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING WIDTH: 0.01-inch OPENING WIDTH: 1.5-inch SLOT LENGTH: 1.5-inch BOTTOM OF SCREEN -33.9 (543.88) Flush-threaded end cap (0.4") BOTTOM OF CASING -34.3 (543.48)	Water Level @				
DiA: 2-inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded TOP OF SEAL -19.7 (558.08) ANNULAR SEAL TYPE: 3/8-inch coated bentonite pellets 5-gal buckets AMOUNT: 50 lbs PLACEMENT: 2.2 feet TOP OF FILTER PACK TYPE: DSI Sand - 1A (20/30) Drillers Services, Inc. AMOUNT: 5.5 bags PLACEMENT: 12.4 feet 553.51 BOTTOM OF RISER/TOP OF SCREEN -23.9 (553.88) SCREEN (10.0') DIA: 2-inch TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch BOTTOM OF CASING -34.3 (543.88) Flush-threaded end cap (0.4')	time of completion: -11.5 feet	AMOUNT: 43 gallons			
DiA: 2-inch TYPE: Schedule 40 PVC JOINT TYPE: Flush Threaded TOP OF SEAL -19.7 (558.08) ANNULAR SEAL TYPE: 3/8-inch coated bentonite pellets 5-gal buckets AMOUNT: 50 lbs PLACEMENT: 2.2 feet TOP OF FILTER PACK TYPE: DSI Sand - 1A (20/30) Drillers Services, Inc. AMOUNT: 5.5 bags PLACEMENT: 12.4 feet 553.51 BOTTOM OF RISER/TOP OF SCREEN -23.9 (553.88) SCREEN (10.0') DIA: 2-inch TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch BOTTOM OF CASING -34.3 (543.88) Flush-threaded end cap (0.4')		RISER CASING			
Type: Schedule 40 PVC JOINT Type: Flush Threaded Type: Schedule 40 PVC JOINT Type: Flush Threaded Type: Stand - 19.7 (558.08)					
JOINT TYPE: Flush Threaded S57.71 TOP OF SEAL -19.7 (558.08) ANNULAR SEAL TYPE: 3/8-inch coated bentonite pellets 5-gal buckets AMOUNT: 50 lbs PLACEMENT: 2.2 feet TOP OF FILTER PACK -21.9 (555.9) FILTER PACK TYPE: DSI Sand - 1A (20/30) Drillers Services, Inc. AMOUNT: 5.5 bags PLACEMENT: 12.4 feet SCREEN (10.0') DIA: 2-inch TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch BOTTOM OF SCREEN -33.9 (543.88) Flush-threaded end cap (0.4') BOTTOM OF CASING -34.3 (543.48)	Delayed water level -12.60 feet				
ANNULAR SEAL TYPE: 3/8-inch coated bentonite pellets 5-gal buckets AMOUNT: 50 lbs PLACEMENT: 2.2 feet TYPE: DSI Sand - 1A (20/30) Drillers Services, Inc. AMOUNT: 5.5 bags PLACEMENT: 12.4 feet SCREEN (10.0') DIA: 2-inch TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch SLOT LENGTH: 1.5-inch BOTTOM OF SCREEN -33.9 (543.88) Screen (0.4') BOTTOM OF CASING -34.3 (543.48)		JOINT TYPE: Flush Threaded		FF7 74	
ANNULAR SEAL TYPE: 3/8-inch coated bentonite pellets 5-gal buckets AMOUNT: 50 lbs PLACEMENT: 2.2 feet TOP OF FILTER PACK -21.9 (555.9) FILTER PACK TYPE: DSI Sand - 1A (20/30) Drillers Services, Inc. AMOUNT: 5.5 bags PLACEMENT: 12.4 feet SCREEN (10.0') DIA: 2-inch TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted SLOT SPACING: 0.25-inch SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch BOTTOM OF SCREEN -33.9 (543.88) Filush-threaded end cap (0.4') BOTTOM OF CASING -34.3 (543.48)			_		
TYPE: 3/8-inch coated bentonite pellets 5-gal buckets AMOUNT: 50 lbs PLACEMENT: 2.2 feet TOP OF FILTER PACK TYPE: DSI Sand - 1A (20/30) Drillers Services, Inc. AMOUNT: 5.5 bags PLACEMENT: 12.4 feet SCREEN (10.0') DIA: 2-inch TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch BOTTOM OF SCREEN -33.9 (543.88) Screen (0.4') BOTTOM OF CASING -34.3 (543.48)			-19.7	(336.06)	
5-gal buckets AMOUNT: 50 lbs PLACEMENT: 2.2 feet TOP OF FILTER PACK -21.9 (555.9) FILTER PACK TYPE: DSI Sand - 1A (20/30) Drillers Services, Inc. AMOUNT: 5.5 bags PLACEMENT: 12.4 feet SCREEN (10.0') DIA: 2-inch TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch SLOT LENGTH: 1.5-inch BOTTOM OF SCREEN -33.9 (543.88) SCREEN (0.4') BOTTOM OF CASING -34.3 (543.48)					
AMOUNT: 50 lbs PLACEMENT: 2.2 feet TOP OF FILTER PACK TYPE: DSI Sand - 1A (20/30) Drillers Services, Inc. AMOUNT: 5.5 bags PLACEMENT: 12.4 feet SCREEN (10.0') DIA: 2-inch TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch BOTTOM OF SCREEN -33.9 (543.88) Flush-threaded end cap (0.4') BOTTOM OF CASING -34.3 (543.48)					
TOP OF FILTER PACK TOP OF FILTER PACK TYPE: DSI Sand - 1A (20/30) Drillers Services, Inc. AMOUNT: 5.5 bags PLACEMENT: 12.4 feet S53.51 BOTTOM OF RISER/TOP OF SCREEN -23.9 (553.88) SCREEN (10.0') DIA: 2-inch TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch BOTTOM OF SCREEN -33.9 (543.88) Flush-threaded end cap (0.4') BOTTOM OF CASING -34.3 (543.48)					
FILTER PACK TYPE: DSI Sand - 1A (20/30) Drillers Services, Inc. AMOUNT: 5.5 bags PLACEMENT: 12.4 feet SCREEN (10.0') DIA: 2-inch TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch BOTTOM OF SCREEN -33.9 (543.88) Flush-threaded end cap (0.4') BOTTOM OF CASING -34.3 (543.48)		PLACEMENT: 2.2 feet			
TYPE: DSI Sand - 1A (20/30) Drillers Services, Inc. AMOUNT: 5.5 bags PLACEMENT: 12.4 feet BOTTOM OF RISER/TOP OF SCREEN -23.9 (553.88) SCREEN (10.0') DIA: 2-inch TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch BOTTOM OF SCREEN -33.9 (543.88) Flush-threaded end cap (0.4') BOTTOM OF CASING -34.3 (543.48)			-21.9	(555.9)	
Drillers Services, Inc. AMOUNT: 5.5 bags PLACEMENT: 12.4 feet S53.51 BOTTOM OF RISER/TOP OF SCREEN -23.9 (553.88) SCREEN (10.0') DIA: 2-inch TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch BOTTOM OF SCREEN -33.9 (543.88) Flush-threaded end cap (0.4') BOTTOM OF CASING -34.3 (543.48)					
AMOUNT: 5.5 bags PLACEMENT: 12.4 feet BOTTOM OF RISER/TOP OF SCREEN -23.9 (553.88) SCREEN (10.0') DIA: 2-inch TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch BOTTOM OF SCREEN -33.9 (543.88) Flush-threaded end cap (0.4') BOTTOM OF CASING -34.3 (543.48)		Drillers Services Inc			
PLACEMENT: 12.4 feet BOTTOM OF RISER/TOP OF SCREEN -23.9 (553.88) SCREEN (10.0') DIA: 2-inch TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch BOTTOM OF SCREEN -33.9 (543.88) Flush-threaded end cap (0.4') BOTTOM OF CASING -34.3 (543.48)					
BOTTOM OF RISER/TOP OF SCREEN -23.9 (553.88) SCREEN (10.0¹) DIA: 2-inch TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch BOTTOM OF SCREEN -33.9 (543.88) Flush-threaded end cap (0.4¹) BOTTOM OF CASING -34.3 (543.48)		<u> </u>			
SCREEN (10.0') DIA: 2-inch TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch BOTTOM OF SCREEN -33.9 (543.88) Flush-threaded end cap (0.4') BOTTOM OF CASING -34.3 (543.48)					
DIA: 2-inch TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch BOTTOM OF SCREEN -33.9 (543.88) Flush-threaded end cap (0.4') BOTTOM OF CASING -34.3 (543.48)			-23.9	(553.88)	
TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch BOTTOM OF SCREEN -33.9 (543.88) Flush-threaded end cap (0.4') BOTTOM OF CASING -34.3 (543.48)					
OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch BOTTOM OF SCREEN -33.9 (543.88) Flush-threaded end cap (0.4') BOTTOM OF CASING -34.3 (543.48)					
OPENING TYPE: Slotted SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch BOTTOM OF SCREEN -33.9 (543.88) Flush-threaded end cap (0.4') BOTTOM OF CASING -34.3 (543.48)					
SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch BOTTOM OF SCREEN -33.9 (543.88) Flush-threaded end cap (0.4') BOTTOM OF CASING -34.3 (543.48)					
BOTTOM OF SCREEN -33.9 (543.88) Flush-threaded end cap (0.4') BOTTOM OF CASING -34.3 (543.48)				F 40 54	
Flush-threaded end cap (0.4') BOTTOM OF CASING -34.3 (543.48)		SLOT LENGTH: 1.5-inch			
(0.4') BOTTOM OF CASING -34.3 (543.48)		BOTTOM OF SCREEN	-33.9		
		POTTOM OF CACING	242		
HOLE DIA: 6.75"	(0.4)	BOTTOM OF CASING	-54.5	(343.48)	
HOLE DIA: 6.75"					
ı		OLE DIA: 6.75"			



BORING NO.: HGWC-105

(GWC-5)



GEORGIA POWER PLANT HAMMOND ASH POND #4 ROME, GEORGIA

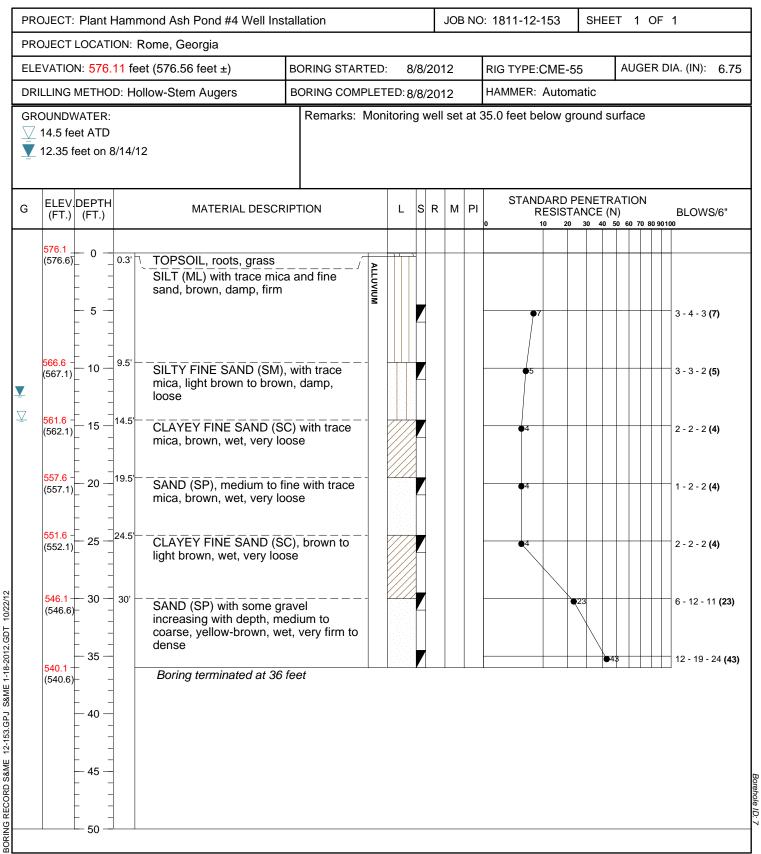


CLIENT: SOUTHERN C			WELL ID:
DRILLED BY: Chad Odom (S			HGWC-105
RIG TYPE: CME-55	DRILLING METHOD: 4.25" HOLLOW STEM	AUGERS	(GWC-5)
DATE CONSTRUCTED: Augus	t 8, 2012	DEPTH	ELEVATION
		FEET	
			FT, MSL
Locking Hinged Top			
			582.09
	TOP OF RISER	3.37	(582.46)
1/4-inch Vent	Cap Type: Plastic Locking		
	↑ 		
1/4-inch Weep Hole			578.72
4-ft x 4-ft concrete pad	GROUND SURFACE	0.0	(579.09)
Fig. 1	Signatures Gilbons Somres		, ,
	PROTECTIVE CASING		
	SIZE: 4'" x 4" x 5'		
	TYPE: STAINLESS STEEL LOCKING		577.27
	BOTTOM OF PROTECTIVE CASING	-1.45	(577.64)
	bottom of the territe casing	1.45	, ,
	← BACKFILL MATERIAL		
Water Level @	TYPE: Portland Cement Grout		
time of completion: -18 feet	AMOUNT: 55 gallons		
	RISER CASING		
	DIA: 2-inch		
Delayed water level15.12 feet	TYPE: Schedule 40 PVC		
Date and time: 8/16/12	JOINT TYPE: Flush Threaded		553.72
	TOP OF SEAL	-25.0	(554.09)
	ANNULAR SEAL	23.0	,
	TYPE: 3/8-inch coated bentonite pellets		
	5-gal buckets		
	AMOUNT: 50 lbs PLACEMENT: 2 feet		552.09
	TOP OF FILTER PACK	-27.0	(552.1)
	FILTER PACK		
	TYPE: DSI Sand - 1A (20/30)		
	Drillers Services, Inc. AMOUNT: 5.5 bags		
	AMOUNT: 5.5 bags PLACEMENT: 14.4 feet		
			547.72
	BOTTOM OF RISER/TOP OF SCREEN	-31.0	(548.09)
	SCREEN (10.0')		
	DIA: 2-inch TYPE: Schedule 40 PVC Prepack		
	OPENING WIDTH: 0.01-inch		
	OPENING TYPE: Slotted		
	SLOT SPACING: 0.25-inch		527 72
	SLOT LENGTH: 1.5-inch	-41.0	537.72 (538.09)
Flush-threaded end cap ————	BOTTOM OF SCREEN	-41.0	537.42
(0.4')	BOTTOM OF CASING	-41.3	(537.79)
			
	HOLF DIA. 6.75"		
	HOLE DIA: 6.75"		
			<u> </u>



BORING NO.: HGWC-107

(GWC-7)



GEORGIA POWER PLANT HAMMOND ASH POND #4 ROME, GEORGIA

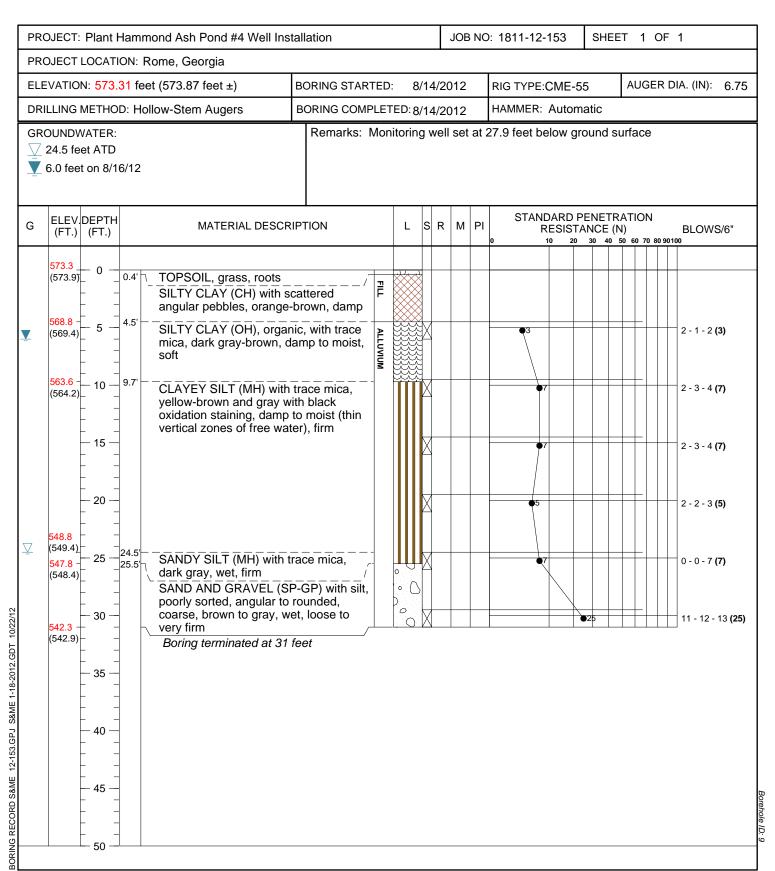


	UTHERN COI				WELL ID:
	ad Odom (S&	ιME)	LOGGED BY: PAT GRIBBEN (S&ME)		HGWC-107
	IE-55	0 2012	DRILLING METHOD: 4.25" HOLLOW STEM	1 AUGERS	(GWC-7)
DATE CONSTRUCTE	D. August	8, 2012		DEPTH	ELEVATION
				FEET	
				ILLI	FT, MSL
Locking Hinged Top					
					579.31
			TOP OF RISER	3.2	(579.76)
1/4-inch Vent			Cap Type: Plastic Locking		
		▶ 	-		
1/4-inch Weep Hole					57044
					576.11
4-ft x 4-ft concrete pad	<u> 1888 - 1888 - 1888 - 1888 - 1888 - 1888 - 1888 - 1888 - 1888 - 1888 - 1888 - 1888 - 1888 - 1888 - 1888 - 1888</u>		GROUND SURFACE	0.0	576.56
	\;;;;;		PROTECTIVE CASING		
	\};}}		SIZE: 4" x 4" x 5'		
			TYPE: STAINLESS STEEL LOCKING		
	V.		<i>"</i>		574.61
	Ę		BOTTOM OF PROTECTIVE CASING	-1.5	(575.06)
			DACKELL MATERIAL		
			TYPE: Portland Cement Grout		
Water Level @	-14.5 feet		AMOUNT: 22 gallons		
time of completion: -					
			RISER CASING		
			DIA: 2-inch		
Delayed water level	-12.35 feet 8/14/12		TYPE: Schedule 40 PVC		
Date and time:	8/14/12		JOINT TYPE: Flush Threaded		556.11
			TOP OF SEAL	-20.0	(556.56)
			ANNULAR SEAL		
			TYPE: 3/8-inch coated bentonite pellets		
			5-gal buckets		
			AMOUNT: 50 lbs PLACEMENT: 2 feet		554.11
			TOP OF FILTER PACK	-22.0	(554.6)
			FILTER PACK		
			TYPE: DSI Sand - 1A (20/30)		
		 	Drillers Services, Inc.		
			AMOUNT: 6.25 bags PLACEMENT: 13 feet		
			PLACEIVIEIVI. 13 leet		551.51
			BOTTOM OF RISER/TOP OF SCREEN	-24.6	(551.96)
			SCREEN (10.0')		
			DIA: 2-inch		
		4	TYPE: Schedule 40 PVC Prepack		
			OPENING WIDTH: 0.01-inch OPENING TYPE: Slotted		
			SLOT SPACING: 0.25-inch		
			SLOT LENGTH: 1.5-inch		541.51
			BOTTOM OF SCREEN	-34.6	(541.96)
Flush-threaded end cap	·			25	541.11
(0.4')			BOTTOM OF CASING	-35	(541.56)
		HOLE DIA:	6.75"		



BORING NO.: HGWC-109

(GWC-9)



GEORGIA POWER PLANT HAMMOND ASH POND #4 ROME, GEORGIA

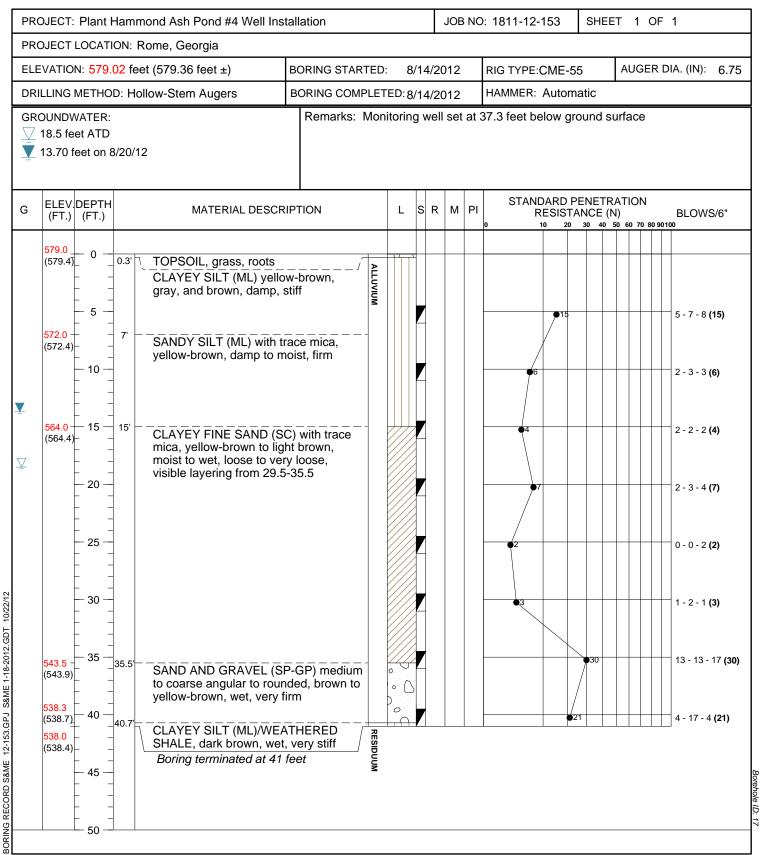


CLIENT: SC	OUTHERN CO	MPANY	•		WELL ID:
	ad Odom (S8	ιME)	LOGGED BY: PAT GRIBBEN (S&ME)		HGWC-109
RIG TYPE: CN DATE CONSTRUCTE	ME-55	15 2011	DRILLING METHOD: 4.25" HOLLOW STEM	AUGERS	(GWC-9)
DATE CONSTRUCTI	ED: August	15, 2012	2	DEPTH	ELEVATION
				FEET	FT, MSL
				, , , ,	FI, IVISL
Locking Hinged Top		Į.			
					576.77
			TOP OF RISER	3.46	(577.33)
1/4-inch Vent —			Cap Type: Plastic Locking		
		▶			
1/4-inch Weep Hole	—		_		573.31
4-ft x 4-ft concrete pad	v		GROUND SURFACE	0.0	(573.87)
4-it x 4-it concrete pau	<u> </u>		GROUND SURFACE	0.0	(373.87)
	\}}}		PROTECTIVE CASING		
			SIZE: 4'" x 4" x 5'		
	\ ;;;		TYPE: STAINLESS STEEL LOCKING		E72.01
			POTTON OF PROTESTIVE CASING	4.2	<mark>572.01</mark> (572.57)
	***		BOTTOM OF PROTECTIVE CASING	-1.3	(372.37)
			BACKFILL MATERIAL		
Water Level @			TYPE: Portland Cement Grout		
time of completion:	-24.5 feet		AMOUNT: 13.5 gallons		
			DISED CASING		
			RISER CASING DIA: 2-inch		
Delayed water level	-6.0 feet		TYPE: Schedule 40 PVC		
Date and time:	8/16/12		JOINT TYPE: Flush Threaded		
_					559.91
			TOP OF SEAL	-13.4	(560.47)
			ANNULAR SEAL TYPE: 3/8-inch coated bentonite pellets		
			5-gal buckets		
			AMOUNT: 50 lbs		
			PLACEMENT: 2.1 feet		557.81
			TOP OF FILTER PACK FILTER PACK	-15.5	(558.4)
			TYPE: DSI Sand - 1A (20/30)		
			Drillers Services, Inc.		
			AMOUNT: 7 bags		
			PLACEMENT: 12.4 feet		FFF 01
			DOTTOM OF DISER/TOD OF SCREEN	17 5	555.81 (556.37)
			BOTTOM OF RISER/TOP OF SCREEN SCREEN (10.0')	-17.5	(330.37)
			DIA: 2-inch		
			TYPE: Schedule 40 PVC Prepack		
		4	OPENING WIDTH: 0.01-inch		
			OPENING TYPE: Slotted		
			SLOT SPACING: 0.25-inch SLOT LENGTH: 1.5-inch		545.81
			BOTTOM OF SCREEN	-27.5	(546.37)
Flush-threaded end ca	р ——	→			545.41
(0.4')			BOTTOM OF CASING	-27.9	(545.97)
		HOLE DIA	: 6.75"		



BORING NO.: HGWC-117

(GWC-17)



GEORGIA POWER PLANT HAMMOND ASH POND #4 ROME, GEORGIA

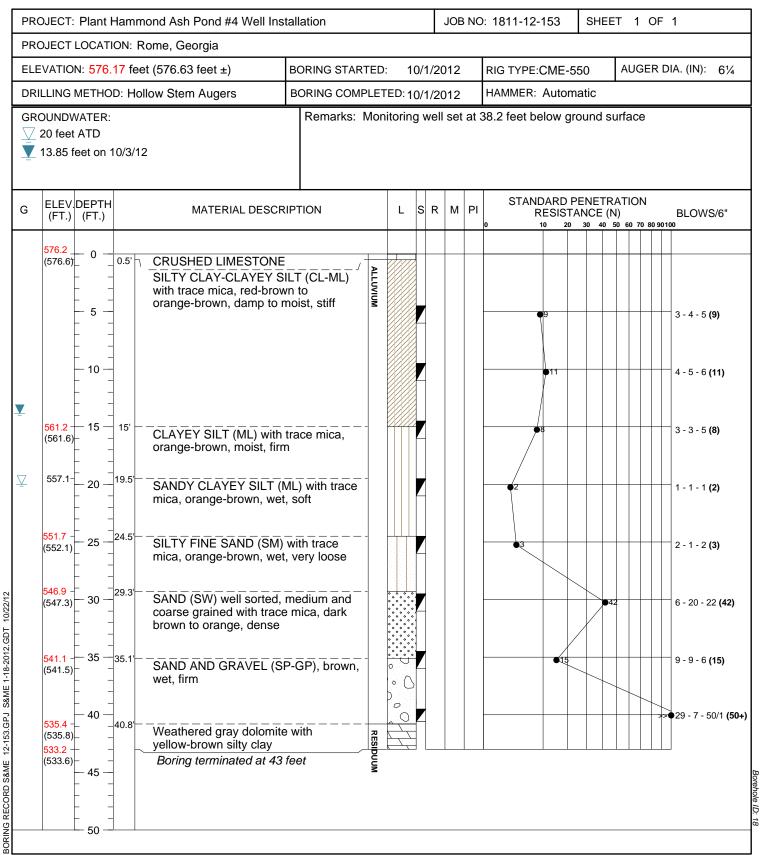


	UTHERN COI				WELL ID:
	ad Odom (S&	ιME)	LOGGED BY: PAT GRIBBEN (S&ME)		HGWC-117
	IE-55	14 2012	DRILLING METHOD: 4.25" HOLLOW STEM	AUGERS	(GWC-17)
DATE CONSTRUCTE	D. August	14, 2012		DEPTH	· · · · · · · · · · · · · · · · · · ·
				FEET	ELEVATION
				ILLI	FT, MSL
Locking Hinged Top					
					581.98
			TOP OF RISER	2.96	(582.32)
1/4-inch Vent			Cap Type: Plastic Locking		
		▶			
1/4-inch Weep Hole	—				F70.03
40.40	-1775		CDOUND SUBSACE	0.0	579.02 (579.36)
4-ft x 4-ft concrete pad	2233333 3333		GROUND SURFACE	0.0	(379.30)
	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		PROTECTIVE CASING		
			SIZE: 4'" x 4" x 5'		
			TYPE: STAINLESS STEEL LOCKING		
	\^;		<i>Y</i>		577.52
	k)		BOTTOM OF PROTECTIVE CASING	-1.5	(577.86)
			BACKFILL MATERIAL		
W-+II @			TYPE: Portland Cement Grout		
Water Level @ time of completion: —	-18.5 feet		AMOUNT: 41 gallons		
time of completion.					
			RISER CASING DIA: 2-inch		
Delayed water level	N/A		TYPE: Schedule 40 PVC		
Date and time:	N/A		JOINT TYPE: Flush Threaded		
_	_				557.32
			TOP OF SEAL	-21.7	(557.66)
			ANNULAR SEAL TYPE: 3/8-inch coated bentonite pellets		
			5-gal buckets		
		117	AMOUNT: 50 lbs		55440
			PLACEMENT: 3.2 feet		554.12
			TOP OF FILTER PACK	-24.9	(554.5)
			FILTER PACK TYPE: DSI Sand - 1A (20/30)		
			Drillers Services, Inc.		
			AMOUNT: 6 bags		
			PLACEMENT: 12.4 feet		552.12
			DOTTOM OF DISER/TOD OF SOREIN	26.0	(552.46)
			BOTTOM OF RISER/TOP OF SCREEN SCREEN (10.0')	-26.9	(- 3 - 1 - 0)
			DIA: 2-inch		
			TYPE: Schedule 40 PVC Prepack		
			OPENING TYPE: Slaved		
			OPENING TYPE: Slotted SLOT SPACING: 0.25-inch		
			SLOT SPACING, 0.25-IIICII SLOT LENGTH: 1.5-inch		542.12
			BOTTOM OF SCREEN	-36.9	(542.46)
Flush-threaded end cap	·	→□			541.72
(0.4')		Ш	BOTTOM OF CASING	-37.3	(542.06)
		HOLE DIA:	6.75"		



BORING NO.: HGWC-118

(GWC-18)



GEORGIA POWER PLANT HAMMOND ASH POND #4 ROME, GEORGIA



	UTHERN COMPANY		WELL ID:	
			HGWC-118	
		AUGERS	(GWC-18)	
DATE CONSTRUCTE	D. October 1, 2012	DEPTH	ELEVATION	
			FT, MSL	
		1221	FI, IVISE	
Locking Hinged Top	` -			
			579.02	
	TOP OF RISEI	2.85	(579.48)	
1/4-inch Vent —	Cap Type: Plastic Locking			
.,	→ 			
1/4-inch Weep Hole			576.17	
4-ft x 4-ft concrete nad	GROUND SURFACE	0.0	(576.63)	
- Treatment pad	ACCCCCCCC SINON SI	0.0	(0.000)	
	PROTECTIVE CASING			
	SIZE: 4'" x 4" x 5'			
	TYPE: STAINLESS STEEL LOCKING		574.37	
	ROTTOM OF PROTECTIVE CASING	-1.8	(574.83)	
	BOTTOW OF THOTECHVE CASHIN	1.0	(011100)	
	← BACKFILL MATERIAL			
Water Level @	TYPE: Portland Cement Grout			
time of completion: $\frac{-2}{2}$	20.0 feet AMOUNT: 37.5 gallons			
	RISER CASING			
	DIA: 2-inch			
Delayed water level	-13.85 feet TYPE: Schedule 40 PVC			
Date and time:	JOINT TYPE: Flush Threaded		554.27	
	TOP OF SEA	-21 9	(554.73)	
	ANNULAR SEAL	21.5	,	
	TYPE: 3/8-inch coated bentonite pellets			
	<u> </u>			
			550.17	
		-26.0	(550.63)	
	FILTER PACK			
	TYPE: DSI Sand - 1A (20/30)			
			548.51	
		-27.66	(548.97)	
	OPENING WIDTH: 0.01-inch			
	OPENING TYPE: Slotted			
	SLOT SPACING: 0.25-inch		538.51	
		_27.66	(538.97)	
Flush-threaded end can	RILLED BY: Chad Odom (S&ME) DGGED BY: PAT GRIBBEN (S&ME) GTYPE: CME-550 DRILLING METHOD: 4.25" HOLLOW STEM AUGERS ATE CONSTRUCTED: October 1, 2012 DEPTH FEET Cap Type: Plastic Locking FROTECTIVE CASING SIZE: 4" x 4" x 5" TYPE: STAINLESS STEEL LOCKING BOTTOM OF PROTECTIVE CASING -1.8 BACKFILL MATERIAL TYPE: Portland Cement Grout AMOUNT: 37.5 gallons RISER CASING DIA: 2-inch TYPE: 3/8-inch coated bentonite pellets 5-gal buckets AMOUNT: 50 lbs PLACEMENT: 4.1 feet TOP OF FILTER PACK TYPE: Shedule 40 PVC JOINT TYPE: Flush Threaded TOP OF FILTER PACK TYPE: SS and -1 A (20/30) Drillers Services, Inc. AMOUNT: 6.5 bags PLACEMENT: 12.06 feet BOTTOM OF PROSEREN -27.66 SCREEN (10.0") DIA: 2-inch TYPE: Schedule 40 PVC Prepack OPENING WIDTH: 0.01-inch OPENING WIDTH: 0.01-inch OPENING WIDTH: 0.01-inch OPENING WIDTH: 0.01-inch OPENING WIDTH: 0.01-inch OPENING WIDTH: 0.01-inch OPENING WIDTH: 0.01-inch OPENING WIDTH: 0.01-inch OPENING WIDTH: 0.01-inch OPENING WIDTH: 0.01-inch OPENING WIDTH: 0.01-inch			
		-38.06	538.11 (538.57)	
	HOLE DIA: 6.75"			
	MULE DIA: 0.75			
<u> </u>		1	ı	

Log of Test Boring revised with new survey data dated 5/11/2020. Original survey data in parenthesis.

SOUTHERN A
COMPANY

S	0	UTHERN LOG OF TES	ST BO	ORIN	G	BORING AP02-MW12 PAGE 1 OF ECS37736
		PPO	JECT A	sh Pond	Piezometers	
		THERE COMPANY SERVICES, INC.	ATION _			
		STARTED 10/21/2014 COMPLETED 10/21/2014 SURF. ELE RACTOR SCS Field Services EQUIPMENT CME 550		-		
		ED BY T. Milam LOGGED BY W. Shaughnessy CHECK	KED BY	L. Millet	AN	IGLE BEARING
BOR	RING	G DEPTH 35.2 ft. GROUND WATER DEPTH: DURING 20 ft.	c	OMP.	DE	LAYED 16.4 ft. after 24 hrs.
NOT	ES	Well installed. Refer to well data sheet.				
HIC HIC	LOG	STRATA DESCRIPTION	SAMPLE TYPE NUMBER	SAMPLE DEPTH (ft.)	BLOW COUNTS (N-VALUE)	COMMENTS
GRAPHI	5	ELEV		SAMPLE (f	PERCENT RECOVERY (RQD)	
		Silt (ML)				
		- brown and dark brown, dry, very stiff, clayey	▼ ss		5-7-8	
Ω		, , , , , , , , , , , , , , , , , , , ,	-1	3.5-5.0	(15)	
		- brown and dark brown, dry, medium stiff, clayey	▼ ss	8.5-	3-4-4	
110			-2	10.0	(8)	
15		- brown and brown-yellow, damp, medium stiff, mica	SS -3	13.5- 15.0	3-2-3 (5)	
=		Ā	-5	13.0	(3)	
707		- brown and brown-yellow, very moist to wet, medium	SS -4	18.5- 20.0	2-4-4 (8)	
•		558.59 (559.7)				
		Sandy Silt (ML)				
2		- brown, wet, soft, mica	SS -5	23.5- 25.0	2-2-2 (4)	
		Silty Sand (SM)				
2		- brown, wet, loose, fine grain, trace coarse grained sand	SS -6	28.5- 30.0	2-4-3 (7)	
	1 1 1 1 1 1 1 1	- brown, wet, medium dense, fine grain, trace coarse grained sand546.59 (547.7)	ss S	33.5-	7-9-9	
ဂ္က		Well-graded Sand (SW) - fine to coarse grain, some fine gravel 545.39 (546.5)	-7	35.0	(18)	



RECORD OF WELL CONSTRUCTION

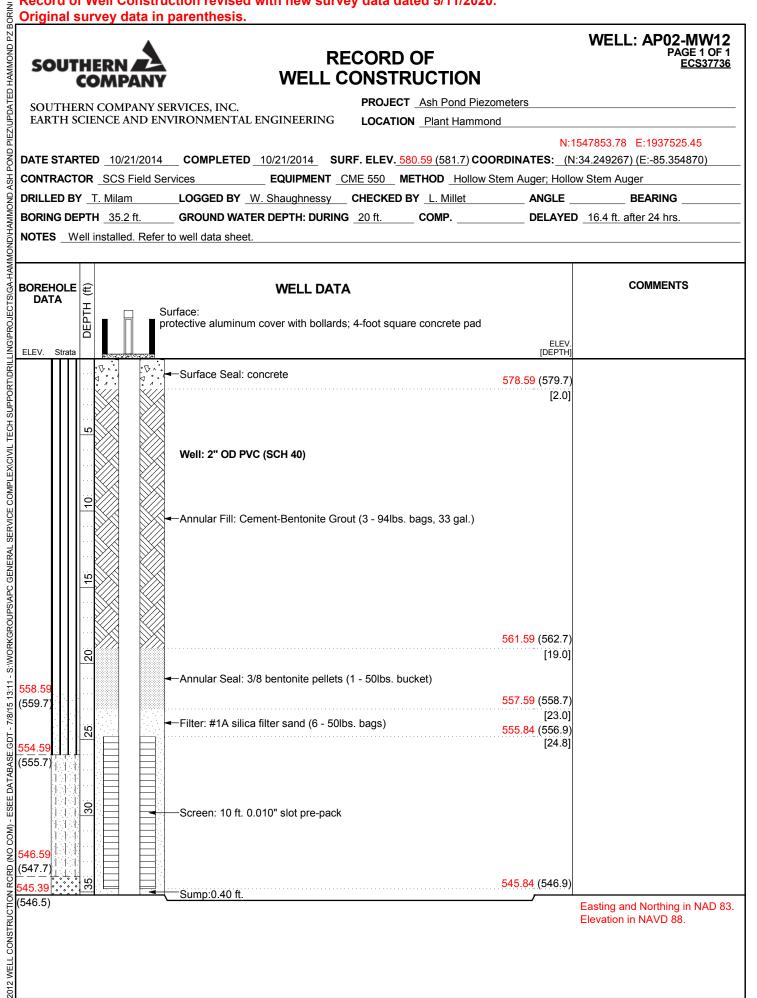
WELL: AP02-MW12 PAGE 1 OF 1

SOUTHERN COMPANY SERVICES, INC. EARTH SCIENCE AND ENVIRONMENTAL ENGINEERING **PROJECT** Ash Pond Piezometers **LOCATION** Plant Hammond

N:1547853.78 E:1937525.45

DATE STARTED 10/21/2014 COMPLETED 10/21/2014 SURF. ELEV. 580.59 (581.7) COORDINATES: (N:34.249267) (E:-85.354870) **EQUIPMENT** CME 550 METHOD Hollow Stem Auger; Hollow Stem Auger CONTRACTOR SCS Field Services **DRILLED BY** T. Milam LOGGED BY W. Shaughnessy CHECKED BY L. Millet ANGLE BORING DEPTH 35.2 ft. GROUND WATER DEPTH: DURING 20 ft. COMP. DELAYED 16.4 ft. after 24 hrs.

NOTES Well installed. Refer to well data sheet.



APPENDIX C

Laboratory Analytical and Field Sampling Reports







March 12, 2020

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

RE: Project: Plant Hammond AP

Pace Project No.: 2622317

Dear Joju Abraham:

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

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

Sincerely,

Kevin Herring for Betsy McDaniel

Kein Slury

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

Pace Project No.: 2622317

Pace Analytical Services Atlanta

110 Technology Parkway Peachtree Corners, GA 30092

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

Virginia Certification #: 460204



SAMPLE SUMMARY

Project: Plant Hammond AP

Pace Project No.: 2622317

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



SAMPLE ANALYTE COUNT

Project: Plant Hammond AP

Pace Project No.: 2622317

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



ANALYTICAL RESULTS

Project: Plant Hammond AP

Pace Project No.: 2622317

Date: 03/12/2020 03:37 PM

Sample: HGWA-111	Lab ID:	2622317001	Collecte	ed: 08/21/19	16:15	Received: 08/	22/19 15:38 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	08/23/19 14:12	08/26/19 20:31	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/23/19 14:12	08/26/19 20:31	7440-38-2	
Barium	0.029	mg/L	0.010	0.00049	1	08/23/19 14:12	08/26/19 20:31	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/23/19 14:12	08/26/19 20:31	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/23/19 14:12	08/26/19 20:31	7440-43-9	
Chromium	0.00061J	mg/L	0.010	0.00039	1	08/23/19 14:12	08/26/19 20:31	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	08/23/19 14:12	08/26/19 20:31	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/23/19 14:12	08/26/19 20:31	7439-92-1	
Lithium	0.0018J	mg/L	0.030	0.00078	1	08/23/19 14:12	08/26/19 20:31	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/23/19 14:12	08/26/19 20:31	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/23/19 14:12	08/26/19 20:31	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/23/19 14:12	08/26/19 20:31	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EP	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	08/26/19 14:21	08/27/19 11:51	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Fluoride	0.048J	mg/L	0.30	0.029	1		08/30/19 04:12	16984-48-8	



ANALYTICAL RESULTS

Project: Plant Hammond AP

Pace Project No.: 2622317

Date: 03/12/2020 03:37 PM

Sample: HGWA-112	Lab ID:	2622317002	Collecte	ed: 08/21/19	17:20	Received: 08/	22/19 15:38 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	08/23/19 14:12	08/26/19 20:36	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/23/19 14:12	08/26/19 20:36	7440-38-2	
Barium	0.027	mg/L	0.010	0.00049	1	08/23/19 14:12	08/26/19 20:36	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/23/19 14:12	08/26/19 20:36	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/23/19 14:12	08/26/19 20:36	7440-43-9	
Chromium	0.0039J	mg/L	0.010	0.00039	1	08/23/19 14:12	08/26/19 20:36	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	08/23/19 14:12	08/26/19 20:36	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/23/19 14:12	08/26/19 20:36	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	08/23/19 14:12	08/26/19 20:36	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/23/19 14:12	08/26/19 20:36	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/23/19 14:12	08/26/19 20:36	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/23/19 14:12	08/26/19 20:36	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	08/26/19 14:21	08/27/19 11:53	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	ND	mg/L	0.30	0.029	1		08/30/19 04:57	16984-48-8	



ANALYTICAL RESULTS

Project: Plant Hammond AP

Pace Project No.: 2622317

Date: 03/12/2020 03:37 PM

Sample: HGWA-113	Lab ID:	2622317003	Collecte	ed: 08/21/19	17:20	Received: 08/	22/19 15:38 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL .	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	08/23/19 14:12	08/26/19 20:42	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/23/19 14:12	08/26/19 20:42	7440-38-2	
Barium	0.027	mg/L	0.010	0.00049	1	08/23/19 14:12	08/26/19 20:42	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/23/19 14:12	08/26/19 20:42	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/23/19 14:12	08/26/19 20:42	7440-43-9	
Chromium	0.0022J	mg/L	0.010	0.00039	1	08/23/19 14:12	08/26/19 20:42	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	08/23/19 14:12	08/26/19 20:42	7440-48-4	
Lead	0.000071J	mg/L	0.0050	0.000046	1	08/23/19 14:12	08/26/19 20:42	7439-92-1	
Lithium	0.0011J	mg/L	0.030	0.00078	1	08/23/19 14:12	08/26/19 20:42	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/23/19 14:12	08/26/19 20:42	7439-98-7	
Selenium	0.0025J	mg/L	0.010	0.0013	1	08/23/19 14:12	08/26/19 20:42	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/23/19 14:12	08/26/19 20:42	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	nod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	08/26/19 14:21	08/27/19 11:56	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Fluoride	0.11J	mg/L	0.30	0.029	1		08/30/19 05:20	16984-48-8	



Project: Plant Hammond AP

Pace Project No.: 2622317

Date: 03/12/2020 03:37 PM

QC Batch: 34231 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury

Associated Lab Samples: 2622317001, 2622317002, 2622317003

METHOD BLANK: 154028 Matrix: Water

Associated Lab Samples: 2622317001, 2622317002, 2622317003

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

Mercury mg/L ND 0.00050 0.00014 08/27/19 10:49

LABORATORY CONTROL SAMPLE: 154029

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 154030 154031

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

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



Project: Plant Hammond AP

Pace Project No.: 2622317

QC Batch: 34179 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

Associated Lab Samples: 2622317001, 2622317002, 2622317003

METHOD BLANK: 153793 Matrix: Water

Associated Lab Samples: 2622317001, 2622317002, 2622317003

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

Date: 03/12/2020 03:37 PM

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

MATRIX SPIKE & MATRIX SF	PIKE DUPL		MS	MSD	153796	MOD	М0	MOD	0/ D		N4	
Parameter	Units	2622267002 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L		0.1	0.1	0.11	0.10	108	103	75-125	 5	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.099	101	99	75-125	2	20	
Barium	mg/L	0.017	0.1	0.1	0.13	0.12	108	101	75-125	5	20	
Beryllium	mg/L	ND	0.1	0.1	0.10	0.10	101	101	75-125	0	20	
Cadmium	mg/L	ND	0.1	0.1	0.10	0.10	101	100	75-125	1	20	

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



Project: Plant Hammond AP

Pace Project No.: 2622317

Date: 03/12/2020 03:37 PM

MATRIX SPIKE & MATRIX	SPIKE DUPL	ICATE: 1537	95 MS	MSD	153796							
Parameter	Units	2622267002 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chromium	mg/L	0.00073J	0.1	0.1	0.10	0.10	99	100	75-125	1	20	
Cobalt	mg/L	ND	0.1	0.1	0.097	0.098	97	98	75-125	0	20	
Lead	mg/L	0.000064J	0.1	0.1	0.095	0.097	94	97	75-125	3	20	
Lithium	mg/L	ND	0.1	0.1	0.10	0.10	101	101	75-125	0	20	
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.097	101	97	75-125	5	20	
Selenium	mg/L	ND	0.1	0.1	0.10	0.10	100	102	75-125	2	20	
Thallium	mg/L	ND	0.1	0.1	0.095	0.099	95	98	75-125	3	20	

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

Qualifiers



QUALITY CONTROL DATA

Project: Plant Hammond AP

Pace Project No.: 2622317

Date: 03/12/2020 03:37 PM

QC Batch: 34532 Analysis Method: EPA 300.0

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

Associated Lab Samples: 2622317001, 2622317002, 2622317003

METHOD BLANK: 155480 Matrix: Water

Associated Lab Samples: 2622317001, 2622317002, 2622317003

Blank Reporting
Parameter Units Result Limit MDL Analyzed

Fluoride mg/L ND 0.30 0.029 08/29/19 22:10

LABORATORY CONTROL SAMPLE: 155481

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 155482 155483

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

 MATRIX SPIKE SAMPLE:
 155490
 Spike
 MS
 MS
 % Rec

 Parameter
 Units
 Result
 Conc.
 Result
 % Rec
 Limits
 Qualifiers

Fluoride mg/L ND 10 8.5 85 90-110 M1

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



QUALIFIERS

Project: Plant Hammond AP

Pace Project No.: 2622317

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

Date: 03/12/2020 03:37 PM

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



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond AP

Pace Project No.: 2622317

Date: 03/12/2020 03:37 PM

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

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

ntact (Y/N) 2 Cooler (Y/N) ŏ pelees Custod (N/A) 8 MO#:2622317 Received on Residual Chlorine (Y/N) 2 4 TEMP IN C 2667 1099 20.45 500 10/21/m 8/21/19 20111 67.77 0 DATE Signed: 2 betsy.mcdaniel@pacelabs.com REGION SSE/SSS Z Fluoride by 300.0 Attention: scsinvolces@southernco.com 3 * App. IV Metals MADE PROMISED RESEARCH TAKE tensiteM Russa Preservatives Na2S2O3 327.4.2 HOGN و و و Pace Project Manager. Pace Profile #: 327. HCI Involce Information EONH M 3 Pace Quote: **≯OSZH** 26.55 PRINT Name of SAMPLER: Chad Company N <u> 7</u>00 Address: SKGNATURE OF SAMPLER: Unpreserved # OF CONTAINERS Ţ 1/21/1/100/8/UM 1/720/25 18/2/[[4] 8/11/18 SAMPLE TEMP AT COLLECTION SYZUM (SSS | 8/LUM 161 5/23 192417 TIME 욻 DATE COLLECTED GOOM 25 Report To: Joju Abraham / Lauren Petty TARE Project Name: Plant Hammond AP Project #: &\S\CS\$! Purchase Order #: SCS10382775 START R,150 Moutie m Ship Klaw DATE Required Project Information: ৩ S (G=GRAB C=COMP) SAMPLE TYPE くちゅん MATRIX CODE (see valid codes to left) 13 13 HOWA-112 Copy To: Section B MATRUX
Drinking Water
Water
Water
Water
Water
Water
Water
Water
Water
And
And
Other
Tissue GWA-II Georgia Power - Coal Combustion Residuals TV Metals list; Hg, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique Atlanta, GA 30339 jabraham@southernco.com SAMPLE ID 2480 Maner Road キャウキ Required Client Information: # MBTI

Page 14 of 16

Pace Arelytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

ntact (V/V) N The second selection of the second se Due Date: 08/29/19 selqma2 (N/A) ŏ Sealed Cooler Custody (N/A) WO#: 2622317 B Received on Residuel Chlorina (Y/N) 2 2.7 CLIENT: GAPower-CCR TEMP in C 2777 20:45 15.78 61/12/ 12419 6123 8/19 00 DATE Signed: 2 betsy.mcdaniet@pacelabs.com Radium 226/228 Theory tec man Z Fluoride by 300.0 Attention: scsinvoices@southernco.com 7 1026 z Z1272S App. IV Metals ZNA WATER SESTERIA IcnsiteM Preservatives ROZSZBN HOBN 327.4.2 latia N Pace Project Manager. Pace Profile #: 327. bella нсі Invoice Information: EONH र Company Name: 20:45 ace Quote HS204 10:49 Address: Unpreserved # OF CONTAINERS T 8/11/14 PRINT Name of SAMPLER: SIGNATURE of SAMPLER: G 41/19 1658 84/19 1720 SAMPLE TEMP AT COLLECTION 6/21/10 TIME Š DATE COLLECTED Report To: Joju Abraham / Lauren Petty Plant Hammond AP SCS10382775 START OATE Required Project Information: Geosyntec (G=GRAB C=COMP) SAMPLE TYPE Purchase Order #: Project Name: Pi (see valid codes to left) Copy To: Project # Section B MATRIX
Dinking Water
Waster
Waster
Waster
Product
Product
SoafsSoaig
Oa
Whop
Air
Chies
Tissue Georgia Power - Coal Combustion Residuals Metals list: Hg. Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, So, Ti Phone: (404)506-7239 | Fax Requested Due Date: Standord TAT One Character per box. (A-Z, 0.9 /, -) Sample lds must be unique iabraham@southernco.com SAMPLE ID HGWA- 113 2480 Maner Road Allenta, GA 30339 Required Client Information: Company: # WB1I Page 15 of 16

Sample Condition Upon Receipt

Pace Analytical Client Name	e: <u>6</u>	A	Por	were	Projec	t #
Courier:	ent 🗆 C	omme	· ercial _~	Pace Other	WO#	: 2622317
Tracking #: Custody Seal on Cooler/Box Present:yes	П.	_	C!-	:	PM: BM	Due Date: 08/29/
•					CLIENT:	GAPower-CCR
Packing Material: Bubble Wrap Bubble				4		<u> </u>
Thermometer Used 85			_	Blue None		on ice, cooling process has begun and Initials of person examining
Cooler Temperature	Biolog	jical T	issue	is Frozen: Yes No Comments:		itents: <u>8/22/19</u> M
Chain of Custody Present:	✓☐Yes	□No	□n/a	1.		
Chain of Custody Filled Out:	Yes	□No	□n/a	2.		
Chain of Custody Relinquished:	Yes	□No	□n/a	3.		
Sampler Name & Signature on COC:	-EJYes	□No	□n/a	4.		
Samples Arrived within Hold Time:	Yes	□No	□n/a	5.		
Short Hold Time Analysis (<72hr):	□Yes	₽ ₩6	¹ □n/a	6.		
Rush Turn Around Time Requested:	□Yes	_ No ⁷	□n/a	7.		
Sufficient Volume:	≠⊟Yes	□No	□n/a	8.		
Correct Containers Used:	√ElYes	□No	□n/A	9.		
-Pace Containers Used:	∠ EYes	□No	□n/A			
Containers Intact:	.⊟Yes	□No	□n/a	10.		
Filtered volume received for Dissolved tests	□Yes	□No	₽NIA	11.		
Sample Labels match COC:	"Dres	□Np	□n/a	12.		
-Includes date/time/ID/Analysis Matrix:				13		
All containers needing preservation are found to be in compliance with EPA recommendation.	-ETYes					
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	□Yes	□ ₩6)	Initial when completed	Lot # of a preserva	•
Samples checked for dechlorination:	□Yes	□No	DN/A	14.	· · · · · · · · · · · · · · · · · · ·	
Headspace in VOA Vials (>6mm):	□Yes	□No	_DM/A	15.		
Trip Blank Present:	□Yes	□No	ÐNA	16.		
Trip Blank Custody Seals Present	□Yes	□No	-UN/A			
Pace Trip Blank Lot # (if purchased):				<u> </u>		
Client Notification/ Resolution:			-		Field Da	ta Required? Y / N
Person Contacted:			_Date/	Time:		
Comments/ Resolution:						
				- i.	•	
Project Manager Peview	· · · · · · · · · · · · · · · · · · ·					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)





September 23, 2019

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

RE: Project: Plant Hammond AP

Pace Project No.: 2622318

Dear Joju Abraham:

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

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

Sincerely,

Betsy McDaniel

Beton M Damil

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

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





Peachtree Corners, GA 30092 (770)734-4200

CERTIFICATIONS

Project: Plant Hammond AP

Pace Project No.: 2622318

Pennsylvania Certification IDs

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

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification

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

Delaware Certification EPA Region 4 DW Rad

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

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

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

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

Maine Certification #: 2017020 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991 Missouri Certification #: 235 Montana Certification #: Cert0082 Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1 New Hampshire/TNI Certification #: 297617 New Jersey/TNI Certification #: PA051

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

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

South Dakota Certification
Tennessee Certification #: 02867

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

West Virginia DHHR Certification #: 9964C

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



SAMPLE SUMMARY

Project: Plant Hammond AP

Pace Project No.: 2622318

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



SAMPLE ANALYTE COUNT

Project: Plant Hammond AP

Pace Project No.: 2622318

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



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond AP

Pace Project No.: 2622318

Sample: HGWA-111 Lab ID: 2622318001 Collected: 08/21/19 16:15 Received: 08/22/19 15:38 Matrix: Water PWS: Site ID: Sample Type: Method Act ± Unc (MDC) Carr Trac **Parameters** Units Analyzed CAS No. Qual EPA 9315 0.492 ± 0.222 (0.223) Radium-226 pCi/L 09/09/19 08:48 13982-63-3 C:92% T:NA EPA 9320 0.0607 ± 0.403 (0.923) Radium-228 pCi/L 09/19/19 12:09 15262-20-1 C:67% T:74% Total Radium **Total Radium** 0.553 ± 0.625 (1.15) pCi/L 09/20/19 12:23 7440-14-4 Calculation



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond AP

Calculation

Pace Project No.: 2622318

Sample: HGWA-112 Lab ID: 2622318002 Collected: 08/21/19 17:20 Received: 08/22/19 15:38 Matrix: Water PWS: Site ID: Sample Type: Act ± Unc (MDC) Carr Trac **Parameters** Method Units Analyzed CAS No. Qual EPA 9315 $0.417 \pm 0.244 \quad (0.395)$ Radium-226 pCi/L 09/09/19 08:48 13982-63-3 C:91% T:NA 0.0971 ± 0.572 (1.30) EPA 9320 Radium-228 pCi/L 09/19/19 12:09 15262-20-1 C:54% T:78% Total Radium **Total Radium** 0.514 ± 0.816 (1.70) pCi/L 09/20/19 12:23 7440-14-4



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond AP

Pace Project No.: 2622318

Sample: HGWA-113 Lab ID: 2622318003 Collected: 08/21/19 17:20 Received: 08/22/19 15:38 Matrix: Water PWS: Site ID: Sample Type: Method Act ± Unc (MDC) Carr Trac **Parameters** Units Analyzed CAS No. Qual EPA 9315 0.241 ± 0.188 (0.324) Radium-226 pCi/L 09/09/19 08:48 13982-63-3 C:86% T:NA EPA 9320 $0.251 \pm 0.437 \quad (0.955)$ Radium-228 pCi/L 09/19/19 12:09 15262-20-1 C:71% T:71% Total Radium **Total Radium** 0.492 ± 0.625 (1.28) pCi/L 09/20/19 12:23 7440-14-4 Calculation



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond AP

Pace Project No.: 2622318

QC Batch: 358895 Analysis Method: EPA 9320

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

Associated Lab Samples: 2622318001, 2622318002, 2622318003

METHOD BLANK: 1742554 Matrix: Water

Associated Lab Samples: 2622318001, 2622318002, 2622318003

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

Radium-228 0.167 \pm 0.291 (0.635) C:73% T:86% pCi/L 09/19/19 12:11

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



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond AP

Pace Project No.: 2622318

QC Batch: 359801 Analysis Method: EPA 9315

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

Associated Lab Samples: 2622318001, 2622318002, 2622318003

METHOD BLANK: 1746802 Matrix: Water

Associated Lab Samples: 2622318001, 2622318002, 2622318003

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

Radium-226 $0.563 \pm 0.229 \quad (0.205) \text{ C:97\% T:NA}$ pCi/L $09/09/19 \quad 09:06$

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



QUALIFIERS

Project: Plant Hammond AP

Pace Project No.: 2622318

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

Date: 09/23/2019 04:45 PM

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond AP

Pace Project No.: 2622318

Date: 09/23/2019 04:45 PM

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

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

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	Invoice Information:	Attention: scsinvoices@southernco.com	Company Name:	Address:	Pace Project Manager: helsv medanial/@aacelabs.com	4.2	SELECTION OF THE PROPERTY OF T	Preservatives N N N	Unpreserved HZGO4 HUG3 HCI NaCH Na25203 Methanol Other Pluoride by 300.0 Fluoride by 300.0	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	1 3				#03 	2622318	THE CONTRACTOR OF THE PARTY OF	Wester Muhas Geo &	MAAlman spi	ad Kusto	d register
	Project Information:	Joju Abraham / Lauren Petty	Copy To: Geosyntec Co		Purchase Order #: SCS10362775 Parties Name: Plant Hammand AP Pe			COLECTED	ANPLE TYPE (G=GRAB C=CSAMPLE TYPE (G=GRAB TYPE TYPE (G=GRAB TYPE TYPE TYPE TYPE (G=GRAB TYPE TYPE TYPE TYPE TYPE TYPE TYPE TYPE	1555	H 61/07-112 M 6 924 W 100 8121 172015 H				81211			Chad Russo/Gaogue Gry11	exyate 5/2417	PRINT Name of SAMPLER: C. SIGNATURE of SAMPLER: C. SIGNATURE of SAMPLER: []	
and the same of	Section A Renutred Client Information:	- Coal Combustion Residuals	248) Maner Rood	Atlanta, GA 30339	ε,	(404)506-7239 FBX		жалы	SAMPLE ID SOURCE Che Character per box. (A2.0.91, -) ** Sample ids must be unique Tissue	1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	のまれず				(0)			• Menne list Hg, Sb, At, Sa, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl		Page 12 o	of 14

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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ompany:	Georgia Power - Coal Combustion Residuals	Report To:		Joju Abraham / Lauren Petty	nuren Petty			<u> </u>	Attention: Scsinv		Sing	scsinvoices@southernco.com	South	Semo	E OS		1	1	Γ			Page		ار	ō	1	7
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	Altanta, GA 30339			ŀ				∢.	Address:										ঞ		A CONTRACTOR OF THE PROPERTY OF THE PARTY OF						E-20
Email: j	abraham@southemco.com	Purchase Order #:	rder #:	SCS10382775	82775			٩	Pace Quote:	ote:							:		┞								
hane:	Phone: (404)506-7239 Fax	Project Nam	re: F	₩.	and AP			Ь	Pace Project Manager.	yect Me	anager:		betsy.mcdaniel@pacelabs.com,	laniel@	pacela	DS. CO.			極			100	12.00				Ť.
ednastec	Due Date: Standard TAT	Project #:	્ર ડ	6581				<u>a</u>	Pace Profile #	Sile #	327.4.2			ŀ					Н				g				
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# Mati	One Charactor per box. Wee (A-Z, 0-91, .) Sample ids must be unique Tissue	WP AR OT 15	MATRIX CODE	SAMPLE TYPE	TIME	DATE	TIME	A 9MBT BJ9MA8	# OF CONTAINE	H2SO4	HCI	N ₀ SS2O3	lonsriteM	Other Other	zieteM VI .qqA	Fluoride by 300 Redium 226/22		*****				india la bisal	Residual Chlorin				
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* Metals list: Hg. Sb. /	Hg, Sb, As, Bs, Bs, Cd, Cr, Co, Pb, Lj, Mo, Se, Tl	2	bolia	1	Wanter	Som	6/21/19		20:45	15	1/2 1/4	fuer	Lan	N N	George tec	rec		18	8/119		30:45						Г
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Sample Condition Upon Receipt



Face Analytical Client Name	: GLA Por	were	Project #
Courier:	ent Commercial ~	Pace Other	WO#: 2622318
Custody Seal on Cooler/Box Present: yes	☐ no Seals	intact: yes	PM: BM Due Date: 09/20/1
	e Bags None	☐ Other	CLIENT: GRPower-CCR
Thermometer Used 8.3	Type of Ice: Wet	·	Samples on ice, cooling process has begun
Cooler Temperature 3.2	~	is Frozen: Yes No	Date and Initials of person examining
Temp should be above freezing to 6°C	_	Comments:	contents: <u>8/22/19</u>
Chain of Custody Present:	Yes ONO ON/A	1.	
Chain of Custody Filled Out:	Yes ONO ON/A	2.	
Chain of Custody Relinquished:	Yes ONO ON/A	3.	
Sampler Name & Signature on COC:	-DYes Ono On/A	4.	
Samples Arrived within Hold Time:	→ Pes Ono On/A	5.	
Short Hold Time Analysis (<72hr):	□Yes ☑No □N/A	6.	
Rush Turn Around Time Requested:	□Yes ☑No¹ □N/A	7.	
Sufficient Volume:	₽ Yes □No □N/A	8.	
Correct Containers Used:	₩ ONO ON/A	9.	
-Pace Containers Used:	₩Yes □No □N/A		
Containers Intact:	ÐYes □No □N/A	10.	
Filtered volume received for Dissolved tests	□Yes □No □NA	11.	
Sample Labels match COC:	.⊒tes □np □n/a	12.	
-Includes date/time/ID/Analysis Matrix:	ω		
All containers needing preservation have been checked.	-EIYes □no □n/a	13.	
All containers needing preservation are found to be in compliance with EPA recommendation.	-EIYes □No □N/A		
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	□Yes □N6	Initial when completed	Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☐N/A	14.	
Headspace in VOA Vials (>6mm):	□Yes □No □NA	15.	
Trip Blank Present:	□Yes □No ĐÑĀ	16.	
Trip Blank Custody Seals Present	□Yes □No □N/A		
Pace Trip Blank Lot # (if purchased):			
Client Notification/ Resolution:			Field Data Required? Y / N
Person Contacted:	Date	/Time:	
Comments/ Resolution:			
		•	
Project Manager Review:			Date:

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





March 12, 2020

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

RE: Project: Plant Hammond AP GW6581

Pace Project No.: 2622354

Dear Joju Abraham:

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

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

Sincerely,

Kevin Herring for Betsy McDaniel

Kein Slury

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.: 2622354

Pace Analytical Services Atlanta

110 Technology Parkway Peachtree Corners, GA 30092 Florida DOH Certification #: E87315

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

Virginia Certification #: 460204



SAMPLE SUMMARY

Project: Plant Hammond AP GW6581

Pace Project No.: 2622354

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



SAMPLE ANALYTE COUNT

Project: Plant Hammond AP GW6581

Pace Project No.: 2622354

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



Project: Plant Hammond AP GW6581

Pace Project No.: 2622354

Date: 03/12/2020 03:43 PM

Sample: HGWC-117	Lab ID:	2622354001	Collecte	ed: 08/22/19	10:00	Received: 08/	23/19 12:00 Ma	atrix: Water	•
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	08/27/19 11:50	08/27/19 18:29	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/27/19 11:50	08/27/19 18:29	7440-38-2	
Barium	0.036	mg/L	0.010	0.00049	1	08/27/19 11:50	08/27/19 18:29	7440-39-3	
Beryllium	0.000079J	mg/L	0.0030	0.000074	1	08/27/19 11:50	08/27/19 18:29	7440-41-7	
Cadmium	0.00064J	mg/L	0.0025	0.00011	1	08/27/19 11:50	08/27/19 18:29	7440-43-9	
Chromium	ND	mg/L	0.010	0.00039	1	08/27/19 11:50	08/27/19 18:29	7440-47-3	
Cobalt	0.012	mg/L	0.0050	0.00030	1	08/27/19 11:50	08/27/19 18:29	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/27/19 11:50	08/27/19 18:29	7439-92-1	
Lithium	0.0012J	mg/L	0.030	0.00078	1	08/27/19 11:50	08/27/19 18:29	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/27/19 11:50	08/27/19 18:29	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/27/19 11:50	08/27/19 18:29	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/27/19 11:50	08/27/19 18:29	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	08/26/19 14:21	08/27/19 14:24	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Fluoride	ND	mg/L	0.30	0.029	1		08/30/19 21:52	16984-48-8	



Project: Plant Hammond AP GW6581

Pace Project No.: 2622354

Date: 03/12/2020 03:43 PM

Sample: HGWC-101	Lab ID:	2622354002	Collecte	ed: 08/22/19	13:20	Received: 08/	23/19 12:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	08/27/19 11:50	08/27/19 18:34	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/27/19 11:50	08/27/19 18:34	7440-38-2	
Barium	0.043	mg/L	0.010	0.00049	1	08/27/19 11:50	08/27/19 18:34	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/27/19 11:50	08/27/19 18:34	7440-41-7	
Cadmium	0.00014J	mg/L	0.0025	0.00011	1	08/27/19 11:50	08/27/19 18:34	7440-43-9	
Chromium	0.00064J	mg/L	0.010	0.00039	1	08/27/19 11:50	08/27/19 18:34	7440-47-3	В
Cobalt	ND	mg/L	0.0050	0.00030	1	08/27/19 11:50	08/27/19 18:34	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/27/19 11:50	08/27/19 18:34	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	08/27/19 11:50	08/27/19 18:34	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/27/19 11:50	08/27/19 18:34	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/27/19 11:50	08/27/19 18:34	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/27/19 11:50	08/27/19 18:34	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	08/26/19 14:21	08/27/19 14:26	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Fluoride	ND	mg/L	0.30	0.029	1		08/30/19 22:15	16984-48-8	



Project: Plant Hammond AP GW6581

Pace Project No.: 2622354

Date: 03/12/2020 03:43 PM

Sample: HGWC-118	Lab ID: 2622354003 Collected: 08/22/19 11:23 Received: 08/23/19 12:00 Matrix: Water							atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	08/27/19 11:50	08/27/19 18:40	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/27/19 11:50	08/27/19 18:40	7440-38-2	
Barium	0.052	mg/L	0.010	0.00049	1	08/27/19 11:50	08/27/19 18:40	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/27/19 11:50	08/27/19 18:40	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/27/19 11:50	08/27/19 18:40	7440-43-9	
Chromium	ND	mg/L	0.010	0.00039	1	08/27/19 11:50	08/27/19 18:40	7440-47-3	
Cobalt	0.00030J	mg/L	0.0050	0.00030	1	08/27/19 11:50	08/27/19 18:40	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/27/19 11:50	08/27/19 18:40	7439-92-1	
Lithium	0.0018J	mg/L	0.030	0.00078	1	08/27/19 11:50	08/27/19 18:40	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/27/19 11:50	08/27/19 18:40	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/27/19 11:50	08/27/19 18:40	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/27/19 11:50	08/27/19 18:40	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	08/26/19 14:21	08/27/19 14:28	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	0.070J	mg/L	0.30	0.029	1		08/30/19 22:38	16984-48-8	



Project: Plant Hammond AP GW6581

Pace Project No.: 2622354

Date: 03/12/2020 03:43 PM

Sample: HGWC-103	Lab ID:	2622354004	Collecte	ed: 08/22/19	14:50	Received: 08/	23/19 12:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	8020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	08/27/19 11:50	08/27/19 18:46	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/27/19 11:50	08/27/19 18:46	7440-38-2	
Barium	0.036	mg/L	0.010	0.00049	1	08/27/19 11:50	08/27/19 18:46	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/27/19 11:50	08/27/19 18:46	7440-41-7	
Cadmium	0.00080J	mg/L	0.0025	0.00011	1	08/27/19 11:50	08/27/19 18:46	7440-43-9	
Chromium	0.00063J	mg/L	0.010	0.00039	1	08/27/19 11:50	08/27/19 18:46	7440-47-3	В
Cobalt	0.0019J	mg/L	0.0050	0.00030	1	08/27/19 11:50	08/27/19 18:46	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/27/19 11:50	08/27/19 18:46	7439-92-1	
Lithium	0.0015J	mg/L	0.030	0.00078	1	08/27/19 11:50	08/27/19 18:46	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/27/19 11:50	08/27/19 18:46	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/27/19 11:50	08/27/19 18:46	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/27/19 11:50	08/27/19 18:46	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	08/26/19 14:21	08/27/19 14:31	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	ND	mg/L	0.30	0.029	1		08/30/19 23:00	16984-48-8	



Project: Plant Hammond AP GW6581

Pace Project No.: 2622354

Date: 03/12/2020 03:43 PM

Sample: HGWC-105	Lab ID:	2622354005	Collecte	ed: 08/22/19	17:15	Received: 08/	23/19 12:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	08/27/19 11:50	08/27/19 19:03	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/27/19 11:50	08/27/19 19:03	7440-38-2	
Barium	0.066	mg/L	0.010	0.00049	1	08/27/19 11:50	08/27/19 19:03	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/27/19 11:50	08/27/19 19:03	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/27/19 11:50	08/27/19 19:03	7440-43-9	
Chromium	ND	mg/L	0.010	0.00039	1	08/27/19 11:50	08/27/19 19:03	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	08/27/19 11:50	08/27/19 19:03	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/27/19 11:50	08/27/19 19:03	7439-92-1	
Lithium	0.0040J	mg/L	0.030	0.00078	1	08/27/19 11:50	08/27/19 19:03	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/27/19 11:50	08/27/19 19:03	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/27/19 11:50	08/27/19 19:03	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/27/19 11:50	08/27/19 19:03	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	7470A Pre	paration Met	hod: EP	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	08/26/19 14:21	08/27/19 14:38	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	ND	mg/L	0.30	0.029	1		08/31/19 00:31	16984-48-8	



Project: Plant Hammond AP GW6581

Pace Project No.: 2622354

Date: 03/12/2020 03:43 PM

 QC Batch:
 34265
 Analysis Method:
 EPA 7470A

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

 Associated Lab Samples:
 2622354001, 2622354002, 2622354003, 2622354004, 2622354005

METHOD BLANK: 154112 Matrix: Water

Associated Lab Samples: 2622354001, 2622354002, 2622354003, 2622354004, 2622354005

Blank

Parameter Units Result Limit MDL Analyzed Qualifiers

Reporting

Mercury mg/L ND 0.00050 0.00014 08/27/19 13:41

LABORATORY CONTROL SAMPLE: 154113

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 154114 154115

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

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



Project: Plant Hammond AP GW6581

Pace Project No.: 2622354

 QC Batch:
 34320
 Analysis Method:
 EPA 6020B

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

 Associated Lab Samples:
 2622354001, 2622354002, 2622354003, 2622354004, 2622354005

METHOD BLANK: 154347 Matrix: Water

Associated Lab Samples: 2622354001, 2622354002, 2622354003, 2622354004, 2622354005

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

LABORATORY CONTROL SAMPLE: 154348	LABORATORY	CONTROL SAMPLE:	154348
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Date: 03/12/2020 03:43 PM

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

MATRIX SPIKE & MATRIX S	PIKE DUPL	ICATE: 1543	49 MS Spike	MSD Spike	154350 MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.10	0.10	102	103	75-125	1	20	
Arsenic	mg/L	ND	0.1	0.1	0.098	0.098	98	98	75-125	1	20	
Barium	mg/L	0.078	0.1	0.1	0.18	0.18	104	104	75-125	0	20	
Beryllium	mg/L	ND	0.1	0.1	0.092	0.093	92	93	75-125	1	20	
Cadmium	mg/L	ND	0.1	0.1	0.099	0.10	99	101	75-125	2	20	

Results presented on 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.: 2622354

Date: 03/12/2020 03:43 PM

MATRIX SPIKE & MATRIX	SPIKE DUPL	ICATE: 1543	49 MS	MSD	154350							
		2622337002	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chromium	mg/L	ND	0.1	0.1	0.10	0.10	101	100	75-125	1	20	
Cobalt	mg/L	ND	0.1	0.1	0.099	0.098	99	98	75-125	1	20	
Lead	mg/L	ND	0.1	0.1	0.096	0.098	96	98	75-125	2	20	
Lithium	mg/L	0.0025J	0.1	0.1	0.095	0.096	92	93	75-125	1	20	
Molybdenum	mg/L	ND	0.1	0.1	0.11	0.11	106	105	75-125	0	20	
Selenium	mg/L	ND	0.1	0.1	0.099	0.096	99	96	75-125	3	20	
Thallium	mg/L	0.00018J	0.1	0.1	0.098	0.099	97	99	75-125	1	20	

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



Project: Plant Hammond AP GW6581

Pace Project No.: 2622354

Date: 03/12/2020 03:43 PM

QC Batch: 34533 Analysis Method: EPA 300.0

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

Associated Lab Samples: 2622354001, 2622354002, 2622354003, 2622354004, 2622354005

METHOD BLANK: 155485 Matrix: Water

Associated Lab Samples: 2622354001, 2622354002, 2622354003, 2622354004, 2622354005

Blank Reporting

Parameter Units Result Limit MDL Analyzed Qualifiers

Fluoride mg/L ND 0.30 0.029 08/30/19 13:57

LABORATORY CONTROL SAMPLE: 155486

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 155487 155488

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

MATRIX SPIKE SAMPLE: 155523

2622337002 Spike MS MS % Rec
Parameter Units Result Conc. Result % Rec Limits Qualifiers

Fluoride mg/L 0.11J 10 9.5 94 90-110

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



QUALIFIERS

Project: Plant Hammond AP GW6581

Pace Project No.: 2622354

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

Date: 03/12/2020 03:43 PM

B Analyte was detected in the associated method blank.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond AP GW6581

Pace Project No.: 2622354

Date: 03/12/2020 03:43 PM

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

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

Section A		Section B						Ø	Section C	U											L			1_		-	Γ
Required	Client Information:		氰	ormation				<u>"</u>	Invoice information:	nform	tion:										ت	Page:			٥	-	٦
Company	Georgia Power - Coal Combustion Residuals	Report To: Joju	L Abr	raham / L	Joju Abraham / Lauren Petty	A			Attention: SC	Š	Csinv	oices(scsinvoices@southernco.com	therno	:0.CO	٥					,						
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Jan Park	mple Condition Upo	n Receipt	M# . 2622	254	
Face Analytical Client Name	. 1 - 2		0#:2622		
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ourier: Fed Ex UPS USPS Clie	ent Commercial C	ace Other	IENT: GAPower-CC	R	
racking #:			Proj. Name:		\overline{A}
ustody Seal on Cooler/Box Present:	no Seals intact:	: Dyes 🗌 r	o e		1
acking Material; Bubble Wrap Bubbl	e Bags 🔲 Nonés 🔲 Ot	ther			
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emp should be above freezing to 6°C	Com	ments:		7,00	_
hain of Custody Present:	ØZYes □No □N/A 1.				_
hain of Custody Filled Out:	□Yes □No □N/A 2.				
chain of Custody Relinquished:	DXes Ono On/A 3.				
sampler Name & Signature on COC:	□Ves □No □N/A 4.		· · · · · · · · · · · · · · · · · · ·		_
Samples Arrived within Hold Time:	□Yes □No □N/A 5.				
Short Hold Time Analysis (<72hr):	☐Yes ☐Ne ☐N/A 6.				_
Rush Turn Around Time Requested:	□Yes ☑No □N/A 7.				\dashv
Sufficient Volume:	☐Yes ☐No ☐N/A 8.		· · · · · · · · · · · · · · · · · · ·		
Correct Containers Used:	ØYes □No □N/A 9.				
-Pace Containers Used:	₽res □No □N/A			:	
Containers Intact:	□Yes □No □N/A 10.			· ·	_
Filtered volume received for Dissolved tests	Yes ONO ON/A 11.	11	2 60/10 2 2 21	100	2000
Sample Labels match COC: $m{\mathscr{S}}$	A3/4 Yes ONO □N/A 12.		3 collections.	$n \in \{5, 17\}$	2000
-Includes date/time/ID/Analysis Matrix:		1 4		* 11. // 2	
All containers needing preservation have been checked.	ØYes □No □N/A 13.				
All containers needing preservation are found to be in	Yes ONO ON/A				
compliance with EPA recommendation.		al when	Lot # of added		
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	□Yes □No com	npleted	preservative		
Samples checked for dechlorination:	□Yes □No ⊡NA 14.				_
Headspace in VOA Vials (>6mm):	□Yes □No QN/A 15.				-
Trip Blank Present:	□Yes □No □N/A 16.				
Trip Blank Custody Seals Present	□Yes □No ØN/A				1

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)



September 23, 2019

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

RE: Project: Plant Hammond AP GW6581

Pace Project No.: 2622355

Dear Joju Abraham:

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

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

Sincerely,

Betsy McDaniel

Beton M Damil

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

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



(770)734-4200



CERTIFICATIONS

Project: Plant Hammond AP GW6581

Pace Project No.: 2622355

Pennsylvania Certification IDs

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

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification

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

Delaware Certification EPA Region 4 DW Rad

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

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

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

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

Maine Certification #: 2017020 Maryland Certification #: 308

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

Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706

Ohio EPA Rad Approval: #41249 Oregon/TNI Certification #: PA200002-010 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

South Dakota Certification
Tennessee Certification #: 02867

North Dakota Certification #: R-190

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

Texas/TNI Certification #: T104704188-17-3

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



SAMPLE SUMMARY

Project: Plant Hammond AP GW6581

Pace Project No.: 2622355

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



SAMPLE ANALYTE COUNT

Project: Plant Hammond AP GW6581

Pace Project No.: 2622355

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



Project: Plant Hammond AP GW6581

Calculation

Pace Project No.: 2622355

Sample: HGWC-117 Lab ID: 2622355001 Collected: 08/22/19 10:00 Received: 08/23/19 12:00 Matrix: Water PWS: Site ID: Sample Type: Act ± Unc (MDC) Carr Trac **Parameters** Method Units Analyzed CAS No. Qual EPA 9315 $0.333 \pm 0.283 \quad (0.509)$ Radium-226 pCi/L 09/05/19 09:49 13982-63-3 C:84% T:NA -0.0831 ± 0.297 (0.726) EPA 9320 Radium-228 pCi/L 09/19/19 12:11 15262-20-1 C:67% T:79% Total Radium Total Radium $0.333 \pm 0.580 \quad (1.24)$ pCi/L 09/20/19 12:23 7440-14-4



Project: Plant Hammond AP GW6581

Pace Project No.: 2622355

Sample: HGWC-101 Lab ID: 2622355002 Collected: 08/22/19 13:20 Received: 08/23/19 12:00 Matrix: Water PWS: Site ID: Sample Type: Act ± Unc (MDC) Carr Trac **Parameters** Method Units Analyzed CAS No. Qual EPA 9315 $0.474 \pm 0.245 \quad (0.335)$ Radium-226 pCi/L 09/09/19 09:06 13982-63-3 C:81% T:NA -0.0890 ± 0.343 (0.828) EPA 9320 Radium-228 pCi/L 09/19/19 12:12 15262-20-1 C:69% T:75% Total Radium Total Radium 0.474 ± 0.588 (1.16) pCi/L 09/20/19 12:23 7440-14-4 Calculation



Project: Plant Hammond AP GW6581

Calculation

Pace Project No.: 2622355

Total Radium

Sample: HGWC-118 Lab ID: 2622355003 Collected: 08/22/19 11:23 Received: 08/23/19 12:00 Matrix: Water PWS: Site ID: Sample Type: Act ± Unc (MDC) Carr Trac **Parameters** Method Units Analyzed CAS No. Qual EPA 9315 0.492 ± 0.255 (0.370) Radium-226 pCi/L 09/09/19 09:06 13982-63-3 C:81% T:NA EPA 9320 $0.412 \pm 0.411 \quad (0.846)$ 09/19/19 12:11 15262-20-1 Radium-228 pCi/L C:67% T:78% Total Radium

pCi/L

09/20/19 12:23 7440-14-4

0.904 ± 0.666 (1.22)



Project: Plant Hammond AP GW6581

Pace Project No.: 2622355

Sample: HGWC-103 Lab ID: 2622355004 Collected: 08/22/19 14:50 Received: 08/23/19 12:00 Matrix: Water PWS: Site ID: Sample Type: Act ± Unc (MDC) Carr Trac **Parameters** Method Units Analyzed CAS No. Qual EPA 9315 $0.434 \pm 0.204 \quad (0.222)$ Radium-226 pCi/L 09/09/19 09:06 13982-63-3 C:95% T:NA EPA 9320 0.512 ± 0.402 (0.787) Radium-228 pCi/L 09/19/19 13:34 15262-20-1 C:72% T:78% Total Radium Total Radium $0.946 \pm 0.606 \quad (1.01)$ pCi/L 09/20/19 12:23 7440-14-4 Calculation



Project: Plant Hammond AP GW6581

Pace Project No.: 2622355

Sample: HGWC-105 Lab ID: 2622355005 Collected: 08/22/19 17:15 Received: 08/23/19 12:00 Matrix: Water PWS: Site ID: Sample Type: Act ± Unc (MDC) Carr Trac **Parameters** Method Units Analyzed CAS No. Qual EPA 9315 0.241 ± 0.175 (0.286) Radium-226 pCi/L 09/09/19 09:06 13982-63-3 C:83% T:NA EPA 9320 $0.453 \pm 0.393 \quad (0.786)$ 09/19/19 12:12 15262-20-1 Radium-228 pCi/L C:71% T:72% Total Radium Total Radium 0.694 ± 0.568 (1.07) pCi/L 09/20/19 12:23 7440-14-4 Calculation



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond AP GW6581

Pace Project No.: 2622355

QC Batch: 359490

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2622355001

METHOD BLANK: 1745579 Matrix: Water

Associated Lab Samples: 2622355001

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

Radium-226 0.243 \pm 0.244 (0.474) C:94% T:NA pCi/L 09/05/19 08:07

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



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond AP GW6581

Pace Project No.: 2622355

QC Batch: 358895 Analysis Method: EPA 9320
QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228

Associated Lab Samples: 2622355001, 2622355002, 2622355003, 2622355004, 2622355005

METHOD BLANK: 1742554 Matrix: Water

Associated Lab Samples: 2622355001, 2622355002, 2622355003, 2622355004, 2622355005

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

 Radium-228
 0.167 ± 0.291 (0.635) C:73% T:86%
 pCi/L
 09/19/19 12:11

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



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond AP GW6581

Pace Project No.: 2622355

QC Batch: 359801 Analysis Method: EPA 9315

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

Associated Lab Samples: 2622355002, 2622355003, 2622355004, 2622355005

METHOD BLANK: 1746802 Matrix: Water

Associated Lab Samples: 2622355002, 2622355003, 2622355004, 2622355005

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

Radium-226 $0.563 \pm 0.229 \quad (0.205) \text{ C:97\% T:NA}$ pCi/L $09/09/19 \quad 09:06$

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



QUALIFIERS

Project: Plant Hammond AP GW6581

Pace Project No.: 2622355

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

Date: 09/23/2019 04:45 PM

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond AP GW6581

Pace Project No.: 2622355

Date: 09/23/2019 04:45 PM

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



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:	nco.com	Purchase Order #:		SCS10382775	2775			Pag	Pace Quote									T							
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Rush Turn Around Time Requested:	□Yes ☑Mo	□N/A	'					_
sufficient Volume:	☐Yes □No	□n/a	3.			<u> </u>		
Correct Containers Used:	ØYes □No	□N/A	9.			;		
-Pace Containers Used:	Pres □No	□N/A						
Containers Intact:	□Yes □No	□N/A	10.					
Filtered volume received for Dissolved tests	. ☐Yes ☐No	□NA	11.			1		
Sample Labels match COC: 86	Jaj Yes Ono	□N/A	12. If G-W(C-103 (ollection - in	e ijs	149	ope
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Il containers needing preservation have been checked.	ZYes □No	□N/A	13.	_				
All containers needing preservation are found to be in	Yes □No	□N/A				1		
compliance with EPA recommendation.	G162 G140	_	Initial whom	l ot s	of added			
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	□Yes □No		Initial when completed		ervative			
Samples checked for dechlorination:	□Yes □No	⊡ k∏A	14.					
Headspace in VOA Vials (>6mm):	□Yes □No	₽ÑA	15.			ĺ		
Frip Blank Present:	□Yes □No	□N/A	16.					
Frip Blank Custody Seals Present	□Yes □No	N/A						
Pace Trip Blank Lot # (if purchased):								
Client Notification/ Resolution:				Cial.	d Data Required?	Y /	N	
Person Contacted:		Date/	ime.	riei	u Data Nequilleu!	. ,	''	
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Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)





March 12, 2020

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

RE: Project: Plant Hammond AP

Pace Project No.: 2622400

Dear Joju Abraham:

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

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

Sincerely,

Kevin Herring for Betsy McDaniel

Kein Slury

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

Pace Project No.: 2622400

Pace Analytical Services Atlanta

110 Technology Parkway Peachtree Corners, GA 30092 Florida DOH Certification #: E87315

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

Virginia Certification #: 460204





SAMPLE SUMMARY

Project: Plant Hammond AP

Pace Project No.: 2622400

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



SAMPLE ANALYTE COUNT

Project: Plant Hammond AP

Pace Project No.: 2622400

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



ANALYTICAL RESULTS

Project: Plant Hammond AP

Pace Project No.: 2622400

Date: 03/12/2020 03:47 PM

Sample: EB-01	Lab ID:	2622400001	Collecte	ed: 08/23/19	11:45	Received: 08/	26/19 18:30 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	08/29/19 18:05	08/30/19 17:59	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/29/19 18:05	08/30/19 17:59	7440-38-2	
Barium	ND	mg/L	0.010	0.00049	1	08/29/19 18:05	08/30/19 17:59	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/29/19 18:05	08/30/19 17:59	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/29/19 18:05	08/30/19 17:59	7440-43-9	
Chromium	ND	mg/L	0.010	0.00039	1	08/29/19 18:05	08/30/19 17:59	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	08/29/19 18:05	08/30/19 17:59	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/29/19 18:05	08/30/19 17:59	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	08/29/19 18:05	08/30/19 17:59	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/29/19 18:05	08/30/19 17:59	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/29/19 18:05	08/30/19 17:59	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/29/19 18:05	08/30/19 17:59	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	08/28/19 13:26	08/28/19 16:35	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Fluoride	ND	mg/L	0.30	0.029	1		08/31/19 00:53	16984-48-8	



ANALYTICAL RESULTS

Project: Plant Hammond AP

Pace Project No.: 2622400

Date: 03/12/2020 03:47 PM

Sample: EB-02	Lab ID:	2622400002	Collecte	ed: 08/23/19	11:55	Received: 08/	26/19 18:30 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	08/29/19 18:05	08/30/19 18:05	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/29/19 18:05	08/30/19 18:05	7440-38-2	
Barium	ND	mg/L	0.010	0.00049	1	08/29/19 18:05	08/30/19 18:05	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/29/19 18:05	08/30/19 18:05	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/29/19 18:05	08/30/19 18:05	7440-43-9	
Chromium	ND	mg/L	0.010	0.00039	1	08/29/19 18:05	08/30/19 18:05	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	08/29/19 18:05	08/30/19 18:05	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/29/19 18:05	08/30/19 18:05	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	08/29/19 18:05	08/30/19 18:05	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/29/19 18:05	08/30/19 18:05	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/29/19 18:05	08/30/19 18:05	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/29/19 18:05	08/30/19 18:05	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	7470A Pre	paration Met	nod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	08/28/19 13:26	08/28/19 16:38	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	ND	mg/L	0.30	0.029	1		08/31/19 01:16	16984-48-8	



Project: Plant Hammond AP

Pace Project No.: 2622400

Mercury

Date: 03/12/2020 03:47 PM

QC Batch: 34391 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury

ND

Associated Lab Samples: 2622400001, 2622400002

METHOD BLANK: 154672 Matrix: Water

mg/L

Associated Lab Samples: 2622400001, 2622400002

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

Mercury mg/L ND 0.00050 0.00014 08/28/19 16:21

0.0025

LABORATORY CONTROL SAMPLE: 154673

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 154674 154675 MSD MS MSD 2622398001 Spike Spike MS MS MSD % Rec Max Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD RPD Qual

0.0024

0.0025

98

75-125

100

2 20

0.0025

Results presented on 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

Pace Project No.: 2622400

Lithium

Selenium

Thallium

Molybdenum

Date: 03/12/2020 03:47 PM

QC Batch: 34496 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

mg/L

mg/L

mg/L

mg/L

Associated Lab Samples: 2622400001, 2622400002

METHOD BLANK: 155177 Matrix: Water

Associated Lab Samples: 2622400001, 2622400002

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

LABORATORY CONTROL SAMPLE:	155178					
Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	104	80-120	
Arsenic	mg/L	0.1	0.10	101	80-120	
Barium	mg/L	0.1	0.10	104	80-120	
Beryllium	mg/L	0.1	0.10	104	80-120	
Cadmium	mg/L	0.1	0.10	103	80-120	
Chromium	mg/L	0.1	0.10	103	80-120	
Cobalt	mg/L	0.1	0.10	101	80-120	
Lead	mg/L	0.1	0.10	101	80-120	

0.1

0.1

0.1

0.1

MATRIX SPIKE & MATRIX S	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 155179 155180											
Parameter	Units	2622479002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.10	0.10	104	102	75-125	2	20	
Arsenic	mg/L	ND	0.1	0.1	0.11	0.11	106	107	75-125	1	20	
Barium	mg/L	0.036	0.1	0.1	0.14	0.13	103	97	75-125	4	20	
Beryllium	mg/L	0.00024J	0.1	0.1	0.098	0.095	97	95	75-125	3	20	
Cadmium	mg/L	0.00072	0.1	0.1	0.10	0.099	100	98	75-125	1	20	

0.11

0.10

0.10

0.10

105

105

102

102

80-120

80-120

80-120

80-120

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



Project: Plant Hammond AP

Pace Project No.: 2622400

Date: 03/12/2020 03:47 PM

MATRIX SPIKE & MATRIX	SPIKE DUPL	.ICATE: 1551	. •		155180							
Parameter	Units	2622479002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chromium	mg/L	ND	0.1	0.1	0.099	0.097	99	97	75-125	2	20	
Cobalt	mg/L	0.0018J	0.1	0.1	0.098	0.098	97	96	75-125	1	20	
Lead	mg/L	0.000049J	0.1	0.1	0.094	0.093	94	93	75-125	1	20	
Lithium	mg/L	0.0033J	0.1	0.1	0.10	0.10	100	97	75-125	2	20	
Molybdenum	mg/L	0.0065J	0.1	0.1	0.11	0.11	106	105	75-125	1	20	
Selenium	mg/L	ND	0.1	0.1	0.11	0.11	106	109	75-125	2	20	
Thallium	mg/L	ND	0.1	0.1	0.096	0.095	96	95	75-125	1	20	

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



Project: Plant Hammond AP

Pace Project No.: 2622400

Date: 03/12/2020 03:47 PM

QC Batch: 34533 Analysis Method: EPA 300.0

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

Associated Lab Samples: 2622400001, 2622400002

METHOD BLANK: 155485 Matrix: Water

Associated Lab Samples: 2622400001, 2622400002

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

Fluoride mg/L ND 0.30 0.029 08/30/19 13:57

LABORATORY CONTROL SAMPLE: 155486

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 155487 155488

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

MATRIX SPIKE SAMPLE: 155523

2622337002 Spike MS MS % Rec
Parameter Units Result Conc. Result % Rec Limits Qualifiers

Fluoride mg/L 0.11J 10 9.5 94 90-110

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



QUALIFIERS

Project: Plant Hammond AP

Pace Project No.: 2622400

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

Date: 03/12/2020 03:47 PM



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond AP

Pace Project No.: 2622400

Date: 03/12/2020 03:47 PM

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

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

Section A	4 .	Section B	Section C	
Require	Client Information:	2	Invoice information:	Page: Of
Company	Georgia Power - Coal Combustion Residuals		Attention: scsinvoices@southernco.com	
Address	١	Copy To: Geosyntec	Company Name:	
		- 1	Address:	The second and the second seco
	ernco.com	Purchase Order #: SCS10382775	Pace Quote:	
Phone:	Phone: (404)506-7239 Fax:	Project Name: Plant Hammond AP	ŝ	The state of the s
redues		Project #:	Pace Profile #: 327.4.2	GA
			MANAGEM AND AND AND AND AND AND AND AND AND AND	THE CANADA CANAD
	XIATAM	COLLECTED	Preservatives NN N	
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	EB-01	10/2/14	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	
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Custod) Sealed Cooler (V/V)

Receive ce (Y/N)

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DATE Signed: 08/23/19

SIGNATURE of SAMPLERY PRINT Name of SAMPLER:

Sam	ple Condition U	oon Receipt	MOH - 7077	TUU	_
and the second		4 4 . 0	PM: BM Due	Date: 0	9/04/
Pace Analytical Client Name:	GAPOWE	/ CCA	CLIENT: GAPower-CCR	1	
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ustody Sear off Coolembox 1 100	Bags None	Other		"	
acking material.		Blue None	Samples on ice, cooling pro	ocess has be	gun nina
hermometer Used	Biological Tissue is	Frozen: Yes No	Contents:	6/148	dy
Cooler Temperature		comments:			+-
emp should be above freezing to 6°C	(☐Yes ☐No ☐N/A 1				+
Chain of Custody Present:	Dres ONO ONA 2	2			+
Chain of Custody Filled Out:	□res □No □N/A	3			+-
Chain of Custody Relinquished:	☐Yes ☐No ☐N/A	4			+
Sampler Name & Signature on COC: Samples Arrived within Hold Time:	Dres Ono On/A	5			
	□Yes □No □N/A	6			
Short Hold Time Analysis (<72hr): Rush Turn Around Time Requested:	□Yes ☑No □N/A	7.			ļ
	☑Yes ☐No ☐N/A	8.			<u> </u>
Sufficient Volume: Correct Containers Used:	☑Yes □No □N/A	9.			
-Pace Containers Used:	QYes □No □N/A				
Containers Intact:	☑Yes ☐No ☐N/A	10.			
Filtered volume received for Dissolved tests	□Yes □No □M/A				
Sample Labels match COC:	72√es □No □N/A				
-Includes date/time/ID/Analysis Matrix:	4/				
All containers needing preservation have been checked.	© S □No □N/A	13		:	
All containers needing preservation are found to be in				i	
compliance with EPA recommendation.	ElYes □No □N/A				
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	□Yes ☑No	Initial when completed	Lot # of added preservative		
Samples checked for dechlorination:	□Yes □No □N/Ā	714.			
Headspace in VOA Vials (>6mm):	□Yes □No □N/A				
Trip Blank Present:	□Yes □No ☑N/A				
Trip Blank Custody Seals Present	□Yes □No □MA	10.		ļ	}
Pace Trip Blank Lot # (if purchased):					
Client Notification/ Resolution:					
Person Contacted:	.		Field Data Required?	Υ /	N
Comments/ Resolution:	Date/I	ime:		İ	
				1	
Project Manager Review:					
			Date:		
lote: Whenever there is a discrepancy affecting North Coertification Office (i.e out of hold, incorrect preservative	arolina compliance sampl	es, a copy of this for	m will be sent to the North Cont	age 14 of 14	





September 25, 2019

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

RE: Project: Plant Hammond AP

Pace Project No.: 2622401

Dear Joju Abraham:

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

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

Sincerely,

Betsy McDaniel

Beton M Damil

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

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



(770)734-4200



CERTIFICATIONS

Project: Plant Hammond AP

Pace Project No.: 2622401

Pennsylvania Certification IDs

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

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification

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

Delaware Certification EPA Region 4 DW Rad

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

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

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

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

Maine Certification #: 2017020 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991 Montana Certification #: Cert0082 Nebraska Certification #: NE-OS-29-14 Nevada Certification #: PA014572018-1 New Hampshire/TNI Certification #: 297617

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

Missouri Certification #: 235

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

South Dakota Certification
Tennessee Certification #: 02867

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

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





SAMPLE SUMMARY

Project: Plant Hammond AP

Pace Project No.: 2622401

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



SAMPLE ANALYTE COUNT

Project: Plant Hammond AP

Pace Project No.: 2622401

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



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond AP

Pace Project No.: 2622401

Sample: EB-01 Lab ID: 2622401001 Collected: 08/23/19 11:45 Received: 08/26/19 18:30 Matrix: Water PWS: Site ID: Sample Type: Act ± Unc (MDC) Carr Trac **Parameters** Method Units Analyzed CAS No. Qual EPA 9315 0.251 ± 0.254 (0.495) Radium-226 pCi/L 09/18/19 08:37 13982-63-3 C:91% T:NA -0.369 ± 0.255 (0.680) EPA 9320 Radium-228 pCi/L 09/20/19 11:53 15262-20-1 C:77% T:83% Total Radium **Total Radium** 0.251 ± 0.509 (1.18) pCi/L 09/23/19 12:55 7440-14-4 Calculation



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond AP

Pace Project No.: 2622401

Sample: EB-02 Lab ID: 2622401002 Collected: 08/23/19 11:55 Received: 08/26/19 18:30 Matrix: Water PWS: Site ID: Sample Type: Act ± Unc (MDC) Carr Trac **Parameters** Method Units Analyzed CAS No. Qual EPA 9315 $0.539 \pm 0.297 \quad (0.374)$ Radium-226 pCi/L 09/18/19 08:37 13982-63-3 C:91% T:NA EPA 9320 0.478 ± 0.382 (0.753) Radium-228 pCi/L 09/20/19 11:54 15262-20-1 C:75% T:75% Total Radium **Total Radium** 1.02 ± 0.679 (1.13) pCi/L 09/23/19 12:55 7440-14-4 Calculation



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond AP

Pace Project No.: 2622401

QC Batch: 359964 Analysis Method: EPA 9315

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

Associated Lab Samples: 2622401001, 2622401002

METHOD BLANK: 1747386 Matrix: Water

Associated Lab Samples: 2622401001, 2622401002

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

 Radium-226
 0.204 ± 0.233 (0.472) C:94% T:NA
 pCi/L
 09/18/19 08:31

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



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond AP

Pace Project No.: 2622401

QC Batch: 359966 Analysis Method: EPA 9320

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

Associated Lab Samples: 2622401001, 2622401002

METHOD BLANK: 1747390 Matrix: Water

Associated Lab Samples: 2622401001, 2622401002

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

Radium-228 0.232 ± 0.311 (0.664) C:77% T:89% pCi/L 09/20/19 11:52

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



QUALIFIERS

Project: Plant Hammond AP

Pace Project No.: 2622401

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

Date: 09/25/2019 05:32 PM

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond AP

Pace Project No.: 2622401

Date: 09/25/2019 05:32 PM

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

CHAIN-OF-CUSTODY / Analytical Request Document

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

Regulatory Agency (1978) State / Genton Cont. ŏ Residual Chlorine (Y/N) Page: Requested Analysis Filtered (Y/N) DATE 822/922 muibe? betsy mcdaniel@pacelabs.com ACCEPTED BY LAFFILLATION 3 > 0 0.005 yd abingul-* Pop. IV Metals NX 120T 802VISHA Methanol Preservatives Na2S2O3 3 HOBN 327.4.2 ЮН Invoice Information:
Attention SCSINVC
Company Name: Pace Project Manager Pace Profile # 327 EONH 3 TIME polia W/adan/60/09/04/19 HS2O4 ace Quote 28/26/14 CBS15 Unpreserved Address SAMPLER NAME AND SIGNATURE OF CONTAINERS TAN ... 3 SAMPLE TEMP AT COLLECTION 1145 11:55 TIME 2 REDIGINATED BY LANGUAGON TO 12/2/(4 6 9/13/19 1150 8/13/14 DATE COLLECTED 140 Joju Abraham / Lauren Petty TIME Project Name: Plant Hammond AP Jurchase Order # SCS10382775 START 18/22/14 DATE Required Project Information: Geosyntec ণ্ড SAMPLE TYPE (G=GRAB C=COMP) WATRIX CODE (see valid codes to left) Report To: Section B Copy To: CODE WY WW SI OL OL TS MATRIX
Drinking Water
Water
Water
Water
Product
Sou/Solid
Od
Wipe
Au
Au
Chher
Tissue Georgia Power - Coal Combustion Residuals Metats list: Hg, Sb, As, Ba, Bo, Cd, Cr, Co, Pb, Li, Mo, Se, Tl One Character per box. (A-Z, 0-9 / , .) Sample Ids must be unique Atlanta, GA 30339 jabraham@southemco.com SAMPLE ID $C \sim C$ 2480 Maner Road Phone: (404)506-7239 Requested Due Date: Required Client Information: 6-0 Company Address: ILEM #

2622401 Page 1 of 12

(AVA) utset Ssmble

Cooler (Y/N)

belse2

Received on (Y/N)

DATE Signed: 08/23/19

Nocha Klusus

PRINT Name of SAMPLER:

SIGNATURE of SAMPLERY

TEMP & C

Sample Condition Upon Receipt WO#: 2622401

9			HOII LOLL	LAT
Face Analytical Client Name	: CAPOW	er CCR	PM: BM Due [CLIENT: GAPower-CCR	Date: 09/25/1
Courier: Fed Ex UPS USPS Clien	nt Commercial	Pace Other _	Optional Proj. Due Date:	
Custody Seal on Cooler/Box Present:	no Seals	intact:	Proj, Name: □ no	
Packing Material: Bubble Wrap Bubble	Bags None	☐ Other		
Thermometer Used 2/4	Type of Ice: Wet	$\overline{}$	Samples on ice, cooling proces	ss has begun
Cooler Temperature 2.8 C		is Frozen: Yes No	Date and Initials of person	
Temp should be above freezing to 6°C	Ū	Comments:	contents:	117604
Chain of Custody Present:	(□Yes □No □N/A	1.		
Chain of Custody Filled Out:	□res □No □N/A	2.		
Chain of Custody Relinquished:	□res □No □N/A	3.		
Sampler Name & Signature on COC:	☐Yes ☐No ☐N/A	4.		
Samples Arrived within Hold Time:	Dres □No □N/A	5.		
Short Hold Time Analysis (<72hr):	□Yes □N/A	6.		
Rush Turn Around Time Requested:	□Yes ☑No □N/A	7.		
Sufficient Volume:	☑Yes □No □N/A	8.		
Correct Containers Used:	☑Yes □No □N/A	9.	<u> </u>	
-Pace Containers Used:	DYes □No □N/A			
Containers Intact:	☑Yes □No □N/A	10.		
Filtered volume received for Dissolved tests	□Yes □No □M/A	11.		
Sample Labels match COC:	22 Yes □No □N/A	12.		
-Includes date/time/ID/Analysis Matrix:	W			
All containers needing preservation have been checked.	Eres □No □N/A	13.		
All containers needing preservation are found to be in compliance with EPA recommendation.	er Ono On/A			
Sompliance wat 21 yeresommendation.		Initial when	Lot # of added	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	□Yes ᢓNo	completed	preservative	
Samples checked for dechlorination:	☐Yes ☐No ☐NI/A	714.		
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☐N/A			
Trip Blank Present:	□Yes □No ☑N/A	16.		
Trip Blank Custody Seals Present	□Yes □No □MA			
Pace Trip Blank Lot # (if purchased):	=			
Client Notification/ Resolution:			Field Data Required?	Y / N
Person Contacted:	Date/	Time:	 	
Comments/ Resolution:				
				
	·			
				1

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)

Project Manager Review:

Date:





March 12, 2020

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

RE: Project: Plant Hammond AP GW 6581

Pace Project No.: 2622402

Dear Joju Abraham:

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

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

Sincerely,

Kevin Herring for Betsy McDaniel

Kein Slury

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 GW 6581

Pace Project No.: 2622402

Pace Analytical Services Atlanta

110 Technology Parkway Peachtree Corners, GA 30092

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

Virginia Certification #: 460204





SAMPLE SUMMARY

Project: Plant Hammond AP GW 6581

Pace Project No.: 2622402

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



SAMPLE ANALYTE COUNT

Project: Plant Hammond AP GW 6581

Pace Project No.: 2622402

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



ANALYTICAL RESULTS

Project: Plant Hammond AP GW 6581

Pace Project No.: 2622402

Date: 03/12/2020 03:49 PM

Sample: HGWC-107	Lab ID: 2622402001 Collected: 08/23/19 09:35				Received: 08/26/19 18:30 Matrix: Water				
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	08/29/19 18:05	08/30/19 18:11	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/29/19 18:05	08/30/19 18:11	7440-38-2	
Barium	0.038	mg/L	0.010	0.00049	1	08/29/19 18:05	08/30/19 18:11	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/29/19 18:05	08/30/19 18:11	7440-41-7	
Cadmium	0.00011J	mg/L	0.0025	0.00011	1	08/29/19 18:05	08/30/19 18:11	7440-43-9	
Chromium	ND	mg/L	0.010	0.00039	1	08/29/19 18:05	08/30/19 18:11	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	08/29/19 18:05	08/30/19 18:11	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/29/19 18:05	08/30/19 18:11	7439-92-1	
Lithium	0.00092J	mg/L	0.030	0.00078	1	08/29/19 18:05	08/30/19 18:11	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/29/19 18:05	08/30/19 18:11	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/29/19 18:05	08/30/19 18:11	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/29/19 18:05	08/30/19 18:11	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	08/28/19 13:26	08/28/19 16:40	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Fluoride	ND	mg/L	0.30	0.029	1		09/03/19 22:51	16984-48-8	



ANALYTICAL RESULTS

Project: Plant Hammond AP GW 6581

Pace Project No.: 2622402

Date: 03/12/2020 03:49 PM

Sample: HGWC-109	Lab ID: 2622402002 Collected: 08/23/19 10:40				10:40	Received: 08/26/19 18:30 Matrix: Water				
			Report							
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A				
Antimony	ND	mg/L	0.0030	0.00027	1	08/29/19 18:05	08/30/19 18:16	7440-36-0		
Arsenic	0.0035J	mg/L	0.0050	0.00035	1	08/29/19 18:05	08/30/19 18:16	7440-38-2		
Barium	0.088	mg/L	0.010	0.00049	1	08/29/19 18:05	08/30/19 18:16	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000074	1	08/29/19 18:05	08/30/19 18:16	7440-41-7		
Cadmium	ND	mg/L	0.0025	0.00011	1	08/29/19 18:05	08/30/19 18:16	7440-43-9		
Chromium	ND	mg/L	0.010	0.00039	1	08/29/19 18:05	08/30/19 18:16	7440-47-3		
Cobalt	0.0027J	mg/L	0.0050	0.00030	1	08/29/19 18:05	08/30/19 18:16	7440-48-4		
Lead	0.000058J	mg/L	0.0050	0.000046	1	08/29/19 18:05	08/30/19 18:16	7439-92-1	В	
Lithium	0.00090J	mg/L	0.030	0.00078	1	08/29/19 18:05	08/30/19 18:16	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	08/29/19 18:05	08/30/19 18:16	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	08/29/19 18:05	08/30/19 18:16	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	08/29/19 18:05	08/30/19 18:16	7440-28-0		
7470 Mercury	Analytical	Method: EPA 7	7470A Pre	paration Met	hod: EF	PA 7470A				
Mercury	ND	mg/L	0.00050	0.00014	1	08/28/19 13:26	08/28/19 16:42	7439-97-6		
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0							
Fluoride	0.034J	mg/L	0.30	0.029	1		09/03/19 23:14	16984-48-8		



Project: Plant Hammond AP GW 6581

Pace Project No.: 2622402

Date: 03/12/2020 03:49 PM

QC Batch: 34391 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury

Associated Lab Samples: 2622402001, 2622402002

METHOD BLANK: 154672 Matrix: Water

Associated Lab Samples: 2622402001, 2622402002

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

Mercury mg/L ND 0.00050 0.00014 08/28/19 16:21

LABORATORY CONTROL SAMPLE: 154673

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 154674 154675

MS MSD

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

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



Project: Plant Hammond AP GW 6581

Pace Project No.: 2622402

QC Batch: 34496 Analysis Method: EPA 6020B QC Batch Method: **EPA 3005A** Analysis Description: 6020B MET

Associated Lab Samples: 2622402001, 2622402002

METHOD BLANK: 155177 Matrix: Water

155178

Associated Lab Samples: 2622402001, 2622402002

LABORATORY CONTROL SAMPLE:

Date: 03/12/2020 03:49 PM

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

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	104	80-120	
Arsenic	mg/L	0.1	0.10	101	80-120	

Antimony	mg/L	0.1	0.10	104	80-120	
Arsenic	mg/L	0.1	0.10	101	80-120	
Barium	mg/L	0.1	0.10	104	80-120	
Beryllium	mg/L	0.1	0.10	104	80-120	
Cadmium	mg/L	0.1	0.10	103	80-120	
Chromium	mg/L	0.1	0.10	103	80-120	
Cobalt	mg/L	0.1	0.10	101	80-120	
Lead	mg/L	0.1	0.10	101	80-120	
Lithium	mg/L	0.1	0.11	105	80-120	
Molybdenum	mg/L	0.1	0.10	105	80-120	
Selenium	mg/L	0.1	0.10	102	80-120	
Thallium	mg/L	0.1	0.10	102	80-120	

MATRIX SPIKE & MATRIX	SPIKE DUPL	ICATE: 1551	79		155180							
Parameter	Units	2622479002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L		0.1	0.1	0.10	0.10	104	102	75-125	2		
Arsenic	mg/L	ND	0.1	0.1	0.11	0.11	106	107	75-125	1	20	
Barium	mg/L	0.036	0.1	0.1	0.14	0.13	103	97	75-125	4	20	
Beryllium	mg/L	0.00024J	0.1	0.1	0.098	0.095	97	95	75-125	3	20	
Cadmium	mg/L	0.00072	0.1	0.1	0.10	0.099	100	98	75-125	1	20	

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



Project: Plant Hammond AP GW 6581

Pace Project No.: 2622402

Date: 03/12/2020 03:49 PM

MATRIX SPIKE & MATRIX	SPIKE DUPL	ICATE: 1551	79 MS	MSD	155180							
		2622479002	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chromium	mg/L	ND	0.1	0.1	0.099	0.097	99	97	75-125	2	20	
Cobalt	mg/L	0.0018J	0.1	0.1	0.098	0.098	97	96	75-125	1	20	
Lead	mg/L	0.000049J	0.1	0.1	0.094	0.093	94	93	75-125	1	20	
Lithium	mg/L	0.0033J	0.1	0.1	0.10	0.10	100	97	75-125	2	20	
Molybdenum	mg/L	0.0065J	0.1	0.1	0.11	0.11	106	105	75-125	1	20	
Selenium	mg/L	ND	0.1	0.1	0.11	0.11	106	109	75-125	2	20	
Thallium	mg/L	ND	0.1	0.1	0.096	0.095	96	95	75-125	1	20	

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



Project: Plant Hammond AP GW 6581

Pace Project No.: 2622402

Date: 03/12/2020 03:49 PM

QC Batch: 34680 Analysis Method: EPA 300.0

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

Associated Lab Samples: 2622402001, 2622402002

METHOD BLANK: 156099 Matrix: Water

Associated Lab Samples: 2622402001, 2622402002

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

Fluoride mg/L ND 0.30 0.029 09/03/19 20:58

LABORATORY CONTROL SAMPLE: 156100

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 156101 156102

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

MATRIX SPIKE SAMPLE: 156103

2622402001 Spike MS MS % Rec
Parameter Units Result Conc. Result % Rec Limits Qualifiers

Fluoride mg/L ND 10 9.6 96 90-110

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



QUALIFIERS

Project: Plant Hammond AP GW 6581

Pace Project No.: 2622402

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

Date: 03/12/2020 03:49 PM

B Analyte was detected in the associated method blank.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond AP GW 6581

Pace Project No.: 2622402

Date: 03/12/2020 03:49 PM

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

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

(N/A) postn The state of the s Salato / Accadont Samples É (N/A) Sealed Cooler ŏ Custod (N/A) 80 Received on ક Residual Chlorine (Y/N) 2 hi 4MET Page: odia Musha Kee 18/23/11/11/36 DATE Signed: 8/23/19 betsy.mcdaniel@pacelabs.com, ASSIBS REGION 226/228 0.005 yd abnoulscsinvoices@southernco.com Ppp. IV Metals NA 186T BREVIERA Methanol Preservatives Na2S203 Russo ₽ SIGNATURE OF SAMPLER: CALL RULL 327.4.2 HOSN Pace Project Manager: Pace Profile #: 327 ЮН Invoice Information: EONH M 7 Company Nam Pace Quote: POSZH ググろ Attention: 1136 Address: 5120 61/9780 Unpreserved # OF CONTAINERS 7 8/23 (19 PRINT Name of SAMPLER: G 6/13 1020 8/23 104020 NOITS TEMP AT COLLECTION 6 1912 1090 5 810 1095 11 8/23/6 TIME 8 DATE COLLECTED Geo 5000 Joju Abraham / Lauren Petty TIME Purchase Order #: SCS10382775 Project Name; Plant Hammond AP START DATE Required Project Information: Project #: (こしん59) Geosyntec SAMPLE TYPE (G=GRAB C=COMP) MATRIX CODE (see valid codes to left) plia Copy To: Report To: Section B CODE WY WY SP P WY TS OT AR AR TS MATRIX
Dinking Water
Water
Waste Water
Product
Sou'Soid
Od
Wipe
Au
Cather
Trasse 2622402 Georgia Power - Coal Combustion Residuals Metals list: Hg, Sb, As, Ba, Bo, Cd, Cr, Co, Pb, U, Mo, Se, Tl One Character per box. (A-Z, 0-9 /, -) Sample Ids must be unique Email: jabraham@southernco.com SAMPLE ID Phone: (404)506-7239 Fa Requested Due Date Sヤムへんてく 60 2480 Maner Road Atlanta, GA 30339 Required Client Information: いとう 3 Page 13 of 14 # WBL

Com	anle Condition U	pon Receip	0#:262240 1: BM Due Da LIENT: GAPower-CCR)2 te: 09/04/1
San	ipie condition o	A C · D	I: BM Due Da	נפ: איקט /פטי .
Pace Analytical Client Name	: CA Power	-CCR CI	IENT: GAPower-CCR	
		Pace Other		
rier: 🗌 Fed Ex 🗍 UPS 🗍 USPS 🗍 Clie	nt LCommercial L		Proj. Due Date: Proj. Name:	
king #:	- Ocala in] no	
Andy Seal on Cooler/Box Present:		_		
king Material: Bubble Wrap Bubbl	e Bags None	Other	Samples on ice, cooling proc	ess has begun
ermometer Used	Type of Ice: Wet	Blue Note	Date and Initials per	on examining
5 17 ⁻ 4	Biological Tissue is	S Frozen: Tes No	contents: 426	1 600 %
oler Temperature				
nain of Custody Present:	□Yes □No □N/A			
nain of Custody Filled Out:	☐Yes ☐No ☐N/A			
nain of Custody Relinquished:	□Yes □No □N/A			
ampler Name & Signature on COC:	□ res □ No □ N/A			
amples Arrived within Hold Time:	Yes ONO ON/A	T		
hort Hold Time Analysis (<72hr):	□Yes ☑No □N/A			
tush Turn Around Time Requested:	□Yes □No □N/A			
Sufficient Volume:	eres ONo ON/A	8.		
Correct Containers Used:	₽YES □NO □N/A	9.		:
-Pace Containers Used:	Dres Ono On/A	<u> </u>		
Containers Intact:	Yes ONO ON/A	A 10.		
Filtered volume received for Dissolved tests	□Yes □No ☑N//	A 11.		
Sample Labels match COC:	□Yes □No □N/	A 12.		
-Includes date/time/ID/Analysis Matrix:				· .
All containers needing preservation have been checked	d. B yes □no □n/	/A 13.		Ì
All containers needing preservation are found to be	in ☑Yes □No □N/	_{/A}		
compliance with EPA recommendation.		Initial when	Lot # of added	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	□Yes 🖾No	completed	preservative	
Samples checked for dechlorination:	☐Yes ☐No ☐M7	A 14.		
Headspace in VOA Vials (>6mm):	□Yes □No □N/	/A 15.		
Trip Blank Present:	□Yes □No □M	A 16.		
Trip Blank Custody Seals Present	□Yes □No ☑M	A		
Pace Trip Blank Lot # (if purchased):				
Client Notification/ Resolution:				
Person Contacted:	Date	o/Time.	Field Data Required?	Y / N
Comments/ Resolution:	Date	e/Time:		
				
				
Project Manager Review:				 -
			Date:	
lote: Mhan-				
lote: Whenever there is a discrepancy affecting Nor ertification Office (i.e. out of hold, incorrect	th Carolina compliance			
lote: Whenever there is a discrepancy affecting Nor ertification Office (i.e out of hold, incorrect preserva	th Carolina compliance sam tive, out of temp, incorrect	opples, a copy of this form	n will he so-t :	
Project Manager Review: Jose: Whenever there is a discrepancy affecting Nor entification Office (i.e. out of hold, incorrect preserve	th Carolina compliance sam tive, out of temp, incorrect	nples, a copy of this form Containers)	n will be sent to the North	



September 25, 2019

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

RE: Project: Plant Hammond AP GW6581

Pace Project No.: 2622403

Dear Joju Abraham:

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

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

Sincerely,

Betsy McDaniel

Beton M Damil

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

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



(770)734-4200



CERTIFICATIONS

Project: Plant Hammond AP GW6581

Pace Project No.: 2622403

Pennsylvania Certification IDs

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

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification

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

Delaware Certification EPA Region 4 DW Rad

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

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

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

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

Maine Certification #: 2017020 Maryland Certification #: 308

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

Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706

Ohio EPA Rad Approval: #41249 Oregon/TNI Certification #: PA200002-010 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

South Dakota Certification
Tennessee Certification #: 02867

North Dakota Certification #: R-190

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

Texas/TNI Certification #: T104704188-17-3

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





SAMPLE SUMMARY

Project: Plant Hammond AP GW6581

Pace Project No.: 2622403

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



SAMPLE ANALYTE COUNT

Project: Plant Hammond AP GW6581

Pace Project No.: 2622403

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



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond AP GW6581

Total Radium

Calculation

Pace Project No.: 2622403

Total Radium

Sample: HGWC-107 Lab ID: 2622403001 Collected: 08/23/19 09:35 Received: 08/26/19 18:30 Matrix: Water PWS: Site ID: Sample Type: Act ± Unc (MDC) Carr Trac **Parameters** Method Units Analyzed CAS No. Qual EPA 9315 $0.502 \pm 0.296 \quad (0.407)$ Radium-226 pCi/L 09/18/19 08:37 13982-63-3 C:90% T:NA EPA 9320 1.19 ± 0.482 (0.736) 09/20/19 11:54 15262-20-1 Radium-228 pCi/L C:74% T:73%

pCi/L

09/23/19 12:55 7440-14-4

1.69 ± 0.778 (1.14)



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond AP GW6581

Pace Project No.: 2622403

Sample: HGWC-109 Lab ID: 2622403002 Collected: 08/23/19 10:40 Received: 08/26/19 18:30 Matrix: Water PWS: Site ID: Sample Type: Act ± Unc (MDC) Carr Trac **Parameters** Method Units Analyzed CAS No. Qual EPA 9315 0.201 ± 0.209 (0.390) Radium-226 pCi/L 09/18/19 09:57 13982-63-3 C:91% T:NA EPA 9320 $0.269 \pm 0.262 \quad (0.531)$ 09/20/19 11:54 15262-20-1 Radium-228 pCi/L C:80% T:84% Total Radium **Total Radium** $0.470 \pm 0.471 \quad (0.921)$ pCi/L 09/24/19 10:31 7440-14-4 Calculation



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond AP GW6581

Pace Project No.: 2622403

QC Batch: 359964 Analysis Method: EPA 9315

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

Associated Lab Samples: 2622403001, 2622403002

METHOD BLANK: 1747386 Matrix: Water

Associated Lab Samples: 2622403001, 2622403002

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

Radium-226 0.204 ± 0.233 (0.472) C:94% T:NA pCi/L 09/18/19 08:31

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



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond AP GW6581

Pace Project No.: 2622403

QC Batch: 359966 Analysis Method: EPA 9320

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

Associated Lab Samples: 2622403001, 2622403002

METHOD BLANK: 1747390 Matrix: Water

Associated Lab Samples: 2622403001, 2622403002

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

Radium-228 0.232 ± 0.311 (0.664) C:77% T:89% pCi/L 09/20/19 11:52

Results presented on 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.: 2622403

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

Date: 09/25/2019 05:40 PM

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond AP GW6581

Pace Project No.: 2622403

Date: 09/25/2019 05:40 PM

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

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

Section A		Section B						V)	Section C	٥											ᆫ		-		1	r Ni
Required	Required Client Information:	Required Project Information:	ect Info	ormation:					nvoice	Invoice Information:	ation:											Page			ö	
Company	Georgia Power - Coal Combustion Residuals	Report To.	Joju Abr	Joju Abraham / Lauren Petty	rren Petty			Ì	Attention	Š	csinvo	oices(scsinvoices@southernco.com	Jerno	9.6	إرا										
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Phone		Project Name Plant Hammond AP	Pla	ant Hammo	nd AP			٦	ace Pr	Pace Project Manager	anager.		betsy mcdaniel@pacelabs.com,	daniel	pacol	abs.con			1		•	ö	State / Location	catton		
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of 12

Sample Condition Upon Receipt e: 09/25/19 CLIENT: GAPower-CCR Pace Analytical Client Name: Courier: Fed Ex UPS USPS Client Commercial Pace Other **Optional** Proj. Due Date: Tracking #: Proj. Name: Custody Seal on Cooler/Box Present: Seals intact: ☐ Other Bubble Bags None Packing Material: Bubble Wrap Samples on ice, cooling process has begun Type of Ice: (Wet_ ∕Blue None Thermometer Used Date and Initiats of person examining Biological Tissue is Frozen: Yes No contents: **Cooler Temperature** Comments: Temp should be above freezing to □Yes □No □N/A Chain of Custody Present: ☐Yes ☐No □N/A Chain of Custody Filled Out: □Yes □No □N/A 3. Chain of Custody Relinquished: ☐Yes ☐No □N/A Sampler Name & Signature on COC: ☑Yes □No Samples Arrived within Hold Time: □N/A □Yes ☑No □N/A Short Hold Time Analysis (<72hr): □Yes □No □N/A 7. Rush Turn Around Time Requested: ₽Yes □No □N/A 8. Sufficient Volume: HYES DNo □N/A |9. Correct Containers Used: Dres □No □N/A -Pace Containers Used: ☑Yes □No □N/A 10. Containers Intact: ☐Yes ☐No ØN/A 11. Filtered volume received for Dissolved tests ☐Yes ☐No Sample Labels match COC: □N/A 112. -Includes date/time/ID/Analysis All containers needing preservation have been checked. HYes Ono On/A 13. All containers needing preservation are found to be in ☑Yes □No □N/A compliance with EPA recommendation. Lot # of added Initial when ☐Yes ☐No preservative completed exceptions: VOA, coliform, TOC, O&G, WI-DRO (water) □Yes □No Samples checked for dechlorination: □Yes □No □N/A 15. Headspace in VOA Vials (>6mm): □Yes □No **□**M/A 16. Trip Blank Present: Trip Blank Custody Seals Present ☐Yes ☐No NY Pace Trip Blank Lot # (if purchased): Y / N Field Data Required? Client Notification/ Resolution: Person Contacted: Date/Time: Comments/ Resolution:

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)

Project Manager Review:

Date:





December 16, 2019

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

RE: Project: PLANT HAMMOND

Pace Project No.: 2624787

Dear Joju Abraham:

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

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

Sincerely,

Kevin Herring for Betsy McDaniel

Kein Slury

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

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







CERTIFICATIONS

Project: PLANT HAMMOND

Pace Project No.: 2624787

Pace Analytical Services Atlanta

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

Georgia DW Microbiology Certification #: 812

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





SAMPLE SUMMARY

Project: PLANT HAMMOND

Pace Project No.: 2624787

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



SAMPLE ANALYTE COUNT

Project: PLANT HAMMOND

Pace Project No.: 2624787

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



ANALYTICAL RESULTS

Project: PLANT HAMMOND

Pace Project No.: 2624787

Date: 12/16/2019 09:21 AM

Sample: HGWA-111	Lab ID:	2624787001	Collecte	ed: 10/21/19	15:45	Received: 10/	22/19 09:57 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Arsenic	ND	mg/L	0.0050	0.00035	1	10/28/19 20:04	10/29/19 20:48	7440-38-2	
Barium	0.033	mg/L	0.010	0.00049	1	10/28/19 20:04	10/29/19 20:48	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	10/28/19 20:04	10/29/19 20:48	7440-41-7	
Boron	0.0097J	mg/L	0.040	0.0049	1	10/28/19 20:04	10/29/19 20:48	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	10/28/19 20:04	10/29/19 20:48	7440-43-9	
Calcium	51.0	mg/L	5.0	0.55	50	10/28/19 20:04	10/29/19 20:54	7440-70-2	
Chromium	0.0012J	mg/L	0.010	0.00039	1	10/28/19 20:04	10/29/19 20:48	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	10/28/19 20:04	10/29/19 20:48	7440-48-4	
Lead	0.00016J	mg/L	0.0050	0.000046	1	10/28/19 20:04	10/29/19 20:48	7439-92-1	
Lithium	0.0026J	mg/L	0.030	0.00078	1	10/28/19 20:04	10/29/19 20:48	7439-93-2	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	187	mg/L	10.0	10.0	1		10/28/19 13:57		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	3.9	mg/L	1.0	0.024	1		10/29/19 19:03	16887-00-6	
Fluoride	0.12J	mg/L	0.30	0.029	1		10/29/19 19:03	16984-48-8	
Sulfate	1.8	mg/L	1.0	0.017	1		10/29/19 19:03	14808-79-8	



Project: PLANT HAMMOND

Pace Project No.: 2624787

QC Batch: 37696 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

Associated Lab Samples: 2624787001

METHOD BLANK: 171182 Matrix: Water

Associated Lab Samples: 2624787001

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

LABORATORY CONTROL SA	MPLE: 171183
-----------------------	--------------

Date: 12/16/2019 09:21 AM

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

MATRIX SPIKE & MATRIX	SPIKE DUPL	ICATE: 1711	84		171185							
		2624794002	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Arsenic	mg/L	0.0046J	0.1	0.1	0.097	0.098	93	93	75-125	0	20	
Barium	mg/L	0.35	0.1	0.1	0.46	0.46	108	109	75-125	0	20	
Beryllium	mg/L	0.000078J	0.1	0.1	0.090	0.091	90	91	75-125	1	20	
Boron	mg/L	1.1	1	1	1.9	1.9	78	81	75-125	1	20	
Cadmium	mg/L		0.1	0.1	0.086	0.085	86	85	75-125	1	20	
Calcium	mg/L	260	1	1	269	272	841	1200	75-125	1	20	
Chromium	mg/L	0.0019J	0.1	0.1	0.11	0.11	104	103	75-125	1	20	
Cobalt	mg/L	ND	0.1	0.1	0.095	0.094	95	94	75-125	1	20	
Lead	mg/L	ND	0.1	0.1	0.095	0.096	95	96	75-125	1	20	

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



Project: PLANT HAMMOND

Pace Project No.: 2624787

Date: 12/16/2019 09:21 AM

MATRIX SPIKE & MATRIX S	PIKE DUPLI	CATE: 1711	84		171185							
			MS	MSD								
		2624794002	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Lithium	ma/L	0.096	0.1	0.1	0.20	0.20	101	102	75-125	0	20	

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



Project: PLANT HAMMOND

Pace Project No.: 2624787

QC Batch: 37642 Analysis Method: SM 2540C

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

Associated Lab Samples: 2624787001

LABORATORY CONTROL SAMPLE: 170927

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

SAMPLE DUPLICATE: 170928

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

SAMPLE DUPLICATE: 170929

Date: 12/16/2019 09:21 AM

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

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



Project: PLANT HAMMOND

Pace Project No.: 2624787

Date: 12/16/2019 09:21 AM

QC Batch: 37730 Analysis Method: EPA 300.0

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

Associated Lab Samples: 2624787001

METHOD BLANK: 171248 Matrix: Water

Associated Lab Samples: 2624787001

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

LABORATORY CONTROL SAMPLE: 171249 Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers Chloride mg/L 10 10.5 105 90-110 Fluoride mg/L 10 10.8 108 90-110 Sulfate mg/L 10 10.5 105 90-110

MATRIX SPIKE & MATRIX S	PIKE DUPLI	CATE: 1712	50		171251							
			MS	MSD								
		2624505001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	57.2	20	20	75.8	74.8	93	88	90-110	1	15	M1
Fluoride	mg/L	1.7	20	20	20.7	21.6	95	100	90-110	4	15	
Sulfate	mg/L	ND	20	20	ND	ND	0	0	90-110		15	M1

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



QUALIFIERS

Project: PLANT HAMMOND

Pace Project No.: 2624787

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

Date: 12/16/2019 09:21 AM

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



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PLANT HAMMOND

Pace Project No.: 2624787

Date: 12/16/2019 09:21 AM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624787001	HGWA-111	EPA 3005A	37696	EPA 6020B	37751
2624787001	HGWA-111	SM 2540C	37642		
2624787001	HGWA-111	EPA 300.0	37730		

WO#: 2624788

nivouce information:
Attention: scsinvolces@southernco.com
Company Name:
Address:

Pace Quote:
Pace Project Manager: be

Lauren Petty, Geosyntec

Copy To:

Report To: Joju Abraham

Section B

Purchase Order #: SCS10382775 Project Name: Plant Hammond

2624787 WO#: 2624787

Page:

SAMPLE ID Selbole Signature of Character per box. (A.Z. 0.9 i) Sample Ids must be unique Tissue II	S S S S S S S S S S S S S S S S S S S	Olhet Methenol Methenol Macacoa HCI HOO3 HNO3 HOO4 HOO6 A Obe CONTAINERS	App. IV Metals (1) App. IV Metals (2, AP-4) App. IV Metals (2, AP-4) App. IV Metals (2, AP-4) App. IV Metals (2, AP-4) Redum 226/228 Residual Chlorine (Y/N)
		3/	
(1) App. III Metals = 8, Ca (2, AP-4) App. IV Metals = 4s, Ba. Be. Cd, Cr, Co. Pb. U	12/01 OSE JERRO 10/11	180 3= 1	884
	PRINT Name of SAMPLER: CLCA	LER: Chad RUSSO	DATE Signed: 0/21//Cd Cooler Cool



WO#: 2624787

PM: BM

Due Date: 10/29/19

CLIENT: GAPower-CCR

0#:2624788

: BM

Due Date: 11/19/19

IENT: GAPower-CCR

urier: Fed Ex UPS LIVSFS LIVER	. L'Ottimierda L		Enfouncing 1
acking #:	· .		Proj. Name:
istody Seal on Cooler/Box Present: yes			no x this are the transfer of
cking Material: Bubble Wrap Bubble			
nermometer Used THR 24	Type of Ice: Wet	Blue None	Samples on ice, cooling process has begun
poler Temperature	Biological Tissue is	Frozen: Yes No	Date and Initials of person examining contents:
mp should be above freezing to 6°C	C	omments:	
hain of Custody Present:	ØYes □No □N/A 1.		
hain of Custody Filled Out:	ØYes □No □N/A 2.		
hain of Custody Relinquished:	☑Yes □No □N/A 3	·	
ampler Name & Signature on COC:	ØYes □No □N/A 4		
amples Arrived within Hold Time:	ØYes □No □N/A 5	<u> </u>	
hort Hold Time Analysis (<72hr):	□Yes □No □N/A 6	4	
Rush Turn Around Time Requested:	□Yes ☑No □N/A 7		,
Sufficient Volume:	ØYes □No □N/A 8	3.	
Correct Containers Used:	ØYes □No □N/A S	Э.	
-Pace Containers Used:	☐Yes ☐No ☐N/A		
Containers Intact:	Yes ONO ONA	10	
Filtered volume received for Dissolved tests	□Yes □No ØN/A	11	
Sample Labels match COC:	Yes ONO ON/A	12.	
-Includes date/time/ID/Analysis Matrix:			
All containers needing preservation have been checked.	Yes ONO ON/A	13.	
All containers needing preservation are found to be in	Yes ONO ON/A		
compliance with EPA recommendation.	J2 (63 2.110 2.111)	Initial when	Lot # of added
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	□Yes □No	completed	preservative
Samples checked for dechlorination:	Yes ONO ON/A	14.	
Headspace in VOA Vials (>6mm):	□Yes □No ☑N/A	15.	
Trip Blank Present:	□Yes □No ☑NA	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:			
-			
	(.93)	*,	
		Đ	3000 W28
9			

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)





November 19, 2019

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

RE: Project: PLANT HAMMOND

Pace Project No.: 2624788

Dear Joju Abraham:

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

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

Sincerely,

Betsy McDaniel

Beton M Damil

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

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



(770)734-4200



CERTIFICATIONS

Project: PLANT HAMMOND

Pace Project No.: 2624788

Pace Analytical Services Pennsylvania

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

ANAB DOD-ELAP Rad Accreditation #: L2417

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

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

Delaware Certification EPA Region 4 DW Rad

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

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

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

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

Maine Certification #: 2017020 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991 Montana Certification #: Cert0082 Nebraska Certification #: NE-OS-29-14 Nevada Certification #: PA014572018-1 New Hampshire/TNI Certification #: 297617 New Jersey/TNI Certification #: PA051

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

Missouri Certification #: 235

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

South Dakota Certification
Tennessee Certification #: 02867

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

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





SAMPLE SUMMARY

Project: PLANT HAMMOND

Pace Project No.: 2624788

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624788001	HGWA-111	Water	10/21/19 15:45	10/22/19 09:57



SAMPLE ANALYTE COUNT

Project: PLANT HAMMOND

Pace Project No.: 2624788

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2624788001	HGWA-111	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA



Project: PLANT HAMMOND

Pace Project No.: 2624788

Sample: HGWA-111 Lab ID: 2624788001 Collected: 10/21/19 15:45 Received: 10/22/19 09:57 Matrix: Water PWS: Site ID: Sample Type: Method Act ± Unc (MDC) Carr Trac **Parameters** Units Analyzed CAS No. Qual EPA 9315 $0.351 \pm 0.311 \quad (0.591)$ Radium-226 pCi/L 11/15/19 08:32 13982-63-3 C:74% T:NA EPA 9320 -0.102 ± 0.278 (0.674) 11/12/19 12:15 15262-20-1 Radium-228 pCi/L C:77% T:90% Total Radium Total Radium 0.351 ± 0.589 (1.27) pCi/L 11/18/19 14:56 7440-14-4 Calculation



QUALITY CONTROL - RADIOCHEMISTRY

EPA 9320

Project: PLANT HAMMOND

Pace Project No.: 2624788

QC Batch: 369306

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

Associated Lab Samples: 2624788001

METHOD BLANK: 1791694 Matrix: Water

Associated Lab Samples: 2624788001

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

Analysis Method:

Radium-228 0.317 \pm 0.325 (0.673) C:79% T:91% pCi/L 11/12/19 12:14

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



QUALITY CONTROL - RADIOCHEMISTRY

Project: PLANT HAMMOND

Pace Project No.: 2624788

QC Batch: 369307

307 Analysis Method: EPA 9315

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

Associated Lab Samples: 2624788001

METHOD BLANK: 1791695 Matrix: Water

Associated Lab Samples: 2624788001

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

 Radium-226
 0.330 ± 0.234 (0.359) C:92% T:NA
 pCi/L
 11/15/19 08:32

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



QUALIFIERS

Project: PLANT HAMMOND

Pace Project No.: 2624788

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

Date: 11/19/2019 03:29 PM

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PLANT HAMMOND

Pace Project No.: 2624788

Date: 11/19/2019 03:29 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624788001	HGWA-111	EPA 9315	369307		
2624788001	HGWA-111	EPA 9320	369306		
2624788001	HGWA-111	Total Radium Calculation	371524		

(N/A) Samples (N/A) Cooler pelses Custody WO#: 2624787 (N/A) 8 Received on Residual Chlorine (Y/N) SALSPO TEMP in C 10.22.19 DATE Signed: 1 0/21/19 2 sadium 226/228 betsy.mcdaniel@pacelabs.com, D2' CI' E' 204 App. IV Metals (2, AP-4) (f) sisleM III .qq/ Poce Attention: scsinvolces@southernco.com Company Name: tadio MO#: 2624788 Nethanol N828203 Pace Quote:
Pace Project Manager: b
Pace Profile #: 327 (AP) SIGNATURE of SAMPLER: CLA RUNDE HOBM RUSSE HCI worce information: EONH HSSO4 1830 PRINT Name of SAMPLER: Chad Address: Unpreserved # OF CONTAINERS 154510 SAMPLE TEMP AT COLLECTION TIME SND 1535 19/21 DATE COLLECTED and cupost 900 TIME Lauren Petty, Geosyntec Purchase Order #: SCS10382775 Project Name: Plant Hammond Project #: Q\U 65 8 START Required Project Information: 6 192 Report To: Joju Abraham SAMPLE TYPE (G=GRAB C=COMP) MATRIX CODE (see valid codes to left) Section B Copy To: MATTRIX
Diricking Weber
Water
Waste Wafer
Product
Product
GallSolid
Oal
Whe
Ar
Ar
Cohee Georgia Power - Coal Combustion Residuals 2, AP-4) App. iV Metals = As, Ba, Be, Cd, Cr, Co. Pb, Li One Character per box. (A-Z, 0-9 /, -) Sample Ids must be unique SAMPLE ID Requested Due Date: Standag jabraham@southernco.com 2480 Maner Road HGWA-II (404)506-7239 Required Client Information: (1) App. Ill Metals = B, Ca Itlanta, GA 30339 # WBII



WO#: 2624787

PM: BN

Due Date: 10/29/19

CLIENT: GAPower-CCR

0#:2624788

: BM

Due Date: 11/19/19

IENT: GAPower-CCR

no Seals into Bags None Seals into Bags None None Seals into Bags None None Seals into Bags None None	Other Blue None Frozen: Yes No comments:	Proj. Name: Samples on ice, cooling process has begun Date and Initials of person examining contents:
Bags None C Type of Ice: Wet Biological Tissue is C Pres No N/A 1 Pres No N/A 2 Pres No N/A 3 Pres No N/A 4 Pres No N/A 5 Pres No N/A 6 Pres No N/A 6 Pres No N/A 7	Other Blue None Frozen: Yes No comments:	Samples on ice, cooling process has begun Date and Initials of person examining
Type of Ice: Wet Biological Tissue is C Yes No NA 1 Yes No NA 2 Yes No NA 3 Yes No NA 4 Yes No NA 5 Yes No NA 6 Yes No NA 6	Blue None Frozen: Yes No comments: 3. 4. 5.	Date and Initials of person examining
Biological Tissue is C Pres No N/A 1 Pres No N/A 2 Pres No N/A 3 Pres No N/A 4 Pres No N/A 5 Pres No N/A 6 Pres No N/A 7	Frozen: Yes No comments:	Date and Initials of person examining
C	somments: 3. 4. 5.	
No	3. 4. 5.	
No	5. 5. 6.	
No	3. 4. 5.	
Yes	5. 6.	
□Yes □No □N/A 5 □Yes □No □N/A 7	5. 6.	
OYes ONO ON/A (6.	
□Yes ☑No □N/A		
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FYES DNO DNIA	7	· · · · · · · · · · · · · · · · · · ·
2.00 2.10 2.11/1	8.	
ØYes □No □N/A	9.	
Yes No N/A		
ØYes □No □N/A	10.	
□Yes □No ☑N/A	11.	
Yes ONO ON/A	12.	
ØYes □No □N/A	13.	
No TNO TNA		
pares and angr	Initial when	Lot # of added
□Yes □No	completed	preservative
ØYes □No □N/A	14.	
□Yes □No ☑Ñ/A	15.	
□Yes □No □N/A	16.	
□Yes □No ☑N/A		
		*
		Field Data Required? Y / N
Date	e/Time:	
3		
ei 		
	· ·	3000 W28
		Date:
	Date	





November 21, 2019

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

RE: Project: Plant Hammond

Pace Project No.: 2624791

Dear Joju Abraham:

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

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

Sincerely,

Betsy McDaniel

Beton M Damil

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

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



(770)734-4200



CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2624791

Pace Analytical Services Pennsylvania

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

ANAB DOD-ELAP Rad Accreditation #: L2417

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

California Certification #: 04222CA Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification EPA Region 4 DW Rad

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

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

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

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

Maine Certification #: 2017020 Maryland Certification #: 308

KY WW Permit #: KY0000221

Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991 Montana Certification #: Cert0082 Nebraska Certification #: NE-OS-29-14 Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051 New Mexico Certification #: PA01457 New York/TNI Certification #: 10888 North Carolina Certification #: 42706 North Dakota Certification #: R-190

Missouri Certification #: 235

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

South Dakota Certification
Tennessee Certification #: 02867

Ohio EPA Rad Approval: #41249

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

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



SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2624791

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
2624791001	HGWC-101	Water	10/23/19 11:30	10/24/19 10:07	
2624791002	HGWC-102	Water	10/23/19 09:40	10/24/19 10:07	
2624791003	HGWC-105	Water	10/23/19 09:17	10/24/19 10:07	
2624791004	HGWC-103	Water	10/23/19 11:36	10/24/19 10:07	



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2624791

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2624791001	HGWC-101	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624791002	HGWC-102	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624791003	HGWC-105	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624791004	HGWC-103	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA



Project: Plant Hammond

Pace Project No.: 2624791

Sample: HGWC-101 PWS:	Lab ID: 26247910 Site ID:	Collected: 10/23/19 11:30 Sample Type:	Received:	10/24/19 10:07	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.182 ± 0.199 (0.390) C:90% T:NA	pCi/L	11/15/19 10:17	7 13982-63-3	
Radium-228		0.594 ± 0.484 (0.965) C:78% T:87%	pCi/L	11/12/19 17:49	9 15262-20-1	
Total Radium	Total Radium Calculation	0.776 ± 0.683 (1.36)	pCi/L	11/19/19 09:18	3 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2624791

Sample: HGWC-102 PWS:	Lab ID: 26247910 Site ID:	O2 Collected: 10/23/19 09:40 Sample Type:	Received:	10/24/19 10:07	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.252 ± 0.219 (0.392) C:93% T:NA	pCi/L	11/15/19 10:17	7 13982-63-3	
Radium-228		0.606 ± 0.539 (1.09) C:84% T:71%	pCi/L	11/12/19 17:49	9 15262-20-1	
Total Radium	Total Radium Calculation	$0.858 \pm 0.758 (1.48)$	pCi/L	11/19/19 09:18	3 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2624791

Sample: HGWC-105 PWS:	Lab ID: 26247910 Site ID:	O3 Collected: 10/23/19 09:17 Sample Type:	Received:	10/24/19 10:07	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.387 ± 0.259 (0.398) C:91% T:NA	pCi/L	11/15/19 10:17	7 13982-63-3	
Radium-228		0.197 ± 0.465 (1.03) C:82% T:78%	pCi/L	11/12/19 17:49	9 15262-20-1	
Total Radium	Total Radium Calculation	0.584 ± 0.724 (1.43)	pCi/L	11/19/19 09:18	3 7440-14-4	



Project: Plant Hammond

Pace Project No.: 2624791

Sample: HGWC-103 PWS:	Lab ID: 26247910 Site ID:	Collected: 10/23/19 11:36 Sample Type:	Received:	10/24/19 10:07	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.571 ± 0.291 (0.358) C:92% T:NA	pCi/L	11/15/19 10:17	7 13982-63-3	
Radium-228	EPA 9320	-0.102 ± 0.382 (0.914) C:85% T:85%	pCi/L	11/12/19 17:50	15262-20-1	
Total Radium	Total Radium Calculation	0.571 ± 0.673 (1.27)	pCi/L	11/19/19 09:18	3 7440-14-4	



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2624791

QC Batch: 369310 Analysis Method: EPA 9315

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

Associated Lab Samples: 2624791001, 2624791002, 2624791003, 2624791004

METHOD BLANK: 1791698 Matrix: Water

Associated Lab Samples: 2624791001, 2624791002, 2624791003, 2624791004

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

Radium-226 0.590 ± 0.307 (0.405) C:93% T:NA pCi/L 11/15/19 07:34

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



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2624791

QC Batch: 369311 Analysis Method: EPA 9320

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

Associated Lab Samples: 2624791001, 2624791002, 2624791003, 2624791004

METHOD BLANK: 1791699 Matrix: Water

Associated Lab Samples: 2624791001, 2624791002, 2624791003, 2624791004

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

Radium-228 0.174 \pm 0.362 (0.799) C:80% T:87% pCi/L 11/12/19 15:54

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



QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2624791

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

Date: 11/21/2019 05:23 PM

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2624791

Date: 11/21/2019 05:23 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624791001	HGWC-101	EPA 9315	369310		
2624791002	HGWC-102	EPA 9315	369310		
2624791003	HGWC-105	EPA 9315	369310		
2624791004	HGWC-103	EPA 9315	369310		
2624791001	HGWC-101	EPA 9320	369311		
2624791002	HGWC-102	EPA 9320	369311		
2624791003	HGWC-105	EPA 9320	369311		
2624791004	HGWC-103	EPA 9320	369311		
2624791001	HGWC-101	Total Radium Calculation	371617		
2624791002	HGWC-102	Total Radium Calculation	371617		
2624791003	HGWC-105	Total Radium Calculation	371617		
2624791004	HGWC-103	Total Radium Calculation	371617		

	alaijs = A.A., Bai, Bd., Cd. Cr., Co., Pb. Li		АВВИТОНЫ СОММЕНТВ					70.00 D. 00.00				/		101 C	Cme Character per box. Week (A.Z. 0-9 i -, -) Sample ids must be unique Tasse	SAMPLE ID WARD WHEN PROJECT SOMESOND OF	MATRIX Direktos	П	Date S Canada A A	PARKETS 7330 Fax		480 Mener Road	erous Power - Coal Combustion Residuals
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ITEM #

Pace Ana

MO#: 2624791

PN: BM

Due Date: 11/21/19

CLIENT: GAPower-CCR

Samples on Cooler/Box Present: yes	Courier: Fed E				ace Other	OLIE	MI: CHIOMET-COR	
Samples on ica cooling process has begun Debug Maria Subble	Tracking #:	125					Pmi Slanter	
Type of Ice: Wet Blue None Biological Tissue is Frozen: Yes No Comments: Content	Custody Seal on Cooler/Box Present: yes	☐ riō	2	Seals i	ntact: 🔲 yes			
Biological Tissue is Frozen: Yes No Comments: Detending ordering to 6°C Comments: Detending to 6°C Comments: Detending to 6°C Comments: Detending to 6°C Det	- 192	Bags [□ No	one [Other		-	
Cooler fremperature	Thermometer Used THR214	Type of	ice:	Wet	Blue None	□ sa		
comments: Chain of Custody Filled Out: Chain of Custody Filled Out: Chain of Custody Filled Out: Chain of Custody Filled Out: Chain of Custody Filled Out: Chain of Custody Relinquished: Comments: Chain of Custody Relinquished: Comments As Signature on COC: Comments As Signature on COC: Comments Analysis (72hr): Comments Analysis (72hr): Comment Containers Analysis (72hr): Comment Containers Used: Comments Intact: Comments In	Cooler Temperature	Biologi	ical Ti	issue i	s Frozen: Yes No			son examining
Chain of Custody Filled Out: Chain of Custody Relinquished: Chain of Custody Fill of Custody Relinquished: Chain of Custody	Temp should be above freezing to 6°C				Comments:	L		
Chain of Custody Relinquished: Ves No NA 4	Chain of Custody Present:	Ves [□No	□N/A	1			
Samples Name & Signature on COC: Prys No No. A. Samples Arrived within Hold Time: Pres No No. A. Samples Arrived within Hold Time: Pres No No. A. Short Hold Time Analysis (<72hr): Pres No No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. Pres No. No. A. Sufficient Volume: Pres No. Pres No	Chain of Custody Filled Out:	Z Yes !	□No	□N/A	2.			
Samples Arrived within Hold Time: Short Hold Time Analysis (<72hr): Short Hold Time Requested: Sufficient Volume: Correct Containers Used: Peoc Into Inva 11. Initial when completed preservative Initi	Chain of Custody Relinquished:	Z Yes	□No	□N/A	3			
Short Hold Time Analysis (<72hr):	Sampler Name & Signature on COC:	Ygs	□No	□n/a	4.			
Rush Turn Around Time Requested:	Samples Arrived within Hold Time:	Yes	□No	□n/a	5.			
Sufficient Volume: Ves No NA 8 -Pace Containers Used: Ves No NA -Pace Containers Used: Ves No NA -Pace Containers Intact: Ves No NA -Pace Containers Used: Ves No NA -Pace Containers Intact: Ves No Ves NA -Pace Containers Intact: Ves No Ves NA -Pace Containers Intact: Ves No NA -Pace Containers Intact: Ves No Ves NA -Pace Containers Intact: Ves No Ves NA -Pace Containers Intact: Ves No NA -Pace Containers Intact: Ves No Ves NA -Pace Containers Intact: Ves No NA -Pace Containers Intact: Ves No NA -Pace Containers Intact: Ves No NA -Pace Containers Intact: Ves No NA -Pace Containers Intact: Ves No NA -Pace Containers Intact: Ves No NA -Pace Containers Intact: Ves NA -Pace Containers Intact: Ves NA -Pace Containers Intact: Ves NA -Pace Containers Intact: Ves NA -Pace Containers In	Short Hold Time Analysis (<72hr):	□Yes		□n/a	6.		32333	
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Pace Containers Used: Yes No NNA	Sufficient Volume:	ØŶes	□No	□n/a	8.			
Containers Intact:	Correct Containers Used:	Yes	□No	□n/a	9.			
Filtered volume received for Dissolved tests Mes No N/A 11.	-Pace Containers Used:	Yes	□No	□n/a	E G		7/6	
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: All containers needing preservation have been checked. All containers needing preservation are found to be in compliance with EPA recommendation. All containers needing preservation are found to be in compliance with EPA recommendation:	Containers Intact:	Zyes	□No	□n/a	10.		10 1000	
-Includes date/time/ID/Analysis Matrix: All containers needing preservation have been checked. All containers needing preservation are found to be in compliance with EPA recommendation. All containers needing preservation are found to be in compliance with EPA recommendation. All containers needing preservation are found to be in compliance with EPA recommendation. Yes No Initial when Lot # of added preservative Initial when Completed Initial when Completed Preservative Initial when Completed Initial when Completed Initial when Completed Initial when Completed In	Filtered volume received for Dissolved tests	□/es	□No	□N/A	11.			
All containers needing preservation have been checked.	Sample Labels match COC:	□∕es	□No	□n/a	12.			
All containers needing preservation are found to be in compliance with EPA recommendation. Yes No N/A	-Includes date/time/ID/Analysis Matrix:							100.000 VV
compliance with EPA recommendation. Yes No Initial when Lot # of added preservative	All containers needing preservation have been checked.		□No	□n/a	13.			
Initial when Commendation: Yes No Initial when Completed Init	All containers needing preservation are found to be in	Dives	□No	□n/a	16			
Acceptions: VOA, coliform, TOC, O&G, WI-DRO (water) Yes No Completed preservative Samples checked for dechlorination: Yes No ONA 14. Headspace in VOA Vials (>6mm): Yes No ONA 15. Trip Blank Present: Yes No ONA 16. Trip Blank Custody Seals Present Yes No ONA 16. Trip Blank Lot # (if purchased): Client Notification/ Resolution: Person Contacted: Date/Time: Comments/ Resolution: 3000 W28	compliance with EPA recommendation.	7.55			Initial when	- 1	ot # of added	
Headspace in VOA Vials (>6mm):	exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	□Yes	□No		1.00	- 1		
Trip Blank Present: Yes No Inc. Inc	Samples checked for dechlorination:	□Yes	□No	ØN/A	14.			
Trip Blank Custody Seals Present	Headspace in VOA Vials (>6mm):	□Yes	□No	N/A	15.			
Pace Trip Blank Lot # (if purchased): Client Notification/ Resolution: Person Contacted: Date/Time: Comments/ Resolution: 3000 W28	Trip Blank Present:	□Yes	□No	ØN/A	16.			
Client Notification/ Resolution: Person Contacted: Date/Time: Comments/ Resolution: 3000 W28	Trip Blank Custody Seals Present	□Yes	□No	DA/A			*:	
Person Contacted: Date/Time: Comments/ Resolution:	Pace Trip Blank Lot # (if purchased):	_			# c = = -2	<i>g</i> ; = -		
Person Contacted: Date/Time: Comments/ Resolution:	Client Notification/ Resolution:	-34					Field Data Required?	Y / N
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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)

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

			П	(2, HGWC-	(S) App (B)		12	2	5	9	0	7	•	6	•	٥	2	13 T	ITEM#		Requeste	Phone	Email J	Atlanta GA 30339	Company	Required
				(2, HGWC-102) App 7V Metalis = Sb. As, Ba, Ba, Cd. Cr. Co, Pb. Li, Hg, Mo, Se, Ta	Melals = 8, Ca	ADDITIONAL COMMENTS										/	/	# CO 1.02	SAMPLE ID SAMPLE ID One Character per box. (A-Z, 0-9 /, -) Sample lds must be unique 11999	alvee .	Requested Due Date:	06-7239 Fax	jabraham@eouthernco.com	A 30339	George Power - Coal Combustion Residuals	₽
				_	_	METER								/			0.135.03	ξe	MATRIX CODE (see valid code	co om es lo left)	Project Could 581	Project Name	Purchase Order #	Capt to Came	1	Section B Required Project Information;
SiG SiG	74	Paging			and Kungo 1900	RELINGUISHED BY I AFFILIATION							/	/				61423 0917	SAMPLE TYPE (G=GRAB C=		58	Plant Hammond	SCS10382775	Cauten Perly, Geosymaec	Joju Abraham	nformation;
SIGNATURE of SAMPLER	PRINT Name of SAMPLER	MUSTER NAME AND SIGNATURE			0 W23	ON DATE							&					1423 OH40 1	DATE MND MND	COLLECTED						
Sand R	Chad				00E	1					/	10/43/	8		1			741 3	# OF CONTAINERS Unpreserved H2SO4 HNO3		Pace Profile #	Pace Project Manager	Pace Quote	Company Name	Attention scu	Section C Invoice Information
aso	12USSO				1	ACCEPTED			100	/		3//19							HCI NeOH Ne2S2O3 Methanol Other	Preservatives	327 (AP)	betsy mo:			всинчоковорноминеноо	on
DATE Signi	11)		. 1		12 mc	D BY I AFFILIATION												7777	Analyses Test App III Metals (1) App IV Metals (2, HGWC-102) TDS, CI, F, SO4 Radium 226/228	NIN N N N N N N		laniel@pacelabs.com,			50 COM	
DATE Signed: 10/27/19		\$ 15 May 10			1, 31	DATE				10									Page 2012				NAME OF TAXABLE PARTY.	010		
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CHAIN-OF- STODY / 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: SKGNATURE of SAMPLER:	Wad Rubas / 400 10/23	*	RELINGUISHED BY , ARPLIATION DATE					17.01	10.20			21.01 May 2011 May 9 5	23	MATRIX CODE (see valid co	COOM des to left)		Project LWKC 91	1 %			Report To: Joju Abraham	Section B Required Project Information:
PLER DAN GERBS DATE Signed: 10-23	3 1200 3 1 1 1 100 10		TIME ACCEPTED BY / JAMES, ATTOM										841 3 1 1 1 1 1 1	SAMPLE TEMP AT COLLECT # OF CONTAINERS Unpreserved H2SO4 HNO3 HCI NaOH Na2S2O3 Methenol Other App III Metals (1) App IV Metals (2, AP-4) TOS, CL F, SO4 Radium 226/228	Preservatives S N N N N	Requested Analysis	Page Profile # 337 July Page P	П	Address	Сопраку Name	cessificacidhemico	Section C Invoice information:
TEMP in C Received on ico O'M' Custody Sealed Cooler (Y/N) Samples inlact (Y/N)	4,6	3 13 /2	The SAMPLE CONCINONS									2,	*	Residual Chlorine (Y/N)		Filtered (2018)	State: / Location		Regulation Agency		S S	'n





March 12, 2020

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

RE: Project: Plant Hammond

Pace Project No.: 2624792

Dear Joju Abraham:

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

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

Sincerely,

Kevin Herring for Betsy McDaniel

Kein Slury

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

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







CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2624792

Pace Analytical Services Atlanta

110 Technology Parkway Peachtree Corners, GA 30092

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

Virginia Certification #: 460204



SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2624792

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
2624792001	HGWC-101	Water	10/23/19 11:30	10/24/19 10:07	
2624792002	HGWC-102	Water	10/23/19 09:40	10/24/19 10:07	
2624792003	HGWC-105	Water	10/23/19 09:17	10/24/19 10:07	
2624792004	HGWC-103	Water	10/23/19 11:36	10/24/19 10:07	



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2624792

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2624792001	HGWC-101	EPA 6020B	CSW	10
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624792002	HGWC-102	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624792003	HGWC-105	EPA 6020B	CSW	10
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624792004	HGWC-103	EPA 6020B	CSW	10
		SM 2540C	MZP	1
		EPA 300.0	MWB	3



Project: Plant Hammond

Pace Project No.: 2624792

Date: 03/12/2020 09:08 AM

Sample: HGWC-101	Lab ID:	2624792001	Collecte	ed: 10/23/19	11:30	Received: 10/	24/19 10:07 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Arsenic	ND	mg/L	0.0050	0.00035	1	11/01/19 16:00	11/04/19 02:50	7440-38-2	
Barium	0.043	mg/L	0.010	0.00049	1	11/01/19 16:00	11/04/19 02:50	7440-39-3	
Beryllium	0.000075J	mg/L	0.0030	0.000074	1	11/01/19 16:00	11/04/19 13:31	7440-41-7	
Boron	0.10	mg/L	0.040	0.0049	1	11/01/19 16:00	11/04/19 02:50	7440-42-8	
Cadmium	0.00020J	mg/L	0.0025	0.00011	1	11/01/19 16:00	11/04/19 02:50	7440-43-9	
Calcium	21.9	mg/L	5.0	0.55	50	11/01/19 16:00	11/04/19 02:55	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	11/01/19 16:00	11/04/19 02:50	7440-47-3	
Cobalt	0.0023J	mg/L	0.0050	0.00030	1	11/01/19 16:00	11/04/19 02:50	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	11/01/19 16:00	11/04/19 02:50	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	11/01/19 16:00	11/04/19 13:31	7439-93-2	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	221	mg/L	10.0	10.0	1		10/29/19 13:16		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	5.5	mg/L	1.0	0.024	1		10/31/19 06:50	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		10/31/19 06:50	16984-48-8	
Sulfate	101	mg/L	10.0	0.17	10		10/31/19 17:35	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2624792

Date: 03/12/2020 09:08 AM

Sample: HGWC-102	Lab ID:	2624792002	Collecte	ed: 10/23/19	09:40	Received: 10/	24/19 10:07 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	11/01/19 16:00	11/04/19 03:01	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	11/01/19 16:00	11/04/19 03:01	7440-38-2	
Barium	0.037	mg/L	0.010	0.00049	1	11/01/19 16:00	11/04/19 03:01	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	11/01/19 16:00	11/04/19 13:37	7440-41-7	
Boron	3.1	mg/L	0.040	0.0049	1	11/01/19 16:00	11/04/19 03:01	7440-42-8	
Cadmium	0.00026J	mg/L	0.0025	0.00011	1	11/01/19 16:00	11/04/19 03:01	7440-43-9	
Calcium	136	mg/L	5.0	0.55	50	11/01/19 16:00	11/04/19 03:07	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	11/01/19 16:00	11/04/19 03:01	7440-47-3	
Cobalt	0.0018J	mg/L	0.0050	0.00030	1	11/01/19 16:00	11/04/19 03:01	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	11/01/19 16:00	11/04/19 03:01	7439-92-1	
_ithium	0.0012J	mg/L	0.030	0.00078	1	11/01/19 16:00	11/04/19 13:37	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	11/01/19 16:00	11/04/19 03:01	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	11/01/19 16:00	11/04/19 03:01	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	11/01/19 16:00	11/04/19 03:01	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	10/29/19 09:50	10/29/19 16:05	7439-97-6	
2540C Total Dissolved Solids	Analytical	Method: SM 2	2540C						
Total Dissolved Solids	736	mg/L	10.0	10.0	1		10/29/19 13:16		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	7.9	mg/L	1.0	0.024	1		10/31/19 07:13	16887-00-6	
Fluoride	0.22J	mg/L	0.30	0.029	1		10/31/19 07:13		
Sulfate	ND	mg/L	1.0	0.017	1		10/31/19 07:13		



Project: Plant Hammond

Pace Project No.: 2624792

Date: 03/12/2020 09:08 AM

Sample: HGWC-105	Lab ID:	2624792003	Collecte	ed: 10/23/19	9 09:17	Received: 10/	24/19 10:07 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Arsenic	ND	mg/L	0.0050	0.00035	1	11/01/19 16:00	11/04/19 03:24	7440-38-2	
Barium	0.066	mg/L	0.010	0.00049	1	11/01/19 16:00	11/04/19 03:24	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	11/01/19 16:00	11/04/19 13:42	7440-41-7	
Boron	1.3	mg/L	0.040	0.0049	1	11/01/19 16:00	11/04/19 13:42	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	11/01/19 16:00	11/04/19 03:24	7440-43-9	
Calcium	89.4	mg/L	5.0	0.55	50	11/01/19 16:00	11/04/19 03:30	7440-70-2	
Chromium	0.00040J	mg/L	0.010	0.00039	1	11/01/19 16:00	11/04/19 03:24	7440-47-3	
Cobalt	0.00038J	mg/L	0.0050	0.00030	1	11/01/19 16:00	11/04/19 03:24	7440-48-4	
Lead	0.000068J	mg/L	0.0050	0.000046	1	11/01/19 16:00	11/04/19 03:24	7439-92-1	
Lithium	0.0039J	mg/L	0.030	0.00078	1	11/01/19 16:00	11/04/19 13:42	7439-93-2	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	419	mg/L	10.0	10.0	1		10/29/19 13:16		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	3.6	mg/L	1.0	0.024	1		10/31/19 07:35	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		10/31/19 07:35	16984-48-8	
Sulfate	162	mg/L	10.0	0.17	10		10/31/19 17:58	14808-79-8	



Project: Plant Hammond

Pace Project No.: 2624792

Date: 03/12/2020 09:08 AM

Sample: HGWC-103	Lab ID:	2624792004	Collecte	ed: 10/23/19	11:36	Received: 10/	24/19 10:07 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Arsenic	ND	mg/L	0.0050	0.00035	1	11/01/19 16:00	11/04/19 03:35	7440-38-2	
Barium	0.039	mg/L	0.010	0.00049	1	11/01/19 16:00	11/04/19 03:35	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	11/01/19 16:00	11/04/19 13:48	7440-41-7	
Boron	2.3	mg/L	0.040	0.0049	1	11/01/19 16:00	11/04/19 13:48	7440-42-8	
Cadmium	0.00091J	mg/L	0.0025	0.00011	1	11/01/19 16:00	11/04/19 03:35	7440-43-9	
Calcium	86.5	mg/L	5.0	0.55	50	11/01/19 16:00	11/04/19 03:41	7440-70-2	
Chromium	0.0015J	mg/L	0.010	0.00039	1	11/01/19 16:00	11/04/19 03:35	7440-47-3	
Cobalt	0.0021J	mg/L	0.0050	0.00030	1	11/01/19 16:00	11/04/19 03:35	7440-48-4	
Lead	0.00043J	mg/L	0.0050	0.000046	1	11/01/19 16:00	11/04/19 03:35	7439-92-1	
Lithium	0.0020J	mg/L	0.030	0.00078	1	11/01/19 16:00	11/04/19 13:48	7439-93-2	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	507	mg/L	10.0	10.0	1		10/29/19 13:16		
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Chloride	6.1	mg/L	1.0	0.024	1		10/31/19 07:57	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		10/31/19 07:57	16984-48-8	
Sulfate	248	mg/L	10.0	0.17	10		10/31/19 18:20	14808-79-8	



Project:

Plant Hammond

Pace Project No.:

2624792

QC Batch:

37720

QC Batch Method: EPA 7470A Analysis Method:

EPA 7470A

Analysis Description:

7470 Mercury

Associated Lab Samples: 2624792002

METHOD BLANK: 171214

Matrix: Water

Associated Lab Samples:

2624792002

Blank

Reporting

Parameter

Units

mg/L

Units

mg/L

Result

Result ND Limit 0.00050 MDL 0.00014 10/29/19 15:19

MS

% Rec

Analyzed

Qualifiers

LABORATORY CONTROL SAMPLE:

Parameter

Parameter

Date: 03/12/2020 09:08 AM

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

Spike Conc.

0.0025

LCS Result

LCS % Rec % Rec Limits

Qualifiers

171216

171217

MSD

MS 2624786001 Spike

Spike

MSD Result MSD

80-120

% Rec

Max

RPD

Qual

Mercury

Mercury

Mercury

mg/L

Units

Conc. Conc.

MS Result 0.0027

0.0026

0.0025

105

% Rec

Limits

RPD

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.



Project: Plant Hammond

Pace Project No.: 2624792

Date: 03/12/2020 09:08 AM

QC Batch: 38024 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

Associated Lab Samples: 2624792001, 2624792002, 2624792003, 2624792004

METHOD BLANK: 172889 Matrix: Water
Associated Lab Samples: 2624792001, 2624792002, 2624792003, 2624792004

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	11/04/19 01:12	
Arsenic	mg/L	ND	0.0050	0.00035	11/04/19 01:12	
Barium	mg/L	ND	0.010	0.00049	11/04/19 01:12	
Beryllium	mg/L	ND	0.0030	0.000074	11/04/19 01:12	
Boron	mg/L	0.0059J	0.040	0.0049	11/04/19 01:12	
Cadmium	mg/L	ND	0.0025	0.00011	11/04/19 01:12	
Calcium	mg/L	ND	0.10	0.011	11/04/19 01:12	
Chromium	mg/L	ND	0.010	0.00039	11/04/19 01:12	
Cobalt	mg/L	ND	0.0050	0.00030	11/04/19 01:12	
Lead	mg/L	ND	0.0050	0.000046	11/04/19 01:12	
Lithium	mg/L	ND	0.030	0.00078	11/04/19 01:12	
Molybdenum	mg/L	ND	0.010	0.00095	11/04/19 01:12	
Selenium	mg/L	ND	0.010	0.0013	11/04/19 01:12	
Thallium	mg/L	ND	0.0010	0.000052	11/04/19 01:12	

LABORATORY CONTROL SAMPLE:	172890					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	mg/L	0.1	0.11	107	80-120	
Arsenic	mg/L	0.1	0.10	100	80-120	
Barium	mg/L	0.1	0.10	103	80-120	
Beryllium	mg/L	0.1	0.11	114	80-120	
Boron	mg/L	1	1.2	116	80-120	
Cadmium	mg/L	0.1	0.11	106	80-120	
Calcium	mg/L	1	1.1	106	80-120	
Chromium	mg/L	0.1	0.10	105	80-120	
Cobalt	mg/L	0.1	0.10	104	80-120	
Lead	mg/L	0.1	0.10	102	80-120	
Lithium	mg/L	0.1	0.11	112	80-120	
Molybdenum	mg/L	0.1	0.10	103	80-120	
Selenium	mg/L	0.1	0.10	101	80-120	
Thallium	mg/L	0.1	0.10	103	80-120	

MATRIX SPIKE & MATRIX SI	PIKE DUPL	ICATE: 1728	91		172892							
		2624772007	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.11	0.10	106	104	75-125	2	20	

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



Project: Plant Hammond

Pace Project No.: 2624792

Date: 03/12/2020 09:08 AM

MATRIX SPIKE & MATRIX	SPIKE DUPL	ICATE: 1728	• •		172892							
		2624772007	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Arsenic	mg/L	2.5	0.1	0.1	2.6	2.6	43	106	75-125	2	20	M6
Barium	mg/L	0.22	0.1	0.1	0.32	0.31	99	98	75-125	0	20	
Beryllium	mg/L	ND	0.1	0.1	0.090	0.086	90	86	75-125	5	20	
Boron	mg/L	4.3	1	1	5.1	5.2	85	95	75-125	2	20	
Cadmium	mg/L	0.00012J	0.1	0.1	0.11	0.10	107	103	75-125	4	20	
Calcium	mg/L	177	1	1	170	179	-693	243	75-125	5	20	M6
Chromium	mg/L	ND	0.1	0.1	0.099	0.097	99	97	75-125	2	20	
Cobalt	mg/L	ND	0.1	0.1	0.097	0.096	97	96	75-125	0	20	
Lead	mg/L	ND	0.1	0.1	0.092	0.090	92	90	75-125	2	20	
Lithium	mg/L	0.29	0.1	0.1	0.36	0.36	73	75	75-125	1	20	M1
Molybdenum	mg/L	0.49	0.1	0.1	0.58	0.60	89	105	75-125	3	20	
Selenium	mg/L	ND	0.1	0.1	0.10	0.10	100	100	75-125	0	20	
Thallium	mg/L	ND	0.1	0.1	0.093	0.092	93	92	75-125	2	20	

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



Project:

Plant Hammond

Pace Project No.:

2624792

QC Batch:

37735

Analysis Method:

SM 2540C

QC Batch Method:

SM 2540C

Analysis Description:

2540C Total Dissolved Solids

Associated Lab Samples:

2624792001, 2624792002, 2624792003, 2624792004

LABORATORY CONTROL SAMPLE:

Parameter

Parameter

Spike Conc. LCS

LCS % Rec % Rec Limits

Qualifiers

Total Dissolved Solids

Units mg/L

Result 400

212

402

100

10

SAMPLE DUPLICATE: 171264

2624800005 Units

Dup Result RPD

0

Max RPD

84-108

Qualifiers

Total Dissolved Solids

2624792004 Result

Dup Result

RPD

Max

Qualifiers

SAMPLE DUPLICATE:

Date: 03/12/2020 09:08 AM

171265

Parameter **Total Dissolved Solids**

Units mg/L

mg/L

507

Result

512

212

RPD 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.: 2624792

Date: 03/12/2020 09:08 AM

QC Batch: 37870 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions

Associated Lab Samples: 2624792001, 2624792002, 2624792003, 2624792004

METHOD BLANK: 171906 Matrix: Water
Associated Lab Samples: 2624792001, 2624792002, 2624792003, 2624792004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.024	10/31/19 04:37	
Fluoride	mg/L	ND	0.30	0.029	10/31/19 04:37	
Sulfate	mg/L	ND	1.0	0.017	10/31/19 04:37	

LABORATORY CONTROL SAMPLE:	171907					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Chloride	mg/L		4.8	96	90-110	
Fluoride	mg/L	5	5.0	101	90-110	
Sulfate	mg/L	5	5.1	101	90-110	

MATRIX SPIKE & MATRIX SP	IKE DUPL	ICATE: 1719	800		171909							
			MS	MSD								
		2624786002	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	3.2	10	10	13.0	13.2	97	100	90-110	2	15	
Fluoride	mg/L	0.56	10	10	10.6	10.9	100	103	90-110	3	15	

MATRIX SPIKE SAMPLE:	171910						
		2624800005	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Chloride	mg/L	4.6	10	14.7	101	90-110	
Fluoride	mg/L	0.099J	10	10.6	105	90-110	
Sulfate	mg/L	23.2	10	28.2	50	90-110 N	l1

Results presented on 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.: 2624792

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

Date: 03/12/2020 09:08 AM

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

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



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2624792

Date: 03/12/2020 09:08 AM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624792001	HGWC-101	EPA 3005A	38024	EPA 6020B	38049
2624792002	HGWC-102	EPA 3005A	38024	EPA 6020B	38049
2624792003	HGWC-105	EPA 3005A	38024	EPA 6020B	38049
2624792004	HGWC-103	EPA 3005A	38024	EPA 6020B	38049
2624792002	HGWC-102	EPA 7470A	37720	EPA 7470A	37761
2624792001	HGWC-101	SM 2540C	37735		
2624792002	HGWC-102	SM 2540C	37735		
2624792003	HGWC-105	SM 2540C	37735		
2624792004	HGWC-103	SM 2540C	37735		
2624792001	HGWC-101	EPA 300.0	37870		
2624792002	HGWC-102	EPA 300.0	37870		
2624792003	HGWC-105	EPA 300.0	37870		
2624792004	HGWC-103	EPA 300.0	37870		

П	12 AP-41 A	(I) App III	N. C. S. S. S. S. S. S. S. S. S. S. S. S. S.	12	11	ā		7	6	en.	•	u	2		ITEM#		Requester	Phone	l'a	Address	Required
	2. AP-4] App. IV Melais = Au, Bu, Be, Ce, Ce, Pe, Li	1) App III Metals = 8, Ca	урошому сомиемы											HGWC-101	box. unique			(404)505-7239 Fax	MA, GA 30339	2480 Maner Road	1₽
		and curas	MODIFIER						1					S	Water Williams Willia	des to left)		Project Name Plan		Capy To	Required P
SAMPLER WA		0/1900	ELINGRIBACIO BY LAFFILLATION					1	_					0.	START E	СОІЛЕСТЕР	13	SCS10382775		Lauren Pully, Geosyntec	2624792vice info
PRINT Name of SAMPLER Chad		(423	OATE						9					23 1130 19	TIME SAMPLE TEMP AT COLLECT						1000
10000		8	Time					6/23/1		2				4	# OF CONTAINERS Unpreserved H2SO4	-	Pace Profile #	Pace Quote	Address	Attention so	vive information
80 RUS		4	ACCE.					1	3					3	HNO3 HCI NaOH Na2S2O3	Preservatives	327 (AP)	11		sosinyoloes@south	mation:
		Pasa	NOLLWILLIAM AND THE ORIGINAL			<u> </u>								ý	Methanol Other Analyses Test App III Metals (1)	YM Z	у починавирасти			heimoo com	
DATE Signed:			MOIN		/									$\overline{\mathbf{x}}$	App IV Metals (2, AP-4) TDS, CL F, SO4 Redium 226/228	S S D	Haps com,				
		_	DATE	1												-					
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Pace Ana

MO#: 2624791

PN: BM

Due Date: 11/21/19

CLIENT: GAPower-CCR

Samples on Cooler/Box Present: yes	Courier: Fed E				ace Other	OLIE	MI: CHIOMET-COR	
Samples on ica cooling process has begun Debug Maria Subble	Tracking #:	125					Pmi Slanter	
Type of Ice: Wet Blue None Biological Tissue is Frozen: Yes No Comments: Content	Custody Seal on Cooler/Box Present: yes	☐ riō	2	Seals i	ntact: 🔲 yes			
Biological Tissue is Frozen: Yes No Comments: Detending ordering to 6°C Comments: Detending to 6°C Comments: Detending to 6°C Comments: Detending to 6°C Det	- 192	Bags [□ No	one [Other		-	
Cooler fremperature	Thermometer Used THR214	Type of	ice:	Wet	Blue None	□ sa		
comments: Chain of Custody Filled Out: Chain of Custody Filled Out: Chain of Custody Filled Out: Chain of Custody Filled Out: Chain of Custody Filled Out: Chain of Custody Relinquished: Comments: Chain of Custody Relinquished: Comments As Signature on COC: Comments As Signature on COC: Comments Analysis (72hr): Comments Analysis (72hr): Comment Containers Analysis (72hr): Comment Containers Used: Comments Intact: Comments In	Cooler Temperature	Biologi	ical Ti	issue i	s Frozen: Yes No			son examining
Chain of Custody Filled Out: Chain of Custody Relinquished: Chain of Custody Fill of Custody Relinquished: Chain of Custody	Temp should be above freezing to 6°C				Comments:	L		
Chain of Custody Relinquished: Ves No NA 4	Chain of Custody Present:	Ves [□No	□N/A	1			
Samples Name & Signature on COC: Prys No No. A. Samples Arrived within Hold Time: Pres No No. A. Samples Arrived within Hold Time: Pres No No. A. Short Hold Time Analysis (<72hr): Pres No No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. No. A. Sufficient Volume: Pres No. Pres No. No. A. Sufficient Volume: Pres No. Pres No	Chain of Custody Filled Out:	Z Yes !	□No	□N/A	2.			
Samples Arrived within Hold Time: Short Hold Time Analysis (<72hr): Short Hold Time Requested: Sufficient Volume: Correct Containers Used: Peoc Into Inva 11. Initial when completed preservative Initi	Chain of Custody Relinquished:	Z Yes	□No	□N/A	3			
Short Hold Time Analysis (<72hr):	Sampler Name & Signature on COC:	Ygs	□No	□n/a	4.			
Rush Turn Around Time Requested:	Samples Arrived within Hold Time:	Yes	□No	□n/a	5.			
Sufficient Volume: Ves No NA 8 -Pace Containers Used: Ves No NA -Pace Containers Used: Ves No NA -Pace Containers Intact: Ves No NA -Pace Containers Used: Ves No NA -Pace Containers Intact: Ves No Ves NA -Pace Containers Intact: Ves No Ves NA -Pace Containers Intact: Ves No NA -Pace Containers Intact: Ves No Ves NA -Pace Containers Intact: Ves No Ves NA -Pace Containers Intact: Ves No NA -Pace Containers Intact: Ves No Ves NA -Pace Containers Intact: Ves No NA -Pace Containers Intact: Ves No NA -Pace Containers Intact: Ves No NA -Pace Containers Intact: Ves No NA -Pace Containers Intact: Ves No NA -Pace Containers Intact: Ves No NA -Pace Containers Intact: Ves NA -Pace Containers Intact: Ves NA -Pace Containers Intact: Ves NA -Pace Containers Intact: Ves NA -Pace Containers In	Short Hold Time Analysis (<72hr):	□Yes		□n/a	6.		32333	
Correct Containers Used: Pace Containers Used: Pace Containers Used: Pace Containers Intact: Containers Intaction Into Into Into Into Into Into Into In	Rush Turn Around Time Requested:	□Yes	ØN₀	□N/A	7.	- 25 5	4	
Pace Containers Used: Yes No NNA	Sufficient Volume:	Ø Ŷes	□No	□n/a	8.			
Containers Intact:	Correct Containers Used:	Yes	□No	□n/a	9.			
Filtered volume received for Dissolved tests Mes No N/A 11.	-Pace Containers Used:	Yes	□No	□n/a	E G		7/6	
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: All containers needing preservation have been checked. All containers needing preservation are found to be in compliance with EPA recommendation. All containers needing preservation are found to be in compliance with EPA recommendation:	Containers Intact:	Zyes	□No	□n/a	10.		10 1000	
-Includes date/time/ID/Analysis Matrix: All containers needing preservation have been checked. All containers needing preservation are found to be in compliance with EPA recommendation. All containers needing preservation are found to be in compliance with EPA recommendation. All containers needing preservation are found to be in compliance with EPA recommendation. Yes No Initial when Lot # of added preservative Initial when Completed Initial when Completed Preservative Initial when Completed Initial when Completed Initial when Completed Initial when Completed In	Filtered volume received for Dissolved tests	□/es	□No	□N/A	11.			
All containers needing preservation have been checked.	Sample Labels match COC:	□∕es	□No	□n/a	12.			
All containers needing preservation are found to be in compliance with EPA recommendation. Yes No N/A	-Includes date/time/ID/Analysis Matrix:							100.000 VV
compliance with EPA recommendation. Yes No Initial when Lot # of added preservative	All containers needing preservation have been checked.		□No	□n/a	13.			
Initial when Commendation: Yes No Initial when Completed Init	All containers needing preservation are found to be in	Dives	□No	□n/a	15			
Acceptions: VOA, coliform, TOC, O&G, WI-DRO (water) Yes No Completed preservative Samples checked for dechlorination: Yes No ONA 14. Headspace in VOA Vials (>6mm): Yes No ONA 15. Trip Blank Present: Yes No ONA 16. Trip Blank Custody Seals Present Yes No ONA 16. Trip Blank Lot # (if purchased): Client Notification/ Resolution: Person Contacted: Date/Time: Comments/ Resolution: 3000 W28	compliance with EPA recommendation.	7.55			Initial when	- 1	ot # of added	
Headspace in VOA Vials (>6mm):	exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	□Yes	□No		1.00	- 1		
Trip Blank Present: Yes No Inc. Inc	Samples checked for dechlorination:	□Yes	□No	ØN/A	14.			
Trip Blank Custody Seals Present	Headspace in VOA Vials (>6mm):	□Yes	□No	N/A	15.			
Pace Trip Blank Lot # (if purchased): Client Notification/ Resolution: Person Contacted: Date/Time: Comments/ Resolution: 3000 W28	Trip Blank Present:	□Yes	□No	ØN/A	16.			
Client Notification/ Resolution: Person Contacted: Date/Time: Comments/ Resolution: 3000 W28	Trip Blank Custody Seals Present	□Yes	□No	DA/A			*:	
Person Contacted: Date/Time: Comments/ Resolution:	Pace Trip Blank Lot # (if purchased):	_			# c = = -2	<i>g</i> ; = -		
Person Contacted: Date/Time: Comments/ Resolution:	Client Notification/ Resolution:	-34					Field Data Required?	Y / N
Comments/ Resolution: 3000 W28	D			Date	Time:			
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Project Manager Review: Date:	2207 4 20 20 20 20 20 20 20 20 20 20 20 20 20	- WI W.T.				3000) W28	10
Project Manager Review: Date:								
Project Manager Review: Date:								
	Project Manager Review:						Date:	

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

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

			П	(2, HGW/C	Name of Street	27	Ş	4	6	•	0	7	9	6		3	2		ITEM#		assambasa	etione	Email	Allerte GA 30339	Company	Required
				(1) App th Matchia = B, Cs (2, HGWC-102) App 1V Metalis = Sb, As, Ba, Ba, Cd, Cr, Co, Pb, U, Hg, Mo, Se, Ta		ADDITIONAL CONNENTS										/		#6UC-102	SAMPLE ID Cone Character per box. (A-Z, 0-9 /, -) Sample lds must be unique Tissue	мател	understand one ones Advantage 1 P. 1	16-7239 Fax	jabraham@eouthernco.com		Georgia Power - Coal Combustion Residuals	<u>≅</u>
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CHAIN-OF- STODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

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				Mad	Day Gog	METER				The state of the s							4-1	弘	Waste Water William Wi	COOE	ıı	Project # CM	Purchase Order #	ı	Сору То	Regulated Pr	Section B
SKGKA	TURK	The Park		Kubas/100	GERES / BERNAL	NOLVYTANY (AB URAMINOW TRA					+	10-1					8 242 W 11:00 10	23	TIME	COLLECTED	0.000	Plant Hammond	\$C\$10382775		Lauren Petty, Geosyntec	information:	
SKGNATURE OF SAMPLER	PRINT Name of SAMPLER:	SHILL WAS GIRV SHOWN LESS		0 10/23	19/23	DATE						1	100	2			1536	10 rate 1:17 2	DATE END END END END END END END END END EN								
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November 21, 2019

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

RE: Project: PLANT HAMMOND

Pace Project No.: 2624799

Dear Joju Abraham:

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

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

Sincerely,

Betsy McDaniel

Beton M Damil

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

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



(770)734-4200



CERTIFICATIONS

Project: PLANT HAMMOND

Pace Project No.: 2624799

Pace Analytical Services Pennsylvania

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

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification

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

Delaware Certification EPA Region 4 DW Rad

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

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

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

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

Maine Certification #: 2017020 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991 Missouri Certification #: 235 Montana Certification #: Cert0082 Nebraska Certification #: NE-OS-29-14 Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

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

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

South Dakota Certification
Tennessee Certification #: 02867

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

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



SAMPLE SUMMARY

Project: PLANT HAMMOND

Pace Project No.: 2624799

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624799001	HGWA-112	Water	10/22/19 10:40	10/24/19 10:07
2624799002	HGWC-117	Water	10/22/19 15:00	10/24/19 10:07
2624799003	HGWC-118	Water	10/22/19 19:08	10/24/19 10:07
2624799004	HGWA-113	Water	10/22/19 11:20	10/24/19 10:07
2624799005	HGWC-109	Water	10/22/19 14:35	10/24/19 10:07
2624799006	HGWC-107	Water	10/22/19 13:55	10/24/19 10:07



SAMPLE ANALYTE COUNT

Project: PLANT HAMMOND

Pace Project No.: 2624799

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2624799001	HGWA-112	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624799002	HGWC-117	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624799003	HGWC-118	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624799004	HGWA-113	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624799005	HGWC-109	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624799006	HGWC-107	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA



Project: PLANT HAMMOND

Pace Project No.: 2624799

Sample: HGWA-112 PWS:	Lab ID: 26247990 Site ID:	O1 Collected: 10/22/19 10:40 Sample Type:	Received:	10/24/19 10:07	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.491 ± 0.311 (0.509) C:94% T:NA	pCi/L	11/15/19 07:34	13982-63-3	
Radium-228		0.337 ± 0.310 (0.623) C:77% T:90%	pCi/L	11/12/19 15:56	6 15262-20-1	
Total Radium	Total Radium Calculation	0.828 ± 0.621 (1.13)	pCi/L	11/18/19 15:16	7440-14-4	



Project: PLANT HAMMOND

Pace Project No.: 2624799

Sample: HGWC-117 Lab ID: 2624799002 Collected: 10/22/19 15:00 Received: 10/24/19 10:07 Matrix: Water PWS: Site ID: Sample Type: Act ± Unc (MDC) Carr Trac **Parameters** Method Units Analyzed CAS No. Qual EPA 9315 $0.383 \pm 0.293 \quad (0.519)$ Radium-226 pCi/L 11/15/19 07:34 13982-63-3 C:87% T:NA EPA 9320 0.444 ± 0.685 (1.48) Radium-228 pCi/L 11/12/19 16:01 15262-20-1 C:64% T:77% Total Radium Total Radium 0.827 ± 0.978 (2.00) pCi/L 11/18/19 15:16 7440-14-4 Calculation



Project: PLANT HAMMOND

Pace Project No.: 2624799

Sample: HGWC-118 PWS:	Lab ID: 26247990 Site ID:	O3 Collected: 10/22/19 19:08 Sample Type:	Received:	10/24/19 10:07	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.424 ± 0.266 (0.398) C:90% T:NA	pCi/L	11/15/19 07:34	13982-63-3	
Radium-228		-0.247 ± 0.425 (1.01) C:82% T:89%	pCi/L	11/12/19 16:01	15262-20-1	
Total Radium	Total Radium Calculation	0.424 ± 0.691 (1.41)	pCi/L	11/18/19 15:16	7440-14-4	



Project: PLANT HAMMOND

Total Radium

Calculation

Pace Project No.: 2624799

Total Radium

Sample: HGWA-113 Lab ID: 2624799004 Collected: 10/22/19 11:20 Received: 10/24/19 10:07 Matrix: Water PWS: Site ID: Sample Type: Act ± Unc (MDC) Carr Trac **Parameters** Method Units Analyzed CAS No. Qual EPA 9315 0.401 ± 0.255 (0.368) Radium-226 pCi/L 11/15/19 07:35 13982-63-3 C:93% T:NA EPA 9320 0.122 ± 0.462 (1.04) Radium-228 pCi/L 11/12/19 16:01 15262-20-1 C:76% T:83%

pCi/L

11/19/19 09:18 7440-14-4

 0.523 ± 0.717 (1.41)



Project: PLANT HAMMOND

Pace Project No.: 2624799

Sample: HGWC-109 Lab ID: 2624799005 Collected: 10/22/19 14:35 Received: 10/24/19 10:07 Matrix: Water PWS: Site ID: Sample Type: Act ± Unc (MDC) Carr Trac **Parameters** Method Units Analyzed CAS No. Qual EPA 9315 $0.545 \pm 0.309 \quad (0.464)$ Radium-226 pCi/L 11/15/19 07:35 13982-63-3 C:94% T:NA -0.545 ± 0.446 (1.09) EPA 9320 Radium-228 pCi/L 11/12/19 16:01 15262-20-1 C:77% T:90% Total Radium Total Radium 0.545 ± 0.755 (1.55) pCi/L 11/19/19 09:18 7440-14-4 Calculation



Project: PLANT HAMMOND

Pace Project No.: 2624799

Sample: HGWC-107 PWS:	Lab ID: 26247990 Site ID:	O6 Collected: 10/22/19 13:55 Sample Type:	Received:	10/24/19 10:07	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.357 ± 0.270 (0.465) C:90% T:NA	pCi/L	11/15/19 07:35	13982-63-3	
Radium-228		0.348 ± 0.486 (1.04) C:83% T:80%	pCi/L	11/12/19 17:46	5 15262-20-1	
Total Radium	Total Radium Calculation	0.705 ± 0.756 (1.51)	pCi/L	11/19/19 09:18	3 7440-14-4	



QUALITY CONTROL - RADIOCHEMISTRY

Project: PLANT HAMMOND

Pace Project No.: 2624799

Radium-226

QC Batch: 369310 Analysis Method: EPA 9315

QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium
Associated Lab Samples: 2624799001, 2624799002, 2624799003, 2624799004, 2624799005, 2624799006

METHOD BLANK: 1791698 Matrix: Water

Associated Lab Samples: 2624799001, 2624799002, 2624799003, 2624799004, 2624799005, 2624799006

0.590 ± 0.307 (0.405) C:93% T:NA

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

pCi/L

11/15/19 07:34

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



QUALITY CONTROL - RADIOCHEMISTRY

Project: PLANT HAMMOND

Pace Project No.: 2624799

 QC Batch:
 369311
 Analysis Method:
 EPA 9320

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

 Associated Lab Samples:
 2624799001, 2624799002, 2624799003, 2624799004, 2624799005, 2624799006

METHOD BLANK: 1791699 Matrix: Water

Associated Lab Samples: 2624799001, 2624799002, 2624799003, 2624799004, 2624799005, 2624799006

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

 Radium-228
 0.174 ± 0.362 (0.799) C:80% T:87%
 pCi/L
 11/12/19 15:54

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



QUALIFIERS

Project: PLANT HAMMOND

Pace Project No.: 2624799

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

Date: 11/21/2019 05:10 PM

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PLANT HAMMOND

Pace Project No.: 2624799

Date: 11/21/2019 05:10 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytica Batch
2624799001	HGWA-112	EPA 9315	369310		
2624799002	HGWC-117	EPA 9315	369310		
2624799003	HGWC-118	EPA 9315	369310		
2624799004	HGWA-113	EPA 9315	369310		
2624799005	HGWC-109	EPA 9315	369310		
2624799006	HGWC-107	EPA 9315	369310		
2624799001	HGWA-112	EPA 9320	369311		
2624799002	HGWC-117	EPA 9320	369311		
2624799003	HGWC-118	EPA 9320	369311		
2624799004	HGWA-113	EPA 9320	369311		
2624799005	HGWC-109	EPA 9320	369311		
2624799006	HGWC-107	EPA 9320	369311		
2624799001	HGWA-112	Total Radium Calculation	371530		
2624799002	HGWC-117	Total Radium Calculation	371530		
2624799003	HGWC-118	Total Radium Calculation	371530		
2624799004	HGWA-113	Total Radium Calculation	371617		
2624799005	HGWC-109	Total Radium Calculation	371617		
2624799006	HGWC-107	Total Radium Calculation	371617		

Sample Condition Upon Receipt Project # Courier: Fed Ex UP CLIENT: GAPouer-CCR Due Date: 11/21/19 e: 10/31/19 CLIENT: GAPouer-CCR Tracking #: Custody Seal on Cooler/Box Present: Packing Material: Bubble Wrap Bubble Bags Non Other Samples on ice, cooling process has begun Type of ice: Wet Blue None Thermometer Used Date and initials of person examining Biological Tissue is Frozen: Yes contents: Cooler Temperature Comments: Temp should be above freezing to 6°C ☑Yes □No □N/A 1 Chain of Custody Present: ØYes □No □N/A 2 Chain of Custody Filled Out: Dres □No □N/A Chain of Custody Relinquished: ☑Yes □No □N/A Sampler Name & Signature on COC: Yes DNo □N/A 5. Samples Arrived within Hold Time: ☐Yes ☐No □N/A 6 Short Hold Time Analysis (<72hr): ☐Yes ☑No □N/A 7 Rush Turn Around Time Requested: ZYes □No □N/A Sufficient Volume: Yes DNo □N/A 9. Correct Containers Used: Plyes □No □N/A -Pace Containers Used: ☑Yes □No □NA 10. Containers Intact: ZN/A 11 □Yes □No Filtered volume received for Dissolved tests Tayes ONO ON/A 12. Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: All containers needing preservation have been checked. DYAS DNO DNA 13. All containers needing preservation are found to be in ZYes □No compliance with EPA recommendation. Lot # of added Initial when preservative ☐Yes ☐No completed exceptions: VOA, coliform, TOC, O&G, Wi-DRO (water) ZYes □No □N/A 14 Samples checked for dechlorination: □Yes □No ☑Ñ/A 15. Headspace in VOA Vials (>6mm): □Yes □No □N/A 16. Trip Blank Present: ☐Yes ☐No ØN/A Trip Blank Custody Seals Present Pace Trip Blank Lot # (if purchased): Field Data Required? Client Notification/ Resolution: Date/Time: Person Contacted: Comments/ Resolution: 3000 W28

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)

Project Manager Review:

Date:





December 16, 2019

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

RE: Project: PLANT HAMMOND

Pace Project No.: 2624800

Dear Joju Abraham:

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

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

Sincerely,

Kevin Herring for Betsy McDaniel betsy mcdaniel@pacel

Kein Slury

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

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







CERTIFICATIONS

Project: PLANT HAMMOND

Pace Project No.: 2624800

Pace Analytical Services Atlanta

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

Georgia DW Microbiology Certification #: 812

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

Virginia Certification #: 460204



SAMPLE SUMMARY

Project: PLANT HAMMOND

Pace Project No.: 2624800

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624800001	HGWA-112	Water	10/22/19 10:40	10/24/19 10:07
2624800002	HGWC-117	Water	10/22/19 15:00	10/24/19 10:07
2624800003	HGWC-118	Water	10/22/19 19:08	10/24/19 10:07
2624800004	HGWA-113	Water	10/22/19 11:20	10/24/19 10:07
2624800005	HGWC-109	Water	10/22/19 14:35	10/24/19 10:07
2624800006	HGWC-107	Water	10/22/19 13:55	10/24/19 10:07



SAMPLE ANALYTE COUNT

Project: PLANT HAMMOND

Pace Project No.: 2624800

Analyt ts Report	Analysts	Method	Sample ID	Lab ID
,	CSW	EPA 6020B	HGWA-112	2624800001
	MZP	SM 2540C		
\$	MWB	EPA 300.0		
1	CSW	EPA 6020B	HGWC-117	2624800002
	MZP	SM 2540C		
}	MWB	EPA 300.0		
1	CSW	EPA 6020B	HGWC-118	2624800003
	MZP	SM 2540C		
}	MWB	EPA 300.0		
1	CSW	EPA 6020B	HGWA-113	2624800004
	MZP	SM 2540C		
}	MWB	EPA 300.0		
1	CSW	EPA 6020B	HGWC-109	2624800005
	MZP	SM 2540C		
}	MWB	EPA 300.0		
1	CSW	EPA 6020B	HGWC-107	2624800006
	MZP	SM 2540C		
}	MWB	EPA 300.0		
3	MWB CSW MZP MWB CSW MZP	EPA 300.0 EPA 6020B SM 2540C EPA 300.0 EPA 6020B SM 2540C		



Project: PLANT HAMMOND

Pace Project No.: 2624800

Date: 12/16/2019 09:27 AM

Sample: HGWA-112	Lab ID:	2624800001	Collecte	ed: 10/22/19	10:40	Received: 10/	24/19 10:07 Ma	atrix: Water	•
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Arsenic	ND	mg/L	0.0050	0.00035	1	11/01/19 16:00	11/04/19 03:47	7440-38-2	
Barium	0.028	mg/L	0.010	0.00049	1	11/01/19 16:00	11/04/19 03:47	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	11/01/19 16:00	11/04/19 13:54	7440-41-7	
Boron	0.016J	mg/L	0.040	0.0049	1	11/01/19 16:00	11/04/19 13:54	7440-42-8	В
Cadmium	ND	mg/L	0.0025	0.00011	1	11/01/19 16:00	11/04/19 03:47	7440-43-9	
Calcium	6.3	mg/L	0.10	0.011	1	11/01/19 16:00	11/04/19 03:47	7440-70-2	
Chromium	0.0040J	mg/L	0.010	0.00039	1	11/01/19 16:00	11/04/19 03:47	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	11/01/19 16:00	11/04/19 03:47	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	11/01/19 16:00	11/04/19 03:47	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	11/01/19 16:00	11/04/19 13:54	7439-93-2	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	81.0	mg/L	10.0	10.0	1		10/29/19 13:03		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	5.5	mg/L	1.0	0.024	1		10/31/19 08:19	16887-00-6	
Fluoride	0.050J	mg/L	0.30	0.029	1		10/31/19 08:19	16984-48-8	
Sulfate	0.60J	mg/L	1.0	0.017	1		10/31/19 08:19	14808-79-8	



Project: PLANT HAMMOND

Pace Project No.: 2624800

Date: 12/16/2019 09:27 AM

Sample: HGWC-117	Lab ID:	2624800002	Collecte	ed: 10/22/19	15:00	Received: 10/	24/19 10:07 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Arsenic	ND	mg/L	0.0050	0.00035	1	11/01/19 16:00	11/04/19 03:58	7440-38-2	
Barium	0.049	mg/L	0.010	0.00049	1	11/01/19 16:00	11/04/19 03:58	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	11/01/19 16:00	11/04/19 14:00	7440-41-7	
Boron	1.0	mg/L	0.040	0.0049	1	11/01/19 16:00	11/04/19 14:00	7440-42-8	
Cadmium	0.00068J	mg/L	0.0025	0.00011	1	11/01/19 16:00	11/04/19 03:58	7440-43-9	
Calcium	70.9	mg/L	5.0	0.55	50	11/01/19 16:00	11/04/19 04:04	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	11/01/19 16:00	11/04/19 03:58	7440-47-3	
Cobalt	0.0064	mg/L	0.0050	0.00030	1	11/01/19 16:00	11/04/19 03:58	7440-48-4	
Lead	0.00016J	mg/L	0.0050	0.000046	1	11/01/19 16:00	11/04/19 03:58	7439-92-1	
Lithium	0.0028J	mg/L	0.030	0.00078	1	11/01/19 16:00	11/04/19 14:00	7439-93-2	
2540C Total Dissolved Solids	Analytical I	Method: SM 2	540C						
Total Dissolved Solids	348	mg/L	10.0	10.0	1		10/29/19 13:03		
300.0 IC Anions 28 Days	Analytical I	Method: EPA 3	300.0						
Chloride	12.1	mg/L	1.0	0.024	1		10/31/19 08:41	16887-00-6	
Fluoride	0.042J	mg/L	0.30	0.029	1		10/31/19 08:41	16984-48-8	
Sulfate	133	mg/L	10.0	0.17	10		10/31/19 18:42	14808-79-8	



Project: PLANT HAMMOND

Pace Project No.: 2624800

Date: 12/16/2019 09:27 AM

Sample: HGWC-118	Lab ID:	2624800003	Collecte	ed: 10/22/19	19:08	Received: 10/	24/19 10:07 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Arsenic	ND	mg/L	0.0050	0.00035	1	11/01/19 16:00	11/04/19 04:10	7440-38-2	
Barium	0.054	mg/L	0.010	0.00049	1	11/01/19 16:00	11/04/19 04:10	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	11/01/19 16:00	11/04/19 14:05	7440-41-7	
Boron	0.65	mg/L	0.040	0.0049	1	11/01/19 16:00	11/04/19 14:05	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	11/01/19 16:00	11/04/19 04:10	7440-43-9	
Calcium	84.2	mg/L	5.0	0.55	50	11/01/19 16:00	11/04/19 04:15	7440-70-2	
Chromium	0.00066J	mg/L	0.010	0.00039	1	11/01/19 16:00	11/04/19 04:10	7440-47-3	
Cobalt	0.00061J	mg/L	0.0050	0.00030	1	11/01/19 16:00	11/04/19 04:10	7440-48-4	
Lead	0.00025J	mg/L	0.0050	0.000046	1	11/01/19 16:00	11/04/19 04:10	7439-92-1	
Lithium	0.0027J	mg/L	0.030	0.00078	1	11/01/19 16:00	11/04/19 14:05	7439-93-2	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	354	mg/L	10.0	10.0	1		10/29/19 13:03		
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Chloride	4.5	mg/L	1.0	0.024	1		10/31/19 09:04	16887-00-6	
Fluoride	0.087J	mg/L	0.30	0.029	1		10/31/19 09:04	16984-48-8	
Sulfate	80.9	mg/L	10.0	0.17	10		10/31/19 19:05	14808-79-8	



Project: PLANT HAMMOND

Pace Project No.: 2624800

Date: 12/16/2019 09:27 AM

Sample: HGWA-113	Lab ID:	2624800004	Collecte	ed: 10/22/19	11:20	Received: 10/	24/19 10:07 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Arsenic	ND	mg/L	0.0050	0.00035	1	11/01/19 16:00	11/04/19 04:33	7440-38-2	
Barium	0.027	mg/L	0.010	0.00049	1	11/01/19 16:00	11/04/19 04:33	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	11/01/19 16:00	11/04/19 14:32	7440-41-7	
Boron	0.010J	mg/L	0.040	0.0049	1	11/01/19 16:00	11/04/19 14:32	7440-42-8	В
Cadmium	ND	mg/L	0.0025	0.00011	1	11/01/19 16:00	11/04/19 04:33	7440-43-9	
Calcium	7.2	mg/L	0.10	0.011	1	11/01/19 16:00	11/04/19 04:33	7440-70-2	
Chromium	0.0023J	mg/L	0.010	0.00039	1	11/01/19 16:00	11/04/19 04:33	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	11/01/19 16:00	11/04/19 04:33	7440-48-4	
Lead	0.000073J	mg/L	0.0050	0.000046	1	11/01/19 16:00	11/04/19 04:33	7439-92-1	
Lithium	0.0011J	mg/L	0.030	0.00078	1	11/01/19 16:00	11/04/19 14:32	7439-93-2	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	95.0	mg/L	10.0	10.0	1		10/29/19 13:04		
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Chloride	1.9	mg/L	1.0	0.024	1		10/31/19 10:55	16887-00-6	
Fluoride	0.18J	mg/L	0.30	0.029	1		10/31/19 10:55	16984-48-8	
Sulfate	6.8	mg/L	1.0	0.017	1		10/31/19 10:55	14808-79-8	



Project: PLANT HAMMOND

Pace Project No.: 2624800

Date: 12/16/2019 09:27 AM

Sample: HGWC-109	Lab ID:	2624800005	Collecte	ed: 10/22/19	14:35	Received: 10/	24/19 10:07 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: Ef	PA 3005A			
Arsenic	0.0019J	mg/L	0.0050	0.00035	1	11/01/19 16:00	11/04/19 04:44	7440-38-2	
Barium	0.087	mg/L	0.010	0.00049	1	11/01/19 16:00	11/04/19 04:44	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	11/01/19 16:00	11/04/19 14:37	7440-41-7	
Boron	0.32	mg/L	0.040	0.0049	1	11/01/19 16:00	11/04/19 14:37	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	11/01/19 16:00	11/04/19 04:44	7440-43-9	
Calcium	42.6	mg/L	5.0	0.55	50	11/01/19 16:00	11/04/19 04:50	7440-70-2	
Chromium	0.00062J	mg/L	0.010	0.00039	1	11/01/19 16:00	11/04/19 04:44	7440-47-3	
Cobalt	0.0022J	mg/L	0.0050	0.00030	1	11/01/19 16:00	11/04/19 04:44	7440-48-4	
Lead	0.000054J	mg/L	0.0050	0.000046	1	11/01/19 16:00	11/04/19 04:44	7439-92-1	
Lithium	0.00088J	mg/L	0.030	0.00078	1	11/01/19 16:00	11/04/19 14:37	7439-93-2	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	212	mg/L	10.0	10.0	1		10/29/19 13:15		
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Chloride	4.6	mg/L	1.0	0.024	1		10/31/19 11:17	16887-00-6	
Fluoride	0.099J	mg/L	0.30	0.029	1		10/31/19 11:17	16984-48-8	
Sulfate	23.2	mg/L	1.0	0.017	1		10/31/19 11:17	14808-79-8	M1



Project: PLANT HAMMOND

Pace Project No.: 2624800

Date: 12/16/2019 09:27 AM

Sample: HGWC-107	Lab ID:	2624800006	Collecte	ed: 10/22/19	13:55	Received: 10/	24/19 10:07 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Arsenic	ND	mg/L	0.0050	0.00035	1	11/01/19 16:00	11/04/19 04:55	7440-38-2	
Barium	0.039	mg/L	0.010	0.00049	1	11/01/19 16:00	11/04/19 04:55	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	11/01/19 16:00	11/04/19 14:43	7440-41-7	
Boron	0.91	mg/L	0.040	0.0049	1	11/01/19 16:00	11/04/19 14:43	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	11/01/19 16:00	11/04/19 04:55	7440-43-9	
Calcium	58.1	mg/L	5.0	0.55	50	11/01/19 16:00	11/04/19 05:01	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	11/01/19 16:00	11/04/19 04:55	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	11/01/19 16:00	11/04/19 04:55	7440-48-4	
Lead	0.000079J	mg/L	0.0050	0.000046	1	11/01/19 16:00	11/04/19 04:55	7439-92-1	
Lithium	0.00094J	mg/L	0.030	0.00078	1	11/01/19 16:00	11/04/19 14:43	7439-93-2	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	308	mg/L	10.0	10.0	1		10/29/19 13:15		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	3.6	mg/L	1.0	0.024	1		10/31/19 12:02	16887-00-6	
Fluoride	0.047J	mg/L	0.30	0.029	1		10/31/19 12:02	16984-48-8	
Sulfate	123	mg/L	10.0	0.17	10		10/31/19 19:27	14808-79-8	



Project: PLANT HAMMOND

Pace Project No.: 2624800

QC Batch: 38024 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

Associated Lab Samples: 2624800001, 2624800002, 2624800003, 2624800004, 2624800005, 2624800006

METHOD BLANK: 172889 Matrix: Water

470000

Associated Lab Samples: 2624800001, 2624800002, 2624800003, 2624800004, 2624800005, 2624800006

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0050	0.00035	11/04/19 01:12	
Barium	mg/L	ND	0.010	0.00049	11/04/19 01:12	
Beryllium	mg/L	ND	0.0030	0.000074	11/04/19 01:12	
Boron	mg/L	0.0059J	0.040	0.0049	11/04/19 01:12	
Cadmium	mg/L	ND	0.0025	0.00011	11/04/19 01:12	
Calcium	mg/L	ND	0.10	0.011	11/04/19 01:12	
Chromium	mg/L	ND	0.010	0.00039	11/04/19 01:12	
Cobalt	mg/L	ND	0.0050	0.00030	11/04/19 01:12	
Lead	mg/L	ND	0.0050	0.000046	11/04/19 01:12	
Lithium	mg/L	ND	0.030	0.00078	11/04/19 01:12	

LABORATORY	CONTROL SAMPLE:	172890

. ADODATODY/ OCNITOO! CAMP! E

Date: 12/16/2019 09:27 AM

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Arsenic	mg/L	0.1	0.10	100	80-120	_
Barium	mg/L	0.1	0.10	103	80-120	
Beryllium	mg/L	0.1	0.11	114	80-120	
Boron	mg/L	1	1.2	116	80-120	
Cadmium	mg/L	0.1	0.11	106	80-120	
Calcium	mg/L	1	1.1	106	80-120	
Chromium	mg/L	0.1	0.10	105	80-120	
Cobalt	mg/L	0.1	0.10	104	80-120	
Lead	mg/L	0.1	0.10	102	80-120	
Lithium	mg/L	0.1	0.11	112	80-120	

MATRIX SPIKE & MATRIX	SPIKE DUPLI	ICATE: 1728	91		172892							
Parameter	Units	2624772007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	2.5	0.1	0.1	2.6	2.6	43	106	75-125	2	20	M6
Barium	mg/L	0.22	0.1	0.1	0.32	0.31	99	98	75-125	0	20	
Beryllium	mg/L	ND	0.1	0.1	0.090	0.086	90	86	75-125	5	20	
Boron	mg/L	3.8	1	1	5.1	5.2	85	95	75-125	2	20	
Cadmium	mg/L	ND	0.1	0.1	0.11	0.10	107	103	75-125	4	20	
Calcium	mg/L	177	1	1	170	179	-693	243	75-125	5	20	M6
Chromium	mg/L	ND	0.1	0.1	0.099	0.097	99	97	75-125	2	20	
Cobalt	mg/L	ND	0.1	0.1	0.097	0.096	97	96	75-125	0	20	
Lead	mg/L	ND	0.1	0.1	0.092	0.090	92	90	75-125	2	20	

Results presented on 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.: 2624800

Date: 12/16/2019 09:27 AM

MATRIX SPIKE & MATRIX	SPIKE DUPLI	CATE: 1728	91		172892							
			MS	MSD								
		2624772007	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Lithium	ma/L	0.29	0.1	0.1	0.36	0.36	73	75	75-125		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.



Project: PLANT HAMMOND

Pace Project No.: 2624800

QC Batch: 37734 Analysis Method: SM 2540C

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

Associated Lab Samples: 2624800001, 2624800002, 2624800003, 2624800004

LABORATORY CONTROL SAMPLE: 171260

Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers **Total Dissolved Solids** mg/L 400 395 99 84-108

SAMPLE DUPLICATE: 171261

2624674001 Dup Max RPD RPD Units Result Qualifiers Parameter Result **Total Dissolved Solids** 269 270 0 10 mg/L

SAMPLE DUPLICATE: 171262

Date: 12/16/2019 09:27 AM

2624786001 Dup Max Result RPD RPD Qualifiers Parameter Units Result mg/L 693 **Total Dissolved Solids** 709 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.: 2624800

QC Batch: 37735 Analysis Method: SM 2540C

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

Associated Lab Samples: 2624800005, 2624800006

LABORATORY CONTROL SAMPLE: 171263

Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers **Total Dissolved Solids** mg/L 400 402 100 84-108

SAMPLE DUPLICATE: 171264

2624800005 Dup Max RPD RPD Parameter Units Result Result Qualifiers **Total Dissolved Solids** 212 212 0 10 mg/L

SAMPLE DUPLICATE: 171265

Date: 12/16/2019 09:27 AM

2624792004 Dup Max Result RPD RPD Qualifiers Parameter Units Result 507 **Total Dissolved Solids** mg/L 512 1 10

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



Project: PLANT HAMMOND

Pace Project No.: 2624800

Date: 12/16/2019 09:27 AM

 QC Batch:
 37870
 Analysis Method:
 EPA 300.0

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

 Associated Lab Samples:
 2624800001, 2624800002, 2624800003, 2624800004, 2624800005, 2624800005

METHOD BLANK: 171906 Matrix: Water

Associated Lab Samples: 2624800001, 2624800002, 2624800003, 2624800004, 2624800005, 2624800006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.024	10/31/19 04:37	
Fluoride	mg/L	ND	0.30	0.029	10/31/19 04:37	
Sulfate	mg/L	ND	1.0	0.017	10/31/19 04:37	

LABORATORY CONTROL SAMPLE:	171907					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Chloride	mg/L		4.8	96	90-110	
Fluoride	mg/L	5	5.0	101	90-110	
Sulfate	mg/L	5	5.1	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 171908 171909												
			MS	MSD								
		2624786002	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	3.2	10	10	13.0	13.2	97	100	90-110	2	15	
	9.											

MATRIX SPIKE SAMPLE:	171910						
		2624800005	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Chloride	mg/L	4.6	10	14.7	101	90-110	_
Fluoride	mg/L	0.099J	10	10.6	105	90-110	
Sulfate	mg/L	23.2	10	28.2	50	90-110 M	11

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



QUALIFIERS

Project: PLANT HAMMOND

Pace Project No.: 2624800

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

Date: 12/16/2019 09:27 AM

B Analyte was detected in the associated method blank.

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

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



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PLANT HAMMOND

Pace Project No.: 2624800

Date: 12/16/2019 09:27 AM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytica Batch
2624800001	HGWA-112	EPA 3005A	38024	EPA 6020B	38049
2624800002	HGWC-117	EPA 3005A	38024	EPA 6020B	38049
2624800003	HGWC-118	EPA 3005A	38024	EPA 6020B	38049
2624800004	HGWA-113	EPA 3005A	38024	EPA 6020B	38049
2624800005	HGWC-109	EPA 3005A	38024	EPA 6020B	38049
2624800006	HGWC-107	EPA 3005A	38024	EPA 6020B	38049
2624800001	HGWA-112	SM 2540C	37734		
2624800002	HGWC-117	SM 2540C	37734		
2624800003	HGWC-118	SM 2540C	37734		
2624800004	HGWA-113	SM 2540C	37734		
2624800005	HGWC-109	SM 2540C	37735		
2624800006	HGWC-107	SM 2540C	37735		
2624800001	HGWA-112	EPA 300.0	37870		
2624800002	HGWC-117	EPA 300.0	37870		
2624800003	HGWC-118	EPA 300.0	37870		
2624800004	HGWA-113	EPA 300.0	37870		
2624800005	HGWC-109	EPA 300.0	37870		
2624800006	HGWC-107	EPA 300.0	37870		

Sample Condition Upon Receipt

Project # Courier: Fed Ex UP CLIENT: GAPouer-CCR Due Date: 11/21/19 e: 10/31/19 CLIENT: GAPouer-CCR Tracking #: Custody Seal on Cooler/Box Present: Packing Material: Bubble Wrap Bubble Bags Non Other Samples on ice, cooling process has begun Type of ice: Wet Blue None Thermometer Used Date and initials of person examining Biological Tissue is Frozen: Yes contents: Cooler Temperature Comments: Temp should be above freezing to 6°C ☑Yes □No □N/A 1 Chain of Custody Present: ØYes □No □N/A 2 Chain of Custody Filled Out: Dres □No □N/A Chain of Custody Relinquished: ☑Yes □No □N/A Sampler Name & Signature on COC: Yes DNo □N/A 5. Samples Arrived within Hold Time: ☐Yes ☐No □N/A 6 Short Hold Time Analysis (<72hr): ☐Yes ☑No □N/A 7 Rush Turn Around Time Requested: Yes DNo □N/A Sufficient Volume: Yes DNo □N/A 9. Correct Containers Used: Plyes □No □N/A -Pace Containers Used: ☑Yes □No □NA 10. Containers Intact: ZN/A 11 □Yes □No Filtered volume received for Dissolved tests Tayes ONO ON/A 12. Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: All containers needing preservation have been checked. DYAS DNO DNA 13. All containers needing preservation are found to be in ZYes □No compliance with EPA recommendation. Lot # of added Initial when preservative ☐Yes ☐No completed exceptions: VOA, coliform, TOC, O&G, Wi-DRO (water) ZYes □No □N/A 14 Samples checked for dechlorination: □Yes □No ☑Ñ/A 15. Headspace in VOA Vials (>6mm): □Yes □No □N/A 16. Trip Blank Present: ☐Yes ☐No ØN/A Trip Blank Custody Seals Present Pace Trip Blank Lot # (if purchased): Field Data Required? Client Notification/ Resolution: Date/Time: Person Contacted: Comments/ Resolution: 3000 W28

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)

Project Manager Review:

Date:





November 21, 2019

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

RE: Project: PLANT HAMMOND

Pace Project No.: 2624802

Dear Joju Abraham:

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

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

Sincerely,

Betsy McDaniel

Beton M Damil

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

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



(770)734-4200



CERTIFICATIONS

Project: PLANT HAMMOND

Pace Project No.: 2624802

Pace Analytical Services Pennsylvania

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

ANAB DOD-ELAP Rad Accreditation #: L2417

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

California Certification #: 04222CA

Colorado Certification #: PA01547 Connecticut Certification #: PH-0694

Delaware Certification EPA Region 4 DW Rad

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

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

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

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

Maine Certification #: 2017020 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991 Montana Certification #: Cert0082 Nebraska Certification #: NE-OS-29-14 Nevada Certification #: PA014572018-1 New Hampshire/TNI Certification #: 297617

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

Missouri Certification #: 235

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

South Dakota Certification
Tennessee Certification #: 02867

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

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





SAMPLE SUMMARY

Project: PLANT HAMMOND

Pace Project No.: 2624802

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624802001	FB-01	Water	10/22/19 17:10	10/24/19 10:07



SAMPLE ANALYTE COUNT

Project: PLANT HAMMOND

Pace Project No.: 2624802

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2624802001	FB-01	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PLANT HAMMOND

Pace Project No.: 2624802

Sample: FB-01 Lab ID: 2624802001 Collected: 10/22/19 17:10 Received: 10/24/19 10:07 Matrix: Water PWS: Site ID: Sample Type: Act ± Unc (MDC) Carr Trac **Parameters** Method Units Analyzed CAS No. Qual EPA 9315 0.270 ± 0.222 (0.392) Radium-226 pCi/L 11/15/19 10:17 13982-63-3 C:97% T:NA EPA 9320 -0.147 ± 0.412 (0.993) 11/12/19 17:50 15262-20-1 Radium-228 pCi/L C:83% T:84% Total Radium Total Radium 0.270 ± 0.634 (1.39) pCi/L 11/19/19 09:18 7440-14-4 Calculation



QUALITY CONTROL - RADIOCHEMISTRY

EPA 9315

Project: PLANT HAMMOND

Pace Project No.: 2624802

QC Batch: 369310

Analysis Method:

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

Associated Lab Samples: 2624802001

METHOD BLANK: 1791698 Matrix: Water

Associated Lab Samples: 2624802001

Act ± Unc (MDC) Carr Trac Qualifiers Parameter Units Analyzed Radium-226 0.590 ± 0.307 (0.405) C:93% T:NA pCi/L 11/15/19 07:34

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



QUALITY CONTROL - RADIOCHEMISTRY

Project: PLANT HAMMOND

Pace Project No.: 2624802

QC Batch: 369311

QC Batch Method: EPA 9320

Analysis Method:

Analysis Description:

9320 Radium 228

EPA 9320

Associated Lab Samples: 2624802001

METHOD BLANK: 1791699

Matrix: Water

Associated Lab Samples: 2624802001

Parameter

Act ± Unc (MDC) Carr Trac

Units pCi/L Analyzed

Qualifiers

Radium-228

0.174 ± 0.362 (0.799) C:80% T:87%

11/12/19 15:54

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



QUALIFIERS

Project: PLANT HAMMOND

Pace Project No.: 2624802

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

Date: 11/21/2019 05:22 PM

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PLANT HAMMOND

Pace Project No.: 2624802

Date: 11/21/2019 05:22 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624802001	FB-01	EPA 9315	369310		
2624802001	FB-01	EPA 9320	369311		
2624802001	FB-01	Total Radium Calculation	371617		

-
8
in the second

WO#: 2624803

Phone (404)505-7239
Requested Due Date S.A. Required Client Information: uniparty Georgia Power - Coal Combustion Residuals
utilitiess 2480 Maner Road I) App III Metals = 8. Ca Illanta, GA 30339 ITEM# AP-4) App IV Metals = As, Ba, Ba, Col, Cr, Ca, Pb, Li, M.O. jabraham@southernoo.com 1801 (A-Z, 0-91, -) Sample ids must be unique One Character per box, SAMPLE ID MATRIX
Overving Weter
Water
Water
Water
Water
Water
Water
Product
Sci/Schd
Od
Wipe
Au
Trasure Propert 640.6581 Required Project Information:
Report To Joju Abraham
Copy To Lauren Pelly, Geosyntec Purchase Order # SCS10382775 \$3 \$ \$ 5 \$ \$ \$ \$ \$ \$ \$ \$ \$ RELINGUISHED BY I AFFILIATION Gras / Gonate MATRIX CODE (see valid codes to left) Russo/900 G SAMPLETYPE (G=GRAB C=COMP) Plant Hammond 10/2/4/17:00 3 START COLLECTED SIGNATURE of SAMPLER: PRINT Name of SAMPLER: ONLY LER NAME AND SIGNATURE ENO 17.10 1922 DATE SAMPLE TEMP AT COLLECTION Pace Quote Pace Project Manager Attention sosinviloss@southernoo.com Company Name Address Pace Profile # 327 (AP) 800 2000 # OF CONTAINERS Unpreserved OFBRS H2SO4 HNO3 Preservatives HCI NaOH Ne2S2O3 betsy mcdaniel@pacelabs.com MODERNIED BY I ANTHUMINON Methanol Kushey/ 900 Proces Other Analyses Test 2 P102/22/64 :DATE Signed: 10/22/2019 App IV Metals (2, AP-4) 9 TDS, CI, F, SO4 Radium 226/228 72/01 10 24 MATE 188 Š TEMP in C Residual Chlorina (Y/N) (Y/N ς Cool

m 🕇

WO#: 2624802

Sample Condition Upon Receipt

10#:2624802 Due Date: 10/31/19 Date: 11/21/19 Courier: Fed Ex UPS CLIENT: GAPower-CCR LIENT: GAPower-CCR Tracking #: Custody Seal on Cooler/Box Present. Lyes ☐ ye ☐ no_ Seals intact: Packing Material: Bubble Wrap Bubble Bags None Thermometer Used Type of Ice: Wet Blue None Samples on ice, cooling process has begun Date and Initials of person examining Biological Tissue is Frozen: Yes No Cooler Temperature contents: Temp should be above freezing to 6°C Comments: Pres ONO ON/A 1. Chain of Custody Present: ZYes □No □N/A 2. Chain of Custody Filled Out: Pres □No □N/A 3. Chain of Custody Relinquished: ØYes □No □N/A 4 Sampler Name & Signature on COC: Yes ONO ON/A Samples Arrived within Hold Time: □Yes ENo □N/A Short Hold Time Analysis (<72hr): □Yes ☑No □N/A Rush Turn Around Time Requested: EYes DNo DN/A 8. Sufficient Volume: ZYes □No □N/A 9. Correct Containers Used: EYes ONO ON/A -Pace Containers Used: ZYes □No □N/A 10. Containers Intact: □Yes □No ZN/A 11. Filtered volume received for Dissolved tests ZYes □No □N/A 12. Sample Labels match COC:

DYES ONO ONA

Yes DNo DN/A 14.

□Yes □No ☑KI/A □Yes □No ₽N/A 16.

□Yes □No ØN/A

□Yes □No

-Includes date/time/ID/Analysis

compliance with EPA recommendation.

Samples checked for dechlorination:

Headspace in VOA Vials (>6mm):

Trip Blank Custody Seals Present

Trip Blank Present:

All containers needing preservation have been checked.

All containers needing preservation are found to be in

exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)

Matrix:

Pace Trip Blank Lot # (if purchased):_ Y / Field Data Required? Client Notification/ Resolution: Date/Time: Person Contacted: Comments/ Resolution: 3000 W28 Date: Project Manager Review:

Initial when

completed

15.

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)

Lot # of added

preservative





December 17, 2019

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

RE: Project: PLANT HAMMOND

Pace Project No.: 2624803

Dear Joju Abraham:

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

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

Sincerely,

Kevin Herring for Betsy McDaniel

Kein Slury

betsy.mcdaniel@pacelabs.com

(770)734-4200 Project Manager

Enclosures

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







CERTIFICATIONS

Project: PLANT HAMMOND

Pace Project No.: 2624803

Pace Analytical Services Atlanta

110 Technology Parkway Peachtree Corners, GA 30092 Florida DOH Certification #: E87315

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

Virginia Certification #: 460204





SAMPLE SUMMARY

Project: PLANT HAMMOND

Pace Project No.: 2624803

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624803001	FB-01	Water	10/22/19 17:10	10/24/19 10:07



SAMPLE ANALYTE COUNT

Project: PLANT HAMMOND

Pace Project No.: 2624803

Lab ID	Sample ID	Method	Analysts	Analytes Reported	
2624803001	FB-01	EPA 6020B	CSW	14	
		EPA 7470A	DRB	1	
		SM 2540C	MZP	1	
		EPA 300.0	MWB	3	



Project: PLANT HAMMOND

Pace Project No.: 2624803

Date: 12/17/2019 10:26 AM

Sample: FB-01	Lab ID:	2624803001	Collecte	ed: 10/22/19	17:10	Received: 10/	24/19 10:07 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	11/01/19 16:00	11/04/19 05:07	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	11/01/19 16:00	11/04/19 05:07	7440-38-2	
Barium	ND	mg/L	0.010	0.00049	1	11/01/19 16:00	11/04/19 05:07	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	11/01/19 16:00	11/04/19 14:49	7440-41-7	
Boron	ND	mg/L	0.040	0.0049	1	11/01/19 16:00	11/04/19 14:49	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	11/01/19 16:00	11/04/19 05:07	7440-43-9	
Calcium	0.011J	mg/L	0.10	0.011	1	11/01/19 16:00	11/04/19 05:07	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	11/01/19 16:00	11/04/19 05:07	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	11/01/19 16:00	11/04/19 05:07	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	11/01/19 16:00	11/04/19 05:07	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	11/01/19 16:00	11/04/19 14:49	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	11/01/19 16:00	11/04/19 05:07	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	11/01/19 16:00	11/04/19 05:07	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	11/01/19 16:00	11/04/19 05:07	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	A 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	10/29/19 09:50	10/29/19 16:31	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		10/29/19 13:15		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	ND	mg/L	1.0	0.024	1		10/31/19 12:24	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		10/31/19 12:24		
Sulfate	ND	mg/L	1.0	0.017	1		10/31/19 12:24		

6 20



QUALITY CONTROL DATA

Project: PLANT HAMMOND

Pace Project No.: 2624803

Mercury

Date: 12/17/2019 10:26 AM

QC Batch: 37720 Analysis Method: EPA 7470A QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury

Associated Lab Samples: 2624803001

METHOD BLANK: 171214 Matrix: Water

Associated Lab Samples: 2624803001

Blank Reporting Parameter Units Result Limit MDL Qualifiers Analyzed ND 10/29/19 15:19

Mercury 0.00050 0.00014 mg/L

LABORATORY CONTROL SAMPLE:

Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers Mercury mg/L 0.0025 0.0026 105 80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 171216 171217

mg/L

MSD MS MSD 2624786001 Spike Spike MS MS MSD % Rec Max RPD Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits **RPD** Qual

0.0027

0.0025

Results presented on 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.: 2624803

Date: 12/17/2019 10:26 AM

QC Batch: 38024 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

Associated Lab Samples: 2624803001

METHOD BLANK: 172889 Matrix: Water

Associated Lab Samples: 2624803001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	11/04/19 01:12	
Arsenic	mg/L	ND	0.0050	0.00035	11/04/19 01:12	
Barium	mg/L	ND	0.010	0.00049	11/04/19 01:12	
Beryllium	mg/L	ND	0.0030	0.000074	11/04/19 01:12	
Boron	mg/L	0.0059J	0.040	0.0049	11/04/19 01:12	
Cadmium	mg/L	ND	0.0025	0.00011	11/04/19 01:12	
Calcium	mg/L	ND	0.10	0.011	11/04/19 01:12	
Chromium	mg/L	ND	0.010	0.00039	11/04/19 01:12	
Cobalt	mg/L	ND	0.0050	0.00030	11/04/19 01:12	
Lead	mg/L	ND	0.0050	0.000046	11/04/19 01:12	
Lithium	mg/L	ND	0.030	0.00078	11/04/19 01:12	
Molybdenum	mg/L	ND	0.010	0.00095	11/04/19 01:12	
Selenium	mg/L	ND	0.010	0.0013	11/04/19 01:12	
Thallium	mg/L	ND	0.0010	0.000052	11/04/19 01:12	

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
- arameter						Qualificis
itimony	mg/L	0.1	0.11	107	80-120	
senic	mg/L	0.1	0.10	100	80-120	
ırium	mg/L	0.1	0.10	103	80-120	
eryllium	mg/L	0.1	0.11	114	80-120	
pron	mg/L	1	1.2	116	80-120	
admium	mg/L	0.1	0.11	106	80-120	
ılcium	mg/L	1	1.1	106	80-120	
romium	mg/L	0.1	0.10	105	80-120	
balt	mg/L	0.1	0.10	104	80-120	
ad	mg/L	0.1	0.10	102	80-120	
ium	mg/L	0.1	0.11	112	80-120	
lybdenum	mg/L	0.1	0.10	103	80-120	
lenium	mg/L	0.1	0.10	101	80-120	
allium	mg/L	0.1	0.10	103	80-120	
TRIX SPIKE & MATRIX SPIKE DUI	PLICATE: 1728		172892)		

2624772007 Spike Spike MS MSD MS MSD % Rec Max Conc. Parameter Units Result Conc. Result Result % Rec % Rec Limits RPD RPD Qual Antimony ND 0.1 0.1 0.11 0.10 106 104 75-125 2 20 mg/L

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



Project: PLANT HAMMOND

Pace Project No.: 2624803

Date: 12/17/2019 10:26 AM

MATRIX SPIKE & MATRIX	SPIKE DUPL	ICATE: 1728	91 MS	MSD	172892							
_		2624772007	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Arsenic	mg/L	2.5	0.1	0.1	2.6	2.6	43	106	75-125	2	20	M6
Barium	mg/L	0.22	0.1	0.1	0.32	0.31	99	98	75-125	0	20	
Beryllium	mg/L	ND	0.1	0.1	0.090	0.086	90	86	75-125	5	20	
Boron	mg/L	3.8	1	1	5.1	5.2	85	95	75-125	2	20	
Cadmium	mg/L	ND	0.1	0.1	0.11	0.10	107	103	75-125	4	20	
Calcium	mg/L	177	1	1	170	179	-693	243	75-125	5	20	M6
Chromium	mg/L	ND	0.1	0.1	0.099	0.097	99	97	75-125	2	20	
Cobalt	mg/L	ND	0.1	0.1	0.097	0.096	97	96	75-125	0	20	
Lead	mg/L	ND	0.1	0.1	0.092	0.090	92	90	75-125	2	20	
Lithium	mg/L	0.29	0.1	0.1	0.36	0.36	73	75	75-125	1	20	M1
Molybdenum	mg/L	0.49	0.1	0.1	0.58	0.60	89	105	75-125	3	20	
Selenium	mg/L	ND	0.1	0.1	0.10	0.10	100	100	75-125	0	20	
Thallium	mg/L	ND	0.1	0.1	0.093	0.092	93	92	75-125	2	20	

Results presented on 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.: 2624803

QC Batch: 37735 Analysis Method: SM 2540C

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

Associated Lab Samples: 2624803001

LABORATORY CONTROL SAMPLE: 171263

Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers Total Dissolved Solids mg/L 400 402 100 84-108

SAMPLE DUPLICATE: 171264

2624800005 Dup Max RPD RPD Parameter Units Result Result Qualifiers **Total Dissolved Solids** 212 212 0 10 mg/L

SAMPLE DUPLICATE: 171265

Date: 12/17/2019 10:26 AM

2624792004 Dup Max Result RPD RPD Qualifiers Parameter Units Result 507 **Total Dissolved Solids** mg/L 512 1 10

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



Project: PLANT HAMMOND

Pace Project No.: 2624803

Date: 12/17/2019 10:26 AM

QC Batch: 37870 QC Batch Method: EPA 300.0

0 Analysis Method: 300.0 Analysis Descripti

Analysis Description: 300.0 IC Anions

EPA 300.0

Associated Lab Samples: 2624803001

METHOD BLANK: 171906 Matrix: Water

Associated Lab Samples: 2624803001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.024	10/31/19 04:37	
Fluoride	mg/L	ND	0.30	0.029	10/31/19 04:37	
Sulfate	mg/L	ND	1.0	0.017	10/31/19 04:37	

LABORATORY CONTROL SAMPLE:	171907					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Chloride	mg/L		4.8	96	90-110	
Fluoride	mg/L	5	5.0	101	90-110	
Sulfate	mg/L	5	5.1	101	90-110	

MATRIX SPIKE & MATRIX SP	IKE DUPL	ICATE: 1719	80		171909							
			MS	MSD								
		2624786002	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	3.2	10	10	13.0	13.2	97	100	90-110	2	15	
Fluoride	mg/L	0.56	10	10	10.6	10.9	100	103	90-110	3	15	

MATRIX SPIKE SAMPLE:	171910						
		2624800005	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Chloride	mg/L	4.6	10	14.7	101	90-110	
Fluoride	mg/L	0.099J	10	10.6	105	90-110	
Sulfate	mg/L	23.2	10	28.2	50	90-110 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.



QUALIFIERS

Project: PLANT HAMMOND

Pace Project No.: 2624803

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

Date: 12/17/2019 10:26 AM

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

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



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PLANT HAMMOND

Pace Project No.: 2624803

Date: 12/17/2019 10:26 AM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624803001	FB-01	EPA 3005A	38024	EPA 6020B	38049
2624803001	FB-01	EPA 7470A	37720	EPA 7470A	37761
2624803001	FB-01	SM 2540C	37735		
2624803001	FB-01	EPA 300.0	37870		

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Chamber of the	- Aical

WO#: 2624803

Phone (404)505-7239
Requested Due Date S.A. Company Georgia Power - Coal Combustion Residuals
Address 2480 Maner Road Required Client Information: I) App III Metals = 8. Ca Illanta, GA 30339 ITEM# AP-4) App IV Metals = As, Ba, Ba, Col, Cr, Ca, Pb, Li, M.O. jabraham@southernoo.com 1801 (A-Z, 0-91, -) Sample ids must be unique One Character per box, SAMPLE ID MATRIX
Overving Weter
Water
Water
Water
Water
Water
Water
Product
Sci/Schd
Od
Wipe
Au
Trasure Propert 640.6581 Required Project Information:
Report To Joju Abraham
Copy To Lauren Pelly, Geosyntec Purchase Order # SCS10382775 \$3 \$ \$ 5 \$ \$ \$ \$ \$ \$ \$ \$ \$ RELINGUISHED BY JAFFILIATION Gras / Gonate MATRIX CODE (see valid codes to left) Russo/900 G SAMPLETYPE (G=GRAB C=COMP) Plant Hammond 10/2/4/17:00 3 START COLLECTED SIGNATURE of SAMPLER: PRINT Name of SAMPLER: ONLY LER NAME AND SIGNATURE ENO 17.10 1922 DATE SAMPLE TEMP AT COLLECTION Pace Quote Pace Project Manager Attention sosinviloss@southernoo.com Company Name Address Pace Profile # 327 (AP) 800 2000 # OF CONTAINERS Unpreserved OFBRS H2SO4 HNO3 Preservatives HCI NaOH Ne2S2O3 betsy mcdaniel@pacelabs.com MODERNIED BY I ANTHUATION Methanol Kushey/ 900 Proces Other Analyses Test 2 P102/22/64 :DATE Signed: 10/22/2019 App IV Metals (2, AP-4) 9 TDS, CI, F, SO4 # **[** Radium 226/228 72/01 10 24 DATE 188 <u>下</u>い Š TEMP in C Residual Chlorina (Y/N) (Y/N ς Cool

WO#: 2624802

Sample Condition Upon Receipt

Pace Analytical Cli W0#: 2624803

Due Date: 10/31/19 10#: 2624802

stody Seal on Cooler/Box Present yes	no Seels in		
cking Material: Bubble Wrap Bubble	Bags None	Other	
ermometer Used THR 214	Type of Ice: Wet	Blue None	Samples on ice, cooling process has begun
poler Temperature	Biological Tissue is	Frozen: Yes No	Date and Initials of person examining contents:
mp should be above freezing to 6°C		Comments:	001101101
nain of Custody Present:	☑Yes □No □N/A 1	I. d	
nain of Custody Filled Out:	ØYes □No □N/A 2	2.	
hain of Custody Relinquished:	es Ono ONA	3.	
ampler Name & Signature on COC:	ZYes ONO ON/A	4.	77 V V V V V V V V V V V V V V V V V V
amples Arrived within Hold Time:	Yes ONO ON/A	5.	
hort Hold Time Analysis (<72hr):	□Yes ENO □N/A	6.	
ush Turn Around Time Requested:	□Yes ☑No □N/A	7.	,
ufficient Volume:	EYes □No □N/A	8.	7 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -
correct Containers Used:	ZYes □No □N/A		,
-Pace Containers Used:	Elyes DNo DN/A		
Containers Intact:	Yes ONO ON/A	10.	
iltered volume received for Dissolved tests	□Yes □No AVA		
Sample Labels match COC:	ØYes □No □N/A		
-Includes date/time/ID/Analysis Matrix:			
Il containers needing preservation have been checked.	ØYes □No □N/A	13	
Il containers needing preservation are found to be in	_	13	
compliance with EPA recommendation.	ØYes □No □N/A		
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	□Yes □No	Initial when completed	Lot # of added preservative
Samples checked for dechlorination:	Yes Ono On/A		
	□Yes □No ☑N/A		
Headspace in VOA Vials (>6mm): Trip Blank Present:	OYes ONO DAYA		
	Yes ONO ZN/A	38	× .
Trip Blank Custody Seals Present	LITES LINO JEINIA		1
Pace Trip Blank Lot # (if purchased):			
Client Notification/ Resolution:			Field Data Required? Y / N
Person Contacted:	Date	/Time:	
Comments/ Resolution:		<u> </u>	
			2000 34/28
			3000 W28
2%			

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)





January 20, 2020

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

RE: Project: PLANT HAMMOND Pace Project No.: 2627481

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on January 06, 2020. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Kevin Herring

Ken Len

kevin.herring@pacelabs.com

(704)875-9092

HORIZON Database Administrator

Enclosures

cc: Kristen Jurinko

Whitney Law, Geosyntec Consultants Noelia Muskus, Geosyntec Consultants Lauren Petty, Southern Company Services, Inc.





CERTIFICATIONS

Project: PLANT HAMMOND

Pace Project No.: 2627481

Pace Analytical Services Atlanta

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315 Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804 Florida/NELAP Certification #: E87648 Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina 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

Pace Project No.: 2627481

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2627481001	HGWC-102	Water	01/03/20 12:35	01/06/20 11:22
2627481002	FB-01	Water	01/03/20 16:05	01/06/20 11:22
2627481003	EB-01	Water	01/03/20 16:10	01/06/20 11:22



SAMPLE ANALYTE COUNT

Project: PLANT HAMMOND

Pace Project No.: 2627481

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2627481001	HGWC-102	EPA 6010D	KLH	2	PASI-GA
		EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	JRB	1	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
2627481002	FB-01	EPA 6010D	KLH	2	PASI-GA
		EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	JRB	1	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
2627481003	EB-01	EPA 6010D	KLH	2	PASI-GA
		EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	JRB	1	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A



SUMMARY OF DETECTION

Project: PLANT HAMMOND

Pace Project No.: 2627481

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
2627481001	HGWC-102					
EPA 6010D	Barium	0.036	mg/L	0.010	01/07/20 20:00	
EPA 6010D	Calcium	118	mg/L	1.0	01/07/20 20:00	
EPA 6020B	Antimony	0.00076J	mg/L	0.0030	01/07/20 18:58	
EPA 6020B	Arsenic	0.00065J	mg/L	0.0050	01/07/20 18:58	
EPA 6020B	Boron	3.4	mg/L	0.10	01/07/20 18:58	
EPA 6020B	Cadmium	0.00020J	mg/L	0.0025	01/07/20 18:58	
EPA 6020B	Chromium	0.00063J	mg/L	0.010	01/07/20 18:58	
EPA 6020B	Cobalt	0.0038J	mg/L	0.0050	01/07/20 18:58	
EPA 6020B	Lithium	0.0011J	mg/L	0.030	01/07/20 18:58	
EPA 6020B	Selenium	0.0015J	mg/L	0.010	01/07/20 18:58	
EPA 6020B	Thallium	0.000080J	mg/L	0.0010	01/07/20 18:58	
SM 2540C	Total Dissolved Solids	714	mg/L	10.0	01/07/20 11:38	
EPA 300.0 Rev 2.1 1993	Chloride	7.0	mg/L	1.0	01/15/20 19:17	
EPA 300.0 Rev 2.1 1993	Sulfate	380	mg/L	8.0	01/16/20 04:45	
2627481002	FB-01					
EPA 6020B	Boron	0.0089J	mg/L	0.10	01/07/20 19:03	
EPA 6020B	Chromium	0.00040J	mg/L	0.010	01/07/20 19:03	
2627481003	EB-01					
SM 2540C	Total Dissolved Solids	20.0	mg/L	10.0	01/07/20 11:38	



ANALYTICAL RESULTS

Project: PLANT HAMMOND

Pace Project No.: 2627481

Date: 01/20/2020 07:52 AM

Sample: HGWC-102	Lab ID:	2627481001	Collecte	ed: 01/03/20	12:35	Received: 01/	06/20 11:22 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP	Analytical	Method: EPA	6010D Pre	paration Met	thod: El	PA 3010A			
Barium	0.036	mg/L	0.010	0.0062	1	01/07/20 13:28	01/07/20 20:00	7440-39-3	
Calcium	118	mg/L	1.0	0.14	1	01/07/20 13:28	01/07/20 20:00	7440-70-2	
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: Ef	PA 3005A			
Antimony	0.00076J	mg/L	0.0030	0.00027	1	01/07/20 13:32	01/07/20 18:58	7440-36-0	
Arsenic	0.00065J	mg/L	0.0050	0.00035	1	01/07/20 13:32	01/07/20 18:58	7440-38-2	
Beryllium	ND	mg/L	0.0030	0.000074	1	01/07/20 13:32	01/07/20 18:58	7440-41-7	
Boron	3.4	mg/L	0.10	0.0049	1	01/07/20 13:32	01/07/20 18:58	7440-42-8	
Cadmium	0.00020J	mg/L	0.0025	0.00011	1	01/07/20 13:32	01/07/20 18:58	7440-43-9	
Chromium	0.00063J	mg/L	0.010	0.00039	1	01/07/20 13:32	01/07/20 18:58	7440-47-3	
Cobalt	0.0038J	mg/L	0.0050	0.00030	1	01/07/20 13:32	01/07/20 18:58	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	01/07/20 13:32	01/07/20 18:58	7439-92-1	
Lithium	0.0011J	mg/L	0.030	0.00078	1	01/07/20 13:32	01/07/20 18:58	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	01/07/20 13:32	01/07/20 18:58	7439-98-7	
Selenium	0.0015J	mg/L	0.010	0.0013	1	01/07/20 13:32	01/07/20 18:58	7782-49-2	
Thallium	0.000080J	mg/L	0.0010	0.000052	1	01/07/20 13:32	01/07/20 18:58	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	01/07/20 16:01	01/08/20 17:46	7439-97-6	
2540C Total Dissolved Solids	Analytical	Method: SM 2	2540C						
Total Dissolved Solids	714	mg/L	10.0	10.0	1		01/07/20 11:38		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0 Rev 2	2.1 1993					
Chloride	7.0	mg/L	1.0	0.60	1		01/15/20 19:17	16887-00-6	
Fluoride	ND	mg/L	0.30	0.050	1		01/15/20 19:17	16984-48-8	
Sulfate	380	mg/L	8.0	4.0	8		01/16/20 04:45	14808-79-8	



ANALYTICAL RESULTS

Project: PLANT HAMMOND

Pace Project No.: 2627481

Date: 01/20/2020 07:52 AM

Sample: FB-01	Lab ID:	2627481002	Collecte	ed: 01/03/20	16:05	Received: 01/	06/20 11:22 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6010D MET ICP	Analytical	Method: EPA	6010D Pre	paration Met	thod: El	PA 3010A			
Barium	ND	mg/L	0.010	0.0062	1	01/07/20 13:28	01/07/20 20:10	7440-39-3	
Calcium	ND	mg/L	1.0	0.14	1	01/07/20 13:28	01/07/20 20:10	7440-70-2	
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: Ef	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	01/07/20 13:32	01/07/20 19:03	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	01/07/20 13:32	01/07/20 19:03	7440-38-2	
Beryllium	ND	mg/L	0.0030	0.000074	1	01/07/20 13:32	01/07/20 19:03	7440-41-7	
Boron	0.0089J	mg/L	0.10	0.0049	1	01/07/20 13:32	01/07/20 19:03	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	01/07/20 13:32	01/07/20 19:03	7440-43-9	
Chromium	0.00040J	mg/L	0.010	0.00039	1	01/07/20 13:32	01/07/20 19:03	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	01/07/20 13:32	01/07/20 19:03	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	01/07/20 13:32	01/07/20 19:03	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	01/07/20 13:32	01/07/20 19:03	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	01/07/20 13:32	01/07/20 19:03	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	01/07/20 13:32	01/07/20 19:03	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	01/07/20 13:32	01/07/20 19:03	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Prej	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	01/07/20 16:01	01/08/20 17:24	7439-97-6	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		01/07/20 11:38		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0 Rev 2	2.1 1993					
Chloride	ND	mg/L	1.0	0.60	1		01/15/20 19:32	16887-00-6	
Fluoride	ND	mg/L	0.30	0.050	1		01/15/20 19:32	16984-48-8	
Sulfate	ND	mg/L	1.0	0.50	1		01/15/20 19:32	14808-79-8	



ANALYTICAL RESULTS

Project: PLANT HAMMOND

Pace Project No.: 2627481

Date: 01/20/2020 07:52 AM

Sample: EB-01	Lab ID:	2627481003	Collecte	ed: 01/03/20	16:10	Received: 01/	06/20 11:22 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP	Analytical	Method: EPA	6010D Pre	paration Met	thod: Ef	PA 3010A			
Barium	ND	mg/L	0.010	0.0062	1	01/07/20 13:28	01/07/20 20:15	7440-39-3	
Calcium	ND	mg/L	1.0	0.14	1	01/07/20 13:28	01/07/20 20:15	7440-70-2	
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	01/07/20 13:32	01/07/20 19:09	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	01/07/20 13:32	01/07/20 19:09	7440-38-2	
Beryllium	ND	mg/L	0.0030	0.000074	1	01/07/20 13:32	01/07/20 19:09	7440-41-7	
Boron	ND	mg/L	0.10	0.0049	1	01/07/20 13:32	01/07/20 19:09	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	01/07/20 13:32	01/07/20 19:09	7440-43-9	
Chromium	ND	mg/L	0.010	0.00039	1	01/07/20 13:32	01/07/20 19:09	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	01/07/20 13:32	01/07/20 19:09	7440-48-4	
_ead	ND	mg/L	0.0050	0.000046	1	01/07/20 13:32	01/07/20 19:09	7439-92-1	
_ithium	ND	mg/L	0.030	0.00078	1	01/07/20 13:32	01/07/20 19:09	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	01/07/20 13:32	01/07/20 19:09	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	01/07/20 13:32	01/07/20 19:09	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	01/07/20 13:32	01/07/20 19:09	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	01/07/20 16:01	01/08/20 17:48	7439-97-6	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	20.0	mg/L	10.0	10.0	1		01/07/20 11:38		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0 Rev 2	2.1 1993					
Chloride	ND	mg/L	1.0	0.60	1		01/15/20 19:47	16887-00-6	
-luoride	ND	mg/L	0.30	0.050	1		01/15/20 19:47		
Sulfate	ND	mg/L	1.0	0.50	1		01/15/20 19:47		

Qualifiers



QUALITY CONTROL DATA

Project: PLANT HAMMOND

Pace Project No.: 2627481

Date: 01/20/2020 07:52 AM

QC Batch: 41632 Analysis Method: EPA 7470A

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

Associated Lab Samples: 2627481001, 2627481002, 2627481003

METHOD BLANK: 189272 Matrix: Water

Associated Lab Samples: 2627481001, 2627481002, 2627481003

Blank Reporting
Parameter Units Result Limit MDL Analyzed

Mercury mg/L ND 0.00050 0.00014 01/08/20 17:20

LABORATORY CONTROL SAMPLE: 189273

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 189274 189275

MSD MS MSD 2627481002 Spike Spike MS MS MSD % Rec Max Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits **RPD** RPD Qual ND 0.0025 0.0025 0.0026 101 75-125 20 Mercury mg/L 0.0025 100

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



Project: PLANT HAMMOND

Pace Project No.: 2627481

Date: 01/20/2020 07:52 AM

QC Batch: 41627 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A Analysis Description: 6010D MET

Associated Lab Samples: 2627481001, 2627481002, 2627481003

METHOD BLANK: 189251 Matrix: Water

Associated Lab Samples: 2627481001, 2627481002, 2627481003

 Parameter
 Units
 Blank Reporting Result
 Reporting Limit
 MDL
 Analyzed
 Qualifiers

 mg/L
 ND
 0.010
 0.0062
 01/07/20 19:51

 Barium
 mg/L
 ND
 0.010
 0.0062
 01/07/20 19:51

 Calcium
 mg/L
 ND
 1.0
 0.14
 01/07/20 19:51

LABORATORY CONTROL SAMPLE: 189252

Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers Barium 1 1.0 101 80-120 mg/L Calcium mg/L 1 1.0 100 80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 189253 189254 MSD MS 2627501001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits **RPD RPD** Qual

Barium mg/L 0.051 1.1 1.1 101 104 75-125 3 20 Calcium mg/L 8.5 1 1 9.6 9.7 105 124 75-125 2 20

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



Project: PLANT HAMMOND

Pace Project No.: 2627481

Date: 01/20/2020 07:52 AM

QC Batch: 41623 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

Associated Lab Samples: 2627481001, 2627481002, 2627481003

METHOD BLANK: 189239 Matrix: Water

Associated Lab Samples: 2627481001, 2627481002, 2627481003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	01/07/20 18:23	
Arsenic	mg/L	ND	0.0050	0.00035	01/07/20 18:23	
Beryllium	mg/L	ND	0.0030	0.000074	01/07/20 18:23	
Boron	mg/L	ND	0.10	0.0049	01/07/20 18:23	
Cadmium	mg/L	ND	0.0025	0.00011	01/07/20 18:23	
Chromium	mg/L	ND	0.010	0.00039	01/07/20 18:23	
Cobalt	mg/L	ND	0.0050	0.00030	01/07/20 18:23	
Lead	mg/L	ND	0.0050	0.000046	01/07/20 18:23	
Lithium	mg/L	ND	0.030	0.00078	01/07/20 18:23	
Molybdenum	mg/L	ND	0.010	0.00095	01/07/20 18:23	
Selenium	mg/L	ND	0.010	0.0013	01/07/20 18:23	
Thallium	mg/L	ND	0.0010	0.000052	01/07/20 18:23	

LABORATORY CONTROL SAMPLE:	189240					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	mg/L	0.1	0.11	105	80-120	
Arsenic	mg/L	0.1	0.10	101	80-120	
Beryllium	mg/L	0.1	0.11	109	80-120	
Boron	mg/L	1	1.1	110	80-120	
Cadmium	mg/L	0.1	0.10	101	80-120	
Chromium	mg/L	0.1	0.10	103	80-120	
Cobalt	mg/L	0.1	0.10	100	80-120	

Lead	mg/L	0.1	0.10	105	80-120		
Lithium	mg/L	0.1	0.11	113	80-120		
Molybdenum	mg/L	0.1	0.10	104	80-120		
Selenium	mg/L	0.1	0.098	98	80-120		
Thallium	mg/L	0.1	0.10	104	80-120		
MATRIX SPIKE & MATRIX SPIKE	DUPLICATE: 18924	l1	189242				
		MS MS	SD				
	2627458001	Spike Spi	ke MS	MSD	MS MSD	% Rec	Max

Parameter	Units	2627458001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.10	0.11	103	105	75-125	2	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.099	101	99	75-125	1	20	
Beryllium	mg/L	ND	0.1	0.1	0.10	0.11	105	106	75-125	2	20	
Boron	mg/L	ND	1	1	1.1	1.2	104	109	75-125	4	20	
Cadmium	mg/L	ND	0.1	0.1	0.10	0.098	100	98	75-125	2	20	

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



Project: PLANT HAMMOND

Pace Project No.: 2627481

Date: 01/20/2020 07:52 AM

MATRIX SPIKE & MATRIX		189242										
Parameter	Units	2627458001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chromium	mg/L	ND	0.1	0.1	0.11	0.11	105	105	75-125	1	20	
Cobalt	mg/L	ND	0.1	0.1	0.10	0.099	100	98	75-125	1	20	
Lead	mg/L	ND	0.1	0.1	0.10	0.10	100	101	75-125	1	20	
Lithium	mg/L	ND	0.1	0.1	0.12	0.12	110	109	75-125	1	20	
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.11	103	104	75-125	1	20	
Selenium	mg/L	ND	0.1	0.1	0.096	0.096	94	95	75-125	0	20	
Thallium	mg/L	ND	0.1	0.1	0.10	0.10	100	103	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.: 2627481

QC Batch: 41612 Analysis Method: SM 2540C

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

Associated Lab Samples: 2627481001, 2627481002, 2627481003

LABORATORY CONTROL SAMPLE: 189168

Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers **Total Dissolved Solids** mg/L 400 386 96 84-108

SAMPLE DUPLICATE: 189169

2627461001 Dup Max RPD RPD Units Result Qualifiers Parameter Result **Total Dissolved Solids** 457 443 3 10 mg/L

SAMPLE DUPLICATE: 189170

Date: 01/20/2020 07:52 AM

2627495002 Dup Max RPD RPD Qualifiers Parameter Units Result Result mg/L 16200 **Total Dissolved Solids** 15600 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.: 2627481

Date: 01/20/2020 07:52 AM

QC Batch: 519389 Analysis Method: EPA 300.0 Rev 2.1 1993

QC Batch Method: EPA 300.0 Rev 2.1 1993 Analysis Description: 300.0 IC Anions

Associated Lab Samples: 2627481001, 2627481002, 2627481003

METHOD BLANK: 2779830 Matrix: Water

Associated Lab Samples: 2627481001, 2627481002, 2627481003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	01/15/20 15:48	
Fluoride	mg/L	ND	0.10	0.050	01/15/20 15:48	
Sulfate	mg/L	ND	1.0	0.50	01/15/20 15:48	

LABORATORY CONTROL SAMPLE:	2779831					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Chloride	mg/L	50	50.5	101	90-110	
Fluoride	mg/L	2.5	2.5	101	90-110	
Sulfate	mg/L	50	48.3	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2779832 2779833												
			MS	MSD								
		2627420001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	8.3	50	50	61.0	60.9	105	105	90-110	0	10	
Fluoride	mg/L	ND	2.5	2.5	2.4	2.5	93	98	90-110	4	10	
Sulfate	mg/L	589	50	50	620	623	62	67	90-110	0	10	M6

MATRIX SPIKE & MATRIX SP	PIKE DUPL	ICATE: 2779	834		2779835							
Parameter	Units	2627481003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	ND	50	50	52.5	52.2	105	104	90-110	1	10	
Fluoride	mg/L	ND	2.5	2.5	2.6	2.5	104	101	90-110	2	10	
Sulfate	mg/L	ND	50	50	52.6	52.2	105	104	90-110	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.



QUALIFIERS

Project: PLANT HAMMOND

Pace Project No.: 2627481

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

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

ANALYTE QUALIFIERS

Date: 01/20/2020 07:52 AM

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



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PLANT HAMMOND

Pace Project No.: 2627481

Date: 01/20/2020 07:52 AM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytica Batch
 2627481001	HGWC-102	EPA 3010A	41627	EPA 6010D	41637
2627481002	FB-01	EPA 3010A	41627	EPA 6010D	41637
2627481003	EB-01	EPA 3010A	41627	EPA 6010D	41637
2627481001	HGWC-102	EPA 3005A	41623	EPA 6020B	41638
2627481002	FB-01	EPA 3005A	41623	EPA 6020B	41638
2627481003	EB-01	EPA 3005A	41623	EPA 6020B	41638
2627481001	HGWC-102	EPA 7470A	41632	EPA 7470A	41658
2627481002	FB-01	EPA 7470A	41632	EPA 7470A	41658
2627481003	EB-01	EPA 7470A	41632	EPA 7470A	41658
2627481001	HGWC-102	SM 2540C	41612		
2627481002	FB-01	SM 2540C	41612		
2627481003	EB-01	SM 2540C	41612		
2627481001	HGWC-102	EPA 300.0 Rev 2.1 1993	519389		
2627481002	FB-01	EPA 300.0 Rev 2.1 1993	519389		
2627481003	EB-01	EPA 300.0 Rev 2.1 1993	519389		



Required Client Information:

CHAIN-OF-CUSTODY / Analytical Request Document

Section C

Invoice Information

Page:

đ

17 of 18

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

Company: Address: Requested Due Date: 141000 (1) App. III Metals = B, Ca (2, HGWC-102) App. IV Metals = Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Hg, Mo, (3) EB-01 and FB-01 will be reported in both Email: jabraham@southemco.com Sobs with their respective analyte list Ulanta, GA 30339 ITEM# = ㅎ 9 00 7 8 2 12 3 WO# 2627481 EB-01 40MC-102 Georgia Power - Coal Combustion Residuals
2480 Maner Road FB-01 (404)506-7239 Sample lds must be unique One Character per box.
(A-Z, 0-9 /, -) **SAMPLE ID** ADDITIONAL COMMENTS MATRIX
Draking Weler
Waste Water
Waste Water
Product
Solf-Solid
Col
Wipe
Air
Other Project #: いんしょ 8/ Purchase Order #: Report To: Joju Abraham
Copy To: Lauren Petty, Geosyntec Required Project Information: Project Name: AR P P WW WIT OIL 15-15 RELINQUISHED BY / AFFILIATION MATRIX CODE (see valid codes to left) Plant Hammond SAMPLE TYPE (G=GRAB C=COMP Russa I que START 3776 50 lω BAMPLER NAME AND SIGNATURE COLLECTED SIGNATURE OF SAMPLER: CAL PRINT Name of SAMPLER: Ch ad 73 DATE ENO 1610 1235 85 Éo ME 16/1000 1/20 DATE SAMPLE TEMP AT COLLECTION Pace Project Manager: Company Name: S # OF CONTAINERS Pace Profile #: Pace Quote: Address Attention: scsinvoices@southernco.com J S TIME. Unpreserved H2SO4 Kulps ниоз W w Preservatives **47** HC1 2912 (AP) more work NaOH kevin.herring@pacelabs.com Na2S2O3 ACCEPTED BY / AFFILIATION Methanol Y/N **Analyses Test** Z イン App. III Metals (1) Pace ₹ ₹ Z DATE Signed: (/ 3/1000) App. IV Metals (2, HGWC-10 く ᆂ TDS, CI, F, SO4 Z Radium 226/228 1.60aU DATE 11:ad 16/2020 Z. 150 150 150 三 Regulatory Agency State / Location in C TEMP Residual Chlorine (Y/N) ç Received on BAMPLE CONDITIONS ice (Y/N) Custo Sealed Cooler (Y/N) Sample intact (Y/N)

_	Sar	nple Con	dition L	lpon Rec	LIOH	:262748	120/20
Man Annheim	d Client Name	Carre	nice (DALLER		Dre her	e: 01/20/20
Pace Allanyuca	Client Name	: Cleur	J.u 1	0000	PM: KH	: 26-GA Power	
				- -	CLIENT	100000000000000000000000000000000000000	14
24.25	☐ UPS ☐ Clie	nt ∐Comi	mercial ţ	zs Pace O			
racking #:	er/Box Present: Øyes	□ 4€	Canlo is		voe 🗀 r	20	
	•				yes		
Marian Physical Company	Bubble Wrap Bubble						
Thermometer Used	THP 214			Blue Non		Samples on ice, cooling p Date and Initials of p	
cooler Temperature	6,000	Biologica		s Frozen: Yo	es No	contents:	
emp should be above fre		d. D		Comments:		_	
Chain of Custody Prese		Yes D		1.77			
Chain of Custody Filled		7∄Yes □					
Chain of Custody Relin			No □N/A		- 11 - 12		
Sampler Name & Signa	297 m = 8797	∑SYes □t			3000		
Samples Arrived within			No ŒNA				
Short Hold Time Ana			No BENIA				
Rush Turn Around Ti	me Requested:			6 740			
Sufficient Volume:			No DNA	200 William	-		
Correct Containers Us		•	No □N/A		. 6		
-Pace Containers L	Jsed:		No □N/A				
Containers Intact:			No □N/A				
Filtered volume receiv		F-500	INO EN/A				
Sample Labels match		Λ]no □n/a T	112.			
-Includes date/time	A/ID/Analysis Matrix: servation have been checked.	GNW, W		40		900 5	
720		(2)]No □N/A	113.			
All containers needing po compliance with EPA rec	reservation are found to be in commendation.	¥ 2 ¥es □	No □N/A				
		☐Yes □	Пио	initial when completed	Au) 16/2	Lot # of added preservative	
	TOC, O&G, WI-DRO (water)		□No Min/A				
Samples checked for							
Headspace in VOA V	ials (>6mm):						
Trip Blank Present:	8			1		· 8	
Trip Blank Custody S		Lifes (_1NO /_1N/	`			288
Pace Trip Blank Lot #	f (π purchased):						V / M
Client Notification/	Resolution:		105			Field Data Required?	Y / N
Person Conta	cted:		Date	e/Time:			
Comments/ Resolu	ution:						27550 42 . 42
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		27	- 1776 - 1 <u>- 1</u> - 1994				
					12	Date:	
Project Manager	r Review:						

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)





February 13, 2020

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

RE: Project: Plant Hammond

Pace Project No.: 2628188

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on January 23, 2020. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Kevin Herring

Ken Len

kevin.herring@pacelabs.com

(704)875-9092

HORIZON Database Administrator

Enclosures

cc: Kristen Jurinko

Whitney Law, Geosyntec Consultants Noelia Muskus, Geosyntec Consultants Lauren Petty, Southern Company Services, Inc.



(770)734-4200



CERTIFICATIONS

Project: Plant Hammond
Pace Project No.: 2628188

Pace Analytical Services Pennsylvania

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

ANAB DOD-ELAP Rad Accreditation #: L2417

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

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

Delaware Certification EPA Region 4 DW Rad

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

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

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

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

Maine Certification #: 2017020 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991 Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249 Oregon/TNI Certification #: PA200002-010 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

South Dakota Certification
Tennessee Certification #: 02867

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

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



SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2628188

Lab ID	Sample ID	Matrix	Date Collected	Date Received	
2628188001	HGWC-102	Water	01/22/20 10:33	01/23/20 13:58	
2628188002	EB-01	Water	01/22/20 14:32	01/23/20 13:58	
2628188003	FB-01	Water	01/22/20 14:48	01/23/20 13:58	



SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2628188

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2628188001	HGWC-102	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2628188002	EB-01	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2628188003	FB-01	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA



SUMMARY OF DETECTION

Project: Plant Hammond

Pace Project No.: 2628188

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
2628188001	HGWC-102					
EPA 9315	Radium-226	0.285 ± 0.188 (0.302) C:95% T:NA	pCi/L	(02/10/20 08:33	
EPA 9320	Radium-228	0.755 ± 0.418 (0.752) C:75% T:85%	pCi/L	C	02/06/20 15:35	
Total Radium Calculation	Total Radium	1.04 ± 0.606 (1.05)	pCi/L	C	02/11/20 10:37	
2628188002	EB-01					
EPA 9315	Radium-226	0.565 ± 0.236 (0.235) C:93% T:NA	pCi/L	C	02/10/20 08:33	
EPA 9320	Radium-228	0.747 ± 0.387 (0.661) C:80% T:80%	pCi/L	(02/06/20 15:35	
Total Radium Calculation	Total Radium	1.31 ± 0.623 (0.896)	pCi/L	(02/11/20 10:37	
2628188003	FB-01					
EPA 9315	Radium-226	1.00 ± 0.348 (0.368) C:92% T:NA	pCi/L	C	02/10/20 08:33	
EPA 9320	Radium-228	0.230 ± 0.319 (0.682) C:81% T:81%	pCi/L	(02/06/20 15:35	
Total Radium Calculation	Total Radium	1.23 ± 0.667 (1.05)	pCi/L	(02/11/20 10:37	



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2628188

Sample: HGWC-102 PWS:	Lab ID: 26281880 Site ID:	O1 Collected: 01/22/20 10:33 Sample Type:	Received:	01/23/20 13:58	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.285 ± 0.188 (0.302) C:95% T:NA	pCi/L	02/10/20 08:33	13982-63-3	
Radium-228		0.755 ± 0.418 (0.752) C:75% T:85%	pCi/L	02/06/20 15:35	5 15262-20-1	
Total Radium	Total Radium Calculation	1.04 ± 0.606 (1.05)	pCi/L	02/11/20 10:37	7440-14-4	



Total Radium

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond
Pace Project No.: 2628188

Total Radium

Calculation

Sample: EB-01 PWS:	Lab ID: 262818 Site ID:	8002 Collected: 01/22/20 14:32 Sample Type:	Received:	01/23/20 13:58	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.565 ± 0.236 (0.235) C:93% T:NA	pCi/L	02/10/20 08:33	13982-63-3	
Radium-228	EPA 9320	0.747 ± 0.387 (0.661) C:80% T:80%	pCi/L	02/06/20 15:35	15262-20-1	

pCi/L

02/11/20 10:37 7440-14-4

1.31 ± 0.623 (0.896)



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond
Pace Project No.: 2628188

Sample: FB-01 Lab ID: 2628188003 Collected: 01/22/20 14:48 Received: 01/23/20 13:58 Matrix: Water

PWS:	Site ID:	Sample Type:	rtocorrou.	01/20/20 10:00	viation. Viator	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	1.00 ± 0.348 (0.368) C:92% T:NA	pCi/L	02/10/20 08:33	13982-63-3	
Radium-228	EPA 9320	0.230 ± 0.319 (0.682) C:81% T:81%	pCi/L	02/06/20 15:35	15262-20-1	
Total Radium	Total Radium Calculation	1.23 ± 0.667 (1.05)	pCi/L	02/11/20 10:37	7440-14-4	



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2628188

QC Batch: 381384 Analysis Method: EPA 9320

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

Associated Lab Samples: 2628188001, 2628188002, 2628188003

METHOD BLANK: 1848332 Matrix: Water

Associated Lab Samples: 2628188001, 2628188002, 2628188003

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

Radium-228 0.615 \pm 0.417 (0.806) C:82% T:79% pCi/L 02/06/20 15:30

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



QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2628188

QC Batch: 382555 Analysis Method: EPA 9315

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

Associated Lab Samples: 2628188001, 2628188002, 2628188003

METHOD BLANK: 1853918 Matrix: Water

Associated Lab Samples: 2628188001, 2628188002, 2628188003

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

 Radium-226
 0.333 ± 0.191 (0.268) C:98% T:NA
 pCi/L
 02/10/20 08:28

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



QUALIFIERS

Project: Plant Hammond
Pace Project No.: 2628188

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

Date: 02/13/2020 04:25 PM

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2628188

Date: 02/13/2020 04:25 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2628188001	HGWC-102	EPA 9315	382555		
2628188002	EB-01	EPA 9315	382555		
2628188003	FB-01	EPA 9315	382555		
2628188001	HGWC-102	EPA 9320	381384		
2628188002	EB-01	EPA 9320	381384		
2628188003	FB-01	EPA 9320	381384		
2628188001	HGWC-102	Total Radium Calculation	383310		
2628188002	EB-01	Total Radium Calculation	383310		
2628188003	FB-01	Total Radium Calculation	383310		



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						G)	Section C	ပ											_					Γ
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company	Georgia Power - Coal Combustion Residuals	Report To:	- 1	Joju Abraham				₹	Attention:		scsinvoices@southernco.com	ses@sc	outherr	CO.CO	E						J	l				1
Address:	2480 Maner Road	Copy To:	Laure	Lauren Pelty, Geosyntec	eosyntec			O	отрал	Сотралу Nате	22															
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Sample Condition Upon Receipt Due Date: 02/06/20 PM: KH Client Name: (1) CLIENT: 26-GA Power Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other Proj. Due Date Custody Seal on Cooler/Box Present: yes ☐ no Packing Material: Bubble Wrap Bubble Bags None Other Samples on ice, cooling process has begun Type of Ice: (We) Blue None Thermometer Used Date and Initials of person examining contents: (12) (2) Biological Tissue is Frozen: Yes No Cooler Temperature Comments: Temp should be above freezing to 6°C ZYes □No □N/A 1. Chain of Custody Present: ☑Yes □No □N/A Chain of Custody Filled Out: ☑Yes □No □NA 3. Chain of Custody Relinquished: ZYes DNo □NA 4. Sampler Name & Signature on COC: DAS ONO DINA Samples Arrived within Hold Time: **Z**NA □Yes □No Short Hold Time Analysis (<72hr): □Yes ⊿ZNo □N⁄A Rush Turn Around Time Requested: ØYes □No □NA 8. Sufficient Volume: BYes □No □NA 9. Correct Containers Used: □xes □no **□**N/A -Pace Containers Used: □Yes □No □N/A Containers Intact: ☐Yes ☐No DINA Filtered volume received for Dissolved tests BYes □No □N/A Sample Labels match COC: -Includes date/time/ID/Analysis All containers needing preservation have been checked. □Yes □No □N/A 13. All containers needing preservation are found to be in □Yes □No ØNA compliance with EPA recommendation. Lot # of added Initial when □Yes PNo preservative completed exceptions: VOA, coliform, TOC, O&G, WI-DRO (water) ☐Yes ☐No BNA 14. Samples checked for dechlorination: □Yes □No □NA Headspace in VOA Vials (>6mm): □Yes □No Trip Blank Present: □Yes □No **DNA** Trip Blank Custody Seals Present Pace Trip Blank Lot # (if purchased):_ Y / N Field Data Required?

Client Notification/ Resolution:

Person Contacted:

Comments/ Resolution:

Project Manager Review:

Field Data Required?

Y / N

Date/Time:

Date/Time:

Date/Time:

Date:

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





March 23, 2020

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

RE: Project: PLANT HAMMOND AP-4 BACKRGROUND

Pace Project No.: 2629801

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 05, 2020. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Kevin Herring

Ken Len

kevin.herring@pacelabs.com

(704)875-9092

HORIZON Database Administrator

Enclosures

cc: Kristen Jurinko

Whitney Law, Geosyntec Consultants Noelia Muskus, Geosyntec Consultants Lauren Petty, Southern Company Services, Inc.





CERTIFICATIONS

Project: PLANT HAMMOND AP-4 BACKRGROUND

Pace Project No.: 2629801

Pace Analytical Services Atlanta

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001 Virginia Certification #: 460204

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804

Florida/NELAP Certification #: E87648

Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

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





SAMPLE SUMMARY

Project: PLANT HAMMOND AP-4 BACKRGROUND

Pace Project No.: 2629801

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2629801001	HGWC-102	Water	03/04/20 10:07	03/05/20 12:00



SAMPLE ANALYTE COUNT

Project: PLANT HAMMOND AP-4 BACKRGROUND

Pace Project No.: 2629801

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2629801001	HGWC-102	EPA 6010D	DRB	1	PASI-GA
		EPA 6020B	CSW	13	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		SM 2540C	NJ1	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A



Project: PLANT HAMMOND AP-4 BACKRGROUND

Pace Project No.: 2629801

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
	- arameters		Offics	- Treport Limit	- Allalyzed	Qualifiers
2629801001	HGWC-102					
	Field pH	5.75	Std. Units		03/20/20 07:54	
EPA 6010D	Calcium	144	mg/L	1.0	03/11/20 21:49	
EPA 6020B	Arsenic	0.00036J	mg/L	0.0050	03/11/20 21:17	
EPA 6020B	Barium	0.033	mg/L	0.010	03/11/20 21:17	
EPA 6020B	Boron	3.7	mg/L	0.10	03/11/20 21:17	
EPA 6020B	Cadmium	0.00026J	mg/L	0.0025	03/11/20 21:17	
EPA 6020B	Cobalt	0.0021J	mg/L	0.0050	03/11/20 21:17	
EPA 6020B	Lead	0.00011J	mg/L	0.0050	03/11/20 21:17	
EPA 6020B	Lithium	0.0013J	mg/L	0.030	03/11/20 21:17	
SM 2540C	Total Dissolved Solids	764	mg/L	10.0	03/11/20 11:14	
EPA 300.0 Rev 2.1 1993	Chloride	7.1	mg/L	1.0	03/10/20 21:20	
EPA 300.0 Rev 2.1 1993	Sulfate	400	mg/L	8.0	03/11/20 08:33	



ANALYTICAL RESULTS

Project: PLANT HAMMOND AP-4 BACKRGROUND

Pace Project No.: 2629801

Date: 03/23/2020 06:57 AM

Sample: HGWC-102	Lab ID:	2629801001	Collecte	ed: 03/04/20	0 10:07	Received: 03/	05/20 12:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL_	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical	Method:							
Field pH	5.75	Std. Units			1		03/20/20 07:54		
6010D MET ICP	Analytical	Method: EPA	6010D Pre	paration Me	thod: El	PA 3010A			
Calcium	144	mg/L	1.0	0.14	1	03/10/20 18:30	03/11/20 21:49	7440-70-2	
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	thod: Ef	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	03/10/20 20:52	03/11/20 21:17	7440-36-0	
Arsenic	0.00036J	mg/L	0.0050	0.00035	1	03/10/20 20:52	03/11/20 21:17	7440-38-2	
Barium	0.033	mg/L	0.010	0.00049	1	03/10/20 20:52	03/11/20 21:17	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	03/10/20 20:52	03/11/20 21:17	7440-41-7	
Boron	3.7	mg/L	0.10	0.0049	1	03/10/20 20:52	03/11/20 21:17	7440-42-8	
Cadmium	0.00026J	mg/L	0.0025	0.00011	1	03/10/20 20:52	03/11/20 21:17	7440-43-9	
Chromium	ND	mg/L	0.010	0.00039	1	03/10/20 20:52	03/11/20 21:17	7440-47-3	
Cobalt	0.0021J	mg/L	0.0050	0.00030	1	03/10/20 20:52	03/11/20 21:17	7440-48-4	
Lead	0.00011J	mg/L	0.0050	0.000046	1	03/10/20 20:52	03/11/20 21:17	7439-92-1	
Lithium	0.0013J	mg/L	0.030	0.00078	1	03/10/20 20:52	03/11/20 21:17	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	03/10/20 20:52	03/11/20 21:17	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	03/10/20 20:52	03/11/20 21:17	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	03/10/20 20:52	03/11/20 21:17	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Prej	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	03/10/20 08:40	03/10/20 19:14	7439-97-6	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	764	mg/L	10.0	10.0	1		03/11/20 11:14		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0 Rev 2	2.1 1993					
Chloride	7.1	mg/L	1.0	0.60	1		03/10/20 21:20	16887-00-6	
Fluoride	ND	mg/L	0.30	0.050	1		03/10/20 21:20		
Sulfate	400	mg/L	8.0	4.0	8		03/11/20 08:33		



Project: PLANT HAMMOND AP-4 BACKRGROUND

Pace Project No.: 2629801

Date: 03/23/2020 06:57 AM

QC Batch: 44367 Analysis Method: EPA 7470A

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

Associated Lab Samples: 2629801001

METHOD BLANK: 203479 Matrix: Water

Associated Lab Samples: 2629801001

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

Mercury mg/L ND 0.00050 0.00014 03/10/20 18:17

LABORATORY CONTROL SAMPLE: 203480

Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers Mercury mg/L 0.0025 0.0025 99 80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 203481 203482

MSD MS MSD 2629786001 Spike Spike MS MS MSD % Rec Max Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD RPD Qual ND 0.0025 0.0025 0.0024 0.0025 98 75-125 20 Mercury mg/L 101

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



PLANT HAMMOND AP-4 BACKRGROUND Project:

Pace Project No.: 2629801

Date: 03/23/2020 06:57 AM

QC Batch: 44427 Analysis Method: EPA 6010D QC Batch Method: **EPA 3010A** Analysis Description: 6010D MET

Associated Lab Samples: 2629801001

203834 METHOD BLANK: Matrix: Water

Associated Lab Samples: 2629801001

Blank Reporting MDL Parameter Units Limit Qualifiers Result Analyzed Calcium ND 1.0 0.14 03/11/20 21:07

mg/L

LABORATORY CONTROL SAMPLE: 203835

Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers Calcium mg/L 1.0 104 80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 203836 203837 MS MSD MSD 2629765017 Spike Spike MS MS MSD % Rec Max Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD RPD Qual 1 1 70.2 75-125 2 20 M1 Calcium mg/L 69.8 71.5 34 170

Results presented on 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-4 BACKRGROUND

Pace Project No.: 2629801

Date: 03/23/2020 06:57 AM

QC Batch: 44440 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

Associated Lab Samples: 2629801001

METHOD BLANK: 203914 Matrix: Water

Associated Lab Samples: 2629801001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	03/11/20 18:48	
Arsenic	mg/L	ND	0.0050	0.00035	03/11/20 18:48	
Barium	mg/L	ND	0.010	0.00049	03/11/20 18:48	
Beryllium	mg/L	ND	0.0030	0.000074	03/11/20 18:48	
Boron	mg/L	0.0084J	0.10	0.0049	03/11/20 18:48	
Cadmium	mg/L	ND	0.0025	0.00011	03/11/20 18:48	
Chromium	mg/L	0.00054J	0.010	0.00039	03/11/20 18:48	
Cobalt	mg/L	ND	0.0050	0.00030	03/11/20 18:48	
Lead	mg/L	ND	0.0050	0.000046	03/11/20 18:48	
Lithium	mg/L	ND	0.030	0.00078	03/11/20 18:48	
Molybdenum	mg/L	ND	0.010	0.00095	03/11/20 18:48	
Selenium	mg/L	ND	0.010	0.0013	03/11/20 18:48	
Thallium	mg/L	ND	0.0010	0.000052	03/11/20 18:48	

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
timony	mg/L	0.1	0.11	112	80-120	
senic	mg/L	0.1	0.098	98	80-120	
rium	mg/L	0.1	0.10	103	80-120	
ryllium	mg/L	0.1	0.10	103	80-120	
ron	mg/L	1	1.1	106	80-120	
dmium	mg/L	0.1	0.10	101	80-120	
romium	mg/L	0.1	0.11	105	80-120	
balt	mg/L	0.1	0.10	103	80-120	
ad	mg/L	0.1	0.10	104	80-120	
nium	mg/L	0.1	0.11	106	80-120	
lybdenum	mg/L	0.1	0.098	98	80-120	
lenium	mg/L	0.1	0.10	100	80-120	
allium	mg/L	0.1	0.11	108	80-120	

MATRIX SPIKE & MATRIX SP	IKE DUPL	ICATE: 2039	16		203917							
			MS	MSD								
		2629786001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.11	0.11	107	107	75-125	0	20	
Arsenic	mg/L	0.00073J	0.1	0.1	0.099	0.099	99	98	75-125	1	20	
Barium	mg/L	0.017	0.1	0.1	0.12	0.12	100	100	75-125	1	20	

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



Project: PLANT HAMMOND AP-4 BACKRGROUND

Pace Project No.: 2629801

Date: 03/23/2020 06:57 AM

MATRIX SPIKE & MATRIX	SPIKE DUPL	ICATE: 2039	16		203917							
		2629786001	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Beryllium	mg/L	ND	0.1	0.1	0.10	0.10	101	104	75-125	2	20	
Boron	mg/L	0.0096J	1	1	1.0	1.1	103	105	75-125	2	20	
Cadmium	mg/L	ND	0.1	0.1	0.10	0.099	100	99	75-125	1	20	
Chromium	mg/L	ND	0.1	0.1	0.10	0.10	102	103	75-125	1	20	
Cobalt	mg/L	ND	0.1	0.1	0.098	0.099	98	99	75-125	2	20	
Lead	mg/L	0.000051J	0.1	0.1	0.096	0.096	96	96	75-125	0	20	
Lithium	mg/L	ND	0.1	0.1	0.10	0.10	104	105	75-125	0	20	
Molybdenum	mg/L	0.0064J	0.1	0.1	0.10	0.10	95	96	75-125	2	20	
Selenium	mg/L	0.0053J	0.1	0.1	0.10	0.11	98	104	75-125	6	20	
Thallium	mg/L	0.00012J	0.1	0.1	0.10	0.10	103	104	75-125	1	20	

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



Project: PLANT HAMMOND AP-4 BACKRGROUND

Pace Project No.: 2629801

QC Batch: 44453 Analysis Method: SM 2540C

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

Associated Lab Samples: 2629801001

LABORATORY CONTROL SAMPLE: 203948

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

Total Dissolved Solids 794 108

Total Dissolved Solids mg/L 400 394 98 84-108

SAMPLE DUPLICATE: 203949

2629751001 Dup Max RPD RPD Units Qualifiers Parameter Result Result **Total Dissolved Solids** 337 344 2 10 mg/L

SAMPLE DUPLICATE: 203950

Date: 03/23/2020 06:57 AM

2629733003 Dup Max Result RPD RPD Qualifiers Parameter Units Result mg/L 118 **Total Dissolved Solids** 119 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 AP-4 BACKRGROUND

Pace Project No.: 2629801

QC Batch: 529390

Analysis Method: EPA 300.0 Rev 2.1 1993

300.0 IC Anions

QC Batch Method: EPA 300.0 Rev 2.1 1993

Associated Lab Samples: 2629801001

Matrix: Water

Analysis Description:

METHOD BLANK: 2827590 Associated Lab Samples: 2629801001

Date: 03/23/2020 06:57 AM

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	03/10/20 16:12	
Fluoride	mg/L	ND	0.10	0.050	03/10/20 16:12	
Sulfate	mg/L	ND	1.0	0.50	03/10/20 16:12	

LABORATORY CONTROL SAMPLE:	2827591					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Chloride	mg/L	50	49.1	98	90-110	
Fluoride	mg/L	2.5	2.6	104	90-110	
Sulfate	mg/L	50	48.3	97	90-110	

MATRIX SPIKE & MATRIX SF	PIKE DUPLI	CATE: 2827	592		2827593							
			MS	MSD								
		2629703013	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	42.0	50	50	92.3	92.6	101	101	90-110	0	10	
Fluoride	mg/L	1.4	2.5	2.5	4.0	4.0	101	102	90-110	1	10	
Sulfate	mg/L	48.4	50	50	98.1	98.3	99	100	90-110	0	10	

MATRIX SPIKE & MATRIX SP	IKE DUPL	ICATE: 2827	594		2827595							
			MS	MSD								
		2629703023	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	79.1	50	50	118	119	77	79	90-110	1	10	M1
Fluoride	mg/L	0.052J	2.5	2.5	2.6	2.6	103	103	90-110	0	10	
Sulfate	mg/L	97.4	50	50	141	143	88	90	90-110	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.



QUALIFIERS

Project: PLANT HAMMOND AP-4 BACKRGROUND

Pace Project No.: 2629801

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

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

ANALYTE QUALIFIERS

Date: 03/23/2020 06:57 AM

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



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PLANT HAMMOND AP-4 BACKRGROUND

Pace Project No.: 2629801

Date: 03/23/2020 06:57 AM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytica Batch
2629801001	HGWC-102		44306		
2629801001	HGWC-102	EPA 3010A	44427	EPA 6010D	44443
2629801001	HGWC-102	EPA 3005A	44440	EPA 6020B	44463
2629801001	HGWC-102	EPA 7470A	44367	EPA 7470A	44420
2629801001	HGWC-102	SM 2540C	44453		
2629801001	HGWC-102	EPA 300.0 Rev 2.1 1993	529390		

Metals=As,B,Ba,Be,Ca,Cd,Co,Cr,Hg,Li,Mo,Pb,Sb,Se,Ti lease note dry wells, strike thorugh airy wells not sampled, and ole when the last sample for the event has been taken. Company: Requested Due Date/TAT: Email To: Required Client Information: 12 5 ITEM# 63 ω N ddress: Required Client Information (A-Z. 0-91.-)
Sample IDs MUST BE UNIQUE 'Important Note: By signing GA Power SCS Contacts Attania, GA SAMPLE ID ADDITIONAL COMMENTS SPAG this form you are accepting Pace's NET 30 day payment 102 Project Number: Report To: SCS Contacts Section B
Required Project Information: Copy To: Geosyntec Contacts Project Name: Purchase Order No. 200 indum Lin RELINQUISHED BY I AFFILIATION S L MATRIX CODE (see valid codes to left) Russel aco Plant Hammond AP-4 Background Event (G=GRAB C=COMP) GW6581 SAMPLE TYPE 3/4/20/1065 DATE TOTAL MANAGES agreeing to late charges of 1.5% per morth for any invoices not paid within 30 days SAMPLER NAKE AND SIGNATURE COLLECTED SIGNATURE of SAMPLER: CLAC PRINT Name of SAMPLER: Chad 42/42 The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately CHAIN-OF-CUSTODY / Analytical Request Document DATE ON OR HI COMPOSITE 15/200 3H/2020 3 H. DATE SAMPLE TEMP AT COLLECTION ニた Reference: Pace Project Company Name: Alteration: invoice information Section C 190 O # OF CONTAINERS Address: IJ O ace Quote Ch HME 2 Unpreserved H₂SO₄ HNO₃ W ü Ç W ü 3 Preservatives Kevin Herring Southern Co. RUMO OF Mingher HCI NaQH Na₂S₂O₃ ACCEPTED BY / AFFILIATION Methanol Other Analysis Test Y/ N LOZILO/CO SANGOINNI Requested Analysis Filtered (Y/N) NACE. Metals 6010/6020 × × × × RAD 226/228 REGULATORY AGENCY Site Location 2/5/2 1200 UST NPDES STATE: DATE 10/5 RCRA GROUND WATE 9 Page: 2 F-ALL-Q-020rev.07, 15-Feb-2007 Temp in *C Residual Chlorine (Y/N) য Received on Pace Project No./ Lab I.D. SAMPLE CONDITIONS Ice (Y/N) 2 Custody Sealed Coole OTHER OFF 3 DRINKING WATER (Y/N) Samples intac (Y/N) 15 of 20

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AGOU	8P3A	图	SP2T-250 mt Sterile Plastic (N/A - lab)	SSI	V/GX (3	VOAK (6 vials per ktt)-5035 kit (N/A)	DG9P-4	V69U-40	V69T-40	DG9H-40 ml YOA HCI (N/A)	AGBAIDGBAI-250 mt Amber NAME (1977)	AG35-250 ml Amber nason visitati		11cr Amber H2SO4 (pH < 2)	G3U-250	AG1H-1 liter Amber HCI (pH < 2)	AG1U-1 liter Amber Unpreserved (VV)	MGFU-WIG	15	the mi plastic NaOH (pH > 12) (CI-)	BP4Z-125 ml. Plastic ZN Acetate & NaOH (>9)	P3N-250 mt plastic HNO3 (pH < 2)	sp45-125	ip1U-1 lite	BP2U-500	BP3U-250 mL Plastic Unpreserved (N/A)	볈	\	×
AGOU-100 mL Auntibation vials (N/A)	֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓	[2]	250	2	13 ≤		6	ð.	60 m	8	634	8	1		50 m	liter /	1	1 2		<u> </u>	1	1	mt Plastic H2SO4 (pH < 2) (CI-)	E P	131	교	mt Plastic Unpreserved (N/A) (Cr.)	}	
12 2	\ P	1 N - 12 Plustic	E	25 mL Sterile Plastic (N/A - lab)	vials per kit)-VPH/Gas kit (N/A)	als D	QmL VOA H3PO4 (N/A)	Oml VOA Unp (N/A)	mt vOA Na25203 (N/A)	\ §-	7250	15			ml Amber Unpreserved (N/A) (CI-)	A DE	1 \$		Glass lar Unpreserved			plast	age Fr	Plastic Unpreserved (N/A)	in the second		P P	1	
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## Pace Analytical Ashville 2225 Riverside Dr. Asheville, NC 28804 Phone (828)254-7176 Preserved Containers Preserved Containers	
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:harlotte 28078	
	Yes N. Date: 3/5/2020
Cert. Needed: Ye Norkorder: 2629801 Workorder Name: PLANT HAMMOND AP-4 BACKRGROUNDwher Received Date:	18
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Chain of Custody State Of Origin: Samples were sent directly to the Subcontracting Laboratory. State Of Origin: Cert. Needed: Workorder: 2629801 Workorder Name: PLANT HAMMOND AP-4 BACKRGROUNDwner Received	

Thursday, March 05, 2020 1:49:11 PM

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

This chain of custody is considered complete as is since this information is available in the owner laboratory.

INTER_LABORATORY WORK ORDER # 2629801

(To be completed by sending lab)

3/19/2020	REQUESTED COMPLETION DATE
03/02/50	Denegend etec
	Check Box for Consolidated Invoice
	oM fooling Project No
1086292	oN Joejong BulpueS

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> Phone (828)254-7176 Asheville, NC 28804 2225 Riverside Dr. Pace Analytical Ashville :ol qid2



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			ending Project M			Kevin Herrir	

Original sent to the receiving lab - Copy kept at the sending lab. DISHOSITION SCEORM Receiving Project Manager: Date Completed:

FOR ANALYTICAL WORK COMPLETED THIS SECTION ALSO

JATOT

Other (identify)

Return Samples to Sending Region:

\$34 00

When work completed: Original sent to the ABM at the receiving laboratory. Copies are made to corporate as needed.

CONFIRMATION OF WORK COMPLETED

Water

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Drinking Water

Chain of Custody Included:

* Custom Revenue Allocation

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Page 1 of 1	FMT-ALL-C-002rev.00 24March2009	FMT-A													3 PM)20 1:49:13	Thursday, March 05, 2020 1:49:13 PM	ursday, M	Ţ
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INTER_LABORATORY WORK ORDER # 2629801

(To be completed by sending lab)

3/19/2020	REQUESTED COMPLETION DATE
03/02/50	Date Prepared
	Check Box for Consolidated Invoice
	Receiving Project No:
1086292	Sending Project No

Ship To: Pace Analytical Pittsburgh 1638 Roseytown Road Suites 2,3, & 4 Greensburg, PA 15601 Phone (724)850-5600

When work completed: Original sent to the ABM at the receiving Iaboratory. Copies are made to corporate as needed.

Original sent to the receiving lab - Copy kept at the sending lab.

Date Completed:

DISPOSITION OF FORM



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Requested Reportable Units Report Wet or Dry Weight? Dry Weight Oct. Meeded
All questions should be addressed to sending project manager.
State of Sample Origin GA QC Deliverable STD REPORT
Receiving Region R30-Pittsburgh External Client Georgia Power
Sending Region (R26-Atlanta Sending Project Mgr Kevin Herring

Receiving Project Manager:

CONFIRMATION OF WORK COMPLETED





May 27, 2020

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

RE: Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory between March 25, 2020 and April 10, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

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

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

Sincerely,

Kevin Herring

kevin.herring@pacelabs.com

Kein Slerry

(704)875-9092

HORIZON Database Administrator

Enclosures

cc: Kristen Jurinko

Whitney Law, Geosyntec Consultants Noelia Muskus, Geosyntec Consultants Lauren Petty, Southern Company Services, Inc.



(770)734-4200



CERTIFICATIONS

Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Pace Analytical Services Atlanta

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001 Virginia Certification #: 460204

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804

Florida/NELAP Certification #: E87648 Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

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



SAMPLE SUMMARY

Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2630414001	HGWA-111	Water	03/24/20 10:25	03/25/20 09:41
2630414002	HGWC-117	Water	03/24/20 16:39	03/25/20 09:41
2630414003	HGWA-112	Water	03/24/20 11:00	03/25/20 09:41
2630414005	FB-04	Water	03/25/20 10:50	03/26/20 11:10
2630414006	HGWC-101	Water	03/25/20 14:37	03/26/20 11:10
2630414007	HGWC-105	Water	03/25/20 12:10	03/26/20 11:10
2630414008	HGWC-107	Water	03/25/20 14:40	03/26/20 11:10
2630414009	HGWC-118	Water	03/25/20 09:35	03/26/20 11:10
2630414010	HGWC-103	Water	03/25/20 12:30	03/26/20 11:10
2630414011	HGWC-109	Water	03/25/20 16:55	03/26/20 11:10
2630414012	FD-04	Water	03/25/20 00:00	03/26/20 11:10
2630414013	HGWA-113	Water	04/09/20 16:17	04/10/20 11:35



SAMPLE ANALYTE COUNT

Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2630414001	HGWA-111	EPA 6010D	— — KLH	1	PASI-GA
		EPA 6020B	CSW	9	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
2630414002	HGWC-117	EPA 6010D	KLH	1	PASI-GA
		EPA 6020B	CSW	9	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
2630414003	HGWA-112	EPA 6010D	KLH	1	PASI-GA
		EPA 6020B	CSW	9	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
2630414005	FB-04	EPA 6010D	KLH	1	PASI-GA
		EPA 6020B	CSW	9	PASI-GA
		SM 2540C	VHB	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
2630414006	HGWC-101	EPA 6010D	KLH	1	PASI-GA
		EPA 6020B	CSW	9	PASI-GA
		SM 2540C	VHB	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
2630414007	HGWC-105	EPA 6010D	KLH	1	PASI-GA
		EPA 6020B	CSW	9	PASI-GA
		SM 2540C	VHB	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
2630414008	HGWC-107	EPA 6010D	KLH	1	PASI-GA
		EPA 6020B	CSW	9	PASI-GA
		SM 2540C	VHB	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
2630414009	HGWC-118	EPA 6010D	KLH	1	PASI-GA
		EPA 6020B	CSW	9	PASI-GA
		SM 2540C	VHB	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
2630414010	HGWC-103	EPA 6010D	KLH	1	PASI-GA
		EPA 6020B	CSW	9	PASI-GA
		SM 2540C	VHB	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
2630414011	HGWC-109	EPA 6010D	KLH	1	PASI-GA



SAMPLE ANALYTE COUNT

Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory	
		EPA 6020B	CSW	9	PASI-GA	
		SM 2540C	VHB	1	PASI-GA	
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A	
2630414012	FD-04	EPA 6010D	DRB	1	PASI-GA	
		EPA 6020B	CSW	9	PASI-GA	
		SM 2540C	VHB	1	PASI-GA	
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A	
2630414013	HGWA-113	EPA 6010D	DRB	1	PASI-GA	
		EPA 6020B	KLH	9	PASI-GA	
		SM 2540C	KN	1	PASI-GA	
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A	

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



Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

_ab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
630414001	HGWA-111					
	Field pH	7.37	Std. Units		03/30/20 10:07	
EPA 6010D	Calcium	61.2	mg/L	1.0	03/31/20 16:34	
EPA 6020B	Arsenic	0.00042J	mg/L	0.0050	04/02/20 17:28	
EPA 6020B	Barium	0.032	mg/L	0.010	04/02/20 17:28	
PA 6020B	Boron	0.011J	mg/L	0.10	04/02/20 17:28	
PA 6020B	Chromium	0.0019J	mg/L	0.010	04/02/20 17:28	
PA 6020B	Lead	0.00058J	mg/L	0.0050	04/02/20 17:28	
PA 6020B	Lithium	0.0039J	mg/L	0.030	04/02/20 17:28	
SM 2540C	Total Dissolved Solids	207	mg/L	10.0	03/26/20 13:02	
PA 300.0 Rev 2.1 1993	Chloride	3.6	mg/L	1.0	04/02/20 21:30	
PA 300.0 Rev 2.1 1993	Fluoride	0.076J	mg/L	0.30	04/02/20 21:30	
PA 300.0 Rev 2.1 1993	Sulfate	1.6	mg/L	1.0	04/02/20 21:30	
630414002	HGWC-117		··· <i>3</i> ′ –	0		
	Field pH	5.99	Std. Units		03/30/20 10:07	
PA 6010D	Calcium	68.0	mg/L	1.0		M1
			-		04/02/20 17:51	IVI I
PA 6020B	Arsenic	0.00037J	mg/L	0.0050		
PA 6020B	Barium	0.051	mg/L	0.010		
PA 6020B	Boron	1.0	mg/L	0.10	04/02/20 17:51	
PA 6020B	Cadmium	0.00079J	mg/L	0.0025	04/02/20 17:51	
PA 6020B	Chromium	0.0012J	mg/L	0.010		
PA 6020B	Cobalt	0.0087	mg/L	0.0050	04/02/20 17:51	
PA 6020B	Lead	0.00025J	mg/L	0.0050	04/02/20 17:51	
PA 6020B	Lithium	0.0029J	mg/L	0.030	04/02/20 17:51	
M 2540C	Total Dissolved Solids	331	mg/L	10.0	03/26/20 13:02	
PA 300.0 Rev 2.1 1993	Chloride	12.5	mg/L	1.0	04/02/20 22:12	
PA 300.0 Rev 2.1 1993	Sulfate	129	mg/L	3.0	04/03/20 08:30	
30414003	HGWA-112					
	Field pH	5.64	Std. Units		03/30/20 10:07	
PA 6010D	Calcium	7.0	mg/L	1.0	03/31/20 16:51	
PA 6020B	Barium	0.029	mg/L	0.010	04/02/20 17:56	
PA 6020B	Boron	0.012J	mg/L	0.10	04/02/20 17:56	
PA 6020B	Chromium	0.0044J	mg/L	0.010	04/02/20 17:56	
PA 6020B	Lead	0.00016J	mg/L	0.0050	04/02/20 17:56	
M 2540C	Total Dissolved Solids	52.0	mg/L	10.0	03/26/20 13:02	
PA 300.0 Rev 2.1 1993	Chloride	5.2	mg/L	1.0	04/02/20 22:26	
30414005	FB-04					
PA 6020B	Boron	0.0056J	mg/L	0.10	04/03/20 13:39	
PA 6020B	Chromium	0.00080J	mg/L	0.010	04/03/20 13:39	
M 2540C	Total Dissolved Solids	21.0	mg/L	10.0	04/01/20 14:40	
PA 300.0 Rev 2.1 1993	Sulfate	0.62J	mg/L	1.0	04/02/20 18:58	
330414006	HGWC-101					
	Field pH	5.53	Std. Units		03/30/20 10:07	
PA 6010D	Calcium	18.4	mg/L	1.0	03/31/20 17:28	
PA 6020B	Arsenic	0.00039J	mg/L	0.0050	04/03/20 13:45	
			_			

REPORT OF LABORATORY ANALYSIS

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Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifier
2630414006	HGWC-101					
EPA 6020B	Boron	0.080J	mg/L	0.10	04/03/20 13:45	
EPA 6020B	Cadmium	0.00014J	mg/L	0.0025	04/03/20 13:45	
EPA 6020B	Chromium	0.00098J	mg/L	0.010	04/03/20 13:45	
EPA 6020B	Cobalt	0.0021J	mg/L	0.0050	04/03/20 13:45	
SM 2540C	Total Dissolved Solids	187	mg/L	10.0	04/01/20 14:41	
EPA 300.0 Rev 2.1 1993	Chloride	5.2	mg/L	1.0	04/02/20 19:12	
PA 300.0 Rev 2.1 1993	Sulfate	85.5	mg/L	1.0	04/02/20 19:12	
630414007	HGWC-105					
	Field pH	6.47	Std. Units		03/30/20 10:07	
EPA 6010D	Calcium	91.4	mg/L	1.0	03/31/20 17:31	
PA 6020B	Barium	0.074	mg/L	0.010	04/03/20 13:50	
PA 6020B	Boron	1.4	mg/L	0.10	04/03/20 13:50	
PA 6020B	Chromium	0.0013J	mg/L	0.010	04/03/20 13:50	
PA 6020B	Cobalt	0.00047J	mg/L	0.0050	04/03/20 13:50	
PA 6020B	Lead	0.000085J	mg/L	0.0050		
PA 6020B	Lithium	0.0041J	mg/L	0.030	04/03/20 13:50	
M 2540C	Total Dissolved Solids	417	mg/L	10.0	04/01/20 14:42	
PA 300.0 Rev 2.1 1993	Chloride	3.2	mg/L	1.0	04/02/20 19:26	
PA 300.0 Rev 2.1 1993	Sulfate	161	mg/L	3.0	04/03/20 08:16	
630414008	HGWC-107					
	Field pH	6.13	Std. Units		03/30/20 10:07	
PA 6010D	Calcium	59.5	mg/L	1.0	03/31/20 17:35	
PA 6020B	Barium	0.037	mg/L	0.010	04/03/20 13:56	
PA 6020B	Boron	0.87	mg/L	0.10	04/03/20 13:56	
PA 6020B	Chromium	0.00074J	mg/L	0.010	04/03/20 13:56	
PA 6020B	Lead	0.00021J	mg/L	0.0050	04/03/20 13:56	
PA 6020B	Lithium	0.00091J	mg/L	0.030	04/03/20 13:56	
M 2540C	Total Dissolved Solids	297	mg/L	10.0	04/01/20 14:42	
PA 300.0 Rev 2.1 1993	Chloride	3.0	mg/L	1.0	04/02/20 19:41	
PA 300.0 Rev 2.1 1993	Sulfate	116	mg/L	2.0	04/03/20 08:33	M1
630414009	HGWC-118					
	Field pH	6.89	Std. Units		03/30/20 10:07	
PA 6010D	Calcium	86.8	mg/L	1.0	03/31/20 17:38	
PA 6020B	Barium	0.060	mg/L	0.010	04/03/20 14:17	
PA 6020B	Boron	0.70	mg/L	0.10	04/03/20 14:17	
PA 6020B	Chromium	0.00081J	mg/L	0.010	04/03/20 14:17	
PA 6020B	Lead	0.00010J	mg/L	0.0050	04/03/20 14:17	
PA 6020B	Lithium	0.0017J	mg/L	0.030	04/03/20 14:17	
M 2540C	Total Dissolved Solids	347	mg/L	10.0	04/01/20 14:43	
PA 300.0 Rev 2.1 1993	Chloride	3.6	mg/L	1.0	04/02/20 20:24	
PA 300.0 Rev 2.1 1993	Fluoride	0.078J	mg/L	0.30	04/02/20 20:24	
PA 300.0 Rev 2.1 1993	Sulfate	78.4	mg/L		04/02/20 20:24	
630414010	HGWC-103					
		5.40	Ctal IIaita		00/00/00 40:07	
	Field pH	5.49	Std. Units		03/30/20 10:07	



Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Lab Sample ID	Client Sample ID					
Method	Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
630414010	HGWC-103					
EPA 6020B	Barium	0.036	mg/L	0.010	04/03/20 14:23	
EPA 6020B	Boron	2.3	mg/L	0.10	04/03/20 14:23	
EPA 6020B	Cadmium	0.00068J	mg/L	0.0025	04/03/20 14:23	
EPA 6020B	Chromium	0.00045J	mg/L	0.010	04/03/20 14:23	
EPA 6020B	Cobalt	0.0022J	mg/L	0.0050	04/03/20 14:23	
EPA 6020B	Lead	0.000076J	mg/L	0.0050	04/03/20 14:23	
EPA 6020B	Lithium	0.0016J	mg/L	0.030	04/03/20 14:23	
SM 2540C	Total Dissolved Solids	507	mg/L	10.0	04/01/20 14:43	
EPA 300.0 Rev 2.1 1993	Chloride	5.1	mg/L	1.0	04/02/20 20:39	
EPA 300.0 Rev 2.1 1993	Sulfate	251	mg/L	5.0	04/03/20 10:33	
630414011	HGWC-109					
	Field pH	6.56	Std. Units		03/30/20 10:07	
EPA 6010D	Calcium	42.6	mg/L		03/31/20 17:45	
EPA 6020B	Arsenic	0.0025J	mg/L	0.0050	04/03/20 14:29	
EPA 6020B	Barium	0.084	mg/L	0.010	04/03/20 14:29	
EPA 6020B	Boron	0.36	mg/L	0.10	04/03/20 14:29	
EPA 6020B	Chromium	0.0014J	mg/L	0.010	04/03/20 14:29	
EPA 6020B	Cobalt	0.0022J	mg/L	0.0050		
SM 2540C	Total Dissolved Solids	213	mg/L	10.0	04/01/20 14:44	
EPA 300.0 Rev 2.1 1993	Chloride	3.9	mg/L	1.0	04/02/20 20:53	
EPA 300.0 Rev 2.1 1993	Fluoride	0.075J	mg/L	0.30	04/02/20 20:53	
EPA 300.0 Rev 2.1 1993	Sulfate	27.9	mg/L	1.0	04/02/20 20:53	
630414012	FD-04					
EPA 6010D	Calcium	84.5	mg/L	1.0	04/02/20 14:11	
EPA 6020B	Barium	0.035	mg/L	0.010	04/03/20 14:35	
EPA 6020B	Boron	2.3	mg/L	0.10	04/03/20 14:35	
EPA 6020B	Cadmium	0.00071J	mg/L	0.0025	04/03/20 14:35	
PA 6020B	Chromium	0.0011J	mg/L	0.010	04/03/20 14:35	
EPA 6020B	Cobalt	0.0021J	mg/L	0.0050	04/03/20 14:35	
EPA 6020B	Lead	0.000074J	mg/L	0.0050	04/03/20 14:35	
PA 6020B	Lithium	0.0016J	mg/L	0.030	04/03/20 14:35	
SM 2540C	Total Dissolved Solids	499	mg/L	10.0	04/01/20 14:44	
EPA 300.0 Rev 2.1 1993	Chloride	5.1	mg/L	1.0	04/02/20 21:51	
EPA 300.0 Rev 2.1 1993	Sulfate	254	mg/L	5.0	04/03/20 10:48	
630414013	HGWA-113					
	Field pH	6.08	Std. Units		04/10/20 17:07	
EPA 6010D	Calcium	8.3	mg/L	1.0	04/15/20 18:31	
EPA 6020B	Arsenic	0.00074J	mg/L	0.0050	04/15/20 17:51	
PA 6020B	Barium	0.034	mg/L	0.010	04/15/20 17:51	
PA 6020B	Boron	0.012J	mg/L	0.10	04/15/20 17:51	
EPA 6020B	Chromium	0.0031J	mg/L	0.010	04/15/20 17:51	
EPA 6020B	Cobalt	0.00037J	mg/L	0.0050	04/15/20 17:51	
EPA 6020B	Lead	0.00039J	mg/L	0.0050		
EPA 6020B	Lithium	0.0017J	mg/L	0.030	04/15/20 17:51	
SM 2540C	Total Dissolved Solids	48.0	mg/L	10.0		
EPA 300.0 Rev 2.1 1993	Chloride	1.4	mg/L		04/23/20 18:40	

REPORT OF LABORATORY ANALYSIS

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Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
2630414013	HGWA-113					
EPA 300.0 Rev 2.1 1993 EPA 300.0 Rev 2.1 1993	Fluoride Sulfate	0.14J 6.6	mg/L mg/L	0.30 1.0	04/23/20 18:40 04/23/20 18:40	



ANALYTICAL RESULTS

Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Date: 05/27/2020 11:32 AM

Sample: HGWA-111	Lab ID:	2630414001	Collecte	ed: 03/24/20	10:25	Received: 03/	25/20 09:41 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
Field Data	Analytical Pace Anal	Method: ytical Service	s - Atlanta. (
Field pH	7.37	Std. Units			1		03/30/20 10:07		
6010D MET ICP	•	Method: EPA ytical Service			hod: El	PA 3010A			
Calcium	61.2	mg/L	1.0	0.14	1	03/30/20 21:31	03/31/20 16:34	7440-70-2	
6020B MET ICPMS	•	Method: EPA ytical Service			hod: Ef	PA 3005A			
Arsenic	0.00042J	mg/L	0.0050	0.00035	1	03/30/20 21:06	04/02/20 17:28	7440-38-2	
Barium	0.032	mg/L	0.010	0.00049	1	03/30/20 21:06	04/02/20 17:28	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	03/30/20 21:06	04/02/20 17:28	7440-41-7	
Boron	0.011J	mg/L	0.10	0.0049	1	03/30/20 21:06	04/02/20 17:28	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	03/30/20 21:06	04/02/20 17:28	7440-43-9	
Chromium	0.0019J	mg/L	0.010	0.00039	1	03/30/20 21:06	04/02/20 17:28	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	03/30/20 21:06	04/02/20 17:28	7440-48-4	
Lead	0.00058J	mg/L	0.0050	0.000046	1	03/30/20 21:06	04/02/20 17:28	7439-92-1	
Lithium	0.0039J	mg/L	0.030	0.00078	1	03/30/20 21:06	04/02/20 17:28	7439-93-2	
2540C Total Dissolved Solids	Analytical	Method: SM 2	2540C						
	Pace Anal	ytical Service	s - Atlanta, (€A					
Total Dissolved Solids	207	mg/L	10.0	10.0	1		03/26/20 13:02		
300.0 IC Anions 28 Days	•	Method: EPA ytical Service							
Chloride	3.6	mg/L	1.0	0.60	1		04/02/20 21:30	16887-00-6	
Fluoride	0.076J	mg/L	0.30	0.050	1		04/02/20 21:30	16984-48-8	
Sulfate	1.6	mg/L	1.0	0.50	1		04/02/20 21:30	14808-79-8	



ANALYTICAL RESULTS

Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Date: 05/27/2020 11:32 AM

Sample: HGWC-117	Lab ID:	2630414002	Collecte	ed: 03/24/20	16:39	Received: 03/	/25/20 09:41 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
Field Data	Analytical	Method:					,	_	
	Pace Anal	ytical Services	s - Atlanta, (GA					
Field pH	5.99	Std. Units			1		03/30/20 10:07		
6010D MET ICP	Analytical	Method: EPA	6010D Pre	paration Met	thod: El	PA 3010A			
	Pace Anal	ytical Services	s - Atlanta, (GA					
Calcium	68.0	mg/L	1.0	0.14	1	03/30/20 21:31	03/31/20 16:37	7440-70-2	M1
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: El	PA 3005A			
	Pace Anal	ytical Services	s - Atlanta, (3A					
Arsenic	0.00037J	mg/L	0.0050	0.00035	1	03/30/20 21:06	04/02/20 17:51	7440-38-2	
Barium	0.051	mg/L	0.010	0.00049	1	03/30/20 21:06	04/02/20 17:51	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	03/30/20 21:06	04/02/20 17:51	7440-41-7	
Boron	1.0	mg/L	0.10	0.0049	1	03/30/20 21:06	04/02/20 17:51	7440-42-8	
Cadmium	0.00079J	mg/L	0.0025	0.00011	1	03/30/20 21:06	04/02/20 17:51	7440-43-9	
Chromium	0.0012J	mg/L	0.010	0.00039	1	03/30/20 21:06	04/02/20 17:51	7440-47-3	
Cobalt	0.0087	mg/L	0.0050	0.00030	1	03/30/20 21:06	04/02/20 17:51	7440-48-4	
Lead	0.00025J	mg/L	0.0050	0.000046	1	03/30/20 21:06	04/02/20 17:51	7439-92-1	
Lithium	0.0029J	mg/L	0.030	0.00078	1	03/30/20 21:06	04/02/20 17:51	7439-93-2	
2540C Total Dissolved Solids	Analytical	Method: SM 2	2540C						
	Pace Anal	ytical Services	s - Atlanta, (βA					
Total Dissolved Solids	331	mg/L	10.0	10.0	1		03/26/20 13:02		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0 Rev 2	2.1 1993					
	Pace Anal	ytical Services	s - Asheville						
Chloride	12.5	mg/L	1.0	0.60	1		04/02/20 22:12	16887-00-6	
Fluoride	ND	mg/L	0.30	0.050	1		04/02/20 22:12	16984-48-8	
Sulfate	129	mg/L	3.0	1.5	3		04/03/20 08:30	14808-79-8	



Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Date: 05/27/2020 11:32 AM

Sample: HGWA-112	Lab ID:	2630414003	Collecte	ed: 03/24/20	11:00	Received: 03/	25/20 09:41 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
Field Data	Analytical Pace Anal	Method: ytical Services	s - Atlanta, (GA					
Field pH	5.64	Std. Units			1		03/30/20 10:07		
6010D MET ICP	•	Method: EPA ytical Services		•	hod: El	PA 3010A			
Calcium	7.0	mg/L	1.0	0.14	1	03/30/20 21:31	03/31/20 16:51	7440-70-2	
6020B MET ICPMS	•	Method: EPA ytical Services			hod: El	PA 3005A			
Arsenic	ND	mg/L	0.0050	0.00035	1	03/30/20 21:06	04/02/20 17:56	7440-38-2	
Barium	0.029	mg/L	0.010	0.00049	1	03/30/20 21:06	04/02/20 17:56	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	03/30/20 21:06	04/02/20 17:56	7440-41-7	
Boron	0.012J	mg/L	0.10	0.0049	1	03/30/20 21:06	04/02/20 17:56	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	03/30/20 21:06	04/02/20 17:56	7440-43-9	
Chromium	0.0044J	mg/L	0.010	0.00039	1	03/30/20 21:06	04/02/20 17:56	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	03/30/20 21:06	04/02/20 17:56	7440-48-4	
Lead	0.00016J	mg/L	0.0050	0.000046	1	03/30/20 21:06	04/02/20 17:56	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	03/30/20 21:06	04/02/20 17:56	7439-93-2	
2540C Total Dissolved Solids	Analytical	Method: SM 2	2540C						
	Pace Anal	ytical Services	s - Atlanta, (3A					
Total Dissolved Solids	52.0	mg/L	10.0	10.0	1		03/26/20 13:02		
300.0 IC Anions 28 Days	•	Method: EPA ytical Services							
Chloride	5.2	mg/L	1.0	0.60	1		04/02/20 22:26	16887-00-6	
Fluoride	ND	mg/L	0.30	0.050	1		04/02/20 22:26	16984-48-8	
Sulfate	ND	mg/L	1.0	0.50	1		04/02/20 22:26		



Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Date: 05/27/2020 11:32 AM

Sample: FB-04	Lab ID:	2630414005	Collecte	ed: 03/25/20	10:50	Received: 03/	26/20 11:10 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D MET ICP	Analytical	Method: EPA	6010D Pre	paration Met	thod: El	PA 3010A			
	Pace Analy	ytical Services	s - Atlanta, C	3A					
Calcium	ND	mg/L	1.0	0.14	1	03/30/20 21:31	03/31/20 17:24	7440-70-2	
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: Ef	PA 3005A			
	Pace Analy	ytical Services	s - Atlanta, C	SA					
Arsenic	ND	mg/L	0.0050	0.00035	1	03/31/20 21:07	04/03/20 13:39	7440-38-2	
Barium	ND	mg/L	0.010	0.00049	1	03/31/20 21:07	04/03/20 13:39	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	03/31/20 21:07	04/03/20 13:39	7440-41-7	
Boron	0.0056J	mg/L	0.10	0.0049	1	03/31/20 21:07	04/03/20 13:39	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	03/31/20 21:07	04/03/20 13:39	7440-43-9	
Chromium	0.00080J	mg/L	0.010	0.00039	1	03/31/20 21:07	04/03/20 13:39	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	03/31/20 21:07	04/03/20 13:39	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	03/31/20 21:07	04/03/20 13:39	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	03/31/20 21:07	04/03/20 13:39	7439-93-2	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
	Pace Anal	ytical Services	s - Atlanta, C	βA					
Total Dissolved Solids	21.0	mg/L	10.0	10.0	1		04/01/20 14:40		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0 Rev 2	2.1 1993					
	Pace Analy	ytical Services	- Asheville						
Chloride	ND	mg/L	1.0	0.60	1		04/02/20 18:58	16887-00-6	
Fluoride	ND	mg/L	0.30	0.050	1		04/02/20 18:58	16984-48-8	
Sulfate	0.62J	mg/L	1.0	0.50	1		04/02/20 18:58	14808-79-8	



Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Date: 05/27/2020 11:32 AM

Sample: HGWC-101	Lab ID:	2630414006	Collecte	ed: 03/25/20	14:37	Received: 03/	26/20 11:10 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
Field Data	Analytical	Method:							
	Pace Anal	ytical Services	s - Atlanta, (GΑ					
Field pH	5.53	Std. Units			1		03/30/20 10:07		
6010D MET ICP	Analytical	Method: EPA	6010D Pre	paration Met	hod: El	PA 3010A			
	Pace Anal	ytical Services	s - Atlanta, (3A					
Calcium	18.4	mg/L	1.0	0.14	1	03/30/20 21:31	03/31/20 17:28	7440-70-2	
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: Ef	PA 3005A			
	Pace Anal	ytical Service:	s - Atlanta, (GA					
Arsenic	0.00039J	mg/L	0.0050	0.00035	1	03/31/20 21:07	04/03/20 13:45	7440-38-2	
Barium	0.038	mg/L	0.010	0.00049	1	03/31/20 21:07	04/03/20 13:45	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	03/31/20 21:07	04/03/20 13:45	7440-41-7	
Boron	0.080J	mg/L	0.10	0.0049	1	03/31/20 21:07	04/03/20 13:45	7440-42-8	
Cadmium	0.00014J	mg/L	0.0025	0.00011	1	03/31/20 21:07	04/03/20 13:45	7440-43-9	
Chromium	0.00098J	mg/L	0.010	0.00039	1	03/31/20 21:07	04/03/20 13:45	7440-47-3	
Cobalt	0.0021J	mg/L	0.0050	0.00030	1	03/31/20 21:07	04/03/20 13:45	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	03/31/20 21:07	04/03/20 13:45	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	03/31/20 21:07	04/03/20 13:45	7439-93-2	
2540C Total Dissolved Solids	Analytical	Method: SM 2	2540C						
	Pace Anal	ytical Services	s - Atlanta, (3A					
Total Dissolved Solids	187	mg/L	10.0	10.0	1		04/01/20 14:41		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0 Rev 2	2.1 1993					
	Pace Anal	ytical Services	s - Asheville						
Chloride	5.2	mg/L	1.0	0.60	1		04/02/20 19:12	16887-00-6	
Fluoride	ND	mg/L	0.30	0.050	1		04/02/20 19:12	16984-48-8	
Sulfate	85.5	mg/L	1.0	0.50	1		04/02/20 19:12	14808-79-8	



Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Date: 05/27/2020 11:32 AM

Sample: HGWC-105	Lab ID:	2630414007	Collecte	ed: 03/25/20	12:10	Received: 03/	26/20 11:10 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
Field Data	- — — — — Analytical	Method:				,			
	Pace Anal	ytical Services	s - Atlanta, (GΑ					
Field pH	6.47	Std. Units			1		03/30/20 10:07		
6010D MET ICP	Analytical	Method: EPA	6010D Pre	paration Me	hod: El	PA 3010A			
	Pace Anal	ytical Services	s - Atlanta, (3A					
Calcium	91.4	mg/L	1.0	0.14	1	03/30/20 21:31	03/31/20 17:31	7440-70-2	
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: Ef	PA 3005A			
	Pace Anal	ytical Service:	s - Atlanta, (GA					
Arsenic	ND	mg/L	0.0050	0.00035	1	03/31/20 21:07	04/03/20 13:50	7440-38-2	
Barium	0.074	mg/L	0.010	0.00049	1	03/31/20 21:07	04/03/20 13:50	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	03/31/20 21:07	04/03/20 13:50	7440-41-7	
Boron	1.4	mg/L	0.10	0.0049	1	03/31/20 21:07	04/03/20 13:50	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	03/31/20 21:07	04/03/20 13:50	7440-43-9	
Chromium	0.0013J	mg/L	0.010	0.00039	1	03/31/20 21:07	04/03/20 13:50	7440-47-3	
Cobalt	0.00047J	mg/L	0.0050	0.00030	1	03/31/20 21:07	04/03/20 13:50	7440-48-4	
Lead	0.000085J	mg/L	0.0050	0.000046	1	03/31/20 21:07	04/03/20 13:50	7439-92-1	
Lithium	0.0041J	mg/L	0.030	0.00078	1	03/31/20 21:07	04/03/20 13:50	7439-93-2	
2540C Total Dissolved Solids	Analytical	Method: SM 2	2540C						
	Pace Anal	ytical Services	s - Atlanta, (GΑ					
Total Dissolved Solids	417	mg/L	10.0	10.0	1		04/01/20 14:42		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0 Rev 2	2.1 1993					
	Pace Anal	ytical Services	s - Asheville						
Chloride	3.2	mg/L	1.0	0.60	1		04/02/20 19:26	16887-00-6	
Fluoride	ND	mg/L	0.30	0.050	1		04/02/20 19:26	16984-48-8	
Sulfate	161	mg/L	3.0	1.5	3		04/03/20 08:16	14808-79-8	



Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Date: 05/27/2020 11:32 AM

Sample: HGWC-107	Lab ID:	2630414008	Collecte	ed: 03/25/20	14:40	Received: 03/	26/20 11:10 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	- ———— — Analytical	Method:					-	-	
Ticia bata	•	ytical Services	s - Atlanta, C	SA .					
Field pH	6.13	Std. Units			1		03/30/20 10:07		
6010D MET ICP	Analytical	Method: EPA	6010D Pre	paration Met	hod: El	PA 3010A			
	Pace Anal	ytical Services	s - Atlanta, C	SA .					
Calcium	59.5	mg/L	1.0	0.14	1	03/30/20 21:31	03/31/20 17:35	7440-70-2	
6020B MET ICPMS	Analytical	Method: EPA	6020B Prej	paration Met	hod: El	PA 3005A			
	Pace Anal	ytical Services	s - Atlanta, C	SA					
Arsenic	ND	mg/L	0.0050	0.00035	1	03/31/20 21:07	04/03/20 13:56	7440-38-2	
Barium	0.037	mg/L	0.010	0.00049	1	03/31/20 21:07	04/03/20 13:56	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	03/31/20 21:07	04/03/20 13:56	7440-41-7	
Boron	0.87	mg/L	0.10	0.0049	1	03/31/20 21:07	04/03/20 13:56	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	03/31/20 21:07	04/03/20 13:56	7440-43-9	
Chromium	0.00074J	mg/L	0.010	0.00039	1	03/31/20 21:07	04/03/20 13:56	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	03/31/20 21:07	04/03/20 13:56	7440-48-4	
Lead	0.00021J	mg/L	0.0050	0.000046	1	03/31/20 21:07	04/03/20 13:56	7439-92-1	
Lithium	0.00091J	mg/L	0.030	0.00078	1	03/31/20 21:07	04/03/20 13:56	7439-93-2	
2540C Total Dissolved Solids	Analytical	Method: SM 2	2540C						
	Pace Anal	ytical Services	s - Atlanta, C	€A					
Total Dissolved Solids	297	mg/L	10.0	10.0	1		04/01/20 14:42		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0 Rev 2	2.1 1993					
	Pace Anal	ytical Services	s - Asheville						
Chloride	3.0	mg/L	1.0	0.60	1		04/02/20 19:41	16887-00-6	
Fluoride	ND	mg/L	0.30	0.050	1		04/02/20 19:41	16984-48-8	
Sulfate	116	mg/L	2.0	1.0	2		04/03/20 08:33	14808-79-8	M1



Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Date: 05/27/2020 11:32 AM

Sample: HGWC-118	Lab ID:	2630414009	Collecte	ed: 03/25/20	09:35	Received: 03/	26/20 11:10 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
Field Data	Analytical	Method:							
	Pace Anal	ytical Services	s - Atlanta, (3A					
Field pH	6.89	Std. Units			1		03/30/20 10:07		
6010D MET ICP	Analytical	Method: EPA	6010D Pre	paration Met	hod: El	PA 3010A			
	Pace Anal	ytical Services	s - Atlanta, (ЭΑ					
Calcium	86.8	mg/L	1.0	0.14	1	03/30/20 21:31	03/31/20 17:38	7440-70-2	
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: Ef	PA 3005A			
	Pace Anal	ytical Services	s - Atlanta, (3A					
Arsenic	ND	mg/L	0.0050	0.00035	1	03/31/20 21:07	04/03/20 14:17	7440-38-2	
Barium	0.060	mg/L	0.010	0.00049	1	03/31/20 21:07	04/03/20 14:17	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	03/31/20 21:07	04/03/20 14:17	7440-41-7	
Boron	0.70	mg/L	0.10	0.0049	1	03/31/20 21:07	04/03/20 14:17	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	03/31/20 21:07	04/03/20 14:17	7440-43-9	
Chromium	0.00081J	mg/L	0.010	0.00039	1	03/31/20 21:07	04/03/20 14:17	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	03/31/20 21:07	04/03/20 14:17	7440-48-4	
Lead	0.00010J	mg/L	0.0050	0.000046	1	03/31/20 21:07	04/03/20 14:17	7439-92-1	
Lithium	0.0017J	mg/L	0.030	0.00078	1	03/31/20 21:07	04/03/20 14:17	7439-93-2	
2540C Total Dissolved Solids	Analytical	Method: SM 2	2540C						
	Pace Anal	ytical Services	s - Atlanta, (GΑ					
Total Dissolved Solids	347	mg/L	10.0	10.0	1		04/01/20 14:43		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0 Rev 2	2.1 1993					
	Pace Anal	ytical Services	s - Asheville						
Chloride	3.6	mg/L	1.0	0.60	1		04/02/20 20:24	16887-00-6	
Fluoride	0.078J	mg/L	0.30	0.050	1		04/02/20 20:24	16984-48-8	
Sulfate	78.4	mg/L	1.0	0.50	1		04/02/20 20:24	14808-79-8	



Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Date: 05/27/2020 11:32 AM

Sample: HGWC-103	Lab ID:	2630414010	Collecte	ed: 03/25/20	12:30	Received: 03/	/26/20 11:10 M	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical	Method:							
	Pace Anal	ytical Services	s - Atlanta, (ЭΑ					
Field pH	5.49	Std. Units			1		03/30/20 10:07		
6010D MET ICP	Analytical	Method: EPA	6010D Pre	paration Met	hod: El	PA 3010A			
	Pace Anal	ytical Services	s - Atlanta, (3A					
Calcium	86.8	mg/L	1.0	0.14	1	03/30/20 21:31	03/31/20 17:42	7440-70-2	
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: Ef	PA 3005A			
	Pace Anal	ytical Services	s - Atlanta, (GΑ					
Arsenic	ND	mg/L	0.0050	0.00035	1	03/31/20 21:07	04/03/20 14:23	7440-38-2	
Barium	0.036	mg/L	0.010	0.00049	1	03/31/20 21:07	04/03/20 14:23	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	03/31/20 21:07	04/03/20 14:23	7440-41-7	
Boron	2.3	mg/L	0.10	0.0049	1	03/31/20 21:07	04/03/20 14:23	7440-42-8	
Cadmium	0.00068J	mg/L	0.0025	0.00011	1	03/31/20 21:07	04/03/20 14:23	7440-43-9	
Chromium	0.00045J	mg/L	0.010	0.00039	1	03/31/20 21:07	04/03/20 14:23	7440-47-3	
Cobalt	0.0022J	mg/L	0.0050	0.00030	1	03/31/20 21:07	04/03/20 14:23	7440-48-4	
Lead	0.000076J	mg/L	0.0050	0.000046	1	03/31/20 21:07	04/03/20 14:23	7439-92-1	
Lithium	0.0016J	mg/L	0.030	0.00078	1	03/31/20 21:07	04/03/20 14:23	7439-93-2	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
	Pace Anal	ytical Services	s - Atlanta, (GΑ					
Total Dissolved Solids	507	mg/L	10.0	10.0	1		04/01/20 14:43		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0 Rev 2	2.1 1993					
	Pace Anal	ytical Services	s - Asheville						
Chloride	5.1	mg/L	1.0	0.60	1		04/02/20 20:39	16887-00-6	
Fluoride	ND	mg/L	0.30	0.050	1		04/02/20 20:39	16984-48-8	
Sulfate	251	mg/L	5.0	2.5	5		04/03/20 10:33	14808-79-8	



Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Date: 05/27/2020 11:32 AM

Sample: HGWC-109	Lab ID:	2630414011	Collecte	ed: 03/25/20	16:55	Received: 03/	26/20 11:10 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
Field Data	Analytical	Method:							
	Pace Anal	ytical Service	s - Atlanta, (GΑ					
Field pH	6.56	Std. Units			1		03/30/20 10:07		
6010D MET ICP	Analytical	Method: EPA	6010D Pre	paration Met	thod: El	PA 3010A			
	Pace Anal	ytical Service	s - Atlanta, (3A					
Calcium	42.6	mg/L	1.0	0.14	1	03/30/20 21:31	03/31/20 17:45	7440-70-2	
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: Ef	PA 3005A			
	Pace Anal	ytical Service	s - Atlanta, (GA					
Arsenic	0.0025J	mg/L	0.0050	0.00035	1	03/31/20 21:07	04/03/20 14:29	7440-38-2	
Barium	0.084	mg/L	0.010	0.00049	1	03/31/20 21:07	04/03/20 14:29	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	03/31/20 21:07	04/03/20 14:29	7440-41-7	
Boron	0.36	mg/L	0.10	0.0049	1	03/31/20 21:07	04/03/20 14:29	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	03/31/20 21:07	04/03/20 14:29	7440-43-9	
Chromium	0.0014J	mg/L	0.010	0.00039	1	03/31/20 21:07	04/03/20 14:29	7440-47-3	
Cobalt	0.0022J	mg/L	0.0050	0.00030	1	03/31/20 21:07	04/03/20 14:29	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	03/31/20 21:07	04/03/20 14:29	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	03/31/20 21:07	04/03/20 14:29	7439-93-2	
2540C Total Dissolved Solids	Analytical	Method: SM 2	2540C						
	Pace Anal	ytical Service	s - Atlanta, (GΑ					
Total Dissolved Solids	213	mg/L	10.0	10.0	1		04/01/20 14:44		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0 Rev 2	2.1 1993					
	Pace Anal	ytical Service	s - Asheville						
Chloride	3.9	mg/L	1.0	0.60	1		04/02/20 20:53	16887-00-6	
Fluoride	0.075J	mg/L	0.30	0.050	1		04/02/20 20:53	16984-48-8	
Sulfate	27.9	mg/L	1.0	0.50	1		04/02/20 20:53	14808-79-8	



Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Date: 05/27/2020 11:32 AM

Sample: FD-04	Lab ID:	2630414012	Collecte	ed: 03/25/20	00:00	Received: 03/	/26/20 11:10 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
6010D MET ICP	Analytical	Method: EPA	6010D Pre	paration Met	hod: El	PA 3010A			
	Pace Analy	ytical Services	- Atlanta, C	GΑ					
Calcium	84.5	mg/L	1.0	0.14	1	03/31/20 20:57	04/02/20 14:11	7440-70-2	
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: Ef	PA 3005A			
	Pace Analy	ytical Services	- Atlanta, C	GΑ					
Arsenic	ND	mg/L	0.0050	0.00035	1	03/31/20 21:07	04/03/20 14:35	7440-38-2	
Barium	0.035	mg/L	0.010	0.00049	1	03/31/20 21:07	04/03/20 14:35	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	03/31/20 21:07	04/03/20 14:35	7440-41-7	
Boron	2.3	mg/L	0.10	0.0049	1	03/31/20 21:07	04/03/20 14:35	7440-42-8	
Cadmium	0.00071J	mg/L	0.0025	0.00011	1	03/31/20 21:07	04/03/20 14:35	7440-43-9	
Chromium	0.0011J	mg/L	0.010	0.00039	1	03/31/20 21:07	04/03/20 14:35	7440-47-3	
Cobalt	0.0021J	mg/L	0.0050	0.00030	1	03/31/20 21:07	04/03/20 14:35	7440-48-4	
Lead	0.000074J	mg/L	0.0050	0.000046	1	03/31/20 21:07	04/03/20 14:35	7439-92-1	
Lithium	0.0016J	mg/L	0.030	0.00078	1	03/31/20 21:07	04/03/20 14:35	7439-93-2	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
	Pace Analy	ytical Services	- Atlanta, C	GΑ					
Total Dissolved Solids	499	mg/L	10.0	10.0	1		04/01/20 14:44		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0 Rev 2	2.1 1993					
	Pace Analy	ytical Services	- Asheville						
Chloride	5.1	mg/L	1.0	0.60	1		04/02/20 21:51	16887-00-6	
Fluoride	ND	mg/L	0.30	0.050	1		04/02/20 21:51	16984-48-8	
Sulfate	254	mg/L	5.0	2.5	5		04/03/20 10:48	14808-79-8	



Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Date: 05/27/2020 11:32 AM

Sample: HGWA-113	Lab ID:	2630414013	Collecte	ed: 04/09/20	16:17	Received: 04/	10/20 11:35 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
Field Data	Analytical	Method:							
	Pace Anal	ytical Services	s - Atlanta, (GΑ					
Field pH	6.08	Std. Units			1		04/10/20 17:07		
6010D MET ICP	Analytical	Method: EPA	6010D Pre	paration Met	hod: El	PA 3010A			
	Pace Anal	ytical Services	s - Atlanta, (ЭA					
Calcium	8.3	mg/L	1.0	0.14	1	04/14/20 18:37	04/15/20 18:31	7440-70-2	
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: Ef	PA 3005A			
	Pace Anal	ytical Services	s - Atlanta, (GA					
Arsenic	0.00074J	mg/L	0.0050	0.00035	1	04/14/20 18:32	04/15/20 17:51	7440-38-2	
Barium	0.034	mg/L	0.010	0.00049	1	04/14/20 18:32	04/15/20 17:51	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	04/14/20 18:32	04/15/20 17:51	7440-41-7	
Boron	0.012J	mg/L	0.10	0.0049	1	04/14/20 18:32	04/15/20 17:51	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	04/14/20 18:32	04/15/20 17:51	7440-43-9	
Chromium	0.0031J	mg/L	0.010	0.00039	1	04/14/20 18:32	04/15/20 17:51	7440-47-3	
Cobalt	0.00037J	mg/L	0.0050	0.00030	1	04/14/20 18:32	04/15/20 17:51	7440-48-4	
Lead	0.00039J	mg/L	0.0050	0.000046	1	04/14/20 18:32	04/15/20 17:51	7439-92-1	
Lithium	0.0017J	mg/L	0.030	0.00078	1	04/14/20 18:32	04/15/20 17:51	7439-93-2	
2540C Total Dissolved Solids	Analytical	Method: SM 2	2540C						
	Pace Anal	ytical Services	s - Atlanta, (GΑ					
Total Dissolved Solids	48.0	mg/L	10.0	10.0	1		04/14/20 17:56		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0 Rev 2	2.1 1993					
	Pace Anal	ytical Services	s - Asheville						
Chloride	1.4	mg/L	1.0	0.60	1		04/23/20 18:40	16887-00-6	
Fluoride	0.14J	mg/L	0.30	0.050	1		04/23/20 18:40	16984-48-8	
Sulfate	6.6	mg/L	1.0	0.50	1		04/23/20 18:40	14808-79-8	



Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Calcium

Date: 05/27/2020 11:32 AM

QC Batch: 45066 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A Analysis Description: 6010D MET

Laboratory: Pace Analytical Services - Atlanta, GA

Associated Lab Samples: 2630414001, 2630414002, 2630414003, 2630414005, 2630414006, 2630414007, 2630414008, 2630414009,

2630414010, 2630414011

METHOD BLANK: 207564 Matrix: Water

Associated Lab Samples: 2630414001, 2630414002, 2630414003, 2630414005, 2630414006, 2630414007, 2630414008, 2630414009,

2630414010, 2630414011

ParameterUnitsBlank Reporting ResultReporting LimitMDLAnalyzedQualifiersCalciummg/LND1.00.1403/31/20 16:27

LABORATORY CONTROL SAMPLE: 207565

Spike LCS LCS % Rec Units Conc. Result % Rec Limits Qualifiers Parameter mg/L 1 1.1 106 80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 207566 207567

MSD MS 2630414002 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits RPD RPD Qual Calcium 20 M1 68.0 1 69.5 67.6 149 -41 75-125 3 mg/L

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



Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Date: 05/27/2020 11:32 AM

QC Batch: 45121 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A Analysis Description: 6010D MET

Laboratory: Pace Analytical Services - Atlanta, GA

Associated Lab Samples: 2630414012

METHOD BLANK: 207982 Matrix: Water

Associated Lab Samples: 2630414012

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

LABORATORY CONTROL SAMPLE: 207983

Spike LCS LCS % Rec Conc. Result % Rec Limits Qualifiers Parameter Units Calcium mg/L 1.1 108 80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 207984 207985

MSD MS 2630449007 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Conc. Conc. Result Result % Rec % Rec **RPD** RPD Qual Result Limits 20 M1 Calcium mg/L 157 158 157 93 15 75-125

Results presented on 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: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Date: 05/27/2020 11:32 AM

QC Batch: 45533 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A Analysis Description: 6010D MET

Laboratory: Pace Analytical Services - Atlanta, GA

Associated Lab Samples: 2630414013

METHOD BLANK: 210181 Matrix: Water

Associated Lab Samples: 2630414013

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

LABORATORY CONTROL SAMPLE: 210182

Spike LCS LCS % Rec Conc. Result % Rec Limits Qualifiers Parameter Units Calcium mg/L 1.0 104 80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 210190 210191

MS MSD

2630862003 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Conc. Conc. Result Result % Rec % Rec **RPD** RPD Qual Result Limits 20 M6 Calcium mg/L 362 368 365 604 379 75-125

Results presented on 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: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Date: 05/27/2020 11:32 AM

QC Batch: 45065 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

Laboratory: Pace Analytical Services - Atlanta, GA

Associated Lab Samples: 2630414001, 2630414002, 2630414003

METHOD BLANK: 207560 Matrix: Water

Associated Lab Samples: 2630414001, 2630414002, 2630414003

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0050	0.00035	04/02/20 17:16	
Barium	mg/L	ND	0.010	0.00049	04/02/20 17:16	
Beryllium	mg/L	ND	0.0030	0.000074	04/02/20 17:16	
Boron	mg/L	ND	0.10	0.0049	04/02/20 17:16	
Cadmium	mg/L	ND	0.0025	0.00011	04/02/20 17:16	
Chromium	mg/L	ND	0.010	0.00039	04/02/20 17:16	
Cobalt	mg/L	ND	0.0050	0.00030	04/02/20 17:16	
Lead	mg/L	ND	0.0050	0.000046	04/02/20 17:16	
Lithium	mg/L	ND	0.030	0.00078	04/02/20 17:16	

LABORATORY CONTROL SAMPLE:	207561					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Arsenic	mg/L	0.1	0.10	101	80-120	
Barium	mg/L	0.1	0.10	104	80-120	
Beryllium	mg/L	0.1	0.10	104	80-120	
Boron	mg/L	1	1.0	104	80-120	
Cadmium	mg/L	0.1	0.10	104	80-120	
Chromium	mg/L	0.1	0.10	103	80-120	
Cobalt	mg/L	0.1	0.10	104	80-120	
Lead	mg/L	0.1	0.10	103	80-120	
Lithium	mg/L	0.1	0.10	104	80-120	

MATRIX SPIKE & MATRIX	SPIKE DUPL	ICATE: 2075			207563							
Parameter	Units	2630414001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	0.00042J	0.1	0.1	0.10	0.10	101	102	75-125	1	20	
Barium	mg/L	0.032	0.1	0.1	0.13	0.13	102	101	75-125	1	20	
Beryllium	mg/L	ND	0.1	0.1	0.10	0.10	101	102	75-125	1	20	
Boron	mg/L	0.011J	1	1	1.0	1.0	101	103	75-125	2	20	
Cadmium	mg/L	ND	0.1	0.1	0.10	0.10	102	101	75-125	1	20	
Chromium	mg/L	0.0019J	0.1	0.1	0.11	0.10	104	102	75-125	3	20	
Cobalt	mg/L	ND	0.1	0.1	0.10	0.10	104	101	75-125	3	20	
Lead	mg/L	0.00058J	0.1	0.1	0.10	0.097	99	97	75-125	2	20	
Lithium	mg/L	0.0039J	0.1	0.1	0.10	0.11	101	102	75-125	2	20	

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



Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Date: 05/27/2020 11:32 AM

QC Batch: 45113 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

Laboratory: Pace Analytical Services - Atlanta, GA

Associated Lab Samples: 2630414005, 2630414006, 2630414007, 2630414008, 2630414009, 2630414010, 2630414011, 2630414012

METHOD BLANK: 207961 Matrix: Water

Associated Lab Samples: 2630414005, 2630414006, 2630414007, 2630414008, 2630414009, 2630414010, 2630414011, 2630414012

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0050	0.00035	04/03/20 13:05	
Barium	mg/L	ND	0.010	0.00049	04/03/20 13:05	
Beryllium	mg/L	ND	0.0030	0.000074	04/03/20 13:05	
Boron	mg/L	ND	0.10	0.0049	04/03/20 13:05	
Cadmium	mg/L	ND	0.0025	0.00011	04/03/20 13:05	
Chromium	mg/L	ND	0.010	0.00039	04/03/20 13:05	
Cobalt	mg/L	ND	0.0050	0.00030	04/03/20 13:05	
Lead	mg/L	ND	0.0050	0.000046	04/03/20 13:05	
Lithium	mg/L	ND	0.030	0.00078	04/03/20 13:05	

LABORATORY CONTROL SAMPLE:	207962					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Arsenic	mg/L	0.1	0.10	101	80-120	
Barium	mg/L	0.1	0.10	100	80-120	
Beryllium	mg/L	0.1	0.10	102	80-120	
Boron	mg/L	1	1.1	105	80-120	
Cadmium	mg/L	0.1	0.10	101	80-120	
Chromium	mg/L	0.1	0.10	105	80-120	
Cobalt	mg/L	0.1	0.10	103	80-120	
Lead	mg/L	0.1	0.10	100	80-120	
Lithium	mg/L	0.1	0.10	102	80-120	

MATRIX SPIKE & MATRIX	SPIKE DUPL	ICATE: 2079	63		207964							
Parameter	Units	2630472004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	ND	0.1	0.1	0.10	0.099	100	99	75-125	2	20	
Barium	mg/L	0.19	0.1	0.1	0.28	0.29	92	97	75-125	2	20	
Beryllium	mg/L	ND	0.1	0.1	0.097	0.094	97	94	75-125	4	20	
Boron	mg/L	0.021J	1	1	1.0	0.99	102	97	75-125	5	20	
Cadmium	mg/L	ND	0.1	0.1	0.099	0.098	99	98	75-125	2	20	
Chromium	mg/L	ND	0.1	0.1	0.10	0.099	100	99	75-125	1	20	
Cobalt	mg/L	ND	0.1	0.1	0.099	0.097	99	97	75-125	2	20	
Lead	mg/L	ND	0.1	0.1	0.097	0.096	97	96	75-125	1	20	
Lithium	mg/L	0.011J	0.1	0.1	0.11	0.10	97	94	75-125	4	20	

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



Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Lithium

Date: 05/27/2020 11:32 AM

QC Batch: 45531 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

mg/L

Laboratory: Pace Analytical Services - Atlanta, GA

80-120

104

Associated Lab Samples: 2630414013

METHOD BLANK: 210136 Matrix: Water

Associated Lab Samples: 2630414013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	ND ND	0.0050	0.00035	04/15/20 16:04	
Barium	mg/L	ND	0.010	0.00049	04/15/20 16:04	
Beryllium	mg/L	ND	0.0030	0.000074	04/15/20 16:04	
Boron	mg/L	ND	0.10	0.0049	04/15/20 16:04	
Cadmium	mg/L	ND	0.0025	0.00011	04/15/20 16:04	
Chromium	mg/L	ND	0.010	0.00039	04/15/20 16:04	
Cobalt	mg/L	ND	0.0050	0.00030	04/15/20 16:04	
Lead	mg/L	ND	0.0050	0.000046	04/15/20 16:04	
Lithium	mg/L	ND	0.030	0.00078	04/15/20 16:04	

LABORATORY CONTROL SAMPLE:	210137					
Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.1	0.10	101	80-120	
Barium	mg/L	0.1	0.10	104	80-120	
Beryllium	mg/L	0.1	0.10	103	80-120	
Boron	mg/L	1	1.1	105	80-120	
Cadmium	mg/L	0.1	0.10	102	80-120	
Chromium	mg/L	0.1	0.10	100	80-120	
Cobalt	mg/L	0.1	0.10	101	80-120	
Lead	mg/L	0.1	0.10	102	80-120	

0.1

MATRIX SPIKE & MATRIX	SPIKE DUPL	ICATE: 2101			210193							
Parameter	Units	2630818017 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	ND	0.1	0.1	0.10	0.099	99	99	75-125	1	20	
Barium	mg/L	0.027	0.1	0.1	0.13	0.13	100	99	75-125	1	20	
Beryllium	mg/L	ND	0.1	0.1	0.099	0.099	99	99	75-125	1	20	
Boron	mg/L	0.28	1	1	1.2	1.2	92	91	75-125	1	20	
Cadmium	mg/L	ND	0.1	0.1	0.098	0.096	98	96	75-125	3	20	
Chromium	mg/L	0.00058J	0.1	0.1	0.10	0.10	102	101	75-125	2	20	
Cobalt	mg/L	ND	0.1	0.1	0.10	0.10	104	101	75-125	3	20	
Lead	mg/L	0.00017J	0.1	0.1	0.10	0.099	101	99	75-125	2	20	
Lithium	mg/L	ND	0.1	0.1	0.10	0.098	99	98	75-125	1	20	

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: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

QC Batch: 44950 Analysis Method: SM 2540C

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

> Pace Analytical Services - Atlanta, GA Laboratory:

2630414001, 2630414002, 2630414003 Associated Lab Samples:

LABORATORY CONTROL SAMPLE:

Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers **Total Dissolved Solids** mg/L 400 401 100 84-108

SAMPLE DUPLICATE: 206866

2630389001 Dup Max Parameter Units Result Result **RPD RPD** Qualifiers 859 **Total Dissolved Solids** mg/L 854 10

SAMPLE DUPLICATE: 206867

Date: 05/27/2020 11:32 AM

2630325025 Dup Max Parameter RPD RPD Units Result Result

Qualifiers Total Dissolved Solids 714 672 6 10 mg/L

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



Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

QC Batch: 45158 Analysis Method: SM 2540C

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

Laboratory: Pace Analytical Services - Atlanta, GA

Associated Lab Samples: 2630414005, 2630414006, 2630414007, 2630414008, 2630414009, 2630414010, 2630414011, 2630414012

LABORATORY CONTROL SAMPLE: 208023

Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers **Total Dissolved Solids** mg/L 400 370 92 84-108

SAMPLE DUPLICATE: 208024

Parameter Units Result Result RPD RPD Qualifiers

Total Dissolved Solids mg/L 21.0 ND 10

SAMPLE DUPLICATE: 208025

Date: 05/27/2020 11:32 AM

2630417005 Dup Max Parameter RPD RPD Units Result Qualifiers Result Total Dissolved Solids 521 525 10 mg/L 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.



Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

QC Batch: 45512 Analysis Method: SM 2540C

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

Laboratory: Pace Analytical Services - Atlanta, GA

Associated Lab Samples: 2630414013

LABORATORY CONTROL SAMPLE: 209985

Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers **Total Dissolved Solids** mg/L 400 379 95 84-108

SAMPLE DUPLICATE: 209986

2630821024 Dup Max Parameter Units Result Result **RPD RPD** Qualifiers 223 9 **Total Dissolved Solids** mg/L 244 10

SAMPLE DUPLICATE: 209987

Date: 05/27/2020 11:32 AM

92473254002 Dup Max
Parameter Units Result RPD RPD C

ParameterUnitsResultResultRPDRPDQualifiersTotal Dissolved Solidsmg/L17.018.0610

Results presented on 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: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Date: 05/27/2020 11:32 AM

QC Batch: 533750 Analysis Method: EPA 300.0 Rev 2.1 1993

QC Batch Method: EPA 300.0 Rev 2.1 1993 Analysis Description: 300.0 IC Anions

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 2630414001, 2630414002, 2630414003

METHOD BLANK: 2848969 Matrix: Water

Associated Lab Samples: 2630414001, 2630414002, 2630414003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	04/02/20 17:18	
Fluoride	mg/L	ND	0.10	0.050	04/02/20 17:18	
Sulfate	mg/L	ND	1.0	0.50	04/02/20 17:18	

LABORATORY CONTROL SAMPLE: 2848970 Spike LCS LCS % Rec Parameter Units Conc. Result % Rec Limits Qualifiers Chloride 50 102 90-110 mg/L 50.9 Fluoride 2.5 101 90-110 mg/L 2.5 Sulfate 50.5 90-110 mg/L 50 101

MATRIX SPIKE & MATRIX S	SPIKE DUPL	ICATE: 2848	971		2848972							
Parameter	Units	2630325037 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	1670	50	50	1670	1680	-1	8	90-110	0	10	M6
Fluoride	mg/L	0.056J	2.5	2.5	2.3	2.3	90	90	90-110	0	10	
Sulfate	mg/L	603	50	50	602	604	-2	2	90-110	0	10	M6

MATRIX SPIKE & MATRIX SP	IKE DUPL	ICATE: 2848	973		2848974							
			MS	MSD								
		2630414001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	3.6	50	50	56.2	56.2	105	105	90-110	0	10	
Fluoride	mg/L	0.076J	2.5	2.5	2.5	2.5	95	96	90-110	1	10	
Sulfate	mg/L	1.6	50	50	53.5	53.4	104	104	90-110	0	10	

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



Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Date: 05/27/2020 11:32 AM

QC Batch: 533970 Analysis Method: EPA 300.0 Rev 2.1 1993

QC Batch Method: EPA 300.0 Rev 2.1 1993 Analysis Description: 300.0 IC Anions

Laboratory: Pace Analytical Services - Asheville

Associated Lab Samples: 2630414005, 2630414006, 2630414007, 2630414008, 2630414009, 2630414010, 2630414011, 2630414012

METHOD BLANK: 2849811 Matrix: Water

Associated Lab Samples: 2630414005, 2630414006, 2630414007, 2630414008, 2630414009, 2630414010, 2630414011, 2630414012

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND ND	1.0	0.60	04/02/20 15:35	
Fluoride	mg/L	ND	0.10	0.050	04/02/20 15:35	
Sulfate	mg/L	ND	1.0	0.50	04/02/20 15:35	

LABORATORY CONTROL SAMPLE:	2849812					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Chloride	mg/L	50	47.6	95	90-110	
Fluoride	mg/L	2.5	2.5	98	90-110	
Sulfate	mg/L	50	47.5	95	90-110	

MATRIX SPIKE & MATRIX SP	IKE DUPL	ICATE: 2849	813		2849814							
			MS	MSD								
		2630435009	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	3.8	50	50	54.6	55.8	102	104	90-110	2	10	
Fluoride	mg/L	0.25J	2.5	2.5	3.4	3.6	125	133	90-110	6	10	M1
Sulfate	mg/L	448	50	50	496	497	97	97	90-110	0	10	

MATRIX SPIKE & MATRIX SF	PIKE DUPL	ICATE: 2849	815		2849816							
			MS	MSD								
		2630414008	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	3.0	50	50	54.6	54.0	103	102	90-110	1	10	
Fluoride	mg/L	ND	2.5	2.5	2.7	2.7	107	107	90-110	0	10	
Sulfate	mg/L	116	50	50	160	146	88	60	90-110	9	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: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Date: 05/27/2020 11:32 AM

QC Batch: 537769

QC Batch Method: EPA 300.0 Rev 2.1 1993 Analysis Description: 300.0 IC Anions

Laboratory: Pace Analytical Services - Asheville

EPA 300.0 Rev 2.1 1993

Associated Lab Samples: 2630414013

METHOD BLANK: 2867519 Matrix: Water

Associated Lab Samples: 2630414013

LABORATORY CONTROL CAMPLE: 2067520

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND ND	1.0	0.60	04/23/20 18:11	
Fluoride	mg/L	ND	0.10	0.050	04/23/20 18:11	
Sulfate	mg/L	ND	1.0	0.50	04/23/20 18:11	

Analysis Method:

LABORATORT CONTROL SAMPLE.	200/320					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Chloride	mg/L	50	52.8	106	90-110	
Fluoride	mg/L	2.5	2.5	99	90-110	
Sulfate	mg/L	50	53.7	107	90-110	

MATRIX SPIKE & MATRIX SP	IKE DUPL	ICATE: 2867	521		2867522							
		2630414013	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	1.4	50	50	53.9	54.6	105	106	90-110	1	10	
Fluoride	mg/L	0.14J	2.5	2.5	2.8	2.9	107	109	90-110	1	10	
Sulfate	mg/L	6.6	50	50	60.2	60.7	107	108	90-110	1	10	

MATRIX SPIKE & MATRIX SF	PIKE DUPI	LICATE: 2867	523		2867524							
			MS	MSD								
		92474395033	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	6.7	50	50	60.1	60.8	107	108	90-110	1	10	
Fluoride	mg/L	ND	2.5	2.5	2.6	2.7	105	106	90-110	1	10	
Sulfate	mg/L	ND	50	50	54.3	54.8	108	109	90-110	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.



QUALIFIERS

Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

Date: 05/27/2020 11:32 AM

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

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



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Date: 05/27/2020 11:32 AM

_ab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytic Batch
2630414001	HGWA-111			_	
2630414002	HGWC-117				
630414003	HGWA-112				
630414006	HGWC-101				
630414007	HGWC-105				
630414008	HGWC-107				
630414009	HGWC-118				
630414010	HGWC-103				
630414011	HGWC-109				
630414013	HGWA-113				
630414001	HGWA-111	EPA 3010A	45066	EPA 6010D	45071
630414002	HGWC-117	EPA 3010A	45066	EPA 6010D	45071
630414003	HGWA-112	EPA 3010A	45066	EPA 6010D	45071
630414005	FB-04	EPA 3010A	45066	EPA 6010D	45071
630414006	HGWC-101	EPA 3010A	45066	EPA 6010D	45071
630414007	HGWC-105	EPA 3010A	45066	EPA 6010D	45071
630414008	HGWC-107	EPA 3010A	45066	EPA 6010D	45071
630414009	HGWC-118	EPA 3010A	45066	EPA 6010D	45071
630414010	HGWC-103	EPA 3010A	45066	EPA 6010D	45071
630414011	HGWC-109	EPA 3010A	45066	EPA 6010D	45071
30414012	FD-04	EPA 3010A	45121	EPA 6010D	45135
630414013	HGWA-113	EPA 3010A	45533	EPA 6010D	45546
630414001	HGWA-111	EPA 3005A	45065	EPA 6020B	45069
630414002	HGWC-117	EPA 3005A	45065	EPA 6020B	45069
30414003	HGWA-112	EPA 3005A	45065	EPA 6020B	45069
630414005	FB-04	EPA 3005A	45113	EPA 6020B	45136
630414006	HGWC-101	EPA 3005A	45113	EPA 6020B	45136
630414007	HGWC-105	EPA 3005A	45113	EPA 6020B	45136
30414008	HGWC-107	EPA 3005A	45113	EPA 6020B	45136
630414009	HGWC-118	EPA 3005A	45113	EPA 6020B	45136
630414010	HGWC-103	EPA 3005A	45113	EPA 6020B	45136
630414011	HGWC-109	EPA 3005A	45113	EPA 6020B	45136
30414012	FD-04	EPA 3005A	45113	EPA 6020B	45136
630414013	HGWA-113	EPA 3005A	45531	EPA 6020B	45544
630414001	HGWA-111	SM 2540C	44950		
630414002	HGWC-117	SM 2540C	44950		
630414003	HGWA-112	SM 2540C	44950		
30414005	FB-04	SM 2540C	45158		
630414006	HGWC-101	SM 2540C	45158		
30414007	HGWC-105	SM 2540C	45158		
30414008	HGWC-107	SM 2540C	45158		
630414009	HGWC-118	SM 2540C	45158		
630414010	HGWC-103	SM 2540C	45158		
630414011	HGWC-109	SM 2540C	45158		
630414012	FD-04	SM 2540C	45158		



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HAMMOND AP-4 2ND SEMIANNUAL

Pace Project No.: 2630414

Date: 05/27/2020 11:32 AM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytica Batch
2630414013	HGWA-113	SM 2540C	45512		
2630414001	HGWA-111	EPA 300.0 Rev 2.1 1993	533750		
2630414002	HGWC-117	EPA 300.0 Rev 2.1 1993	533750		
2630414003	HGWA-112	EPA 300.0 Rev 2.1 1993	533750		
2630414005	FB-04	EPA 300.0 Rev 2.1 1993	533970		
2630414006	HGWC-101	EPA 300.0 Rev 2.1 1993	533970		
2630414007	HGWC-105	EPA 300.0 Rev 2.1 1993	533970		
2630414008	HGWC-107	EPA 300.0 Rev 2.1 1993	533970		
2630414009	HGWC-118	EPA 300.0 Rev 2.1 1993	533970		
2630414010	HGWC-103	EPA 300.0 Rev 2.1 1993	533970		
2630414011	HGWC-109	EPA 300.0 Rev 2.1 1993	533970		
2630414012	FD-04	EPA 300.0 Rev 2.1 1993	533970		
2630414013	HGWA-113	EPA 300.0 Rev 2.1 1993	537769		



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Section A
Required Client Information: Email To Company Metals=As, Ba, Ba, B, Cd, Ca, Cr, Co, Pb, Li dass note drywells, strike thorugh any walls not sampled, and one when the last sample for the event has been taken. equested Due Date/TAT: ddress ⇉ ≐ ö ITEM# • æ u N Required Client information Section D (A-Z, 0-97.4) Sample IDs MUST BE UNIQUE HOWC-III "Important Note: By signing this form you are accepting Pace's NET 🎾 day payment terms and **GA Power** Allanta, GA C WA SCS Contacts SAMPLE ID ADDITIONAL COMMENTS 10 Day Walled Matrix Codes

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THIS Section B
Required Project Information Copy To. Geosyntec Contacts Report To: SCS Contacts Project Number roject Name: urchase Order No. Mali o solution のとのからと RELINQUISHED BY / AFFILIATION ¥. ₹ ş WT 3 ¥Y § § **\$ \$** Order No.

Plant Hammond AP-4 Semiannual Constrate Poer GW6581 ŝ MATRIX CODE (see valid codes to left) 6 G G ç 6 G ေ Ь G G G ଜ SAMPLE TYPE (G=GRAB C=COMP) CON FEBRUA FRAC **1**2 DATE Charitake À E SAMPLER NAME AND SIGNATURE 1639 727 025 TIME COLLECTED SIGNATURE OF SAMPLER: PRINT Name of SAMPLER: 150 DATE COMPOSITE 3/24/2016 マルドク 3) (3) 21/26 TIME DATE SAMPLE TEMP AT COLLECTION D D 240 1730 Pace Quote Reference: Pace Project Manager: Attention: Soul (); \$ (J) 5 UI **# OF CONTAINERS** Section C Ġ Address Company Name ace Profile #. 2912-7 E E 2 2 N N Unpreserved H₂SO, Tong He to I Bus CLAS PO Bellie Sports ω HNO₃ Preservatives Southern Co. Kevin Herring Kusso HÇI NaOH Na₂S₂O₃ ACCEPTED BY / AFFILIATION Methanol Other Analysis Test Y/N MIKEDOMY: 3/24/2020 Marco you Chloride, Fluonde, Sulfate z Requested Analysis Filtered (Y/N) × × × × TDS × z × × × × × × × Metals 6010/60201 z × × × × × × × × RAD 226/228 z REGULATORY AGENCY Site Location or hate 3-24-20 2228 BID THE DRIVERS UST T NPDES STATE: 1730 35 RCRA GROUND WATE B Page; Tamp in *C z z z z Residual Chlorine (Y/N) z 물-0H= 유 Ž. 말 모 PH= **出=7**3 또 = 카= H= 5 Received on Ψ, SAMPLE CONDITIONS Pace Project No./ Lab I.D. ice (Y/N) 오 Custody OTHER DRINKING WATER Sealed Coole (Y/N) Samples Intact (Y/N)

F-ALL-Q-020rev.07, 15-Feb-2007

agreeing to late charges of 1.5% per month for any invoices not paid within 30 days

Page 37 of 41



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Email To Required Client Information: Section A Address: Metals As, Ba, Be, B, Cd, Ca, Cr, Co, Pb, Li, As, Ma, Ma ole when the last sample for the event has been taken. equested Due Date/TAT: ease note dry wells, strike thorugh any wells not sampled, and # 5 ITEM# Ü 10 Required Client Information 14 シロー Section D エインローニス (A-Z, 0-97,-)
Sample IDs MUST BE UNIQUE Important Note: By styring this form you are accepting Paca's NET 30 day payment terms and agreeing to tale changes of 1.5% per mouth for any motions polypaid within 30 days. SCS Contacts GA Power Atlanta, GA SAMPLE ID ADDITIONAL COMMENTS w 10 Day DOMAIN WATER WATER WASTE WATER PRODUCT SOILSOLID OIL WINE WINE AR OTHER TISSUE Valid Matrix Codes
MATRIX CODE Section B
Required Project Information
Report To: SCS Contacts \$ **\$ \$** \$ 9 \$ \$ \$ \$ \$ Project Number: GW6581B Copy To: Geosyntec Contacts roject Name: urchase Order No. Hornord uck like o RELINCUISHED BY I AFFILIATION ₩T G ΤW ¥ ¥ 3 ķ M ¥ ş ş Ş ₹ MATRIX CODE (see valid codes to left) 0.40 G a Plant Hammond AR Semiannual Com G a ၈ Ġ G SAMPLE TYPE (G#GRAB C=COMP) 124/20 DATE 1516 SAMPLER NAME AND SIGNATURE 00 NAUN COT COLLECTED SIGNATURE of SAMPLER: PRINT Name of SAMPLER: X Cord Q X COMPOSITE 3125 3/15/ho 景 DATE 4.6 SAMPLE TEMP AT COLLECTION Pace Osole Reference: Pace Project 130 Š 0440 Address Attention Section C 0055 # OF CONTAINERS Company Name nvoice information 181 W Unpreserved H₂SO₄ Comerco Wicks Porce HNO₃ Preservatives Kevin Herring Southern Co. HCI allia Munday Cheone Stry to NaOH The same 8 Na₂S₂O₃ ACCEPTED BY / AFFILIATION t-2162 Methanol 1.00 Other Analysis Test Y/ N Chloride, Fluoride, Sulfate z (MM/DD/YY): DATE Signed Requested Analysis Filtered (Y/N) × TDS z × × Metals 6010/6020* z × × RAD 226/228 z 03/24/ REGULATORY AGENCY Site Location 3195130 12520 UST **NPDES** DATE STATE 12020 17.5 1855 1310 TIME RCR4 **GROUND WATE** 8 Temp in °C z Residual Chlorine (Y/N) z Z z 모= 모= 무# 윺 PH= 모 말. 물 " 위비 완.. PH= 6.0 M=5.64 Ψ, Received on Pace Project No./ Lab LD. ice (Y/N) SAMPLE CONDITIONS Custody OTHER CER-DRINKING WATER Sealed Cooler (Y/N) Samples Intaci (Y/N)

F-ALL-Q-020ray.07, 15-Feb-2007



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

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CODE 3 Q A \$ 9 P \$ \$ \$ Required Project Information
Report To: SCS Contacts Project Name: Plant Hammond AP-4 Semiannual Complexes Purchase Order No. Copy To: Geosyntec Contacts WT G RELINQUISHED BY / AFFILIATION ş WT G WT G 6 WTG WI G ¥ ž ı́≦ 3 <u>≸</u> MATRIX CODE (see valid codes to left) ធ o ၈ ଜ ្ SAMPLE TYPE (G=GRAB C=COMP) CHAMPA TO 3/15 3/25 DATE SAMPLER NAME AND SIGNATURE 1877 1050 Pace Į Į COLLECTED SIGNATURE of SAMPLER COLA PRINT Name of SAMPLER: (L. 9d R. 150 DATE COMPOSITE or/m/c (RPARIE) 3/25 3/25/20 2002 E E DATE SAMPLE TEMP AT COLLECTION 1625 ずるの 120 Pace Quote Reference: Pace Project Manager: Address Company Name Section C # OF CONTAINERS Attention ace Profite #: 2912-7 Typice information 2 2 Unpreserved H₂SO₄ Remote dietalParc HNO: Southern Co Morlie Mus Preservatives history Kevin Herring Muse HCI NaOH Na₂S₂O₃ ACCEPTED BY / AFFILIATION Methanol Other Analysis Test Y/ N DATE Signed (MM/DD/YY): ××× Chloride, Fluoride, Sulfate z Requested Analysis Filtered (YIN) × Consorter TD\$ × × × × /letals 6010/6020 z × RAD 226/228 z 3/25/2020 REGULATORY AGENCY 3/25/20 Site Location ashi pagaga 3/36/30 DATE UST NPDES STATE: IIIO 2002 100 JWE RCRA GROUND WATE S Page: ~ Temp in *C z z 2 Residual Chlorine (Y/N) z 유 # 왕= p#1 = 바 È 로 " 무 PH = 와= 운 " 모 완= PH=5.53 Received on ₹ SAMPLE CONDITIONS Pace Project No./ Lab I.D. ice (Y/N) 3 Custody OTHER CER Sealed Cople DRINKING WATER (Y/N) W Samples Intact (Y/N) age 39 of 41

and agreeing to late charges of 1.5% per month for any involces not paid within 30 days.

F-ALL-Q-020rev.07, 15-Feb-2007

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Piesse note dry wells, strike thorugh any wells not sampled, and when the last sample for the event has been taken. Email To Section A
Required Client Information: Metais≖As, Bs, Bs, Bs, Cd, Ca, Cr, Ca, Pb, U Address Company Requested Due Date/TAT: ITEM# = ᇂ έs 40 æ O. Required Sent information 一つという 年でして (A-Z, 0-91,-) Sample (Ds MUST BE UNIQUE ¹important Note: By signing this form you are accepting Pace's NET 30 day payment terms GA Power SCS Contacts Atlanta, GA SAMPLE ID AUDITIONAL COMMENTS ŧ Z 6 10 Day Valid Matrix Codes

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S Project Name: Plant Hammond AP-4'Semiannual Compliant
Project Number: GW6581) Copy To: Geosyntec Contacts Report To: SCS Contacts Section 8
Required Project Information urchase Order No. 上部した WTG WT G RELINQUISHED BY / AFFILIATION ₹ ΝĪ WTG ٤ WT G WT ₹ ₹ WT ₹ MATRIX CODE ြ ດ ဂ 6 6 ດ G G SAMPLE TYPE (G=GRAB C=COMP) 121700 MAKO 33500 [210 DATE and agreeing to late changes of 1.5% per month for any linvoices not paid within 30 days. SAMPLER NAME AND SIGNATURE TIME: COLLECTED SIGNATURE of SAMPLER: PRINT Name of SAMPLER: COMPOSITE 3/4/20 STAPES. 3-25-20 SAMPLE TEMP AT COLLECTION Pace Quote Reference: Pace Project Manager 2002 Section C Invoice Information Attention: Sou S) 5 Üŧ th Ġ cn CD. # OF CONTAINERS ddress Company Name NE. Wellian Gunty 2 2 Unpreserved H₂SO₄ Marion w ω رن ω U ω ω W HNO₃ Kevin Herring Southern Co. Mars In HCI NaOH Na₂S₂O ACCEPTED BY INFFILIATION Methanol Other Analysis Test Y/N DATE Signed (MM/DD/YY): Chloride, Fluoride, Sulfate Cross 4 Requested Analysis Filtered (Y/N) TOS × z × × × × × × Metals 6010/6020* × × RAD 226/228 × 03/25) REGULATORY AGENCY 1/1/1/10 Site Location OEME! 176/10 ust NPDES DATE STATE 20 2002 1812 TIME RCRA GROUND WATE GA Page: Temp in 1C Residual Chlorine (Y/N) 모." N ¥1= 71. PH ₽ 맞 ₽H≡ H= 포. #= 구 # PH= PH == T Pace Project No./ Lab i.D. Ice (Y/N) SAMPLE CONDITIONS 617 잋 Custody Segled Cooler OTHER COR-DRINKING WATER (Y/N) S (Y/N) Page 40 of 41

F-ALL-Q-020rey,07, 15-Feb-2007



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

Section A Required Client Momation: Company: GA Power Section B
Required Project Information
Report To: SCS Contacts Section C
Invoice Information:
Attention: Southern Co. W 잌

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age 41 of 41

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April 29, 2020

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

RE: Project: HAMMOND AP-4 BACKGROUND

Pace Project No.: 2630416

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 25, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

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

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

Sincerely,

Kevin Herring

kevin.herring@pacelabs.com

Keni Sterry

(704)875-9092

HORIZON Database Administrator

Enclosures

cc: Kristen Jurinko

Whitney Law, Geosyntec Consultants Noelia Muskus, Geosyntec Consultants Lauren Petty, Southern Company Services, Inc.



(770)734-4200



CERTIFICATIONS

Project: HAMMOND AP-4 BACKGROUND

Pace Project No.: 2630416

Pace Analytical Services Atlanta

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315 Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

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

Virginia Certification #: 460204

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804 Florida/NELAP Certification #: E87648

Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

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





SAMPLE SUMMARY

Project: HAMMOND AP-4 BACKGROUND

Pace Project No.: 2630416

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2630416001	HGWC-102	Water	03/24/20 16:00	03/25/20 09:41



SAMPLE ANALYTE COUNT

Project: HAMMOND AP-4 BACKGROUND

Pace Project No.: 2630416

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2630416001	HGWC-102	EPA 6010D	KLH	1	PASI-GA
		EPA 6020B	CSW	13	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		SM 2540C	ALW	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A

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



SUMMARY OF DETECTION

Project: HAMMOND AP-4 BACKGROUND

Pace Project No.: 2630416

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
 2630416001	HGWC-102			_ ·		
	Field pH	5.58	Std. Units		03/25/20 14:16	
EPA 6010D	Calcium	103	mg/L	1.0	03/27/20 17:12	M1
EPA 6020B	Barium	0.024	mg/L	0.010	04/01/20 17:00	
EPA 6020B	Boron	2.4	mg/L	0.10	04/01/20 17:00	
EPA 6020B	Cadmium	0.00068J	mg/L	0.0025	04/01/20 17:00	
EPA 6020B	Chromium	0.00051J	mg/L	0.010	04/01/20 17:00	
EPA 6020B	Cobalt	0.0019J	mg/L	0.0050	04/01/20 17:00	
EPA 6020B	Lithium	0.00084J	mg/L	0.030	04/01/20 17:00	
SM 2540C	Total Dissolved Solids	521	mg/L	10.0	03/26/20 13:02	
EPA 300.0 Rev 2.1 1993	Chloride	6.5	mg/L	1.0	04/02/20 20:34	
EPA 300.0 Rev 2.1 1993	Sulfate	311	mg/L	6.0	04/03/20 08:00	



Project: HAMMOND AP-4 BACKGROUND

Pace Project No.: 2630416

Date: 04/29/2020 08:21 AM

Sample: HGWC-102	Lab ID: 2630416001 Collected: 03/24/20 16:00 Received: 03/25/20 09:41 Matrix: Water								
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
Field Data	Analytical	Method:							
	Pace Ana	lytical Service	s - Atlanta, (GΑ					
Field pH	5.58	Std. Units			1		03/25/20 14:16		
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A								
	Pace Analytical Services - Atlanta, GA								
Calcium	103	mg/L	1.0	0.14	1	03/27/20 09:44	03/27/20 17:12	7440-70-2	M1
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	thod: El	PA 3005A			
	Pace Ana	lytical Service	s - Atlanta, (ЭA					
Antimony	ND	mg/L	0.0030	0.00027	1	03/27/20 09:33	04/01/20 17:00	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	03/27/20 09:33	04/01/20 17:00		
Barium	0.024	mg/L	0.010	0.00049	1	03/27/20 09:33	04/01/20 17:00	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	03/27/20 09:33	04/01/20 17:00	7440-41-7	
Boron	2.4	mg/L	0.10	0.0049	1	03/27/20 09:33	04/01/20 17:00	7440-42-8	
Cadmium	0.00068J	mg/L	0.0025	0.00011	1	03/27/20 09:33	04/01/20 17:00	7440-43-9	
Chromium	0.00051J	mg/L	0.010	0.00039	1	03/27/20 09:33	04/01/20 17:00	7440-47-3	
Cobalt	0.0019J	mg/L	0.0050	0.00030	1	03/27/20 09:33	04/01/20 17:00	7440-48-4	
₋ead	ND	mg/L	0.0050	0.000046	1	03/27/20 09:33	04/01/20 17:00	7439-92-1	
Lithium	0.00084J	mg/L	0.030	0.00078	1	03/27/20 09:33	04/01/20 17:00	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	03/27/20 09:33	04/01/20 17:00	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	03/27/20 09:33	04/01/20 17:00	7782-49-2	
Γhallium	ND	mg/L	0.0010	0.000052	1	03/27/20 09:33	04/01/20 17:00	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
	Pace Analytical Services - Atlanta, GA								
Mercury	ND	mg/L	0.00050	0.00014	1	03/31/20 10:29	04/01/20 14:01	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
	Pace Analytical Services - Atlanta, GA								
Total Dissolved Solids	521	mg/L	10.0	10.0	1		03/26/20 13:02		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993								
	Pace Ana	lytical Service	s - Asheville						
Chloride	6.5	mg/L	1.0	0.60	1		04/02/20 20:34	16887-00-6	
Fluoride	ND	mg/L	0.30	0.050	1		04/02/20 20:34		
Sulfate	311	mg/L	6.0	3.0	6		04/03/20 08:00	14808-79-8	



Project: HAMMOND AP-4 BACKGROUND

Pace Project No.: 2630416

Date: 04/29/2020 08:21 AM

QC Batch: 45075 Analysis Method: EPA 7470A

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

Laboratory: Pace Analytical Services - Atlanta, GA

Associated Lab Samples: 2630416001

METHOD BLANK: 207590 Matrix: Water

Associated Lab Samples: 2630416001

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

Mercury mg/L ND 0.00050 0.00014 04/01/20 13:44

LABORATORY CONTROL SAMPLE: 207591

Spike LCS LCS % Rec Conc. Result % Rec Limits Qualifiers Parameter Units Mercury mg/L 0.0025 0.0026 104 80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 207592 207593

MSD MS 2630416001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Conc. Conc. Result Result % Rec % Rec Limits **RPD** RPD Qual Result ND 0.0025 20 Mercury mg/L 0.0025 0.0030 0.0028 119 113 75-125 5

Results presented on 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: HAMMOND AP-4 BACKGROUND

Pace Project No.: 2630416

Date: 04/29/2020 08:21 AM

QC Batch: 44977 Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A Analysis Description: 6010D MET

Laboratory: Pace Analytical Services - Atlanta, GA

Associated Lab Samples: 2630416001

METHOD BLANK: 207109 Matrix: Water

Associated Lab Samples: 2630416001

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

LABORATORY CONTROL SAMPLE: 207110

Spike LCS LCS % Rec Conc. Result % Rec Limits Qualifiers Parameter Units Calcium mg/L 1.0 102 80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 207111 207112

MS MSD

2630416001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Conc. Conc. Result Result % Rec % Rec **RPD** RPD Qual Result Limits 103 105 20 M1 Calcium mg/L 99.1 -346 212 75-125 5

Results presented on 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: HAMMOND AP-4 BACKGROUND

Pace Project No.: 2630416

Date: 04/29/2020 08:21 AM

QC Batch: 44978 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET

Laboratory: Pace Analytical Services - Atlanta, GA

Associated Lab Samples: 2630416001

METHOD BLANK: 207113 Matrix: Water

Associated Lab Samples: 2630416001

_		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	04/01/20 16:48	
Arsenic	mg/L	0.0013J	0.0050	0.00035	04/01/20 16:48	
Barium	mg/L	ND	0.010	0.00049	04/01/20 16:48	
Beryllium	mg/L	ND	0.0030	0.000074	04/01/20 16:48	
Boron	mg/L	ND	0.10	0.0049	04/01/20 16:48	
Cadmium	mg/L	ND	0.0025	0.00011	04/01/20 16:48	
Chromium	mg/L	ND	0.010	0.00039	04/01/20 16:48	
Cobalt	mg/L	ND	0.0050	0.00030	04/01/20 16:48	
Lead	mg/L	ND	0.0050	0.000046	04/01/20 16:48	
Lithium	mg/L	ND	0.030	0.00078	04/01/20 16:48	
Molybdenum	mg/L	ND	0.010	0.00095	04/01/20 16:48	
Selenium	mg/L	ND	0.010	0.0013	04/01/20 16:48	
Thallium	mg/L	ND	0.0010	0.000052	04/01/20 16:48	

LABORATORY CONTROL SAMPLE:	207114					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	mg/L	0.1	0.11	106	80-120	
Arsenic	mg/L	0.1	0.10	101	80-120	
Barium	mg/L	0.1	0.10	103	80-120	
Beryllium	mg/L	0.1	0.10	104	80-120	
Boron	mg/L	1	1.1	105	80-120	
Cadmium	mg/L	0.1	0.10	103	80-120	
Chromium	mg/L	0.1	0.10	103	80-120	
Cobalt	mg/L	0.1	0.10	103	80-120	
Lead	mg/L	0.1	0.10	100	80-120	
Lithium	mg/L	0.1	0.10	104	80-120	
Molybdenum	mg/L	0.1	0.10	102	80-120	
Selenium	mg/L	0.1	0.10	100	80-120	
Thallium	mg/L	0.1	0.10	100	80-120	

MATRIX SPIKE & MATRIX SP	IKE DUPL	ICATE: 2071	15		207116							
		2630325020	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	
Doromotor	Units		- 1	- 1	_	_	% Rec	% Rec	Limits	RPD	RPD	Ougl
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	KPD	KPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.10	0.11	104	108	75-125	4	20	
Arsenic	mg/L	0.0049J	0.1	0.1	0.10	0.11	98	102	75-125	4	20	

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



Project: HAMMOND AP-4 BACKGROUND

Pace Project No.: 2630416

Date: 04/29/2020 08:21 AM

MATRIX SPIKE & MATRIX	SPIKE DUPL	ICATE: 2071	15 MS	MSD	207116							
Parameter	Units	2630325020 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	mg/L	0.043	0.1	0.1	0.14	0.15	95	103	75-125	6	20	
Beryllium	mg/L	ND	0.1	0.1	0.094	0.099	94	99	75-125	5	20	
Boron	mg/L	0.50	1	1	1.5	1.5	95	101	75-125	5	20	
Cadmium	mg/L	ND	0.1	0.1	0.096	0.10	96	101	75-125	6	20	
Chromium	mg/L	0.0011J	0.1	0.1	0.097	0.10	96	103	75-125	6	20	
Cobalt	mg/L	0.00031J	0.1	0.1	0.096	0.10	96	103	75-125	7	20	
Lead	mg/L	ND	0.1	0.1	0.095	0.098	95	98	75-125	3	20	
Lithium	mg/L	0.00084J	0.1	0.1	0.098	0.10	97	103	75-125	5	20	
Molybdenum	mg/L	0.0035J	0.1	0.1	0.10	0.11	100	105	75-125	4	20	
Selenium	mg/L	ND	0.1	0.1	0.098	0.10	98	102	75-125	4	20	
Thallium	mg/L	ND	0.1	0.1	0.095	0.099	95	99	75-125	4	20	

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



Project: HAMMOND AP-4 BACKGROUND

Pace Project No.: 2630416

QC Batch: 44950 Analysis Method: SM 2540C

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

Laboratory: Pace Analytical Services - Atlanta, GA

Associated Lab Samples: 2630416001

LABORATORY CONTROL SAMPLE: 206865

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

Total Dissolved Solids mg/L 400 401 100 84-108

SAMPLE DUPLICATE: 206866

Date: 04/29/2020 08:21 AM

Parameter Units Result Result RPD Qualifiers

Total Dissolved Solids mg/L 859 854 1 10

SAMPLE DUPLICATE: 206867 2630325025 Dup Ma

Parameter Units Result Reput RPD Qualifiers

Total Dissolved Solids mg/L 714 672 6 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: HAMMOND AP-4 BACKGROUND

Pace Project No.: 2630416

QC Batch Method:

QC Batch: 533750

EPA 300.0 Rev 2.1 1993

Analysis Method:

EPA 300.0 Rev 2.1 1993

Analysis Description:

300.0 IC Anions

Laboratory:

Pace Analytical Services - Asheville

Associated Lab Samples: 2630416001

LABORATORY CONTROL CAMPLE: 2040070

METHOD BLANK: 2848969

Date: 04/29/2020 08:21 AM

Matrix: Water

Associated Lab Samples: 2630416001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND ND	1.0	0.60	04/02/20 17:18	
Fluoride	mg/L	ND	0.10	0.050	04/02/20 17:18	
Sulfate	mg/L	ND	1.0	0.50	04/02/20 17:18	

LABORATORY CONTROL SAMPLE:	2040970					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Chloride	mg/L	50	50.9	102	90-110	
Fluoride	mg/L	2.5	2.5	101	90-110	
Sulfate	mg/L	50	50.5	101	90-110	

MATRIX SPIKE & MATRIX SF	IKE DUPL	ICATE: 2848	971		2848972							
		2630325037	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	
		2030323037	Opine	Opike	_	IVIOD	_	_				
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	1670	50	50	1670	1680	-1	8	90-110	0	10	M6
Fluoride	mg/L	0.056J	2.5	2.5	2.3	2.3	90	90	90-110	0	10	
Sulfate	mg/L	603	50	50	602	604	-2	2	90-110	0	10	M6

MATRIX SPIKE & MATRIX SP	IKE DUPL	ICATE: 2848	973		2848974							
			MS	MSD								
		2630414001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Chloride	mg/L	3.6	50	50	56.2	56.2	105	105	90-110	0	10	
Fluoride	mg/L	0.076J	2.5	2.5	2.5	2.5	95	96	90-110	1	10	
Sulfate	mg/L	1.6	50	50	53.5	53.4	104	104	90-110	0	10	

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



QUALIFIERS

Project: HAMMOND AP-4 BACKGROUND

Pace Project No.: 2630416

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

Date: 04/29/2020 08:21 AM

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

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



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HAMMOND AP-4 BACKGROUND

Pace Project No.: 2630416

Date: 04/29/2020 08:21 AM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytica Batch
2630416001	HGWC-102		·		
2630416001	HGWC-102	EPA 3010A	44977	EPA 6010D	45004
2630416001	HGWC-102	EPA 3005A	44978	EPA 6020B	45003
2630416001	HGWC-102	EPA 7470A	45075	EPA 7470A	45156
2630416001	HGWC-102	SM 2540C	44950		
2630416001	HGWC-102	EPA 300.0 Rev 2.1 1993	533750		

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

Face Analytical www.pecelebs.com

MO#: 2630416			2630416	Contract to the supplemental to the supplement	Site Location	STATE:	Requested Analysis Filtered (Y/N)	
							Requested #	
Section C Invoice Information:	Allenien Gouthern Co.	Company Name	Address	Pace Quote Reference:	Pace Project Kevin Herring Manager	Pace Profile #: 2912-7		
			3	Scond Scond	AP-4 Semiannual compliant Pace Poject Kevin Herring Managar.			
Section B Required Project Information:	Report To 9C9 Contacts	Copy To: Geosyntec Contacts		Purchase Order No.) puo	Project Number: GW6581		
Section B Required Pr	Report	Copy To:		Purchase	Project A			
Section A Required Clent Information:	GA Power	Atlanta, GA		SCS Contacts	Fax	Requested Due Date/TAT: 10 Day		
Section A Required C	Company	Address		Email To:	Phone:	Requeste		t

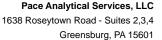
4.15	Section D Valid Matrix Codes Required Clent Information MAIRIX CODE		(AM		S	COLLECTED		_	27.0	ď	reserv	Preservatives		N/A	z	z	I Z	+	\pm	Ŧ	+				
			00=0			COMPOSITE	SITE	NOIL																	
	SAMPLE ID WIE WP WP ARROWN St. (A-Z. 0-9 f) OTHER AR AR AR AR AR AR AR AR AR AR AR AR AR	CODE (see valid o	8ARD=0) B9YT 3					E TEMP AT COLLECT	ONTAINERS			£C	lon	SeeT sisy	Fluoride, Sulfate	010/6020*	א ליכים					ust Chlorine (Y/N)			
# M3TI	a co	(I ЯТАМ	SAMPLE	DATE	TIME	DATE	TIME		# OE C	OSZH	HCI HNO ³	HO _S OH	Methai	_	Chlonde,		RAD 226				1 2	nbisəЯ	Pace	Project	Pace Project No./ Lab I.D.
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whe h	Please note dry wells, strike thorugh any wells not sampled, and note when the lest sample for the event has been taken.	16	Shaw n	7 []	I _ I	Grossinto	[<u>"</u> .]	8 /17/	(730	0	1	12	1	7	ł			9℃- <i>hと</i> -8	₹ <u>7</u>	730	_	\Box			
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16						SIGNATURE	IRE of SAI	of SAMPLER:	3	,	`	1		-	DATE	DATE Signed		व्यक्य) ११५६	2		_	i		Seal	meS

Sample Condition Upon Receipt ade Analyticai Client Name: (う Project # WO#: 2630416 Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other Courier: [] Due Date: 04/08/20 Tracking #: CLIENT: 26-GA Power Custody Seal on Cooler/Box Present: Seals intact: □ ves Packing Material: Bubble Wrap Plastic Bag ☐ Bubble Bags ☐ None ☑ Other Thermometer Used Type of Ice: Wet Blue None ☐ Samples on ice, cooling process has begun Date and initials of person examining Cooler Temperature Biological Tissue is Frozen: Yes contents: Temp should be above freezing to 6°C Comments: Chain of Custody Present: ZYes □No □N/A Chain of Custody Filled Out: Øyes □No □N/A Chain of Custody Relinquished: ĎYes □No □N/A Sampler Name & Signature on COC: ZÍYes □No □N/A Samples Arrived within Hold Time: ZÎYes □No □NA Short Hold Time Analysis (<72hr): ☐Yes ØNo □N/A Rush Turn Around Time Requested: ØNo □N/A TY Yes Sufficient Volume: **⊈**Yes □No □N/A Correct Containers Used: □N/A 9. ØYes □No -Pace Containers Used: ØYes □No □N/A Containers Intact: ØYes □No □N/A 10. Filtered volume received for Dissolved tests □Yes □No ØNA 11. Sample Labels match COC: Yes ONO ONA 12. -Includes date/time/ID/Analysis Matrix: All containers needing preservation have been checked. Ves □No □N/A 13. All containers needing preservation are found to be in ØYes □No □N/A compliance with EPA recommendation. Initial when Lot # of added exceptions: VOA, coliform, TOC, O&G, WI-DRO (water) ☐Yes ☐No completed preservative Samples checked for dechlorination: □Yes □No □NA 14. Headspace in VOA Vials (>6mm); □Yes □No □N/A 15. Trip Blank Present: ☐Yes ☐Ño □N/A 116. 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:

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)

Project Manager Review:

Date:



(724)850-5600



March 30, 2020

Mr. Joju Abraham Georgia Power 2480 Maner Road Atlanta, GA 30339

RE: Project: 2629801

Pace Project No.: 30353743

Dear Mr. Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 07, 2020. 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,

Jacquelyn Collins

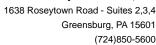
Sugnely Sellins

jacquelyn.collins@pacelabs.com

(724)850-5612 Project Manager

Enclosures







CERTIFICATIONS

Project: 2629801 Pace Project No.: 30353743

Pace Analytical Services Pennsylvania

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

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification

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

Delaware Certification EPA Region 4 DW Rad

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

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

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

KY WW Permit #: KY0000221

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

Maine Certification #: 2017020 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991 Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706

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

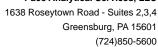
South Dakota Certification
Tennessee Certification #: 02867

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

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

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

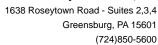




SAMPLE SUMMARY

Project: 2629801 Pace Project No.: 30353743

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2629801001	HGWC-102	Water	03/04/20 10:07	03/07/20 10:30

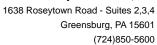




SAMPLE ANALYTE COUNT

Project: 2629801
Pace Project No.: 30353743

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory	
2629801001	HGWC-102	EPA 9315	LAL	1	PASI-PA	
		EPA 9320	VAL	1	PASI-PA	
		Total Radium Calculation	CMC	1	PASI-PA	

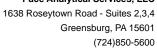




ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2629801
Pace Project No.: 30353743

Sample: HGWC-102 PWS:	Lab ID: 26298010 Site ID:	O1 Collected: 03/04/20 10:07 Sample Type:	Received:	03/07/20 10:30	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.636 ± 0.219 (0.258) C:88% T:NA	pCi/L	03/17/20 19:1:	3 13982-63-3	
Radium-228		0.683 ± 0.362 (0.631) C:77% T:87%	pCi/L	03/26/20 17:4	6 15262-20-1	
Total Radium	Total Radium Calculation	1.32 ± 0.581 (0.889)	pCi/L	03/27/20 14:3	9 7440-14-4	





QUALITY CONTROL - RADIOCHEMISTRY

Project: 2629801 Pace Project No.:

30353743

QC Batch:

387516

Analysis Method:

EPA 9320

QC Batch Method: EPA 9320 Analysis Description:

9320 Radium 228

Associated Lab Samples:

2629801001

METHOD BLANK: 1877158

Matrix: Water

Associated Lab Samples:

2629801001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

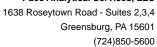
Qualifiers

Radium-228

0.0408 ± 0.333 (0.765) C:71% T:89%

03/26/20 17:45 pCi/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.





QUALITY CONTROL - RADIOCHEMISTRY

Project: 2629801

QC Batch Method:

Pace Project No.: 30353743

QC Batch: 387515

EPA 9315

Analysis Method:

EPA 9315

Analysis Description:

9315 Total Radium

Associated Lab Samples: 2629801001

METHOD BLANK: 1877156

Matrix: Water

Associated Lab Samples: 2629801001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

Radium-226

0.400 ± 0.158 (0.182) C:89% T:NA

pCi/L 03/17/20 19:34

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





QUALIFIERS

Project: 2629801 Pace Project No.: 30353743

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.

TNTC - Too Numerous To Count

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.

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.

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

Date: 03/30/2020 01:33 PM

PASI-PA Pace Analytical Services - Greensburg

S	Pace Analytical	Results Requested By: 3490930	翻			LAB USE ONLY	2		THE STATE OF THE S		3030	-	(Samples Intact Y br N	document	53743			009 Page 1 of 1	and the control of th
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ests verming	State Of Origin: GA	Cert. Needed: NDwner Received Dat		9386 S186	BAD STATE OF THE S	×				- Date/Time	SO SERVE 102			Received on Ice Y	name and signature ma the owner laboratory.	aya <u>ma</u> ra a saya d	Se (Se edger	aja 22 julijas	·	# · ———————————————————————————————————
	aboratory.	Cert. Needed: Yeser Name: PLANT HAMMOND AP-4 BACKRGROUNDWner Received Date:		7 653 Roseyfown Road Suites 2.3, & 4 Greensburg, PA 15601 Phone (724)850-5500	SON-			7		Received By	Ber Mund			Custody Seal Y or	'ality, location/name of the sampling site, sampler's name and signature m complete as is since this information is available in the owner laboratory.					
	rectly to the Subcontracting Laboratory	Workorder Name: PLANT HAN	on the contract of the contrac	1 538 Pose 1638 Rose Suites 2.3 Greensbu Phone (7.1	Sample, Collection	PS 3/4/2020 10:07	1			Dat				pt ////#°C Custoo	nfidentiality, location/name of idered complete as is since t					
Chain of Custody	Samples were sent directly	2629801	Report Tollister - Figure - Kevin Herring	Pace Analytical Chanlotte Bodo Kincey Ave. Suite 100 Huntersville, NC 28078 Phone (704)875-9092		1 HGWC-102	7	w 4		Transfers Released By		2		Cooler Temperature on Receipt	***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.				Thursday, March 05, 2020 1:49:13 PM	

Pittsburgh Lab Sample Cond	lition U	pon	Rec	eipt	7743
Pacs Analytical Client Name:	_ <i>p</i>	aee	N	<u>C</u> Project # Project #	3/4J
Courier: Fed Ex UPS USPS Click Tracking #: 657 9506 9598 Custody Seal on Cooler/Box Present: Lyes Thermometer Used	<u> </u>		Seals		n 1
Cooler Temperature Observed Temp Temp should be above freezing to 6°C	<u> </u>	·c 3M		pH paper Loff* Date and Initials of person exame contents: Ph. 3-9-20	° C
Comments:	Yes		N/A	10111391	
Chain of Custody Present:		_		1. Received From Jac on 3-9-2	220
Chain of Custody Filled Out:				2.	
Chain of Custody Relinquished:		_		3.	
Sampler Name & Signature on COC:		_		4.	·
Sample Labels match COC:			<u> </u>	5.	
-includes date/time/ID - Matrix:	W	<u>T</u>			
Samples Arrived within Hold Time:			<u> </u>	6.	
Short Hold Time Analysis (<72hr remaining):				7.	
Rush Turn Around Time Requested:		/		8.	
Sufficient Volume:	_/_			9.	
Correct Containers Used:				10.	
-Pace Containers Used:					
Containers Intact:	_/_			11.	
Orthophosphate field filtered			/	12.	
Hex Cr Aqueous sample field filtered			/	13.	
Organic Samples checked for dechlorination	1:		/_	14.	
Filtered volume received for Dissolved tests			/	15.	
All containers have been checked for preservation. exceptions: VOA, coliform, TOC, O&G, Phenolic Non-aqueous matrix	cs, Radon,		<u></u>	16. pH22	
All containers meet method preservation requirements.				Initial when D Date/time of completed preservation	
jequionona.			3	Lot # of added preservative	
Headspace in VOA Vials (>6mm):				17.	
Trip Blank Present:			[<u>1</u> 8.	
Trip Blank Custody Seals Present		•		Initial when 0// 7 9-70	<u> </u>
Rad Samples Screened < 0.5 mrem/hr				Initial when completed: Dute: 3-9-20	
Client Notification/ Resolution:					
Person-Gontacted:			-⊝ate/-	Time: Contacted By:	
Comments/ Resolution: RECIPIEM 2	BPIN	s gump	(c FD.	262801-001 sampled 3-4-20 10:07	
recieved 0	\-770 U	7:30			
A check in this box indicates that ac	-		natior	has been stored in ereports.	

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)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

Ra-226 LAL 3/17/2020 52846 DW Test Analyst Date: Worklist: Matrix:

Face Analytical"

MS/MSD 2

MS/MSD 1

Sample I.D. Sample MS I.D. Sample MSD I.D.

Spike I.D.

MS/MSD Decay Corrected Spike Concentration (pCi/mL): Spike Volume Used in MS (mL):

Sample Collection Date:

Sample Matrix Spike Control Assessment

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Y	LCSD (Y or N)?	
	See Comment*	MB Status vs. MDC: See Comment*
	N/A	MB Status vs Numerical Indicator:

MSD Target Conc. (pCi/L, g, F):

MS Spike Uncertainty (calculated): MSD Spike Uncertainty (calculated):

MS Aliquot (L, g, F): MS Target Conc.(pCi/L, g, F):

Spike Volume Used in MSD (mL)

1877156 0.400 0.147 0.182 5.34

MB Sample ID
MB concentration:
M/B Counting Uncertainty:
MB Numerical Performance Indicator:

Method Blank Assessment

			Continued of the contin
rol Sample Assessment	LCSD (Y or N)?	λ	MSD Spike Uncertainty (calculated):
	LCS52846	LCSD52846	Sample Result:
Count Date:	3/18/2020	3/18/2020	Sample Result Counting Uncertainty (pCi/l, g, F):
Spike I.D.:	19-033	19-033	Sample Matrix Spike Result:
Decay Corrected Spike Concentration (pCi/mL):	24.050	24.050	Matrix Spike Result Counting Uncertainty (pCi/L, g, F):
Volume Used (mL):	0,10	0.10	Sample Matrix Spike Duplicate Result.
Aliquot Volume (L, g, F):	0.510	0.510	Matrix Spike Duplicate Result Counting Uncertainty (pCt/l., g, F):
Target Conc. (pCi/L, g, F):	4.719	4.716	MS Numerical Performance Indicator:
Uncertainty (Calculated):	0.057	0.057	MSD Numerical Performance Indicator:
Result (pCi/L, g, F):	4.977	4.863	MS Percent Recovery:
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.742	0.718	MSD Percent Recovery:
Numerical Performance Indicator:	0.68	0.40	MS Status vs Numerical Indicator:
Percent Recovery:	105.46%	103.12%	MSD Status vs Numerical Indicator:
Status vs Numerical Indicator:	A/N	Ϋ́Z	MS Status vs Recovery:
Status vs Recovery:	Pass	Pass	MSD Status vs Recovery:
Upper % Recovery Limits:	125%	125%	MS/MSD Upper % Recovery Limits:
Lower % Recovery Limits:	75%	75%	MS/MSD Lower % Recovery Limits:

MS/MSD Upper % Recovery Limits: MS/MSD Lower % Recovery Limits:

Suplicate Sample Assessment		
Sample I.D.:	LCS52846	Enter Duplicate
Duplicate Sample I.D.	LCSD52846	sample IDs if
Sample Result (pCi/L, g, F):	4.977	other than
Sample Result Counting Uncertainty (pCi/L, g, F):	0.742	LCS/LCSD in
Sample Duplicate Result (pCi/L, g, F):	4.863	the space below.
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.718	
Are sample and/or duplicate results below RL?	2	
Duplicate Numerical Performance Indicator:	0.215	2629703017
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	2.25%	2629703017DUP
Duplicate Status vs Numerical Indicator:	NA	
Duplicate Status vs RPD:	Pass	
% RPD Limit:	25%	

				•••••								
Matrix Spike/Matrix Spike Duplicate Sample Assessment	Sample I.D.	Sample MS I.D.	Sample MSD I.D.	Sample Matrix Spike Result:	Matrix Spike Result Counting Uncertainty (pCi/L, g, F):	Sample Matrix Spike Duplicate Result:	Matrix Spike Duplicate Result Counting Uncertainty (pCl/l., g, F):	Duplicate Numerical Performance Indicator:	(Based on the Percent Recoveries) MS/ MSD Duplicate RPD:	MS/ MSD Duplicate Status vs Numerical Indicator:	MS/ MSD Duplicate Status vs RPD:	### 000 %
	te	<u> </u>		c	Š.			_	P.	l		

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC. Comments:
The method blank result is below the reporting limit for this analysis and is acceptable.

UAM3/18/2020

TAR_52846_W Total Alpha Radium (R104-3 11Feb2019).xls

1 of 1

TAR DW QC Printed: 3/18/2020 11:59 AM

Face Analytical

Quality Control Sample Performance Assessment

Ra-226 LAL 3/17/2020 52846 DW Test Analyst Date: Worklist Matrix:

1877156 0.400 0.147 0.182 5.34 N/A See Comment*

MB Sample ID
MB concentration:
M/B Counting Uncertainty:
M/B MDC:

Method Blank Assessment

MB Numerical Performance Indicator: MB Status vs Numerical Indicator: MB Status vs. MDC:

Analyst Must Manually Enter All Fields Highlighted in Yellow.

	Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
	Sample Collection Date:		
	Sample I.D.		
	Sample MS I.D.		
	Sample MSD I.D.		
	Spike I.D.:		
	MS/MSD Decay Corrected Spike Concentration (pCl/mL):		
	Spike Volume Used in MS (mL):		
	Spike Volume Used in MSD (mL):		
	MS Aliquot (L, g, F):		
	MS Target Conc.(pCi/L, g, F):		
	MSD Aliquot (L, g, F):		
	MSD Target Conc. (pCi/L, g, F):		
	MS Spike Uncertainty (calculated):		
	MSD Spike Uncertainty (calculated):		
G	Sample Result:		
	Sample Result Counting Uncertainty (pCl/L, g, F):		
	Sample Matrix Spike Result:		
	Matrix Spike Result Counting Uncertainty (pCi/L, g, F):		
	Sample Matrix Spike Duplicate Result:		
	Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):		
	MS Numerical Performance Indicator:		
	MSD Numerical Performance Indicator:		
	MS Percent Recovery:		
-	MSD Percent Recovery:		
	MS Status vs Numerical Indicator:		
	MSD Status vs Numerical Indicator:		
	MS Status vs Recovery:		
	MSD Status vs Recovery:		
	MS/MSD Upper % Recovery Limits:		
7	MS/MSD Lower % Recovery Limits:		

			SEO DATO CITE
Laboratory Control Sample Assessment	LCSD (Y or N)?	z	MSD Spike Unce
	LCS52846	LCSD52846	
Count Date:	3/18/2020		Sample Result Counting Unce
Spike I.D.:	19-033		Sample
Decay Corrected Spike Concentration (pCi/ml.):	24.050		Matrix Spike Result Counting Unce
Volume Used (mL):	0.10		Sample Matrix Spil
Aliquot Volume (L, g, F):	0,510		Matrix Spike Duplicate Result Counting Unce
Target Conc. (pCl/L, g, F):	4.719		MS Numerical Per
Uncertainty (Calculated):	0.057		MSD Numerical Per
Result (pCi/L, g, F);	4.977		SW
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.742		GSM
Numerical Performance Indicator:	0.68		MS Status vs 1
Percent Recovery:	105.46%		MSD Status vs 1
Status vs Numerical Indicator:	N/A		SW
Status vs Recovery:	Pass		GSM
Upper % Recovery Limits:	125%		MS/MSD Upper
Lower % Recovery Limits:	75%		MS/MSD Lower
Dublicate Sample Assessment			Matrix Soike/Matrix Spike Duolicate Sample
***************************************	•	•	The same of the sa

Duplicate Sample Assessment			Matrix Spik
Sample-I.D.:	2629703017	Enter Duplicate	
Duplicate Sample I.D. 2629703017DUP	2629703017DUP	sample IDs if	
Sample Result (pCi/L, g, F):	0.904	other than	
Sample Result Counting Uncertainty (pCi/L, g, F):	0.207	LCS/LCSD in	
Sample Duplicate Result (pCl/L, g, F):	0.881	the space below.	
Sample Duplicate Result Counting Uncertainty (pCl/L, g, F):	0.325		
Are sample and/or duplicate results below RL?	See Below #		Matrix Sp
Duplicate Numerical Performance Indicator:	0.114	2629703017	
Duplicate RPD:	2.52%	2629703017DUP	(Based
Duplicate Status vs Numerical Indicator:	N/A		
Duplicate Status vs RPD:	Pass		
% RPD Limit;	25%		

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments: **The method blank result is below the reporting limit for this analysis and is acceptable.

Sample I.D.	Sample MS I.D.	Sample MSD I.D.	Sample Matrix Spike Result:	Matrix Spike Result Counting Uncertainty (pCi/L, g, F):	Sample Matrix Spike Duplicate Result:	Matrix Spike Duplicate Result Counting Uncertainty (pCl/L, g, F):	Duplicate Numerical Performance Indicator:	(Based on the Percent Recoveries) MS/ MSD Duplicate RPD:	MS/ MSD Duplicate Status vs Numerical Indicator:	MS/ MSD Duplicate Status vs RPD:	% RPD Limit

Assessment

0202/8/12mm

TAR_52846_W Total Alpha Radium (R104-3 11Feb2019).xls

1 of 1

TAR DW QC Printed: 3/18/2020 11:59 AM

Ra-228 VAL Test Analyst

MS/MSD 2

MS/MSD 1

Sample I.D. Sample MS I.D. Sample MSD I.D.

Spike I.D.

MS/MSD Decay Corrected Spike Concentration (pCi/mL)

Sample Collection Date:

Sample Matrix Spike Control Assessment

MS Target Conc.(pCi/L., g, F); MSD Target Conc. (pCi/L, g, F):

MS Aliquot (L, g, F):

Spike Volume Used in MSD (mL):

Spike Volume Used in MS (mL)

Analyst Must Manually Enter All Fields Highlighted in Yellow.

		_							
3/3 //2020	52847 WT		1877158	0,041	0.333	0.765	0.24	Pass	Pass
Date:	Worklist: Matrix:	Method Blank Assessment	MB Sample ID	MB concentration:	M/B 2 Sigma CSU:	MB MDC:	MB Numerical Performance Indicator:	MB Status vs Numerical Indicator:	MB Status vs. MDC;

		,		_												_
>	LCSD52847	3/26/2020	19-057	34.708	0.10	0.814	4.266	0.307	3.979	0.959	-0.56	93.27%	N/A	Pass	135%	%09
LCSD (Y or N)?	LCS52847	3/26/2020	19-057	34.708	0.10	0,804	4.316	0.311	3.553	0.926	-1.53	82.33%	NA	Pass	135%	%09
Laboratory Control Sample Assessment		Count Date:	Spike I.D.:	Decay Corrected Spike Concentration (pCi/mL):	Volume Used (mL):	Aliquot Volume (L. g, F):	Target Conc. (pCi/L, g, F):	Uncertainty (Calculated):	Result (pCI/L, g, F):	LCS/LCSD 2 Sigma CSU (pCi/L, g, F):	Numerical Performance Indicator:	Percent Recovery:	Status vs Numerical Indicator:	Status vs Recovery:	Upper % Recovery Limits:	Lower % Recovery Limits:

Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):
MS Numerical Performance Indicator:
MSD Numerical Performance Indicator:
MS Numerical Performance Indicator:
MS Percent Recovery:

MS Status vs Numerical Indicator. MSD Status vs Numerical Indicator.

MS Status vs Recovery:

MSD Status vs Recovery

MS/MSD Upper % Recovery Limits: MS/MSD Lower % Recovery Limits:

Duplicate Sample Assessment

MSD Percent Recovery:

Sample Result 2 Sigma CSU (pCi/L, g, F): Sample Matrix Spike Result. Matrix Spike Result 2 Sigma CSU (pCi/L, g, F): Sample Matrix Spike Duplicate Result:

MS Spike Uncertainty (calculated): MSD Spike Uncertainty (calculated):

Sample Result:

Matrix Spike/Matrix Spike Duplicate Sample Assessment	Sample I.D. Sample MSI.D. Sample MSI.D. Sample MSI.D. Sample MASI.D. Sample Matrix Spike Result 2 Sigma CSU (pCif., g, F): Sample Matrix Spike Duplicate Result Matrix Spike Duplicate Result 2 Sigma CSU (pCif., g, F): Duplicate Numerical Performance Indicator: (Based on the Percent Recoveries) MS/ MSD Duplicate RPD: MS/ MSD Duplicate Status vs Numerical Indicator: MS/ MSD Duplicate Status vs RPD: MS/ MSD Duplicate Status vs RPD: %RPD Limit:
	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
	LCS52847 LCSD52847 3.553 3.553 0.926 3.979 0.989 NO -0.626 12.46% Pass Pass
imple Assessment	Sample i.D.: Duplicate Sample 1.D.: Sample Result (DCi/L, g, F): Sample Duplicate Result (DCi/L, g, F): Sample Duplicate Result (DCi/L, g, F): Are sample and/or duplicate results below RL? Duplicate Numerical Performance Indicator: In the LCS/LCSD Percent Recoveries) Duplicate RPD: Duplicate Status vs Numerical Indicator: Duplicate RPD: Duplicate RPD: Duplicate RPD: Publicate Status vs RPD: 96 RPD: 97 RPD: 98 RPD:

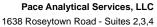
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Comments:

Ra-228 NELAC DW2 Printed: 3/27/2020 2:32 PM

Page 13 of 13



Greensburg, PA 15601 (724)850-5600



April 15, 2020

Mr. Joju Abraham Georgia Power 2480 Maner Road Atlanta, GA 30339

RE: Project: 2630416

Pace Project No.: 30356482

Dear Mr. Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 26, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

• Pace Analytical Services - Greensburg

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

Sincerely,

Jacquelyn Collins

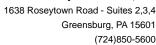
jacquelyn.collins@pacelabs.com

Sugnelylellins

(724)850-5612 Project Manager

Enclosures







CERTIFICATIONS

Project: 2630416
Pace Project No.: 30356482

Pace Analytical Services Pennsylvania

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

ANAB DOD-ELAP Rad Accreditation #: L2417

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

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

Delaware Certification EPA Region 4 DW Rad

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

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

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

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

Maine Certification #: 2017020 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991 Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190

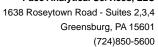
Oregon/TNI Certification #: PA200002-010 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

South Dakota Certification
Tennessee Certification #: 02867

Ohio EPA Rad Approval: #41249

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

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

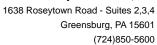




SAMPLE SUMMARY

Project: 2630416
Pace Project No.: 30356482

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2630416001	HGWC-102	Water	03/24/20 16:00	03/26/20 09:15



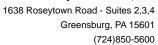


SAMPLE ANALYTE COUNT

Project: 2630416
Pace Project No.: 30356482

				Analytes	
Lab ID	Sample ID	Method	Analysts	Reported	Laboratory
2630416001	HGWC-102	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

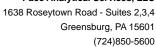




ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2630416
Pace Project No.: 30356482

Sample: HGWC-102 PWS:	Lab ID: 26304160 0 Site ID:	O1 Collected: 03/24/20 16:00 Sample Type:	Received:	03/26/20 09:15 N	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Servi	ces - Greensburg				
Radium-226		0.256 ± 0.225 (0.388) C:95% T:NA	pCi/L	04/06/20 07:40	13982-63-3	
	Pace Analytical Servi	ces - Greensburg				
Radium-228		0.971 ± 0.486 (0.866) C:75% T:83%	pCi/L	04/10/20 15:27	15262-20-1	
	Pace Analytical Servi	ces - Greensburg				
Total Radium	Total Radium Calculation	1.23 ± 0.711 (1.25)	pCi/L	04/15/20 12:46	7440-14-4	





QUALITY CONTROL - RADIOCHEMISTRY

Project:

2630416

Pace Project No.:

30356482

QC Batch: QC Batch Method: 390286

EPA 9315

Analysis Method: Analysis Description: EPA 9315

9315 Total Radium

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 2630416001

METHOD BLANK: 1890325

Matrix: Water

Associated Lab Samples: 2630416001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

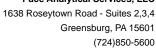
Radium-226

0.224 ± 0.189 (0.306) C:98% T:NA

pCi/L

04/06/20 08:11

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.





QUALITY CONTROL - RADIOCHEMISTRY

Project:

2630416

Pace Project No.:

30356482

QC Batch:

390287

QC Batch Method:

Analysis Method:

EPA 9320

EPA 9320

Analysis Description:

9320 Radium 228

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples:

2630416001

METHOD BLANK: 1890327

Matrix: Water

Associated Lab Samples:

2630416001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

Radium-228

0.272 ± 0.343 (0.726) C:70% T:87%

pCi/L

04/10/20 14:06

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



1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

QUALIFIERS

Project: 2630416
Pace Project No.: 30356482

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.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

Date: 04/15/2020 12:47 PM

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

nain of Custody	Custody																	
Samp	Samples were sent directly to the Subcontracting	irectly to th	he Subo	contractin	g Laboratory.	••		Sta	State Of Origin: GA	irigin:	G.				1	Pace	Pace Analytical	g
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***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory. Page 1 of 1

FMT-ALL-C-002rev.00 24March2009

Pittsburgh Lab Sample Condi	tion L	Jpor	Re	ceipt	
Pace Analytical Client Name:		Pcol	<u> </u>	Project #	
Courier: Fed Ex UPS USPS UClient	t 🗅	omme	rcial	Pace Other Label LIMS Login	
Custody Seal on Cooler/Box Present:	[Zn	D	Seals	s intact; yes no	
Thermometer Used	Туре		Wet	Blue None	
Cooler Temperature Observed Temp Temp should be above freezing to 6°C		°C	Согт	pH paper Lot# Date and Initials of person examining contents: DW 3-W 3-W 3-W 3-W 3-W 3-W 3-W 3-W 3-W 3-	[
Comments:	Yes	No	N/A	1002191 contents: 1710 3 202	
Chain of Custody Present:				1.	
Chain of Custody Filled Out:				2.	
Chain of Custody Relinquished:				3.	
Sampler Name & Signature on COC:				4	
Sample Labels match COC:				5.	
-Includes date/time/ID Matrix:	W	-			,
Samples Arrived within Hold Time:				6.	
Short Hold Time Analysis (<72hr remaining):				7.	
Rush Turn Around Time Requested:				8.	
Sufficient Volume:				9.	
Correct Containers Used:				10.	
-Pace Containers Used:					
Containers Intact:				11.	
Orthophosphate field filtered				12.	. ·
Hex Cr Aqueous sample field filtered		e.		13.	
Organic Samples checked for dechlorination:				14.	
Filtered volume received for Dissolved tests				15.	
All containers have been checked for preservation.				16.	
exceptions: VOA, coliform, TOC, O&G, Phenolics, Non-aqueous matrix	Radon,			16. prez	l
All containers meet method preservation requirements.				Initial when Completed Date/time of preservation	
requirements.			<u>. </u>	Lot # of added	
	· · · · ·			preservative	
Headspace in VOA Vials (>6mm):			_	17.	
Trip Blank Present:		-		18.	
Trip Blank Custody Seals Present Rad Samples Screened < 0.5 mrem/hr				•	•
Rad Samples Screened < 0.5 mremmr				Initial when completed: DIC Date: 3-26-20	
Client Notification/ Resolution:					
Person-Contacted:			Date/	Fime:Gontacted-By:	
Comments/ Resolution:					
	,				

A check in this box indicates that additional information has been stored in ereports.

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)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

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Face Analytical"

Method Blank Assessment

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test

MS/MSD 2

MS/MSD 1

MS Target Conc.(pClf. g. F):
MSD Aliquot (L. g. F):
MSD Target Conc. (pClf., g. F):
MS Spike Uncertainty (calculated): Sample I.D. Sample MS I.D. Sample MSD I.D. Sample Matrix Spike Control Assessment
Sample Collection Date: Sample Matrix Spike Duplicate Result: Spike Duplicate Result Counting Uncertainty (pCi/L, g, F): MS Numerical Performance Indicator: Matrix Spike Result Counting Uncertainty (pCi/L, g, F): Spike I.D.: MS/MSD Decay Corrected Spike Concentration (pCi/mL); Spike Volume Used in MS (mL) Spike Volume Used in MSD (mL) MS Aliquot (L, g, F): MSD Spike Uncertainty (calculated): Sample Result Sample Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Result. MSD Numerical Performance Indicator MS Percent Recovery MSD Percent Recovery MS Status vs Numerical Indicator: MSD Status vs Numerical Indicator: LAL 4/5/2020 53170 DW 1890325 0.224 0.186 0.306 2.35 N/A Pass Worklist: Matrix: Date: MB concentration: M/B Counting Uncertainty. MB Numerical Performance Indicator: MB Status vs Numerical Indicator: MB Status vs. MDC: MB Sample ID Analyst MB MDC

aboratory Control Sample Assessment	-CSD (Y or N)?	Å	
	LCS53170	LCSD53170	
Count Date:	4/6/2020	4/6/2020	
Spike I.D.:	19-033	19-033	
Decay Corrected Spike Concentration (pCi/mL):	24.049	24.049	
Volume Used (mil.);	0.10	0.10	
Aliquot Volume (L, g, F):	0.513	0.514	Matrix S
Target Conc. (pCi/L, g, F);	4.688	4.677	
Uncertainty (Calculated):	0.056	0.056	
Result (pCi/L, g, F):	5.858	4.262	
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.840	0.712	
Numerical Performance Indicator:	2.72	-1.14	
Percent Recovery:	124.95%	91.13%	
Status vs Numerical Indicator:	N/N	N/A	
Status vs Recovery:	Pass	Pass	
Upper % Recovery Limits:	125%	125%	
Lower % Recovery Limits:	75%	75%	

Matrix Spike/Matrix Spike Duplicate Sample Assessment		Matrx Spike Duplicate Result Counting Uncertainty (PC/I/L, g, F): Duplicate Numerical Performance Indicator: (Based on the Percent Recoveries) MS/ MSD Duplicate RPD: MS/ MSD Duplicate Status vs Numerical Indicator: MS/ MSD Duplicate Status vs RPD: % RPD:
	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.	2630255009 2630255009DUP

Sample I.D.: Duplicate Sample I.D.

Duplicate Sample Assessment

LCS53170 LCSD53170 5.858 0.840 4.262 0.712

Sample Result (ACIVI., g. F):
Sample Result (Courting Uncertainty (PCIV., g. F):
Sample Duplicate Result (PCIV., g. F):
Sample Duplicate Result Counting Uncertainty (PCIV., g. F):
Are sample and/or duplicate results below RL?

2.839 31.31%

(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD

Duplicate Numerical Performance Indicator Duplicate Status vs Numerical Indicator

Fail T

Duplicate Status vs RPD

MS Status vs Recovery MSD Status vs Recovery MS/MSD Upper % Recovery Limits: MS/MSD Lower % Recovery Limits

	į	alt	iii		Ë	tor.	۵	tor	٥٠	
•	Sample MSD I.D.	Sample Matrix Spike Result:	Matrix Spike Result Counting Uncertainty (pCi/L, g, F):	Sample Matrix Spike Duplicate Result:	Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):	Duplicate Numerical Performance Indicator:	(Based on the Percent Recoveries) MS/ MSD Duplicate RPD:	MS/ MSD Duplicate Status vs Numerical Indicator:	MS/ MSD Duplicate Status vs RPD:	% RPD Limit:

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

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Total Alpha Radium (R104-3 11Feb2019).xls

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Ra-226

Test:

Face Analytical

MS/MSD 2

MS/MSD 1

		25%	% RPD Limit:
		Fail	Duplicate Status vs RPD:
MS		N/A	Duplicate Status vs Numerical Indicator:
(Based on the	2630255009DUP	56.72%	Duplicate RPD:
	2630255009	2 080	Duplicate Numerical Performance Indicator:
Matrix Spike Dup		See Below #	Are sample and/or duplicate results below RL?
		0.236	Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):
Matrix	the space below.	0.234	Sample Duplicate Result (pCi/L, g, F):
	LCS/LCSD in	0.263	Sample Result Counting Uncertainty (pCi/L, g, F):
	other than	0.420	Sample Result (pCi/L, g, F):
	samble IDs if	2630255009DUP	Duplicate Sample I.D.
	Enter Duplicate	2630255009	Sample I.D.:
Matrix Spike/Matrix			Duplicate Sample Assessment
		-	
		75%	Lower % Recovery Limits:
		125%	Upper % Recovery Limits:
		Pass	Status vs Recovery:
		N/A	Status vs Numerical Indicator:
		124.95%	Percent Recovery:
		2.72	Numerical Performance Indicator:
		0.840	LCS/LCSD Counting Uncertainty (pCl/l., g, F):
	•	5,858	Result (pCi/L, g, F):
		0.056	Uncertainty (Calculated):
		4,688	Target Conc. (pCi/L, g, F):
Matrix Spike Dup		0.513	Aliquot Volume (L, g, F):
		0.10	Volume Used (mL):
Matrix		24.049	Decay Corrected Spike Concentration (pCi/mL):
			THE PARK THE

Matrix Spike/Matrix Spike Duplicate Sample Assessment	Sample I.D.	Sample MS I.D.	Sample MSD I.D.	Sample Matrix Spike Result:	Matrix Spike Result Counting Uncertainty (pCi/l., g, F):	Sample Matrix Spike Duplicate Result:	Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):	Duplicate Numerical Performance Indicator:	(Based on the Percent Recoveries) MS/ MSD Duplicate RPD:	MS/ MSD Duplicate Status vs Numerical Indicator:	MS/ MSD Duplicate Status vs RPD:	RPD Limit:
	a)			_	š			Г	굨	1		

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

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TAR_53170_W.xis Total Alphia Radium (R104-3 11Feb2019).xis

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TAR DW QC Printed: 4/6/2020 10.14 AM

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Analyst I	
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		MS/MSD 2																														
reliow.		MS/MSD 1																														
Analyst Must Manually Enter All Fleids Higniighted in Yellow.		Sample Matrix Spike Control Assessment	Sample Collection Date:	Sample I.D.	Sample MS I.D.	Sample MSD I.D.	Spike I.D.:	MS/MSD Decay Corrected Spike Concentration (pCi/mL):	Spike Volume Used in MS (mL):	Spike Volume Used in MSD (mL):	MS Aliquot (L, g, F):	MS Target Conc.(pCi/L, g, F):	MSD Aliquot (L, g, F):	MSD Target Conc. (pCi/L, g, F):	MS Spike Uncertainty (calculated):	MSD Spike Uncertainty (calculated):	Sample Result:	Sample Result 2 Sigma CSU (pCi/L, g, F):	Sample Matrix Spike Result:	Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):	Sample Matrix Spike Duplicate Result:	Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):	MS Numerical Performance Indicator:	MSD Numerical Performance Indicator:	MS Percent Recovery:	MSD Percent Recovery:	MS Status vs Numerical Indicator:	MSD Status vs Numerical Indicator:	MS Status vs Recovery:	MSD Status vs Recovery:	MS/MSD Upper % Recovery Limits:	MS/MSD Lower % Recovery Limits:
																, k	LCSD53171	4/10/2020	19-057	34.538	0.10	0.809	4.272	0.308	3.884	0.957	-0.76	90.93%	A/N	Pass	135%	%09
	Ra-228	VAL	4/1/2020	53171	M			1890327	0.272	0.343	0.726	1.55	Pass	Pass		LCSD (Y or N)?	LCS53171	4/10/2020	19-057	34.538	0.10	0.802	4.306	0.310	3.899	0.963	-0.79	90.54%	A/N	Pass	135%	%09
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MB Numerical Performance Indicator:

Method Blank Assessment

MB Status vs Numerical Indicator; MB Status vs. MDC:

Laboratory Control Sample Assessment

Test:
Analyst:
Date:
Worklist:
Matrix:

Face Analytical

	LCS53171	LCSD53171	
Count Date:	4/10/2020	4/10/2020	Sample Result 2
Spike I.D.:	19-057	19-057	San
Decay Corrected Spike Concentration (pCi/mL):	34.538	34.538	Matrix Spike Result 2
Volume Used (mL):	0.10	0.10	Sample Matrix
Alignot Volume (L, g, F):	0.802	0.809	Matrix Spike Duplicate Result 2
Target Conc. (pCi/L, g, F):	4.306	4.272	MS Numerica
Uncertainty (Calculated):	0,310	0.308	MSD Numerica
Result (pCi/L, g, F):	3.899	3.884	
LCS/LCSD 2 Sigma CSU (pCi/l, g, F):	0.963	0.957	
Numerical Performance Indicator:	-0.79	-0.76	MS Statu
Percent Recovery:	90.54%	90.93%	MSD Statu
Status vs Numerical Indicator:	A/N	A/N	
Status vs Recovery:	Pass	Pass	2
Upper % Recovery Limits:	135%	135%	U GSM/SM
Lower % Recovery Limits:	%09	%09	T QSW/SW
Sample Assessment			Matrix Spike/Matrix Spike Duplicate San
Sample I.D.:	LCS53171	Enter Duplicate	
Duplicate Sample I.D.	LCSD53171	sample IDs if	
Sample Result (pCi/L, g, F):	3,899	other than	
Sample Result 2 Sigma CSU (pCi/l., g, F):	0.963	LCS/LCSD in	San
Sample Duplicate Result (pCi/L, g, F):	3.884	the space below.	Matrix Spike Result 2
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	0.957		Sample Matri
Are sample and/or duplicate results below RL?	ON.		Matrix Spike Duplicate Result 2
Duplicate Numerical Performance Indicator:	0.021		Duplicate Numerica
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	0.43%		(Based on the Percent Recoveries) M
Duplicate Status vs Numerical Indicator:	Pass		MS/ MSD Duplicate Statu
Duplicate Status vs RPD:	Pass		MS/ MSD
א אדט בוווון.	20%	_	

	Matrix Spike/Matrix Spike Duplicate Sample Assessment	
ate	Sample I.D.	
Her.	Sample MS I.D.	
_	Sample MSD I.D.	
.⊑	Sample Matrix Spike Result:	
Mo	Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):	
	Sample Matrix Spike Duplicate Result:	
	Matrix Spike Duplicate Result 2 Sigma CSU (pCI/L, g, F):	
	Duplicate Numerical Performance Indicator:	
Γ	(Based on the Percent Recoveries) MS/ MSD Duplicate RPD:	
1	MS/ MSD Duplicate Status vs Numerical Indicator:	
	MS/ MSD Duplicate Status vs RPD:	
	% RPD Limit:	

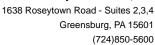
Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:



Ra-228 NELAC DW2 Printed: 4/13/2020 1:20 PM







April 17, 2020

Mr. Joju Abraham Georgia Power 2480 Maner Road Atlanta, GA 30339

RE: Project: 2630414

Pace Project No.: 30356484

Dear Mr. Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory between March 26, 2020 and March 27, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

• Pace Analytical Services - Greensburg

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

Sincerely,

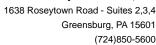
Jacquelyn Collins

jacquelyn.collins@pacelabs.com

(724)850-5612 Project Manager

Enclosures







CERTIFICATIONS

Project: 2630414
Pace Project No.: 30356484

Pace Analytical Services Pennsylvania

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

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification

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

Delaware Certification EPA Region 4 DW Rad

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

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

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

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

Maine Certification #: 2017020 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991 Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190

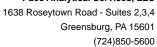
Oregon/TNI Certification #: PA200002-010 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

South Dakota Certification
Tennessee Certification #: 02867

Ohio EPA Rad Approval: #41249

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

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





SAMPLE SUMMARY

Project: 2630414
Pace Project No.: 30356484

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2630414001	HGWA-111	Water	03/24/20 10:25	03/26/20 09:15
2630414002	HGWC-117	Water	03/24/20 16:39	03/26/20 09:15
2630414003	HGWA-112	Water	03/24/20 11:00	03/26/20 09:15
2630414004	HGWA-113	Water	03/24/20 15:16	03/26/20 09:15
2630414005	FB-04	Water	03/25/20 10:00	03/27/20 10:35
2630414006	HGWC-101	Water	03/25/20 14:37	03/27/20 10:35
2630414007	HGWC-105	Water	03/25/20 12:10	03/27/20 10:35
2630414008	HGWC-107	Water	03/25/20 14:40	03/27/20 10:35
2630414009	HGWC-118	Water	03/25/20 09:35	03/27/20 10:35
2630414010	HGWC-103	Water	03/25/20 12:30	03/27/20 10:35
2630414011	HGWC-109	Water	03/25/20 16:55	03/27/20 10:35
2630414012	FD-04	Water	03/25/20 00:00	03/27/20 10:35



SAMPLE ANALYTE COUNT

Project: 2630414
Pace Project No.: 30356484

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2630414001	HGWA-111	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2630414002	HGWC-117	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2630414003	HGWA-112	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2630414005	FB-04	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2630414006	HGWC-101	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2630414007	HGWC-105	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2630414008	HGWC-107	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2630414009	HGWC-118	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2630414010	HGWC-103	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2630414011	HGWC-109	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2630414012	FD-04	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg



Project: 2630414
Pace Project No.: 30356484

Sample: HGWA-111 PWS:	Lab ID: 26304 Site ID:	14001 Collected: 03/24/20 10:25 Sample Type:	Received:	03/26/20 09:15	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical S	Services - Greensburg				
Radium-226	EPA 9315	0.260 ± 0.231 (0.418) C:92% T:NA	pCi/L	04/06/20 09:52	2 13982-63-3	
	Pace Analytical S	Services - Greensburg				
Radium-228	EPA 9320	-0.258 ± 0.412 (0.986) C:78% T:87%	pCi/L	04/15/20 14:44	1 15262-20-1	
	Pace Analytical S	Services - Greensburg				
Total Radium	Total Radium Calculation	0.260 ± 0.643 (1.40)	pCi/L	04/16/20 14:02	2 7440-14-4	
Sample: HGWC-117 PWS:	Lab ID: 26304 Site ID:	14002 Collected: 03/24/20 16:39 Sample Type:	Received:	03/26/20 09:15	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical S	Gervices - Greensburg				
Radium-226	EPA 9315	0.476 ± 0.269 (0.322) C:89% T:NA	pCi/L	04/06/20 09:52	2 13982-63-3	
	Pace Analytical S	Services - Greensburg				
Radium-228	EPA 9320	0.339 ± 0.379 (0.795) C:80% T:85%	pCi/L	04/15/20 14:44	1 15262-20-1	
	Pace Analytical S	Services - Greensburg				
Total Radium	Total Radium Calculation	0.815 ± 0.648 (1.12)	pCi/L	04/16/20 14:02	2 7440-14-4	
Sample: HGWA-112	Lab ID: 26304	14003 Collected: 03/24/20 11:00	Received:	03/26/20 09:15	Matrix: Water	
PWS:	Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical S	Services - Greensburg				
Radium-226	EPA 9315	0.444 ± 0.265 (0.378) C:97% T:NA	pCi/L	04/06/20 09:52	2 13982-63-3	
	Pace Analytical S	Services - Greensburg				
Radium-228	EPA 9320	0.233 ± 0.325 (0.697) C:82% T:91%	pCi/L	04/15/20 14:44	1 15262-20-1	
	Pace Analytical S	Services - Greensburg				
Total Radium	Total Radium Calculation	$0.677 \pm 0.590 (1.08)$	pCi/L	04/16/20 14:02	2 7440-14-4	



Project: 2630414
Pace Project No.: 30356484

Sample: FB-04	Lab ID: 26304		Received:	03/27/20 10:35 N	Matrix: Water	
PWS:	Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical S	ervices - Greensburg		•		
Radium-226	EPA 9315	0.0727 ± 0.161 (0.380) C:83% T:NA	pCi/L	04/07/20 08:04	13982-63-3	
	Pace Analytical S	ervices - Greensburg				
Radium-228	EPA 9320	0.150 ± 0.396 (0.884) C:72% T:80%	pCi/L	04/16/20 15:54	15262-20-1	
	Pace Analytical S	ervices - Greensburg				
Total Radium	Total Radium Calculation	0.223 ± 0.557 (1.26)	pCi/L	04/17/20 10:30	7440-14-4	
Sample: HGWC-101	Lab ID: 26304		Received:	03/27/20 10:35 N	Matrix: Water	
PWS:	Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical S	ervices - Greensburg				
Radium-226	EPA 9315	0.0464 ± 0.157 (0.391) C:83% T:NA	pCi/L	04/07/20 08:04	13982-63-3	
	Pace Analytical S	ervices - Greensburg				
Radium-228	EPA 9320	0.557 ± 0.459 (0.923) C:76% T:77%	pCi/L	04/16/20 15:54	15262-20-1	
	Pace Analytical S	ervices - Greensburg				
Total Radium	Total Radium Calculation	0.603 ± 0.616 (1.31)	pCi/L	04/17/20 10:30	7440-14-4	
Sample: HGWC-105	Lab ID: 26304		Received:	03/27/20 10:35 N	Matrix: Water	
PWS:	Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical S	ervices - Greensburg				
Radium-226	EPA 9315	0.0230 ± 0.141 (0.372) C:82% T:NA	pCi/L	04/07/20 08:04	13982-63-3	
	Pace Analytical S	ervices - Greensburg				
Radium-228	EPA 9320	0.640 ± 0.424 (0.812) C:78% T:83%	pCi/L	04/16/20 15:54	15262-20-1	
	Pace Analytical S	ervices - Greensburg				
Total Radium	Total Radium Calculation	0.663 ± 0.565 (1.18)	pCi/L	04/17/20 10:30	7440-14-4	



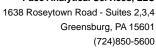
Project: 2630414
Pace Project No.: 30356484

Sample: HGWC-107 PWS:	Lab ID: 2630414 Site ID:	O08 Collected: 03/25/20 14:40 Sample Type:	Received:	03/27/20 10:35	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Ser	vices - Greensburg				
Radium-226	EPA 9315	0.0857 ± 0.203 (0.482) C:80% T:NA	pCi/L	04/07/20 08:0	5 13982-63-3	
	Pace Analytical Ser	vices - Greensburg				
Radium-228	EPA 9320	0.587 ± 0.403 (0.772) C:78% T:79%	pCi/L	04/16/20 15:54	4 15262-20-1	
	Pace Analytical Ser	vices - Greensburg				
Total Radium	Total Radium Calculation	0.673 ± 0.606 (1.25)	pCi/L	04/17/20 10:30	7440-14-4	
Sample: HGWC-118 PWS:	Lab ID: 2630414 Site ID:	O09 Collected: 03/25/20 09:35 Sample Type:	Received:	03/27/20 10:35	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Ser	vices - Greensburg				
Radium-226	EPA 9315	0.275 ± 0.239 (0.443) C:76% T:NA	pCi/L	04/07/20 08:0	5 13982-63-3	
	Pace Analytical Ser	vices - Greensburg				
Radium-228	EPA 9320	0.640 ± 0.408 (0.774) C:79% T:84%	pCi/L	04/16/20 15:54	4 15262-20-1	
	Pace Analytical Ser	vices - Greensburg				
Total Radium	Total Radium Calculation	0.915 ± 0.647 (1.22)	pCi/L	04/17/20 10:30	7440-14-4	
Sample: HGWC-103	Lab ID: 2630414	010 Collected: 03/25/20 12:30	Received:	03/27/20 10:35	Matrix: Water	
PWS:	Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Ser	vices - Greensburg				
Radium-226	EPA 9315	0.143 ± 0.156 (0.302) C:91% T:NA	pCi/L	04/07/20 08:0	5 13982-63-3	
	Pace Analytical Ser	vices - Greensburg				
Radium-228	EPA 9320	0.260 ± 0.403 (0.873) C:75% T:79%	pCi/L	04/16/20 15:54	4 15262-20-1	
	Pace Analytical Ser	vices - Greensburg				
Total Radium	Total Radium Calculation	0.403 ± 0.559 (1.18)	pCi/L	04/17/20 10:30	0 7440-14-4	



Project: 2630414
Pace Project No.: 30356484

1 400 1 10,000 10	•					
Sample: HGWC-109 PWS:	Lab ID: 2630414 Site ID:	O11 Collected: 03/25/20 16:55 Sample Type:	Received:	03/27/20 10:35	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Ser	vices - Greensburg				
Radium-226	EPA 9315	0.122 ± 0.171 (0.360) C:70% T:NA	pCi/L	04/07/20 08:05	5 13982-63-3	
	Pace Analytical Ser	vices - Greensburg				
Radium-228	EPA 9320	0.386 ± 0.392 (0.814) C:79% T:87%	pCi/L	04/16/20 15:54	15262-20-1	
	Pace Analytical Ser	vices - Greensburg				
Total Radium	Total Radium Calculation	0.508 ± 0.563 (1.17)	pCi/L	04/17/20 10:30	7440-14-4	
Sample: FD-04	Lab ID: 2630414		Received:	03/27/20 10:35	Matrix: Water	
PWS:	Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Ser	vices - Greensburg				
Radium-226	EPA 9315	0.256 ± 0.198 (0.328) C:83% T:NA	pCi/L	04/07/20 08:05	5 13982-63-3	
	Pace Analytical Ser	vices - Greensburg				
Radium-228	EPA 9320	0.789 ± 0.659 (1.32) C:75% T:77%	pCi/L	04/16/20 18:54	1 15262-20-1	
	Pace Analytical Ser	vices - Greensburg				
Total Radium	Total Radium Calculation	1.05 ± 0.857 (1.65)	pCi/L	04/17/20 10:30	7440-14-4	
	CalculatiOH					





Project: 2630414
Pace Project No.: 30356484

QC Batch: 390462 Analysis Method: EPA 9320

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

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 2630414001, 2630414002, 2630414003

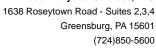
METHOD BLANK: 1890903 Matrix: Water

Associated Lab Samples: 2630414001, 2630414002, 2630414003

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

 Radium-228
 0.720 ± 0.398 (0.719) C:76% T:93%
 pCi/L
 04/15/20 14:44

Results presented on 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: 2630414
Pace Project No.: 30356484

QC Batch: 390461

QC Batch Method: EPA 9315

Analysis Method:

EPA 9315

Analysis Description:

9315 Total Radium

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 2630414001, 2630414002, 2630414003

METHOD BLANK: 1890902

Matrix: Water

Associated Lab Samples:

2630414001, 2630414002, 2630414003

Parameter

Act ± Unc (MDC) Carr Trac

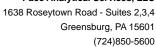
Units

Analyzed

Qualifiers

Radium-226 0.480 ± 0.276 (0.342) C:87% T:NA pCi/L 04/06/20 09:52

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





Project: 2630414
Pace Project No.: 30356484

QC Batch: 390594 Analysis Method: EPA 9320

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

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 2630414005, 2630414006, 2630414007, 2630414008, 2630414009, 2630414010, 2630414011, 2630414012

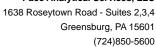
METHOD BLANK: 1891466 Matrix: Water

Associated Lab Samples: 2630414005, 2630414006, 2630414007, 2630414008, 2630414009, 2630414010, 2630414011, 2630414012

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

 Radium-228
 -0.184 ± 0.318 (0.783) C:80% T:81%
 pCi/L
 04/16/20 15:55

Results presented on 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: 2630414
Pace Project No.: 30356484

QC Batch: 390591 Analysis Method: EPA 9315

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

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 2630414005, 2630414006, 2630414007, 2630414008, 2630414009, 2630414010, 2630414011, 2630414012

METHOD BLANK: 1891463 Matrix: Water

Associated Lab Samples: 2630414005, 2630414006, 2630414007, 2630414008, 2630414009, 2630414010, 2630414011, 2630414012

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

 Radium-226
 0.0696 ± 0.172 (0.412) C:90% T:NA
 pCi/L
 04/07/20 08:03

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



1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

QUALIFIERS

Project: 2630414
Pace Project No.: 30356484

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.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

Date: 04/17/2020 03:43 PM

္ပ	Chain of Custody	 }												6			
	Samples were	Samples were sent directly to the Subcontracting	ne Subcontractir	ng Laboratory.			State	State Of Origin: GA	jin: (Αć			*	4	aceA	ace Analytical	ğ
				•			Cert	Cert. Needed:	<u>ا</u>	Yes	≥ □		Manada J			2(AK	\bigvee
No.	Workorder: 2630414	Workorder N	Workorder Name: AP-4 2ND	D SEMIANNUAL COMPLIANCE	AL COMF	LIANC		Owner Received Date:	ived	Jate:	3/25/2020		ults Re	Results Requested By:		4181207	<u>)</u>
N N	Report to the telesion		Subcontact to								Reques	Requestediamalysis					
Kevi	Kevin Herring Pace Analytical Charlotte		Pace /	Pace Analytical Pittsburgh 1538 Roseytown Road	urgh												
Suite	9800 Kincey Ave. Suite 100		Suites Green	Suites 2,3, & 4 Greensburg, PA 156(5						- Č	- C	_C	コロギ・コロコストロン	- <u>a</u>	;	
Hun Pho	Huntersville, NC 28078 Phone (704)875-9092		Phone	Phone (724)850-5600) 3	, E)))) 1	5 1		
									S166 CI	0226 CI							
						Prese	Wed Con		A.A.	AЯ	30356484	484					
			Samme (Soled)			EONE									. 		* .
6	Sample ID	Type III	Type of Calendar	Laute												LAB USE ONLY	\ <u></u>
_	HGWA-111	PS	3/24/2020 10:25	2630414001	Water	2			×	×					-	CO	
2	HGWC-117	Sd	3/24/2020 16:39	2630414002	Water	7			×	×					-	22	
3	HGWA-112	Sd	3/24/2020 11:00	2630414003	Water	7 7			×	×							
4	HGWA-113	PS	3/24/2020 15:16	2630414004	Water	41			×	×	:					7	
2															-	-	
									000				Comments	HIS SHIP			
Tran	Transfers Released By		Date/Time	Received By	A			Date/Time	Je								
4"								3224616	6.15								
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ပ္ပိ	Cooler Temperature on Receipt MM	3 \	Sig	Custody Seal Y	2 2		Race	Received on Ice	2	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	2	L	Samu	Sample Infact		Z.	L

FMT-ALL-C-002rev.00 24March2009

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.

This chain of custody is considered complete as is since this information is available in the owner laboratory.

5	Chain of Custody	§											Pace Analytical
, <i>-</i>	Samples were sent directly to the Subcontracting Laboratory	ent directly to the	ne Subcontractin	ng Laboratory			State	State Of Origin:	; "	& }	L		WWW.pacstabs.com
∑	Workorder: 2630414	Workorder N	Workender Name: APA 2ND SEMIANNIAL COMPLIANCE	INIVERSITY C				Cert. Needed:		Yes	-		•
Ren	iRegiotet omentalistik illingsman		Subsolities (D		では、		###£	OWIE RECEIVED DATE:		care:	S/ZS/ZUZU Kesult	Kesuits Kequestea By:	a By: 448/2020
Kev Pac 980 Suft Hun Pho	Kevin Herring Pace Analytical Charlotte 9800 Kincey Ave. Suite 100 Huntersville, NC 28078 Phone (704)875-9092		Pace Analyti 1638 Rosey Suites 2,3, 8 Greensburg, Phone (724)	Pace Analytical Pittsburgh 1638 Roseytown Road Suites 2,3, & 4 Greensburg, PA 15601 Phone (724)850-5600	ad ad 01 0				8 9315	0350	MO#	CI) (C	56484 Due Date: 04/16/20
			Sample Kollect			EONH							
									-				LAB USE ONLY
_	HOVER	PS	3/24/2020 10:25	2630414001	10,000				X	×	-		
7	HGWC-117	50	3/24/2020 16:00	2630414002	Water	7			×	×			
က	HGWA-112		3/24/2020 11:00	2630414003	Water	-			×	×			
4	HGWA-112	PS	3/24/2020 15:16	2630414004		Ŧ			×	×			
5	FB-04	PS	3/25/2020 10:50	2630414005	Water	27			×	×			533
ပ	HGWC-101	PS	3/25/2020 14:37	2630414006	Water	7			×	×			6/0
7	HGWC-105	PS	3/25/2020 12:10	2630414007	Water	N			×	×			720
œ	HGWC-107	PS	3/25/2020 14:40	2630414008	Water	7			×	×			See 4
Ö	HGWC-118	ЬS	3/25/2020 09:35	2630414009	Water	1/2			×	×			500
10	HGWC-103	PS	3/25/2020 12:30	2630414010	Water	12			×	×			0/0
7	HGWC-109	PS	3/25/2020 16:55	2630414011	Water	7			×	×			1)3
12	FD-04	PS	3/25/2020 00:00	2630414012	Water	14			×	×			55
Tran	Transfers Released By		Date/Time	Received By	34			Date/Time	me	Į.	-	Ame	
-				1				3.0100 M	25.5	Ž	3	# 0,524	
2													
က								_					
S	Cooler Temperature on Receipt	Receipt ///	SnO ၁	Custody Seal	Y or		Rec	Received on Ice	n ce	ō ≻	or A	Samples Intack	N 36 /2 /2

Pittsburgh Lab Sample Condit	ion l	Jpon	Re	ceipt	
Pace Analytical Client Name:		Pcci	<u>.</u>	Project # 8	L
Courier: Fed Ex UPS USPS Client Tracking #: 457 9507 1399		ommer	rcial	Pace Other Label PM LIMS Login	
Custody Seal on Cooler/Box Present: yes	[∠n	0	Seals	intact: yes no	
Thermometer Used	Type	of Ice:	Wet	Blue None	
Cooler Temperature Observed Temp Temp should be above freezing to 6°C		°C	Corre	pH paper Lot# Date and Initials of person examining	
Comments:	Yes	No	N/A	WD2191 contents: 170 3 200	
Chain of Custody Present:				1.	
Chain of Custody Filled Out:				2.	
Chain of Custody Relinquished:				3.	
Sampler Name & Signature on COC:				4.	
Sample Labels match COC:				5.	
-Includes date/time/ID Matrix:	WT	-			
Samples Arrived within Hold Time:				6.	
Short Hold Time Analysis (<72hr remaining):				7.	
Rush Turn Around Time Requested:				8.	
Sufficient Volume:				9.	
Correct Containers Used:				10.	
-Pace Containers Used:					
Containers Intact:				11.	
Orthophosphate field filtered				12.	
Hex Cr Aqueous sample field filtered				13.	
Organic Samples checked for dechlorination:				14.	
Filtered volume received for Dissolved tests				15.	
All containers have been checked for preservation.				16. 0M/2	
exceptions: VOA, coliform, TOC, O&G, Phenolics, Non-aqueous matrix	Radon,			pMcz	
All containers meet method preservation requirements.	/			Initial when Completed Date/time of preservation	
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):				17.	
Trip Blank Present:				18.	
Trip Blank Custody Seals Present					
Rad Samples Screened < 0.5 mrem/hr				Initial when completed: 3 2620	
Client Notification/ Resolution:					
Person Contacted:			-Date/	Firme:Contacted By:	
Comments/ Resolution:					

lacksquare A check in this box indicates that additional information has been stored in ereports.

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)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

Ducky LLLO 10 10	<i>,</i> .		_		10# · 30330404
Pittsburgh Lab Sample Condi	tion	Upoi	า Re	ceipt PI	M: JAC - Due Date: 04/16/20
Face Analytical Client Name:	$-\mathcal{D}$	Cy p di	. 6		_IENT: PACE_26_ATGA
Client Name.	10	uc			
Courier: Fed Ex UPS USPS Clien	. 🗆	omma	rcial	Pace Other	Label MC
racking #: 165 7 4507 1789	7	Jornine	ii Oitai		Lims Login (M)
custody Seal on Cooler/Box Present:		-	Saal	intact: □yes □r	
Thermometer Used		of Ice			·
- · · · · · · · · · · · · · · · · · · ·	ı ype	, C ou ice			°C Final Temp. °C
cooler Temperature Observed Temp emp should be above freezing to 6°C		- <u> </u>	COFF	ection Factor:	Final Temp:
				pH paper Lot#	Date and Initials of person examining
comments:	Yes	No	N/A	1010219/	contents: 15M 3/28/1020
Chain of Custody Present:			•	1. IM 3-30-20	
Chain of Custody Filled Out:				2.	
Chain of Custody Relinquished:				3.	
sampler Name & Signature on COC:				4.	
ample Labels match COC:				5.	
-Includes date/time/ID Matrix:	W				
amples Arrived within Hold Time:				6.	
hort Hold Time Analysis (<72hr remaining):				7.	
ush Turn Around Time Requested:				8,	
ufficient Volume:				9.	
orrect Containers Used:				10.	
-Pace Containers Used:					
ontainers Intact:				11.	
rthophosphate field filtered				12.	
ex Cr Aqueous sample field filtered				13.	
rganic Samples checked for dechlorination:				14.	
Itered volume received for Dissolved tests				15.	
containers have been checked for preservation.				16.	
kceptions: VOA, coliform, TOC, O&G, Phenolics,	Radon	1		" p/f=2	
on-aqueous matrix I containers meet method preservation		L			2
quirements.				1 7 7 1 1	Date/time of preservation
				Lot#ofadded	
eadspace in VOA Vials (>6mm):				preservative	
ip Blank Present:	 			17.	
ip Blank Custody Seals Present				18.	
ad Samples Screened < 0.5 mrem/hr				Initial when	2/2-/1
				completed: JS/	Date: 3/28/20 Dec
lient Notification/ Resolution:					•
Person-Contacted:	7) =	11 0-	Date/∃		Gontacted By:
Comments/Resolution: <u>arrived 3</u>	116	1 let	<u>~U</u>	1035 700	12 13 01414 3/28/2020
				VVU	T 26) UTIT

110# - 20356484

 \square A check in this box indicates that additional information has been stored in ereports.

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)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

1

MS/MSD 2

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Ra-226

Test:

Face Analytical"

Analyst: LAL		Sample Matrix Spike Control Assessment	MS/MSD 1
4/5/2020		rated method of class	
02020		Salliple Collection Date:	
53204		Sample I.D.	
2		Sample MS I.D.	
		Sample MSD I.D.	
		Spike I.D.:	
1890902		MS/MSD Decay Corrected Spike Concentration (pCi/mL):	
0.480		Spike Volume Used in MS (mL):	
0.268		Spike Volume Used in MSD (mL):	
0.342		MS Aliquot (L, g, F):	
3.52		MS Target Conc.(pCi/L, g, F):	
A/N		MSD Aliquot (L, g, F):	
See Comment*		MSD Target Conc. (pCi/L, g, F):	
		MS Spike Uncertainty (calculated):	
CSD (Y or N)?	z	MSD Spike Uncertainty (calculated):	
LCS53204	LCSD53204	Sample Result:	
4/6/2020		Sample Result Counting Uncertainty (pCi/L, g, F):	
19-033		Sample Matrix Spike Result:	
24,049		Matrix Spike Result Counting Uncertainty (pCi/L, g, F):	
0.10		Sample Matrix Spike Duplicate Result:	
0.502		Matrix Spike Duplicate Result Counting Uncertainty (pCi/l, g, F):	
4.789		MS Numerical Performance Indicator:	
0.057		MSD Numerical Performance Indicator:	
5.112		MS Percent Recovery:	
0.790		MSD Percent Recovery:	
0.80		MS Status vs Numerical Indicator:	
106.73%		MSD Status vs Numerical Indicator:	
ΑX		MS Status vs Recovery:	
Pass		MSD Status vs Recovery:	
125%		MS/MSD Upper % Recovery Limits:	
75%		MS/MSD Lower % Recovery Limits:	

MB Numeric MB Statu

Method Blank Assessment

Decay Corrected Spike

Laboratory Control Sample Assessmen

Matrix Spike/		Duplicate Sample Assessment

	75%	Lower % Recovery Limits:
	125%	Upper % Recovery Limits:
	Pass	Status vs Recovery:
	ĕ,	Status vs Numerical Indicator:
	106.73%	Percent Recovery:
	0.80	Numerical Performance Indicator:
	0.790	LCS/LCSD Counting Uncertainty (pCi/L, g, F):
	5.112	Result (pCi/L, g, F):
	0.057	Uncertainty (Calculated):
	4.789	Target Conc. (pCi/L, g, F):
140 Y 100 M	100.0	-/ - in is on the contract

Enter Duplicate sample IDs if other than LCS/LCSD in the space below.	Matrix Spike/Matrix Spike Duplicate Sample Assessment Sample I.D. Sample MS I.D. Sample MS I.D. Sample MS I.D. Sample Matrix Spike Result Matrix Spike Result Counting Uncertainty (pc/II. g. F). Sample Matrix Spike Duplicate Result Matrix Spike Duplicate Result Counting Uncertainty (pc/II. g. F). Duplicate Numerical Performance Indicator: (Based on the Percent Recoveries) MS/ MSD Duplicate RPD.	
	Mis/ Misu Duplicate Status vs Numerical Indicator:	
	MIS/ MISIJ DUDIICATE STATUS VS KPD:	

2630417001 2630417001DUP 0.379 0.246 0.250 0.196 See Blow ## 0.804 41.04% N.A Fail***

Sample I.D.:
Sample I.D.:
Sample Result (pCil., g. F):
Sample Result (pCil., g. F):
Sample Duplicate Result (pCil., g. F):
Sample Duplicate Result (pCil., g. F):
Are sample and/or duplicate results below RL?
Duplicate Numerical Performance Indicator:
Duplicate Status vs Numerical Indicator:
Duplicate Status vs Numerical Indicator:
Duplicate Status vs RPD:
Duplicate Status vs RPD:
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Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

"The method blank result is below the reporting limit for this analysis and is acceptable,

****Batch must be re-prepped dow

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TAR_53204_W.xls Total Alpha Radium (R104-3 11Feb2019).xls

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Ra-226

Test

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MS/MSD 2

53222
891463
0.070
0.172
0.412
0.79
N/A
Pass
CSD (Y or N)?
LCS53222 LCSD53222
20 4/7/2020
19-033
24,049
0,10
0.514
4.675
0.056
4.859
0.707
-
03.94% 97.92%
Pass
125%
75%

Matrix Spike/Matrix Spike Duplicate Sample Assessment	Sample I.D.	Sample MS I.D.	Sample MSD I.D.	Sample Matrix Spike Result:	Matrix Spike Result Counting Uncertainty (pCi/L, g, F):	Sample Matrix Spike Duplicate Result:	Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):	Duplicate Numerical Performance Indicator:	(Based on the Percent Recoveries) MS/ MSD Duplicate RPD:	MS/ MSD Duplicate Status vs Numerical Indicator:	MS/ MSD Duplicate Status vs RPD:	% RPD Limit:
	Enter Duplicate	sample IDs if	other than	LCS/LCSD in	the space below.							
	LCS53222	LCSD53222	4.859	0.707	4.698	0.719	0 N	0.313	5.96%	A/X	Pass	25%
Duplicate Sample Assessment	Sample I.D.:	Duplicate Sample I.D.	Sample Result (pCi/L, g, F):	Sample Result Counting Uncertainty (pCi/l., g, F):	Sample Duplicate Result (pCi/L, g, F):	Sample Duplicate Result Counting Uncertainty (pCi/l., g, F):	Are sample and/or duplicate results below RL?	Duplicate Numerical Performance Indicator:	(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	Duplicate Status vs Numerical Indicator:	Duplicate Status vs RPD:	% RPD Limit:
	Matrix Spike/Matrix Spike Duj	Matrix Spike/Matrix Spike Duplicate Sample Assess Sample I.D.: LCS53222 Enter Duplicate	Sample I.D.: LCS53222 Enter Duplicate Duplicate Sample Sar Duplicate Sample Daff Sample Da	Sample I.D.: LCS53222 Enter Duplicate Duplicate Sample Assess Duplicate Sample I.D.: LCSD33222 sample IDs if Sample Result (pCi/l., g, F); 4.859 other than	Sample I.D.: LCS53222 Enter Duplicate Duplicate Sample I.D.: LCSD53222 Enter Duplicate Sample I.D.: LCSD53222 Sample IDs if Sample Result (DCIL, g. F): 4.889 other than Counting Uncertainty (pCil., g. F): 0.707 LCS/LCSD in	Sample I.D.: LCS53222 Enter Duplicate Duplicate Sample I.D.: LCS53222 Enter Duplicate Sample Result (pCit., g, F): 4.899 the space below. mple Duplicate Result (pCit., g, F): 4.899 the space below.	Sample I.D.: LCS53222 Enter Duplicate Sample I.D.: LCSD3222 Sample IDs if Sample Result (pCil., g, F): 4.859 other than mple Duplicate Result (pCil., g, F): 0.707 LCS/LCSD in mple Duplicate Result (pCil., g, F): 4.859 the space below.	Sample LD: LCS53222 Enter Duplicate Sample LD: LCSD53222 Sample Diplicate Sample LD: Sample Result (pCitl., g, F): 4.859 (counting Uncertainty (pCitl., g, F): 4.859 (counting Uncertainty (pCitl., g, F): 4.859 (counting Uncertainty (pCitl., g, F): 0.707 (counting Uncertainty (pCitl., g, F): 0.719 (counting Uncertainty (pCitl., g,	Sample LD: LCS53222	Sample I.D. LCS53222 Enter Duplicate Sample I.D. LCSD53222 Enter Duplicate Sample I.D. LCSD53222 Sample IDS if A859 Counting Uncertainty (pCif., g, F) C,707 C,504.CSD in mple Duplicate Result (pCif., g, F) C,707 C,504.CSD in mple Duplicate Result (pCif., g, F) C,707 C,504.CSD in mple Duplicate results below RL? Nuncical Performance Indicate RPD: C,313 C,313 C,314.CSD in mplicate RPD: C,504.CSD in mple Duplicate RPD: C,504	Sample I.D.: LCS53222 Enter Duplicate Sample I.D.: LCSD3222 Enter Duplicate Sample Result (pCil., g, F): 4.859 offer than mple Duplicate results below R.? 0.707 LCS./LCSD in mple Duplicate results below R.? NO exhaust policity (pCil., g, F): 0.719 Matrix Spi encent Recoveries) Duplicate Republicate Recoveries Duplicate Republication: 5.96% (Based Status vs Numerical Indicator: N/A	Sample I.D.: LCS53222 Enter Duplicate Sample I.D.: LCSD53222 Enter Duplicate Sample Result (pCil., g, F): 4.859 other than mple Duplicate Result (pCil., g, F): 0.707 LCS/LCSD in mple Duplicate Result (pCil., g, F): 0.719 the space below. Counting Uncertainty (pCil., g, F): 0.719 and/or duplicate results below RL? NO shumerical Performance Indicator: 0.313 ercent Recoveries) Duplicate RPD: 6.96% (Bassed cate Status vs Numerical Indicator: NA Pass

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Comments:

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1 of 1

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Ra-226

Pace Analytical

Method Blank Assessment

MS/MSD 2 MS/MSD MS Ailquot (L, g, F):
MS Target Conc. (pCi/L, g, F):
MSD Aliquot (L, g, F):
MSD Target Conc. (pCi/L, g, F): Sample I.D. Sample MS I.D. Sample MSD I.D. Sample Result Counting Uncertainty (pCi/l., g, F): Sample Matrix Spike Result. Sample Result: x Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):
MS Numerical Performance Indicator: Sample Collection Date: Spike I.D. MS/MSD Decay Corrected Spike Concentration (pCi/mL): Spike Volume Used in MS (mL): Spike Volume Used in MSD (mL) MS Spike Uncertainty (calculated). **MSD Spike Uncertainty (calculated)** Matrix Spike Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Duplicate Result: MSD Numerical Performance Indicator MS Percent Recovery. MSD Percent Recovery: MS Status vs Numerical Indicator. MSD Status vs Numerical Indicator Sample Matrix Spike Control Assessment 4/5/2020 53222 DW 0.172 0.412 0.79 N/A Pass Test: Analyst: Date: MB concentration: M/B Counting Uncertainty: MB Numerical Performance Indicator: MB Status vs Numerical Indicator: MB Status vs. MDC: Worklist: Matrix: MB Sample ID MB MDC:

-aboratory Control Sample Assessment	LCSD (Y or N)?	z	
	LCS53222	LCSD53222	
Count Date:	4/7/2020		
Spike I.D.:	19-033		
Decay Corrected Spike Concentration (pCi/mL):	24.049		
Volume Used (mL):	0.10		
Aliquot Volume (L, g, F):	0.514	-	Matrix
Target Conc. (pCi/L, g, F):	4,675		
Uncertainty (Calculated):	0.056		
Result (pCi/L, g, F):	4.859		
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.707		
Numerical Performance Indicator:	0.51		
Percent Recovery:	103.94%		
Status vs Numerical Indicator:	N/A		
Status vs Recovery:	Pass		
Upper % Recovery Limits:	125%		
Lower % Recovery Limits:	75%		

Matrix Spike/Matrix Spike Duplicate Sample Assessment	Sample I.D.	Sample MS I.D.	Sample MSD I.D.	Sample Matrix Spike Result:	Matrix Spike Result Counting Uncertainty (pCi/L, g, F):	Sample Matrix Spike Duplicate Result:	Matrix Spike Duplicate Result Counting Uncertainty (pCI/L, g, F):	Duplicate Numerical Performance Indicator.	(Based on the Percent Recoveries) MS/ MSD Duplicate RPD:	MS/ MSD Duplicate Status vs Numerical Indicator:	MS/ MSD Duplicate Status vs RPD:	% RPD Limit:
	Enter Duplicate	sample IDs if	other than	LCS/LCSD in	the space below.			2630449010	2630449010DUP			
	Sample I.D.: 2630449010 Enter Duplicate	2630449010DUP	0.051	0.134	0.127	0.138	See Below ##	-0.770	84.72%	NA	Fail	25%
Duplicate Sample Assessment	Sample I.D.:	Duplicate Sample I.D. 2630449010DUP sample IDs i	Sample Result (pCl/L, g, F):	Sample Result Counting Uncertainty (pCi/L, g, F):	Sample Duplicate Result (pCi/l, g, F):	Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	Are sample and/or duplicate results below RL?	Duplicate Numerical Performance Indicator:	Duplicate RPD:	Duplicate Status vs Numerical Indicator:	Duplicate Status vs RPD:	% RPD Limit

MS Status vs Recovery MSD Status vs Recovery: MS/MSD Upper % Recovery Limits: MS/MSD Lower % Recovery Limits:

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

عاداميس "Batch must be re-prepped due to unacceptable precision." N

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1 of 1

TAR_53222_W Total Alpha Radium (R104-3 11Feb2019).xls 12 STINES

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Method Blank Assessment

Quality Control Sample Performance Assessment

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MS/MSD 2

	MS/MSD 1	Sample Collection Date:	Sample I.D.	Sample MS I.D.	Sample MSD I.D.	Spike I.D.:	tion (pCi/mL):	d in MS (mL):	in MSD (mL):	MS Aliquot (L. g, F):	.(pCi/L, g, F):	MSD Aliquot (L, g, F):	. (pCi/L, g, F):	/ (calculated):	/ (calculated):	Sample Result;	(pCi/L, g, F):	Spike Result:	(pCi/L, g, F):	ilicate Result:	(pCi/L, g, F):	nce Indicator:	nce Indicator:	MS Percent Recovery:	MSD Percent Recovery:	ical indicator:	ical Indicator:
	Sample Matrix Spike Control Assessment	Sample Co		8S	Sam		MS/MSD Decay Corrected Spike Concentration (pCi/mL):	Spike Volume Used in MS (mL):	Spike Volume Used in MSD (mL):	MS Ali	MS Target Conc.(pCi/l., g, F):	MSD Ali	MSD Target Conc. (pCi/L, g, F):	MS Spike Uncertainty (calculated):	MSD Spike Uncertainty (calculated):	<i>'</i> S	Sample Result 2 Sigma CSU (pCi/L, g, F):	Sample Matrix Spike Result:	Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):	Sample Matrix Spike Duplicate Result:	Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):	MS Numerical Performance Indicator	MSD Numerical Performance Indicator:	MS Perce	MSD Perce	MS Status vs Numerical Indicator:	MSD Status vs Numerical Indicator:
															Y	LCSD53205	4/15/2020	19-057	34.481	0.10	0.810	4.258	0.307	3.944	0.923	-0.63	92.64%
78-77	VAL	4/3/2020	53205	M			1890903	0.720	0.398	0.719	3.54	Fail*	See Comment*		LCSD (Y or N)?	LCS53205	4/15/2020	19-057	34.481	0.10	0.801	4.303	0.310	3.571	0.873	-1.55	83.00%
lest	Analyst:	Date:	Worklist	Matrix:			MB Sample ID	MB concentration:	M/B 2 Sigma CSU:	MB MDC:	MB Numerical Performance Indicator:	MB Status vs Numerical Indicator:	MB Status vs. MDC;		le Assessment	tanan d	Count Date:	Spike I.D.:	Corrected Spike Concentration (pCi/mL);	Volume Used (mL):	Aliquot Volume (L, g, F):	Target Conc. (pCi/L., g, F):	Uncertainty (Calculated):	Result (pCi/L, g, F):	LCS/LCSD 2 Sigma CSU (pCi/L, g, F):	Numerical Performance Indicator:	Percent Recovery:

Laboratory Control Sample Assessment	LCSD (Y or N)?	Y	
	LCS53205	LCSD53205	
Count Date:	4/15/2020	4/15/2020	
Spike I.D.:	19-057	19-057	•
Decay Corrected Spike Concentration (pCi/mL):	34,481	34.481	
Volume Used (mL):	0.10	0.10	
Aliquot Volume (1, g, F):	0.801	0.810	Matrix
Target Conc. (pCi/l., g, F):	4.303	4.258	
Uncertainty (Calculated):	0.310	0.307	
Result (pCi/l., g, F):	3.571	3.944	
LCS/LCSD 2 Sigma CSU (pCi/L, g, F):	0.873	0.923	
Numerical Performance Indicator:	-1.55	-0.63	
Percent Recovery:	83.00%	92.64%	
Status vs Numerical Indicator:	N/A	N/A	
Status vs Recovery:	Pass	Pass	
Upper % Recovery Limits:	135%	135%	
Lower % Recovery Limits:	60%	%09	
Duplicate Sample Assessment			Matrix Spike/Ma

14	Sample I.D.	Sample MS I.D.	WSD I.D.	e Result:	/L, g, F):	e Result;	A, g, F):	ndicator:	ate RPD:	ndicator:	vs RPD:	% RPD Limit:
Matrix Spike/Matrix Spike Duplicate Sample Assessment	es .	Sample	Sample MSD I.D.	Sample Matrix Spike Result:	Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):	Sample Matrix Spike Duplicate Result:	Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):	Duplicate Numerical Performance Indicator:	(Based on the Percent Recoveries) MS/ MSD Duplicate RPD;	MS/ MSD Duplicate Status vs Numerical Indicator:	MS/ MSD Duplicate Status vs RPD:	121 %
	ate	<u>-</u>	_	,⊆	œ.							
	Enter Duplicate	sample IDs if	other than	LCS/LCSD in	the space below.							
	LCS53205	LCSD53205	3.571	0.873	3.944	0.923	S S	-0.575	10.98%	Pass	Pass	36%

Sample I.D.:

Duplicate Sample I.D.:
Sample Result 2 Sigma CSU (pCil., g, F):
Sample Duplicate Result (pCil., g, F):
Sample Duplicate Result (pCil., g, F):
Are sample and/or duplicate results below RL?

MSD Status vs Recovery:
MSD Status vs Recovery:
MS/MSD Upper % Recovery Limits:
MS/MSD Lower % Recovery Limits:

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Duplicate Numerical Performance Indicator:
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:
Duplicate Status vs Numerical Indicator:
Duplicate Status vs Status vs Republicate Republicate Status vs Republicate R

Comments:

"The method blank result is below the reporting limit for this analysis and is acceptable.

6 of 10

Face Analytical

Quality Control Sample Performance Assessment

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VAL 4/7/2020 53225 WT Test Analyst: Date: Worklist: Matrix:

Sample Col Sar		
Sam	Sample Collection Date:	
Sam Sam	Sample I.D.	
Sam	Sample MS I.D.	
	Sample MSD I.D.	
	Spike I.D.:	
MS/MSD Decay Corrected Spike Concentration (pCi/mL):	on (pCi/mL):	
Spike Volume Used in MS (mL):	lin MS (mt.):	
Spike Volume Used in MSD (mL):	n MSD (mL):	
MS Alic	MS Aliquot (L, g, F):	
MS Target Conc.(pCi/L, g, F):	(pCi/L, g, F):	
MSD Alic	MSD Aliquot (L, g, F):	
MSD Target Conc. (pCi/L, g, F):	(pCi/L, g, F):	
MS Spike Uncertainty (calculated):	(calculated):	

1891466 -0.184

MB Sample ID

Method Blank Assessment

MB concentration: M/B 2 Sigma CSU: MB MDC:

0.783 -1.13 Pass Pass

MB Numerical Performance indicator:
MB Status vs Numerical indicator:
MB Status vs. MDC:

Laboratory Control Sample Assessment

Count Date: Spike 1.D.:

Decay Corrected Spike Concentration (pCi/mL):

MS/MSD 2

	- Colonia Colo	
-	MSD Spike Uncertainty (calculated):	
D53225	Sample Result:	
6/2020	Sample Result 2 Sigma CSU (pCi/L, g, F):	
9-057	Sample Matrix Spike Result:	
4.469	Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):	
0.10	Sample Matrix Spike Duplicate Result:	
708.0	Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):	
1.269	MS Numerical Performance Indicator:	
7.307	MSD Numerical Performance Indicator:	
1.458	MS Percent Recovery:	
1.019	MSD Percent Recovery:	
0.35	MS Status vs Numerical Indicator:	
14.44%	MSD Status vs Numerical Indicator:	
N/A	MS Status vs Recovery:	
Pass	MSD Status vs Recovery:	
135%	MS/MSD Upper % Recovery Limits:	
%09	MS/MSD Lower % Recovery Limits:	

LCS53225 4/16/2020 19-057 19-057 34-69 0.10 0.808 4.266 0.307 4.487 1.030 0.40 1.030 0.40 Pass 135%

Result (pCi/L, g, F): LCS/LCSD 2 Sigma CSU (pCi/L, g, F): Numerical Performance Indicator;

Percent Recovery: Status vs Numerical Indicator: Status vs Recovery:

Upper % Recovery Limits: Lower % Recovery Limits:

Duplicate Sample Assessment

Volume Used (mL): Aliquot Volume (L, g, F): Target Conc. (pCi/L, g, F):

Uncertainty (Calculated):

Matrix Spike/Matrix Spike Duplicate Sample Assessment	Sample I.D. Sample MS I.D.	Sample MSD I.D.	Sample Matrix Spike Result:	Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):	Sample Matrix Spike Duplicate Result:	Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):	Duplicate Numerical Performance Indicator:	(Based on the Percent Recoveries) MS/ MSD Duplicate RPD:	MS/ MSD Duplicate Status vs Numerical Indicator:	MS/ MSD Duplicate Status vs RPD;	timi I Uda %
	Enter Duplicate sample IDs if	other than	LCS/LCSD in	the space below.							

LCS53225 LCSD53225

Sample I.D.:

Duplicate Sample I.D.
Sample Result (pCiL., 9, F):
Sample Result 2 Signa OSU (pCiL., 9, F):
Sample Duplicate Result (pCiL., 9, F):

4.487 1.030 4.458 1.019 NO 0.039 0.72% Pass Pass

Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):
Are sample and/or duplicate results below RL?

Duplicate Numerical Performance Indicator: (Based on the LCS/LCSD Percent Recoveries) Duplicate RPD: Duplicate Status vs Numerical Indicator:

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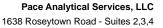
Comments:



6 of 10

Ra-228 NELAC DW2 Printed: 4/17/2020 8:25 AM

Page 22 of 22



Greensburg, PA 15601 (724)850-5600



May 07, 2020

Mr. Joju Abraham Georgia Power 2480 Maner Road Atlanta, GA 30339

RE: Project: 2630414

Pace Project No.: 30359852

Dear Mr. Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 14, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

• Pace Analytical Services - Greensburg

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

Sincerely,

Jacquelyn Collins

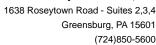
jacquelyn.collins@pacelabs.com

Sugnelylellins

(724)850-5612 Project Manager

Enclosures







CERTIFICATIONS

Project: 2630414
Pace Project No.: 30359852

Pace Analytical Services Pennsylvania

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

ANAB DOD-ELAP Rad Accreditation #: L2417

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

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

Delaware Certification EPA Region 4 DW Rad

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

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

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

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

Maine Certification #: 2017020 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991 Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190

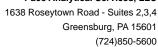
Oregon/TNI Certification #: PA200002-010 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

South Dakota Certification
Tennessee Certification #: 02867

Ohio EPA Rad Approval: #41249

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

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

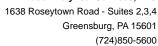




SAMPLE SUMMARY

Project: 2630414
Pace Project No.: 30359852

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2630414013	HGWA-113	Water	04/09/20 16:17	04/14/20 09:30



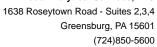


SAMPLE ANALYTE COUNT

Project: 2630414
Pace Project No.: 30359852

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2630414013	HGWA-113	EPA 9315	JJY	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

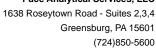
PASI-PA = Pace Analytical Services - Greensburg





Project: 2630414
Pace Project No.: 30359852

Sample: HGWA-113 PWS:	Lab ID: 2630414 Site ID:	O13 Collected: 04/09/20 16:17 Sample Type:	Received:	04/14/20 09:30 N	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Ser	vices - Greensburg				
Radium-226	EPA 9315	0.321 ± 0.181 (0.238) C:106% T:NA	pCi/L	05/04/20 07:19	13982-63-3	
	Pace Analytical Ser	vices - Greensburg				
Radium-228	EPA 9320	0.296 ± 0.376 (0.799) C:83% T:72%	pCi/L	05/07/20 11:05	15262-20-1	
	Pace Analytical Ser	vices - Greensburg				
Total Radium	Total Radium Calculation	0.617 ± 0.557 (1.04)	pCi/L	05/07/20 15:53	7440-14-4	





Project: 2630414
Pace Project No.: 30359852

1 400 1 10,000 140... 00000002

QC Batch: 394230 QC Batch Method: EPA 9320

0 Analysis Method: 320 Analysis Description:

Laboratory:

EPA 9320

9320 Radium 228

Pace Analytical Services - Greensburg

Associated Lab Samples: 2630414013

METHOD BLANK: 1909547

Matrix: Water

Associated Lab Samples: 2630414013

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

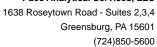
Radium-228

 $0.691 \pm 0.438 \quad (0.830) \text{ C:}81\% \text{ T:}72\%$

pCi/L

05/07/20 11:03

Results presented on 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:

2630414

Pace Project No.:

30359852

QC Batch: QC Batch Method:

394121

EPA 9315

Analysis Method:

EPA 9315

Analysis Description:

9315 Total Radium

Laboratory:

Pace Analytical Services - Greensburg

Associated Lab Samples: 2630414013

METHOD BLANK: 1909177

Matrix: Water

Associated Lab Samples:

2630414013

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

Radium-226

0.0402 ± 0.129 (0.321) C:92% T:NA

pCi/L

05/04/20 07:19

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



1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

QUALIFIERS

Project: 2630414
Pace Project No.: 30359852

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.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

Date: 05/07/2020 04:59 PM

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.



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FMT-ALL-C-002rev.00 24March2009

of the second of Samples Intact/ Received on Ice Y or (N Date/Time Custody Seal Y or (N) Received By **Date/Time** Cooler Temperature on Receipt W/#°C Released By Transfers

***In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.

30359852

Pittsburgh Lab Sample Condition	on U	pon	Rec	WEIPT WWW + 1512000 # 303598	52
Pace Analytical Client Name:	Po	rce	ل ر		
Courier: Fed Ex UPS USPS Client Tracking #: 165795074468		mmer	cial	Pace Other Label NMR LIMS Login NMR	
Custody Seal on Cooler/Box Present: //yes	no)	Seals		
	Туре	of Ice:	Wet	Blue (None)	
Cooler Temperature Observed Temp		°C		ction Factor: °C Final Temp: °C	
Temp should be above freezing to 6°C		Bh	32/3	pH paper Lot# Date and Initials of person examining contents: NWK 4/15/20	
Comments:	Yes	No	N/A	1007281	
Chain of Custody Present:	/	\times		1. Received Via Tac	
Chain of Custody Filled Out:				2.	
Chain of Custody Relinquished:		/		3,	
Sampler Name & Signature on COC:		/	ļ	4.	
Sample Labels match COC:				5.	
-Includes date/time/ID Matrix:	W	Ī			
Samples Arrived within Hold Time:	-		<u></u>	6.	
Short Hold Time Analysis (<72hr remaining):				7.	
Rush Turn Around Time Requested:		/		8.	
Sufficient Volume:		<u> </u>		9.	
Correct Containers Used:					
-Pace Containers Used:	/				
Containers Intact:	/	<u> </u>	ļ	11.	
Orthophosphate field filtered			4	12.	
Hex Cr Aqueous sample field filtered	<u> </u>	ļ	$\perp \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \!$	13.	
Organic Samples checked for dechlorination:			1	14.	
Filtered volume received for Dissolved tests All containers have been checked for preservation.			/	16. 4 ()	
exceptions: VOA, coliform, TOC, O&G, Phenolics, Non-aqueous matrix	Radon	, ,		PhOd	
All containers meet method preservation requirements.				Initial when BUN Date/time of preservation	
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):	T		1	17.	
Trip Blank Present:			1	18.	
Trip Blank Custody Seals Present			1		
Rad Samples Screened < 0.5 mrem/hr	/			Initial when BLM Date: $Y - 22 - 2020$	
Client Notification/ Resolution:				0.4.4.20	
Person-Gontacted:	.(1-	<u>ግለ አ</u>		/Fime:Gontacted-By:	_
comments/Resolution: Received y. FD, date, and time on s	-14 5aM	PIC	15	750	- -
2630414-013					-
4-9-2020					
1617				43	<u>-</u>
A check in this box indicates that add	itiona	l infor	matio	n has been stored in ereports.	

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)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

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Quality Control Sample Performance Assessment

Face Analytical"

4000

Method Blank Assessment

Analyst Must Manually Enter All Fields Highlighted in Yellow.

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Test Ra-226
À
LCSD53722
5/4/2020
19-033
24.048
0.10
0.508
4.732
0.057
4.367
609.0
-1.17
92.29%
N/A
Pass
125%
75%

aboratory Control Sample Assessment	-CSD (Y or N)?	À
•	LCS53722	LCSD53722
Count Date:	5/4/2020	5/4/2020
Spike 1.D.:	19-033	19-033
Decay Corrected Spike Concentration (pCi/mL):	24.048	24.048
Volume Used (mL):	0.10	0.10
Aliquot Volume (L, g, F):	0.502	0.508
Target Conc. (pCi/L, g, F):	4.786	4.732
Uncertainty (Calculated):	0.057	0.057
Result (pCi/L, g, F):	4.883	4.367
LCS/LCSD Counting Uncertainty (pCi/l., g, F):	0.645	609'0
Numerical Performance Indicator:	0.29	-1.17
Percent Recovery:	102.02%	92.29%
Status vs Numerical Indicator:	N/A	A/N
Status vs Recovery:	Pass	Pass
Upper % Recovery Limits:	125%	125%
Lower % Recovery Limits:	75%	75%

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

ج م

Analyst Must Manually Enter All Fields Highlighted in Yellow.

5/1/2020 53742 WT

1909547 0.691

MB Sample ID MB concentration: M/B 2 Sigma CSU:

Method Blank Assessment

0.438 0.830 3.09 Fail*

MB MDC:

MB Status vs Numerical Indicator: MB Status vs. MDC:

Laboratory Control Sample Assessment

MB Numerical Performance Indicator:

Ra-228

Test: Analyst: Date: Worklist Matrix

Pace Analytical

	Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
	Sample Collection Date:		
	Sample I.D.		
	Sample MS I.D.		
	Sample MSD I.D.		
	Spike I.D.:		
	MS/MSD Decay Corrected Spike Concentration (pCi/mL):		
	Spike Volume Used in MS (mL):		
	Spike Volume Used in MSD (mL):		
	MS Aliquot (L, g, F):		
	MS Target Conc.(pCi/L, g, F):		
	MSD Aliquot (L, g, F):		
	MSD Target Conc. (pCi/l., g, F):		
	MS Spike Uncertainty (calculated):		
	MSD Spike Uncertainty (calculated):		
3742	Sample Result:		
020	Sample Result 2 Sigma CSU (pCi/l., g, F):		
22	Sample Matrix Spike Result:		
33	Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):		
	Sample Matrix Spike Duplicate Result:		
2	Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):		
စ္	MS Numerical Performance Indicator:		
4	MSD Numerical Performance Indicator:		
<u>۾</u>	MS Percent Recovery:		
23	MSD Percent Recovery:		
0	MS Status vs Numerical Indicator:		
%0:	MSD Status vs Numerical Indicator:		
۵	MS Status vs Recovery:		
22	MSD Status vs Recovery:		
%	MS/MSD Upper % Recovery Limits:		
- 2	MSMSD Lower % Becovery Limiter		

	LCS53742	LCSD53742	Sample Result:
Count Date:	5/7/2020	5/7/2020	Sample Result 2 Sigma CSU (pCi/l., g, F):
Spike I.D.:	19-057	19-057	Sample Matrix Spike Result:
Decay Corrected Spike Concentration (pCi/mL):	34.233	34.233	Matrix Spike Result 2 Sigma CSU (pCi/l., g, F):
Volume Used (mL);	0,10	0.10	Sample Matrix Spike Duplicate Result:
Aliquot Volume (L, g, F):	0.800	0.812	Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):
Target Conc. (pCi/L, g, F):	4.279	4.216	MS Numerical Performance Indicator:
Uncertainty (Calculated):	0.308	0.304	MSD Numerical Performance Indicator:
Result (pCVL, g, F):	3.477	4.630	MS Percent Recovery:
LCS/LCSD 2 Sigma CSU (pCi/l., g, F):	0.874	1.123	MSD Percent Recovery:
Numerical Performance Indicator:	-1.70	0.70	MS Status vs Numerical Indicator:
Percent Recovery:	81.26%	109.80%	MSD Status vs Numerical Indicator:
Status vs Numerical Indicator:	NA	N/A	MS Status vs Recovery:
Status vs Recovery:	Pass	Pass	MSD Status vs Recovery:
Upper % Recovery Limits:	135%	135%	MS/MSD Upper % Recovery Limits:
Lower % Recovery Limits:	%09	%09	MS/MSD Lower % Recovery Limits:
The second secon			
Duplicate Sample Assessment			Matrix Spike/Matrix Spike Duplicate Sample Assessment
Sample I.D.:	LCS53742	Enter Duplicate	Sample I.D.
Duplicate Sample I.D.	LCSD53742	sample IDs if	Sample MS I.D.
Sample Result (pCi/L, g, F):	3.477	other than	Sample MSD I.D.
Sample Result 2 Sigma CSU (pCi/L, g, F):	0.874	LCS/LCSD in	Sample Matrix Spike Result:
Sample Duplicate Result (pC//L, g, F):	4.630	the space below.	Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	1.123	····	Sample Matrix Spike Duplicate Result:
Are sample and/or duplicate results below RL?	2		Matrix Spike Duplicate Result 2 Sigma CSU (pCI/L, g, F):
Duplicate Numerical Performance Indicator:	-1.589		Duplicate Numerical Performance Indicator:
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	29.89%		(Based on the Percent Recoveries) MS/ MSD Duplicate RPD:
Duplicate Status vs Numerical Indicator:	Pass		MS/ MSD Duplicate Status vs Numerical Indicator:
Duplicate Status vs RPD:	Pass		MS/ MSD Duplicate Status vs RPD:
% RPD Limit:	36%		% RPD Limit:

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

If the lowest activity sample in this batch is greater than ten times the blank value, the blank is acceptable; otherwise this batch must be re-prepped.

Ra-228 NELAC DW2 Printed: 5772020 3:32 PM





July 14, 2020

Joju Abraham Georgia Power-CCR 2480 Maner Road Atlanta, GA 30339

RE: Project: HAMMOND AP-4 BKG 05 RADS

Pace Project No.: 92482796

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on June 19, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

• Pace Analytical Services - Greensburg

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

Sincerely,

Kevin Herring

kevin.herring@pacelabs.com

Kein Slern

1(704)875-9092

HORIZON Database Administrator

Enclosures

cc: Kristen Jurinko

Whitney Law, Geosyntec Consultants Noelia Muskus, Geosyntec Consultants Ms. Lauren Petty, Southern Co. Services



(770)734-4200



CERTIFICATIONS

HAMMOND AP-4 BKG 05 RADS Project:

Pace Project No.: 92482796

Pace Analytical Services Pennsylvania

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

ANAB DOD-ELAP Rad Accreditation #: L2417

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

California Certification #: 04222CA

Colorado Certification #: PA01547 Connecticut Certification #: PH-0694

Delaware Certification EPA Region 4 DW Rad

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

Guam Certification

Florida: Cert E871149 SEKS WET

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

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

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

Maine Certification #: 2017020 Maryland Certification #: 308

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

Missouri Certification #: 235 Montana Certification #: Cert0082 Nebraska Certification #: NE-OS-29-14 Nevada Certification #: PA014572018-1 New Hampshire/TNI Certification #: 297617

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

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

South Dakota Certification Tennessee Certification #: 02867

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

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





SAMPLE SUMMARY

Project: HAMMOND AP-4 BKG 05 RADS

Pace Project No.: 92482796

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92482796001	HGWC-102	Water	06/18/20 14:09	06/19/20 13:10



SAMPLE ANALYTE COUNT

Project: HAMMOND AP-4 BKG 05 RADS

Pace Project No.: 92482796

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92482796001	HGWC-102	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg



SUMMARY OF DETECTION

Project: HAMMOND AP-4 BKG 05 RADS

Pace Project No.: 92482796

Lab Sample ID	Client Sample ID					
Method	Parameters —	Result	Units	Report Limit	Analyzed	Qualifiers
92482796001	HGWC-102					
EPA 9315	Radium-226	0.470 ± 0.295 (0.419) C:89% T:NA	pCi/L		07/08/20 08:42	
EPA 9320	Radium-228	0.211 ± 0.442 (0.977) C:58% T:83%	pCi/L		07/06/20 16:02	
Total Radium Calculation	Total Radium	0.681 ± 0.737 (1.40)	pCi/L		07/09/20 09:57	



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: HAMMOND AP-4 BKG 05 RADS

Pace Project No.: 92482796

Sample: HGWC-102 PWS:	Lab ID: 92482 Site ID:	796001 Collected: 06/18/20 14:09 Sample Type:	Received:	06/19/20 13:10	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical S	Services - Greensburg		,		
Radium-226	EPA 9315	0.470 ± 0.295 (0.419) C:89% T:NA	pCi/L	07/08/20 08:42	2 13982-63-3	
	Pace Analytical S	ervices - Greensburg				
Radium-228	EPA 9320	0.211 ± 0.442 (0.977) C:58% T:83%	pCi/L	07/06/20 16:02	2 15262-20-1	
	Pace Analytical S	ervices - Greensburg				
Total Radium	Total Radium Calculation	0.681 ± 0.737 (1.40)	pCi/L	07/09/20 09:57	7440-14-4	



QUALITY CONTROL - RADIOCHEMISTRY

EPA 9315

Project: HAMMOND AP-4 BKG 05 RADS

Pace Project No.: 92482796

QC Batch: 403006

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

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92482796001

METHOD BLANK: 1950655 Matrix: Water

Associated Lab Samples: 92482796001

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

 Radium-226
 0.0758 ± 0.123 (0.256) C:97% T:NA
 pCi/L
 07/07/20 19:54

Analysis Method:

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



QUALITY CONTROL - RADIOCHEMISTRY

Project: HAMMOND AP-4 BKG 05 RADS

Pace Project No.: 92482796

QC Batch: 402596 Analysis Method: EPA 9320

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

Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 92482796001

METHOD BLANK: 1948602 Matrix: Water

Associated Lab Samples: 92482796001

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

 Radium-228
 0.856 ± 0.506 (0.940) C:63% T:80%
 pCi/L
 07/06/20 16:00

Results presented on 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: HAMMOND AP-4 BKG 05 RADS

Pace Project No.: 92482796

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.

TNTC - Too Numerous To Count

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.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

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

Act - Activity

Date: 07/14/2020 03:17 PM

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

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HAMMOND AP-4 BKG 05 RADS

Pace Project No.: 92482796

Date: 07/14/2020 03:17 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92482796001	HGWC-102	EPA 9315	403006		
92482796001	HGWC-102	EPA 9320	402596		
92482796001	HGWC-102	Total Radium Calculation	404343		



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

W0#:92482796

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Maria Menter Creating	RELINQUISHED BY AFFIL													. 0		_	-	7	-	0		
when Creating	MISHED BY AFFILIATIO		-		+-	-				4	-	- Tw	MATRIX CODE (See value of	s to knj		Project Number		1 3		Copy To Geosy	Report To SCS Contacts	Section B Required Project Information
	N										100	14.0%	SAMPLE TYPE (GEGRAB CA	COLLECTED			Plant Hammond AP-4 BKG 05			Geosyntec Contacts	Contacts	nformation
0/19/20 13/10	1				11/2	1/2		7	7		_	26.5	SAMPLE TEMP AT COLLECTION # OF CONTAINERS			Pacc Pr			Addres	Compa	Attento	Section C
3	2		2,		1 0200			¥				o l	H ₂ SO ₄ HNO ₃ HCI NaOH Na ₂ S ₂ O ₃	Preservatives	350	Sile n	Kevin Herring			ny Marno :	Southern Co.	Section C
1300	- W										×	t C	Analysis Tost Chloride, Fluoride, Sulfate DS ull App. III & IV Metals*	Y/N Z Z	Requested A	\$582901						
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3 %				#							z	+	The state of the s		(NIX	GA		RCRA	GROUND WATE	BENCY		Page:
	SAMPLE CONDITIONS										H-3,61	Face Froject No. 1	2 pm					C	1		3	e e
1310 3- 15-1016.	1030 Moder of Number Cooper	7030 Mode on Maden Gray 2030	TIME COEPTED BY (AFFILIATION DATE TIME	TOSO MOLLA MATEURION DATE TIME	TIME COEPTED BY (AFFILATION DATE TIME	TASO MONTO MATERIANON DATE TIME	TIME CEPTED BY (AFFILATION DATE TIME	TIME COEPTED BY AFFILATION DATE TIME	TIME COSC WINDOW DATE TIME	TIME COSO WINDOW DATE TIME	TIME CEPTED BY (AFFILIATION DATE TIME	TIME CEPTED BY (AFFILIATION DATE TIME	TIME SCEPTED BY AFFILMTON DATE TIME	TIME TO # OF CONTAINERS Unpreserved H ₂ SO ₄ HNO ₃ HCI NaOH NaOH NaOH NaOH Other Analysis Tost X Chloride, Fluoride, Sultate X TDS X Full App. III & IV Metals* X RAD 226/728 Z Residual Chlorine (Y/N)	TIME TO # OF CONTAINERS No Unpreserved H ₂ SO ₄ HNO ₃ HCI NaOH Na ₂ S ₇ C ₃ Methanol Other Analysis Test YIN X Chloride, Fluoride, Sulfate X TDS X Full App. III 5 IV Metals* X XAD 2267/28 Z Residual Chlorine (Y/N)	TIME TO # OF CONTAINERS Unpreserved H ₂ SO ₄ HNO ₃ HCI NAOH NA ₂ S ₂ C ₃ Methanol Other Analysis Tost X Chloride, Fluoride, Sulfate X TDS X Eudl App. III & IV Metals* X RAD 226/728 Z Residual Chlorine (Y/N)	TIME On # OF CONTAINERS No Unpreserved H ₂ SO ₄ HNO ₃ HCI NaOH Na ₂ S ₂ C ₃ Methanol Other Analysis Test Y/N Analysis Test Y/N X Chloride Fluoride Sulfate X TDS X Full App. III & IV Metals* X ROS 226/728 Z Residual Chlorine (Y/N) Residual Chlorine (Y/N)	TIME TIME S # OF CONTAINERS N Unpreserved H ₂ SO ₄ HNO ₃ HCI NaOH NaOH Na ₂ S ₂ C ₃ Methanol Other Analysis Tost X Chloride Fluoride Sultate X TOS X Full App. III & IV Metals* X RAD 226/728 Z Residual Chlorine (Y/N) Z Residual Chlorine (Y/N)	TIME TIME TO # OF CONTAINERS # OF CONTAINERS No Unpreserved Hy2SO ₄ HNO ₃ HCI NaOH NaOH NayS ₂ C ₃ Methanol Other Analysis Tost X Chloride Fluoride Sulfate X TDS X Eul App. III 5 IV Metals* X RAD 226/728 No Residual Chlorine (Y/N) Residual Chlorine (Y/N)	Address Address Apple Count Relevance Page Proper Revin Herring Analysis Tost Analysis Filtered (YIN) Analysis Tost Analysis Tost Analysis Tost Analysis Tost Analysis Tost Analysis Tost Analysis Tost Analysis Filtered (YIN) Analysis Tost Analysis Tost Analysis Tost Analysis Tost Analysis Tost Analysis Tost Analysis Tost Analysis Tost Analysis Tost Analysis Filtered (YIN) Analysis Tost Analysis Tost Analysis Tost Analysis Tost Analysis Tost Analysis Filtered (YIN) Analysis Tost Analysis Tost Analysis Filtered (YIN) Analysis Tost Analysis Tost Analysis Filtered (YIN) Analysis Filtered (YIN) Analysis Tost Analysis Filtered (YIN) Analysis Filtered (YIN) Analysis Filtered (YIN) Analysis Filtered (YIN) Analysis Filtered (YIN) Analysis Filtered (YIN) Analysis Filtered (YIN) Analysis Filtered (YIN) Analysis Filtered (YIN) Analysis Filtered (YIN) Analysis Filtered (YIN) Analysis Filtered (YIN) Analysis Filtered (YIN) Analysis Filtered (YIN)	TIME TIME TO # OF CONTAINERS # OF CON	Attenders Company Name Company Name Address

Pace Analytical"

Quality Control Sample Performance Assessment

Ra-226	LAL 7772020 54859 DW	
Test	Analyst Date: Worklist: Matrix:	

Analyst Must Manually Enter All Fields Highlighted in Yellow.

	Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
	Sample Collection Date:		
	Sample I.D.		
	Sample MSD I D		
	. Cl. Spike Into		
	MS/MSD Decay Corrected Spike Concentration (pCi/mL):		
	Spike Volume Used in MS (mL);		
	Spike Volume Used in MSD (mL):		
	MS Aliquot (L, g, F):		
	MS Target Conc.(pCi/L, g, F):		
	MSD Aliquot (L, g, F):		
	MSD Target Conc. (pCi/l., g, F):		
	MS Spike Uncertainty (calculated):		
<u> </u>	MSD Spike Uncertainty (calculated):		
CSD54859	Sample Result:		
7/8/2020	Sample Result Counting Uncertainty (pCi/L, g, F):	•	
19-033	Sample Matrix Spike Result:		
24.046	Matrix Spike Result Counting Uncertainty (pCi/l., g, F):		
0.10	Sample Matrix Spike Duplicate Result:		
0.501	Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):		
4.804	MS Numerical Performance Indicator:		
0.058	MSD Numerical Performance Indicator:		
3.943	MS Percent Recovery:		
0.694	MSD Percent Recovery:		
-2.42	MS Status vs Numerical Indicator:		
82.08%	MSD Status vs Numerical Indicator:		
V/N	MS Status vs Recovery:		
Pass	MSD Status vs Recovery:		
125%	MS/MSD Upper % Recovery Limits:		
75%	MS/MSD Lower % Recovery Limits:		

7/8/2020 19-033 24.046

Spike I.D.:

Count Date:

Laboratory Control Sample Assessment

Decay Corrected Spike Concentration (pCi/mL):

0.10 0.503 4.784 0.057

Aliquot Volume (L, g, F): Target Conc. (pCI/L, g, F): Uncertainty (Calculated):

Volume Used (ml.):

Result (pCi/L, g, F): LCS/LCSD Counting Uncertainty (pCi/L, g, F):

0.076 0.122 0.256 1.21 N/A Pass

MB concentration:

M/B Counting Uncertainty: MB MDC:

MB Sample 1D

Method Blank Assessment

MB Numerical Performance Indicator:
MB Status vs Numerical Indicator:
MB Status vs. MDC;

98.05%

Percent Recovery:

Numerical Performance Indicator: Status vs Numerical Indicator:

٤

Status vs Recovery.
Upper % Recovery Limits:
Lower % Recovery Limits:

Duplicate Sample Assessmen

							<u></u> .	-,.		
Sample I.D.	Sample MSD I.D.	Sample Matrix Spike Result:	Matrix Spike Result Counting Uncertainty (pCi/L, g, F):	Sample Matrix Spike Duplicate Result:	Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):	Duplicate Numerical Performance Indicator;	(Based on the Percent Recoveries) MS/ MSD Duplicate RPD:	MS/ MSD Duplicate Status vs Numerical Indicator:	MS/ MSD Duplicate Status vs RPD:	% RPD Limit:
							_	1		
Enter Duplicate	other than	LCS/LCSD in	the space below.							

4.691 0.717 3.943 0.694

Sample I.D.:
Duplicate Sample I.D.:
Sample Result (pC/I., g, F):
Sample Result Counting Uncertainty (pC/I., g, F):
Sample Duplicate Result (pC/I., g, F):
Sample Duplicate Result (pC/I., g, F):

Are sample and/or duplicate results below RL? Duplicate Numerical Performance Indicator:

Matrix Spike Duplicate Result Counting Uncertainty (pCiAL, Duplicate Numerical Performance Ind (Based on the Percent Recoveries) MS/ MSD Duplicate MS/ MSD Duplicate Status vs Numerical Ind MS/ MSD Duplicate Status vs Numerical Ind MS/ MSD Duplicate Status vs Namerical Ind MS/ MSD Duplicate Status vs Namerical Ind MS/ MSD Duplicate Status vs Namerical Ind	It Counting Uncertainty (pCit.), te Numerical Performance Ind coveries) MS/ MSD Duplicate ticate Status vs Numerical Ind MS/ MSD Duplicate Status vs % RPD
--	--

NO 1.468 17.74% N/A Pass 25%

(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:

Duplicate Status vs Numerical Indicator:

Duplicate Status vs RPD:

% RPD Limit:

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:



1 of 1

Face Analytical

Quality Control Sample Performance Assessment

Analyst Must Manually Enter All Fields Highlighted in Yellow

LAL 7/7/2020 54859 DW Test Date: Worklist: Matrix: **Analyst**:

0.122 0.256 1.21 N/A Pass 0.076 MB Numerical Performance Indicator: MB concentration; MB Status vs Numerical Indicator: MB Sample ID M/B Counting Uncertainty: MB MDC: MB Status vs. MDC

Method Blank Assessmen

Laboratory Control Sample Assessmen

MS/MSD 2 MS/MSD 1 Sample I.D. Sample MS I.D. MSD Aliquot (L. g. F): MSD Target Conc. (pCif., g. F): MS Spike Uncertainty (calculated); MS Target Conc.(pCi/L, g, F): Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F): MS Numerical Performance Indicator: Sample MSD I.D. MS/MSD Decay Corrected Spike Concentration (pCi/mL): MS Aliquot (L, g, F): Sample Result Counting Uncertainty (pCi/L, g, F): Matrix Spike Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Duplicate Result: MS Status vs Recovery. MSD Status vs Recovery. MS/MSD Upper % Recovery Limits: MS/MSD Lower % Recovery Limits: Sample Collection Date: Spike Volume Used in MS (mL): Spike Volume Used in MSD (mL): MSD Spike Uncertainty (calculated): Sample Result Sample Matrix Spike Result: MSD Numerical Performance Indicator: MSD Percent Recovery: Spike LD. MS Percent Recovery MS Status vs Numerical Indicator MSD Status vs Numerical Indicator Sample Matrix Spike Control Assessment

CSD54859 7/8/2020 19-033 24.046 #VALUE! #DIV/0! N/A #DIV/0! 125% 75% 0.501 0.000 0.000 3.943 ζ. o. γ. CS5485 7/8/2020 19-033 24.046 0.717 -0.25 98.05% N/A 0.10 0.503 4.784 0.057 4.691 Count Date: Spike I.D.: Decay Corrected Spike Concentration (pCi/mt.): Aliquot Volume (L, g, F): Target Conc. (pCi/L, g, F): Uncertainty (Calculated): Result (pCi/L, g, F): LCS/LCSD Counting Uncertainty (pCi/L, g, F): Percent Recovery: Status vs Recovery. Upper % Recovery Limits: Lower % Recovery Limits: Volume Used (mi.) Numerical Performance Indicator Status vs Numerical Indicator

Sample I.D. Sample MS I.D. Sample MSD I.D. Sample Matrix Spike Result; (Based on the Percent Recoveries) MS/ MSD Duplicate RPD:
MS/ MSD Duplicate Status vs Numerical Indicator:
MS/ MSD Duplicate Status vs RPD:
% RPD Limit. Matrix Spike Result Counting Uncertainty (pCi/L, g, F): Sample Matrix Spike Duplicate Result: Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F): Duplicate Numerical Performance Indicator: Matrix Spike/Matrix Spike Duplicate Sample Assessment

> Enter Duplicate sample IDs if other than he space below LCS/LCSD in

> > 92482796001DUP

0.470

92482796001

Sample I.D.: Duplicate Sample I.D.

Duplicate Sample Assessment

See Below ##

Are sample and/or duplicate results below RL?

Duplicate Numerical Performance Indicator:

Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):

2.650

0.287 0.046 0.126

Sample Result (pCi/L, g, F): Sample Result Counting Uncertainty (pCi/L, g, F): Sample Duplicate Result (pCi/L, g, F):

154-40% N/A

Duplicate RPD:

Duplicate Status vs Numerical Indicator; Duplicate Status vs RPD;

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC. % RPD Limit

CAPACA O

"Batch must be re-prepaged due to unacceptable precision:

#DIV/0i

Comments:

1 of 1

TAR DW QC Printed: 7/8/2020 2:31 PM

Ra-228_54819_W Ra-228 (R086-8 04Sep2019).xis

Pace Analytical

Quality Control Sample Performance Assessment

VAL 7/1/2020 54819 WT Test: Analyst Worklist: Matrix: Date:

1948602 0.856 0.506 0.940 3.31 Fail*

MB concentration: MB 2 Sigma CSU: MB MDC:

MB Sample ID

Method Blank Assessment

MB Numerical Performance Indicator: MB Status vs Numerical Indicator: MB Status vs. MDC:

Laboratory Control Sample Assessmen

Analyst Must Manually Enter All Fields Highlighted in Yellow.

	Sample Matrix Spike Control Assessment	MS/MSD 1	MS/MSD 2
	Sample Collection Date:		
	Sample I,D.		
	Sample MS I.D.		
	Sample MSD I.D.		
	Spike 1.D.:		
	MS/MSD Decay Corrected Spike Concentration (pCi/mt.):		
	Spike Volume Used in MS (mL):		
	Spike Volume Used in MSD (mL):		
	MS Aliquot (L, g, F):		
	MS Target Conc.(pCi/L, g, F):		
	MSD Aliquot (L, g, F):		
	MSD Target Conc. (pCi/L, g, F):		
	MS Spike Uncertainty (calculated):		
Γ	MSD Spike Uncertainty (calculated):		
6	Sample Result:		
ļ	Sample Result 2 Sigma CSU (pCi/L, g, F):		
	Sample Matrix Spike Result:		
	Matrix Spike Result 2 Sigma CSU (pCi/L, g, F):		
	Sample Matrix Spike Duplicate Result:		
	Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):		
	MS Numerical Performance Indicator:		
	MSD Numerical Performance indicator:		
	MS Percent Recovery:		
	MSD Percent Recovery:		
	MS Status vs Numerical Indicator:		
	MSD Status vs Numerical Indicator.		
	MS Status vs Recovery:		
	MSD Status vs Recovery;		

Ms spike uncertainty (calculated):	MSD Spike Uncertainty (calculated):	Sample Result:	Sample Result 2 Sigma CSU (pCi/L, g, F):	Sample Matrix Spike Result:	Matrix Spike Result 2 Sigma CSU (pCi/l., g, F):	Sample Matrix Spike Duplicate Result:	2 Sigma CSU (pCi/L, g, F):	MS Numerical Performance Indicator:	MSD Numerical Performance Indicator:	MS Percent Recovery:	MSD Percent Recovery:	MS Status vs Numerical Indicator:	MSD Status vs Numerical Indicator:	MS Status vs Recovery:	MSD Status vs Recovery:	MS/MSD Upper % Recovery Limits:	MS/MSD Lower % Recovery Limits:
do om	idS OSM		Sample Result	0,	Matrix Spike Result	Sample Ma	Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):	MS Nume	MSD Nume			MSSt	4S CISM			MS/MSC	MS/MSE
	Å	LCSD54819	7/6/2020	19-057	33,559	0.10	0.820	4.093	0.295	4.401	1.097	0.53	107.53%	ΑN	Pass	135%	%09
		SOT	7/6	¥	ĸ	_	_	4	_	4	_	_	101				
	SD (Y or N)?	LCS54819	7/6/2020	19-057	33,559	0.10	0.810	4.142	0.298	4.306	1.098	0.28	103.98%	A/N	Pass	135%	%09

Volume Used (mL):
Aliquot Volume (L, g, F):
Target Conc. (pCi/L, g, F'):
Uncertainty (Calculated):

Count Date: Spike I.D.:

Decay Corrected Spike Concentration (pCi/mL):

Result (pCi/L, g, F): LCS/LCSD 2 Sigma CSU (pCi/L, g, F):

Numerical Performance Indicator

Percent Recovery

		%9E	% RPD Limit-1
SM/SM		Pass	Duplicate Status vs RPD:
MS/ MSD Duplicate St		Pass	Duplicate Status vs Numerical Indicator:
(Based on the Percent Recoveries		3.36%	(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:
Duplicate Nume		-0.119	Duplicate Numerical Performance Indicator:
Matrix Spike Duplicate Result		2	Are sample and/or duplicate results below RL?
Sample Mi		1.097	Sample Duplicate Result 2 Sigma CSU (pCiff. g. F):
Matrix Spike Result	the space below.	4.401	Sample Duplicate Result (pCi/L, g, F):
	LCS/LCSD in	1.098	Sample Result 2 Sigma CSU (pCi/L, g, F):
•	other than	4.306	Sample Result (pCi/l., g, F):
	sample IDs if	LCSD54819	Duplicate Sample I.D.
	Enter Duplicate	LCS54819	Sample I.D.:
Matrix Spike/Matrix Spike Duplicate S			plicate Sample Assessment

Sample I.D. Sample MS L.D.	Sample MSD I.D. Sample Matrix Soike Result:	Matrix Spike Result 2 Sigma CSU (pCl/L, g, F):	Sample Matrix Spike Duplicate Result 2 Sigma CSU (pCi/L, g, F):	Duplicate Numerical Performance Indicator: (Based on the Percent Recoveries) MS/ MSD Duplicate RPD:	MS/ MSD Duplicate Status vs Numerical Indicator:	MS/ MSD Duplicate Status vs RPD;	% RPD Limit:

Sample Assessment

Status vs Numerical Indicator.
Status vs Recovery:
Upper % Recovery Limits:
Lower % Recovery Limits:

Duplicate Sample Assessment

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

If the lowest activity sample in this batch is greater than ten times the blank value, the blank is acceptable; otherwise this batch must be re-prepped.

Ra-228 NELAC DW2 Printed: 7/7/2020 8:38 AM Page 14 of 14





June 30, 2020

Joju Abraham Georgia Power-CCR 2480 Maner Road Atlanta, GA 30339

RE: Project: HAMMOND AP-4 BKG 05

Pace Project No.: 92482798

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on June 19, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services Asheville
- Pace Analytical Services Charlotte
- Pace Analytical Services Peachtree Corners, GA

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

Sincerely,

Kevin Herring

kevin.herring@pacelabs.com

Kein Lung

1(704)875-9092

HORIZON Database Administrator

Enclosures

cc: Kristen Jurinko

Whitney Law, Geosyntec Consultants Noelia Muskus, Geosyntec Consultants Ms. Lauren Petty, Southern Co. Services





CERTIFICATIONS

HAMMOND AP-4 BKG 05 Project:

Pace Project No.: 92482798

Pace Analytical Services Charlotte

9800 Kincey Ave. Ste 100, Huntersville, NC 28078 Louisiana/NELAP Certification # LA170028

North Carolina Drinking Water Certification #: 37706 North Carolina Field Services Certification #: 5342 North Carolina Wastewater Certification #: 12

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804 Florida/NELAP Certification #: E87648 Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

Pace Analytical Services Peachtree Corners

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

South Carolina Certification #: 99006001 Florida/NELAP Certification #: E87627 Kentucky UST Certification #: 84 Virginia/VELAP Certification #: 460221

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

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

Virginia Certification #: 460204





SAMPLE SUMMARY

Project: HAMMOND AP-4 BKG 05

Pace Project No.: 92482798

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92482798001	HGWC-102	Water	06/18/20 14:09	06/19/20 13:10



SAMPLE ANALYTE COUNT

Project: HAMMOND AP-4 BKG 05

Pace Project No.: 92482798

Lab ID	Sample ID	Method	Analysts	Analytes Reported
92482798001	HGWC-102	EPA 6010D	DRB	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2450C-2011	JRS	1
		EPA 300.0 Rev 2.1 1993	BRJ	3

PASI-A = Pace Analytical Services - Asheville PASI-C = Pace Analytical Services - Charlotte

PASI-GA = Pace Analytical Services - Peachtree Corners, GA



SUMMARY OF DETECTION

Project: HAMMOND AP-4 BKG 05

Pace Project No.: 92482798

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92482798001	HGWC-102					
	рH	5.67	Std. Units		06/22/20 15:36	
EPA 6010D	Calcium	124	mg/L	1.0	06/22/20 17:56	
EPA 6020B	Arsenic	0.00092J	mg/L	0.0050	06/23/20 14:45	
EPA 6020B	Barium	0.029	mg/L	0.010	06/23/20 14:45	
EPA 6020B	Boron	2.9	mg/L	0.10	06/23/20 14:45	
EPA 6020B	Cadmium	0.00047J	mg/L	0.0025	06/23/20 14:45	
EPA 6020B	Cobalt	0.0012J	mg/L	0.0050	06/23/20 14:45	
EPA 6020B	Lithium	0.0013J	mg/L	0.030	06/23/20 14:45	
SM 2450C-2011	Total Dissolved Solids	652	mg/L	10.0	06/22/20 17:38	
EPA 300.0 Rev 2.1 1993	Chloride	6.9	mg/L	1.0	06/27/20 16:23	
EPA 300.0 Rev 2.1 1993	Sulfate	349	mg/L	7.0	06/29/20 12:56	



ANALYTICAL RESULTS

Project: HAMMOND AP-4 BKG 05

Pace Project No.: 92482798

Date: 06/30/2020 01:18 PM

Sample: HGWC-102	Lab ID:	92482798001	Collecte	ed: 06/18/20	14:09	Received: 06/	19/20 13:10 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qua
Field Data	Analytical	Method:							
	Pace Anal	ytical Services	- Charlotte	;					
ЭΗ	5.67	Std. Units			1		06/22/20 15:36		
6010D ATL ICP	Analytical	Method: EPA 6	6010D Pre	paration Me	thod: EF	PA 3010A			
	Pace Anal	ytical Services	- Peachtre	e Corners, 0	βA				
Calcium	124	mg/L	1.0	0.14	1	06/22/20 14:08	06/22/20 17:56	7440-70-2	
6020 MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
	-	ytical Services							
Antimony	ND	mg/L	0.0030	0.00027	1	06/22/20 17:17	06/23/20 14:45	7440-36-0	
Arsenic	0.00092J	mg/L	0.0050	0.00035	1	06/22/20 17:17			
Barium	0.029	mg/L	0.010	0.00049	1		06/23/20 14:45		
Beryllium	ND	mg/L	0.0030	0.000074	1		06/23/20 14:45		
Boron	2.9	mg/L	0.10	0.0049	1		06/23/20 14:45		
Cadmium	0.00047J	mg/L	0.0025	0.00011	1		06/23/20 14:45		
Chromium	ND	mg/L	0.010	0.00039	1		06/23/20 14:45		
Cobalt	0.0012J	mg/L	0.0050	0.00030	1	06/22/20 17:17	06/23/20 14:45	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	06/22/20 17:17	06/23/20 14:45	7439-92-1	
Lithium	0.0013J	mg/L	0.030	0.00078	1	06/22/20 17:17	06/23/20 14:45	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	06/22/20 17:17	06/23/20 14:45	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	06/22/20 17:17	06/23/20 14:45	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	06/22/20 17:17	06/23/20 14:45	7440-28-0	
7470 Mercury	Analytical	Method: EPA 7	7470A Prej	paration Met	hod: EF	PA 7470A			
•	Pace Anal	ytical Services	- Peachtre	e Corners, 0	βA				
Mercury	ND	mg/L	0.00050	0.00014	1	06/29/20 08:50	06/30/20 09:48	7439-97-6	
2540C Total Dissolved Solids	Analytical	Method: SM 2	450C-2011						
	Pace Anal	ytical Services	- Peachtre	e Corners, 0	ЭΑ				
Total Dissolved Solids	652	mg/L	10.0	10.0	1		06/22/20 17:38		
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0 Rev 2	2.1 1993					
•	Pace Anal	ytical Services	- Asheville						
Chloride	6.9	mg/L	1.0	0.60	1		06/27/20 16:23	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		06/27/20 16:23	16984-48-8	
Sulfate	349	mg/L	7.0	3.5	7		06/29/20 12:56		



HAMMOND AP-4 BKG 05 Project:

Pace Project No.: 92482798

Date: 06/30/2020 01:18 PM

QC Batch: 548844 Analysis Method: **EPA 6010D** QC Batch Method: **EPA 3010A** Analysis Description: 6010D ATL

> Laboratory: Pace Analytical Services - Peachtree Corners, GA

Associated Lab Samples: 92482798001

METHOD BLANK: 2919468 Matrix: Water

Associated Lab Samples: 92482798001

Blank Reporting MDL Qualifiers Parameter Units Result Limit Analyzed Calcium ND 1.0 0.14 06/22/20 16:52

mg/L

LABORATORY CONTROL SAMPLE: 2919473

Spike LCS LCS % Rec Conc. Result % Rec Limits Qualifiers Parameter Units Calcium mg/L 0.97J 97 80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2919474 2919475

MSD MS 92482649003 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Conc. Conc. Result Result % Rec % Rec **RPD** RPD Qual Result Limits 517 20 M6 Calcium mg/L 511 511 -681 -642 75-125

Results presented on 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: HAMMOND AP-4 BKG 05

Pace Project No.: 92482798

Date: 06/30/2020 01:18 PM

QC Batch: 548895 Analysis Method:
QC Batch Method: EPA 3005A Analysis Description:

Laboratory: Pace Analytical Services - Peachtree Corners, GA

EPA 6020B

6020 MET

Associated Lab Samples: 92482798001

METHOD BLANK: 2919709 Matrix: Water

Associated Lab Samples: 92482798001

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0050	0.00027	06/23/20 13:04	
Arsenic	mg/L	ND	0.0050	0.00035	06/23/20 13:04	
Barium	mg/L	ND	0.010	0.00049	06/23/20 13:04	
Beryllium	mg/L	ND	0.0030	0.000074	06/23/20 13:04	
Boron	mg/L	ND	0.10	0.0049	06/23/20 13:04	
Cadmium	mg/L	ND	0.0025	0.00011	06/23/20 13:04	
Chromium	mg/L	ND	0.010	0.00039	06/23/20 13:04	
Cobalt	mg/L	ND	0.0050	0.00030	06/23/20 13:04	
Lead	mg/L	ND	0.0050	0.000046	06/23/20 13:04	
Lithium	mg/L	ND	0.030	0.00078	06/23/20 13:04	
Molybdenum	mg/L	ND	0.010	0.00095	06/23/20 13:04	
Selenium	mg/L	ND	0.010	0.0013	06/23/20 13:04	
Thallium	mg/L	ND	0.0010	0.000052	06/23/20 13:04	

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	mg/L	0.1	0.10	101	80-120	
Arsenic	mg/L	0.1	0.098	98	80-120	
Barium	mg/L	0.1	0.10	101	80-120	
Beryllium	mg/L	0.1	0.10	101	80-120	
Boron	mg/L	1	1.0	102	80-120	
Cadmium	mg/L	0.1	0.099	99	80-120	
Chromium	mg/L	0.1	0.10	100	80-120	
Cobalt	mg/L	0.1	0.096	96	80-120	
Lead	mg/L	0.1	0.098	98	80-120	
Lithium	mg/L	0.1	0.11	106	80-120	
Molybdenum	mg/L	0.1	0.099	99	80-120	
Selenium	mg/L	0.1	0.099	99	80-120	
Thallium	mg/L	0.1	0.098	98	80-120	

MATRIX SPIKE & MATRIX S	PIKE DUPLI	CATE: 2919	711		2919712							
		92482800001	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
				00110.		TCSuit	70 1100	70 TXCC				Quai
Antimony	mg/L	ND	0.1	0.1	0.098	0.10	98	101	75-125	3	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.10	99	102	75-125	3	20	

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



Project: HAMMOND AP-4 BKG 05

Pace Project No.: 92482798

Date: 06/30/2020 01:18 PM

MATRIX SPIKE & MATRIX	SPIKE DUPLIC	CATE: 2919			2919712							
Parameter	g Units	92482800001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	mg/L	0.17	0.1	0.1	0.26	0.28	92	109	75-125	6	20	
Beryllium	mg/L	ND	0.1	0.1	0.095	0.095	95	95	75-125	0	20	
Boron	mg/L	0.045J	1	1	1.0	0.98	95	94	75-125	2	20	
Cadmium	mg/L	ND	0.1	0.1	0.099	0.10	99	100	75-125	1	20	
Chromium	mg/L	ND	0.1	0.1	0.10	0.10	102	102	75-125	1	20	
Cobalt	mg/L	ND	0.1	0.1	0.096	0.10	96	101	75-125	5	20	
Lead	mg/L	ND	0.1	0.1	0.096	0.096	96	96	75-125	1	20	
Lithium	mg/L	0.019J	0.1	0.1	0.12	0.12	99	98	75-125	0	20	
Molybdenum	mg/L	ND	0.1	0.1	0.098	0.10	98	100	75-125	2	20	
Selenium	mg/L	ND	0.1	0.1	0.097	0.099	97	99	75-125	2	20	
Thallium	mg/L	ND	0.1	0.1	0.096	0.097	96	97	75-125	1	20	

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



HAMMOND AP-4 BKG 05 Project:

Pace Project No.: 92482798

Date: 06/30/2020 01:18 PM

QC Batch: 549882 Analysis Method: EPA 7470A QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury

> Laboratory: Pace Analytical Services - Peachtree Corners, GA

Associated Lab Samples: 92482798001

METHOD BLANK: Matrix: Water

Associated Lab Samples: 92482798001

Blank Reporting Qualifiers Parameter Units Result Limit MDL Analyzed ND 0.00050

Mercury 0.00014 06/30/20 09:44 mg/L

LABORATORY CONTROL SAMPLE: 2924001

Spike LCS LCS % Rec Conc. Result % Rec Limits Qualifiers Parameter Units Mercury mg/L 0.0025 0.0023 93 80-120

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2924002 2924003

> MSD MS

92483122001 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Conc. Conc. Result Result % Rec % Rec **RPD** RPD Qual Result Limits ND 0.0025 20 Mercury mg/L 0.0025 0.0025 0.0025 100 102 75-125 2

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



Project: HAMMOND AP-4 BKG 05

Pace Project No.: 92482798

QC Batch: 548907 Analysis Method: SM 2450C-2011

QC Batch Method: SM 2450C-2011 Analysis Description: 2540C Total Dissolved Solids

Laboratory: Pace Analytical Services - Peachtree Corners, GA

Associated Lab Samples: 92482798001

METHOD BLANK: 2919762 Matrix: Water

Associated Lab Samples: 92482798001

Blank Reporting
Parameter Units Result Limit MDL Analyzed Qualifiers

Total Dissolved Solids mg/L ND 10.0 10.0 06/22/20 17:30

LABORATORY CONTROL SAMPLE: 2919763

Spike LCS LCS % Rec Conc. Result % Rec Limits Qualifiers Parameter Units **Total Dissolved Solids** 400 398 100 84-108 mg/L

SAMPLE DUPLICATE: 2919764

92482662002 Dup Max Parameter Units Result Result **RPD RPD** Qualifiers 163 **Total Dissolved Solids** 10 D6 mg/L 182 11

SAMPLE DUPLICATE: 2919765

Date: 06/30/2020 01:18 PM

92482737002 Dup Max RPD RPD Parameter Units Result Result Qualifiers Total Dissolved Solids 97.0 10 D6 mg/L 86.0 12

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

Qualifiers



QUALITY CONTROL DATA

Project: HAMMOND AP-4 BKG 05

Pace Project No.: 92482798

QC Batch: 550052

QC Batch Method: EPA 300.0 Rev 2.1 1993

Analysis Description:

EPA 300.0 Rev 2.1 1993

300.0 IC Anions

Laboratory:

Analysis Method:

Pace Analytical Services - Asheville

Associated Lab Samples: 92482798001

METHOD BLANK: 2925000

Date: 06/30/2020 01:18 PM

Chloride

Matrix: Water

Associated Lab Samples: 92482798001

 Parameter
 Units
 Blank Reporting Result
 Limit
 MDL
 Analyzed

 mg/L mg/L
 ND
 1.0
 0.60
 06/27/20 15:08

 mg/L
 ND
 0.10
 0.050
 06/27/20 15:08

Fluoride mg/L ND 0.10 0.050 06/27/20 15:08 Sulfate mg/L ND 1.0 0.50 06/27/20 15:08

LABORATORY CONTROL SAMPLE: 2925001

Spike LCS LCS % Rec Units Conc. Result % Rec Limits Qualifiers Parameter Chloride 50 51.5 103 90-110 mg/L Fluoride 2.5 mg/L 2.6 103 90-110 Sulfate mg/L 50 50.9 102 90-110

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2925002 2925003 MS MSD MSD 92482649008 Spike Spike MS MS MSD % Rec Max Qual Parameter Conc. Result % Rec % Rec **RPD** RPD Units Result Conc. Result Limits Chloride 160 50 50 206 206 91 92 90-110 0 10 mg/L Fluoride mg/L 0.10 2.5 2.5 2.5 2.5 95 97 90-110 2 10 Sulfate mg/L 292 50 50 337 339 91 90-110 0 10 94

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2925004 2925005 MS MSD 92483686007 Spike Spike MS MSD MS MSD % Rec Max Parameter Units Result Conc. Conc. Result Result % Rec % Rec Limits **RPD** RPD Qual Chloride mg/L 33.3 50 50 84.9 86.5 103 106 90-110 2 10 Fluoride mg/L 0.28 2.5 2.5 2.7 2.9 97 103 90-110 5 10 Sulfate mg/L 1960 50 50 2020 2020 119 118 90-110 0 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: HAMMOND AP-4 BKG 05

Pace Project No.: 92482798

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.

TNTC - Too Numerous To Count

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.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

Date: 06/30/2020 01:18 PM

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

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



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HAMMOND AP-4 BKG 05

Pace Project No.: 92482798

Date: 06/30/2020 01:18 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92482798001	HGWC-102				
92482798001	HGWC-102	EPA 3010A	548844	EPA 6010D	548861
92482798001	HGWC-102	EPA 3005A	548895	EPA 6020B	548915
92482798001	HGWC-102	EPA 7470A	549882	EPA 7470A	550278
92482798001	HGWC-102	SM 2450C-2011	548907		
92482798001	HGWC-102	EPA 300.0 Rev 2.1 1993	550052		



Section A Required Cherk Information

Section B Required Project Information Report To SCS Contacts Copy To Geosyntec Contacts

Section C Invoice Inform Attention

Address Company Mame

REGULATORY AGENCY

TSU NPDES

RCRA GROUND WATE

OTHER COR DRINKING WATER

Company Address

GA Power Atlanta GA

CHAIN-OF-CUSTODY / Analy

	Southern Co.
96406100	, makea
024482798	
	OCUMENT. All relevant fields must be completed
MOH - 20101 - 30	
IIO# - 92482798	

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					RE	IGNATU	SAMPLER NAME AND SIGNATURE	SAMPLER						
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Data Validation Reports





Memorandum

Date: October 8, 2019

To: Whitney Law

From: Kristoffer Henderson

CC: J. Caprio

Subject: Stage 2A Data Validations - Level II Data Deliverables - Pace

Analytical Services, LLC Project Numbers 2622317, 2622318, 2622352, 2622353, 2622354, 2622355, 2622398, 2622399, 2622400,

2622401, 2622402 and 2622403

SITE: Plant Hammond AP

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of fourteen aqueous samples and two equipment blanks, collected 21-23 August 2019, as part of the Plant Hammond AP onsite sampling event.

The samples were analyzed at Pace Analytical Services, LLC, Peachtree Corners, Georgia, for the following analytical tests:

- Metals by Environmental Protection Agency (EPA) Methods 3005A/6020B
- Mercury by EPA Method 7470A
- Fluoride by EPA Method 300.0

The samples were analyzed at Pace Analytical Services, LLC, Greensburg, Pennsylvania, for the following analytical tests:

- Radium-226 by EPA Method 9315
- Radium-228 by EPA Method 9320
- Total Radium by Calculation

EXECUTIVE SUMMARY

Based on the Stage 2A data validation covering the quality control (QC) parameters listed below and the information provided, the data as qualified are usable for meeting project objectives. The qualified data should be used within the limitations of the qualification.

Final Review: JK Caprio 10/10/19

The data were reviewed based on the pertinent methods referenced in the laboratory reports, professional and technical judgment and the following documents:

- US EPA Region IV Data Validation Standard Operating Procedures (US EPA Region IV, September 2011);
- USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review, January 2017 (EPA 540-R-2017-001); and,
- American National Standard, Verification and Validation of Radiological Data for use in Waste Management and Environmental Remediation, February 15, 2012 (ANSI/ANS-41.5-2012);

The following samples were analyzed and reported in the laboratory reports:

Laboratory ID	Client ID
2622317001	HGWA-111
2622317002	HGWA-112
2622317003	HGWA-113
2622318001	HGWA-111
2622318002	HGWA-112
2622318003	HGWA-113
2622352001	HGWA-122
2622352002	HGWC-121A
2622352003	HGWC-120
2622353001	HGWA-122
2622353002	HGWC-121A
2622353003	HGWC-120
2622354001	HGWC-117
2622354002	HGWC-101
2622354003	HGWC-118
2622354004	HGWC-103

Laboratory ID	Client ID
2622354005	HGWC-105
2622355001	HGWC-117
2622355002	HGWC-101
2622355003	HGWC-118
2622355004	HGWC-103
2622355005	HGWC-105
2622398001	HGWC-124
2622399001	HGWC-124
2622400001	EB-01
2622400002	EB-02
2622401001	EB-01
2622401002	EB-02
2622402001	HGWC-107
2622402002	HGWC-109
2622402001	HGWC-107
2622402002	HGWC-109

Final Review: JK Caprio 10/10/19

The samples were received within 0-6 degrees Celsius (°C). No sample preservation issues were noted by the laboratory.

The following issues were noted with the chain of custody (COC) forms:

- 2622317, 2622318, 2622352, 2622353, 2622354 and 2622355: The relinquishing signature, date and time were missing for the final sample transfer on the COCs.
- 2622354 and 2622355: The collection time of HGWC-103 was listed as 1430 on the label and 1450 on the COC. The sample was logged in per the COC.
- 2622354, 2622355, 2622402 and 2622403: The years were missing from the start and end collection times from some or all of the samples.

- 2622400 and 2622401: There were time discrepancies between the relinquished by and received by times. For the first sample transfer the relinquished by time was documented as 08/23/19 1530 and the received by time was documented as 08/23/19 1540. For the second sample transfer the relinquished by time was documented as 08/26/19 0815 and the received by time was documented as 08/26/19 1830.
- 2622402 and 2622403: There were time discrepancies between the relinquished by and received by times. For the second sample transfer the relinquished by time was documented as 08/23/19 1530 and the received by time was documented as 08/23/19 1540. For the third sample transfer the relinquished by time was documented as 08/26/19 0815 and the received by time was documented as 08/26/19 1830.

1.0 METALS

The samples were analyzed for metals by EPA methods 3005A/6020B (Mercury evaluated separately in Section 2.0, below).

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ⊗ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ⊗ Electronic Data Deliverables Review

1.1 Overall Assessment

The metals data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for this dataset is 100%.

Final Review: JK Caprio 10/10/19

1.2 **Holding Time**

The holding time for the metals analysis of a water sample is 180 days from sample collection to analysis. The holding times were met for the sample analyses.

1.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three method blanks were reported (batches 34179, 34320 and 34496). Metals were not detected in the method blanks above the method detection limits (MDLs), with the following exceptions.

2622317: Antimony was detected at an estimated concentration greater than the MDL and less than the reporting limit (RL) in the method blank in batch 34179. Since antimony was not detected in the associated samples, no qualifications were applied to the data.

2622352 and 2622354: Chromium was detected at an estimated concentration greater than the MDL and less than the RL in the method blank in batch 34320. Therefore, the chromium concentrations in the associated samples less than five times the method blank concentration were U* qualified as not detected at the reported concentration.

Sample	Analyte	Laboratory Result (mg/L)	Laboratory Flag	Validation Result (mg/L)	Validation Qualifier*	Reason Code**
HGWA-122	Chromium	0.00060	J	0.0006	U*	BL
HGWC-120	Chromium	0.00072	J	0.00072	U*	BL
HGWC-101	Chromium	0.00064	J	0.00064	U*	BL
HGWC-103	Chromium	0.00063	J	0.00063	U*	BL

mg/L- milligram per liter

1.4 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three batch MS/MSD pairs were reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

Final Review: JK Caprio 10/10/19

J- estimated concentration greater than the MDL and less than the RL

^{*} Validation qualifiers are defined in Attachment 1 at the end of this report

^{**}Reason codes are defined in Attachment 2 at the end of this report

1.5 <u>Laboratory Control Sample (LCS)</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three LCSs were reported. The recovery results were within the laboratory specified acceptance criteria.

1.6 Equipment Blank

Two equipment blanks were collected with the sample set, EB-01 and EB-02. Metals were not detected in the equipment blanks above the MDLs.

1.7 Field Blank

A field blank was not collected with the sample set.

1.8 <u>Field Duplicate</u>

A field duplicate was not collected with the sample set.

1.9 **Sensitivity**

The samples were reported to the MDLs. Elevated non-detect results were not reported.

1.10 Electronic Data Deliverables (EDDs) Review

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. The laboratory flag B used in the level II reports were not included in the EDDs. In addition, there were project specific EDDs that included project data for samples from a different laboratory report or analytes were included in the EDDs that were not requested or reported in the laboratory report when the sample was used for laboratory batch QC (i.e. if the sample was used for the MS/MSD analyses). No other discrepancies were identified between the level II reports and the EDDs.

2.0 MERCURY

The samples were analyzed for mercury by EPA method 7470A.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

Final Review: JK Caprio 10/10/19

✓ Overall Assessment

Plant Hammond AP Site Data Validation 8 October 2019
Page 6

- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ⊗ Electronic Data Deliverables Review

2.1 Overall Assessment

The mercury data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for this dataset is 100%.

2.2 **Holding Time**

The holding time for mercury analysis of a water sample is 28 days from sample collection to analysis. The holding times were met for the sample analyses.

2.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three method blanks were reported (batches 34231, 34265 and 34391). Mercury was not detected in the method blanks above the MDL.

2.4 Matrix Spike/Matrix Spike Duplicate

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three batch MS/MSD pairs were reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

2.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three LCSs were reported. The recovery results were within the laboratory specified acceptance criteria.

Final Review: JK Caprio 10/10/19

2.6 **Equipment Blank**

Two equipment blanks were collected with the sample set, EB-01 and EB-02. Mercury was not detected in the equipment blanks above the MDL.

2.7 Field Blank

A field blank was not collected with the sample set.

2.8 Field Duplicate

A field duplicate was not collected with the sample set.

2.9 Sensitivity

The samples were reported to the MDL. No elevated non-detect results were reported.

2.10 Electronic Data Deliverables Review

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. There were project specific EDDs that included project data for samples from a different laboratory report when the sample was used for laboratory batch QC (i.e. if the sample was used for the MS/MSD analyses). No other discrepancies were identified between the level II reports and the EDDs.

3.0 FLUORIDE

The samples were analyzed for fluoride by EPA method 300.0.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

Final Review: JK Caprio 10/10/19

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate

Plant Hammond AP Site Data Validation 8 October 2019
Page 8

- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

3.1 Overall Assessment

The fluoride data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for these analyses, for this dataset is 100%.

3.2 Holding Times

The holding time for the fluoride analysis of a water sample is 28 days from sample collection to analysis. The holding times were met for the sample analyses.

3.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three method blanks were reported (batches 34532, 34533 and 34680). Fluoride was not detected in the method blanks above the MDL.

3.4 Matrix Spike/Matrix Spike Duplicate

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One sample set specific MS was reported using sample HGWC-107. The recovery result was within the laboratory specified acceptance criteria.

Two batch MSs and three MS/MSD pairs were also reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

3.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three LCSs were reported. The recovery results were within the laboratory specified acceptance criteria.

Final Review: JK Caprio 10/10/19

3.6 <u>Laboratory Duplicate</u>

Laboratory duplicates were not reported with the data.

3.7 **Equipment Blank**

Two equipment blanks were collected with the sample set, EB-01 and EB-02. Fluoride was not detected in the equipment blanks above the MDL.

3.8 Field Blank

A field blank was not collected with the sample set.

3.9 Field Duplicate

A field duplicate was not collected with the sample set.

3.10 Sensitivity

The samples were reported to the MDL. No elevated non-detect results were reported.

3.11 <u>Electronic Data Deliverables Review</u>

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. There were project specific EDDs that included project data for samples from a different laboratory report or analytes were included in the EDDs that were not requested or reported in the laboratory report when the sample was used for laboratory batch QC (i.e. if the sample was used for the MS/MSD analyses). No other discrepancies were identified between the level II reports and the EDDs.

4.0 RADIOCHEMISTRY

The samples were analyzed for radium-226 by EPA method 9315, radium-228 by EPA method 9320 and total radium by calculation.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ⊗ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Tracers and Carriers

Plant Hammond AP Site Data Validation 8 October 2019 Page 10

- ⊗ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

4.1 Overall Assessment

The radium-226 and radium-228 data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for this dataset is 100%.

4.2 Holding Times

The holding times for the radium-226 and radium-228 analyses of a water sample are 180 days from sample collection to analysis. The holding times were met for the sample analyses.

4.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three method blanks were reported for the radium-228 data (batches 358895, 358894 and 359966). Three method blanks were reported for the radium-226 data (batches 359801, 359490 and 359964). Radium-226 and radium-228 were not detected in the method blanks above the minimum detectable concentrations (MDCs), with the following exceptions.

2622318, 2622355 and 2622399: Radium-226 (0.563 pCi/L) was detected at a concentration greater than the MDC in the method blank in batch 359801. Therefore, the radium-226 concentration in the associated sample greater than the MDC and with a normalized absolute difference (NAD) less than 2.58 was U* qualified as not detected at the reported concentration. Also, samples with a combined radium 226 + 228 concentration greater than the MDC with a radium-228 concentration less than the MDC and a U* qualified radium-226 concentration were U* qualified as not detected at the reported concentration.

2622353: Radium-228 (0.862 pCi/L) was detected at a concentration greater than the MDC in the method blank in batch 358894. Therefore, the radium-228 concentration in the associated sample greater than the MDC and with a NAD less than 2.58 was U* qualified as not detected at the reported concentration.

Sample	Analyte	Laboratory Result (pCi/L)	Laboratory Flag	Validation Result (pCi/L)	Validation Qualifier	Reason Code
HGWA-111	Radium-226	0.492	NA	0.492	U*	BL
HGWA-112	Radium-226	0.417	NA	0.417	U*	BL
HGWA-122	Radium-228	0.886	NA	0.886	U*	BL
HGWC-101	Radium-226	0.474	NA	0.474	U*	BL
HGWC-118	Radium-226	0.492	NA	0.492	U*	BL
HGWC-103	Radium-226	0.434	NA	0.434	U*	BL
HGWC-124	Radium-226	0.450	NA	0.450	U*	BL
HGWC-124	Combined Radium 226 + 228	0.834	NA	0.834	U*	BL

pCi/L- picocuries per liter

NA-not applicable

4.4 Matrix Spike/Matrix Spike Duplicate

MS/MSD pairs were not reported with the data.

4.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two LCSs and one LCS/LCS duplicate (LCSD) pair were reported for radium-226. One LCS and two LCS/LCSD pairs were reported for radium-228. The recovery and replicate error ratio (RER) [2 sigma (2σ)] results were within the laboratory specified acceptance criteria.

4.6 <u>Laboratory Duplicate</u>

Four batch laboratory duplicates were reported for radium-226 and one batch laboratory duplicate was reported for radium-228. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

4.7 <u>Tracers and Carriers</u>

Carriers were reported for the radium-226 and radium-228 analyses and a tracer was reported for the radium-228 analyses. The recovery results were within the laboratory specified acceptance criteria.

4.8 **Equipment Blank**

Two equipment blanks were collected with the sample sets, EB-01 and EB-02. Radium-226 and Radium-228 were not detected in the equipment blank above the MDCs, with the following exception.

Radium-226 (0.539 pCi/L) was detected at a concentration greater than the MDC in EB-02. Therefore, the radium-226 concentration in the associated sample greater than the MDC and with a NAD less than 2.58 was U* qualified as not detected at the reported concentration. Also, samples with combined radium 226 + 228 concentrations greater than the MDC with a radium-228 concentration less than the MDC and a U* qualified radium-226 concentration were U* qualified as not detected at the reported concentration.

Sample	Analyte	Laborator y Result (pCi/L)	Laborator y Flag	Validatio n Result (pCi/L)	Validatio n Qualifier	Reaso n Code
HGWA-111	Radium-226	0.492	NA	0.492	U*	BE
HGWA-112	Radium-226	0.417	NA	0.417	U*	BE
HGWC-121A	Radium-226	0.635	NA	0.635	U*	BE
HGWC-121A	Combined Radium 226 + 228	1.30	NA	1.30	U*	BE
HGWC-120	Radium-226	0.845	NA	0.845	U*	BE
HGWC-120	Combined Radium 226 + 228	1.35	NA	1.35	U*	BE
HGWC-101	Radium-226	0.474	NA	0.474	U*	BE
HGWC-118	Radium-226	0.492	NA	0.492	U*	BE
HGWC-103	Radium-226	0.434	NA	0.434	U*	BE
HGWC-124	Radium-226	0.450	NA	0.450	U*	BE
HGWC-124	Combined Radium 226 + 228	0.834	NA	0.834	U*	BE
HGWC-107	Radium-226	0.502	NA	0.502	U*	BE
HGWC-107	Combined Radium 226 + 228	1.69	NA	1.69	J	BE

pCi/L- picocuries per liter NA-not applicable

4.9 Field Blank

A field blank was not collected with the sample set.

4.10 Field Duplicate

A field duplicate was not collected with the sample set.

4.11 **Sensitivity**

The samples were reported to the MDCs. No elevated non-detect results were reported.

4.12 Electronic Data Deliverables Review

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II reports and the EDDs.

* * * * *

Plant Hammond AP Site Data Validation 8 October 2019 Page 14

ATTACHMENT 1 DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY Assigned by Geosyntec's Data Validation Team

DATA OUALIFIER DEFINITIONS

- U* This analyte should be considered "not-detected" because it was detected in an associated blank at a similar level.
- UJ The analyte was analyzed for, but was not detected above the level of the reported sample reporting/method detection limit. The reported method detection limit is approximate and may be inaccurate or imprecise.
- J The analyte was positively identified but the result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

ATTACHMENT 2 DATA VALIDATION REASON CODES Assigned by Geosyntec's Data Validation Team

Reason Code	Explanation
BE	Equipment blank contamination. The result should be considered
	"not-detected."
BF	Field blank contamination. The result should be considered "not-
	detected."
BL	Laboratory blank contamination. The result should be considered
	"not-detected."
L	LCS and LCSD recoveries outside acceptance limits, indeterminate
	bias
L-	LCS and/or LCSD recoveries outside of acceptance limits. The
	result may be biased low.
L+	LCS and/or LCSD recoveries outside of acceptance limits. The
	result may be biased high.
M-	MS and/or MSD recoveries outside of acceptance limits. The result
	may be biased low.



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Final Review: JK Caprio 1/21/2020

Memorandum

Date: 20 January 2020

To: Whitney Law

From: Kristoffer Henderson

CC: J. Caprio

Subject: Stage 2A Data Validations - Level II Data Deliverables - Pace

Analytical Services, LLC Project Numbers 2624782, 2624784, 2624785, 2624786, 2624787, 2624788, 2624791, 2624792, 2624799,

2624800, 2624802 and 2624803

SITE: Plant Hammond AP3/4

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of fifteen aqueous samples, one field duplicate sample and one field blank, collected 21-23 October 2019, as part of the Plant Hammond AP3/4 on-site sampling event.

The samples were analyzed at Pace Analytical Services, LLC, Peachtree Corners, Georgia, for the following analytical tests:

- Metals by United States (US) Environmental Protection Agency (EPA) Methods 3005A/6020B
- Mercury by USEPA Method 7470A
- Total Dissolved Solids (TDS) by Standard Method 2540C
- Chloride, Fluoride and Sulfate by USEPA Method 300.0

The samples were analyzed at Pace Analytical Services, LLC, Greensburg, Pennsylvania, for the following analytical tests:

- Radium-226 by USEPA Method 9315
- Radium-228 by USEPA Method 9320
- Total Radium by Calculation

EXECUTIVE SUMMARY

Based on the Stage 2A data validation covering the quality control (QC) parameters listed below and the information provided, the data as qualified are usable for meeting project objectives. Qualified data should be used within the limitations of the qualification.

The data were reviewed based on the pertinent methods referenced in the laboratory reports, professional and technical judgment and the following documents:

- US EPA Region IV Data Validation Standard Operating Procedures (US EPA Region IV, September 2011);
- USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review, January 2017 (EPA 540-R-2017-001); and,
- American National Standard, Verification and Validation of Radiological Data for use in Waste Management and Environmental Remediation, February 15, 2012 (ANSI/ANS-41.5-2012).

The following samples were analyzed and reported in the laboratory reports:

Laboratory ID	Client ID
2624782001	HGWA-122
2624782002	HGWC-124
2624782003	HGWC-121A
2624784001	HGWA-122
2624784002	HGWC-124
2624784003	HGWC-121A
2624785001	HGWC-120
2624785002	FD-01
2624786001	HGWC-120
2624786002	FD-01
2624787001	HGWA-111
2624788001	HGWA-111
2624791001	HGWC-101
2624791002	HGWC-102
2624791003	HGWC-105
2624791004	HGWC-103
2624792001	HGWC-101

Laboratory ID	Client ID
2624792002	HGWC-102
2624792003	HGWC-105
2624792004	HGWC-103
2624799001	HGWA-112
2624799002	HGWC-117
2624799003	HGWC-118
2624799004	HGWA-113
2624799005	HGWC-109
2624799006	HGWC-107
2624800001	HGWA-112
2624800002	HGWC-117
2624800003	HGWC-118
2624800004	HGWA-113
2624800005	HGWC-109
2624800006	HGWC-107
2624802001	FB-01
2624803001	FB-01

Final Review: JK Caprio 1/21/2020

The samples were received within 0-6°C. No sample preservation issues were noted by the laboratory.

The following issues were noted with the chain of custody (COC) forms:

- 2624785 and 2624786: There was no time of collection listed for the field duplicate, FD-01. The laboratory assigned the collection time of 00:00. Also, the year was not documented for the relinquished by and received by times for the second transfer.
- 2624787 and 2624788: The year was not documented for the sample collection time and relinquished by time for the sample transfer.

- 2624791, 2624792, 2624799 and 2624800: The year was not documented for the sample collection times for samples HGWC-101, HGWC-102, HGWA-112, HGWC-117 and HGWC-118 and the relinquished by and received by times for the sample transfers.
- 2624802 and 2624803: The year was not documented for the received by time for the first transfer and the relinquished by and received by times for the second transfer.

1.0 METALS

The samples were analyzed for metals by USEPA methods 3005A/6020B. (Mercury was evaluated separately in Section 2.0, below).

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ⊗ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ⊗ Electronic Data Deliverables Review

1.1 Overall Assessment

The metals data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for the dataset is 100%.

1.2 Holding Time

The holding time for the metals analysis of a water sample is 180 days from sample collection to analysis. The holding times were met for the sample analyses.

1.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported (batches 37696 and 38024). Metals were not detected in the method blanks above the method detection limits (MDLs), with the following exception.

2624786, 2624792, 2624800 and 2624803: Boron (0.0059 mg/L) was detected at an estimated concentration greater than the MDL and less than the reporting limit (RL) in the method blank in batch 38024. Therefore, the boron concentrations in the associated samples less than five times the method blank concentrations were U* qualified as not detected at the reported concentrations.

Sample	Analyte	Laboratory Result (mg/L)	Laboratory Flag	Validation Result (mg/L)	Validation Qualifier*	Reason Code**
HGWA-112	Boron	0.016	JВ	0.016	U*	BL
HGWA-113	Boron	0.010	JВ	0.010	U*	BL

mg/L- milligram per liter

1.4 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two batch MS/MSD pairs were reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

1.5 <u>Laboratory Control Sample (LCS)</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two LCSs were reported. The recovery results were within the laboratory specified acceptance criteria.

1.6 Equipment Blank

An equipment blank was not collected with the sample set.

1.7 Field Blank

One field blank was collected with the sample sets, FB-01. Metals were not detected in the field blank above the MDLs, with the following exception.

J- estimated concentration greater than the MDL and less than the RL

B-laboratory flag indicating analyte was detected in the associated method blank

^{*} Validation qualifiers are defined in Attachment 1 at the end of this report

^{**}Reason codes are defined in Attachment 2 at the end of this report

Calcium (0.011 mg/L) was detected at an estimated concentration greater than the MDL and less than the RL in FB-01. Since calcium was detected in the associated samples at concentrations greater than five times the field blank concentration, no qualifications were applied to the data.

1.8 Field Duplicate

One field duplicate sample was collected with the sample sets, FD-01. Acceptable precision [relative percent difference (RPD) \leq 20% or the difference between the concentrations \leq RL] was demonstrated between the field duplicate and the original sample HGWC-120.

1.9 **Sensitivity**

The samples were reported to the MDLs. Elevated nondetect results were not reported.

1.10 Electronic Data Deliverables (EDDs) Review

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. The laboratory flag B used in the level II reports was not included in the EDDs. No other discrepancies were identified between the level II reports and the EDDs.

2.0 MERCURY

The samples were analyzed by USEPA method 7470A.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

2.1 Overall Assessment

The mercury data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for the dataset is 100%.

2.2 **Holding Time**

The holding time for the mercury analysis of a water sample is 28 days from sample collection to analysis. The holding times were met for the sample analyses.

2.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported (batch 37720). Mercury was not detected in the method blank above the MDL.

2.4 Matrix Spike/Matrix Spike Duplicate

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One batch MS/MSD pair was reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

2.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was reported. The recovery result was within the laboratory specified acceptance criteria.

Equipment Blank

An equipment blank was not collected with the sample set.

2.7 Field Blank

One field blank was collected with the sample sets, FB-01. Mercury was not detected in the field blank above the MDL.

Final Review: JK Caprio 1/21/2020

2.8 Field Duplicate

The field duplicate was not analyzed for mercury.

2.9 **Sensitivity**

The samples were reported to the MDL. Elevated nondetect results were not reported.

2.10 Electronic Data Deliverables Review

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II reports and the EDDs.

3.0 WET CHEMISTRY

The samples were analyzed for TDS by Standard Method 2540C and chloride, fluoride and sulfate by USEPA method 300.0.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Method Blank
- ⊗ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ⊗ Electronic Data Deliverables Review

3.1 Overall Assessment

The wet chemistry data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for the dataset is 100%.

3.2 **Holding Times**

The holding times for the analysis of a water sample for the wet chemistry parameters are listed below. The holding times were met for the sample analyses.

Analyte	Holding Time
TDS	7 days from collection to analysis
Chloride, Fluoride and Sulfate	28 days from collection to analysis

3.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three method blanks were reported for the anions (batches 37730, 37858 and 37870). The wet chemistry parameters were not detected in the method blanks above the MDLs, with the following exceptions.

2624784 and 2624787: Chloride (0.034 mg/L) was detected at an estimated concentration greater than the MDL and less than the RL in the method blank in batch 37730. Since chloride was detected in the associated samples at concentrations greater than five times the method blank concentration, no qualifications were applied to the data.

2624786: Chloride (0.0032 mg/L) and sulfate (0.36 mg/L) were detected at estimated concentrations greater than the MDLs and less than the RLs in the method blank in batch 37858. Since chloride and sulfate were detected in the associated samples at concentrations greater than five times the method blank concentrations, no qualifications were applied to the data.

3.4 Matrix Spike/Matrix Spike Duplicate

One sample set MS/MSD pair using sample FD-01 and one MS using sample HGWC-109 were reported for the anions. The RPD and recovery results were within the laboratory specified acceptance criteria, with the following exception.

2624800: The recovery of sulfate in the MS using sample HGWC-109 was low and outside the laboratory specified acceptance criteria. Therefore, the chloride concentration in sample HGWC-109 was J qualified as estimated.

One batch MS and two MS/MSD pairs were also reported for the anions. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

Plant Hammond AP3/4 Data Validation 20 January 2020

Page 9

Sample	Analyte	Laboratory Result (mg/L)	Laboratory Flag	Validation Result (mg/L)	Validation Qualifier	Reason Code
HGWC-109	Sulfate	23.2	M1	23.2	J	M-

mg/L- milligram per liter

M1-laboratory flag indicating MS recovery exceeded the QC limits

3.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). LCSs were reported for each analysis and batch as appropriate. The recovery results were within the laboratory specified acceptance criteria.

3.6 <u>Laboratory Duplicate</u>

Four sample set specific laboratory duplicates were reported for TDS using samples HGWA-122, HGWC-120, HGWA-113 and HGWC-109. The RPD results were within the laboratory specified acceptance criteria.

Two batch laboratory duplicates were also reported for TDS. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

3.7 **Equipment Blank**

An equipment blank was not collected with the sample set.

3.8 Field Blank

One field blank was collected with the sample sets, FB-01. The wet chemistry parameters were not detected in the field blank above the MDLs.

3.9 Field Duplicate

One field duplicate sample was collected with the sample sets, FD-01. Acceptable precision (RPD \leq 20% or the difference between the concentrations < RL) was demonstrated between the field duplicate and the original sample HGWC-120.

3.10 **Sensitivity**

The samples were reported to the MDLs. No elevated nondetect results were reported.

3.11 <u>Electronic Data Deliverables Review</u>

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. The laboratory flag M1 used in the level II report was not included in the EDDs. No other discrepancies were identified between the level II reports and the EDDs.

4.0 RADIOCHEMISTRY

The samples were analyzed for radium-226 by EPA method 9315, radium-228 by EPA method 9320 and total radium by calculation.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ⊗ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Tracers and Carriers
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

4.1 Overall Assessment

The radium-226 and radium-228 data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for this dataset is 100%.

4.2 **Holding Times**

The holding times for the radium-226 and radium-228 analyses of a water sample are 180 days from sample collection to analysis. The holding times were met for the sample analyses.

4.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported for the radium-228 data (batches 369306 and 369311). Two method blanks were reported for the radium-226 data (batches 369307 and 369310). Radium-226 and radium-228 were not detected in the method blanks above the minimum detectable concentrations (MDCs), with the following exception.

2624785, 2624791 and 2624799: Radium-226 was detected at concentrations greater than the MDC in the method blank in batch 369310. Therefore, the radium-226 concentrations in the associated samples less than five times the method blank concentrations were U* qualified as not detected.

Sample	Analyte	Laboratory Result (pCi/L)	Laboratory Flag	Validation Result (pCi/L)	Validation Qualifier	Reason Code
HGWC-120	Radium-226	0.760	NA	0.760	U*	BL
FD-01	Radium-226	0.420	NA	0.420	U*	BL
HGWC-103	Radium-226	0.571	NA	0.571	U*	BL
HGWC-118	Radium-226	0.424	NA	0.424	U*	BL
HGWA-113	Radium-226	0.401	NA	0.401	U*	BL
HGWC-109	Radium-226	0.545	NA	0.545	U*	BL

pCi/L-picocuries per liter NA-not applicable

4.4 Matrix Spike/Matrix Spike Duplicate

MS/MSD pairs were not reported with the data.

4.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two LCS/LCS duplicate (LCSD) pairs were reported for radium-226. Two LCS/LCSD pairs were reported for radium-228. The recovery and replicate error ratio (RER) [2 sigma (2σ)] results were within the laboratory specified acceptance criteria.

4.6 <u>Laboratory Duplicate</u>

One sample set specific laboratory duplicate was reported for radium-226 using sample BGWC-19. The RER (2σ) result was within the laboratory specified acceptance criteria.

Two batch laboratory duplicates were also reported for radium-226. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data. The recovery and RPD results were within the laboratory specified acceptance criteria.

4.7 Tracers and Carriers

Carriers were reported for the radium-226 and radium-228 analyses and a tracer was reported for the radium-228 analyses. The recovery results were within the laboratory specified acceptance criteria.

4.8 Equipment Blank

An equipment blank was not collected with the sample set.

4.9 Field Blank

One field blank was collected with the sample sets, FB-01. Radium-226 and radium-228 were not detected in the field blank above the MDCs.

4.10 Field Duplicate

One field duplicate sample was collected with the sample sets, FD-01. Acceptable precision (RER (2σ) < 3) was demonstrated between the field duplicates and the original samples BGWA-29, HGWC-120.

4.11 Sensitivity

The samples were reported to the MDCs. No elevated nondetect results were reported.

4.12 Electronic Data Deliverables Review

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II reports and the EDDs.

* * * * *

ATTACHMENT 1 DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

- U* This analyte should be considered "not-detected" because it was detected in an associated blank at a similar level.
- UJ The analyte was analyzed for, but was not detected above the level of the reported sample reporting/method detection limit. The reported method detection limit is approximate and may be inaccurate or imprecise.
- J The analyte was positively identified but the result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2 DATA VALIDATION REASON CODES Assigned by Geosyntec's Data Validation Team

Reason Code	Explanation
13	Other
BE	Equipment blank contamination. The result should be considered "not-detected."
BF	Field blank contamination. The result should be considered "not-detected."
BL	Laboratory blank contamination. The result should be considered "not-detected."
Н	Holding time exceedance.
L	LCS and LCSD recoveries outside acceptance limits, indeterminate bias
L-	LCS and/or LCSD recoveries outside of acceptance limits. The result may be biased low.
L+	LCS and/or LCSD recoveries outside of acceptance limits. The result may be biased high.
M-	MS and/or MSD recoveries outside of acceptance limits. The result may be biased low.



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Memorandum

Date: 7 July 2020

To: Whitney Law

From: Kristoffer Henderson

CC: J. Caprio

Subject: Stage 2A Data Validations - Level II Data Deliverables - Pace

Analytical Services, LLC Project Numbers 2627481 and 2628188

SITE: Plant Hammond AP4

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of two aqueous samples, two equipment blanks and two field blanks collected January 3, and January 22, 2020, as part of the Plant Hammond AP4 on-site sampling event.

The samples were analyzed at Pace Analytical Services, LLC, Peachtree Corners, Georgia, for the following analytical tests:

- Boron and Calcium by United States (US) Environmental Protection Agency (EPA) Methods 3010A/6010D
- Metals by USEPA Methods 3005A/6020B
- Mercury by USEPA Method 7470A
- Total Dissolved Solids (TDS) by Standard Method 2540C

The samples were analyzed at Pace Analytical Services, LLC, Asheville, North Caroline, for the following analytical test:

• Chloride, Fluoride and Sulfate by USEPA Method 300.0

The samples were analyzed at Pace Analytical Services, LLC, Greensburg, Pennsylvania, for the following analytical tests:

- Radium-226 by USEPA Method 9315
- Radium-228 by USEPA Method 9320
- Total Radium by Calculation

EXECUTIVE SUMMARY

Based on the Stage 2A data validation covering the quality control (QC) parameters listed below and the information provided, the data are usable for meeting project objectives.

The data were reviewed based on the pertinent methods referenced in the laboratory reports, professional and technical judgment and the following documents:

- US EPA Region IV Data Validation Standard Operating Procedures (US EPA Region IV, September 2011);
- USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review, January 2017 (EPA 540-R-2017-001); and,
- American National Standard, Verification and Validation of Radiological Data for use in Waste Management and Environmental Remediation, February 15, 2012 (ANSI/ANS-41.5-2012).

The following samples were analyzed and reported in the laboratory reports:

Laboratory ID	Client ID
2629801001	HGWC-102
2629801002	FB-01
2629801003	EB-01

Laboratory ID	Client ID
30353743001	HGWC-102
30353743002	FB-01
30353743003	EB-01

Final Review: JK Caprio 7/16/2020

The samples were received within 0-6°C. No sample preservation issues were noted by the laboratory.

The following issues were noted for the chain of custody (COC) form:

- 2629801: The relinquished by signature, date and time were not documented for the third sample transfer. The relinquished by and received by signature, date and time were not documented for the transfers from Pace Charlotte to Pace Ashville and Pace Charlotte to Pace Pittsburgh.
- 30353743: The relinquished by signature, date and time were not documented for the sample transfer.

The field pH data included with the reports was not validated.

1.0 METALS

The samples were analyzed for boron and calcium by USEPA methods 3010A/6010D and metals by USEPA methods 3005A/6020B. (Mercury was evaluated separately in Section 2.0, below).

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ⊗ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

1.1 Overall Assessment

The metals data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the dataset is 100%.

1.2 Holding Time

The holding time for the metals analysis of a water sample is 180 days from sample collection to analysis. The holding times were met for the sample analyses.

1.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported (batches 41627 and 41623). Metals were not detected in the method blanks above the method detection limits (MDLs).

1.4 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two batch MS/MSD pairs were reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

1.5 Laboratory Control Sample (LCS)

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two LCSs were reported. The recovery results were within the laboratory specified acceptance criteria.

1.6 Equipment Blank

One equipment blank was collected with the sample set, EB-1. Metals were not detected in the equipment blank above the MDLs.

1.7 Field Blank

One field blank was collected with the sample set, FB-1. Metals were not detected in the field blank above the MDLs, with the following exceptions.

Boron and chromium were detected in the field blank at estimated concentrations greater than the MDLs and less than the reporting limits (RLs). Since boron was detected in the associated sample at a concentration greater than the RL, no qualifications were applied to the boron data. However, the estimated chromium concentration in the associated sample was U qualified as not detected at the RL.

Sample	Laboratory Result (mg/L)	Analyte	Laboratory Flag	Validation Result	Validation Qualifier	Reason Code
HGWC-102	0.00063	Chromium	J	0.010	U	3

mg/L-milligrams per liter

J-estimated concentration greater than the MDL and less than the RL

1.8 Field Duplicate

Field duplicates were not collected with the sample set.

1.9 Sensitivity

The samples were reported to the MDLs. Elevated nondetect results were not reported.

1.10 Electronic Data Deliverable (EDD) Review

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

2.0 MERCURY

The samples were analyzed for mercury by USEPA method 7470A.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

2.1 Overall Assessment

The mercury data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the dataset is 100%.

2.2 Holding Time

The holding time for the mercury analysis of a water sample is 28 days from sample collection to analysis. The holding times were met for the sample analyses.

2.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported (batch 41632). Mercury was not detected in the method blank above the MDL.

2.4 <u>Matrix Spike/Matrix Spike Duplicate</u>

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One sample set specific MS/MSD pair was reported, one using

sample FB-01. The recovery and relative percent difference (RPD) results were within the laboratory specified acceptance criteria.

2.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was reported. The recovery result was within the laboratory specified acceptance criteria.

Equipment Blank

One equipment blank was collected with the sample set, EB-1. Mercury was not detected in the equipment blank above the MDL.

2.7 Field Blank

One field blank was collected with the sample set, FB-1. Mercury was not detected in the field blank above the MDL.

2.8 Field Duplicate

Field duplicates were not collected with the sample set.

2.9 Sensitivity

The samples were reported to the MDL. Elevated nondetect results were not reported.

2.10 Electronic Data Deliverable Review

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

3.0 WET CHEMISTRY

The samples were analyzed for TDS by Standard Method 2540C and chloride, fluoride and sulfate by USEPA method 300.0.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

3.1 Overall Assessment

The wet chemistry data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the dataset is 100%.

3.2 **Holding Times**

The holding times for the analysis of a water sample for the wet chemistry parameters are listed below. The holding times were met for the sample analyses.

Analyte	Holding Time
TDS	7 days from collection to analysis
Chloride, Fluoride and Sulfate	28 days from collection to analysis

3.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported for the anions (batch 519389). The anions were not detected in the method blank above the MDLs.

3.4 <u>Matrix Spike/Matrix Spike Duplicate</u>

One sample set MS/MSD pair was reported for the anions using sample EB-01. The RPD and recovery results were within the laboratory specified acceptance criteria.

One batch MS/MSD pair was also reported for the anions. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

3.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). LCSs were reported for each analysis and batch as appropriate. The recovery results were within the laboratory specified acceptance criteria.

3.6 Laboratory Duplicate

Two batch laboratory duplicates were reported for TDS. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

3.7 **Equipment Blank**

One equipment blank was collected with the sample set, EB-1. The wet chemistry parameters were not detected in the equipment blank above the MDLs, with the following exception.

TDS (20.0 mg/L) was detected in the equipment blank at a concentration greater than the RL. Since TDS was detected in the associated sample at a concentration greater than ten times the equipment blank concentration, no qualifications were applied to the data.

3.8 Field Blank

One equipment blank was collected with the sample set, FB-1. The wet chemistry parameters were not detected in the field blank above the MDLs.

3.9 Field Duplicate

Field duplicates were not collected with the sample set.

3.10 **Sensitivity**

The sample was reported to the MDLs. Elevated nondetect results were not reported.

3.11 Electronic Data Deliverable Review

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

4.0 RADIOCHEMISTRY

The samples were analyzed for radium-226 by EPA method 9315, radium-228 by EPA method 9320 and total radium by calculation.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ⊗ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- **⊗** Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Tracers and Carriers
- ⊗ Equipment Blank
- ⊗ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

4.1 Overall Assessment

The radium-226 and radium-228 data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for this dataset is 100%.

4.2 Holding Times

The holding times for the radium-226 and radium-228 analyses of a water sample are 180 days from sample collection to analysis. The holding times were met for the sample analyses.

4.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported for the radium-228 data (batch 381384). One method blank was reported for the radium-226 data (batch 382555). Radium-228 was not detected in the method blank above the minimum detectable concentration (MDC).

30353743: Radium-226 was detected in the method blank in batch 382555 (0.333 pCi/L) at a concentration greater than the MDC. Therefore, the radium-226 concentration in samples EB-01 and FB-01 greater than the method blank concentration were J+ qualified as estimated with high biases. Also, the total radium concentrations in samples EB-01 and FB-01 were J+ qualified as estimated with high bias.

Sample	Analyte	Result	Flag	Validation	Validation	Reason
				Result	Qualifier	Code
EB-01	Radium-226	0.565	NA	0.565	J+	3
EB-01	Combined Radium 226 + 228	1.31	NA	1.31	J+	3
FB-01	Radium-226	1.00	NA	1.00	J+	3
FB-01	Combined Radium 226 + 228	1.23	NA	1.23	J+	3

pCi/L-picocuries per liter NA-not applicable

4.4 Matrix Spike/Matrix Spike Duplicate

MS/MSD pairs were not reported with the data.

4.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS/LCS duplicate (LCSD) pair was reported for radium-226. One LCS/LCSD pair was reported for radium-228. The recovery and replicate error ratio (RER) [2 sigma (2σ)] results were within the laboratory specified acceptance criteria, with the following exception.

The LCS recovery of radium-226 was high and outside the laboratory specified acceptance criteria. Therefore, the radium-226 concentration in the associated sample greater than the MDC was J qualified as estimated and the combined radium-226 + 228 results in EB-01 and FB-01 were J qualified as estimated.

Sample	Analyte	Laboratory Result (pCi/L)	Laboratory Flag	Validation Result (pCi/L)	Validation Qualifier	Reason Code
EB-01	Combined Radium 226 + 228	1.31	NA	1.31	J	5
FB-01	Radium-226	1.00	NA	1.00	J	5

Sample	Analyte	Laboratory Result (pCi/L)	Laboratory Flag	Validation Result (pCi/L)	Validation Qualifier	Reason Code
FB-01	Combined Radium 226 + 228	1.23	NA	1.23	J	5

pCi/L-picocuries per liter NA-not applicable

4.6 <u>Laboratory Duplicate</u>

One batch laboratory duplicate was reported for radium-226. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

4.7 Tracers and Carriers

Carriers were reported for the radium-226 and radium-228 analyses and a tracer was reported for the radium-228 analyses. The recovery results were within the laboratory specified acceptance criteria.

4.8 **Equipment Blank**

One equipment blank was collected with the sample sets, EB-01.

Radium-226 (0.565 pCi/L) and radium-228 (0.747 pCi/L) were detected in EB-01 at concentrations greater than the MDCs. Since radium-226 concentration in EB-01 was U qualified due to field blank contamination and based on professional and technical judgment, no additional qualifications were applied to the radium-226 data. However, the radium-228 concentration in sample HGWC-102 greater than the equipment blank concentration was J+ qualified as estimated with high bias.

Sample	Analyte	Laboratory Result (pCi/L)	Laboratory Flag	Validation Result (pCi/L)	Validation Qualifier	Reason Code
HGWC-102	Radium-228	0.755	NA	0.755	J+	3

pCi/L-picocuries per liter NA-not applicable

4.9 Field Blank

One field blank was collected with the sample sets, FB-01.

Radium-226 (1.00 pCi/L) was detected in FB-01 at a concentration greater than the MDC. Therefore, the radium-226 concentration in EB-01 less than the field blank concentration was U qualified as not detected at the reported concentration. Also, the total radium concentration in sample EB-01 was J+ qualified as estimated with high bias.

Sample	Analyte	Laboratory Result (pCi/L)	Laboratory Flag	Validation Result (pCi/L)	Validation Qualifier	Reason Code
EB-01	Radium-226	0.565	NA	0.565	U	3
EB-01	Combined Radium 226 + 228	1.31	NA	1.31	J+	3

pCi/L-picocuries per liter NA-not applicable

4.10 Field Duplicate

Field duplicates were not collected with the sample set.

4.11 **Sensitivity**

The sample was reported to the MDCs. Elevated nondetect results were not reported.

4.12 <u>Electronic Data Deliverable Review</u>

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

* * * * *

ATTACHMENT 1 DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY

Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

- U The analyte was analyzed for, but was not detected above the reported sample quantitation limit. Upon application of the U qualifier to a reported result, the definition changes to "not detected at or above the reported result".
- J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The analyte was positively identified; however, the associated numerical value is likely to be higher than the concentration of the analyte in the sample due to positive bias of associated OC or calibration data or attributable to matrix interference.
- J- The analyte was positively identified; however, the associated numerical value is likely to be lower than the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference.
- UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2 DATA VALIDATION REASON CODES Assigned by Geosyntec's Data Validation Team

Valid Value	Description
1	Preservation requirement not met
2	Analysis holding time exceeded
3	Blank contamination (i.e., method, trip, equipment, etc.)
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits
5	LCS recovery outside limits
6	Surrogate recovery outside limits
7	Field Duplicate RPD exceeded
8	Serial dilution percent difference exceeded
9	Calibration criteria not met
10	Linear range exceeded
11	Internal standard criteria not met
12	Lab duplicates RPD exceeded
13	Other

Final Review: JK Caprio 7/16/2020

RPD-relative percent difference



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Final Review: JK Caprio 7/16/2020

Memorandum

Date: 7 July 2020

To: Whitney Law

From: Kristoffer Henderson

CC: J. Caprio

Subject: Stage 2A Data Validations - Level II Data Deliverables - Pace

Analytical Services, LLC Project Numbers 2627481 and 2628188

SITE: Plant Hammond AP4

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of one aqueous sample collected 4 March 2020, as part of the Plant Hammond AP4 on-site sampling event.

The sample was analyzed at Pace Analytical Services, LLC, Peachtree Corners, Georgia, for the following analytical tests:

- Metals by United States (US) Environmental Protection Agency (EPA) Methods 3010A/6010D and 3005A/6020B
- Mercury by USEPA Method 7470A
- Total Dissolved Solids (TDS) by Standard Method 2540C

The sample was analyzed at Pace Analytical Services, LLC, Asheville, North Caroline, for the following analytical test:

• Chloride, Fluoride and Sulfate by USEPA Method 300.0

The sample was analyzed at Pace Analytical Services, LLC, Greensburg, Pennsylvania, for the following analytical tests:

- Radium-226 by USEPA Method 9315
- Radium-228 by USEPA Method 9320
- Total Radium by Calculation

EXECUTIVE SUMMARY

Based on the Stage 2A data validation covering the quality control (QC) parameters listed below and the information provided, the data as qualified are usable for meeting project objectives. Qualified data should be used within the limitation of the qualification.

The data were reviewed based on the pertinent methods referenced in the laboratory reports, professional and technical judgment and the following documents:

- US EPA Region IV Data Validation Standard Operating Procedures (US EPA Region IV, September 2011);
- USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review, January 2017 (EPA 540-R-2017-001); and,
- American National Standard, Verification and Validation of Radiological Data for use in Waste Management and Environmental Remediation, February 15, 2012 (ANSI/ANS-41.5-2012).

The following sample was analyzed and reported in the laboratory reports:

Laboratory ID	Client ID		
2627481001	HGWC-102		

Laboratory ID	Client ID
2628188001	HGWC-102

Final Review: JK Caprio 7/16/2020

The sample was received within 0-6°C. No sample preservation issues were noted by the laboratory.

The following issues were noted for the chain of custody (COC) form:

- 2627481 and 2628188: The year was not documented for the sample collection date on the COC
- 2627481: There was a time discrepancy for the sample transfer. The relinquished by time was documented as 1/6/2020 1120 and the received by time was documented as 1/6/20 11:22.
- 2628188: There was a time discrepancy for the second sample transfer. The relinquished by time was documented as 1/23/2020 1212 and the received by time was documented as 1/23/20 12:15.

The field pH data included with the reports was not validated.

1.0 METALS

The sample was analyzed for metals by USEPA methods 3010A/6010D and USEPA methods 3005A/6020B. (Mercury was evaluated separately in Section 2.0, below).

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

1.1 Overall Assessment

The metals data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the dataset is 100%.

1.2 Holding Time

The holding time for the metals analysis of a water sample is 180 days from sample collection to analysis. The holding times were met for the sample analyses.

1.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported (batches 44427 and 44440). Metals were not detected in the method blanks above the method detection limits (MDLs), with the following exceptions.

Boron and chromium were detected in the method blank in batch 44440 at estimated concentrations greater than the MDLs and less than the RLs. Since boron was detected at a concentration greater than the RL and chromium was not detected in the associated sample, no qualifications were applied to the data.

1.4 <u>Matrix Spike/Matrix Spike Duplicate (MS/MSD)</u>

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two batch MS/MSD pairs were reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

1.5 <u>Laboratory Control Sample (LCS)</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two LCSs were reported. The recovery results were within the laboratory specified acceptance criteria.

1.6 **Equipment Blank**

Equipment blanks were not collected with the sample set.

1.7 Field Blank

Field blanks were not collected with the sample set.

1.8 Field Duplicate

Field duplicates were not collected with the sample set.

1.9 Sensitivity

The sample was reported to the MDLs. Elevated nondetect results were not reported.

1.10 Electronic Data Deliverable (EDD) Review

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

2.0 MERCURY

The sample was analyzed for mercury by USEPA method 7470A.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

2.1 Overall Assessment

The mercury data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the dataset is 100%.

2.2 **Holding Time**

The holding time for the mercury analysis of a water sample is 28 days from sample collection to analysis. The holding times were met for the sample analyses.

2.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported (batch 44367). Mercury was not detected in the method blank above the MDL.

2.4 <u>Matrix Spike/Matrix Spike Duplicate</u>

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One batch MS/MSD pair was reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

2.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was reported. The recovery result was within the laboratory specified acceptance criteria.

2.6 **Equipment Blank**

Equipment blanks were not collected with the sample set.

2.7 Field Blank

Field blanks were not collected with the sample set.

2.8 <u>Field Duplicate</u>

Field duplicates were not collected with the sample set.

2.9 **Sensitivity**

The sample was reported to the MDL. Elevated nondetect results were not reported.

2.10 Electronic Data Deliverable Review

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

3.0 WET CHEMISTRY

The sample was analyzed for TDS by Standard Method 2540C and chloride, fluoride and sulfate by USEPA method 300.0.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

3.1 Overall Assessment

The wet chemistry data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the dataset is 100%.

3.2 **Holding Times**

The holding times for the analysis of a water sample for the wet chemistry parameters are listed below. The holding times were met for the sample analyses.

Analyte	Holding Time
TDS	7 days from collection to analysis
Chloride, Fluoride and Sulfate	28 days from collection to analysis

3.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported for the anions (batch 529390). The anions were not detected in the method blank above the MDLs.

3.4 <u>Matrix Spike/Matrix Spike Duplicate</u>

Two batch MS/MSD pairs were reported for the anions. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

3.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). LCSs were reported for each analysis and batch as appropriate. The recovery results were within the laboratory specified acceptance criteria.

3.6 Laboratory Duplicate

Two batch laboratory duplicates were reported for TDS. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

Final Review: JK Caprio 7/16/2020

3.7 Equipment Blank

Equipment blanks were not collected with the sample set.

3.8 Field Blank

Field blanks were not collected with the sample set.

3.9 Field Duplicate

Field duplicates were not collected with the sample set.

3.10 **Sensitivity**

The sample was reported to the MDLs. Elevated nondetect results were not reported.

3.11 <u>Electronic Data Deliverable Review</u>

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

4.0 RADIOCHEMISTRY

The sample was analyzed for radium-226 by EPA method 9315, radium-228 by EPA method 9320 and total radium by calculation.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ⊗ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Tracers and Carriers
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

4.1 Overall Assessment

The radium-226 and radium-228 data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for this dataset is 100%.

4.2 **Holding Times**

The holding times for the radium-226 and radium-228 analyses of a water sample are 180 days from sample collection to analysis. The holding times were met for the sample analyses.

4.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported for the radium-228 data (batch 387516). One method blank was reported for the radium-226 data (batch 387515). Radium-228 was not detected in the method blank above the minimum detectable concentration (MDC).

2628188: Radium-226 was detected in the method blank in batch 387515 (0.400 pCi/L) at a concentration greater than the MDC. Therefore, the radium-226 concentration in sample HGWC-102 greater than the method blank concentration was J+ qualified as estimated with high bias. Also, the total radium concentration in sample HGWC-102 was J+ qualified as estimated with high bias.

Sample	Analyte	Laboratory Result (pCi/L)	Laboratory Flag	Validation Result (pCi/L)	Validation Qualifier	Reason Code
HGWC-102	Radium-226	0.636	NA	0.636	J+	3
HGWC-102	Combined Radium 226 + 228	1.32	NA	1.32	J+	3

pCi/L-picocuries per liter NA-not applicable

4.4 <u>Matrix Spike/Matrix Spike Duplicate</u>

MS/MSD pairs were not reported with the data.

4.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS/LCS duplicate (LCSD) pair was reported for radium-226. One LCS/LCSD pair was reported for radium-228. The recovery and replicate error ratio (RER) [2 sigma (2σ)] results were within the laboratory specified acceptance criteria.

4.6 <u>Laboratory Duplicate</u>

One batch laboratory duplicate was reported for radium-226. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

4.7 <u>Tracers and Carriers</u>

Carriers were reported for the radium-226 and radium-228 analyses and a tracer was reported for the radium-228 analyses. The recovery results were within the laboratory specified acceptance criteria.

4.8 Equipment Blank

Equipment blanks were not collected with the sample set.

4.9 Field Blank

Field blanks were not collected with the sample set.

4.10 Field Duplicate

Field duplicates were not collected with the sample set.

4.11 **Sensitivity**

The sample was reported to the MDCs. Elevated nondetect results were not reported.

4.12 Electronic Data Deliverable Review

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

* * * * *

ATTACHMENT 1 DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

- U The analyte was analyzed for, but was not detected above the reported sample quantitation limit. Upon application of the U qualifier to a reported result, the definition changes to "not detected at or above the reported result".
- J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The analyte was positively identified; however, the associated numerical value is likely to be higher than the concentration of the analyte in the sample due to positive bias of associated QC or calibration data or attributable to matrix interference.
- J- The analyte was positively identified; however, the associated numerical value is likely to be lower than the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference.
- UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2 DATA VALIDATION REASON CODES Assigned by Geosyntec's Data Validation Team

Valid Value	Description
1	Preservation requirement not met
2	Analysis holding time exceeded
3	Blank contamination (i.e., method, trip, equipment, etc.)
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits
5	LCS recovery outside limits
6	Surrogate recovery outside limits
7	Field Duplicate RPD exceeded
8	Serial dilution percent difference exceeded
9	Calibration criteria not met
10	Linear range exceeded
11	Internal standard criteria not met
12	Lab duplicates RPD exceeded
13	Other

Final Review: JK Caprio 7/16/2020

RPD-relative percent difference



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Final Review: JK Caprio 7/16/2020

Memorandum

Date: 7 July 2020

To: Whitney Law

From: Kristoffer Henderson

CC: J. Caprio

Subject: Stage 2A Data Validations - Level II Data Deliverables - Pace

Analytical Services, LLC Project Numbers 2630414, 2630416,

30356482, 30356484 and 30359852

SITE: Plant Hammond AP4

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of eleven aqueous samples, one field duplicate and one field blank collected 24-25 March 2020 and 9 April 2020, as part of the Plant Hammond AP4 on-site sampling event.

The samples were analyzed at Pace Analytical Services, LLC, Peachtree Corners, Georgia, for the following analytical tests:

- Calcium by United States (US) Environmental Protection Agency (EPA) Methods 3010A/6010D
- Metals by USEPA Methods 3005A/6020B
- Mercury by USEPA Method 7470A
- Total Dissolved Solids (TDS) by Standard Method 2540C

The samples were analyzed at Pace Analytical Services, LLC, Asheville, North Caroline, for the following analytical test:

• Chloride, Fluoride and Sulfate by USEPA Method 300.0

The samples were analyzed at Pace Analytical Services, LLC, Greensburg, Pennsylvania, for the following analytical tests:

- Radium-226 by USEPA Method 9315
- Radium-228 by USEPA Method 9320
- Total Radium by Calculation

EXECUTIVE SUMMARY

Based on the Stage 2A data validation covering the quality control (QC) parameters listed below and the information provided, the data as qualified are usable for meeting project objectives. Qualified data should be used within the limitation of the qualification.

The data were reviewed based on the pertinent methods referenced in the laboratory reports, professional and technical judgment and the following documents:

- US EPA Region IV Data Validation Standard Operating Procedures (US EPA Region IV, September 2011);
- USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review, January 2017 (EPA 540-R-2017-001); and,
- American National Standard, Verification and Validation of Radiological Data for use in Waste Management and Environmental Remediation, February 15, 2012 (ANSI/ANS-41.5-2012).

The following samples were analyzed and reported in the laboratory reports:

Laboratory ID	Client ID
2630414001	HGWA-111
2630414002	HGWC-117
2630414003	HGWA-112
2630414005	FB-04
2630414006	HGWC-101
2630414007	HGWC-105
2630414008	HGWC-107

Laboratory ID	Client ID
2630414009	HGWC-118
2630414010	HGWC-103
2630414011	HGWC-109
2630414012	FD-04
2630414013	HGWA-113
2630416001	HGWC-102

Final Review: JK Caprio 7/16/2020

The samples were received within 0-6°C. No sample preservation issues were noted by the laboratory.

The following issues were noted for the chain of custody (COC) form:

- 2630414: There was a time discrepancy for the third sample transfer. The relinquished by time was documented as 3/23/20 0940 and the received by time was documented as 3/23/20 941. The year was missing for the relinquished by date for the third sample transfer on page 2 of the COC.
- 2630416: There was a time discrepancy for the third sample transfer. The relinquished by time was documented as 3/25/20 0940 and the received by time was documented as 3/25/20 941. The year was missing for the relinquished by date for the third sample transfer on page 2 of the COC.
- 30356482 30356484: The relinquished by signature, date and time were not documented for the sample transfer.

The field pH data included with the reports was not validated.

1.0 METALS

The samples were analyzed for calcium by USEPA methods 3010A/6010D and metals by USEPA methods 3005A/6020B. (Mercury was evaluated separately in Section 2.0, below).

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ⊗ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

1.1 Overall Assessment

The metals data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the dataset is 100%.

1.2 **Holding Time**

The holding time for the metals analysis of a water sample is 180 days from sample collection to analysis. The holding times were met for the sample analyses.

1.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Eight method blanks were reported (batches 45066, 45121, 45533, 45065, 45113, 45531, 44977 and 44978). Metals were not detected in the method blanks above the method detection limits (MDLs), with the following exception.

Arsenic was detected in the method blank in batch 44978 at an estimated concentration greater than the MDL and less than the reporting limit (RL). Since arsenic was not detected in the associated sample, no qualifications were applied to the data.

1.4 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three sample set specific MS/MSD pairs were reported using samples HGWC-117, HGWA-111 and HGWC-102. The recovery and relative percent difference (RPD) results were within the laboratory specified acceptance criteria.

The calcium concentration in sample HGWC-117 was greater than four times the spiked concentration; therefore, no qualifications were applied to the calcium data based on the MS/MSD results.

Five batch MS/MSD pairs were reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

1.5 <u>Laboratory Control Sample (LCS)</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Eight LCSs were reported. The recovery results were within the laboratory specified acceptance criteria.

1.6 Equipment Blank

Equipment blanks were not collected with the sample set.

1.7 Field Blank

One field blank was collected with the sample set, FB-04. Metals were not detected in the field blank above the MDLs, with the following exceptions.

Boron and chromium were detected in the field blank at estimated concentrations greater than the MDLs and less than the RLs. Therefore, the estimated boron and chromium concentrations in the associated samples were U qualified as not detected at the RLs.

Sample	Analyte	Laboratory Result (mg/L)	Laboratory Flag	Validation Result (mg/L)	Validation Qualifier*	Reason Code**
HGWA-111	Boron	0.011	J	0.10	U	3
HGWA-111	Chromium	0.0019	J	0.010	U	3
HGWC-117	Chromium	0.0012	J	0.010	U	3
HGWA-112	Boron	0.012	J	0.10	U	3

Sample	Analyte	Laboratory Result (mg/L)	Laboratory Flag	Validation Result (mg/L)	Validation Qualifier*	Reason Code**
HGWA-112	Chromium	0.0044	J	0.010	U	3
HGWC-101	Boron	0.080	J	0.10	U	3
HGWC-101	Chromium	0.00098	J	0.010	U	3
HGWC-105	Chromium	0.0013	J	0.010	U	3
HGWC-107	Chromium	0.00074	J	0.010	U	3
HGWC-118	Chromium	0.00081	J	0.010	U	3
HGWC-103	Chromium	0.00045	J	0.010	U	3
HGWC-109	Chromium	0.0014	J	0.010	U	3
FD-04	Chromium	0.0011	J	0.010	U	3
HGWA-113	Boron	0.012	J	0.10	U	3
HGWA-113	Chromium	0.0031	J	0.010	U	3

mg/L-milligrams per liter

1.8 Field Duplicate

One field duplicate sample was collected with the sample sets, FD-04. Acceptable precision (RPD \leq 20% or the difference between the concentrations < RL) was demonstrated between the field duplicate and the original sample HGWC-103, with the following exceptions.

1.9 Sensitivity

The samples were reported to the MDLs. Elevated nondetect results were not reported.

1.10 Electronic Data Deliverables (EDDs) Review

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. The laboratory flag M1 reported in the laboratory reports was not reported in the EDDs. No other discrepancies were identified between the level II reports and the EDDs.

2.0 MERCURY

The samples were analyzed for mercury by USEPA method 7470A.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

J-estimated concentration greater than the MDL and less than the RL

^{*} Validation qualifiers are defined in Attachment 1 at the end of this report

^{**}Reason codes are defined in Attachment 2 at the end of this report

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

2.1 Overall Assessment

The mercury data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the dataset is 100%.

2.2 **Holding Time**

The holding time for the mercury analysis of a water sample is 28 days from sample collection to analysis. The holding times were met for the sample analyses.

2.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported (batch 45075). Mercury was not detected in the method blank above the MDL.

2.4 <u>Matrix Spike/Matrix Spike Duplicate</u>

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One sample set specific MS/MSD pair was reported, using sample HGWC-102. The recovery and RPD results were within the laboratory specified acceptance criteria.

2.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was reported. The recovery result was within the laboratory specified acceptance criteria.

2.6 **Equipment Blank**

Equipment blanks were not collected with the sample set.

2.7 Field Blank

One field blank was collected with the sample set, FB-1. Mercury was not detected in the field blank above the MDL.

2.8 Field Duplicate

One field duplicate sample was collected with the sample sets, FD-04. Acceptable precision (RPD $\leq 20\%$ or the difference between the concentrations < RL) was demonstrated between the field duplicate and the original sample HGWC-103.

2.9 **Sensitivity**

The samples were reported to the MDLs. Elevated nondetect results were not reported.

2.10 Electronic Data Deliverables Review

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II reports and the EDDs.

3.0 WET CHEMISTRY

The samples were analyzed for TDS by Standard Method 2540C and chloride, fluoride and sulfate by USEPA method 300.0.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Equipment Blank
- ⊗ Field Blank
- ✓ Field Duplicate

- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

3.1 Overall Assessment

The wet chemistry data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the dataset is 100%.

3.2 **Holding Times**

The holding times for the analysis of a water sample for the wet chemistry parameters are listed below. The holding times were met for the sample analyses.

Analyte	Holding Time		
TDS	7 days from collection to analysis		
Chloride, Fluoride and Sulfate	28 days from collection to analysis		

3.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three method blanks were reported for the anions (batches 533750, 533970 and 537769). The anions were not detected in the method blanks above the MDLs.

3.4 Matrix Spike/Matrix Spike Duplicate

Three sample set specific MS/MSD pairs were reported for the anions using samples HGWA-111, HGWC-107 and HGWA-113. The RPD and recovery results were within the laboratory specified acceptance criteria, with the following exceptions.

The recoveries of sulfate in the HGWC-107 MS/MSD pair were low and outside the laboratory specified acceptance criteria. Therefore, the sulfate concentration in HGWC-107 was J- qualified as estimated with low bias.

Three batch MS/MSD pair was also reported for the anions. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

Final Review: JK Caprio 7/16/2020

Sample	Analyte	Laboratory Result (mg/L)	Laboratory Flag	Validation Result (mg/L)	Validation Qualifier	Reason Code
HGWC-107	Sulfate	116	NA	116	J-	4

mg/L-milligrams per liter

NA-not applicable

3.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). LCSs were reported for each analysis and batch as appropriate. The recovery results were within the laboratory specified acceptance criteria.

3.6 <u>Laboratory Duplicate</u>

One sample set specific laboratory duplicate was reported for TDS using sample FB-04. The RPD result was within the laboratory specified acceptance criteria.

Seven batch laboratory duplicates were reported for TDS. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

3.7 **Equipment Blank**

Equipment blanks were not collected with the sample set.

3.8 Field Blank

One field blank was collected with the sample set, FB-04. The wet chemistry parameters were not detected in the field blank above the MDLs, with the following exceptions.

TDS (21.0 mg/L) was detected in the field blank at a concentration greater than the RL and sulfate was detected in the field blank at an estimated concentration greater than the MDL and less than the RL. Since sulfate was either not detected or detected above the RL in the associated samples, no qualifications were applied to the sulfate data. However, the TDS concentrations in the associated samples were J+ qualified as estimated with high bias.

Final Review: JK Caprio 7/16/2020

Sample	Analyte	Laboratory Result (mg/L)	Laboratory Flag	Validation Result (mg/L)	Validation Qualifier	Reason Code
HGWA-111	TDS	207	NA	207	J+	3
HGWA-112	TDS	52	NA	52	J+	3
HGWC-101	TDS	187	NA	187	J+	3
HGWA-113	TDS	48	NA	48	J+	3

mg/L-milligrams per liter

NA-not applicable

3.9 Field Duplicate

One field duplicate sample was collected with the sample sets, FD-04. Acceptable precision (RPD $\leq 20\%$ or the difference between the concentrations < RL) was demonstrated between the field duplicate and the original sample HGWC-103.

3.10 Sensitivity

The samples were reported to the MDLs. Elevated nondetect results were not reported.

3.11 Electronic Data Deliverables Review

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. The laboratory flag M1 reported in the laboratory reports was not reported in the EDDs. No other discrepancies were identified between the level II reports and the EDDs.

4.0 RADIOCHEMISTRY

The samples were analyzed for radium-226 by EPA method 9315, radium-228 by EPA method 9320 and total radium by calculation.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ⊗ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Tracers and Carriers
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

4.1 Overall Assessment

The radium-226 and radium-228 data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for this dataset is 100%.

4.2 **Holding Times**

The holding times for the radium-226 and radium-228 analyses of a water sample are 180 days from sample collection to analysis. The holding times were met for the sample analyses.

4.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Four method blanks were reported for the radium-228 data (batches 390287, 390462, 390594 and 394230). Three method blanks were reported for the radium-226 data (batches 390286, 390591 and 394121). Radium-226 and radium-228 were not detected in the method blanks above the minimum detectable concentrations (MDCs), with the following exceptions.

30356484: Radium-228 (0.720 pCi/L) was detected in the method blank in batch 390462 at a concentration greater than the MDC. Since radium-228 was not detected above the MDCs in the associated samples, no qualifications were applied to the data. Radium-226 (0.480 pCi/L) was detected in the method blank in batch 390461 at a concentration greater than the MDC. Therefore, the radium-226 concentrations in the associated samples greater than the MDCs and less than the method blank concentration were U qualified as not detected at the reported concentrations.

Sample	Analyte	Laboratory Result (pCi/L)	Laboratory Flag	Validation Result (pCi/L)	Validation Qualifier	Reason Code
HGWC-117	Radium-226	0.476	NA	0.476	U	3
HGWA-112	Radium-226	0.444	NA	0.444	U	3

Final Review: JK Caprio 7/16/2020

pCi/L-picocuries per liter NA-not applicable

4.4 <u>Matrix Spike/Matrix Spike Duplicate</u>

MS/MSD pairs were not reported with the data.

4.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three LCS/LCS duplicate (LCSD) pairs were reported for radium-226. Four LCS/LCSD pairs were reported for radium-228. The recovery and replicate error ratio (RER) [2 sigma (2σ)] results were within the laboratory specified acceptance criteria.

4.6 Laboratory Duplicate

One batch laboratory duplicate was reported for radium-226 and one batch laboratory duplicate was reported for radium-228.

4.7 <u>Tracers and Carriers</u>

Carriers were reported for the radium-226 and radium-228 analyses and a tracer was reported for the radium-228 analyses. The recovery results were within the laboratory specified acceptance criteria.

4.8 Equipment Blank

Equipment blanks were not collected with the sample set.

4.9 Field Blank

One field blank was collected with the sample sets, FB-04. Radium-226 and radium-228 were not detected in the field blank above the minimum detectable concentrations (MDCs).

4.10 Field Duplicate

One field duplicate sample was collected with the sample sets, FD-04. Acceptable precision (RER $(2\sigma) < 3$) was demonstrated between the field duplicate and the original sample HGWC-103.

4.11 Sensitivity

The samples were reported to the MDCs. Elevated nondetect results were not reported.

4.12 Electronic Data Deliverables Review

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II reports and the EDDs.

* * * * *

ATTACHMENT 1 DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY

Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

- U The analyte was analyzed for, but was not detected above the reported sample quantitation limit. Upon application of the U qualifier to a reported result, the definition changes to "not detected at or above the reported result".
- J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The analyte was positively identified; however, the associated numerical value is likely to be higher than the concentration of the analyte in the sample due to positive bias of associated OC or calibration data or attributable to matrix interference.
- J- The analyte was positively identified; however, the associated numerical value is likely to be lower than the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference.
- UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2 DATA VALIDATION REASON CODES Assigned by Geosyntec's Data Validation Team

Valid Value	Description		
1	Preservation requirement not met		
2	Analysis holding time exceeded		
3	Blank contamination (i.e., method, trip, equipment, etc.)		
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits		
5	LCS recovery outside limits		
6	Surrogate recovery outside limits		
7	Field Duplicate RPD exceeded		
8	Serial dilution percent difference exceeded		
9	Calibration criteria not met		
10	Linear range exceeded		
11	Internal standard criteria not met		
12	Lab duplicates RPD exceeded		
13	Other		

RPD-relative percent difference



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Final Review: JK Caprio 7/15/2020

Memorandum

Date: 15 July 2020

To: Whitney Law

From: Kristoffer Henderson

CC: J. Caprio

Subject: Stage 2A Data Validations - Level II Data Deliverables - Pace

Analytical Services, LLC Project Numbers 92482796 and 92482798

SITE: Plant Hammond AP4

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of one aqueous sample collected 18 June 2020, as part of the Plant Hammond AP4 on-site sampling event.

The sample was analyzed at Pace Analytical Services, LLC, Peachtree Corners, Georgia, for the following analytical tests:

- Calcium by United States (US) Environmental Protection Agency (EPA) Methods 3010A/6010D
- Metals by USEPA Methods 3005A/6020B
- Mercury by USEPA Method 7470A
- Total Dissolved Solids (TDS) by Standard Method 2540C

The sample was analyzed at Pace Analytical Services, LLC, Asheville, North Caroline, for the following analytical test:

• Chloride, Fluoride and Sulfate by USEPA Method 300.0

The sample was analyzed at Pace Analytical Services, LLC, Greensburg, Pennsylvania, for the following analytical tests:

- Radium-226 by USEPA Method 9315
- Radium-228 by USEPA Method 9320
- Total Radium by Calculation

EXECUTIVE SUMMARY

Based on the Stage 2A data validation covering the quality control (QC) parameters listed below and the information provided, the data as qualified are usable for meeting project objectives. Qualified data should be used within the limitation of the qualification.

The data were reviewed based on the pertinent methods referenced in the laboratory reports, professional and technical judgment and the following documents:

- US EPA Region IV Data Validation Standard Operating Procedures (US EPA Region IV, September 2011);
- USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review, January 2017 (EPA 540-R-2017-001); and,
- American National Standard, Verification and Validation of Radiological Data for use in Waste Management and Environmental Remediation, February 15, 2012 (ANSI/ANS-41.5-2012).

The following sample was analyzed and reported in the laboratory reports:

Laboratory ID	Client ID
92482796001	HGWC-102
92482798001	

The sample was received within 0-6°C. No sample preservation issues were noted by the laboratory.

The field pH data included with the reports was not validated.

1.0 METALS

The sample was analyzed for calcium by USEPA methods 3010A/6010D and metals by USEPA methods 3005A/6020B. (Mercury was evaluated separately in Section 2.0, below).

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample

- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverable Review

1.1 Overall Assessment

The metals data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the dataset is 100%.

1.2 Holding Time

The holding time for the metals analysis of a water sample is 180 days from sample collection to analysis. The holding times were met for the sample analyses.

1.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported (batches 548844 and 548895). Metals were not detected in the method blanks above the method detection limits (MDLs).

1.4 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two batch MS/MSD pairs were reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

1.5 <u>Laboratory Control Sample (LCS)</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two LCSs were reported. The recovery results were within the laboratory specified acceptance criteria.

Final Review: JK Caprio 7/15/2020

1.6 Equipment Blank

Equipment blanks were not collected with the sample set.

1.7 Field Blank

Field blanks were not collected with the sample set.

1.8 Field Duplicate

Field duplicates were not collected with the sample set.

1.9 **Sensitivity**

The sample results were reported to the MDLs. Elevated nondetect results were not reported.

1.10 Electronic Data Deliverable (EDD) Review

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

2.0 MERCURY

The sample was analyzed for mercury by USEPA method 7470A.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverable Review

2.1 Overall Assessment

The mercury data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the dataset is 100%.

2.2 **Holding Time**

The holding time for the mercury analysis of a water sample is 28 days from sample collection to analysis. The holding times were met for the sample analyses.

2.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported (batch 549882). Mercury was not detected in the method blank above the MDL.

2.4 <u>Matrix Spike/Matrix Spike Duplicate</u>

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One batch MS/MSD pair was reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

2.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was reported. The recovery result was within the laboratory specified acceptance criteria.

2.6 Equipment Blank

Equipment blanks were not collected with the sample set.

2.7 Field Blank

Field blanks were not collected with the sample set.

2.8 Field Duplicate

Field duplicates were not collected with the sample set.

2.9 Sensitivity

The sample was reported to the MDL. Elevated nondetect results were not reported.

2.10 Electronic Data Deliverable Review

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

3.0 WET CHEMISTRY

The sample was analyzed for TDS by Standard Method 2540C and chloride, fluoride and sulfate by USEPA method 300.0.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverable Review

3.1 Overall Assessment

The wet chemistry data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the dataset is 100%.

3.2 **Holding Times**

The holding times for the analysis of a water sample for the wet chemistry parameters are listed below. The holding times were met for the sample analyses.

Analyte	Holding Time
TDS	7 days from collection to analysis
Chloride, Fluoride and Sulfate	28 days from collection to analysis

3.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported for the anions (batch 550052) and one method blank was reported for TDS (batch 548907). The wet chemistry parameters were not detected in the method blanks above the MDLs.

3.4 Matrix Spike/Matrix Spike Duplicate

Two batch MS/MSD pairs were reported for the anions. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

3.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). LCSs were reported for each analysis and batch as appropriate. The recovery results were within the laboratory specified acceptance criteria.

3.6 <u>Laboratory Duplicate</u>

Two batch laboratory duplicates were reported for TDS. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

3.7 Equipment Blank

Equipment blanks were not collected with the sample set.

3.8 Field Blank

Field blanks were not collected with the sample set.

3.9 Field Duplicate

Field duplicates were not collected with the sample set.

3.10 **Sensitivity**

The sample was reported to the MDLs. Elevated nondetect results were not reported.

3.11 Electronic Data Deliverable Review

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

4.0 RADIOCHEMISTRY

The sample was analyzed for radium-226 by EPA method 9315, radium-228 by EPA method 9320 and total radium by calculation.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ⊗ Laboratory Duplicate
- ✓ Tracers and Carriers
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverable Review

4.1 Overall Assessment

The radium-226 and radium-228 data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for this dataset is 100%.

4.2 Holding Times

The holding times for the radium-226 and radium-228 analyses of a water sample are 180 days from sample collection to analysis. The holding times were met for the sample analyses.

4.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported for the radium-228 data (batch 394230). One method blank was reported for the radium-226 data (batch 394121). Radium-226 and radium-228 were not detected in the method blank above the minimum detectable concentrations (MDCs).

4.4 <u>Matrix Spike/Matrix Spike Duplicate</u>

MS/MSD pairs were not reported with the data.

4.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS/LCS duplicate (LCSD) pair was reported for radium-226. One LCS/LCSD pair was reported for radium-228. The recovery and replicate error ratio (RER) [2 sigma (2σ)] results were within the laboratory specified acceptance criteria.

4.6 <u>Laboratory Duplicate</u>

One sample set specific laboratory duplicate was reported for radium-226 using sample HGWC-102.

The radium-226 concentration in sample HGWC-102 was greater than the MDC and the radium-226 concentration in the laboratory duplicate was less than the MDC. Therefore, based on professional and technical judgment, the radium-226 in sample HGWC-102 was J qualified as estimated.

Sample	Analyte	Laboratory Result (pCi/L)	Laboratory Flag	Validation Result	Validation Qualifier*	Reason Code**
HGWC-102	Radium-226	0.47	NA	0.47	J	12

pCi/L-picocuries per liter

NA-not applicable

4.7 <u>Tracers and Carriers</u>

Carriers were reported for the -226 and radium-228 analyses and a tracer was reported for the radium-228 analyses. The recovery results were within the laboratory specified acceptance criteria.

^{*} Validation qualifiers are defined in Attachment 1 at the end of this report

^{**}Reason codes are defined in Attachment 2 at the end of this report

4.8 **Equipment Blank**

Equipment blanks were not collected with the sample set.

4.9 Field Blank

Field blanks were not collected with the sample set.

4.10 Field Duplicate

Field duplicates were not collected with the sample set.

4.11 **Sensitivity**

The sample was reported to the MDCs. Elevated nondetect results were not reported.

4.12 Electronic Data Deliverable Review

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

* * * * *

ATTACHMENT 1 DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

- U The analyte was analyzed for, but was not detected above the reported sample quantitation limit. Upon application of the U qualifier to a reported result, the definition changes to "not detected at or above the reported result".
- J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The analyte was positively identified; however, the associated numerical value is likely to be higher than the concentration of the analyte in the sample due to positive bias of associated OC or calibration data or attributable to matrix interference.
- J- The analyte was positively identified; however, the associated numerical value is likely to be lower than the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference.
- UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2 DATA VALIDATION REASON CODES Assigned by Geosyntec's Data Validation Team

Valid Value	Description
1	Preservation requirement not met
2	Analysis holding time exceeded
3	Blank contamination (i.e., method, trip, equipment, etc.)
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits
5	LCS recovery outside limits
6	Surrogate recovery outside limits
7	Field Duplicate RPD exceeded
8	Serial dilution percent difference exceeded
9	Calibration criteria not met
10	Linear range exceeded
11	Internal standard criteria not met
12	Lab duplicates RPD exceeded
13	Other

Final Review: JK Caprio 7/15/2020

RPD-relative percent difference



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Memorandum

Date: 7 July 2020

To: Whitney Law

From: Kristoffer Henderson

CC: J. Caprio

Subject: Stage 2A Data Validations - Level II Data Deliverables - Pace

Analytical Services, LLC Project Numbers 2627481 and 2628188

SITE: Plant Hammond AP4

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of two aqueous samples, two equipment blanks and two field blanks collected January 3, and January 22, 2020, as part of the Plant Hammond AP4 on-site sampling event.

The samples were analyzed at Pace Analytical Services, LLC, Peachtree Corners, Georgia, for the following analytical tests:

- Boron and Calcium by United States (US) Environmental Protection Agency (EPA) Methods 3010A/6010D
- Metals by USEPA Methods 3005A/6020B
- Mercury by USEPA Method 7470A
- Total Dissolved Solids (TDS) by Standard Method 2540C

The samples were analyzed at Pace Analytical Services, LLC, Asheville, North Caroline, for the following analytical test:

• Chloride, Fluoride and Sulfate by USEPA Method 300.0

The samples were analyzed at Pace Analytical Services, LLC, Greensburg, Pennsylvania, for the following analytical tests:

- Radium-226 by USEPA Method 9315
- Radium-228 by USEPA Method 9320
- Total Radium by Calculation

EXECUTIVE SUMMARY

Based on the Stage 2A data validation covering the quality control (QC) parameters listed below and the information provided, the data are usable for meeting project objectives.

The data were reviewed based on the pertinent methods referenced in the laboratory reports, professional and technical judgment and the following documents:

- US EPA Region IV Data Validation Standard Operating Procedures (US EPA Region IV, September 2011);
- USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review, January 2017 (EPA 540-R-2017-001); and,
- American National Standard, Verification and Validation of Radiological Data for use in Waste Management and Environmental Remediation, February 15, 2012 (ANSI/ANS-41.5-2012).

The following samples were analyzed and reported in the laboratory reports:

Laboratory ID	Client ID
2629801001	HGWC-102
2629801002	FB-01
2629801003	EB-01

Laboratory ID	Client ID
30353743001	HGWC-102
30353743002	FB-01
30353743003	EB-01

Final Review: JK Caprio 7/16/2020

The samples were received within 0-6°C. No sample preservation issues were noted by the laboratory.

The following issues were noted for the chain of custody (COC) form:

- 2629801: The relinquished by signature, date and time were not documented for the third sample transfer. The relinquished by and received by signature, date and time were not documented for the transfers from Pace Charlotte to Pace Ashville and Pace Charlotte to Pace Pittsburgh.
- 30353743: The relinquished by signature, date and time were not documented for the sample transfer.

The field pH data included with the reports was not validated.

1.0 METALS

The samples were analyzed for boron and calcium by USEPA methods 3010A/6010D and metals by USEPA methods 3005A/6020B. (Mercury was evaluated separately in Section 2.0, below).

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ⊗ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

1.1 Overall Assessment

The metals data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the dataset is 100%.

1.2 Holding Time

The holding time for the metals analysis of a water sample is 180 days from sample collection to analysis. The holding times were met for the sample analyses.

1.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported (batches 41627 and 41623). Metals were not detected in the method blanks above the method detection limits (MDLs).

1.4 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two batch MS/MSD pairs were reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

1.5 <u>Laboratory Control Sample (LCS)</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two LCSs were reported. The recovery results were within the laboratory specified acceptance criteria.

1.6 **Equipment Blank**

One equipment blank was collected with the sample set, EB-1. Metals were not detected in the equipment blank above the MDLs.

1.7 Field Blank

One field blank was collected with the sample set, FB-1. Metals were not detected in the field blank above the MDLs, with the following exceptions.

Boron and chromium were detected in the field blank at estimated concentrations greater than the MDLs and less than the reporting limits (RLs). Since boron was detected in the associated sample at a concentration greater than the RL, no qualifications were applied to the boron data. However, the estimated chromium concentration in the associated sample was U qualified as not detected at the RL.

Sample	Laboratory Result (mg/L)	Analyte	Laboratory Flag	Validation Result	Validation Qualifier	Reason Code
HGWC-102	0.00063	Chromium	J	0.010	U	3

mg/L-milligrams per liter

J-estimated concentration greater than the MDL and less than the RL

1.8 Field Duplicate

Field duplicates were not collected with the sample set.

1.9 Sensitivity

The samples were reported to the MDLs. Elevated nondetect results were not reported.

1.10 Electronic Data Deliverable (EDD) Review

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

2.0 MERCURY

The samples were analyzed for mercury by USEPA method 7470A.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

2.1 Overall Assessment

The mercury data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the dataset is 100%.

2.2 Holding Time

The holding time for the mercury analysis of a water sample is 28 days from sample collection to analysis. The holding times were met for the sample analyses.

2.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported (batch 41632). Mercury was not detected in the method blank above the MDL.

2.4 <u>Matrix Spike/Matrix Spike Duplicate</u>

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One sample set specific MS/MSD pair was reported, one using

sample FB-01. The recovery and relative percent difference (RPD) results were within the laboratory specified acceptance criteria.

2.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was reported. The recovery result was within the laboratory specified acceptance criteria.

2.6 **Equipment Blank**

One equipment blank was collected with the sample set, EB-1. Mercury was not detected in the equipment blank above the MDL.

2.7 Field Blank

One field blank was collected with the sample set, FB-1. Mercury was not detected in the field blank above the MDL.

2.8 Field Duplicate

Field duplicates were not collected with the sample set.

2.9 Sensitivity

The samples were reported to the MDL. Elevated nondetect results were not reported.

2.10 Electronic Data Deliverable Review

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

3.0 WET CHEMISTRY

The samples were analyzed for TDS by Standard Method 2540C and chloride, fluoride and sulfate by USEPA method 300.0.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

3.1 Overall Assessment

The wet chemistry data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the dataset is 100%.

3.2 **Holding Times**

The holding times for the analysis of a water sample for the wet chemistry parameters are listed below. The holding times were met for the sample analyses.

Analyte	Holding Time
TDS	7 days from collection to analysis
Chloride, Fluoride and Sulfate	28 days from collection to analysis

3.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported for the anions (batch 519389). The anions were not detected in the method blank above the MDLs.

3.4 <u>Matrix Spike/Matrix Spike Duplicate</u>

One sample set MS/MSD pair was reported for the anions using sample EB-01. The RPD and recovery results were within the laboratory specified acceptance criteria.

One batch MS/MSD pair was also reported for the anions. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

3.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). LCSs were reported for each analysis and batch as appropriate. The recovery results were within the laboratory specified acceptance criteria.

3.6 Laboratory Duplicate

Two batch laboratory duplicates were reported for TDS. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

3.7 **Equipment Blank**

One equipment blank was collected with the sample set, EB-1. The wet chemistry parameters were not detected in the equipment blank above the MDLs, with the following exception.

TDS (20.0 mg/L) was detected in the equipment blank at a concentration greater than the RL. Since TDS was detected in the associated sample at a concentration greater than ten times the equipment blank concentration, no qualifications were applied to the data.

3.8 Field Blank

One equipment blank was collected with the sample set, FB-1. The wet chemistry parameters were not detected in the field blank above the MDLs.

3.9 Field Duplicate

Field duplicates were not collected with the sample set.

3.10 **Sensitivity**

The sample was reported to the MDLs. Elevated nondetect results were not reported.

3.11 Electronic Data Deliverable Review

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

4.0 RADIOCHEMISTRY

The samples were analyzed for radium-226 by EPA method 9315, radium-228 by EPA method 9320 and total radium by calculation.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ⊗ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- **⊗** Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Tracers and Carriers
- ⊗ Equipment Blank
- ⊗ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

4.1 Overall Assessment

The radium-226 and radium-228 data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for this dataset is 100%.

4.2 Holding Times

The holding times for the radium-226 and radium-228 analyses of a water sample are 180 days from sample collection to analysis. The holding times were met for the sample analyses.

4.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported for the radium-228 data (batch 381384). One method blank was reported for the radium-226 data (batch 382555). Radium-228 was not detected in the method blank above the minimum detectable concentration (MDC).

30353743: Radium-226 was detected in the method blank in batch 382555 (0.333 pCi/L) at a concentration greater than the MDC. Therefore, the radium-226 concentration in samples EB-01 and FB-01 greater than the method blank concentration were J+ qualified as estimated with high biases. Also, the total radium concentrations in samples EB-01 and FB-01 were J+ qualified as estimated with high bias.

Sample	Analyte	Result	Flag	Validation	Validation	Reason
				Result	Qualifier	Code
EB-01	Radium-226	0.565	NA	0.565	J+	3
EB-01	Combined Radium 226 + 228	1.31	NA	1.31	J+	3
FB-01	Radium-226	1.00	NA	1.00	J+	3
FB-01	Combined Radium 226 + 228	1.23	NA	1.23	J+	3

pCi/L-picocuries per liter NA-not applicable

4.4 Matrix Spike/Matrix Spike Duplicate

MS/MSD pairs were not reported with the data.

4.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS/LCS duplicate (LCSD) pair was reported for radium-226. One LCS/LCSD pair was reported for radium-228. The recovery and replicate error ratio (RER) [2 sigma (2σ)] results were within the laboratory specified acceptance criteria, with the following exception.

The LCS recovery of radium-226 was high and outside the laboratory specified acceptance criteria. Therefore, the radium-226 concentration in the associated sample greater than the MDC was J qualified as estimated and the combined radium-226 + 228 results in EB-01 and FB-01 were J qualified as estimated.

Sample	Analyte	Laboratory Result (pCi/L)	Laboratory Flag	Validation Result (pCi/L)	Validation Qualifier	Reason Code
EB-01	Combined Radium 226 + 228	1.31	NA	1.31	J	5
FB-01	Radium-226	1.00	NA	1.00	J	5

Sample	Analyte	Laboratory Result (pCi/L)	Laboratory Flag	Validation Result (pCi/L)	Validation Qualifier	Reason Code
FB-01	Combined Radium 226 + 228	1.23	NA	1.23	J	5

pCi/L-picocuries per liter NA-not applicable

4.6 <u>Laboratory Duplicate</u>

One batch laboratory duplicate was reported for radium-226. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

4.7 Tracers and Carriers

Carriers were reported for the radium-226 and radium-228 analyses and a tracer was reported for the radium-228 analyses. The recovery results were within the laboratory specified acceptance criteria.

4.8 **Equipment Blank**

One equipment blank was collected with the sample sets, EB-01.

Radium-226 (0.565 pCi/L) and radium-228 (0.747 pCi/L) were detected in EB-01 at concentrations greater than the MDCs. Since radium-226 concentration in EB-01 was U qualified due to field blank contamination and based on professional and technical judgment, no additional qualifications were applied to the radium-226 data. However, the radium-228 concentration in sample HGWC-102 greater than the equipment blank concentration was J+ qualified as estimated with high bias.

Sample	Analyte	Laboratory Result (pCi/L)	Laboratory Flag	Validation Result (pCi/L)	Validation Qualifier	Reason Code
HGWC-102	Radium-228	0.755	NA	0.755	J+	3

pCi/L-picocuries per liter NA-not applicable

4.9 Field Blank

One field blank was collected with the sample sets, FB-01.

Radium-226 (1.00 pCi/L) was detected in FB-01 at a concentration greater than the MDC. Therefore, the radium-226 concentration in EB-01 less than the field blank concentration was U qualified as not detected at the reported concentration. Also, the total radium concentration in sample EB-01 was J+ qualified as estimated with high bias.

Sample	Analyte	Laboratory Result (pCi/L)	Laboratory Flag	Validation Result (pCi/L)	Validation Qualifier	Reason Code
EB-01	Radium-226	0.565	NA	0.565	U	3
EB-01	Combined Radium 226 + 228	1.31	NA	1.31	J+	3

pCi/L-picocuries per liter NA-not applicable

4.10 Field Duplicate

Field duplicates were not collected with the sample set.

4.11 **Sensitivity**

The sample was reported to the MDCs. Elevated nondetect results were not reported.

4.12 <u>Electronic Data Deliverable Review</u>

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

* * * * *

ATTACHMENT 1 DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY

Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

- U The analyte was analyzed for, but was not detected above the reported sample quantitation limit. Upon application of the U qualifier to a reported result, the definition changes to "not detected at or above the reported result".
- J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The analyte was positively identified; however, the associated numerical value is likely to be higher than the concentration of the analyte in the sample due to positive bias of associated OC or calibration data or attributable to matrix interference.
- J- The analyte was positively identified; however, the associated numerical value is likely to be lower than the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference.
- UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2 DATA VALIDATION REASON CODES Assigned by Geosyntec's Data Validation Team

Valid Value	Description		
1	Preservation requirement not met		
2	Analysis holding time exceeded		
3	Blank contamination (i.e., method, trip, equipment, etc.)		
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits		
5	LCS recovery outside limits		
6	Surrogate recovery outside limits		
7	Field Duplicate RPD exceeded		
8	Serial dilution percent difference exceeded		
9	Calibration criteria not met		
10	Linear range exceeded		
11	Internal standard criteria not met		
12	Lab duplicates RPD exceeded		
13	Other		

Final Review: JK Caprio 7/16/2020

RPD-relative percent difference



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Final Review: JK Caprio 7/16/2020

Memorandum

Date: 7 July 2020

To: Whitney Law

From: Kristoffer Henderson

CC: J. Caprio

Subject: Stage 2A Data Validations - Level II Data Deliverables - Pace

Analytical Services, LLC Project Numbers 2627481 and 2628188

SITE: Plant Hammond AP4

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of one aqueous sample collected 4 March 2020, as part of the Plant Hammond AP4 on-site sampling event.

The sample was analyzed at Pace Analytical Services, LLC, Peachtree Corners, Georgia, for the following analytical tests:

- Metals by United States (US) Environmental Protection Agency (EPA) Methods 3010A/6010D and 3005A/6020B
- Mercury by USEPA Method 7470A
- Total Dissolved Solids (TDS) by Standard Method 2540C

The sample was analyzed at Pace Analytical Services, LLC, Asheville, North Caroline, for the following analytical test:

• Chloride, Fluoride and Sulfate by USEPA Method 300.0

The sample was analyzed at Pace Analytical Services, LLC, Greensburg, Pennsylvania, for the following analytical tests:

- Radium-226 by USEPA Method 9315
- Radium-228 by USEPA Method 9320
- Total Radium by Calculation

EXECUTIVE SUMMARY

Based on the Stage 2A data validation covering the quality control (QC) parameters listed below and the information provided, the data as qualified are usable for meeting project objectives. Qualified data should be used within the limitation of the qualification.

The data were reviewed based on the pertinent methods referenced in the laboratory reports, professional and technical judgment and the following documents:

- US EPA Region IV Data Validation Standard Operating Procedures (US EPA Region IV, September 2011);
- USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review, January 2017 (EPA 540-R-2017-001); and,
- American National Standard, Verification and Validation of Radiological Data for use in Waste Management and Environmental Remediation, February 15, 2012 (ANSI/ANS-41.5-2012).

The following sample was analyzed and reported in the laboratory reports:

Laboratory ID	Client ID		
2627481001	HGWC-102		

Laboratory ID	Client ID		
2628188001	HGWC-102		

Final Review: JK Caprio 7/16/2020

The sample was received within 0-6°C. No sample preservation issues were noted by the laboratory.

The following issues were noted for the chain of custody (COC) form:

- 2627481 and 2628188: The year was not documented for the sample collection date on the COC
- 2627481: There was a time discrepancy for the sample transfer. The relinquished by time was documented as 1/6/2020 1120 and the received by time was documented as 1/6/20 11:22.
- 2628188: There was a time discrepancy for the second sample transfer. The relinquished by time was documented as 1/23/2020 1212 and the received by time was documented as 1/23/20 12:15.

The field pH data included with the reports was not validated.

1.0 METALS

The sample was analyzed for metals by USEPA methods 3010A/6010D and USEPA methods 3005A/6020B. (Mercury was evaluated separately in Section 2.0, below).

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

1.1 Overall Assessment

The metals data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the dataset is 100%.

1.2 Holding Time

The holding time for the metals analysis of a water sample is 180 days from sample collection to analysis. The holding times were met for the sample analyses.

1.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported (batches 44427 and 44440). Metals were not detected in the method blanks above the method detection limits (MDLs), with the following exceptions.

Boron and chromium were detected in the method blank in batch 44440 at estimated concentrations greater than the MDLs and less than the RLs. Since boron was detected at a concentration greater than the RL and chromium was not detected in the associated sample, no qualifications were applied to the data.

1.4 <u>Matrix Spike/Matrix Spike Duplicate (MS/MSD)</u>

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two batch MS/MSD pairs were reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

1.5 <u>Laboratory Control Sample (LCS)</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two LCSs were reported. The recovery results were within the laboratory specified acceptance criteria.

1.6 **Equipment Blank**

Equipment blanks were not collected with the sample set.

1.7 Field Blank

Field blanks were not collected with the sample set.

1.8 Field Duplicate

Field duplicates were not collected with the sample set.

1.9 Sensitivity

The sample was reported to the MDLs. Elevated nondetect results were not reported.

1.10 Electronic Data Deliverable (EDD) Review

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

2.0 MERCURY

The sample was analyzed for mercury by USEPA method 7470A.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

2.1 Overall Assessment

The mercury data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the dataset is 100%.

2.2 **Holding Time**

The holding time for the mercury analysis of a water sample is 28 days from sample collection to analysis. The holding times were met for the sample analyses.

2.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported (batch 44367). Mercury was not detected in the method blank above the MDL.

2.4 <u>Matrix Spike/Matrix Spike Duplicate</u>

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One batch MS/MSD pair was reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

2.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was reported. The recovery result was within the laboratory specified acceptance criteria.

2.6 **Equipment Blank**

Equipment blanks were not collected with the sample set.

2.7 Field Blank

Field blanks were not collected with the sample set.

2.8 <u>Field Duplicate</u>

Field duplicates were not collected with the sample set.

2.9 **Sensitivity**

The sample was reported to the MDL. Elevated nondetect results were not reported.

2.10 Electronic Data Deliverable Review

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

3.0 WET CHEMISTRY

The sample was analyzed for TDS by Standard Method 2540C and chloride, fluoride and sulfate by USEPA method 300.0.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

3.1 Overall Assessment

The wet chemistry data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the dataset is 100%.

3.2 **Holding Times**

The holding times for the analysis of a water sample for the wet chemistry parameters are listed below. The holding times were met for the sample analyses.

Analyte	Holding Time		
TDS	7 days from collection to analysis		
Chloride, Fluoride and Sulfate	28 days from collection to analysis		

3.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported for the anions (batch 529390). The anions were not detected in the method blank above the MDLs.

3.4 <u>Matrix Spike/Matrix Spike Duplicate</u>

Two batch MS/MSD pairs were reported for the anions. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

3.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). LCSs were reported for each analysis and batch as appropriate. The recovery results were within the laboratory specified acceptance criteria.

3.6 Laboratory Duplicate

Two batch laboratory duplicates were reported for TDS. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

Final Review: JK Caprio 7/16/2020

3.7 Equipment Blank

Equipment blanks were not collected with the sample set.

3.8 Field Blank

Field blanks were not collected with the sample set.

3.9 Field Duplicate

Field duplicates were not collected with the sample set.

3.10 **Sensitivity**

The sample was reported to the MDLs. Elevated nondetect results were not reported.

3.11 <u>Electronic Data Deliverable Review</u>

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

4.0 RADIOCHEMISTRY

The sample was analyzed for radium-226 by EPA method 9315, radium-228 by EPA method 9320 and total radium by calculation.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ⊗ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Tracers and Carriers
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

4.1 Overall Assessment

The radium-226 and radium-228 data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for this dataset is 100%.

4.2 **Holding Times**

The holding times for the radium-226 and radium-228 analyses of a water sample are 180 days from sample collection to analysis. The holding times were met for the sample analyses.

4.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported for the radium-228 data (batch 387516). One method blank was reported for the radium-226 data (batch 387515). Radium-228 was not detected in the method blank above the minimum detectable concentration (MDC).

2628188: Radium-226 was detected in the method blank in batch 387515 (0.400 pCi/L) at a concentration greater than the MDC. Therefore, the radium-226 concentration in sample HGWC-102 greater than the method blank concentration was J+ qualified as estimated with high bias. Also, the total radium concentration in sample HGWC-102 was J+ qualified as estimated with high bias.

Sample	Analyte	Laboratory Result (pCi/L)	Laboratory Flag	Validation Result (pCi/L)	Validation Qualifier	Reason Code
HGWC-102	Radium-226	0.636	NA	0.636	J+	3
HGWC-102	Combined Radium 226 + 228	1.32	NA	1.32	J+	3

pCi/L-picocuries per liter NA-not applicable

4.4 <u>Matrix Spike/Matrix Spike Duplicate</u>

MS/MSD pairs were not reported with the data.

4.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS/LCS duplicate (LCSD) pair was reported for radium-226. One LCS/LCSD pair was reported for radium-228. The recovery and replicate error ratio (RER) [2 sigma (2σ)] results were within the laboratory specified acceptance criteria.

4.6 <u>Laboratory Duplicate</u>

One batch laboratory duplicate was reported for radium-226. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

4.7 <u>Tracers and Carriers</u>

Carriers were reported for the radium-226 and radium-228 analyses and a tracer was reported for the radium-228 analyses. The recovery results were within the laboratory specified acceptance criteria.

4.8 Equipment Blank

Equipment blanks were not collected with the sample set.

4.9 Field Blank

Field blanks were not collected with the sample set.

4.10 Field Duplicate

Field duplicates were not collected with the sample set.

4.11 **Sensitivity**

The sample was reported to the MDCs. Elevated nondetect results were not reported.

4.12 Electronic Data Deliverable Review

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

* * * * *

ATTACHMENT 1 DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

- U The analyte was analyzed for, but was not detected above the reported sample quantitation limit. Upon application of the U qualifier to a reported result, the definition changes to "not detected at or above the reported result".
- J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The analyte was positively identified; however, the associated numerical value is likely to be higher than the concentration of the analyte in the sample due to positive bias of associated QC or calibration data or attributable to matrix interference.
- J- The analyte was positively identified; however, the associated numerical value is likely to be lower than the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference.
- UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2 DATA VALIDATION REASON CODES Assigned by Geosyntec's Data Validation Team

Valid Value	Description
1	Preservation requirement not met
2	Analysis holding time exceeded
3	Blank contamination (i.e., method, trip, equipment, etc.)
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits
5	LCS recovery outside limits
6	Surrogate recovery outside limits
7	Field Duplicate RPD exceeded
8	Serial dilution percent difference exceeded
9	Calibration criteria not met
10	Linear range exceeded
11	Internal standard criteria not met
12	Lab duplicates RPD exceeded
13	Other

Final Review: JK Caprio 7/16/2020

RPD-relative percent difference



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Final Review: JK Caprio 7/16/2020

Memorandum

Date: 7 July 2020

To: Whitney Law

From: Kristoffer Henderson

CC: J. Caprio

Subject: Stage 2A Data Validations - Level II Data Deliverables - Pace

Analytical Services, LLC Project Numbers 2630414, 2630416,

30356482, 30356484 and 30359852

SITE: Plant Hammond AP4

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of eleven aqueous samples, one field duplicate and one field blank collected 24-25 March 2020 and 9 April 2020, as part of the Plant Hammond AP4 on-site sampling event.

The samples were analyzed at Pace Analytical Services, LLC, Peachtree Corners, Georgia, for the following analytical tests:

- Calcium by United States (US) Environmental Protection Agency (EPA) Methods 3010A/6010D
- Metals by USEPA Methods 3005A/6020B
- Mercury by USEPA Method 7470A
- Total Dissolved Solids (TDS) by Standard Method 2540C

The samples were analyzed at Pace Analytical Services, LLC, Asheville, North Caroline, for the following analytical test:

• Chloride, Fluoride and Sulfate by USEPA Method 300.0

The samples were analyzed at Pace Analytical Services, LLC, Greensburg, Pennsylvania, for the following analytical tests:

- Radium-226 by USEPA Method 9315
- Radium-228 by USEPA Method 9320
- Total Radium by Calculation

EXECUTIVE SUMMARY

Based on the Stage 2A data validation covering the quality control (QC) parameters listed below and the information provided, the data as qualified are usable for meeting project objectives. Qualified data should be used within the limitation of the qualification.

The data were reviewed based on the pertinent methods referenced in the laboratory reports, professional and technical judgment and the following documents:

- US EPA Region IV Data Validation Standard Operating Procedures (US EPA Region IV, September 2011);
- USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review, January 2017 (EPA 540-R-2017-001); and,
- American National Standard, Verification and Validation of Radiological Data for use in Waste Management and Environmental Remediation, February 15, 2012 (ANSI/ANS-41.5-2012).

The following samples were analyzed and reported in the laboratory reports:

Laboratory ID	Client ID
2630414001	HGWA-111
2630414002	HGWC-117
2630414003	HGWA-112
2630414005	FB-04
2630414006	HGWC-101
2630414007	HGWC-105
2630414008	HGWC-107

Laboratory ID	Client ID
2630414009	HGWC-118
2630414010	HGWC-103
2630414011	HGWC-109
2630414012	FD-04
2630414013	HGWA-113
2630416001	HGWC-102

The samples were received within 0-6°C. No sample preservation issues were noted by the laboratory.

The following issues were noted for the chain of custody (COC) form:

- 2630414: There was a time discrepancy for the third sample transfer. The relinquished by time was documented as 3/23/20 0940 and the received by time was documented as 3/23/20 941. The year was missing for the relinquished by date for the third sample transfer on page 2 of the COC.
- 2630416: There was a time discrepancy for the third sample transfer. The relinquished by time was documented as 3/25/20 0940 and the received by time was documented as 3/25/20 941. The year was missing for the relinquished by date for the third sample transfer on page 2 of the COC.
- 30356482 30356484: The relinquished by signature, date and time were not documented for the sample transfer.

The field pH data included with the reports was not validated.

1.0 METALS

The samples were analyzed for calcium by USEPA methods 3010A/6010D and metals by USEPA methods 3005A/6020B. (Mercury was evaluated separately in Section 2.0, below).

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ⊗ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

1.1 Overall Assessment

The metals data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the dataset is 100%.

1.2 **Holding Time**

The holding time for the metals analysis of a water sample is 180 days from sample collection to analysis. The holding times were met for the sample analyses.

1.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Eight method blanks were reported (batches 45066, 45121, 45533, 45065, 45113, 45531, 44977 and 44978). Metals were not detected in the method blanks above the method detection limits (MDLs), with the following exception.

Arsenic was detected in the method blank in batch 44978 at an estimated concentration greater than the MDL and less than the reporting limit (RL). Since arsenic was not detected in the associated sample, no qualifications were applied to the data.

1.4 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three sample set specific MS/MSD pairs were reported using samples HGWC-117, HGWA-111 and HGWC-102. The recovery and relative percent difference (RPD) results were within the laboratory specified acceptance criteria.

The calcium concentration in sample HGWC-117 was greater than four times the spiked concentration; therefore, no qualifications were applied to the calcium data based on the MS/MSD results.

Five batch MS/MSD pairs were reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

1.5 <u>Laboratory Control Sample (LCS)</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Eight LCSs were reported. The recovery results were within the laboratory specified acceptance criteria.

1.6 Equipment Blank

Equipment blanks were not collected with the sample set.

1.7 Field Blank

One field blank was collected with the sample set, FB-04. Metals were not detected in the field blank above the MDLs, with the following exceptions.

Boron and chromium were detected in the field blank at estimated concentrations greater than the MDLs and less than the RLs. Therefore, the estimated boron and chromium concentrations in the associated samples were U qualified as not detected at the RLs.

Sample	Analyte	Laboratory Result (mg/L)	Laboratory Flag	Validation Result (mg/L)	Validation Qualifier*	Reason Code**
HGWA-111	Boron	0.011	J	0.10	U	3
HGWA-111	Chromium	0.0019	J	0.010	U	3
HGWC-117	Chromium	0.0012	J	0.010	U	3
HGWA-112	Boron	0.012	J	0.10	U	3

Sample	Analyte	Laboratory Result (mg/L)	Laboratory Flag	Validation Result (mg/L)	Validation Qualifier*	Reason Code**
HGWA-112	Chromium	0.0044	J	0.010	U	3
HGWC-101	Boron	0.080	J	0.10	U	3
HGWC-101	Chromium	0.00098	J	0.010	U	3
HGWC-105	Chromium	0.0013	J	0.010	U	3
HGWC-107	Chromium	0.00074	J	0.010	U	3
HGWC-118	Chromium	0.00081	J	0.010	U	3
HGWC-103	Chromium	0.00045	J	0.010	U	3
HGWC-109	Chromium	0.0014	J	0.010	U	3
FD-04	Chromium	0.0011	J	0.010	U	3
HGWA-113	Boron	0.012	J	0.10	U	3
HGWA-113	Chromium	0.0031	J	0.010	U	3

mg/L-milligrams per liter

1.8 Field Duplicate

One field duplicate sample was collected with the sample sets, FD-04. Acceptable precision (RPD \leq 20% or the difference between the concentrations < RL) was demonstrated between the field duplicate and the original sample HGWC-103, with the following exceptions.

1.9 Sensitivity

The samples were reported to the MDLs. Elevated nondetect results were not reported.

1.10 Electronic Data Deliverables (EDDs) Review

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. The laboratory flag M1 reported in the laboratory reports was not reported in the EDDs. No other discrepancies were identified between the level II reports and the EDDs.

2.0 MERCURY

The samples were analyzed for mercury by USEPA method 7470A.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

J-estimated concentration greater than the MDL and less than the RL

^{*} Validation qualifiers are defined in Attachment 1 at the end of this report

^{**}Reason codes are defined in Attachment 2 at the end of this report

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

2.1 Overall Assessment

The mercury data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the dataset is 100%.

2.2 **Holding Time**

The holding time for the mercury analysis of a water sample is 28 days from sample collection to analysis. The holding times were met for the sample analyses.

2.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported (batch 45075). Mercury was not detected in the method blank above the MDL.

2.4 <u>Matrix Spike/Matrix Spike Duplicate</u>

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One sample set specific MS/MSD pair was reported, using sample HGWC-102. The recovery and RPD results were within the laboratory specified acceptance criteria.

2.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was reported. The recovery result was within the laboratory specified acceptance criteria.

2.6 **Equipment Blank**

Equipment blanks were not collected with the sample set.

2.7 Field Blank

One field blank was collected with the sample set, FB-1. Mercury was not detected in the field blank above the MDL.

2.8 Field Duplicate

One field duplicate sample was collected with the sample sets, FD-04. Acceptable precision (RPD $\leq 20\%$ or the difference between the concentrations < RL) was demonstrated between the field duplicate and the original sample HGWC-103.

2.9 **Sensitivity**

The samples were reported to the MDLs. Elevated nondetect results were not reported.

2.10 Electronic Data Deliverables Review

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II reports and the EDDs.

3.0 WET CHEMISTRY

The samples were analyzed for TDS by Standard Method 2540C and chloride, fluoride and sulfate by USEPA method 300.0.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Equipment Blank
- ⊗ Field Blank
- ✓ Field Duplicate

- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

3.1 Overall Assessment

The wet chemistry data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the dataset is 100%.

3.2 **Holding Times**

The holding times for the analysis of a water sample for the wet chemistry parameters are listed below. The holding times were met for the sample analyses.

Analyte	Holding Time
TDS	7 days from collection to analysis
Chloride, Fluoride and Sulfate	28 days from collection to analysis

3.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three method blanks were reported for the anions (batches 533750, 533970 and 537769). The anions were not detected in the method blanks above the MDLs.

3.4 Matrix Spike/Matrix Spike Duplicate

Three sample set specific MS/MSD pairs were reported for the anions using samples HGWA-111, HGWC-107 and HGWA-113. The RPD and recovery results were within the laboratory specified acceptance criteria, with the following exceptions.

The recoveries of sulfate in the HGWC-107 MS/MSD pair were low and outside the laboratory specified acceptance criteria. Therefore, the sulfate concentration in HGWC-107 was J- qualified as estimated with low bias.

Three batch MS/MSD pair was also reported for the anions. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

Final Review: JK Caprio 7/16/2020

Sample	Analyte	Laboratory Result (mg/L)	Laboratory Flag	Validation Result (mg/L)	Validation Qualifier	Reason Code
HGWC-107	Sulfate	116	NA	116	J-	4

mg/L-milligrams per liter

NA-not applicable

3.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). LCSs were reported for each analysis and batch as appropriate. The recovery results were within the laboratory specified acceptance criteria.

3.6 <u>Laboratory Duplicate</u>

One sample set specific laboratory duplicate was reported for TDS using sample FB-04. The RPD result was within the laboratory specified acceptance criteria.

Seven batch laboratory duplicates were reported for TDS. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

3.7 **Equipment Blank**

Equipment blanks were not collected with the sample set.

3.8 Field Blank

One field blank was collected with the sample set, FB-04. The wet chemistry parameters were not detected in the field blank above the MDLs, with the following exceptions.

TDS (21.0 mg/L) was detected in the field blank at a concentration greater than the RL and sulfate was detected in the field blank at an estimated concentration greater than the MDL and less than the RL. Since sulfate was either not detected or detected above the RL in the associated samples, no qualifications were applied to the sulfate data. However, the TDS concentrations in the associated samples were J+ qualified as estimated with high bias.

Final Review: JK Caprio 7/16/2020

Sample	Analyte	Laboratory Result (mg/L)	Laboratory Flag	Validation Result (mg/L)	Validation Qualifier	Reason Code
HGWA-111	TDS	207	NA	207	J+	3
HGWA-112	TDS	52	NA	52	J+	3
HGWC-101	TDS	187	NA	187	J+	3
HGWA-113	TDS	48	NA	48	J+	3

mg/L-milligrams per liter

NA-not applicable

3.9 Field Duplicate

One field duplicate sample was collected with the sample sets, FD-04. Acceptable precision (RPD $\leq 20\%$ or the difference between the concentrations < RL) was demonstrated between the field duplicate and the original sample HGWC-103.

3.10 Sensitivity

The samples were reported to the MDLs. Elevated nondetect results were not reported.

3.11 Electronic Data Deliverables Review

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. The laboratory flag M1 reported in the laboratory reports was not reported in the EDDs. No other discrepancies were identified between the level II reports and the EDDs.

4.0 RADIOCHEMISTRY

The samples were analyzed for radium-226 by EPA method 9315, radium-228 by EPA method 9320 and total radium by calculation.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ⊗ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Tracers and Carriers
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

4.1 Overall Assessment

The radium-226 and radium-228 data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for this dataset is 100%.

4.2 **Holding Times**

The holding times for the radium-226 and radium-228 analyses of a water sample are 180 days from sample collection to analysis. The holding times were met for the sample analyses.

4.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Four method blanks were reported for the radium-228 data (batches 390287, 390462, 390594 and 394230). Three method blanks were reported for the radium-226 data (batches 390286, 390591 and 394121). Radium-226 and radium-228 were not detected in the method blanks above the minimum detectable concentrations (MDCs), with the following exceptions.

30356484: Radium-228 (0.720 pCi/L) was detected in the method blank in batch 390462 at a concentration greater than the MDC. Since radium-228 was not detected above the MDCs in the associated samples, no qualifications were applied to the data. Radium-226 (0.480 pCi/L) was detected in the method blank in batch 390461 at a concentration greater than the MDC. Therefore, the radium-226 concentrations in the associated samples greater than the MDCs and less than the method blank concentration were U qualified as not detected at the reported concentrations.

Sample	Analyte	Laboratory Result (pCi/L)	Laboratory Flag	Validation Result (pCi/L)	Validation Qualifier	Reason Code
HGWC-117	Radium-226	0.476	NA	0.476	U	3
HGWA-112	Radium-226	0.444	NA	0.444	U	3

Final Review: JK Caprio 7/16/2020

pCi/L-picocuries per liter NA-not applicable

4.4 <u>Matrix Spike/Matrix Spike Duplicate</u>

MS/MSD pairs were not reported with the data.

4.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three LCS/LCS duplicate (LCSD) pairs were reported for radium-226. Four LCS/LCSD pairs were reported for radium-228. The recovery and replicate error ratio (RER) [2 sigma (2σ)] results were within the laboratory specified acceptance criteria.

4.6 Laboratory Duplicate

One batch laboratory duplicate was reported for radium-226 and one batch laboratory duplicate was reported for radium-228.

4.7 <u>Tracers and Carriers</u>

Carriers were reported for the radium-226 and radium-228 analyses and a tracer was reported for the radium-228 analyses. The recovery results were within the laboratory specified acceptance criteria.

4.8 Equipment Blank

Equipment blanks were not collected with the sample set.

4.9 Field Blank

One field blank was collected with the sample sets, FB-04. Radium-226 and radium-228 were not detected in the field blank above the minimum detectable concentrations (MDCs).

4.10 Field Duplicate

One field duplicate sample was collected with the sample sets, FD-04. Acceptable precision (RER $(2\sigma) < 3$) was demonstrated between the field duplicate and the original sample HGWC-103.

4.11 Sensitivity

The samples were reported to the MDCs. Elevated nondetect results were not reported.

4.12 Electronic Data Deliverables Review

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II reports and the EDDs.

* * * * *

ATTACHMENT 1 DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY

Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

- U The analyte was analyzed for, but was not detected above the reported sample quantitation limit. Upon application of the U qualifier to a reported result, the definition changes to "not detected at or above the reported result".
- J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The analyte was positively identified; however, the associated numerical value is likely to be higher than the concentration of the analyte in the sample due to positive bias of associated OC or calibration data or attributable to matrix interference.
- J- The analyte was positively identified; however, the associated numerical value is likely to be lower than the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference.
- UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2 DATA VALIDATION REASON CODES Assigned by Geosyntec's Data Validation Team

Valid Value	Description
1	Preservation requirement not met
2	Analysis holding time exceeded
3	Blank contamination (i.e., method, trip, equipment, etc.)
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits
5	LCS recovery outside limits
6	Surrogate recovery outside limits
7	Field Duplicate RPD exceeded
8	Serial dilution percent difference exceeded
9	Calibration criteria not met
10	Linear range exceeded
11	Internal standard criteria not met
12	Lab duplicates RPD exceeded
13	Other

RPD-relative percent difference



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Final Review: JK Caprio 7/15/2020

Memorandum

Date: 15 July 2020

To: Whitney Law

From: Kristoffer Henderson

CC: J. Caprio

Subject: Stage 2A Data Validations - Level II Data Deliverables - Pace

Analytical Services, LLC Project Numbers 92482796 and 92482798

SITE: Plant Hammond AP4

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of one aqueous sample collected 18 June 2020, as part of the Plant Hammond AP4 on-site sampling event.

The sample was analyzed at Pace Analytical Services, LLC, Peachtree Corners, Georgia, for the following analytical tests:

- Calcium by United States (US) Environmental Protection Agency (EPA) Methods 3010A/6010D
- Metals by USEPA Methods 3005A/6020B
- Mercury by USEPA Method 7470A
- Total Dissolved Solids (TDS) by Standard Method 2540C

The sample was analyzed at Pace Analytical Services, LLC, Asheville, North Caroline, for the following analytical test:

• Chloride, Fluoride and Sulfate by USEPA Method 300.0

The sample was analyzed at Pace Analytical Services, LLC, Greensburg, Pennsylvania, for the following analytical tests:

- Radium-226 by USEPA Method 9315
- Radium-228 by USEPA Method 9320
- Total Radium by Calculation

EXECUTIVE SUMMARY

Based on the Stage 2A data validation covering the quality control (QC) parameters listed below and the information provided, the data as qualified are usable for meeting project objectives. Qualified data should be used within the limitation of the qualification.

The data were reviewed based on the pertinent methods referenced in the laboratory reports, professional and technical judgment and the following documents:

- US EPA Region IV Data Validation Standard Operating Procedures (US EPA Region IV, September 2011);
- USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review, January 2017 (EPA 540-R-2017-001); and,
- American National Standard, Verification and Validation of Radiological Data for use in Waste Management and Environmental Remediation, February 15, 2012 (ANSI/ANS-41.5-2012).

The following sample was analyzed and reported in the laboratory reports:

Laboratory ID	Client ID
92482796001	HGWC-102
92482798001	

The sample was received within 0-6°C. No sample preservation issues were noted by the laboratory.

The field pH data included with the reports was not validated.

1.0 METALS

The sample was analyzed for calcium by USEPA methods 3010A/6010D and metals by USEPA methods 3005A/6020B. (Mercury was evaluated separately in Section 2.0, below).

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample

- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverable Review

1.1 Overall Assessment

The metals data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the dataset is 100%.

1.2 Holding Time

The holding time for the metals analysis of a water sample is 180 days from sample collection to analysis. The holding times were met for the sample analyses.

1.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported (batches 548844 and 548895). Metals were not detected in the method blanks above the method detection limits (MDLs).

1.4 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two batch MS/MSD pairs were reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

1.5 <u>Laboratory Control Sample (LCS)</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two LCSs were reported. The recovery results were within the laboratory specified acceptance criteria.

Final Review: JK Caprio 7/15/2020

1.6 Equipment Blank

Equipment blanks were not collected with the sample set.

1.7 Field Blank

Field blanks were not collected with the sample set.

1.8 Field Duplicate

Field duplicates were not collected with the sample set.

1.9 **Sensitivity**

The sample results were reported to the MDLs. Elevated nondetect results were not reported.

1.10 Electronic Data Deliverable (EDD) Review

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

2.0 MERCURY

The sample was analyzed for mercury by USEPA method 7470A.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverable Review

2.1 Overall Assessment

The mercury data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the dataset is 100%.

2.2 **Holding Time**

The holding time for the mercury analysis of a water sample is 28 days from sample collection to analysis. The holding times were met for the sample analyses.

2.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported (batch 549882). Mercury was not detected in the method blank above the MDL.

2.4 <u>Matrix Spike/Matrix Spike Duplicate</u>

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One batch MS/MSD pair was reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

2.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was reported. The recovery result was within the laboratory specified acceptance criteria.

2.6 Equipment Blank

Equipment blanks were not collected with the sample set.

2.7 Field Blank

Field blanks were not collected with the sample set.

2.8 Field Duplicate

Field duplicates were not collected with the sample set.

2.9 Sensitivity

The sample was reported to the MDL. Elevated nondetect results were not reported.

2.10 Electronic Data Deliverable Review

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

3.0 WET CHEMISTRY

The sample was analyzed for TDS by Standard Method 2540C and chloride, fluoride and sulfate by USEPA method 300.0.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverable Review

3.1 Overall Assessment

The wet chemistry data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for analysis, for the dataset is 100%.

3.2 **Holding Times**

The holding times for the analysis of a water sample for the wet chemistry parameters are listed below. The holding times were met for the sample analyses.

Analyte	Holding Time
TDS	7 days from collection to analysis
Chloride, Fluoride and Sulfate	28 days from collection to analysis

3.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported for the anions (batch 550052) and one method blank was reported for TDS (batch 548907). The wet chemistry parameters were not detected in the method blanks above the MDLs.

3.4 Matrix Spike/Matrix Spike Duplicate

Two batch MS/MSD pairs were reported for the anions. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

3.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). LCSs were reported for each analysis and batch as appropriate. The recovery results were within the laboratory specified acceptance criteria.

3.6 <u>Laboratory Duplicate</u>

Two batch laboratory duplicates were reported for TDS. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

3.7 Equipment Blank

Equipment blanks were not collected with the sample set.

3.8 Field Blank

Field blanks were not collected with the sample set.

3.9 Field Duplicate

Field duplicates were not collected with the sample set.

3.10 **Sensitivity**

The sample was reported to the MDLs. Elevated nondetect results were not reported.

3.11 Electronic Data Deliverable Review

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

4.0 RADIOCHEMISTRY

The sample was analyzed for radium-226 by EPA method 9315, radium-228 by EPA method 9320 and total radium by calculation.

The areas of data review are listed below. A leading check mark (\checkmark) indicates an area of review in which the data were acceptable. A preceding crossed circle (\otimes) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ⊗ Laboratory Duplicate
- ✓ Tracers and Carriers
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverable Review

4.1 Overall Assessment

The radium-226 and radium-228 data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for this dataset is 100%.

4.2 Holding Times

The holding times for the radium-226 and radium-228 analyses of a water sample are 180 days from sample collection to analysis. The holding times were met for the sample analyses.

4.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported for the radium-228 data (batch 394230). One method blank was reported for the radium-226 data (batch 394121). Radium-226 and radium-228 were not detected in the method blank above the minimum detectable concentrations (MDCs).

4.4 <u>Matrix Spike/Matrix Spike Duplicate</u>

MS/MSD pairs were not reported with the data.

4.5 <u>Laboratory Control Sample</u>

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS/LCS duplicate (LCSD) pair was reported for radium-226. One LCS/LCSD pair was reported for radium-228. The recovery and replicate error ratio (RER) [2 sigma (2σ)] results were within the laboratory specified acceptance criteria.

4.6 <u>Laboratory Duplicate</u>

One sample set specific laboratory duplicate was reported for radium-226 using sample HGWC-102.

The radium-226 concentration in sample HGWC-102 was greater than the MDC and the radium-226 concentration in the laboratory duplicate was less than the MDC. Therefore, based on professional and technical judgment, the radium-226 in sample HGWC-102 was J qualified as estimated.

Sample	Analyte	Laboratory Result (pCi/L)	Laboratory Flag	Validation Result	Validation Qualifier*	Reason Code**
HGWC-102	Radium-226	0.47	NA	0.47	J	12

pCi/L-picocuries per liter

NA-not applicable

4.7 <u>Tracers and Carriers</u>

Carriers were reported for the -226 and radium-228 analyses and a tracer was reported for the radium-228 analyses. The recovery results were within the laboratory specified acceptance criteria.

^{*} Validation qualifiers are defined in Attachment 1 at the end of this report

^{**}Reason codes are defined in Attachment 2 at the end of this report

4.8 **Equipment Blank**

Equipment blanks were not collected with the sample set.

4.9 Field Blank

Field blanks were not collected with the sample set.

4.10 Field Duplicate

Field duplicates were not collected with the sample set.

4.11 **Sensitivity**

The sample was reported to the MDCs. Elevated nondetect results were not reported.

4.12 Electronic Data Deliverable Review

The results and sample IDs in the EDD were reviewed against the information provided by the associated level II report at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II report and the EDD.

* * * * *

ATTACHMENT 1 DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

- U The analyte was analyzed for, but was not detected above the reported sample quantitation limit. Upon application of the U qualifier to a reported result, the definition changes to "not detected at or above the reported result".
- J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The analyte was positively identified; however, the associated numerical value is likely to be higher than the concentration of the analyte in the sample due to positive bias of associated OC or calibration data or attributable to matrix interference.
- J- The analyte was positively identified; however, the associated numerical value is likely to be lower than the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference.
- UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2 DATA VALIDATION REASON CODES Assigned by Geosyntec's Data Validation Team

Valid Value	Description
1	Preservation requirement not met
2	Analysis holding time exceeded
3	Blank contamination (i.e., method, trip, equipment, etc.)
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits
5	LCS recovery outside limits
6	Surrogate recovery outside limits
7	Field Duplicate RPD exceeded
8	Serial dilution percent difference exceeded
9	Calibration criteria not met
10	Linear range exceeded
11	Internal standard criteria not met
12	Lab duplicates RPD exceeded
13	Other

Final Review: JK Caprio 7/15/2020

RPD-relative percent difference

Field Data Sheets

Date: 2019-08-21 14:56:39

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

Tubing Type

Project Information:

Operator Name Chad Russo

Company Name **Geosyntec Consultants** Project Name **GP-Plant Hammond**

Site Name Plant Hammond

Latitude 0° 0' 0" 0° 0' 0" Longitude

Sonde SN 541714

Turbidity Make/Model LaMotte 2020we Pump placement from TOC

ft

Well Information:

Well ID **HGWA-111** Well diameter 2 in Well Total Depth ft Screen Length 10 ft Depth to Water 14.60 ft

Pumping Information:

Final Pumping Rate 150 mL/min Total System Volume 0.09 L Calculated Sample Rate 300 sec Stabilization Drawdown 3.6 in **Total Volume Pumped** 8.25 L

Alexis

0.17 in

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS/cmTurb NTU		DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	14:33:14	600.02	22.43	6.29	144.85	0.42	15.44	4.22	33.11
Last 5	14:38:14	900.02	22.42	6.45	189.87	0.43	15.44	4.11	31.71
Last 5	14:43:14	1200.02	22.55	6.54	198.18	0.33	15.45	3.95	30.63
Last 5	14:48:14	1500.02	22.60	6.56	201.18	0.65	15.45	3.92	31.16
Last 5	14:53:14	1800.02	22.73	6.60	206.94	0.55	15.44	3.88	30.60
Variance 0			0.13	0.09	8.31			-0.16	-1.08
Variance 1			0.05	0.02	3.00			-0.03	0.53
Variance 2			0.13	0.03	5.76			-0.04	-0.56

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle for F (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A). Total depth = 43.21 ft.

Grab Samples HGWA-111 Grab

Date: 2019-08-21 17:45:59

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

Tubing Type

Project Information:

Operator Name Chad Russo

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0"

Longitude 0° 0' 0"

Sonde SN 541714

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

Well Information:

Well ID HGWA-112
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 15.07 ft

Pumping Information:

Final Pumping Rate 100 mL/min
Total System Volume 0.09 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 3.25 L

Alexis

0.17 in

ft

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	S/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization	า		+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	16:41:11	300.03	24.62	5.84	74.78	0.28	16.12	1.24	37.43
Last 5	16:46:11	600.02	25.00	5.81	74.14	2.80	16.18	1.22	36.38
Last 5	16:51:11	900.02	25.48	5.80	73.69	0.60	16.12	1.17	35.73
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.38	-0.03	-0.64			-0.03	-1.05
Variance 2			0.49	-0.01	-0.45			-0.05	-0.66

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle for F (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A). Total depth = 39.90 ft.

Grab Samples HGWA-112 Grab

Date: 2019-08-21 17:48:26

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

Tubing Type

Project Information:

Operator Name Noelia Muskus

Company Name **Geosyntec Consultants** Project Name **GP-Plant Hammond**

Site Name Plant Hammond

Latitude 0° 0' 0" 0° 0' 0" Longitude Sonde SN 613229

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

Well Information:

Well ID **HGWA-113** Well diameter 2 in Well Total Depth ft Screen Length 10 ft Depth to Water 12.42 ft

Pumping Information:

Final Pumping Rate 100 mL/min Total System Volume 0.09 L Calculated Sample Rate 300 sec Stabilization Drawdown 3.6 in **Total Volume Pumped** 7.5 L

Alexis

0.17 in

ft

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time Elapsed		Temp C	рН	SpCond μS/cmTurb NTU		DTW ft	RDO mg/L	ORP mV
Stabilization	1		+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	16:32:54	1199.92	24.59	6.06	103.36	0.18	19.22	1.81	72.12
Last 5	16:37:54	1499.91	24.76	6.07	101.77	0.07	19.52	1.84	71.80
Last 5	16:42:54	1799.90	24.93	6.06	102.46	0.10	19.81	1.97	71.78
Last 5	16:47:54	2099.89	25.19	6.04	101.66	0.20	20.08	1.91	71.93
Last 5	16:52:54	2399.88	25.15	6.05	101.40	0.28	20.34	1.85	71.32
Variance 0			0.17	-0.01	0.69			0.13	-0.02
Variance 1			0.26	-0.01	-0.81			-0.06	0.15
Variance 2			-0.05	0.01	-0.25			-0.06	-0.61

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle for F (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A). Total depth = 36.11 ft.

Grab Samples HGWA-113 Grab

Date: 2019-08-22 13:58:13

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

Tubing Type

Project Information:

Operator Name Chad Russo

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0"

Longitude 0° 0' 0" Sonde SN 541714

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

Fullip placement from 100

Well Information:

Well ID HGWC-101
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 13.58 ft

Pumping Information:

Final Pumping Rate 100 mL/min
Total System Volume 0.09 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 6.5 L

Alexis

0.17 in

ft

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	S/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization	1		+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	12:21:56	900.02	24.71	5.42	196.82	1.41	16.19	0.72	96.99
Last 5	12:26:56	1200.02	25.07	5.39	199.48	0.54	16.38	0.64	96.59
Last 5	12:31:56	1500.02	25.00	5.40	194.59	3.11	16.54	0.62	95.12
Last 5	12:36:56	1800.03	25.17	5.36	196.69	3.00	16.64	0.57	94.74
Last 5	12:41:56	2100.03	25.33	5.39	192.55	2.45	17.76	0.56	93.28
Variance 0			-0.07	0.02	-4.90			-0.02	-1.47
Variance 1			0.16	-0.04	2.11			-0.05	-0.37
Variance 2			0.16	0.03	-4.15			-0.01	-1.47

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle for F (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A). Total depth = 37.96 ft.

Grab Samples HGWC-101 Grab

Date: 2019-08-22 16:08:37

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

Tubing Type

Project Information:

Operator Name Chad Russo

Company Name **Geosyntec Consultants** Project Name **GP-Plant Hammond**

Site Name Plant Hammond

Latitude 0° 0' 0" 0° 0' 0" Longitude Sonde SN 541714

Turbidity Make/Model LaMotte 2020we Pump placement from TOC

Well Information:

Well ID HGWC-103 Well diameter 2 in Well Total Depth ft Screen Length 10 ft Depth to Water 14.38 ft

Pumping Information:

Final Pumping Rate 100 mL/min Total System Volume 0.09 L Calculated Sample Rate 300 sec Stabilization Drawdown 3.6 in **Total Volume Pumped** 4.5 L

Alexis

0.17 in

ft

ft

polyethylene

Low-Flow Sampling Stabilization Summary

2011 11011 00	Time	Elapsed	Temp C	рН	SpCond µS/cmTurb NTU		DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	14:05:07	300.03	22.33	5.58	716.13	5.92	14.48	0.71	137.24
Last 5	14:10:07	600.02	22.29	5.58	708.82	6.01	14.47	0.53	135.35
Last 5	14:15:07	900.02	22.24	5.57	711.39	4.70	14.48	0.89	133.68
Last 5	14:20:07	1200.03	22.10	5.56	705.24	3.89	14.48	0.84	132.68
Last 5	14:25:07	1500.03	22.44	5.55	703.84	4.27	14.48	0.70	131.21
Variance 0			-0.05	-0.01	2.56			0.36	-1.68
Variance 1			-0.14	-0.01	-6.15			-0.06	-0.99
Variance 2			0.34	-0.01	-1.40			-0.14	-1.48

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle for F (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A). Total depth = 36.70 ft.

Grab Samples HGWC-103 Grab

Geosyntec consultants			414		GR	OUNDWATER SAM	IPLING LOG S	HEET			
Client:		Souther Plant Ho DGWC- H4.85	n Con	pany	Project No.: GW6521			21	Sampling Date: 8/22/19		
Site:		Plant Ho	muoid	1 /	Location: AP-4				Sampler's Name: Chard RUSSO		
Well ID:		HGWC-	-105	-	Pump Type/Model: Pt/ Staltic/			ltic/	.	Sample Collection Time: +7 1640	
Total Depth (ft):		44.85				Tubing Material:			- Sa	mple Purge Rate (mL/min):	
Depth to Water (ft):		18.2	1		Pu	ump Intake Depth (ft):	39		-	Sample ID: H GWC 105	
Well Diameter (in):		2			S	start/Stop Purge Time;	1605/1	715	-	Laboratory Analyses: AND IV	
Well Volume (gal) = 0	0.041d ² h:	4,3	7			Purge Rate (mL/min):	100		-		
Well Volume (L) = ga		16.5	ሃ				4		5		
d = well diameter (inc	hes); h = ler	gth of water col	umn (feet)			Purge Method:	(Low-Flow V	Vell Volume Other:	_	QA/QC Collected?	
Well Type:		Stick Up	,			Sampling Method	Pump Dischar	Vell Volume Other:	_	QA/QC I.D.	
Well Lock:	Yes	No									
Well Cap Condition:	Good	Replace			All sample co	ontainers requiring o	hemical preserv	ation properly preser	ved prior to demo	b from well? Yes No	
Well Tag Present:	Yes	No									
Time	pH (SU)	Spec. Cond. (µS/cm)	ORP (mV)	DO (mg/L)	Temp. (°C)	Turbidity (NTUs)		Purge Rate (mL/min)	Purged Volume (L)	Notes (Purge method, water clarity, odor, purge rate, issues with pump/well/weather/etc.)	
1617	6.02	207.90		0.94	75.76	372	19.43	100	1_		
1622	6.02	206.36	117.80	0.49	25.78	2.37	18.42	100	1,75		
1627	6.01	207.50	村11460		26.21	2.74	18.42	100	2.25		
1637	6.04	763.10	113.10	0.48	26.35	8 3.29	18.40	100	7.25		
									-		
							11 1	10			
							I (/Y	0172 1			
								112.			
		7									
Stabilizing Criteria	+/- 0.1 SU	+/- 5%		0.2 mg/L or 10% for DO > 0.5 mg/L (whichever is greater)		< 5 NTUs	< 0.3 ft	> 100 mL < 250 mL	> 3L		

Date: 2019-08-23 09:43:31

Project Information:

Operator Name Chad Russo

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0"

Longitude 0° 0' 0" Sonde SN 541714

Turbidity Make/Model LaMotte 2020we

Pump Information: Pump Model/Type

Pump placement from TOC

Pump Model/Type Alexis

Tubing Type polyethylene

ft

Tubing Diameter 0.17 in Tubing Length ft

Well Information: Pumping Information:

Final Pumping Rate 100 mL/min Well ID HGWC-107 Total System Volume 0.09 L Well diameter 2 in Calculated Sample Rate 300 sec Well Total Depth ft Screen Length 10 ft Stabilization Drawdown 3.6 in

Screen Length 10 ft Stabilization Drawdown 3.6
Depth to Water 15.5 ft Total Volume Pumped 3 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS	S/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	08:50:59	300.06	21.31	6.26	423.07	0.59	15.50	0.31	113.40
Last 5	08:55:59	600.02	21.19	6.26	422.22	0.76	15.50	0.24	101.09
Last 5	09:00:59	900.02	21.24	6.26	420.90	1.35	15.50	0.21	94.77
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			-0.12	0.00	-0.85			-0.07	-12.31
Variance 2			0.05	0.01	-1.32			-0.03	-6.32

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle for F (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A). Total depth = 38.08 ft.

Grab Samples HGWC-107 Grab

Date: 2019-08-23 10:42:23

Project Information:

Operator Name Chad Russo

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0" Longitude 0° 0' 0" Sonde SN 541714

Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis

Tubing Type polyethylene

Tubing Diameter 0.17 in Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID HGWC-109
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 10.12 ft

Pumping Information:

Final Pumping Rate 100 mL/min
Total System Volume 0.09 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 4.25 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	S/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization	1		+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:04:28	300.05	20.77	6.69	365.18	3.66	10.17	0.25	10.59
Last 5	10:09:28	600.02	20.48	6.73	367.28	2.87	10.18	0.17	0.01
Last 5	10:14:28	900.02	20.27	6.76	365.30	2.45	10.17	0.13	-6.44
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			-0.29	0.03	2.11			-0.08	-10.58
Variance 2			-0.21	0.03	-1.99			-0.04	-6.45

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle for F (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A). Total depth = 31.02 ft.

Grab Samples HGWC-109 Grab

Date: 2019-08-22 10:10:05

Pump Information:

Pump Model/Type

Project Information:

Operator Name Chad Russo

Company Name **Geosyntec Consultants** Project Name **GP-Plant Hammond**

Site Name Plant Hammond

Latitude 0° 0' 0" 0° 0' 0" Longitude

Sonde SN 541714

LaMotte 2020we Turbidity Make/Model

Tubing Type Tubing Diameter Tubing Length

Alexis polyethylene

0.17 in ft

Pump placement from TOC ft

Well Information:

Well ID HGWC-117 2 in Well diameter Well Total Depth ft Screen Length 10 ft Depth to Water 17.03 ft

Pumping Information:

Final Pumping Rate 100 mL/min Total System Volume 0.09 L Calculated Sample Rate 300 sec Stabilization Drawdown 3.6 in **Total Volume Pumped** 3.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS/cmTurb NTU		DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:16:40	300.06	21.66	5.50	245.91	0.31	17.05	0.24	78.38
Last 5	09:21:40	600.02	21.78	5.54	245.19	0.68	17.05	0.25	75.04
Last 5	09:26:40	900.02	21.88	5.53	243.65	0.43	17.05	0.24	74.48
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.12	0.03	-0.72			0.01	-3.35
Variance 2			0.10	-0.00	-1.54			-0.02	-0.56

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle for F (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A). Total depth = 39.92 ft.

Grab Samples HGWC-117 Grab

Date: 2019-08-22 11:36:25

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

Tubing Type

Project Information:

Operator Name Chad Russo

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0" Longitude 0° 0' 0" Sonde SN 541714

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

Well Information:

Well ID HGWC-118
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft

Screen Length 10 ft
Depth to Water 13.78 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.09 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 3 L

Alexis

0.17 in

ft

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS/cmTurb NTU		DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:47:27	300.03	22.71	6.92	494.64	0.52	13.96	0.47	90.30
Last 5	10:52:27	600.02	22.51	6.91	504.01	0.52	13.96	0.25	90.26
Last 5	10:57:27	900.02	22.37	6.93	506.65	0.74	13.96	0.14	90.68
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			-0.20	-0.01	9.37			-0.23	-0.04
Variance 2			-0.14	0.02	2.64			-0.11	0.42

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle for F (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A). Total depth = 40.82 ft.

Grab Samples HGWC-118 Grab

Date: 2019-10-21 15:49:03

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

Tubing Type

Project Information:

Operator Name Chad Russo

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0"

Longitude 0° 0' 0" Sonde SN 643819

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC ft

Well Information:

Well ID HGWA-111
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 15.95 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.485 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 17 L

QED MP50

0.17 in

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	S/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	15:10:03	2400.00	19.68	6.98	311.16	8.39	17.16	3.34	64.34
Last 5	15:15:03	2699.99	19.60	6.98	312.60	8.92	17.16	3.34	64.86
Last 5	15:20:03	2999.99	19.55	6.98	312.38	8.22	17.16	3.34	65.14
Last 5	15:25:03	3299.99	19.59	7.01	316.53	6.92	17.16	3.32	64.94
Last 5	15:30:03	3599.99	19.53	7.02	318.32	4.98	17.16	3.31	65.23
Variance 0			-0.04	0.00	-0.22			0.00	0.29
Variance 1			0.04	0.02	4.15			-0.02	-0.20
Variance 2			-0.05	0.02	1.79			-0.02	0.29

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 43.24'

Grab Samples HGWA-111 Grab

Date: 2019-10-22 10:51:13

Project Information:

Operator Name Chad Russo

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0" Longitude 0° 0' 0" Sonde SN 643819

Turbidity Make/Model LaMotte 2020we

Pump Information: Pump Model/Type

Pump placement from TOC

Pump Model/Type Alexis

Tubing Type polyethylene

30 ft

Tubing Diameter 0.17 in Tubing Length 30 ft

Well Information: Pumping Information:

Well ID **HGWA-112** Final Pumping Rate 150 mL/min 0.2239027 L Well diameter 2 in Total System Volume Calculated Sample Rate Well Total Depth ft 300 sec Screen Length 10 ft Stabilization Drawdown 3.6 in Depth to Water 16.83 ft Total Volume Pumped 2.5 L

Low-Flow Sampling Stabilization Summary Time Elapsed Temp C SpCond µS/cmTurb NTU DTW ft RDO mg/L ORP mV рН +/- 0.5 +/- 0.1 +/- 5% +/- 10% +/- 10 Stabilization +/- 10 09:58:01 300.09 20.48 5.72 82.17 0.82 1.66 62.05 Last 5 17.65 600.02 5.70 81.15 0.75 1.65 61.29 Last 5 10:03:01 20.36 17.69 Last 5 10:08:01 900.02 20.27 5.70 80.76 1.04 17.72 1.69 61.17 Last 5 Last 5 Variance 0 nan nan nan nan nan Variance 1 -0.13 -0.01 -1.02 -0.01 -0.76 Variance 2 -0.09 -0.01 -0.39 0.04 -0.13

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 39.92'

Grab Samples HGWA-112 Grab

Date: 2019-10-22 11:25:42

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

Tubing Type

Project Information:

Operator Name Dan Gibbs

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond
Site Name Plant Hammond

Latitude 0° 0' 0"

Longitude 0° 0' 0"

Sonde SN 497259

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC 31.53 ft

Well Information:

Well ID HGWA-113
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 13.98 ft

Pumping Information:

Final Pumping Rate 100 mL/min
Total System Volume 0.6257317 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 6.5 L

QED MP50

0.17 in

31.53 ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Elapsed Temp C pH SpCond μS/cmTurb NTU		DTW ft	RDO mg/L	ORP mV		
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:30:09	2699.94	20.47	5.97	93.99	11.21	18.01	1.31	-160.79
Last 5	10:35:09	2999.93	20.43	5.97	95.23	6.83	18.23	1.15	-161.28
Last 5	10:40:09	3299.92	20.39	5.97	96.44	4.98	18.41	1.01	-161.45
Last 5	10:45:09	3599.91	20.74	5.97	97.16	4.91	18.60	0.98	-164.42
Last 5	10:50:09	3899.90	21.05	5.98	97.58	4.93	18.73	0.97	-170.69
Variance 0			-0.04	0.00	1.21			-0.14	-0.17
Variance 1			0.35	-0.00	0.71			-0.03	-2.98
Variance 2			0.31	0.01	0.42			-0.01	-6.27

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), CI, F, SO4 (EP A 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 36.21'

Grab Samples HGWA-113 Grab

Date: 2019-10-23 11:33:45

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

Tubing Type

Project Information:

Operator Name Chad Russo

Company Name **Geosyntec Consultants** Project Name **GP-Plant Hammond**

Site Name Plant Hammond Latitude 0° 0' 0"

0° 0' 0" Longitude Sonde SN 643819

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC 33 ft

Well Information:

Well ID **HGWC-101** Well diameter 2 in Well Total Depth ft Screen Length 10 ft Depth to Water 15.23 ft

Pumping Information:

Final Pumping Rate 100 mL/min Total System Volume 0.632293 L Calculated Sample Rate 300 sec Stabilization Drawdown 3.6 in **Total Volume Pumped** 4.5 L

QED MP50

0.17 in

33 ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS/cmTurb NTU		DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:26:48	300.07	17.68	5.31	297.72	2.74	17.56	0.29	74.66
Last 5	10:31:48	600.02	18.28	5.30	312.88	2.28	17.55	0.29	76.20
Last 5	10:36:48	900.01	18.50	5.32	316.85	1.70	17.58	0.27	76.96
Last 5	10:41:48	1200.01	18.64	5.33	314.30	1.42	17.61	0.29	77.62
Last 5									
Variance 0			0.60	-0.01	15.16			-0.01	1.55
Variance 1			0.22	0.02	3.97			-0.01	0.76
Variance 2			0.13	0.01	-2.54			0.02	0.65

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 38.01'

Grab Samples HGWC-101 Grab

Date: 2019-10-23 09:43:29

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

Tubing Type

Project Information:

Operator Name Chad Russo

Company Name **Geosyntec Consultants** Project Name **GP-Plant Hammond**

Site Name Plant Hammond

Latitude 0° 0' 0" 0° 0' 0" Longitude Sonde SN 643819

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC 33 ft

Alexis

0.17 in

33 ft

polyethylene

Well Information:

Well ID HGWC-102 Well diameter 2 in Well Total Depth ft Screen Length 10 ft Depth to Water 15.45 ft

Pumping Information:

Final Pumping Rate 200 mL/min Total System Volume 0.237293 L Calculated Sample Rate 300 sec Stabilization Drawdown 3.6 in **Total Volume Pumped** 4.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS/cmTurb NTU		DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	08:51:29	600.02	17.05	5.70	869.08	1.66	15.64	0.28	74.70
Last 5	08:56:29	900.02	17.05	5.70	917.48	1.09	15.64	0.23	76.35
Last 5	09:01:29	1200.02	17.02	5.69	987.24	1.19	15.64	0.23	81.32
Last 5	09:06:29	1500.01	17.10	5.68	987.95	1.09	15.64	0.22	82.93
Last 5	09:11:29	1800.01	17.10	5.68	986.80	0.85	15.64	0.19	84.19
Variance 0			-0.03	-0.01	69.75			0.00	4.97
Variance 1			0.08	-0.00	0.71			-0.00	1.61
Variance 2			-0.00	0.00	-1.15			-0.04	1.25

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 36.9'

Grab Samples HGWC-102 Grab

Date: 2019-10-23 11:38:05

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

Tubing Type

Project Information:

Operator Name Dan Gibbs

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond
Site Name Plant Hammond

Latitude 0° 0' 0"

Longitude 0° 0' 0"

Sonde SN 497259

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC 32.68 ft

Well Information:

Well ID HGWC-103
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 15.70 ft

Pumping Information:

Final Pumping Rate 100 mL/min
Total System Volume 0.6308647 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 8 L

QED MP50

0.17 in

32.68 ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS	cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilizatio	n		+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:44:07	3599.91	16.82	5.49	701.07	8.71	15.78	0.24	-170.93
Last 5	10:49:07	3899.90	16.75	5.49	701.23	7.21	15.78	0.25	-170.94
Last 5	10:54:07	4199.90	16.82	5.49	699.65	7.03	15.78	0.25	-171.17
Last 5	10:59:07	4499.89	16.82	5.49	699.13	6.09	15.78	0.26	-171.41
Last 5	11:04:07	4799.87	16.82	5.49	698.06	4.93	15.78	0.26	-171.40
Variance 0			0.07	-0.00	-1.58			0.00	-0.23
Variance 1			0.00	-0.00	-0.52			0.01	-0.23
Variance 2			0.00	-0.00	-1.07			0.01	0.01

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 37.65'

Grab Samples HGWC-103 Grab

Date: 2019-10-23 09:22:18

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

Tubing Type

Project Information:

Operator Name Dan Gibbs

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond
Site Name Plant Hammond

Latitude 0° 0' 0"

Longitude 0° 0' 0"

Sonde SN 497259

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC 39.67 ft

Well Information:

Well ID HGWC-105
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 20.33 ft

Pumping Information:

Final Pumping Rate 100 mL/min
Total System Volume 0.662064 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 4 L

QED MP50

0.17 in

39.67 ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS/cmTurb NTU		DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	08:28:40	1199.99	16.05	6.49	613.24	14.30	20.45	0.54	-167.24
Last 5	08:33:40	1499.98	16.14	6.46	616.07	9.23	20.45	0.38	-168.30
Last 5	08:38:40	1799.97	16.15	6.46	616.42	6.21	20.45	0.32	-168.90
Last 5	08:43:40	2099.96	16.10	6.46	617.32	4.97	20.45	0.30	-169.00
Last 5	08:48:39	2399.95	16.19	6.46	614.51	4.73	20.45	0.28	-169.45
Variance 0			0.01	-0.00	0.35			-0.06	-0.60
Variance 1			-0.04	-0.00	0.90			-0.02	-0.11
Variance 2			0.09	-0.00	-2.81			-0.02	-0.45

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 44.92'

Grab Samples HGWC-105 Grab

Date: 2019-10-22 16:02:49

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

Tubing Type

Project Information:

Operator Name Dan Gibbs

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond
Site Name Plant Hammond

Latitude 0° 0' 0"

Longitude 0° 0' 0"

Sonde SN 497259

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

33.20 ft

QED MP50

0.17 in

33.20 ft

polyethylene

Well Information:

Well IDHGWC-107Well diameter2 inWell Total DepthftScreen Length10 ftDepth to Water17.51 ft

Pumping Information:

Final Pumping Rate 100 mL/min
Total System Volume 0.6331857 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 3 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	S/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization	1		+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	15:07:56	600.01	21.94	6.30	413.12	1.53	17.51	0.99	-99.10
Last 5	15:12:56	900.00	21.83	6.24	414.12	1.76	17.51	0.61	-99.27
Last 5	15:17:56	1199.99	21.72	6.22	413.54	2.43	17.51	0.44	-96.36
Last 5	15:22:56	1499.98	21.68	6.20	413.28	2.46	17.51	0.36	-93.79
Last 5	15:27:56	1799.97	21.49	6.19	410.95	2.55	17.51	0.32	-92.94
Variance 0			-0.11	-0.03	-0.58			-0.18	2.91
Variance 1			-0.05	-0.02	-0.26			-0.07	2.57
Variance 2			-0.19	-0.01	-2.33			-0.05	0.85

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 38.12'

Grab Samples HGWC-107 Grab

Date: 2019-10-22 14:36:48

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

Tubing Type

Project Information:

Operator Name Dan Gibbs

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond
Site Name Plant Hammond

Latitude 0° 0' 0"

Longitude 0° 0' 0"

Sonde SN 497259

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

26.36 ft

QED MP50

0.17 in

26.36 ft

polyethylene

Well Information:

Well ID HGWC-109
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 11.36 ft

Pumping Information:

Final Pumping Rate 100 mL/min
Total System Volume 0.6026558 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 3 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS	S/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilizatio	n		+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	13:45:33	600.01	22.08	6.51	351.98	10.06	11.38	1.70	-153.01
Last 5	13:50:33	900.00	22.03	6.52	355.65	7.39	11.38	0.99	-143.29
Last 5	13:55:33	1199.99	21.54	6.54	356.67	6.27	11.38	0.54	-131.06
Last 5	14:00:33	1499.98	21.36	6.56	355.77	4.71	11.38	0.37	-118.46
Last 5	14:05:33	1799.97	21.30	6.58	353.13	4.07	11.38	0.30	-108.44
Variance 0			-0.49	0.02	1.02			-0.44	12.22
Variance 1			-0.18	0.02	-0.89			-0.17	12.60
Variance 2			-0.07	0.02	-2.64			-0.08	10.02

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 31.03'

Grab Samples HGWC-109 Grab

Date: 2019-10-22 15:09:17

Project Information:

Well Information:

Operator Name Chad Russo

Company Name **Geosyntec Consultants** Project Name **GP-Plant Hammond**

Site Name Plant Hammond

Latitude 0° 0' 0" 0° 0' 0" Longitude Sonde SN 643819

Turbidity Make/Model LaMotte 2020we Pump Information: Pump Model/Type

QED MP50 **Tubing Type** polyethylene

ft

Tubing Diameter 0.17 in Tubing Length ft

Pump placement from TOC

Pumping Information: Final Pumping Rate 200 mL/min Well ID HGWC-117 Total System Volume Well diameter 0.485 L 2 in Calculated Sample Rate Well Total Depth ft 300 sec 3.6 in

Screen Length 10 ft Stabilization Drawdown Depth to Water 18.83 ft **Total Volume Pumped** 39 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	S/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	14:29:59	9899.92	19.19	6.16	512.49	5.91	18.83	0.12	71.73
Last 5	14:34:59	10199.92	19.17	6.16	513.10	5.70	18.83	0.12	71.86
Last 5	14:39:59	10499.91	19.19	6.16	513.00	5.65	18.83	0.11	72.01
Last 5	14:44:59	10799.91	19.19	6.16	515.05	5.15	18.83	0.12	72.30
Last 5	14:49:59	11099.91	19.24	6.17	516.86	4.91	18.83	0.12	72.36
Variance 0			0.01	-0.00	-0.10			-0.00	0.15
Variance 1			0.01	0.01	2.05			0.00	0.29
Variance 2			0.04	0.00	1.82			-0.00	0.06

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 39.94'

Grab Samples HGWC-117 Grab

Date: 2019-10-22 19:09:29

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

Tubing Type

Project Information:

Operator Name Chad Russo

Company Name **Geosyntec Consultants** Project Name **GP-Plant Hammond**

Site Name Plant Hammond

Latitude 0° 0' 0" 0° 0' 0" Longitude Sonde SN 643819

Turbidity Make/Model LaMotte 2020we Pump placement from TOC

Well Information:

Well ID **HGWC-118** Well diameter 2 in Well Total Depth ft Screen Length 10 ft Depth to Water 15.46 ft

Pumping Information:

Final Pumping Rate 200 mL/min Total System Volume 0.485 L Calculated Sample Rate 300 sec Stabilization Drawdown 3.6 in **Total Volume Pumped** 35.5 L

QED MP50

0.17 in

ft

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS,	/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	18:34:19	10199.92	18.53	7.02	528.76	9.61	15.58	0.10	75.39
Last 5	18:39:19	10499.92	18.48	7.02	528.89	9.94	15.58	0.11	75.24
Last 5	18:44:19	10799.91	18.46	7.03	528.97	9.82	15.58	0.10	75.15
Last 5	18:49:19	11099.91	18.44	7.03	529.11	9.83	15.58	0.10	75.07
Last 5	18:54:19	11399.91	18.32	7.33	1.07			6.78	58.86
Variance 0			-0.02	0.00	0.08			-0.01	-0.09
Variance 1			-0.02	0.00	0.14			-0.00	-0.08
Variance 2			-0.12	0.30	-528.04			6.69	-16.21

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 41.80'

Grab Samples HGWC-118 Grab

Date: 2020-01-03 12:39:08

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

Tubing Type

Project Information:

Operator Name Chad Russo

Company Name **Geosyntec Consultants** Project Name **GP-Plant Hammond**

Site Name Plant Hammond

Latitude 0° 0' 0" 0° 0' 0" Longitude Sonde SN 497259

Turbidity Make/Model LaMotte 2020we Pump placement from TOC

33 ft

Alexis

0.17 in

34 ft

polyethylene

Well Information:

Well ID HGWC-102 Well diameter 2 in Well Total Depth ft Screen Length 10 ft Depth to Water 13.95 ft

Pumping Information:

Final Pumping Rate 200 mL/min Total System Volume 0.2417564 L Calculated Sample Rate 300 sec Stabilization Drawdown 3.6 in **Total Volume Pumped** 4.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	11:45:00	299.99	17.13	5.93	748.43	11.08	14.09	0.30	25.68
Last 5	11:50:00	599.94	17.17	5.73	752.41	8.40	14.08	0.23	24.40
Last 5	11:55:00	899.93	17.19	5.67	754.77	7.52	14.06	0.22	23.31
Last 5	12:00:00	1199.92	17.13	5.65	765.76	5.52	14.05	0.20	21.82
Last 5	12:05:00	1499.91	17.08	5.64	782.00	2.32	14.03	0.21	19.68
Variance 0			0.02	-0.06	2.36			-0.01	-1.09
Variance 1			-0.06	-0.03	10.99			-0.01	-1.49
Variance 2			-0.05	-0.01	16.24			0.01	-2.14

Notes

Five bottles: One 250-mL plastic bottle with HNO3 for metals (EPA 6020B), one 250-mL plastic bottle for ions (EPA 300.0), one 500-mL plastic bottle for TDS (EPA 2540C), and two 1-L bottles for radium (EPA 9315/9320). Total depth = 36.85'

Grab Samples HGWC-102 Grab

Date: 2020-01-22 10:21:45

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

Tubing Type

Project Information:

Operator Name Grant Walter

Company Name **Geosyntec Consultants** Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0" 0° 0' 0" Longitude Sonde SN 642531

Turbidity Make/Model LaMotte 2020we Pump placement from TOC

Well Information:

Well ID HGWC-102 Well diameter 2 in Well Total Depth ft Screen Length 10 ft Depth to Water 14.57 ft

Pumping Information:

Final Pumping Rate 200 mL/min Total System Volume 0.09 L Calculated Sample Rate 300 sec Stabilization Drawdown 3.6 in **Total Volume Pumped** 23 L

Alexis

0.17 in

ft

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:05:27	299.98	15.29	5.65	965.19	6.76	14.90	0.71	64.73
Last 5	10:10:27	599.95	14.94	5.65	956.45	5.39	14.91	0.99	62.26
Last 5	10:15:27	899.95	15.04	5.66	960.39	4.50	14.90	0.82	60.16
Last 5	10:20:27	1199.95	14.76	5.66	955.94	3.78	14.90	0.79	59.04
Last 5									
Variance 0			-0.35	0.00	-8.73			0.28	-2.47
Variance 1			0.10	0.01	3.94			-0.17	-2.10
Variance 2			-0.28	-0.01	-4.46			-0.03	-1.12

Notes

Two bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320). Total depth = 36.80 ft.

Grab Samples HGWC-102 Grab

Date: 2020-03-04 09:34:59

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

Tubing Type

Project Information:

Operator Name Chad Russo

Company Name Geosyntec Consultants Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 00 0' 0" 00 0' 0" Longitude Sonde SN 538243

Turbidity Make/Model LaMotte 2020we Pump placement from TOC

32 ft

Alexis

0.17 in

32 ft

polyethylene

Well Information:

Well ID **HGWC-102** Well diameter 2 in Well Total Depth 37.43 ft Screen Length 10 ft Depth to Water 7.01 ft

Pumping Information:

Final Pumping Rate 200 mL/min **Total System Volume** 0.2328295 L **Calculated Sample Rate** 300 sec Stabilization Drawdown 3.6 in **Total Volume Pumped** 0 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS/	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:12:16	300.03	14.97	6.89	917.29	4.65	7.22	0.57	98.11
Last 5	09:17:16	600.02	15.22	6.18	928.03	3.09	7.22	0.46	101.02
Last 5	09:22:16	900.02	15.36	5.90	938.26	2.78	7.22	0.27	106.40
Last 5	09:27:16	1200.02	15.46	5.81	940.61	2.15	7.22	0.23	110.52
Last 5	09:32:16	1500.02	15.29	5.77	933.46	2.79	7.22	0.21	110.78
Variance 0			0.14	-0.29	10.23			-0.19	5.38
Variance 1			0.11	-0.09	2.35			-0.04	4.12
Variance 2			-0.18	-0.03	-7.15			-0.02	0.26

Notes

SmarTroll stopped by accident. Restarting SmarTroll while keeping track of stabilization criteria in paper log.

Date: 2020-03-04 09:44:22

Pump Information: Pump Model/Type

Tubing Type

Tubing Diameter

Tubing Length

Project Information:

Chad Russo Operator Name

Company Name Geosyntec Consultants

Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 00 0' 0"

00 0' 0" Longitude Sonde SN 538243

Turbidity Make/Model LaMotte 2020we

ft Pump placement from TOC

Well Information:

Well ID **HGWC-102** Well diameter 2 in Well Total Depth 37.43 ft Screen Length 10 ft **Depth to Water** 7.01 ft

Pumping Information:

Final Pumping Rate 200 mL/min **Total System Volume** 0.09 L **Calculated Sample Rate** 300 sec Stabilization Drawdown 3.6 in **Total Volume Pumped** 7 L

Alexis

0.17 in

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS/	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5 Last 5 Last 5 Last 5 Last 5	09:41:17	300.03	15.37	5.75	936.94	2.13	7.22	0.20	113.90
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.00	0.00	0.00			0.00	0.00
Variance 2			0.00	0.00	0.00			0.00	0.00

Notes

Five bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), one 120-mL plastic bottle for CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A).

Grab Samples

HGWC-102 Grab

Date: 2020-03-24 10:26:40

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

Tubing Type

Project Information:

Operator Name Chad Russo

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond
Site Name Plant Hammond

Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 364452

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

m TOC 39 ft

QED MP50

0.17 in

39 ft

polyethylene

Well Information:

Well ID HGWA-111
Well diameter 2 in
Well Total Depth 43.67 ft
Screen Length 10 ft
Depth to Water 9.48 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.6590735 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 4 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS	Com Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:07:01	300.06	17.01	7.35	357.41	1.55	10.38	3.52	57.08
Last 5	10:17:01	900.02	17.04	7.37	362.13	1.67	10.39	3.26	58.32
Last 5	10:22:01	1200.02	17.05	7.37	362.15	3.22	10.39	3.21	46.51
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.03	0.02	4.72			-0.26	1.24
Variance 2			0.01	-0.00	0.02			-0.05	-11.81

Notes

Five bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C); one 250-mL plastic bottle for CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A).

Grab Samples HGWA-111 Grab

Date: 2020-03-24 11:03:24

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

Tubing Type

Project Information:

Operator Name Aaron Reeder

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

Site Name Plant Hammond Latitude 0° 0' 0"

Longitude 0° 0' 0"
Sonde SN 440279

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

2 ft

QED MP50

0.17 in

32 ft

polyethylene

Well Information:

Well ID HGWA-112
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 6.25 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.6278296 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 13.25 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	S/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:40:01	3000.02	17.14	5.64	84.64	7.72	7.60	4.63	85.69
Last 5	10:45:01	3300.02	17.11	5.65	84.37	7.72	7.62	2.58	86.44
Last 5	10:50:03	3602.02	17.36	5.64	84.42	6.62	7.91	2.50	81.65
Last 5	10:55:03	3902.02	17.23	5.64	84.27	4.51	7.82	2.44	82.50
Last 5	11:00:03	4202.02	17.14	5.65	84.29			5.67	94.77
Variance 0			0.25	-0.01	0.04			-0.08	-4.79
Variance 1			-0.14	0.00	-0.14			-0.06	0.85
Variance 2			-0.08	0.00	0.01			3.22	12.27

Notes

Five bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C); one 250-mL plastic bottle for CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A).

Grab Samples HGWA-112 Grab

Date: 2020-03-24 15:19:22

Project Information:

Operator Name Aaron Reeder

Company Name **Geosyntec Consultants** Project Name **GP-Plant Hammond**

Site Name Plant Hammond Latitude 0° 0' 0" 0° 0' 0" Longitude 440279

Turbidity Make/Model LaMotte 2020we Pump Information:

Pump Model/Type QED MP50 **Tubing Type** polyethylene

ft

Tubing Diameter 0.17 in Tubing Length 30 ft

Pump placement from TOC

Well Information:

Sonde SN

Well ID **HGWA-113** Well diameter 2 in 36.53 ft Well Total Depth Screen Length 10 ft Depth to Water 2.80 ft

Pumping Information:

Final Pumping Rate 50 mL/min Total System Volume 0.6189027 L Calculated Sample Rate 300 sec Stabilization Drawdown 3.6 in **Total Volume Pumped** 9.75 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	S/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	14:56:33	7809.02	19.63	6.02	103.01	12.20	10.25	3.64	68.03
Last 5	15:01:33	8109.02	19.37	6.02	103.01	6.40	10.20	4.45	67.02
Last 5	15:06:33	8409.01	19.64	6.02	103.66	5.40	10.25	3.65	66.60
Last 5	15:11:33	8709.02	19.77	6.03	104.01	6.20	10.25	3.52	66.56
Last 5	15:16:33	9009.02	19.64	6.03	104.29	4.49	10.30	3.41	65.70
Variance 0			0.27	-0.00	0.65			-0.80	-0.42
Variance 1			0.13	0.01	0.35			-0.13	-0.05
Variance 2			-0.13	-0.00	0.29			-0.10	-0.86

Notes

Five bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C); one 250-mL plastic bottle for CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A).

Grab Samples HGWA-113 Grab

Date: 2020-04-09 16:21:52

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

Tubing Type

Project Information:

Operator Name Chad Russo

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0" Longitude 0° 0' 0" Sonde SN 647057

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

31 ft

QED MP50

0.17 in

31 ft

polyethylene

Well Information:

Well ID HGWA-113
Well diameter 2 in
Well Total Depth 36.53 ft
Screen Length 10 ft
Depth to Water 3.53 ft

Pumping Information:

Final Pumping Rate 100 mL/min
Total System Volume 0.6233661 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 23.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	S/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	15:58:25	10799.80	20.95	6.08	97.43	13.80	17.85	1.34	71.47
Last 5	16:03:25	11099.80	20.91	6.09	96.82	12.20	18.00	1.32	71.29
Last 5	16:08:25	11399.79	20.71	6.08	97.27	11.30	18.15	1.31	71.69
Last 5	16:13:25	11699.86	20.69	6.08	97.01	11.50	18.29	1.32	71.68
Last 5	16:18:25	11999.78	20.64	6.08	97.06	9.92	18.40	1.30	71.84
Variance 0			-0.20	-0.01	0.45			-0.01	0.40
Variance 1			-0.02	-0.00	-0.27			0.01	-0.00
Variance 2			-0.05	0.00	0.05			-0.02	0.15

Notes

Five bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C); one 250-mL plastic bottle for CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B).

Grab Samples HGWA-113 Grab

Date: 2020-03-25 09:53:16

Pump Information:

Project Information:

Operator Name Chad Russo Pump Model/Type QED MP50 Company Name **Geosyntec Consultants Tubing Type** polyethylene Project Name GP-Plant Hammond Tubing Diameter 0.17 in

Tubing Length Site Name Plant Hammond 32 ft

Latitude 0° 0' 0" 0° 0' 0" Longitude Sonde SN 364452

Turbidity Make/Model LaMotte 2020we Pump placement from TOC 32 ft

Pumping Information: Well Information:

Final Pumping Rate 200 mL/min Well ID HGWC-101 Well diameter Total System Volume 0.6278296 L 2 in Calculated Sample Rate Well Total Depth 37.94 ft 300 sec Stabilization Drawdown Screen Length 10 ft 3.6 in

Depth to Water **Total Volume Pumped** 6 L 8.78 ft

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:15:54	300.05	17.46	5.58	183.73	5.75	11.00	2.55	110.59
Last 5	09:20:54	600.02	17.55	5.56	187.72	3.24	11.70	2.24	100.29
Last 5	09:25:54	900.02	17.47	5.53	203.98	3.94	11.76	1.94	93.98
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.09	-0.02	3.98			-0.31	-10.30
Variance 2			-0.08	-0.03	16.26			-0.30	-6.32

Notes

SmarTroll battery died.

Low-Flow Test Report:

Test Date / Time: 3/25/2020 12:36:29 PM

Project: Plant Hammond **Operator Name:** Chad Russo

Location Name: HGWC-101

Well Diameter: 2 in Casing Type: PVC Screen Length: 10 ft Top of Screen: 28 ft Total Depth: 37.94 ft **Pump Type: Bladder**

Tubing Type: Poly ethylene
Pump Intake From TOC: 33 ft
Estimated Total Volume Pumped:

6 liter

Flow Cell Volume: 90 ml Final Flow Rate: 100 ml/min Final Draw Down: 3.25 ft Instrument Used: SmarTROLL MP

Serial Number: 364452

Test Notes:

Five bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C); one 250-mL plastic bottle for CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A).

Low-Flow Readings:

Date Time	Elapsed Time	рН	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 0.5	+/- 5 %	+/- 10 %	+/- 10	+/- 10	+/- 0.3	
3/25/2020 12:36 PM	00:00	5.48 pH	18.67 °C	234.77 μS/cm	1.42 mg/L		110.5 mV		100.00 ml/min
3/25/2020 12:36 PM	00:28	5.48 pH	18.83 °C	234.63 μS/cm	1.42 mg/L		84.1 mV		100.00 ml/min
3/25/2020 12:39 PM	02:58	5.49 pH	18.70 °C	233.00 μS/cm	1.41 mg/L	0.69 NTU	63.5 mV	11.18 ft	100.00 ml/min
3/25/2020 12:44 PM	07:58	5.42 pH	17.81 °C	287.78 μS/cm	0.61 mg/L	0.59 NTU	56.7 mV	11.39 ft	100.00 ml/min
3/25/2020 12:49 PM	12:58	5.48 pH	17.89 °C	236.39 μS/cm	1.28 mg/L	0.71 NTU	59.6 mV	11.65 ft	100.00 ml/min
3/25/2020 12:54 PM	17:58	5.48 pH	18.21 °C	235.64 μS/cm	1.25 mg/L	0.64 NTU	61.8 mV	11.80 ft	100.00 ml/min
3/25/2020 12:59 PM	22:58	5.47 pH	18.88 °C	242.80 μS/cm	1.13 mg/L	0.64 NTU	59.8 mV	11.80 ft	100.00 ml/min
3/25/2020 1:01 PM	24:53	5.47 pH	18.70 °C	249.91 μS/cm	1.06 mg/L		79.1 mV	11.80 ft	100.00 ml/min
3/25/2020 1:06 PM	29:53	5.51 pH	18.62 °C	214.56 μS/cm	1.36 mg/L	0.37 NTU	61.8 mV	12.50 ft	100.00 ml/min
3/25/2020 1:11 PM	34:53	5.51 pH	19.42 °C	215.38 μS/cm	1.29 mg/L	0.63 NTU	60.7 mV	12.30 ft	100.00 ml/min
3/25/2020 1:16 PM	39:53	5.44 pH	19.06 °C	281.45 μS/cm	0.66 mg/L	0.47 NTU	54.3 mV	12.15 ft	100.00 ml/min
3/25/2020 1:21 PM	44:53	5.44 pH	18.66 °C	275.38 μS/cm	0.68 mg/L	0.84 NTU	54.0 mV	12.11 ft	100.00 ml/min
3/25/2020 1:26 PM	49:53	5.45 pH	18.97 °C	267.18 μS/cm	0.68 mg/L	0.51 NTU	51.6 mV	12.05 ft	100.00 ml/min
3/25/2020 1:27 PM	51:10	5.45 pH	18.97 °C	267.60 μS/cm	0.67 mg/L		62.8 mV	12.05 ft	100.00 ml/min

3/25/2020	FC:10	E 4E all	40.00.00	260 FFC/om	0.66	O CO NITU	40.6 m\/	12.0F.#	100.00 ml/min
1:32 PM	56:10	5.45 pH	18.98 °C	268.55 μS/cm	0.66 mg/L	0.60 NTU	49.6 mV	12.05 ft	100.00 ml/min

Samples

Sample ID:	Description:
HGWC-101	Grab

Created using VuSitu from In-Situ, Inc.

Date: 2020-03-24 15:58:43

Project Information:

Well Information:

Well Total Depth

Well diameter

Screen Length

Depth to Water

Well ID

Operator Name Shawn Lin

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

HGWC-102

2 in

10 ft

37.43 ft

10.18 ft

Site Name Plant Hammond

Latitude 0° 0' 0" Longitude 0° 0' 0" Sonde SN 646777

Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis

Tubing Type polyethylene

ft

Tubing Diameter 0.17 in Tubing Length ft

Pump placement from TOC

Pumping Information: Final Pumping Rate

Final Pumping Rate 200 mL/min
Total System Volume 0.09 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 6 L

Low-Flow Sampling Stabilization Summary

LOW 1 10W C	Time	Elapsed	Temp C	рН	SpCond μS	cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	15:40:53	300.08	18.21	5.60	653.59	2.30	10.51	2.64	145.01
Last 5	15:45:53	600.02	18.08	5.59	672.25	2.81	10.46	2.56	130.05
Last 5	15:50:53	900.00	18.38	5.58	666.75	2.29	10.44	2.80	119.74
Last 5	15:55:53	1200.00	18.45	5.58	672.53	1.65	10.42	2.81	111.92
Last 5									
Variance 0			-0.13	-0.02	18.66			-0.08	-14.96
Variance 1			0.31	-0.01	-5.49			0.24	-10.31
Variance 2			0.07	-0.00	5.78			0.01	-7.83

Notes

Five bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C); one 250-mL plastic bottle for CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B).

Grab Samples HGWC-102 Grab

Date: 2020-03-25 12:26:34

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

Tubing Type

Project Information:

Operator Name Shawn Lin

Company Name **Geosyntec Consultants** Project Name **GP-Plant Hammond**

Site Name Plant Hammond

Latitude 0° 0' 0" 0° 0' 0" Longitude Sonde SN 646777

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

Well Information:

Well ID HGWC-103 Well diameter 2 in 37.68 ft Well Total Depth Screen Length 10 ft Depth to Water 9.56 ft

Pumping Information:

Final Pumping Rate 200 mL/min Total System Volume 0.485 L Calculated Sample Rate 300 sec Stabilization Drawdown 3.6 in **Total Volume Pumped** 28 L

QED MP50

0.17 in

ft

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS	S/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization	1		+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	12:01:27	5400.02	17.18	5.49	700.27	6.77	9.53	0.10	82.41
Last 5	12:06:27	5700.02	17.19	5.49	700.88	6.21	9.53	0.10	82.85
Last 5	12:11:27	6000.02	17.20	5.49	700.81	6.02	9.53	0.12	82.48
Last 5	12:16:27	6300.02	17.26	5.49	698.89	5.18	9.53	0.11	82.58
Last 5	12:21:27	6600.02	17.23	5.49	701.02	4.94	9.53	0.10	82.39
Variance 0			0.01	-0.00	-0.07			0.03	-0.37
Variance 1			0.06	-0.00	-1.92			-0.02	0.11
Variance 2			-0.03	0.00	2.14			-0.01	-0.19

Notes

Five bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C); one 250-mL plastic bottle for CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B).

Grab Samples HGWC-103 Grab FD-04 Grab

Date: 2020-03-25 12:01:21

Project Information:

Operator Name Nelson Gunby
Company Name Geosyntec Consultants

Project Name GP-Plant Hammond
Site Name Plant Hammond

Latitude 0° 0' 0"

Longitude 0° 0' 0"

Sonde SN 364456

Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type QED MP50 Tubing Type polyethylene

ft

Tubing Diameter 0.17 in Tubing Length ft

Pump placement from TOC

Well Information:

Well IDHGWC-105Well diameter2 inWell Total Depth44.67 ftScreen Length10 ftDepth to Water12.75 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.485 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 13 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	11:36:33	2700.03	12.16	6.52	615.65	6.24	12.97	0.30	-12.21
Last 5	11:41:33	3000.03	12.19	6.51	611.48	5.88	12.95	0.29	-14.58
Last 5	11:46:33	3300.03	12.21	6.49	607.93	4.84	12.95	0.27	-17.34
Last 5	11:51:33	3600.03	12.29	6.48	605.52	4.64	12.94	0.27	-18.93
Last 5	11:56:33	3900.03	12.34	6.47	600.89	4.62	12.93	0.26	-21.20
Variance 0			0.02	-0.02	-3.55			-0.02	-2.76
Variance 1			0.08	-0.01	-2.40			-0.01	-1.59
Variance 2			0.06	-0.01	-4.63			-0.01	-2.27

Notes

Five bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C); one 250-mL plastic bottle for CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B).

Grab Samples HGWC-105 Grab

Date: 2020-03-25 14:35:30

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

Tubing Type

Project Information:

Operator Name Nelson Gunby

Company Name **Geosyntec Consultants** Project Name **GP-Plant Hammond**

Site Name Plant Hammond

Latitude 0° 0' 0" 0° 0' 0" Longitude Sonde SN 364456

Turbidity Make/Model LaMotte 2020we Pump placement from TOC

Well Information:

Well ID HGWC-107 Well diameter 2 in 38.20 ft Well Total Depth Screen Length 10 ft Depth to Water 10.5 ft

Pumping Information:

Final Pumping Rate 200 mL/min Total System Volume 0.485 L Calculated Sample Rate 300 sec Stabilization Drawdown 3.6 in **Total Volume Pumped** 18 L

QED MP50

0.17 in

ft

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	14:13:17	3300.03	13.62	6.13	416.61	3.30	10.47	0.26	116.90
Last 5	14:18:17	3600.03	13.57	6.13	417.47	2.89	10.43	0.25	108.61
Last 5	14:23:17	3900.04	14.21	6.13	415.82	2.77	10.23	0.24	109.11
Last 5	14:28:17	4200.04	14.35	6.13	414.25	2.42	10.43	0.25	116.65
Last 5	14:33:17	4500.04	14.15	6.13	414.00	2.55	10.43	0.25	118.62
Variance 0			0.64	-0.00	-1.65			-0.01	0.49
Variance 1			0.14	-0.00	-1.57			0.00	7.54
Variance 2			-0.20	0.00	-0.25			0.00	1.97

Notes

Five bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C); one 250-mL plastic bottle for CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B).

Grab Samples HGWC-107 Grab

Date: 2020-03-25 16:07:20

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

Tubing Type

Project Information:

Operator Name Shawn Lin

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0" Longitude 0° 0' 0" Sonde SN 646777

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

Well Information:

Well ID HGWC-109
Well diameter 2 in
Well Total Depth 31.36 ft
Screen Length 10 ft
Depth to Water 4.75 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.485 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 30 L

QED MP50

0.17 in

ft

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS	Com Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	15:45:35	6007.02	19.18	6.57	295.03	7.03	4.79	1.63	-44.62
Last 5	15:50:35	6307.02	19.28	6.57	345.53	5.21	4.79	0.25	-45.39
Last 5	15:55:36	6608.02	18.64	6.57	354.14	5.03	4.79	0.15	-46.61
Last 5	16:00:36	6908.02	18.75	6.58	355.32	4.39	4.79	0.14	-47.83
Last 5	16:05:36	7208.02	18.16	6.59	353.51	4.27	4.79	0.11	-47.89
Variance 0			-0.64	0.00	8.61			-0.10	-1.23
Variance 1			0.10	0.01	1.18			-0.01	-1.22
Variance 2			-0.58	0.01	-1.81			-0.03	-0.07

Notes

Battery died during purge.

Date: 2020-03-25 16:56:13

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

Tubing Type

Project Information:

Operator Name Shawn Lin

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0" Longitude 0° 0' 0" Sonde SN 646777

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

Well Information:

Well ID HGWC-109
Well diameter 2 in
Well Total Depth 31.36 ft
Screen Length 10 ft
Depth to Water 4.75 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.485 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 30 L

QED MP50

0.17 in

ft

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS	/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	16:43:36	300.07	17.67	6.51	354.23	3.63	4.68	0.16	-31.51
Last 5	16:48:36	600.02	17.45	6.54	355.06	3.02	4.68	0.10	-38.90
Last 5	16:53:36	900.02	17.37	6.56	356.22	2.69	4.68	0.11	-43.09
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			-0.22	0.03	0.83			-0.06	-7.39
Variance 2			-0.08	0.02	1.16			0.01	-4.20

Notes

Five bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C); one 250-mL plastic bottle for CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B).

Grab Samples HGWC-109 Grab

Date: 2020-03-24 16:37:35

Project Information:

Operator Name Chad Russo

Company Name **Geosyntec Consultants** Project Name **GP-Plant Hammond**

Site Name Plant Hammond Latitude 0° 0' 0" 0° 0' 0" Longitude

Turbidity Make/Model LaMotte 2020we

364452

Well Information:

Sonde SN

Well ID HGWC-117 Well diameter 2 in Well Total Depth 40.26 ft Screen Length 10 ft Depth to Water 14.04 ft

Pump Information:

Pump Model/Type QED MP50 **Tubing Type** polyethylene

35 ft

Tubing Diameter 0.17 in Tubing Length 35 ft

Pump placement from TOC

Pumping Information:

Final Pumping Rate 200 mL/min Total System Volume 0.6412198 L Calculated Sample Rate 300 sec Stabilization Drawdown 3.6 in **Total Volume Pumped** 38 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS	S/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization	า		+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	16:14:12	9901.00	18.43	5.99	478.29	10.06	14.00	0.12	31.83
Last 5	16:19:12	10201.00	18.39	5.99	477.44	9.66	14.00	0.13	31.67
Last 5	16:24:12	10501.00	18.33	5.99	477.58	9.92	14.00	0.13	31.51
Last 5	16:29:12	10801.00	18.43	5.99	476.36	8.49	14.00	0.12	31.85
Last 5	16:34:12	11101.00	18.35	5.99	478.91	8.52	14.00	0.13	31.33
Variance 0			-0.06	-0.00	0.14			0.00	-0.16
Variance 1			0.10	-0.00	-1.21			-0.01	0.34
Variance 2			-0.09	0.00	2.54			0.00	-0.52

Notes

Five bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C); one 250-mL plastic bottle for CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A).

Grab Samples HGWC-117 Grab

Date: 2020-03-25 09:33:16

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

Tubing Type

Project Information:

Operator Name Shawn Lin

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0" Longitude 0° 0' 0" Sonde SN 646777

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

Well Information:

Well ID HGWC-118
Well diameter 2 in
Well Total Depth 40.90 ft
Screen Length 10 ft
Depth to Water 8.91 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.485 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 17 L

QED MP50

0.17 in

ft

ft

polyethylene

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS	/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:11:52	900.01	18.10	6.87	554.84	13.51	9.00	0.12	56.08
Last 5	09:16:52	1200.00	18.17	6.88	554.25	9.34	9.00	0.12	53.23
Last 5	09:21:52	1500.00	18.21	6.88	555.61	6.45	9.00	0.11	51.51
Last 5	09:26:52	1799.99	18.22	6.89	555.59	5.49	9.00	0.11	49.50
Last 5	09:31:52	2099.98	18.26	6.89	555.85	4.42	9.00	0.11	48.45
Variance 0			0.04	0.00	1.35			-0.01	-1.72
Variance 1			0.01	0.01	-0.02			-0.00	-2.01
Variance 2			0.03	-0.00	0.26			-0.00	-1.05

Notes

Five bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C); one 250-mL plastic bottle for CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A).

Grab Samples HGWC-118 Grab

Date: 2020-06-18 14:06:59

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

Tubing Type

Project Information:

Operator Name Chad Russo

Company Name Geosyntec Consultants
Project Name GP-Plant Hammond

Site Name Plant Hammond

Latitude 0° 0' 0" Longitude 0° 0' 0" Sonde SN 643819

Turbidity Make/Model LaMotte 2020we

Pump placement from TOC

33 ft

Alexis

0.17 in

33 ft

polyethylene

Well Information:

Well ID HGWC-102
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 12.87 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.237293 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 7 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	13:44:59	600.02	20.08	5.68	624.12	16.30	13.11	0.52	85.68
Last 5	13:49:59	900.02	20.35	5.68	622.45	13.00	13.11	0.52	84.05
Last 5	13:54:59	1200.02	20.39	5.67	634.42	9.19	13.11	0.51	83.07
Last 5	13:59:59	1500.02	20.12	5.67	623.08	9.77	13.11	0.51	81.76
Last 5	14:04:59	1800.02	19.95	5.67	622.53	4.36	13.11	0.49	81.35
Variance 0			0.05	-0.00	11.97			-0.01	-0.98
Variance 1			-0.28	-0.00	-11.34			0.00	-1.31
Variance 2			-0.17	-0.00	-0.55			-0.02	-0.41

Notes

Five bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C); one 250-mL plastic bottle for CI, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B).

Grab Samples HGWC-102 Grab

APPENDIX D

Statistical Analyses



1255 Roberts Boulevard NW, Suite 200 Kennesaw, Georgia 30144 PH 678.202.9500 FAX 678.202.9501 www.geosyntec.com

April 10, 2020

Ms. Lauren Petty, PG SCS Groundwater Project Manager Southern Company Services Environmental Solutions 3535 Colonnade Parkway Birmingham, Alabama 35243

Subject: 2019 Semi-Annual Groundwater Monitoring & Corrective Action

Statistical Summary Letter

Dear Ms. Petty:

This 2019 Semi-Annual Groundwater Monitoring & Corrective Action Statistical Summary Letter provides the statistical analysis of the October 2019 Assessment Monitoring Event for Georgia Power Company's (Georgia Power) Plant Hammond Ash Pond 4 (AP-4). The analysis complies with the Georgia Environmental Protection Division (GA EPD) Rules for Solid Waste Management Chapter 391-3-4-.10 and follows the 2009 USEPA document *Statistical Analysis of Groundwater Data at RCRA Facilities Unified Guidance* (Unified Guidance).

A network of eleven compliance monitoring wells was installed to monitor groundwater conditions near AP-4. Three wells (HGWA-111, HGWA-112, and HGWA-113) are designated for monitoring background groundwater conditions and eight wells (HGWC-101, HGWC-102, HGWC-103, HGWC-105, HGWC-107, HGWC-109, HGWC-117 and HGWC-118) are designated for monitoring downgradient groundwater conditions. After the initial Appendix IV assessment monitoring event, Georgia Power reclassified groundwater level monitoring piezometer GWC-2 as compliance monitoring well HGWC-102. The reclassification was done in support of a recommendation issued by GA EPD. Background sampling in HGWC-102 began in October 2019. HGWC-102 will be statically analyzed once a sufficient number of background samples have been collected as recommended by the Unified Guidance.

1. First Semi-Annual Assessment Event Statistical Method

The Sanitas groundwater statistical software was used to perform the statistical analyses. Sanitas is a decision-support software package, that incorporates the statistical tests required of Subtitle C and D facilities by USEPA regulations and guidance as recommended in the Unified Guidance.

Ms. Lauren Petty, PG April 10, 2020 Page 2

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

Following the Unified Guidance recommendation, HGWC-102 should be sampled a minimum of four times before performing a statistical analysis of its data.

1.1. Appendix III Statistical Methods

Based on guidance from GA EPD, statistical tests used to evaluate the groundwater monitoring data consist of interwell prediction limits combined with a 1-of-2 verification resample plan for each of the Appendix III parameters. Interwell prediction limits (PLs) are constructed pooling upgradient well data from wells HGWA-111, HGWA-112, and HGWA-113 to establish a background limit for an individual constituent. The most recent sample from each downgradient well is compared to the background limit to determine whether there are statistically significant increases (SSIs). An "initial exceedance" occurs when an Appendix III constituent reported in the groundwater of a downgradient compliance monitoring well exceeds the constituent's associated PL. The 1-of-2 resample plan allows for collection of an independent resample. A confirmed exceedance is noted only when the resample confirms the initial exceedance by also exceeding the statistical limit. If the resample falls within its respective prediction limit, no exceedance is declared.

1.2. Appendix IV Statistical Methods

Constituents detected during the initial annual Appendix IV sampling event (August 2019) were sampled during the October 2019 assessment monitoring event. To statistically compare groundwater data to groundwater protection standards (GWPS), confidence intervals are constructed for each of the detected Appendix IV constituents in each downgradient compliance monitoring well. Those confidence intervals are compared to the state GWPS. Only when the entire confidence interval is above a GWPS is the well/constituent pair considered to exceed its GWPS. If a confidence interval exceeds a GWPS, a statistically significant level (SSL) exceedance is identified.

Background limits were used when determining the GWPS under GA EPD CCR Rule 391-3-4-.10(6)(a). Parametric tolerance limits were used when data followed a normal or transformed-

normal distribution to calculate background limits from pooled upgradient well data for Appendix IV parameters with a target of 95% confidence and 95% coverage. Nonparametric tolerance limits are utilized when the percentage of nondetects is greater than 50% or when data do not follow a normal or transformed-normal distribution. The confidence and coverage levels for nonparametric tolerance limits are dependent upon the number of background samples.

As described in the GA EPD CCR Rule, the GWPS is:

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

Following the above state rule requirements, GWPS have been established for statistical comparison of Appendix IV constituents and are presented in the attached Summary of Background Concentrations and Groundwater Protection Standards table.

2. First Semi-Annual Assessment Event Statistical Results

2.1. Appendix III Statistical Results

Review of the Sanitas results indicates that the following verified SSIs were noted following the October 2019 sampling event:

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

2.2. Appendix IV Statistical Results

Review of the Sanitas results indicates that no SSLs were identified using the GWPS established according to 391-3-4-.10(6)(a).

Should you have any questions regarding these responses, please do not hesitate to contact either of the undersigned at (678) 202-9500.

Ms. Lauren Petty, PG April 10, 2020 Page 4

Sincerely,

Whitney Law, P.E.

Senior Engineer

Noelia Muskus

Senior Staff Professional

Moelia Musbus

Attachment: 1. Summary of Background Concentrations and Groundwater Protection

Standards

2. Statistical Analyses

ATTACHMENT 1

Summary of Background Concentrations and Groundwater Protection Standards

Summary of Background Concentrations and Groundwater Protection Standards

October 2019 Assessment Monitoring Plant Hammond AP-4, Floyd County, Georgia

Analyte	MCL	RSL ⁽¹⁾	Units	Background ⁽²⁾	State GWPS ⁽³⁾
Antimony	0.006		mg/L	0.003	0.006
Arsenic	0.01		mg/L	0.005	0.01
Barium	2		mg/L	0.033	2
Beryllium	0.004		mg/L	0.003	0.004
Cadmium	0.005		mg/L	0.0025	0.005
Chromium	0.1		mg/L	0.0086	0.1
Cobalt	N/A	0.006	mg/L	0.005	0.005
Fluoride	4		mg/L	0.25	4
Lead	N/A	0.015	mg/L	0.005	0.005
Lithium	N/A	0.04	mg/L	0.03	0.03
Mercury	0.002	-	mg/L	0.0005	0.002
Molybdenum	N/A	0.1	mg/L	0.01	0.01
Selenium	0.05		mg/L	0.01	0.05
Thallium	0.002		mg/L	0.001	0.002
Combined Radium-226/228	5		pCi/L	1.37	5

Notes:

- 1. Regional Screening Level (RSL) per CCR Rule Amendment, July 30, 2018. The value listed for lead is the established United States Environmental Protection Agency (USEPA) Action Level for drinking water.
- 2. The background limits were used when determining the groundwater protection standard (GWPS) under Georgia Environmental Protection Division (EPD) Rule 391-3-4-.10(6)(a).
- 3. Under the existing Georgia EPD rules, the GWPS is: (i) the MCL, (ii) where the MCL is not established, the background concentration, or (iii) background concentrations for constituents were the background level is higher than the MCL.

1 of 1

March 2020

[&]quot;--" = not applicable

[&]quot;MCL" - Maximum Contaminant Level

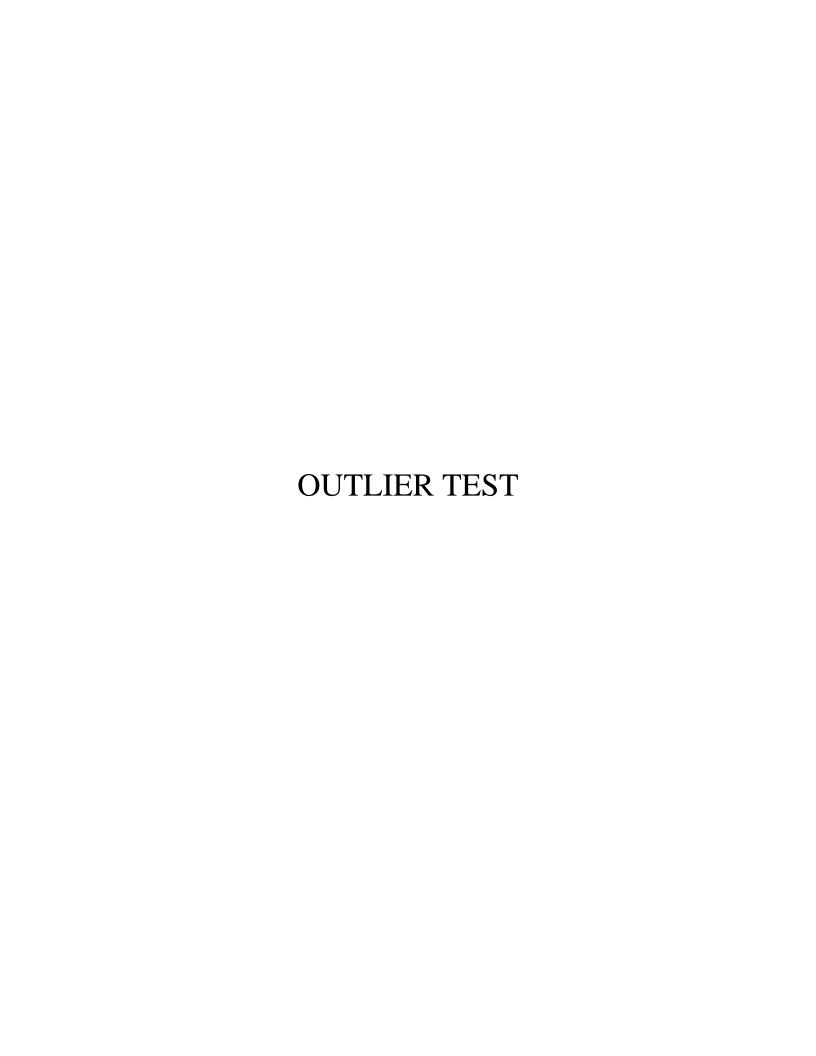
[&]quot;mg/L" = milligrams per liter

[&]quot;N/A" - Not Available

[&]quot;pCi/L" = picocuries per liter

ATTACHMENT 2

Statistical Analyses



	Outlier Summa		
	Hammond AP Client: Georgia Power Data: Har	nmond AP-4 Printed 3/13/2020, 2:43 PM	
HGWA-112 Total Dissolved Solids (mg/L) 152 (o)			
ote: Outlier was flagged during the 2019 Annua	I CCR Report statistical analysis.		

Outlier Analysis - Significant Results Hammond AP Client: Georgia Power Data: Hammond AP-4 Printed 3/13/2020, 2:38 PM

			· ·								
Constituent	<u>Well</u>	<u>Outlier</u>	Value(s)	Date(s)	Method	<u>Alpha</u>	<u>N</u>	<u>Mean</u>	Std. Dev.	<u>Distribution</u>	Normality Test
Barium (mg/L) ⁽¹⁾	HGWC-105	Yes	0.0745	10/25/2016	NP	NaN	10	0.0673	0.002725	ln(x)	ShapiroWilk
pH (s.u.) ⁽¹⁾	HGWC-103	Yes	5.98	5/23/2017	NP	NaN	12	5.563	0.1406	ln(x)	ShapiroWilk
Selenium (mg/L) ⁽²⁾	HGWA-113 (bg)	Yes	0.01	11/14/2017	NP	NaN	9	0.003322	0.002537	In(x)	ShapiroWilk
Sulfate (mg/L) ⁽³⁾	HGWC-107	Yes	139.123	4/3/2019.10/22/2019	NP	NaN	11	130.2	3.92	ln(x)	ShapiroWilk

Notes:

- 1. Value is similar to historical values within the well.
- 2. Non-Detect value.
- 3. Values are similar to values in neighboring wells.
- 4. No outliers were flagged in this round of analysis.

Constituent	Well	Outlier	Value(s)	Date(s)	Method	<u>Alpha</u>	<u>N</u>	<u>Mean</u>	Std. Dev.	Distribution	Normality Test
Antimony (mg/L)	HGWA-111 (bg)	n/a	n/a	n/a	NP	NaN	9	0.003	0	unknown	ShapiroWilk
Antimony (mg/L)	HGWA-112 (bg)	n/a	n/a	n/a	NP	NaN	9	0.003	0	unknown	ShapiroWilk
Antimony (mg/L)	HGWA-113 (bg)	n/a	n/a	n/a	NP	NaN	9	0.003	0	unknown	ShapiroWilk
Antimony (mg/L)	HGWC-101	n/a	n/a	n/a	NP	NaN	9	0.003	0	unknown	ShapiroWilk
Antimony (mg/L)	HGWC-103	n/a	n/a	n/a	NP	NaN	9	0.002911	0.0002667	unknown	ShapiroWilk
Antimony (mg/L)	HGWC-105	n/a	n/a	n/a	NP	NaN	9	0.002011	0.0002007	unknown	ShapiroWilk
Antimony (mg/L)	HGWC-107	n/a	n/a	n/a	NP	NaN	9	0.002789	0.0006333		ShapiroWilk
Antimony (mg/L)	HGWC-109	n/a	n/a	n/a	NP	NaN	9	0.002700	0	unknown	ShapiroWilk
Antimony (mg/L)	HGWC-117	n/a	n/a	n/a	NP	NaN	9	0.003	0	unknown	ShapiroWilk
Antimony (mg/L)	HGWC-118	n/a	n/a	n/a	NP	NaN	9	0.003	0	unknown	ShapiroWilk
Arsenic (mg/L)	HGWA-111 (bg)	n/a	n/a	n/a	NP	NaN	10	0.005	0	unknown	ShapiroWilk
Arsenic (mg/L)	HGWA-112 (bg)	n/a	n/a	n/a	NP	NaN	10	0.005	0	unknown	ShapiroWilk
Arsenic (mg/L)	HGWA-113 (bg)	n/a	n/a	n/a	NP	NaN	10	0.005	0	unknown	ShapiroWilk
Arsenic (mg/L)	HGWC-101	n/a	n/a	n/a	NP	NaN	10	0.005	0	unknown	ShapiroWilk
Arsenic (mg/L)	HGWC-103	n/a	n/a	n/a	NP	NaN	10	0.005	0	unknown	ShapiroWilk
Arsenic (mg/L)	HGWC-105	n/a	n/a	n/a	NP	NaN	10	0.005	0	unknown	ShapiroWilk
Arsenic (mg/L)	HGWC-107	n/a	n/a	n/a	NP	NaN	10	0.005	0	unknown	ShapiroWilk
Arsenic (mg/L)	HGWC-109	No	n/a	n/a	NP	NaN	10	0.00222	0.001109	ln(x)	ShapiroWilk
Arsenic (mg/L)	HGWC-117	n/a	n/a	n/a	NP	NaN	10	0.00222	0.001103	unknown	ShapiroWilk
Arsenic (mg/L)	HGWC-118	n/a	n/a	n/a	NP	NaN	10	0.005	0	unknown	ShapiroWilk
Barium (mg/L)	HGWA-111 (bg)	No	n/a	n/a	NP	NaN	10	0.02693	0.003902	x^2	ShapiroWilk
Barium (mg/L)	HGWA-112 (bg)	No	n/a	n/a	NP	NaN	10	0.02093	0.003302	normal	ShapiroWilk
Barium (mg/L)	HGWA-113 (bg)	No	n/a	n/a	NP	NaN	10	0.02723	0.001753	ln(x)	ShapiroWilk
Barium (mg/L)	HGWC-101	No	n/a	n/a	NP	NaN	10	0.02701	0.001733	ln(x)	ShapiroWilk
, = ,											•
					NP						
Barium (mg/L)	HGWC-103	No Vos	n/a 0.0745	n/a 10/25/2016	NP NP	NaN NaN	10 10	0.03816 0.0673	0.005238	x^4 In(x)	ShapiroWilk ShapiroWilk
Barium (mg/L)	HGWC-105	Yes	0.0745	10/25/2016	NP	NaN	10	0.0673	0.002725	In(x)	ShapiroWilk
Barium (mg/L) Barium (mg/L)	HGWC-105 HGWC-107	Yes No	0.0745 n/a	10/25/2016 n/a	NP NP	NaN NaN	10 10	0.0673 0.03875	0.002725 0.0009407	In(x) In(x)	ShapiroWilk ShapiroWilk
Barium (mg/L) Barium (mg/L) Barium (mg/L)	HGWC-105 HGWC-107 HGWC-109	Yes No No	0.0745 n/a n/a	10/25/2016 n/a n/a	NP NP NP	NaN NaN NaN	10 10 10	0.0673 0.03875 0.08665	0.002725 0.0009407 0.004622	In(x) In(x) normal	ShapiroWilk ShapiroWilk ShapiroWilk
Barium (mg/L) Barium (mg/L) Barium (mg/L) Barium (mg/L)	HGWC-105 HGWC-107 HGWC-109 HGWC-117	Yes No No No	0.0745 n/a n/a n/a	10/25/2016 n/a n/a n/a	NP NP NP NP	NaN NaN NaN NaN	10 10 10 10	0.0673 0.03875 0.08665 0.04423	0.002725 0.0009407 0.004622 0.007545	In(x) In(x) normal x^4	ShapiroWilk ShapiroWilk ShapiroWilk ShapiroWilk
Barium (mg/L) Barium (mg/L) Barium (mg/L) Barium (mg/L) Barium (mg/L)	HGWC-105 HGWC-107 HGWC-109 HGWC-117 HGWC-118	Yes No No No No	0.0745 n/a n/a n/a n/a	10/25/2016 n/a n/a n/a n/a	NP NP NP NP	NaN NaN NaN NaN NaN	10 10 10 10 10	0.0673 0.03875 0.08665 0.04423 0.05986	0.002725 0.0009407 0.004622 0.007545 0.005983	In(x) In(x) normal x^4 In(x)	ShapiroWilk ShapiroWilk ShapiroWilk ShapiroWilk ShapiroWilk
Barium (mg/L) Barium (mg/L) Barium (mg/L) Barium (mg/L) Barium (mg/L) Beryllium (mg/L)	HGWC-105 HGWC-107 HGWC-109 HGWC-117 HGWC-118 HGWA-111 (bg)	Yes No No No No n/a	0.0745 n/a n/a n/a n/a n/a	10/25/2016 n/a n/a n/a n/a n/a	NP NP NP NP NP NP	NaN NaN NaN NaN NaN NaN	10 10 10 10 10	0.0673 0.03875 0.08665 0.04423 0.05986 0.003	0.002725 0.0009407 0.004622 0.007545 0.005983 0	In(x) In(x) normal x^4 In(x) unknown	ShapiroWilk ShapiroWilk ShapiroWilk ShapiroWilk ShapiroWilk ShapiroWilk
Barium (mg/L) Barium (mg/L) Barium (mg/L) Barium (mg/L) Barium (mg/L) Beryllium (mg/L) Beryllium (mg/L)	HGWC-105 HGWC-107 HGWC-109 HGWC-117 HGWC-118 HGWA-111 (bg) HGWA-112 (bg)	Yes No No No No n/a n/a	0.0745 n/a n/a n/a n/a n/a n/a n/a	10/25/2016 n/a n/a n/a n/a n/a n/a	NP NP NP NP NP NP NP	NaN NaN NaN NaN NaN NaN	10 10 10 10 10 10	0.0673 0.03875 0.08665 0.04423 0.05986 0.003	0.002725 0.0009407 0.004622 0.007545 0.005983 0	In(x) In(x) normal x^4 In(x) unknown unknown	ShapiroWilk ShapiroWilk ShapiroWilk ShapiroWilk ShapiroWilk ShapiroWilk
Barium (mg/L) Barium (mg/L) Barium (mg/L) Barium (mg/L) Barium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L)	HGWC-105 HGWC-107 HGWC-109 HGWC-117 HGWC-118 HGWA-111 (bg) HGWA-112 (bg) HGWA-113 (bg)	Yes No No No No n/a n/a	0.0745 n/a n/a n/a n/a n/a n/a n/a n/a n/a	10/25/2016 n/a n/a n/a n/a n/a n/a n/a	NP NP NP NP NP NP NP NP NP	NaN NaN NaN NaN NaN NaN NaN NaN	10 10 10 10 10 10 10	0.0673 0.03875 0.08665 0.04423 0.05986 0.003 0.003 0.00289	0.002725 0.0009407 0.004622 0.007545 0.005983 0 0 0.0003479	In(x) In(x) normal x^4 In(x) unknown unknown unknown	ShapiroWilk ShapiroWilk ShapiroWilk ShapiroWilk ShapiroWilk ShapiroWilk ShapiroWilk
Barium (mg/L) Barium (mg/L) Barium (mg/L) Barium (mg/L) Barium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L)	HGWC-105 HGWC-107 HGWC-109 HGWC-117 HGWC-118 HGWA-111 (bg) HGWA-112 (bg) HGWA-113 (bg) HGWC-101	Yes No No No No n/a n/a n/a No	0.0745 n/a n/a n/a n/a n/a n/a n/a n/a n/a n/a	10/25/2016 n/a n/a n/a n/a n/a n/a n/a n/a n/a n/a	NP NP NP NP NP NP NP NP NP NP	NaN NaN NaN NaN NaN NaN NaN NaN NaN	10 10 10 10 10 10 10 10	0.0673 0.03875 0.08665 0.04423 0.05986 0.003 0.003 0.00289 0.001827	0.002725 0.0009407 0.004622 0.007545 0.005983 0 0 0.0003479 0.001514	In(x) In(x) normal x^4 In(x) unknown unknown unknown In(x)	ShapiroWilk ShapiroWilk ShapiroWilk ShapiroWilk ShapiroWilk ShapiroWilk ShapiroWilk ShapiroWilk ShapiroWilk
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Barium (mg/L) Barium (mg/L) Barium (mg/L) Barium (mg/L) Barium (mg/L) Barium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L)	HGWC-105 HGWC-107 HGWC-109 HGWC-117 HGWC-118 HGWA-111 (bg) HGWA-113 (bg) HGWC-101 HGWC-103 HGWC-105 HGWC-107 HGWC-109 HGWC-117 HGWC-118 HGWA-111 (bg) HGWA-111 (bg) HGWA-112 (bg) HGWA-112 (bg) HGWA-113 (bg) HGWA-113 (bg)	Yes No No No n/a n/a n/a n/a n/a n/a n/a n/a n/a n/a	0.0745 n/a n/a n/a n/a n/a n/a n/a n/	10/25/2016 n/a n/a n/a n/a n/a n/a n/a n/	NP NP NP NP NP NP NP NP NP NP NP NP NP N	NaN NaN NaN NaN NaN NaN NaN NaN NaN NaN	10 10 10 10 10 10 10 10 10 10 10 10 10 1	0.0673 0.03875 0.08665 0.04423 0.05986 0.003 0.003 0.00289 0.001827 0.003 0.003 0.003 0.003 0.003 0.00415 0.003 0.01144 0.01477 0.01365 0.08548 2.294 1.295	0.002725 0.0009407 0.004622 0.007545 0.005983 0 0 0.0003479 0.001514 0 0 0 0.001234 0 0.005325 0.009875 0.01375 0.01379 0.1969 0.09478	In(x) In(x)	ShapiroWilk ShapiroWilk
Barium (mg/L) Barium (mg/L) Barium (mg/L) Barium (mg/L) Barium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L)	HGWC-105 HGWC-107 HGWC-109 HGWC-117 HGWC-118 HGWA-111 (bg) HGWA-113 (bg) HGWC-101 HGWC-103 HGWC-105 HGWC-107 HGWC-117 HGWC-118 HGWC-111 (bg) HGWA-111 (bg) HGWA-112 (bg) HGWA-112 (bg) HGWA-113 (bg) HGWC-101 HGWC-101 HGWC-101	Yes No No No n/a n/a n/a n/a n/a n/a n/a n/a n/a n/a	0.0745 n/a n/a n/a n/a n/a n/a n/a n/	10/25/2016 n/a n/a n/a n/a n/a n/a n/a n/	NP NP NP NP NP NP NP NP NP NP NP NP NP N	NaN NaN NaN NaN NaN NaN NaN NaN NaN NaN	10 10 10 10 10 10 10 10 10 10 10 10 10 1	0.0673 0.03875 0.08665 0.04423 0.05986 0.003 0.00289 0.001827 0.003 0.003 0.003 0.003 0.003 0.00415 0.003 0.01144 0.01477 0.01365 0.08548 2.294 1.295 0.7996	0.002725 0.0009407 0.004622 0.007545 0.005983 0 0 0.0003479 0.001514 0 0 0 0.001234 0 0.005325 0.009875 0.01375 0.01379 0.1969 0.09478 0.0802	In(x) In(x)	ShapiroWilk ShapiroWilk
Barium (mg/L) Barium (mg/L) Barium (mg/L) Barium (mg/L) Barium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L)	HGWC-105 HGWC-107 HGWC-109 HGWC-117 HGWC-118 HGWA-111 (bg) HGWA-113 (bg) HGWC-101 HGWC-103 HGWC-105 HGWC-107 HGWC-117 HGWC-118 HGWA-111 (bg) HGWA-112 (bg) HGWA-112 (bg) HGWA-113 (bg) HGWC-101 HGWC-101 HGWC-101 HGWC-101	Yes No No No n/a n/a n/a n/a n/a n/a n/a n/a n/a n/a	0.0745 n/a n/a n/a n/a n/a n/a n/a n/	10/25/2016 n/a n/a n/a n/a n/a n/a n/a n/	NP NP	NaN NaN NaN NaN NaN NaN NaN NaN NaN NaN	10 10 10 10 10 10 10 10 10 10 10 10 10 1	0.0673 0.03875 0.08665 0.04423 0.05986 0.003 0.003 0.00289 0.001827 0.003 0.003 0.003 0.003 0.003 0.00415 0.003 0.01144 0.01477 0.01365 0.08548 2.294 1.295 0.7996 0.396	0.002725 0.0009407 0.004622 0.007545 0.005983 0 0 0.0003479 0.001514 0 0 0.001234 0 0.005325 0.009875 0.01375 0.01379 0.1969 0.09478 0.0802 0.04077	In(x) In(x)	ShapiroWilk ShapiroWilk
Barium (mg/L) Barium (mg/L) Barium (mg/L) Barium (mg/L) Barium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Beryllium (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L) Boron (mg/L)	HGWC-105 HGWC-107 HGWC-109 HGWC-117 HGWC-118 HGWA-111 (bg) HGWA-113 (bg) HGWC-101 HGWC-103 HGWC-105 HGWC-107 HGWC-117 HGWC-118 HGWC-111 (bg) HGWA-111 (bg) HGWA-112 (bg) HGWA-112 (bg) HGWA-113 (bg) HGWC-101 HGWC-101 HGWC-101	Yes No No No n/a n/a n/a n/a n/a n/a n/a n/a n/a n/a	0.0745 n/a n/a n/a n/a n/a n/a n/a n/	10/25/2016 n/a n/a n/a n/a n/a n/a n/a n/	NP NP NP NP NP NP NP NP NP NP NP NP NP N	NaN NaN NaN NaN NaN NaN NaN NaN NaN NaN	10 10 10 10 10 10 10 10 10 10 10 10 10 1	0.0673 0.03875 0.08665 0.04423 0.05986 0.003 0.00289 0.001827 0.003 0.003 0.003 0.003 0.003 0.00415 0.003 0.01144 0.01477 0.01365 0.08548 2.294 1.295 0.7996	0.002725 0.0009407 0.004622 0.007545 0.005983 0 0 0.0003479 0.001514 0 0 0 0.001234 0 0.005325 0.009875 0.01375 0.01379 0.1969 0.09478 0.0802	In(x) In(x)	ShapiroWilk ShapiroWilk

Constituent	Mall	Outlier	Value(a)	Dete(e)	Mathad	Alpha	NI NI	Maan	Ctd Day	Distribution	Name of the Toot
Constituent	Well	<u>Outlier</u>	<u>Value(s)</u>	Date(s)	Method ND	Alpha NaN	<u>N</u> 10	Mean	Std. Dev. 0	<u>Distribution</u>	Normality Test
Cadmium (mg/L)	HGWA-111 (bg)	n/a	n/a	n/a	NP	NaN		0.0025	0	unknown	ShapiroWilk
Cadmium (mg/L) Cadmium (mg/L)	HGWA-112 (bg) HGWA-113 (bg)	n/a	n/a	n/a	NP NP	NaN NaN	10 10	0.0025 0.0025	0	unknown unknown	ShapiroWilk
, = ,	HGWC-101	n/a	n/a	n/a	NP				0 5 0.0002661		ShapiroWilk
Cadmium (mg/L) Cadmium (mg/L)	HGWC-101	No No	n/a	n/a		NaN	10			. ,	ShapiroWilk
(0)		No n/a	n/a	n/a	NP NP	NaN	10	0.000722	0.0001036		ShapiroWilk
Cadmium (mg/L)	HGWC-105	n/a	n/a	n/a		NaN	10	0.0025	0	unknown	ShapiroWilk
Cadmium (mg/L)	HGWC-107	No n/a	n/a	n/a	NP	NaN	10	0.00082	0.001159	In(x)	ShapiroWilk
Cadmium (mg/L)	HGWC-109	n/a	n/a	n/a	NP NP	NaN	10	0.0025	0	unknown	ShapiroWilk
Cadmium (mg/L)	HGWC-117 HGWC-118	No n/a	n/a	n/a		NaN	10	0.00063	0.000148 0	normal	ShapiroWilk
Cadmium (mg/L)		n/a	n/a	n/a	NP	NaN	10	0.0025		unknown	ShapiroWilk
Calcium (mg/L)	HGWA-111 (bg)	No	n/a	n/a	NP NP	NaN	10	37.78	14.23	x^2	ShapiroWilk
Calcium (mg/L)	HGWA-112 (bg)	No	n/a	n/a		NaN	10	6.492	0.4155	In(x)	ShapiroWilk
Calcium (mg/L)	HGWA-113 (bg)	No	n/a	n/a	NP NP	NaN	10	6.943	0.4325	x^3	ShapiroWilk
Calcium (mg/L)	HGWC-101	No No	n/a	n/a	NP NP	NaN	10	19.36	1.738	x^(1/3)	ShapiroWilk
Calcium (mg/L)	HGWC-103	No	n/a	n/a		NaN	11	83.76	13	In(x)	ShapiroWilk
Calcium (mg/L)	HGWC-105	No	n/a /-	n/a	NP	NaN	11	79.47	6.457	sqrt(x)	ShapiroWilk
Calcium (mg/L)	HGWC-107	No	n/a	n/a	NP	NaN	11	52.27	4.193	x^6	ShapiroWilk
Calcium (mg/L)	HGWC-109	No	n/a	n/a	NP	NaN	10	38.42	3.54	In(x)	ShapiroWilk
Calcium (mg/L)	HGWC-117	No	n/a	n/a	NP	NaN	11	57.92	16.47	x^4	ShapiroWilk
Calcium (mg/L)	HGWC-118	No	n/a	n/a	NP	NaN	11	80.57	3.543	In(x)	ShapiroWilk
Chloride (mg/L)	HGWA-111 (bg)	No	n/a	n/a	NP	NaN	10	3.02	0.5884	ln(x)	ShapiroWilk
Chloride (mg/L)	HGWA-112 (bg)	No	n/a	n/a	NP	NaN	10	5.35	0.2273	normal	ShapiroWilk
Chloride (mg/L)	HGWA-113 (bg)	No	n/a /-	n/a	NP	NaN	10	1.81	0.1524	x^3	ShapiroWilk
Chloride (mg/L)	HGWC-101	No	n/a	n/a	NP	NaN	10	5.62	0.2251	x^6	ShapiroWilk
Chloride (mg/L)	HGWC-103	No	n/a	n/a	NP	NaN	11	5.855	0.552	x^(1/3)	ShapiroWilk
Chloride (mg/L)	HGWC-105	No	n/a	n/a	NP NP	NaN	10	3.34	0.43	sqrt(x)	ShapiroWilk
Chloride (mg/L)	HGWC-107	No	n/a	n/a		NaN	11	3.155	0.2911	In(x)	ShapiroWilk
Chloride (mg/L)	HGWC-109 HGWC-117	No	n/a	n/a	NP	NaN	10	5.1	0.3559	x^4	ShapiroWilk
Chloride (mg/L)		No	n/a	n/a	NP	NaN	10	6.83	2.67	sqrt(x)	ShapiroWilk
Chloride (mg/L)	HGWC-118	No	n/a	n/a	NP NP	NaN	10	4.39	0.1912	In(x)	ShapiroWilk
Chromium (mg/L)	HGWA-111 (bg)	No No	n/a	n/a	NP NP	NaN NaN	10	0.006511	0.004552 0.0001135	In(x)	ShapiroWilk
Chromium (mg/L)	HGWA-112 (bg)	No	n/a	n/a			10	0.00382	0.0001135		ShapiroWilk
Chromium (mg/L)	HGWA-113 (bg) HGWC-101	No No	n/a	n/a	NP NP	NaN NaN	10	0.00337 0.008124	0.003526	. ,	ShapiroWilk
Chromium (mg/L)	HGWC-101	No	n/a	n/a			10	0.008124	0.003955	ln(x)	ShapiroWilk
Chromium (mg/L)	HGWC-105	No n/a	n/a	n/a	NP NP	NaN NaN	10 10	0.008213	0.003773	In(x)	ShapiroWilk
Chromium (mg/L) Chromium (mg/L)	HGWC-107	n/a	n/a n/a	n/a n/a	NP	NaN	10	0.00904	0.003036	unknown unknown	ShapiroWilk ShapiroWilk
Chromium (mg/L)	HGWC-109	n/a	n/a	n/a	NP	NaN	10	0.009062	0.002966	unknown	ShapiroWilk
Chromium (mg/L)	HGWC-117	n/a	n/a	n/a	NP	NaN	10	0.009002	0.002900	unknown	ShapiroWilk
, ,	HGWC-118		n/a		NP	NaN	10	0.009066	0.002954	unknown	ShapiroWilk
Chromium (mg/L) Cobalt (mg/L)		n/a		n/a	NP	NaN	10	0.009000	0.002934	unknown	-
Cobalt (mg/L)	HGWA-111 (bg) HGWA-112 (bg)	n/a n/a	n/a n/a	n/a n/a	NP	NaN	10	0.005	0	unknown	ShapiroWilk ShapiroWilk
. = .	,	No		n/a	NP	NaN	10	0.003	0.002207		ShapiroWilk
Cobalt (mg/L) Cobalt (mg/L)	HGWA-113 (bg) HGWC-101	No	n/a		NP		10	0.00363	0.002207	ln(x)	-
Cobalt (mg/L)	HGWC-101	No	n/a n/a	n/a n/a	NP NP	NaN NaN	10	0.00269	0.001061	sqrt(x)	ShapiroWilk ShapiroWilk
. = .	HGWC-105			n/a n/a	NP NP	NaN		0.00205	0.0004662	. ,	•
Cobalt (mg/L)	HGWC-105	No n/a	n/a n/a		NP NP	NaN	10 10	0.001604	0.001621	ln(x) unknown	ShapiroWilk
Cobalt (mg/L) Cobalt (mg/L)	HGWC-107	n/a No	n/a	n/a	NP NP	NaN	10 10	0.005	0.0005682		ShapiroWilk ShapiroWilk
, = ,	HGWC-109	No No	n/a n/a	n/a n/a	NP NP	NaN NaN	10 10	0.001741	0.0005682		ShapiroWilk
Cobalt (mg/L) Cobalt (mg/L)	HGWC-118	No	n/a	n/a	NP NP	NaN	10	0.005211	0.002671	` ,	ShapiroWilk
Oobalt (Ilig/L)	110000-110	140	nya	11/ CI	1 111	INGIN	10	0.000211	0.000049	""(^)	σπαριτοννιικ

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Constituent	Well	<u>Outlier</u>	<u>Value(s)</u>	Date(s)	<u>Method</u>	<u>Alpha</u>	<u>N</u>	<u>Mean</u>	Std. Dev.	<u>Distribution</u>	Normality Test
Fluoride (mg/L)	HGWA-111 (bg)	No	n/a	n/a	NP	NaN	11	0.1093	0.1008	ln(x)	ShapiroWilk
Fluoride (mg/L)	HGWA-112 (bg)	No	n/a	n/a	NP	NaN	11	0.1795	0.139	ln(x)	ShapiroWilk
Fluoride (mg/L)	HGWA-113 (bg)	No	n/a	n/a	NP	NaN	11	0.1607	0.03663	x^5	ShapiroWilk
Fluoride (mg/L)	HGWC-101	n/a	n/a	n/a	NP	NaN	11	0.2527	0.1053	unknown	ShapiroWilk
Fluoride (mg/L)	HGWC-103	No	n/a	n/a	NP	NaN	11	0.2256	0.1071	sqrt(x)	ShapiroWilk
Fluoride (mg/L)	HGWC-105	No	n/a	n/a	NP	NaN	11	0.1613	0.1156	ln(x)	ShapiroWilk
Fluoride (mg/L)	HGWC-107	No	n/a	n/a	NP	NaN	11	0.183	0.1203	sqrt(x)	ShapiroWilk
Fluoride (mg/L)	HGWC-109	No	n/a	n/a	NP	NaN	11	0.1385	0.09066	ln(x)	ShapiroWilk
Fluoride (mg/L)	HGWC-117	No	n/a	n/a	NP	NaN	11	0.1838	0.1161	sqrt(x)	ShapiroWilk
Fluoride (mg/L)	HGWC-118	No	n/a	n/a	NP	NaN	12	0.2264	0.2288	ln(x)	ShapiroWilk
Lead (mg/L)	HGWA-111 (bg)	No	n/a	n/a	NP	NaN	10	0.004026	0.002053	ln(x)	ShapiroWilk
Lead (mg/L)	HGWA-112 (bg)	n/a	n/a	n/a	NP	NaN	10	0.005	0	unknown	ShapiroWilk
Lead (mg/L)	HGWA-113 (bg)	No	n/a	n/a	NP	NaN	10	0.003524	0.002376	ln(x)	ShapiroWilk
Lead (mg/L)	HGWC-101	n/a	n/a	n/a	NP	NaN	10	0.00459	0.001297	unknown	ShapiroWilk
Lead (mg/L)	HGWC-103	n/a	n/a	n/a	NP	NaN	10	0.004543	0.001445	unknown	ShapiroWilk
Lead (mg/L)	HGWC-105	n/a	n/a	n/a	NP	NaN	10	0.004507	0.00156	unknown	ShapiroWilk
Lead (mg/L)	HGWC-107	n/a	n/a	n/a	NP	NaN	10	0.004508	0.001556	unknown	ShapiroWilk
Lead (mg/L)	HGWC-109	No	n/a	n/a	NP	NaN	10	0.004011	0.002085	ln(x)	ShapiroWilk
Lead (mg/L)	HGWC-117	n/a	n/a	n/a	NP	NaN	10	0.004516	0.001531	unknown	ShapiroWilk
Lead (mg/L)	HGWC-118	n/a	n/a	n/a	NP	NaN	10	0.004525	0.001502	unknown	ShapiroWilk
Lithium (mg/L)	HGWA-111 (bg)	No	n/a	n/a	NP	NaN	10	0.01316	0.0145	ln(x)	ShapiroWilk
Lithium (mg/L)	HGWA-112 (bg)	n/a	n/a	n/a	NP	NaN	10	0.03	0	unknown	ShapiroWilk
Lithium (mg/L)	HGWA-113 (bg)	No	n/a	n/a	NP	NaN	10	0.02553	0.02579	ln(x)	ShapiroWilk
Lithium (mg/L)	HGWC-101	n/a	n/a	n/a	NP	NaN	10	0.03	0	unknown	ShapiroWilk
Lithium (mg/L)	HGWC-103	No	n/a	n/a	NP	NaN	10	0.01611	0.02339	ln(x)	ShapiroWilk
Lithium (mg/L)	HGWC-105	No	n/a	n/a	NP	NaN	10	0.00403	0.0002751	x^6	ShapiroWilk
Lithium (mg/L)	HGWC-107	No	n/a	n/a	NP	NaN	10	0.03529	0.02369	ln(x)	ShapiroWilk
Lithium (mg/L)	HGWC-109	No	n/a	n/a	NP	NaN	10	0.02556	0.02576	ln(x)	ShapiroWilk
Lithium (mg/L)	HGWC-117	No	n/a	n/a	NP	NaN	10	0.01644	0.02317	ln(x)	ShapiroWilk
Lithium (mg/L)	HGWC-118	No	n/a	n/a	NP	NaN	10	0.03072	0.02489	ln(x)	ShapiroWilk
Mercury (mg/L)	HGWA-111 (bg)	No	n/a	n/a	NP	NaN	9	0.000347	0.0002295	ln(x)	ShapiroWilk
Mercury (mg/L)	HGWA-112 (bg)	No	n/a	n/a	NP	NaN	9	0.0003467	0.00023	ln(x)	ShapiroWilk
Mercury (mg/L)	HGWA-113 (bg)	No	n/a	n/a	NP	NaN	9	0.000347	0.0002295	ln(x)	ShapiroWilk
Mercury (mg/L)	HGWC-101	n/a	n/a	n/a	NP	NaN	9	0.0004548	0.0001357	unknown	ShapiroWilk
Mercury (mg/L)	HGWC-103	n/a	n/a	n/a	NP	NaN	9	0.0004533	0.00014	unknown	ShapiroWilk
Mercury (mg/L)	HGWC-105	n/a	n/a	n/a	NP	NaN	9	0.0005	0	unknown	ShapiroWilk
Mercury (mg/L)	HGWC-107	n/a	n/a	n/a	NP	NaN	9	0.0005	0	unknown	ShapiroWilk
Mercury (mg/L)	HGWC-109	n/a	n/a	n/a	NP	NaN	9	0.0004533	0.00014	unknown	ShapiroWilk
Mercury (mg/L)	HGWC-117	n/a	n/a	n/a	NP	NaN	9	0.0004522	0.0001433	unknown	ShapiroWilk
Mercury (mg/L)	HGWC-118	n/a	n/a	n/a	NP	NaN	9	0.0004544	0.0001367	unknown	ShapiroWilk
Molybdenum (mg/L)	HGWA-111 (bg)	n/a	n/a	n/a	NP	NaN	9	0.01	0	unknown	ShapiroWilk
Molybdenum (mg/L)	HGWA-112 (bg)	n/a	n/a	n/a	NP	NaN	9	0.01	0	unknown	ShapiroWilk
Molybdenum (mg/L)	HGWA-113 (bg)	n/a	n/a	n/a	NP	NaN	9	0.01	0	unknown	ShapiroWilk
Molybdenum (mg/L)	HGWC-101	n/a	n/a	n/a	NP	NaN	9	0.01	0	unknown	ShapiroWilk
Molybdenum (mg/L)	HGWC-103	n/a	n/a	n/a	NP	NaN	9	0.01	0	unknown	ShapiroWilk
Molybdenum (mg/L)	HGWC-105	n/a	n/a	n/a	NP	NaN	9	0.01	0	unknown	ShapiroWilk
Molybdenum (mg/L)	HGWC-107	n/a	n/a	n/a	NP	NaN	9	0.01	0	unknown	ShapiroWilk
Molybdenum (mg/L)	HGWC-109	n/a	n/a	n/a	NP	NaN	9	0.01	0	unknown	ShapiroWilk
Molybdenum (mg/L)	HGWC-117	n/a	n/a	n/a	NP	NaN	9	0.01	0	unknown	ShapiroWilk
Molybdenum (mg/L)	HGWC-118	n/a	n/a	n/a	NP	NaN	9	0.01	0	unknown	ShapiroWilk
·, · · · · · · · · · · · · · · · ·		•		- 			-		*		

		П	ammond AP	Client: Georgia Powe	er Data: Hammond A	P-4 Printed	1 3/13/2020), 2:30 P	IVI			
<u>Constituent</u>	<u>Well</u>	<u>Outlier</u>	Value(s)		<u>Date(s)</u>	<u>Method</u>	<u>Alpha</u>	<u>N</u>	<u>Mean</u>	Std. Dev.	<u>Distribution</u>	Normality Test
pH (s.u.)	HGWA-111 (bg)	No	n/a	n	n/a	NP	NaN	11	6.596	0.434	x^6	ShapiroWilk
pH (s.u.)	HGWA-112 (bg)	No	n/a	n	n/a	NP	NaN	11	5.647	0.09498	x^3	ShapiroWilk
pH (s.u.)	HGWA-113 (bg)	No	n/a	n	n/a	NP	NaN	11	5.986	0.08801	x^(1/3)	ShapiroWilk
pH (s.u.)	HGWC-101	No	n/a	n	n/a	NP	NaN	12	5.353	0.0611	ln(x)	ShapiroWilk
pH (s.u.)	HGWC-103	Yes	5.98	5	5/23/2017	NP	NaN	12	5.563	0.1406	ln(x)	ShapiroWilk
pH (s.u.)	HGWC-105	No	n/a	n	n/a	NP	NaN	11	6.355	0.1618	x^6	ShapiroWilk
pH (s.u.)	HGWC-107	No	n/a	n	n/a	NP	NaN	11	6.081	0.09607	ln(x)	ShapiroWilk
pH (s.u.)	HGWC-109	No	n/a	n	n/a	NP	NaN	11	6.57	0.1185	ln(x)	ShapiroWilk
pH (s.u.)	HGWC-117	No	n/a	n	n/a	NP	NaN	11	5.843	0.3872	x^6	ShapiroWilk
pH (s.u.)	HGWC-118	No	n/a	n	n/a	NP	NaN	11	6.985	0.0561	normal	ShapiroWilk
Selenium (mg/L)	HGWA-111 (bg)	n/a	n/a	n	n/a	NP	NaN	9	0.01	0	unknown	ShapiroWilk
Selenium (mg/L)	HGWA-112 (bg)	n/a	n/a	n	n/a	NP	NaN	9	0.01	0	unknown	ShapiroWilk
Selenium (mg/L)	HGWA-113 (bg)	Yes	0.01	1	11/14/2017	NP	NaN	9	0.003322	0.002537	ln(x)	ShapiroWilk
Selenium (mg/L)	HGWC-101	n/a	n/a	n	n/a	NP	NaN	9	0.01	0	unknown	ShapiroWilk
Selenium (mg/L)	HGWC-103	n/a	n/a	n	n/a	NP	NaN	9	0.01	0	unknown	ShapiroWilk
Selenium (mg/L)	HGWC-105	n/a	n/a	n	n/a	NP	NaN	9	0.01	0	unknown	ShapiroWilk
Selenium (mg/L)	HGWC-107	n/a	n/a	n	n/a	NP	NaN	9	0.01	0	unknown	ShapiroWilk
Selenium (mg/L)	HGWC-109	n/a	n/a		n/a	NP	NaN	9	0.01	0	unknown	ShapiroWilk
Selenium (mg/L)	HGWC-117	n/a	n/a		n/a	NP	NaN	9	0.01	0	unknown	ShapiroWilk
Selenium (mg/L)	HGWC-118	n/a	n/a		n/a	NP	NaN	9	0.01	0	unknown	ShapiroWilk
Sulfate (mg/L)	HGWA-111 (bg)	No	n/a		n/a	NP	NaN	10	1.5	0.2309	x^4	ShapiroWilk
Sulfate (mg/L)	HGWA-112 (bg)	No	n/a		n/a	NP	NaN	10	0.632	0.077	In(x)	ShapiroWilk
Sulfate (mg/L)	HGWA-113 (bg)	No	n/a		n/a	NP	NaN	10	10.31	2.33	x^2	ShapiroWilk
Sulfate (mg/L)	HGWC-101	No	n/a		n/a	NP	NaN	11	105.2	9.558	In(x)	ShapiroWilk
Sulfate (mg/L)	HGWC-103	No	n/a		n/a	NP	NaN	11	314.5	39.44	sqrt(x)	ShapiroWilk
Sulfate (mg/L)	HGWC-105	No	n/a		n/a	NP	NaN	11	179.1	14.34	In(x)	ShapiroWilk
Sulfate (mg/L)	HGWC-107	Yes	139,123		1/3/2019,10/22/2019	NP	NaN	11	130.2	3.92	ln(x)	ShapiroWilk
Sulfate (mg/L)	HGWC-109	No	n/a		n/a	NP	NaN	11	37.83	6.742	x^2	ShapiroWilk
Sulfate (mg/L)	HGWC-117	No	n/a		n/a	NP	NaN	11	133.8	21.25	x^2	ShapiroWilk
Sulfate (mg/L)	HGWC-118	No	n/a		n/a	NP	NaN	11	80.15	8.348	x^5	ShapiroWilk
Thallium (mg/L)	HGWA-111 (bg)	n/a	n/a		n/a	NP	NaN	9	0.001	0.540	unknown	ShapiroWilk
Thallium (mg/L)	HGWA-111 (bg)	n/a	n/a		n/a n/a	NP	NaN	9	0.001	0	unknown	ShapiroWilk
Thallium (mg/L)					n/a	NP	NaN	9	0.001	0		ShapiroWilk
Thallium (mg/L)	HGWA-113 (bg) HGWC-101	n/a n/a	n/a n/a		ı/a ₁/a	NP NP	NaN	9	0.001	0	unknown unknown	ShapiroWilk
Thallium (mg/L)	HGWC-103	n/a				NP	NaN	9	0.001	0		•
, = ,	HGWC-105		n/a		n/a	NP NP	NaN	9		0	unknown	ShapiroWilk
Thallium (mg/L)		n/a	n/a		n/a			9	0.001	0	unknown	ShapiroWilk
Thallium (mg/L)	HGWC-107	n/a	n/a		n/a	NP	NaN		0.001	0	unknown	ShapiroWilk
Thallium (mg/L)	HGWC-109	n/a	n/a		n/a	NP NP	NaN	9 9	0.001	0	unknown	ShapiroWilk
Thallium (mg/L)	HGWC-117	n/a	n/a /-		n/a - /-		NaN	·	0.001	-	unknown	ShapiroWilk
Thallium (mg/L)	HGWC-118	n/a	n/a		n/a	NP	NaN	9	0.001	0	unknown	ShapiroWilk
Total Dissolved Solids (mg/L)	HGWA-111 (bg)	No	n/a		n/a	NP	NaN	10	171.5	70.68	In(x)	ShapiroWilk
Total Dissolved Solids (mg/L)	HGWA-112 (bg)	No	n/a		n/a	NP	NaN	9	69.33	9.11	x^4	ShapiroWilk
Total Dissolved Solids (mg/L)	HGWA-113 (bg)	No	n/a		n/a	NP	NaN	10	97.2	22.7	In(x)	ShapiroWilk
Total Dissolved Solids (mg/L)	HGWC-101	No	n/a		n/a	NP	NaN	10	212	44.72	In(x)	ShapiroWilk
Total Dissolved Solids (mg/L)	HGWC-103	No	n/a		n/a	NP	NaN	11	532.3	48.53	ln(x)	ShapiroWilk
Total Dissolved Solids (mg/L)	HGWC-105	No	n/a		n/a	NP	NaN	11	373.9	34.18	ln(x)	ShapiroWilk
Total Dissolved Solids (mg/L)	HGWC-107	No	n/a		n/a	NP	NaN	11	273.6	37.42	ln(x)	ShapiroWilk
Total Dissolved Solids (mg/L)	HGWC-109	No	n/a		n/a	NP	NaN	10	212.6	27.83	x^(1/3)	ShapiroWilk
Total Dissolved Solids (mg/L)	HGWC-117	No	n/a		n/a	NP	NaN	11	320.9	56.37	x^2	ShapiroWilk
Total Dissolved Solids (mg/L)	HGWC-118	No	n/a	n	n/a	NP	NaN	11	330.8	45.27	x^6	ShapiroWilk

ShapiroWilk

ShapiroWilk

ShapiroWilk

Outlier Analysis - All Results

Client: Georgia Power Data: Hammond AP-4 Printed 3/13/2020, 2:38 PM

NP

NP

NP

NaN

NaN

NaN

10

10

9

0.6804

0.771

0.9217

0.2641

0.3143

0.5577

normal

x^2

In(x)

Constituent Well <u>Outlier</u> Value(s) Date(s) Std. Dev. **Distribution** Normality Test Method <u>Alpha</u> N <u>Mean</u> Total Radium (pCi/L) HGWA-111 (bg) NP NaN 10 0.6959 0.2247 ShapiroWilk No n/a n/a sqrt(x) Total Radium (pCi/L) HGWA-112 (bg) No NP NaN 10 0.7592 0.3645 x^(1/3) ShapiroWilk n/a n/a Total Radium (pCi/L) NP x^2 HGWA-113 (bg) No n/a 10 0.5928 0.3352 ShapiroWilk n/a NaN Total Radium (pCi/L) HGWC-101 No n/a NP NaN 10 0.7946 0.3669 sqrt(x) ShapiroWilk n/a Total Radium (pCi/L) HGWC-103 No NP 10 0.8129 0.3941 ShapiroWilk n/a n/a NaN normal Total Radium (pCi/L) HGWC-105 NP 10 0.7872 ShapiroWilk No n/a n/a NaN 0.2802 sqrt(x) Total Radium (pCi/L) HGWC-107 No n/a n/a NP NaN 10 0.9993 0.4305 normal ShapiroWilk

n/a

n/a

n/a

Hammond AP

n/a

n/a

n/a

No

No

No

Total Radium (pCi/L)

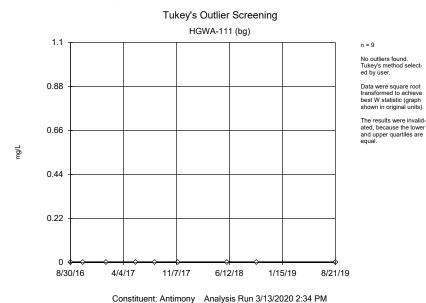
Total Radium (pCi/L)

Total Radium (pCi/L)

HGWC-109

HGWC-117

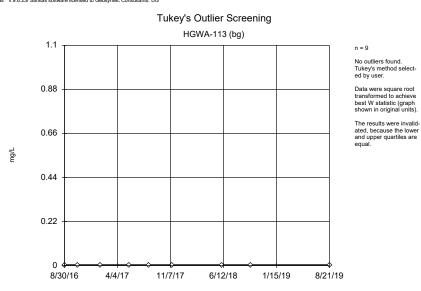
HGWC-118



HGWA-112 (bg) 1.1 n = 9 No outliers found. Tukey's method select-Data were square root transformed to achieve 0.88 best W statistic (graph shown in original units). The results were invalidated, because the lower 0.66 and upper quartiles are mg/L 0.44 0.22 8/30/16 4/4/17 11/7/17 6/12/18 1/15/19 8/21/19 Constituent: Antimony Analysis Run 3/13/2020 2:34 PM

Tukey's Outlier Screening

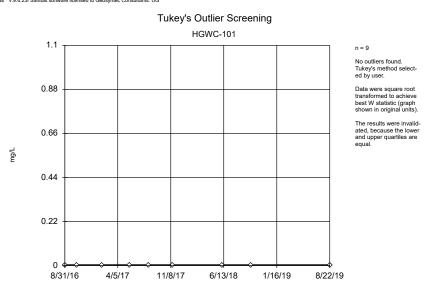
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Constituent: Antimony Analysis Run 3/13/2020 2:34 PM

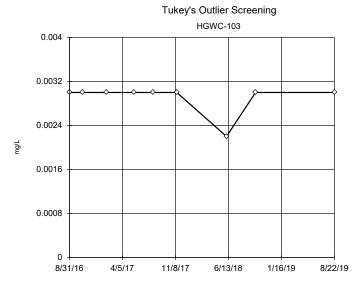
Hammond AP Client: Georgia Power Data: Hammond AP-4

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Hammond AP Client: Georgia Power Data: Hammond AP-4

Constituent: Antimony Analysis Run 3/13/2020 2:34 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4



Constituent: Antimony Analysis Run 3/13/2020 2:34 PM Hammond AP Client: Georgia Power Data: Hammond AP-4 n = 9

No outliers found. Tukey's method select-

Data were square root transformed to achieve

best W statistic (graph

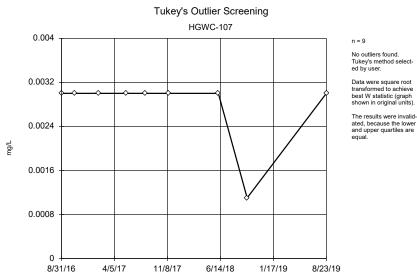
shown in original units).

The results were invalid-

ated, because the lower

and upper quartiles are equal.

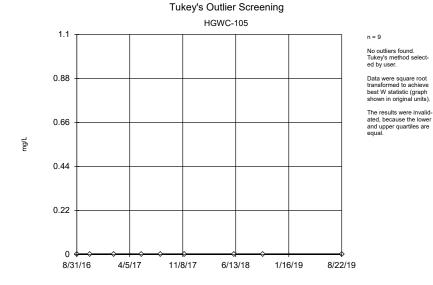
Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG



Constituent: Antimony Analysis Run 3/13/2020 2:34 PM

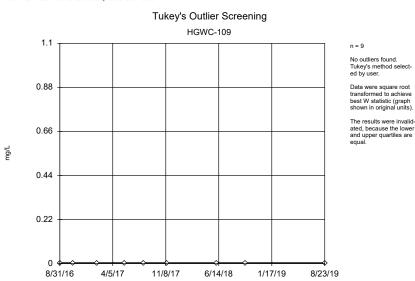
Hammond AP Client: Georgia Power Data: Hammond AP-4

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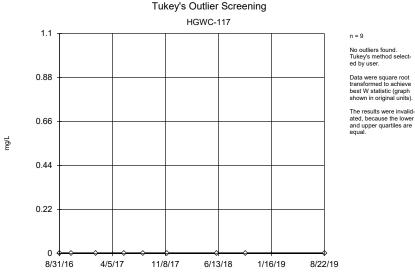


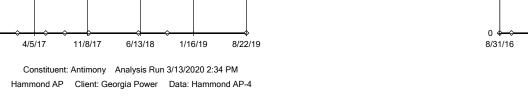
Constituent: Antimony Analysis Run 3/13/2020 2:34 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

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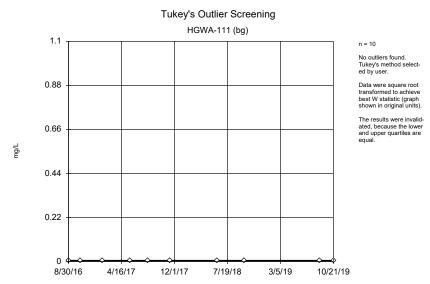


Constituent: Antimony Analysis Run 3/13/2020 2:34 PM Hammond AP Client: Georgia Power Data: Hammond AP-4





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Constituent: Arsenic Analysis Run 3/13/2020 2:34 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

Tukey's Outlier Screening

n = 9

No outliers found. Tukey's method select-

Data were square root transformed to achieve

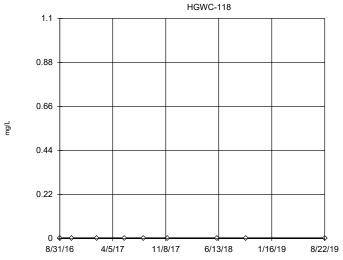
best W statistic (graph

shown in original units).

The results were invalid-

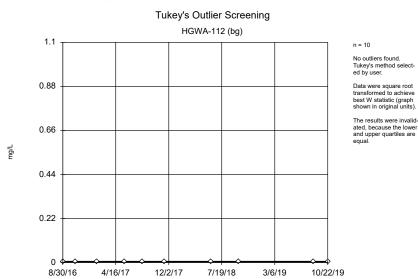
ated, because the lower

and upper quartiles are

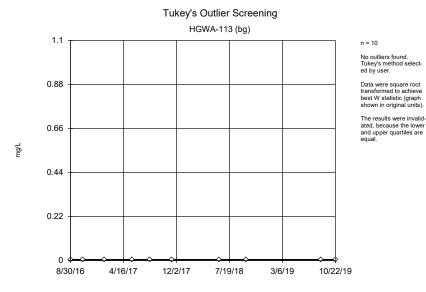


Constituent: Antimony Analysis Run 3/13/2020 2:34 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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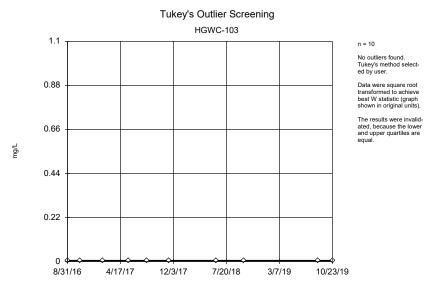


Constituent: Arsenic Analysis Run 3/13/2020 2:34 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4



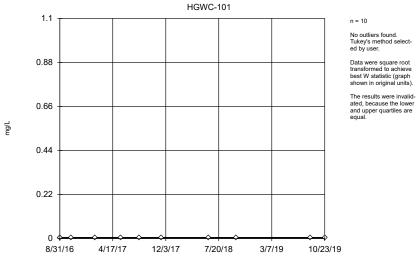
Constituent: Arsenic Analysis Run 3/13/2020 2:34 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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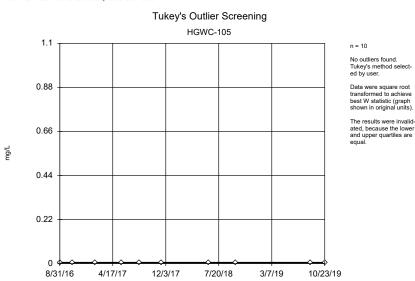
Constituent: Arsenic Analysis Run 3/13/2020 2:34 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

Tukey's Outlier Screening

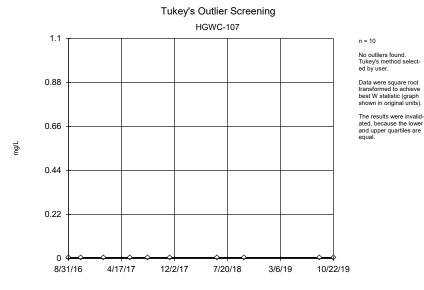


Constituent: Arsenic Analysis Run 3/13/2020 2:34 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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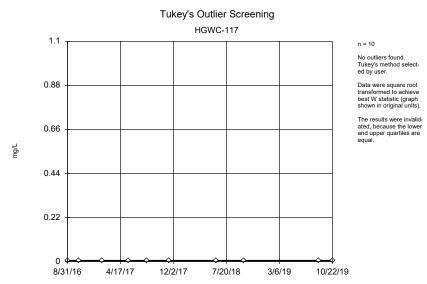


Constituent: Arsenic Analysis Run 3/13/2020 2:34 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4



Constituent: Arsenic Analysis Run 3/13/2020 2:34 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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Constituent: Arsenic Analysis Run 3/13/2020 2:34 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

Tukey's Outlier Screening

n = 10

No outliers found. Tukey's method select-

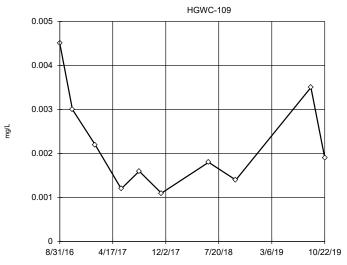
Data were natural log transformed to achieve

best W statistic (graph

shown in original units). High cutoff = 0.05063,

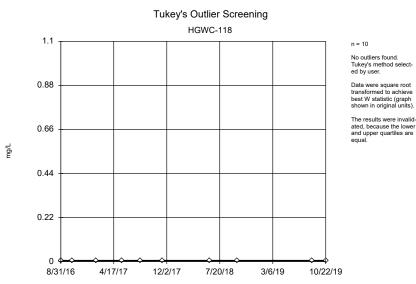
low cutoff = 0.00008295,

based on IQR multiplier of 3.

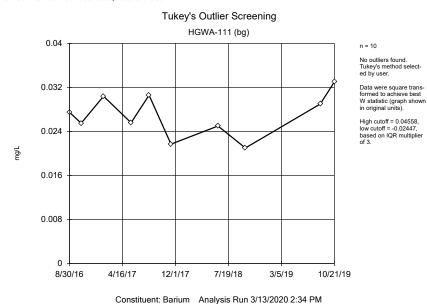


Constituent: Arsenic Analysis Run 3/13/2020 2:34 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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Constituent: Arsenic Analysis Run 3/13/2020 2:34 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

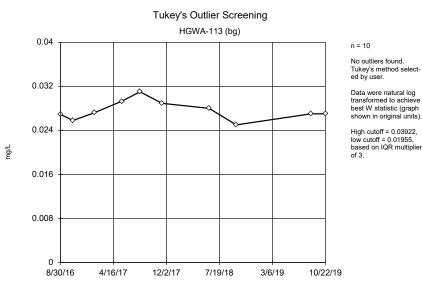


HGWA-112 (bg) 0.03 n = 10 No outliers found. Tukey's method select-Ladder of Powers trans-formations did not im-0.024 prove normality; analysis run on raw data. High cutoff = 0.03265, low cutoff = 0.0218, based 0.018 on IQR multiplier of 3. mg/L 0.012 0.006 8/30/16 4/16/17 12/2/17 7/19/18 3/6/19 10/22/19 Constituent: Barium Analysis Run 3/13/2020 2:34 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

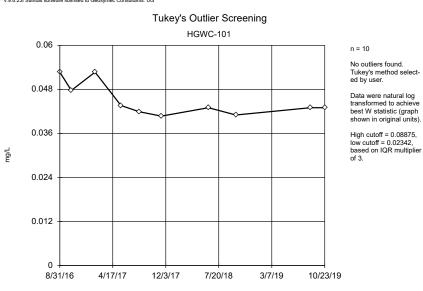
Tukey's Outlier Screening

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG



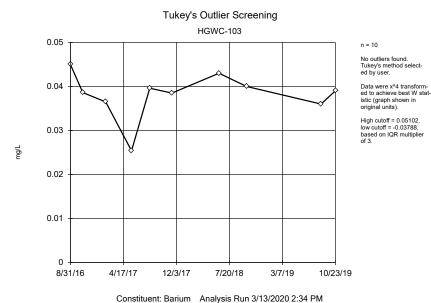
Constituent: Barium Analysis Run 3/13/2020 2:34 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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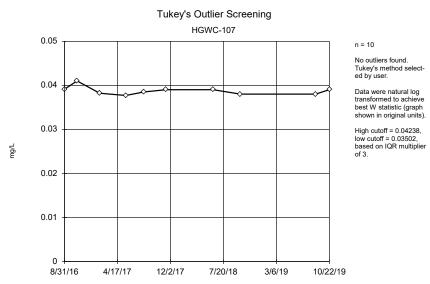
Constituent: Barium Analysis Run 3/13/2020 2:34 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

mg/L



Hammond AP Client: Georgia Power Data: Hammond AP-4

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Constituent: Barium Analysis Run 3/13/2020 2:34 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

Tukey's Outlier Screening

n = 10

Outlier is drawn as solid. Tukey's method select-

Data were natural log transformed to achieve

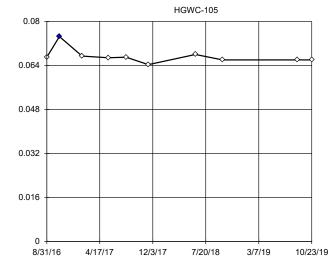
best W statistic (graph

shown in original units).

High cutoff = 0.07306,

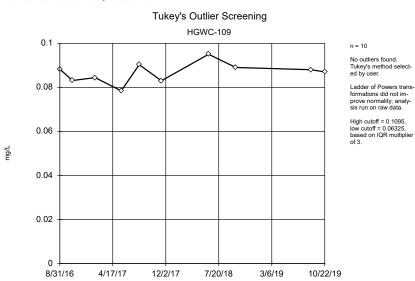
based on IQR multiplier of 3.

low cutoff = 0.06115,

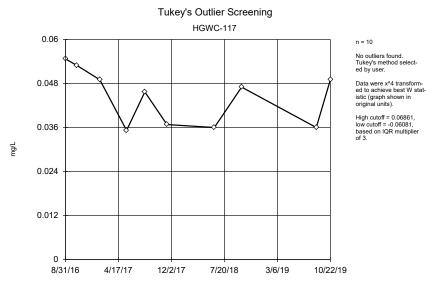


Constituent: Barium Analysis Run 3/13/2020 2:34 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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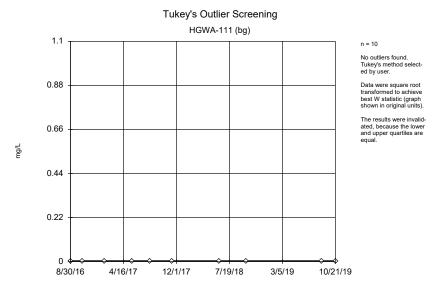


Constituent: Barium Analysis Run 3/13/2020 2:34 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4



Constituent: Barium Analysis Run 3/13/2020 2:34 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

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Constituent: Beryllium Analysis Run 3/13/2020 2:34 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

Tukey's Outlier Screening

n = 10

No outliers found. Tukey's method select-

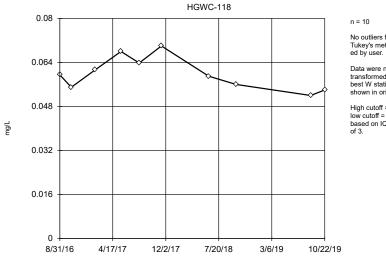
Data were natural log

transformed to achieve

best W statistic (graph shown in original units).

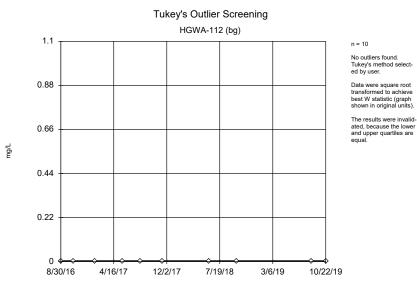
High cutoff = 0.1163.

low cutoff = 0.03087. based on IQR multiplier

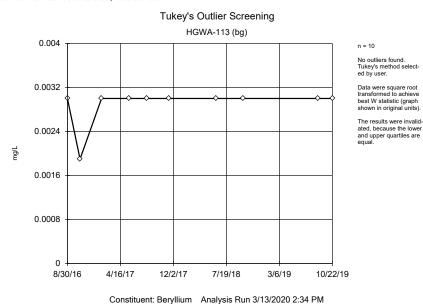


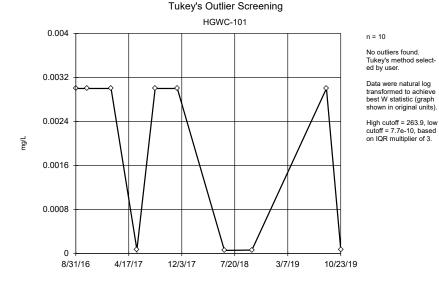
Constituent: Barium Analysis Run 3/13/2020 2:34 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

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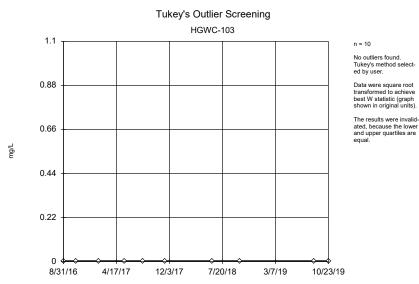
Constituent: Beryllium Analysis Run 3/13/2020 2:34 PM Hammond AP Client: Georgia Power Data: Hammond AP-4





Constituent: Beryllium Analysis Run 3/13/2020 2:34 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

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Constituent: Beryllium Analysis Run 3/13/2020 2:34 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

0.66 mg/L 0.44 0.22

12/3/17

Constituent: Beryllium Analysis Run 3/13/2020 2:34 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

7/20/18

3/7/19

10/23/19

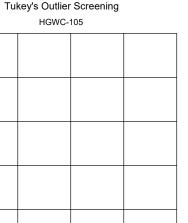
Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

1.1

0.88

8/31/16

4/17/17

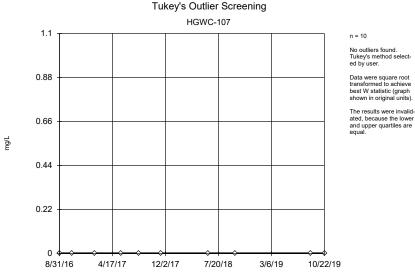


n = 10

No outliers found. Tukey's method selected by user.

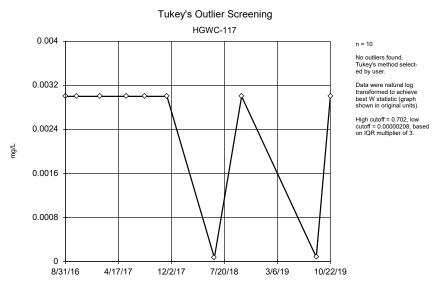
Data were square root transformed to achieve best W statistic (graph shown in original units).

The results were invalidated, because the lower and upper quartiles are egual.

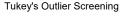


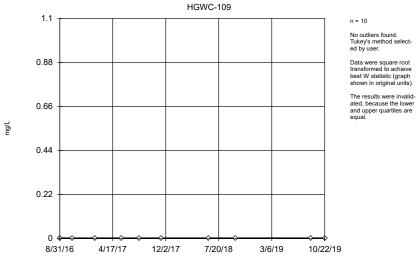


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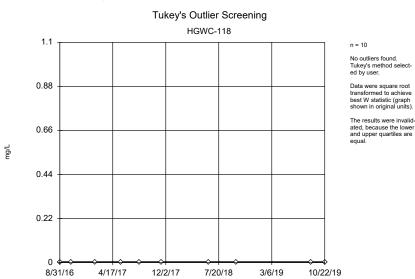


Constituent: Beryllium Analysis Run 3/13/2020 2:34 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

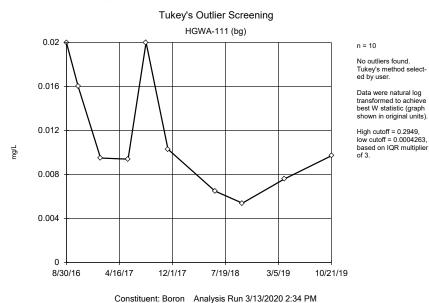


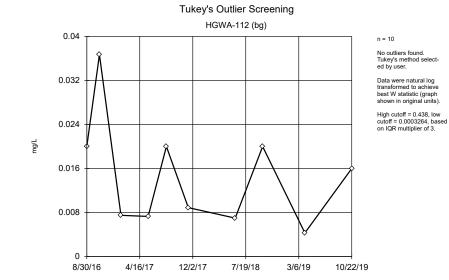


Constituent: Beryllium Analysis Run 3/13/2020 2:34 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4



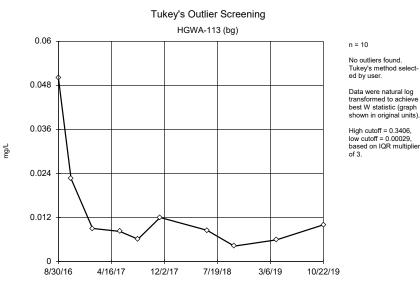
Constituent: Beryllium Analysis Run 3/13/2020 2:34 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4





Constituent: Boron Analysis Run 3/13/2020 2:34 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

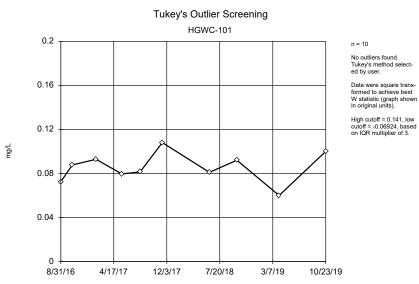
Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG



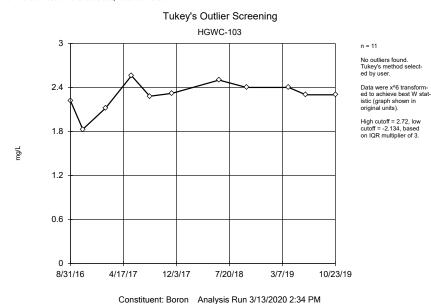
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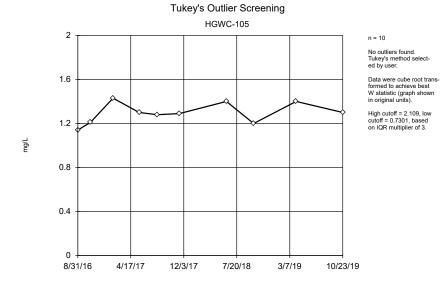
Hammond AP Client: Georgia Power Data: Hammond AP-4

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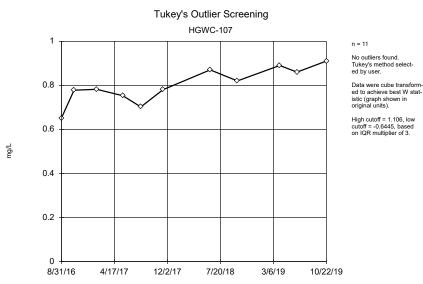
Constituent: Boron Analysis Run 3/13/2020 2:34 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4





Constituent: Boron Analysis Run 3/13/2020 2:34 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

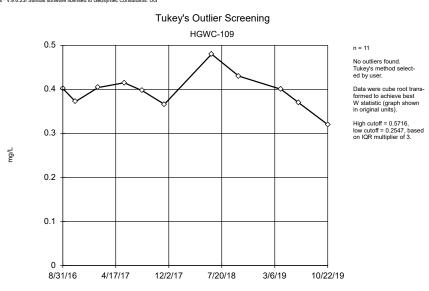
Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG



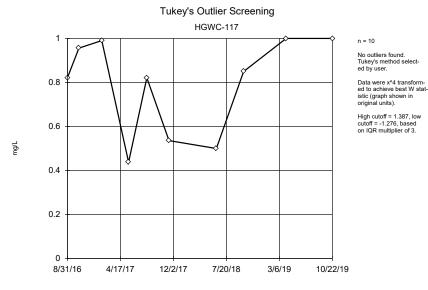
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Hammond AP Client: Georgia Power Data: Hammond AP-4

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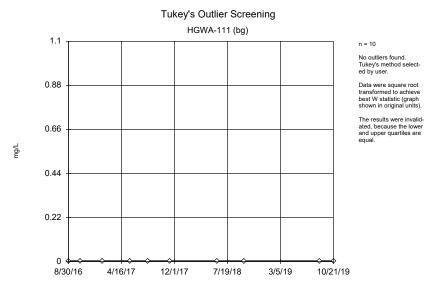


Constituent: Boron Analysis Run 3/13/2020 2:35 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4



Constituent: Boron Analysis Run 3/13/2020 2:35 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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Constituent: Cadmium Analysis Run 3/13/2020 2:35 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

Tukey's Outlier Screening

n = 10

No outliers found. Tukey's method select-

Data were square transformed to achieve best

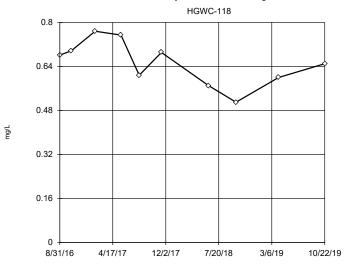
W statistic (graph shown

High cutoff = 1.04, low

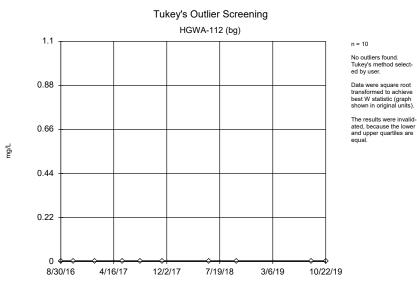
on IQR multiplier of 3.

cutoff = -0.4601, based

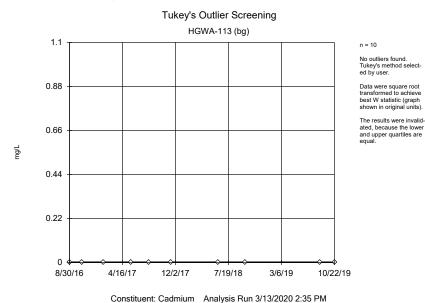
in original units).

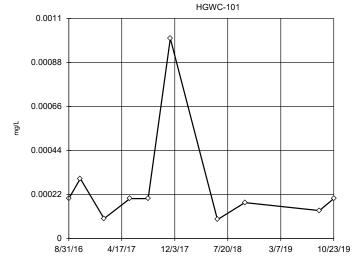


Constituent: Boron Analysis Run 3/13/2020 2:35 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4



Constituent: Cadmium Analysis Run 3/13/2020 2:35 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4





Constituent: Cadmium Analysis Run 3/13/2020 2:35 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

Tukey's Outlier Screening

n = 10

No outliers found. Tukey's method select-

Data were natural log transformed to achieve

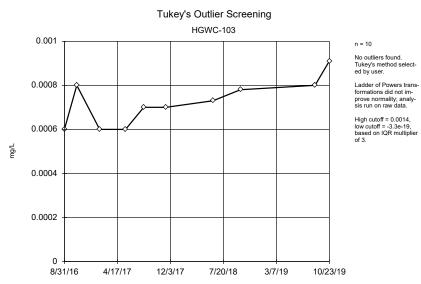
best W statistic (graph

shown in original units). High cutoff = 0.002173,

low cutoff = 0.00001334

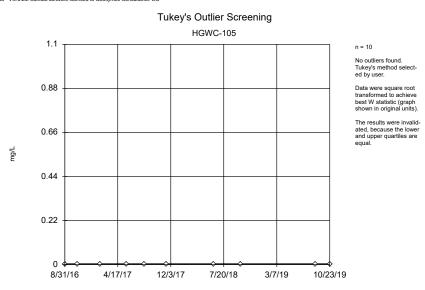
based on IQR multiplier of 3.

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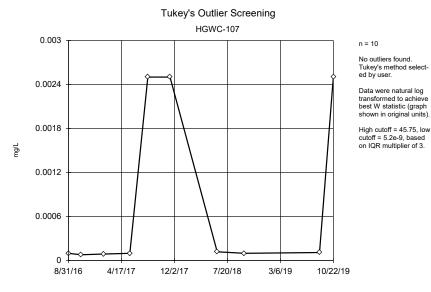


Constituent: Cadmium Analysis Run 3/13/2020 2:35 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

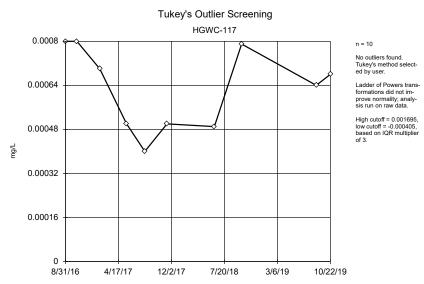


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Hammond AP Client: Georgia Power Data: Hammond AP-4



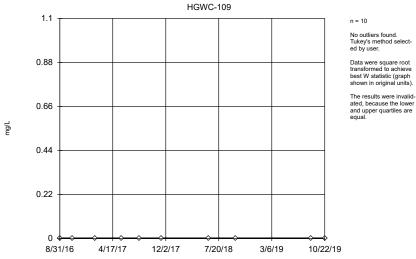
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Hammond AP Client: Georgia Power Data: Hammond AP-4

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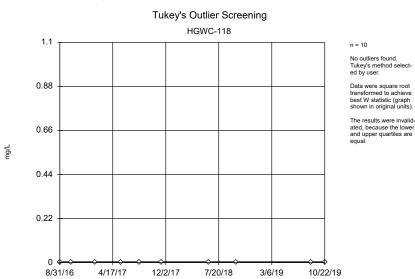


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Hammond AP Client: Georgia Power Data: Hammond AP-4

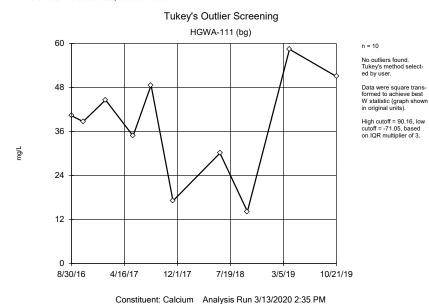
Tukey's Outlier Screening

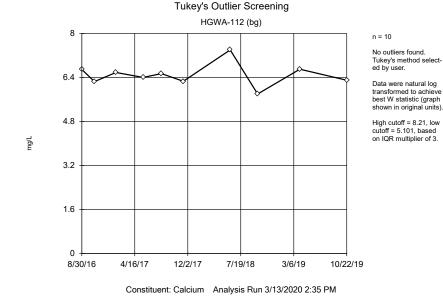


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Hammond AP Client: Georgia Power Data: Hammond AP-4

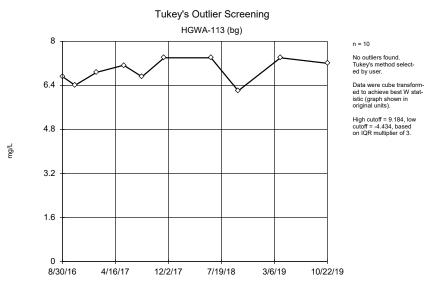


Constituent: Cadmium Analysis Run 3/13/2020 2:35 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4





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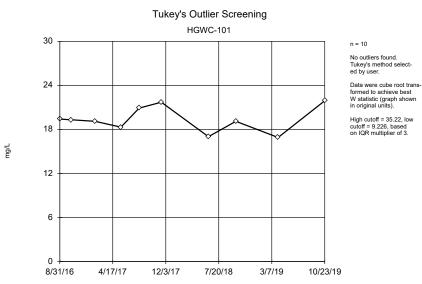


Constituent: Calcium Analysis Run 3/13/2020 2:35 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

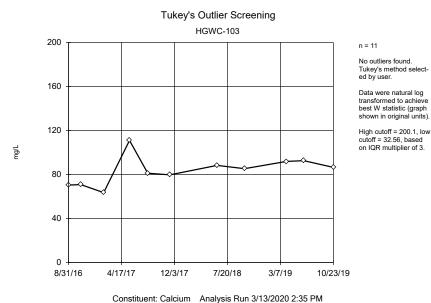
Hammond AP Client: Georgia Power Data: Hammond AP-4

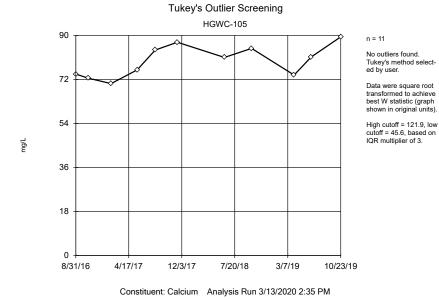
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Hammond AP Client: Georgia Power Data: Hammond AP-4

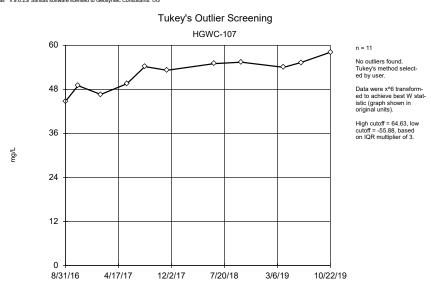
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Hammond AP Client: Georgia Power Data: Hammond AP-4





Hammond AP Client: Georgia Power Data: Hammond AP-4

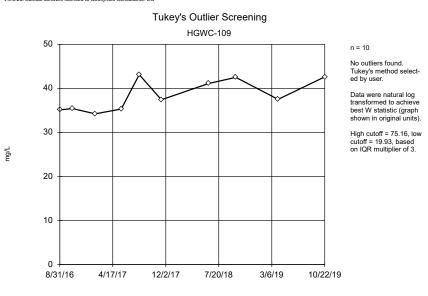
Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG



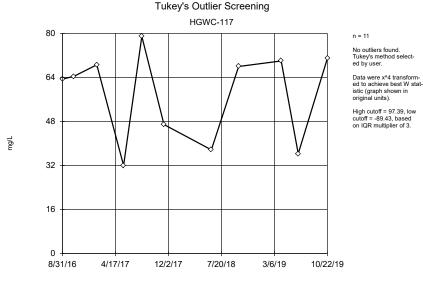
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Hammond AP Client: Georgia Power Data: Hammond AP-4

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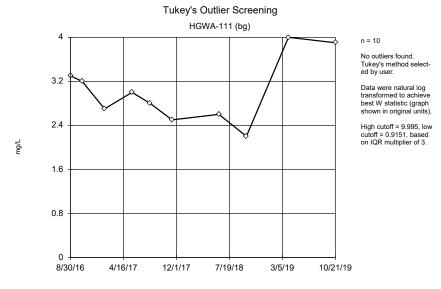
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Hammond AP Client: Georgia Power Data: Hammond AP-4



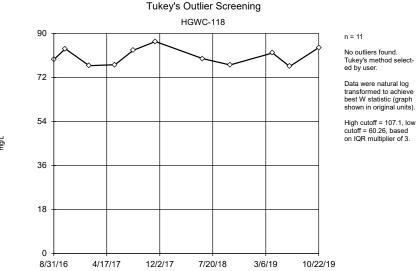
mg/L

Constituent: Calcium Analysis Run 3/13/2020 2:35 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

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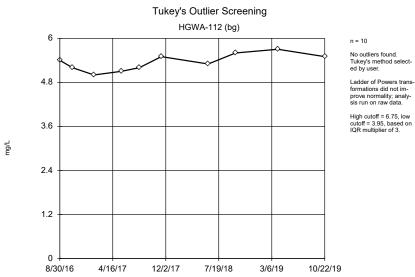
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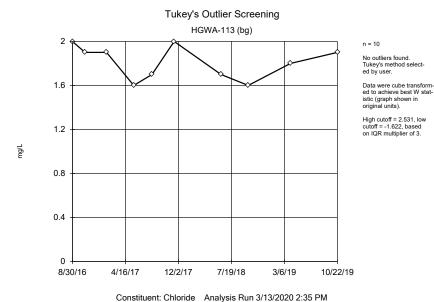
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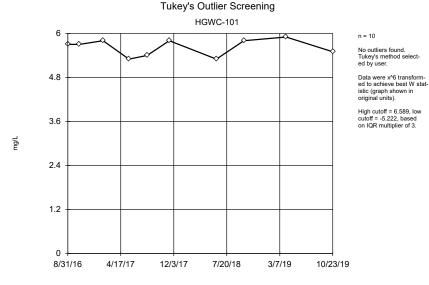
Hammond AP Client: Georgia Power Data: Hammond AP-4

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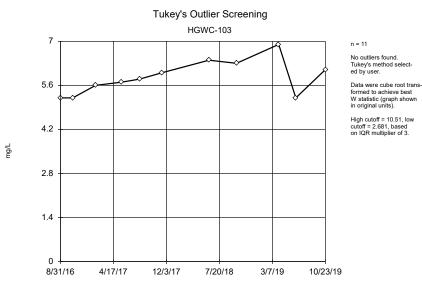
Constituent: Chloride Analysis Run 3/13/2020 2:35 PM Hammond AP Client: Georgia Power Data: Hammond AP-4





Constituent: Chloride Analysis Run 3/13/2020 2:35 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

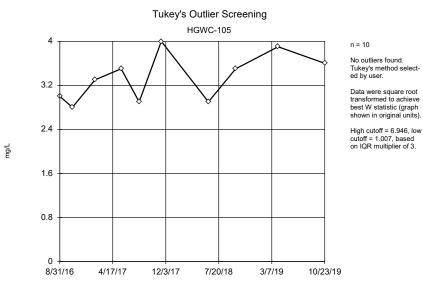
Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG



Constituent: Chloride Analysis Run 3/13/2020 2:35 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

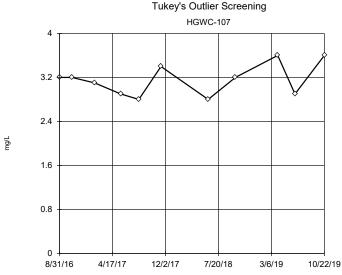
Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG



Constituent: Chloride Analysis Run 3/13/2020 2:35 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

mg/L

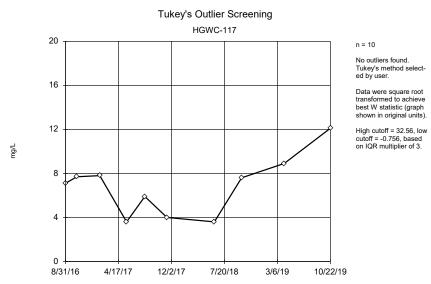
mg/L



Constituent: Chloride Analysis Run 3/13/2020 2:35 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

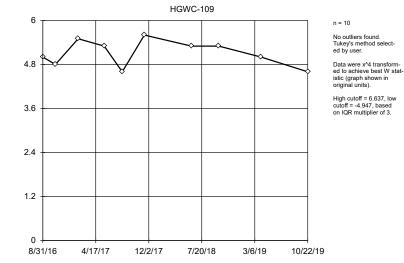
n = 11 No outliers found. Tukey's method selected by user. Data were natural log transformed to achieve best W statistic (graph shown in original units). High cutoff = 5.479, low cutoff = 1.8, based on IQR multiplier of 3. 10/22/19

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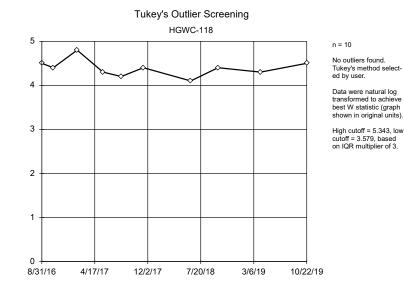


Constituent: Chloride Analysis Run 3/13/2020 2:35 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

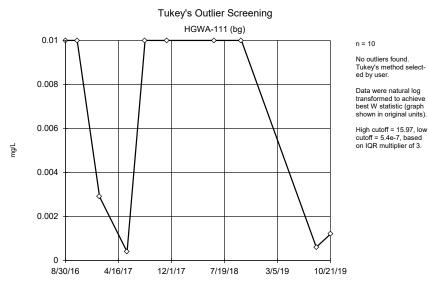
Tukey's Outlier Screening



Constituent: Chloride Analysis Run 3/13/2020 2:35 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

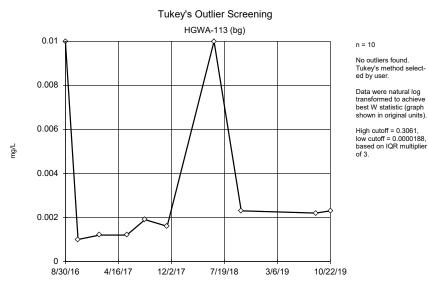


Constituent: Chloride Analysis Run 3/13/2020 2:35 PM Hammond AP Client: Georgia Power Data: Hammond AP-4



Constituent: Chromium Analysis Run 3/13/2020 2:35 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

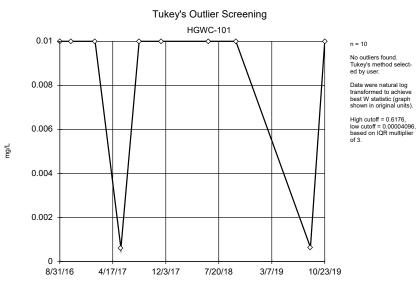
Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG



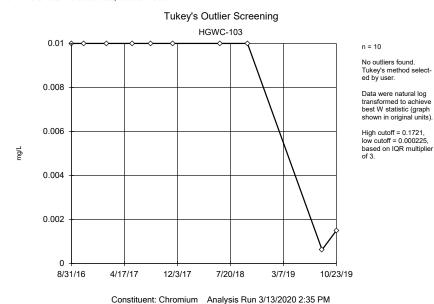
Constituent: Chromium Analysis Run 3/13/2020 2:35 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

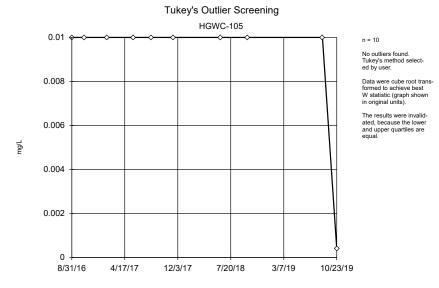
Tukey's Outlier Screening HGWA-112 (bg) 0.004 n = 10 No outliers found. Tukey's method select-0.0032 Data were x^6 transformed to achieve best W statistic (graph shown in original units). High cutoff = 0.004228, low cutoff = 0.002902, 0.0024 based on IQR multiplier of 3. mg/L 0.0016 0.0008 12/2/17 8/30/16 4/16/17 7/19/18 3/6/19 10/22/19

Constituent: Chromium Analysis Run 3/13/2020 2:35 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4



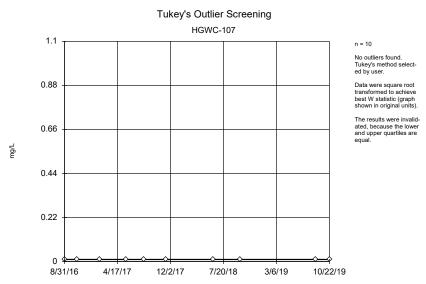
Constituent: Chromium Analysis Run 3/13/2020 2:35 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4





Constituent: Chromium Analysis Run 3/13/2020 2:35 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

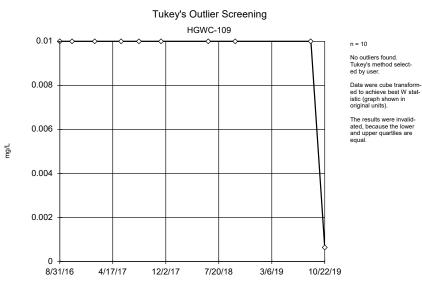
Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG



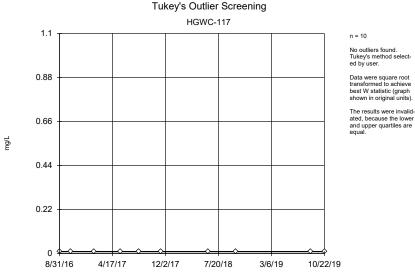
Constituent: Chromium Analysis Run 3/13/2020 2:35 PM

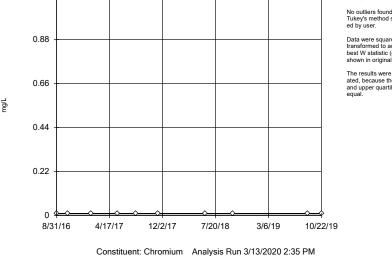
Hammond AP Client: Georgia Power Data: Hammond AP-4

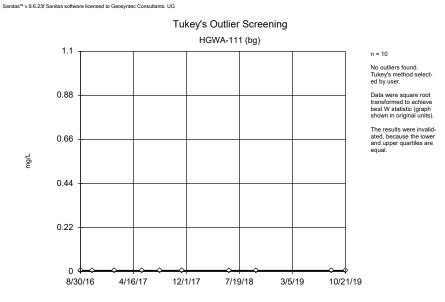
Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG



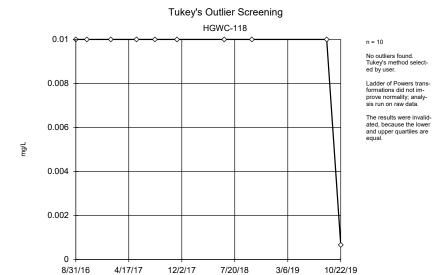
Constituent: Chromium Analysis Run 3/13/2020 2:35 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4





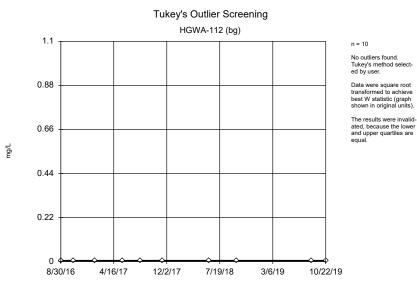


Constituent: Cobalt Analysis Run 3/13/2020 2:35 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

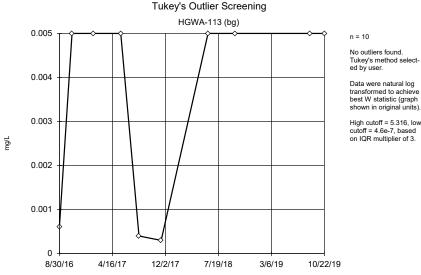


Constituent: Chromium Analysis Run 3/13/2020 2:35 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

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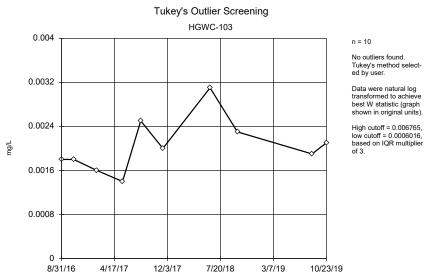
Constituent: Cobalt Analysis Run 3/13/2020 2:35 PM Hammond AP Client: Georgia Power Data: Hammond AP-4



High cutoff = 5.316, low cutoff = 4.6e-7, based on IQR multiplier of 3.

Constituent: Cobalt Analysis Run 3/13/2020 2:35 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

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Constituent: Cobalt Analysis Run 3/13/2020 2:35 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

Tukey's Outlier Screening

n = 10

No outliers found. Tukey's method select-

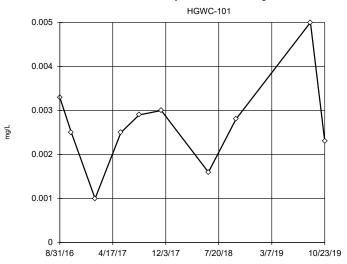
Data were square root transformed to achieve

best W statistic (graph

shown in original units).

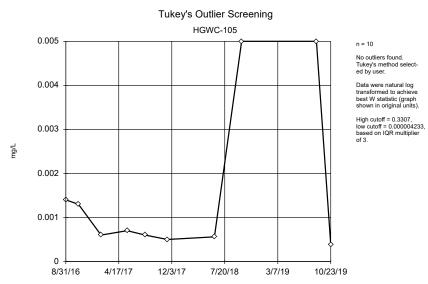
High cutoff = 0.008556, low cutoff = 0.00005761

based on IQR multiplier of 3.

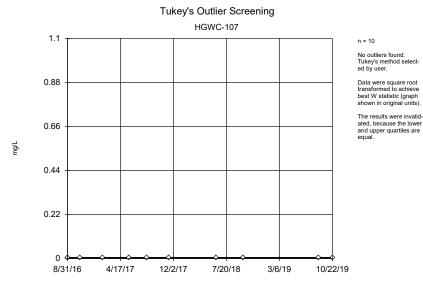


Constituent: Cobalt Analysis Run 3/13/2020 2:35 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

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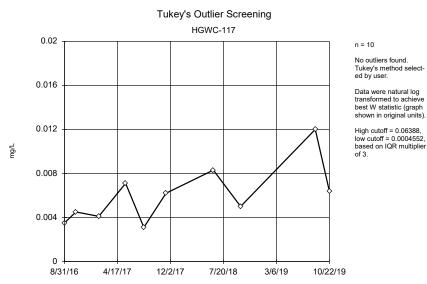


Constituent: Cobalt Analysis Run 3/13/2020 2:35 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

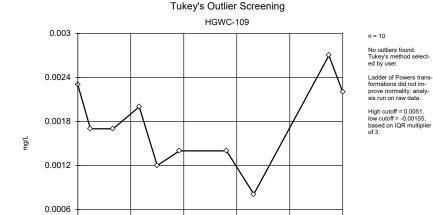


Constituent: Cobalt Analysis Run 3/13/2020 2:35 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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Constituent: Cobalt Analysis Run 3/13/2020 2:35 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4



12/2/17

Constituent: Cobalt Analysis Run 3/13/2020 2:35 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

7/20/18

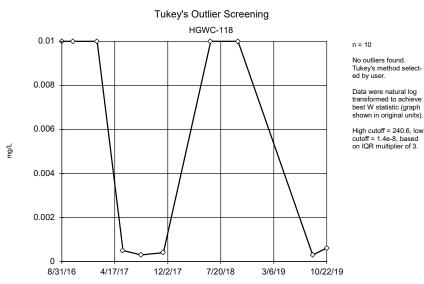
3/6/19

10/22/19

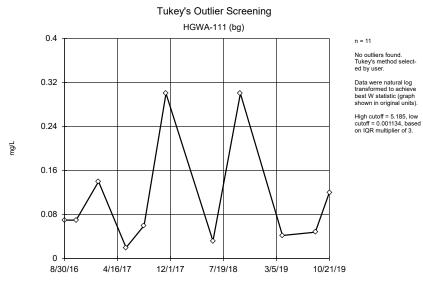
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8/31/16

4/17/17

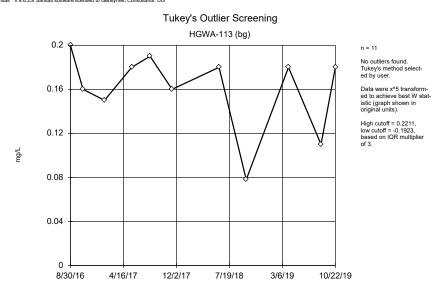


Constituent: Cobalt Analysis Run 3/13/2020 2:35 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

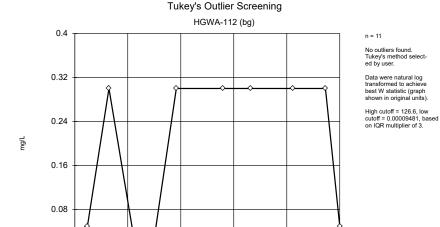


Constituent: Fluoride Analysis Run 3/13/2020 2:35 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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Constituent: Fluoride Analysis Run 3/13/2020 2:35 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4



Constituent: Fluoride Analysis Run 3/13/2020 2:35 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

7/19/18

3/6/19

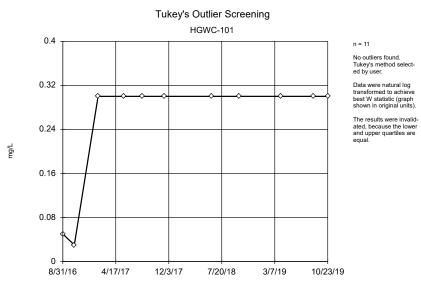
10/22/19

12/2/17

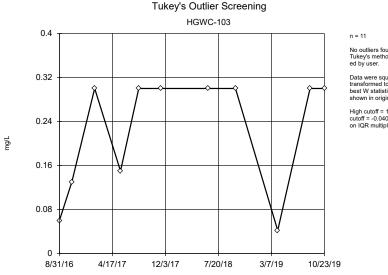
Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

8/30/16

4/16/17



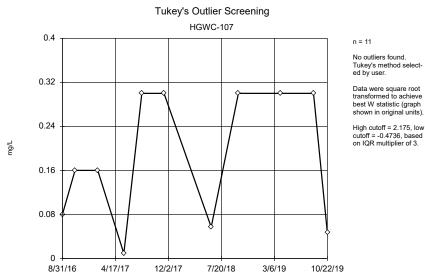
Constituent: Fluoride Analysis Run 3/13/2020 2:35 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4



No outliers found. Tukey's method select-Data were square root transformed to achieve best W statistic (graph shown in original units). High cutoff = 1.23, low cutoff = -0.04038, based on IQR multiplier of 3.

> Constituent: Fluoride Analysis Run 3/13/2020 2:35 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

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Constituent: Fluoride Analysis Run 3/13/2020 2:35 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

Tukey's Outlier Screening

n = 11

No outliers found. Tukey's method select-

Data were natural log transformed to achieve

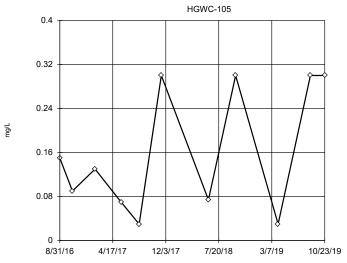
best W statistic (graph

shown in original units).

High cutoff = 23.62, low

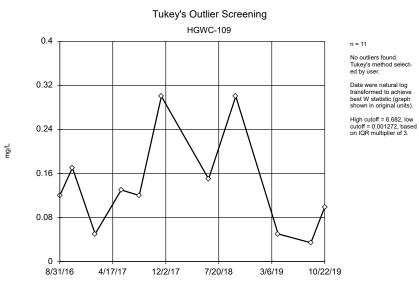
on IQR multiplier of 3.

cutoff = 0.0008893, based

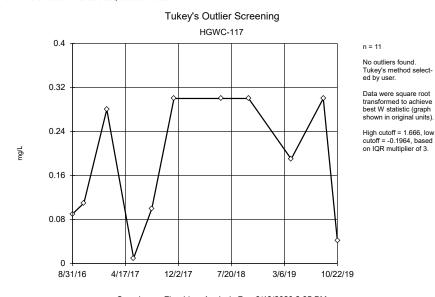


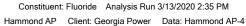
Constituent: Fluoride Analysis Run 3/13/2020 2:35 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

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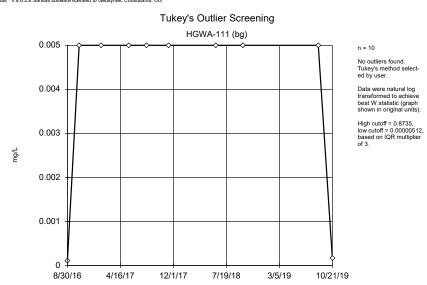


Constituent: Fluoride Analysis Run 3/13/2020 2:35 PM Hammond AP Client: Georgia Power Data: Hammond AP-4





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Constituent: Lead Analysis Run 3/13/2020 2:35 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

Tukey's Outlier Screening

n = 12

No outliers found. Tukey's method select-

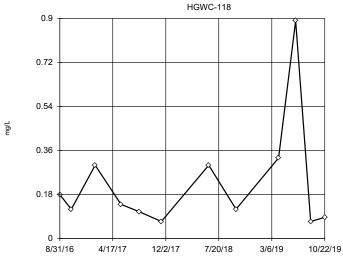
Data were natural log transformed to achieve

best W statistic (graph

shown in original units).

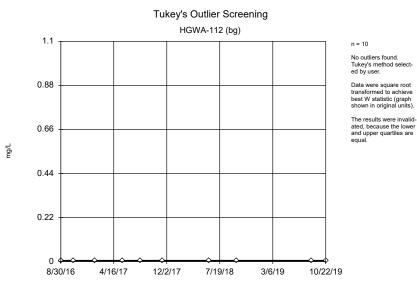
High cutoff = 8.652, low cutoff = 0.003392, based

on IQR multiplier of 3.

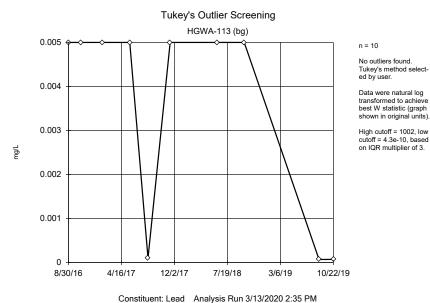


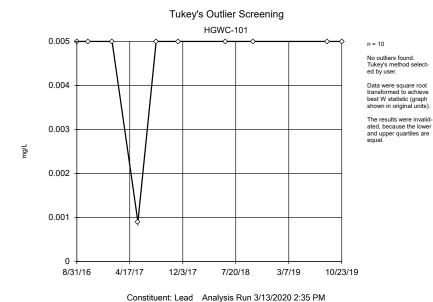
Constituent: Fluoride Analysis Run 3/13/2020 2:35 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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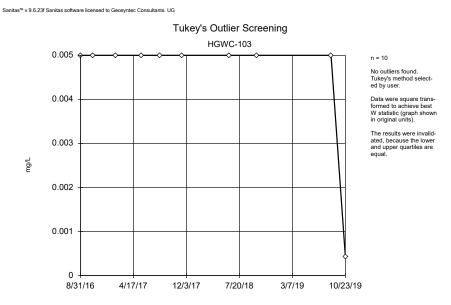


Constituent: Lead Analysis Run 3/13/2020 2:35 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4





Hammond AP Client: Georgia Power Data: Hammond AP-4



Constituent: Lead Analysis Run 3/13/2020 2:35 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

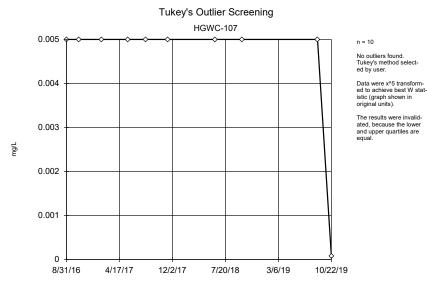
0.003 mg/L

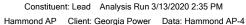
> 4/17/17 12/3/17 7/20/18 3/7/19 10/23/19

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

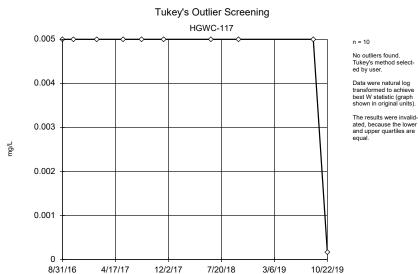
Tukey's Outlier Screening HGWC-105 0.005 n = 10 No outliers found. Tukey's method selected by user. 0.004 Ladder of Powers transformations did not improve normality; analysis run on raw data. The results were invalidated, because the lower and upper quartiles are egual. 0.002 0.001 8/31/16

> Constituent: Lead Analysis Run 3/13/2020 2:35 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

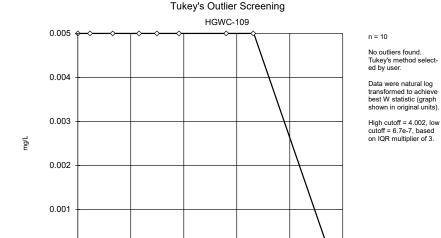




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Constituent: Lead Analysis Run 3/13/2020 2:35 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4



12/2/17

Constituent: Lead Analysis Run 3/13/2020 2:35 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

7/20/18

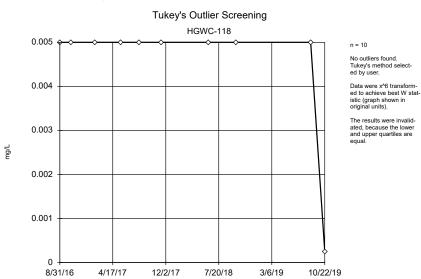
3/6/19

10/22/19

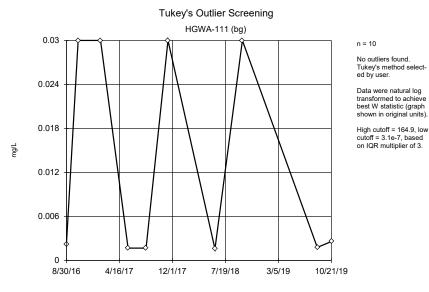
Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

8/31/16

4/17/17

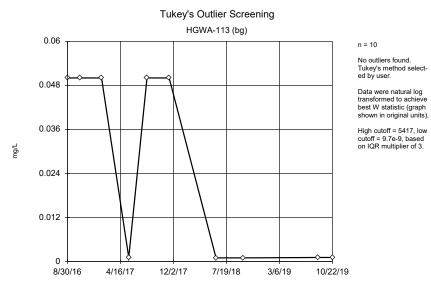


Constituent: Lead Analysis Run 3/13/2020 2:35 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4



Constituent: Lithium Analysis Run 3/13/2020 2:35 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

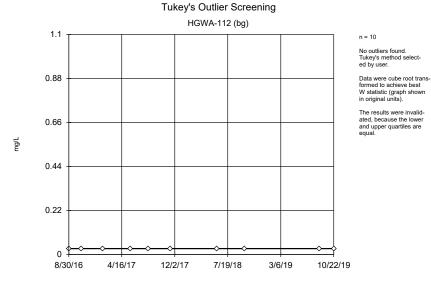
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Constituent: Lithium Analysis Run 3/13/2020 2:35 PM

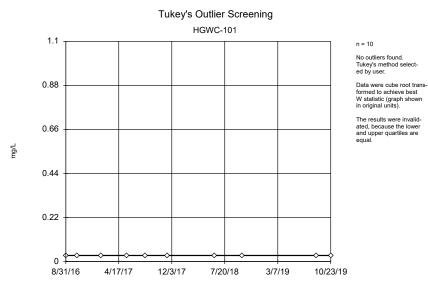
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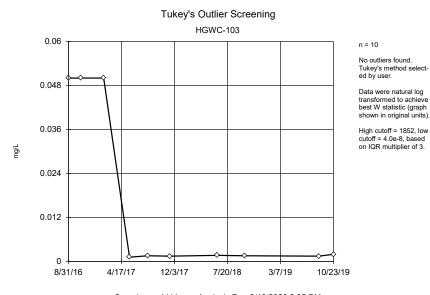


Constituent: Lithium Analysis Run 3/13/2020 2:35 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

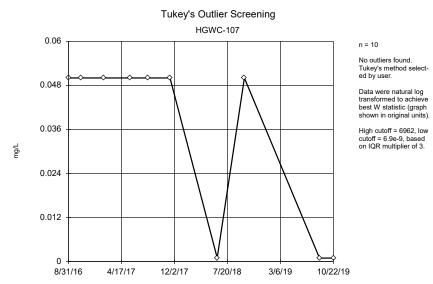


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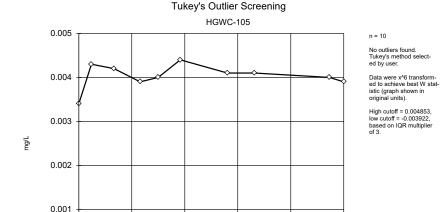


Constituent: Lithium Analysis Run 3/13/2020 2:35 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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Constituent: Lithium Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4



Constituent: Lithium Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

7/20/18

3/7/19

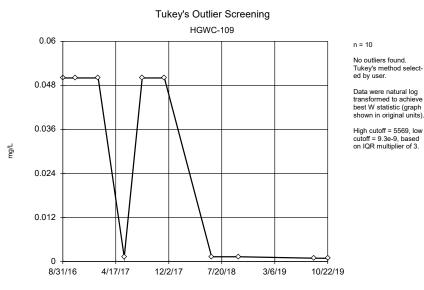
10/23/19

12/3/17

4/17/17

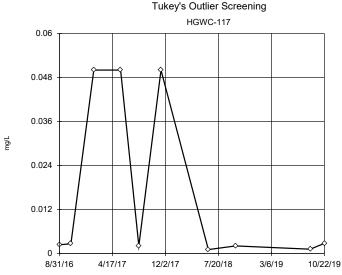
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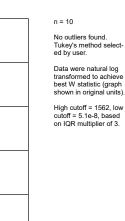
8/31/16

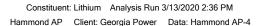


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Hammond AP Client: Georgia Power Data: Hammond AP-4

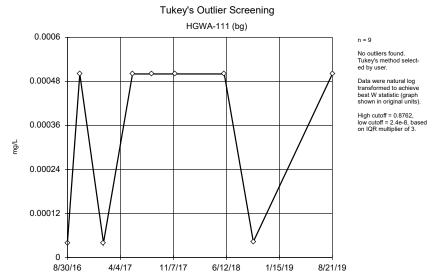
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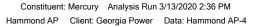


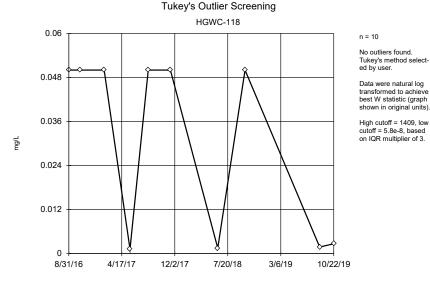




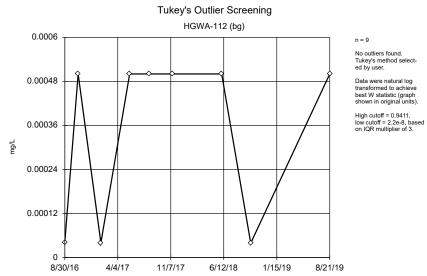
Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG



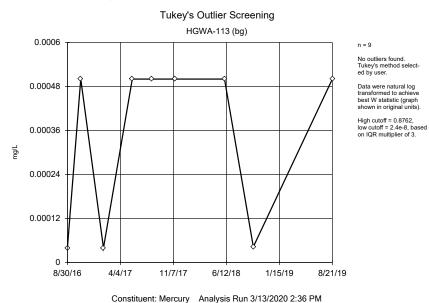


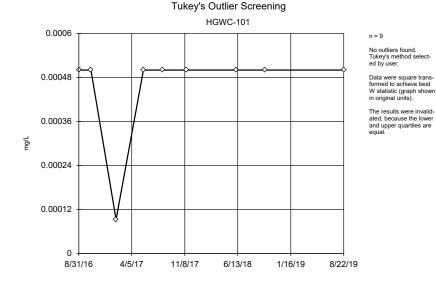


Constituent: Lithium Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4



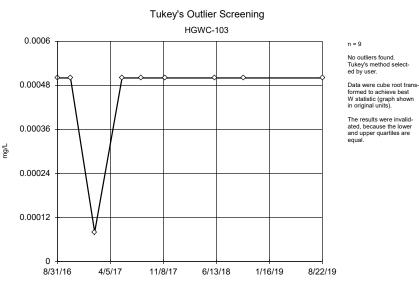
Constituent: Mercury Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4





Constituent: Mercury Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

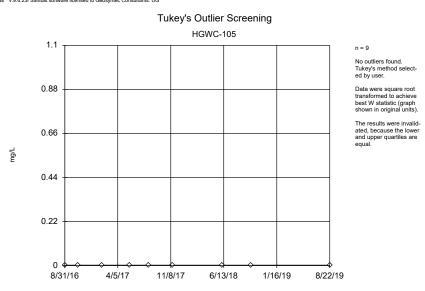
Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG



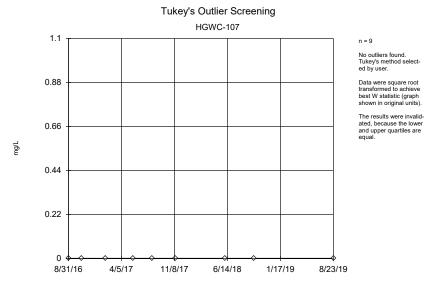
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Hammond AP Client: Georgia Power Data: Hammond AP-4

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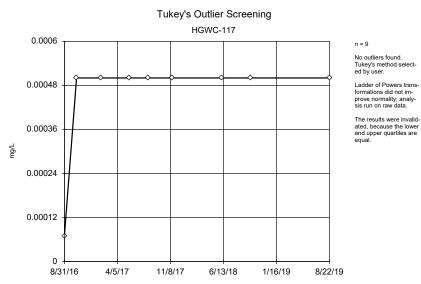


Constituent: Mercury Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4



Constituent: Mercury Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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Constituent: Mercury Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

Tukey's Outlier Screening

n = 9

No outliers found. Tukey's method select-

Data were cube root transformed to achieve best

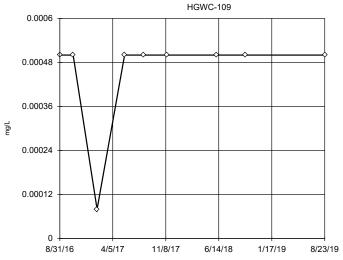
W statistic (graph shown

The results were invalid-

ated, because the lower

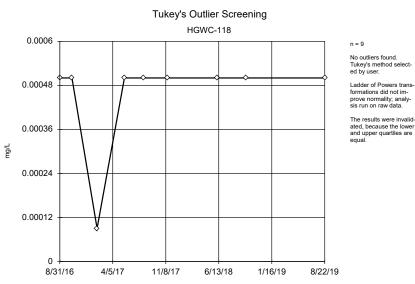
and upper quartiles are

in original units).

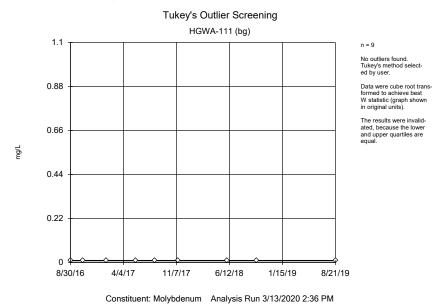


Constituent: Mercury Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG



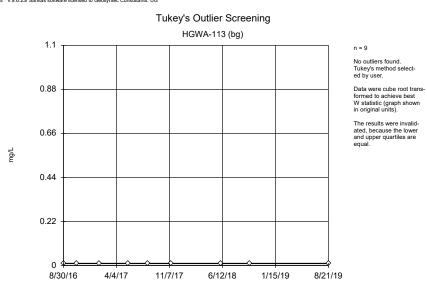
Constituent: Mercury Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4



HGWA-112 (bg) 1.1 n = 9 No outliers found. Tukey's method select-Data were cube root trans-formed to achieve best 0.88 W statistic (graph shown in original units). The results were invalidated, because the lower 0.66 and upper quartiles are mg/L 0.44 0.22 8/30/16 4/4/17 11/7/17 6/12/18 1/15/19 8/21/19 Constituent: Molybdenum Analysis Run 3/13/2020 2:36 PM

Tukey's Outlier Screening

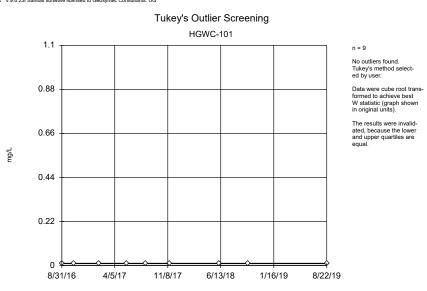
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Constituent: Molybdenum Analysis Run 3/13/2020 2:36 PM

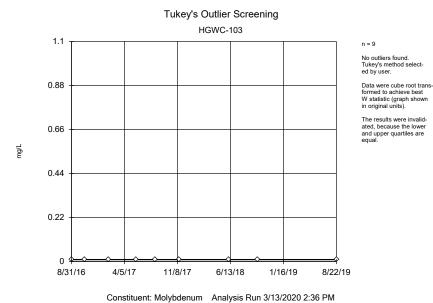
Hammond AP Client: Georgia Power Data: Hammond AP-4

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Hammond AP Client: Georgia Power Data: Hammond AP-4

Constituent: Molybdenum Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

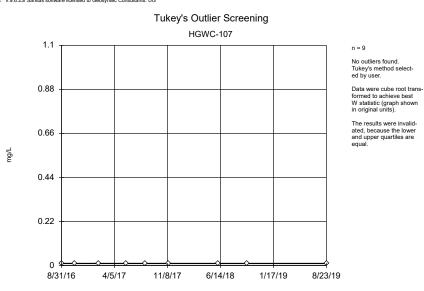


Tukey's Outlier Screening HGWC-105 1.1 n = 9 No outliers found. Tukey's method select-Data were cube root trans-formed to achieve best 0.88 W statistic (graph shown in original units). The results were invalidated, because the lower 0.66 and upper quartiles are mg/L 0.44 0.22 8/31/16 4/5/17 11/8/17 6/13/18 1/16/19 8/22/19

Constituent: Molybdenum Analysis Run 3/13/2020 2:36 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

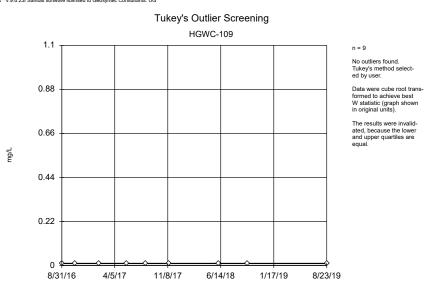
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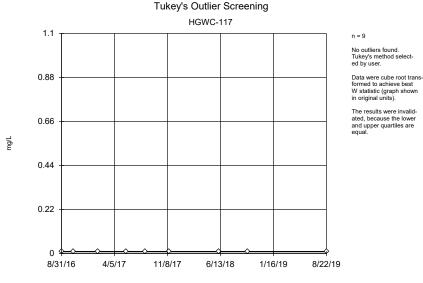
Constituent: Molybdenum Analysis Run 3/13/2020 2:36 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

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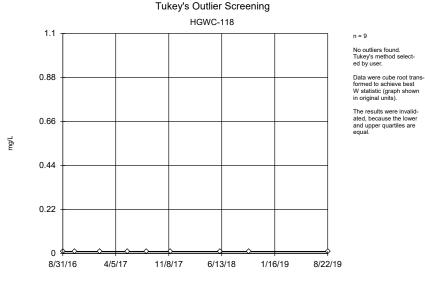


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Hammond AP Client: Georgia Power Data: Hammond AP-4



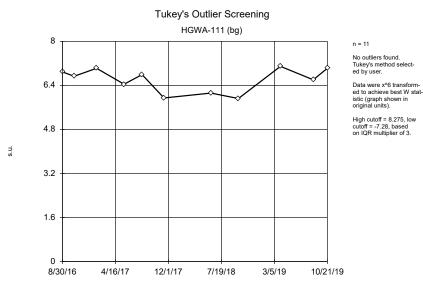
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Hammond AP Client: Georgia Power Data: Hammond AP-4

Tukovlo O



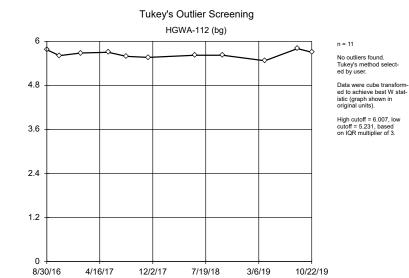
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Hammond AP Client: Georgia Power Data: Hammond AP-4

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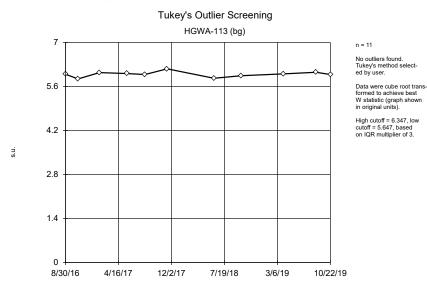


Constituent: pH Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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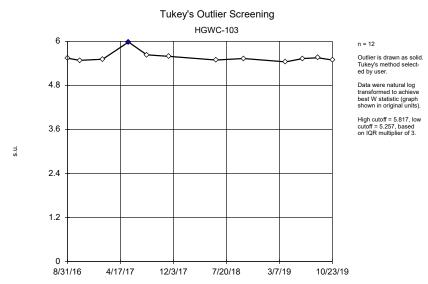


Constituent: pH Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4



Constituent: pH Analysis Run 3/13/2020 2:36 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

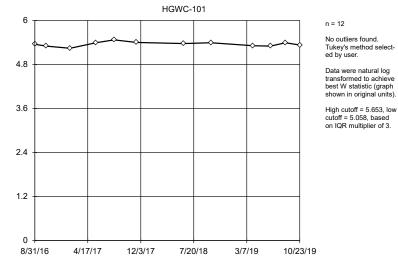
Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG



Constituent: pH Analysis Run 3/13/2020 2:36 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

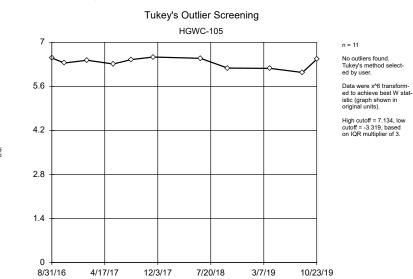
Tukey's Outlier Screening

shown in original units).

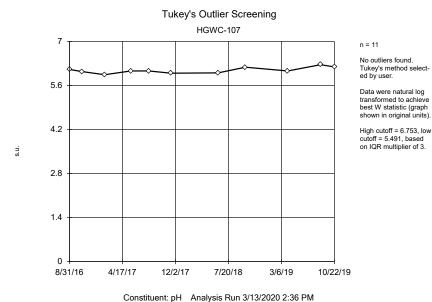


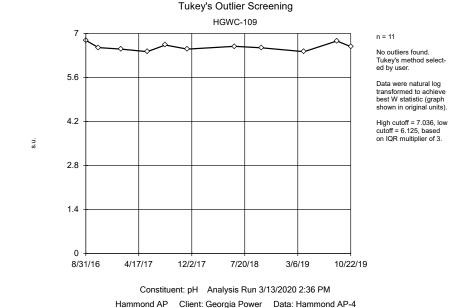
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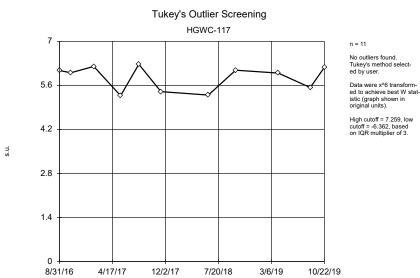


Constituent: pH Analysis Run 3/13/2020 2:36 PM Hammond AP Client: Georgia Power Data: Hammond AP-4



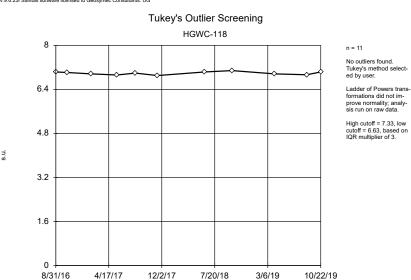


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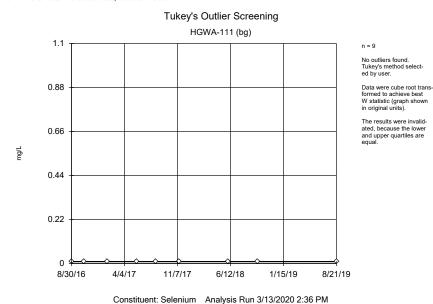


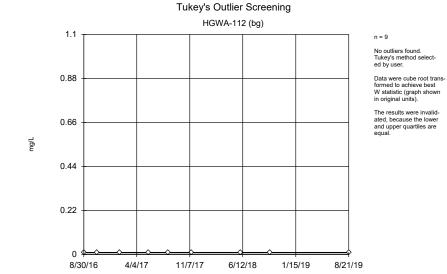
Constituent: pH Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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Constituent: pH Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

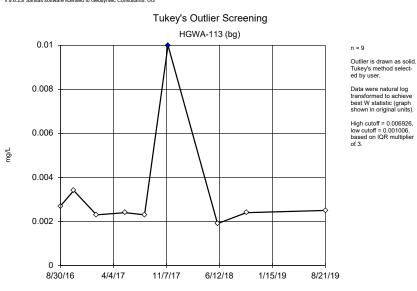




Constituent: Selenium Analysis Run 3/13/2020 2:36 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

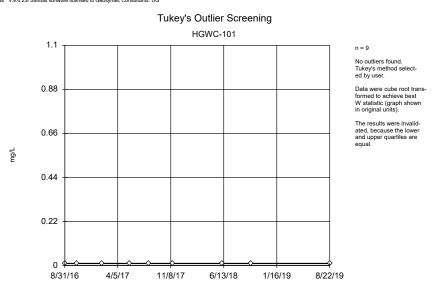
Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG



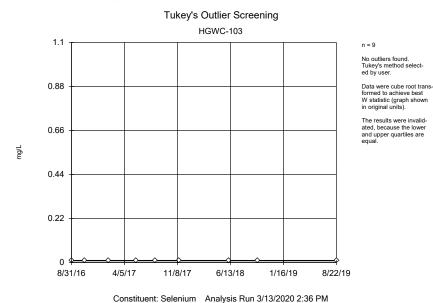
Constituent: Selenium Analysis Run 3/13/2020 2:36 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

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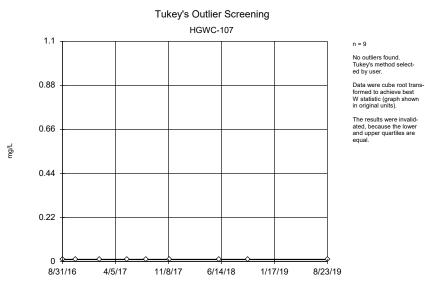
Constituent: Selenium Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4



HGWC-105 1.1 n = 9 No outliers found. Tukey's method select-Data were cube root trans-formed to achieve best 0.88 W statistic (graph shown in original units). The results were invalidated, because the lower 0.66 and upper quartiles are mg/L 0.44 0.22 8/31/16 4/5/17 11/8/17 6/13/18 1/16/19 8/22/19 Constituent: Selenium Analysis Run 3/13/2020 2:36 PM

Tukey's Outlier Screening

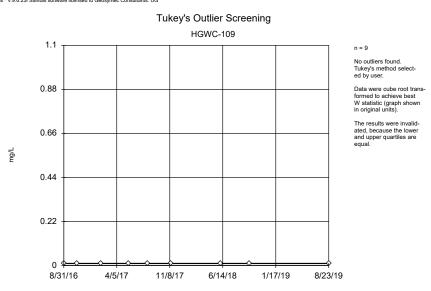
Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG



Constituent: Selenium Analysis Run 3/13/2020 2:36 PM

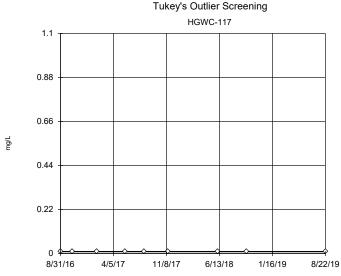
Hammond AP Client: Georgia Power Data: Hammond AP-4

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Hammond AP Client: Georgia Power Data: Hammond AP-4

Constituent: Selenium Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4



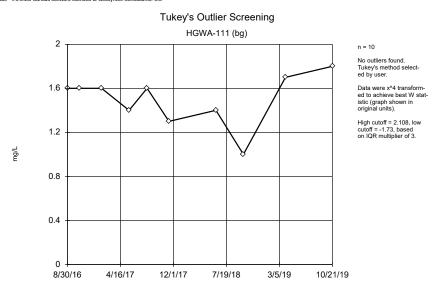
n = 9

No outliers found.
Tukey's method select-

Data were cube root transformed to achieve best W statistic (graph shown in original units).

The results were invalidated, because the lower and upper quartiles are equal.





Constituent: Selenium Analysis Run 3/13/2020 2:36 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

Constituent: Sulfate Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

Tukey's Outlier Screening

n = 9

No outliers found. Tukey's method select-

Data were cube root transformed to achieve best

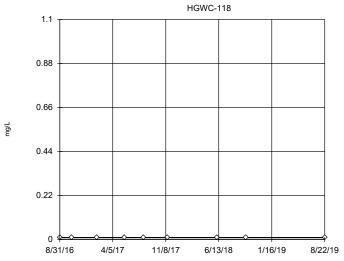
W statistic (graph shown

The results were invalid-

ated, because the lower

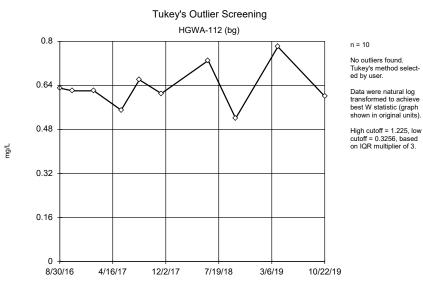
and upper quartiles are

in original units).



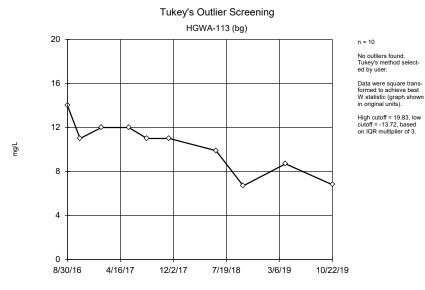
Constituent: Selenium Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG



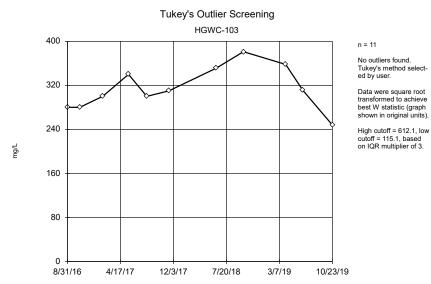
Constituent: Sulfate Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

mg/L



Constituent: Sulfate Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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Constituent: Sulfate Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

Tukey's Outlier Screening

n = 11

No outliers found. Tukey's method selected by user.

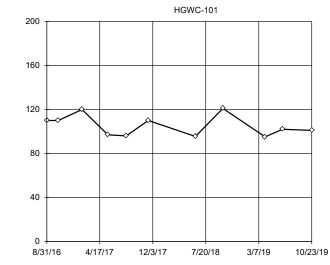
Data were natural log

transformed to achieve

best W statistic (graph shown in original units).

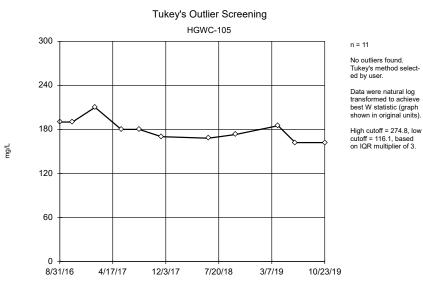
High cutoff = 165.5, low

cutoff = 63.81, based on IQR multiplier of 3.



Constituent: Sulfate Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

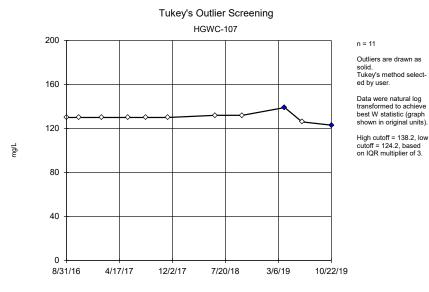
Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG



Constituent: Sulfate Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

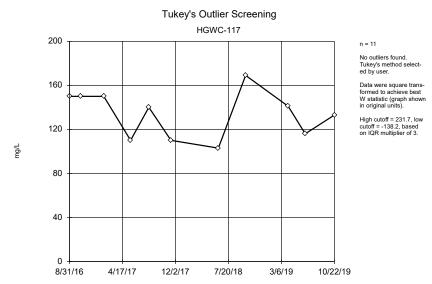
mg/L

mg/L



Constituent: Sulfate Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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Constituent: Sulfate Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

Tukey's Outlier Screening

n = 11

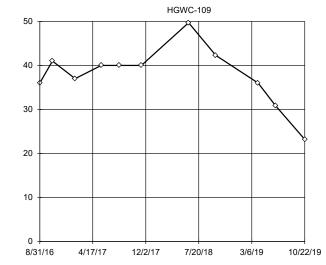
No outliers found. Tukey's method select-

Data were square transformed to achieve best

W statistic (graph shown

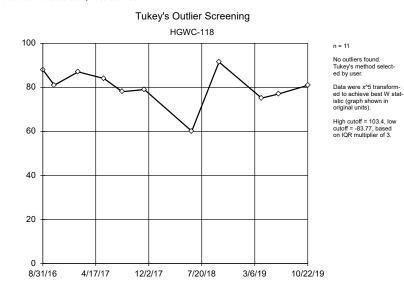
High cutoff = 53.25, low cutoff = 11.87, based on IQR multiplier of 3.

in original units).

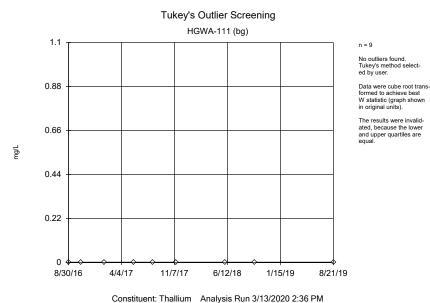


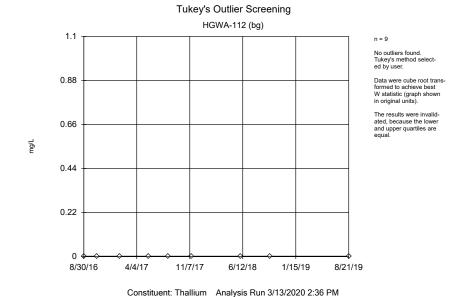
Constituent: Sulfate Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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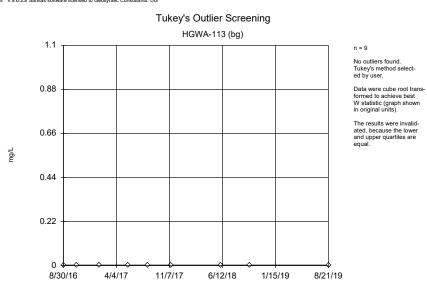
Constituent: Sulfate Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4





Hammond AP Client: Georgia Power Data: Hammond AP-4

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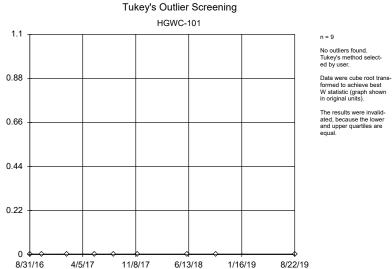
Constituent: Thallium Analysis Run 3/13/2020 2:36 PM

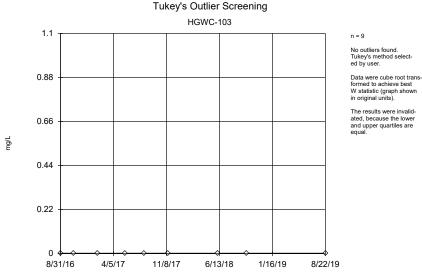
Hammond AP Client: Georgia Power Data: Hammond AP-4

0.66 mg/L 0.44

> Constituent: Thallium Analysis Run 3/13/2020 2:36 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

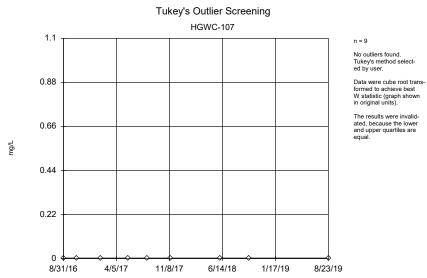
Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG





Constituent: Thallium Analysis Run 3/13/2020 2:36 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

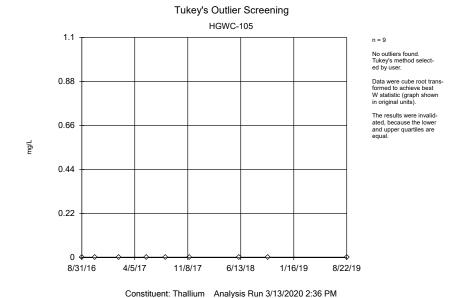
Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG



Constituent: Thallium Analysis Run 3/13/2020 2:36 PM

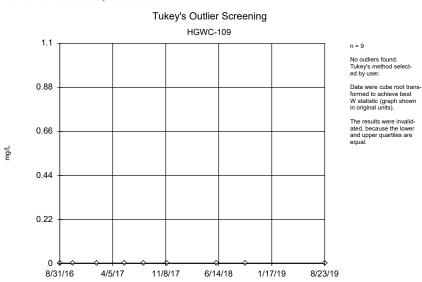
Hammond AP Client: Georgia Power Data: Hammond AP-4

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Hammond AP Client: Georgia Power Data: Hammond AP-4

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG



Constituent: Thallium Analysis Run 3/13/2020 2:36 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

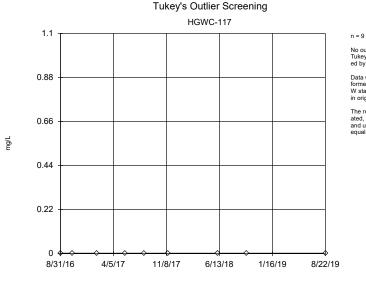
0.66

0.44

0.22

8/31/16

4/5/17



Constituent: Thallium Analysis Run 3/13/2020 2:36 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4



mg/L



The results were invalidated, because the lower and upper quartiles are equal.



6/13/18

1/16/19

8/22/19

11/8/17

Tukey's Outlier Screening

HGWC-118

n = 9

No outliers found. Tukey's method select-

Data were cube root transformed to achieve best

W statistic (graph shown

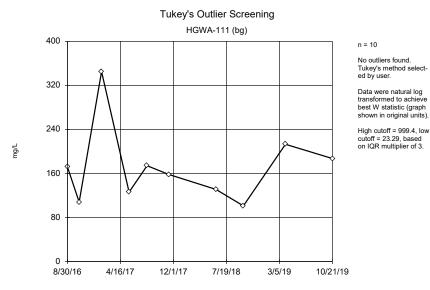
The results were invalid-

ated, because the lower

and upper quartiles are

in original units).

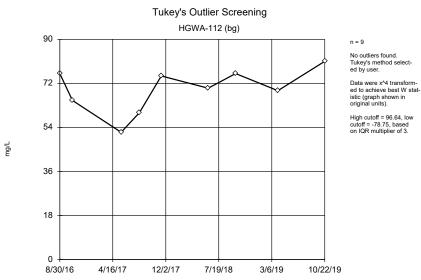




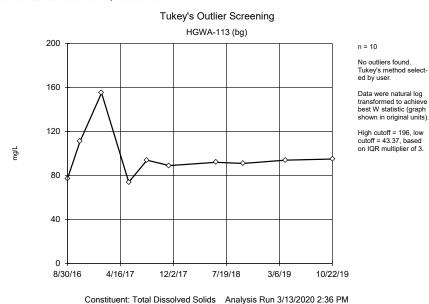
Constituent: Total Dissolved Solids Analysis Run 3/13/2020 2:36 PM

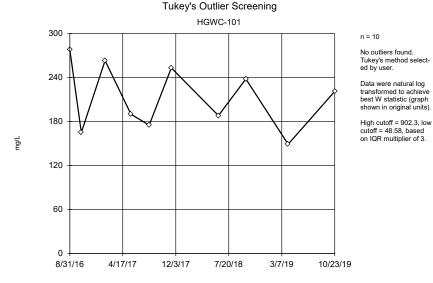
Hammond AP Client: Georgia Power Data: Hammond AP-4

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Constituent: Total Dissolved Solids Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4





Constituent: Total Dissolved Solids Analysis Run 3/13/2020 2:36 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

No outliers found.

ed by user.

Tukey's method select-

Data were natural log transformed to achieve

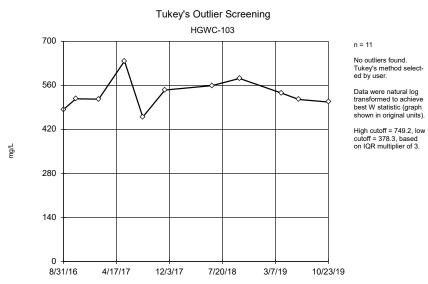
best W statistic (graph

shown in original units).

High cutoff = 525, low

cutoff = 260.8, based on IQR multiplier of 3.

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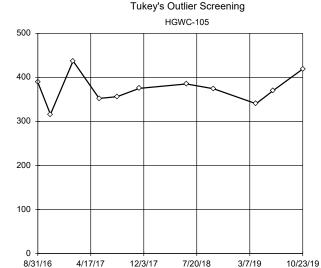
Constituent: Total Dissolved Solids Analysis Run 3/13/2020 2:36 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

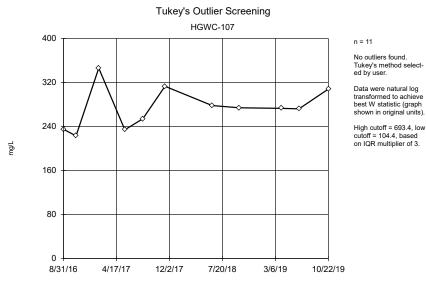
mg/L 200 100

> Constituent: Total Dissolved Solids Analysis Run 3/13/2020 2:36 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

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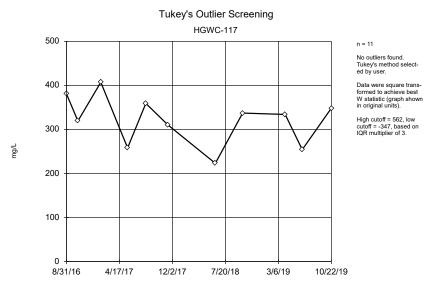


mg/L



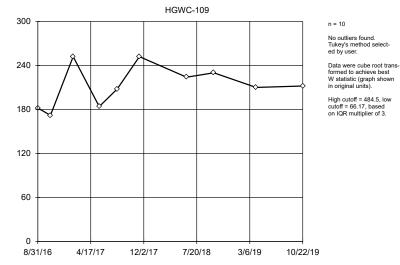
Constituent: Total Dissolved Solids Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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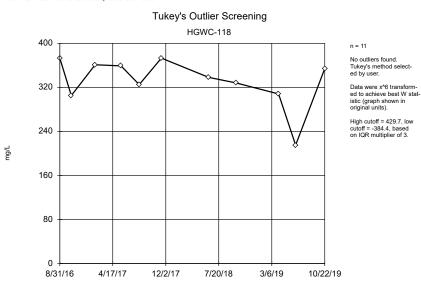
Constituent: Total Dissolved Solids Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

Tukey's Outlier Screening

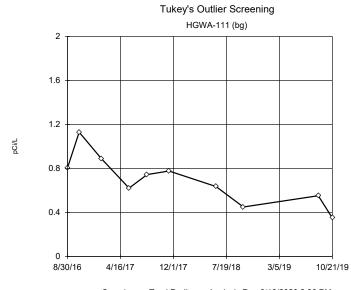


Constituent: Total Dissolved Solids Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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Constituent: Total Dissolved Solids Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4



Constituent: Total Radium Analysis Run 3/13/2020 2:36 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

n = 10

No outliers found. Tukey's method select-

Data were square root transformed to achieve

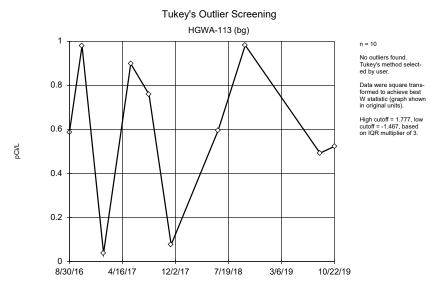
best W statistic (graph

shown in original units).

High cutoff = 2.419, low cutoff = 0.005171, based

on IQR multiplier of 3.

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Constituent: Total Radium Analysis Run 3/13/2020 2:37 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

Tukey's Outlier Screening

n = 10

No outliers found. Tukey's method select-

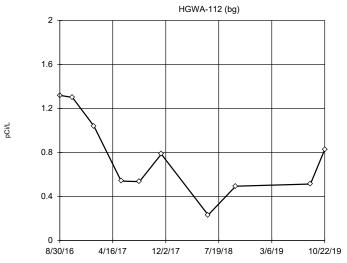
Data were cube root transformed to achieve best

W statistic (graph shown

High cutoff = 6.046, low cutoff = 0.00001815, based

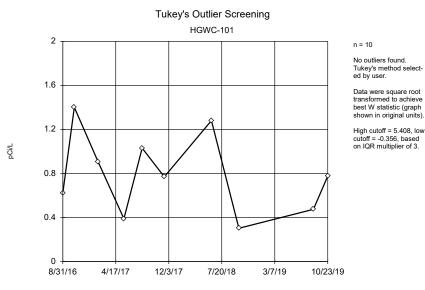
on IQR multiplier of 3.

in original units).



Constituent: Total Radium Analysis Run 3/13/2020 2:37 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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Constituent: Total Radium Analysis Run 3/13/2020 2:37 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

Constituent: Total Radium Analysis Run 3/13/2020 2:37 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

n = 10

No outliers found. Tukey's method select-

Ladder of Powers transformations did not im-

prove normality; analy-

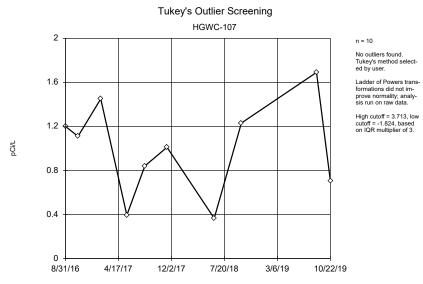
High cutoff = 2.265, low

cutoff = -0.703, based

on IQR multiplier of 3.

sis run on raw data.

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Constituent: Total Radium Analysis Run 3/13/2020 2:37 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

Tukey's Outlier Screening

n = 10

No outliers found. Tukey's method select-

Data were square root transformed to achieve

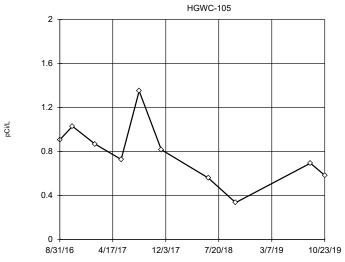
best W statistic (graph

shown in original units).

High cutoff = 2.774, low

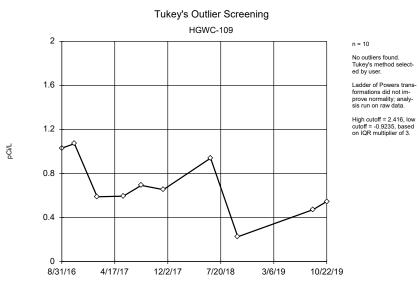
on IQR multiplier of 3.

cutoff = 0.005421, based



Constituent: Total Radium Analysis Run 3/13/2020 2:37 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

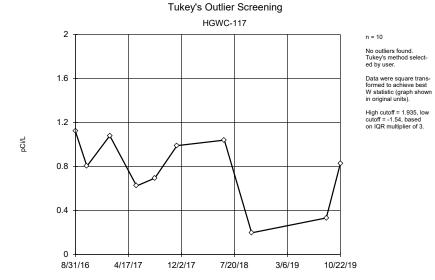
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Constituent: Total Radium Analysis Run 3/13/2020 2:37 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG





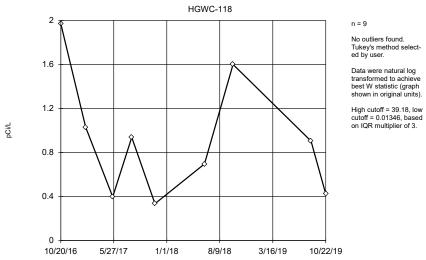
Constituent: Total Radium Analysis Run 3/13/2020 2:37 PM Hammond AP Client: Georgia Power Data: Hammond AP-4



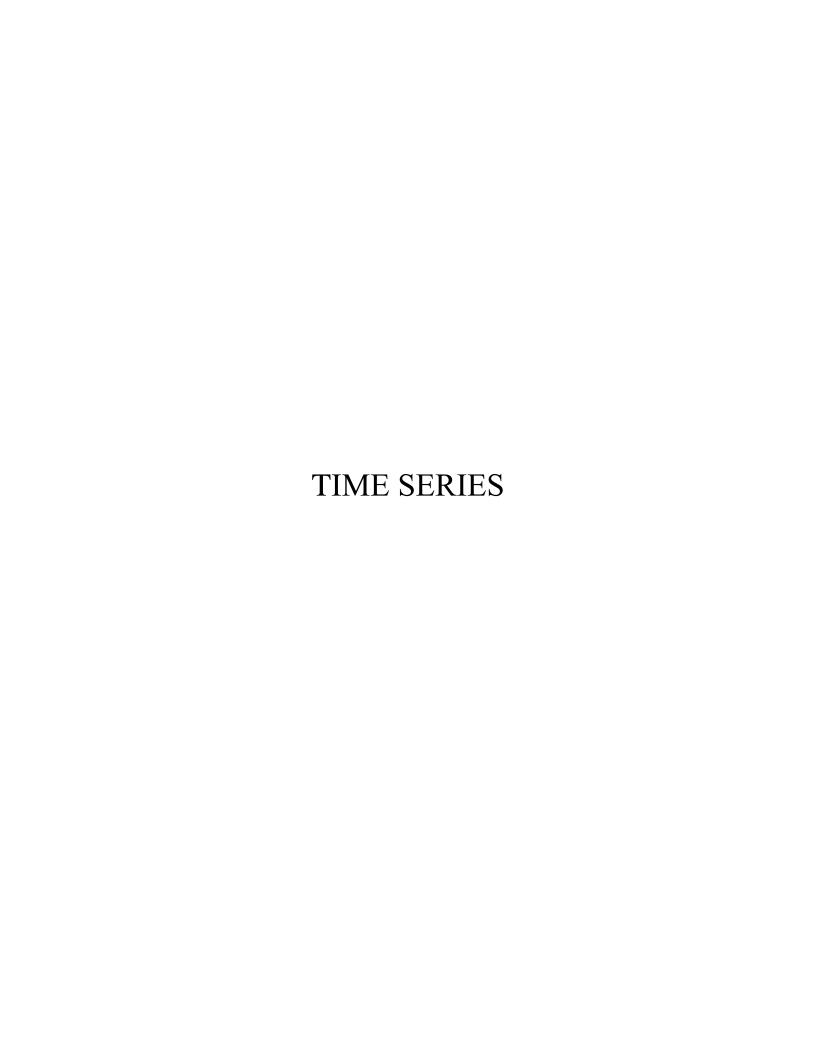
n = 9

No outliers found. Tukey's method select-ed by user.

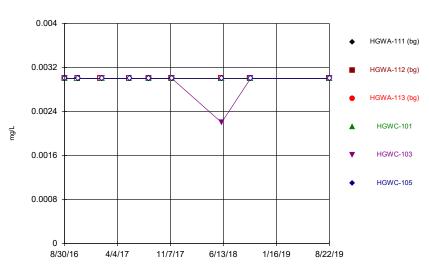
best W statistic (graph shown in original units).



Constituent: Total Radium Analysis Run 3/13/2020 2:37 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

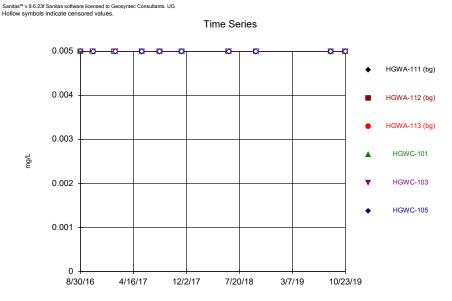


Time Series



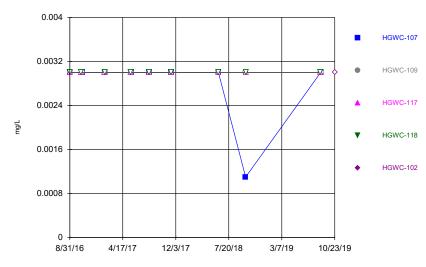
Constituent: Antimony Analysis Run 3/13/2020 3:17 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4



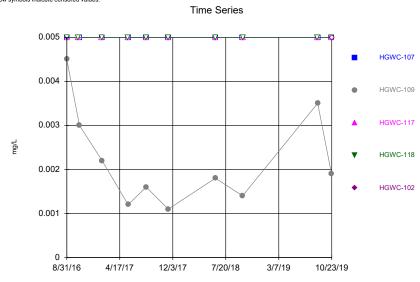
Constituent: Arsenic Analysis Run 3/13/2020 3:17 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

Time Series



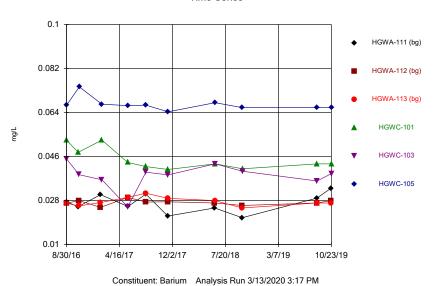
Constituent: Antimony Analysis Run 3/13/2020 3:17 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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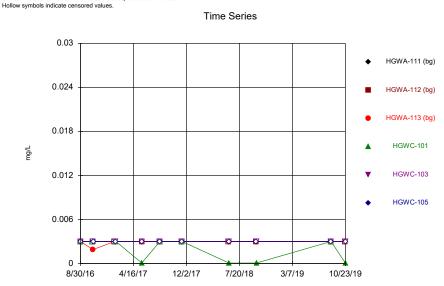
Constituent: Arsenic Analysis Run 3/13/2020 3:17 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

Time Series



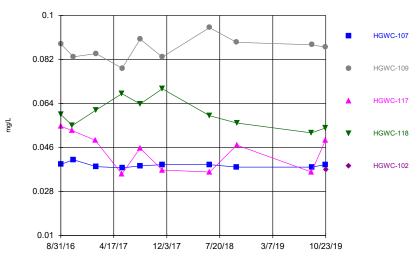
Hammond AP Client: Georgia Power Data: Hammond AP-4

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG



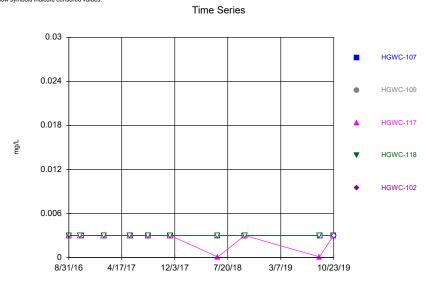
Constituent: Beryllium Analysis Run 3/13/2020 3:17 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

Time Series



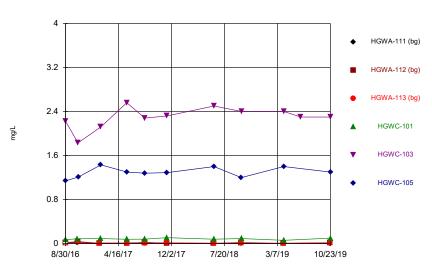
Constituent: Barium Analysis Run 3/13/2020 3:17 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG Hollow symbols indicate censored values.



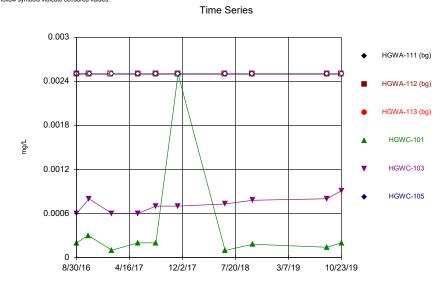
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Hammond AP Client: Georgia Power Data: Hammond AP-4

Time Series



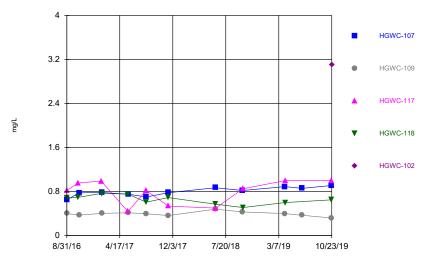
Constituent: Boron Analysis Run 3/13/2020 3:17 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

Sanitas $^{\rm tot}$ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG Hollow symbols indicate censored values.



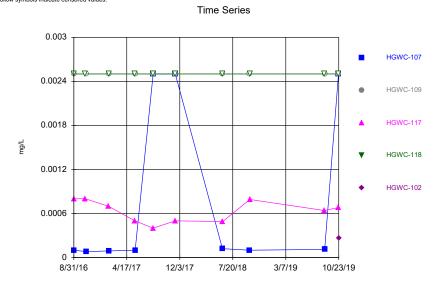
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Hammond AP Client: Georgia Power Data: Hammond AP-4

Time Series



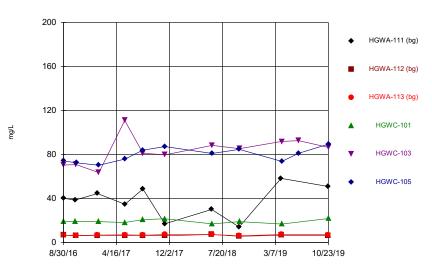
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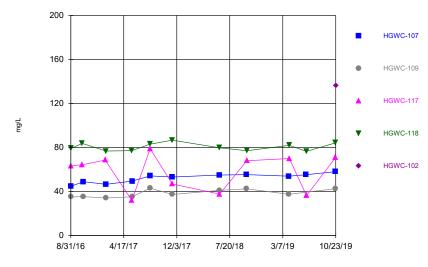
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Constituent: Calcium Analysis Run 3/13/2020 3:17 PM
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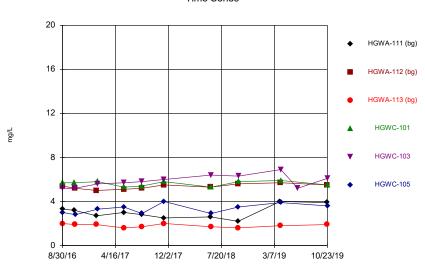
Time Series



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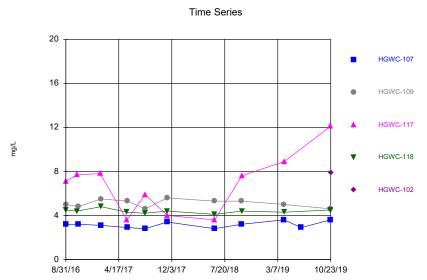
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Time Series

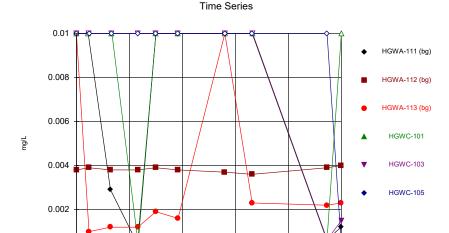


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Hammond AP Client: Georgia Power Data: Hammond AP-4

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Constituent: Chloride Analysis Run 3/13/2020 3:17 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4



Constituent: Chromium Analysis Run 3/13/2020 3:17 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

7/20/18

3/7/19

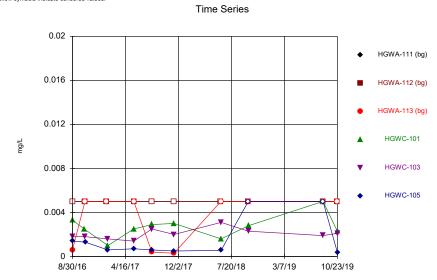
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12/2/17

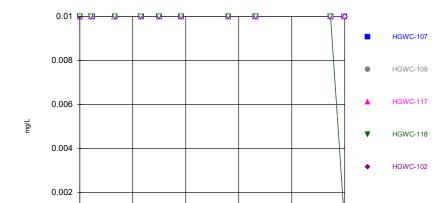


8/30/16

4/16/17



Constituent: Cobalt Analysis Run 3/13/2020 3:17 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4



Time Series

Constituent: Chromium Analysis Run 3/13/2020 3:17 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

7/20/18

3/7/19

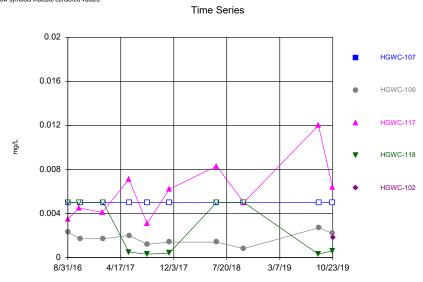
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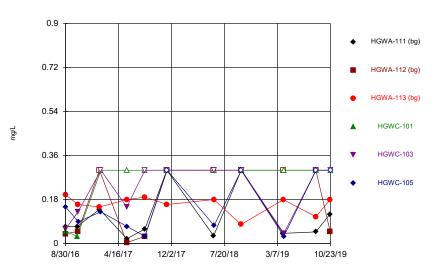
8/31/16

4/17/17



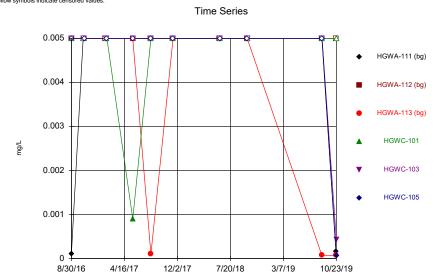
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Hammond AP Client: Georgia Power Data: Hammond AP-4





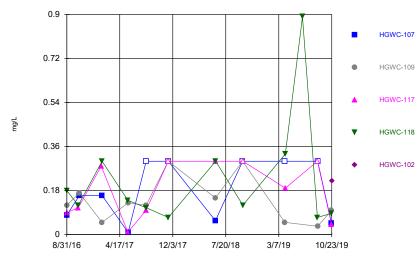
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Hammond AP Client: Georgia Power Data: Hammond AP-4

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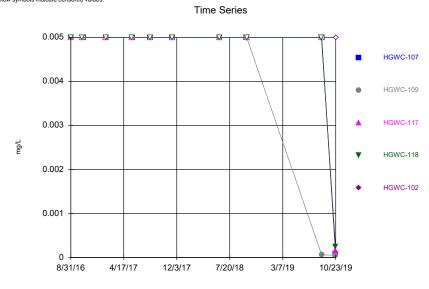
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Hammond AP Client: Georgia Power Data: Hammond AP-4

Time Series

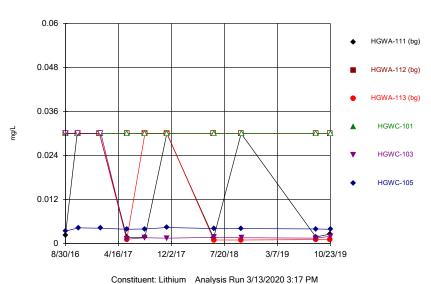


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Hammond AP Client: Georgia Power Data: Hammond AP-4

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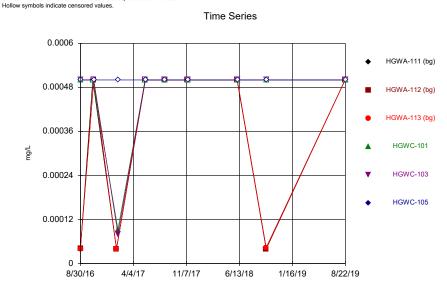


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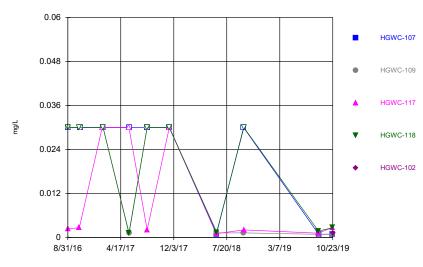
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Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG



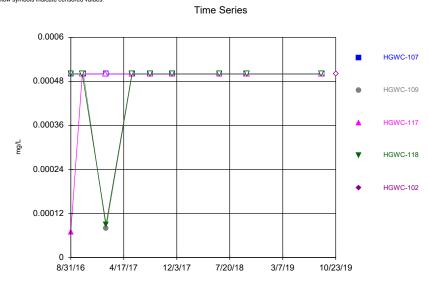
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Time Series

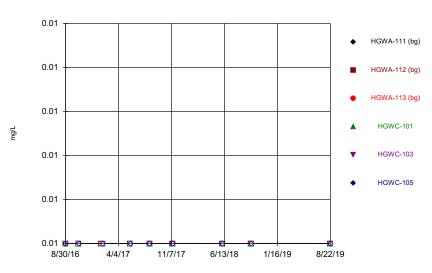


Constituent: Lithium Analysis Run 3/13/2020 3:17 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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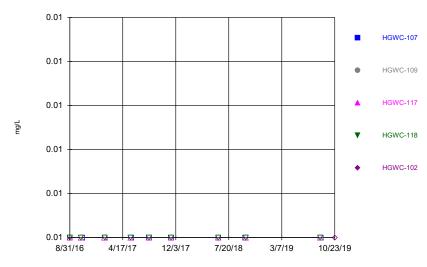


Constituent: Mercury Analysis Run 3/13/2020 3:17 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4



Constituent: Molybdenum Analysis Run 3/13/2020 3:17 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

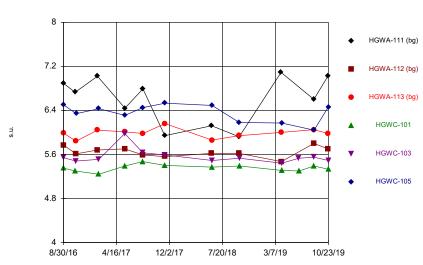
Time Series



Constituent: Molybdenum Analysis Run 3/13/2020 3:17 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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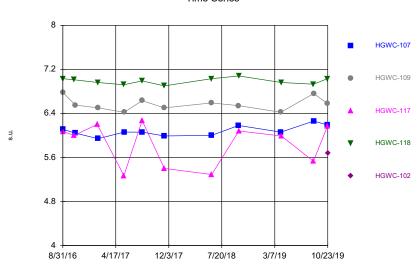
Time Series



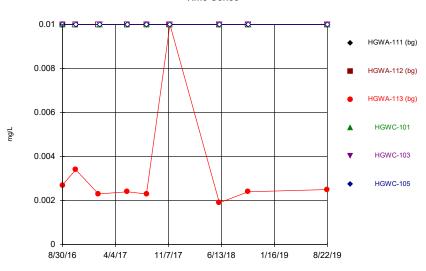
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Hammond AP Client: Georgia Power Data: Hammond AP-4

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Time Series

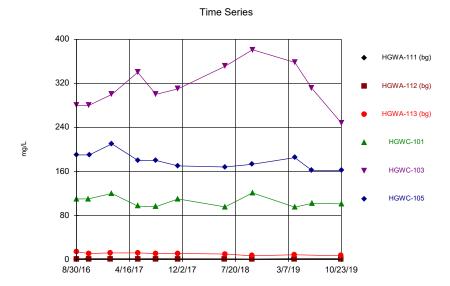


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Hammond AP Client: Georgia Power Data: Hammond AP-4



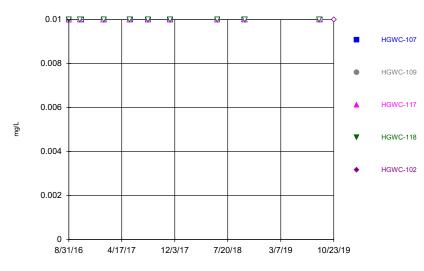
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Hammond AP Client: Georgia Power Data: Hammond AP-4

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG



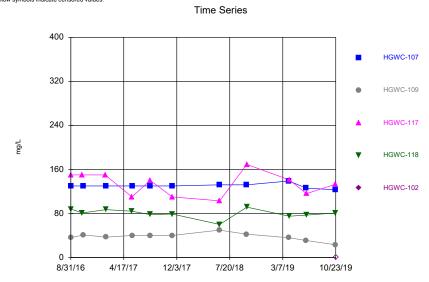
Constituent: Sulfate Analysis Run 3/13/2020 3:17 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4



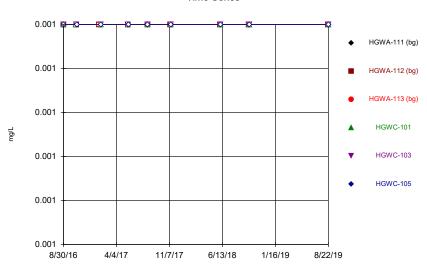


Constituent: Selenium Analysis Run 3/13/2020 3:17 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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Constituent: Sulfate Analysis Run 3/13/2020 3:18 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4



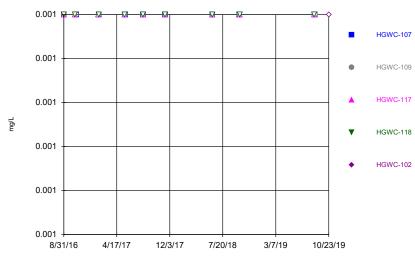
Constituent: Thallium Analysis Run 3/13/2020 3:18 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

Time Series 800 HGWA-111 (bg) 640 HGWA-112 (bg) HGWA-113 (bg) 480 HGWC-101 mg/L 320 HGWC-103 HGWC-105 160 8/30/16 4/16/17 12/2/17 7/20/18 3/7/19 10/23/19

Constituent: Total Dissolved Solids Analysis Run 3/13/2020 3:18 PM
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Time Series

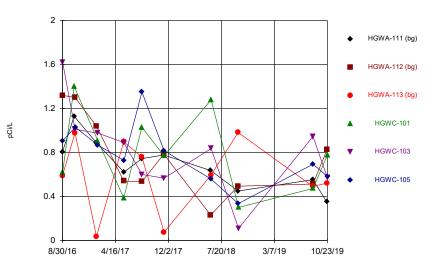


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Hammond AP Client: Georgia Power Data: Hammond AP-4

Sanitas™ v.9.6.23f Sanitas software licensed to Geosyntec Consultants. UG

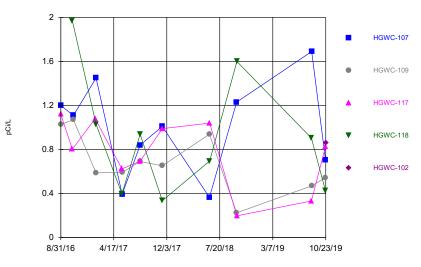
Time Series 800 HGWC-107 640 HGWC-109 HGWC-117 480 mg/L HGWC-118 320 HGWC-102 160 8/31/16 4/17/17 12/3/17 7/20/18 3/7/19 10/23/19

Constituent: Total Dissolved Solids Analysis Run 3/13/2020 3:18 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4



Constituent: Total Radium Analysis Run 3/13/2020 3:18 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

Time Series



Constituent: Total Radium Analysis Run 3/13/2020 3:18 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

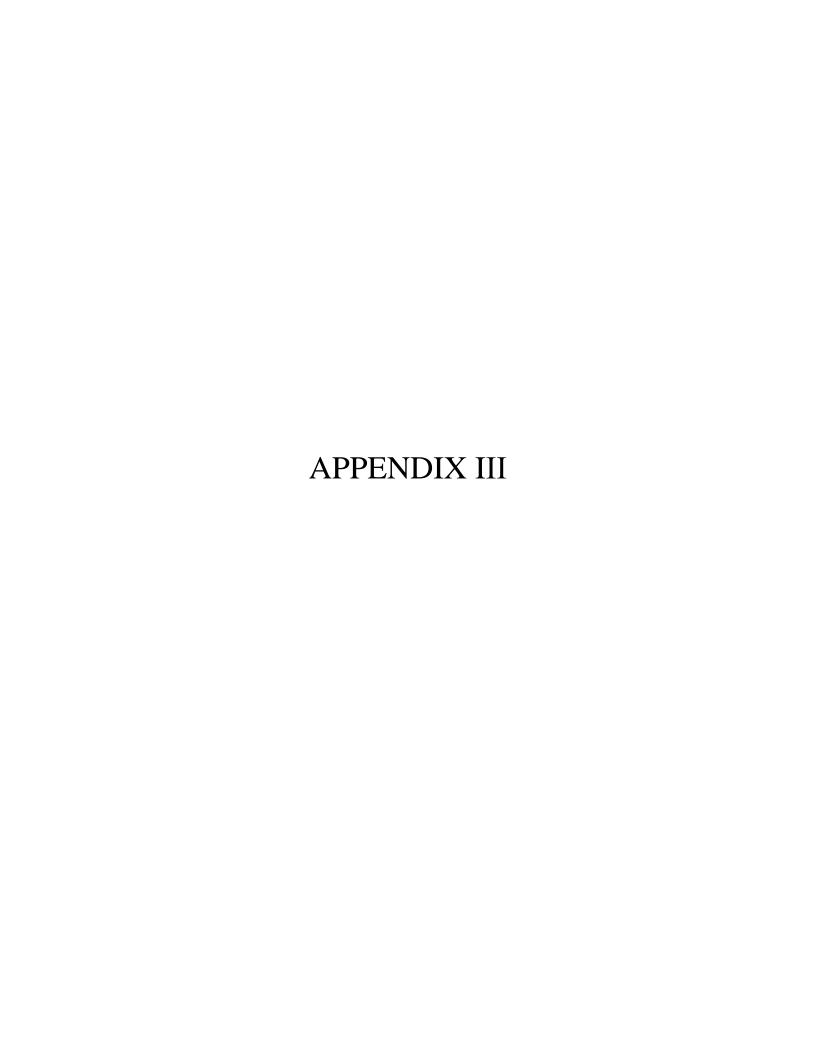


Table 1
Assessment Monitoring Interwell Prediction Limit Comparison
Plant Hammond AP-4, Floyd County, Georgia

Purpose of Sampling Event: Verificat Boron (mg/L) HGWC-101 0.023 - 0.10 Boron (mg/L) HGWC-105 0.023 - 0.93 - 0.93 Boron (mg/L) HGWC-107 0.023 - 0.91 Boron (mg/L) HGWC-107 0.023 - 0.91 Boron (mg/L) HGWC-109 0.023 - 0.91 Boron (mg/L) HGWC-117 0.023 - 0.05 Boron (mg/L) HGWC-118 0.023 - 0.65 Calcium (mg/L) HGWC-101 58.4 - 21.9 Calcium (mg/L) HGWC-103 58.4 - 86.5 Calcium (mg/L) HGWC-105 58.4 - 89.4 Calcium (mg/L) HGWC-107 58.4 - 58.1 Calcium (mg/L) HGWC-107 58.4 - 42.6 Calcium (mg/L) HGWC-109 58.4 - 42.6 Calcium (mg/L) HGWC-109 58.4 - 42.6 Calcium (mg/L) HGWC-118 58.4 - 70.9 Calcium (mg/L) HGWC-118 58.4 - 58.1 Calcium (mg/L) HGWC-101 5.7 - 5.5 Chloride (mg/L) HGWC-103 5.7 - 6.1 Chloride (mg/L) HGWC-105 5.7 - 3.6 Chloride (mg/L) HGWC-105 5.7 - 3.6 Chloride (mg/L) HGWC-107 5.7 - 3.6 Chloride (mg/L) HGWC-107 5.7 - 3.6 Chloride (mg/L) HGWC-107 5.7 - 3.6 Chloride (mg/L) HGWC-107 5.7 - 4.6 Chloride (mg/L) HGWC-107 5.7 - 4.5 Fluoride (mg/L) HGWC-101 0.23 - ND Fluoride (mg/L) HGWC-101 0.23 - ND Fluoride (mg/L) HGWC-103 0.23 - ND Fluoride (mg/L) HGWC-107 0.23 - ND Fluoride (mg/L) HGWC-107 0.23 - ND Fluoride (mg/L) HGWC-107 0.23 - 0.047 ND Fluoride (mg/L) HGWC-107 0.23 - 0.047 ND Fluoride (mg/L) HGWC-107 0.23 - 0.047 ND Fluoride (mg/L) HGWC-107 0.23 - 0.047 ND Fluoride (mg/L) HGWC-107 0.23 - 0.047 ND Fluoride (mg/L) HGWC-107 0.23 - 0.047 ND Fluoride (mg/L) HGWC-107 0.23 - 0.047 ND Fluoride (mg/L) HGWC-107 0.23 - 0.047 ND HGWC-107 0.23 - 0.047 ND HGWC-107 0.23 - 0.047 ND HGWC-107 0.23 - 0.047 ND HGWC-107 0.23 - 0.047 ND HGWC-107 0.23 - 0.047 ND HGWC-107 0.23 - 0.047 ND HGWC					0 (21 22
Boron (mg/L) HGWC-101 0.023 - 0.10 Boron (mg/L) HGWC-103 0.023 - 2.3 Boron (mg/L) HGWC-105 0.023 - 1.3 Boron (mg/L) HGWC-107 0.023 - 0.91 Boron (mg/L) HGWC-109 0.023 - 0.32 Boron (mg/L) HGWC-117 0.023 - 0.65 Calcium (mg/L) HGWC-118 0.023 - 0.65 Calcium (mg/L) HGWC-101 58.4 - 21.9 Calcium (mg/L) HGWC-103 58.4 - 86.5 Calcium (mg/L) HGWC-105 58.4 - 89.4 Calcium (mg/L) HGWC-107 58.4 - 89.4 Calcium (mg/L) HGWC-107 58.4 - 88.1 Calcium (mg/L) HGWC-107 58.4 - 70.9 Calcium (mg/L) HGWC-117 58.4 - 70.9 Calcium (mg/L) HGWC-101 5.7	Parameter	Well ID	Upper PL	Lower PL	Oct 21-23 2019
Boron (mg/L) HGWC-103 0.023 - 2.3 Boron (mg/L) HGWC-105 0.023 - 1.3 Boron (mg/L) HGWC-107 0.023 - 0.91 Boron (mg/L) HGWC-109 0.023 - 0.32 Boron (mg/L) HGWC-117 0.023 - 0.65 Calcium (mg/L) HGWC-101 58.4 - 21.9 Calcium (mg/L) HGWC-103 58.4 - 86.5 Calcium (mg/L) HGWC-105 58.4 - 89.4 Calcium (mg/L) HGWC-107 58.4 - 89.4 Calcium (mg/L) HGWC-109 58.4 - 89.4 Calcium (mg/L) HGWC-109 58.4 - 42.6 Calcium (mg/L) HGWC-1017 58.4 - 70.9 Calcium (mg/L) HGWC-117 58.4 - 70.9 Calcium (mg/L) HGWC-101 5.7 - 5.5 Chloride (mg/L) HGWC-103 5.7			Purpose of Sa	mpling Event:	Verification
Boron (mg/L) HGWC-105 0.023 - 0.91	Boron (mg/L)	HGWC-101	0.023	-	0.10
Boron (mg/L) HGWC-107 0.023 - 0.91 Boron (mg/L) HGWC-109 0.023 - 0.32 Boron (mg/L) HGWC-117 0.023 - 1.0 Boron (mg/L) HGWC-118 0.023 - 0.65 Calcium (mg/L) HGWC-101 58.4 - 21.9 Calcium (mg/L) HGWC-103 58.4 - 86.5 Calcium (mg/L) HGWC-105 58.4 - 89.4 Calcium (mg/L) HGWC-107 58.4 - 58.1 Calcium (mg/L) HGWC-109 58.4 - 42.6 Calcium (mg/L) HGWC-109 58.4 - 42.6 Calcium (mg/L) HGWC-117 58.4 - 70.9 Calcium (mg/L) HGWC-118 58.4 - 70.9 Calcium (mg/L) HGWC-118 58.4 - 70.9 Calcium (mg/L) HGWC-101 5.7 - 5.5 Chloride (mg/L) HGWC-103 5.7	Boron (mg/L)	HGWC-103	0.023	-	2.3
Boron (mg/L) HGWC-109 0.023 - 0.32 Boron (mg/L) HGWC-117 0.023 - 1.0 Boron (mg/L) HGWC-118 0.023 - 0.65 Calcium (mg/L) HGWC-101 58.4 - 21.9 Calcium (mg/L) HGWC-103 58.4 - 86.5 Calcium (mg/L) HGWC-105 58.4 - 89.4 Calcium (mg/L) HGWC-107 58.4 - 58.1 Calcium (mg/L) HGWC-109 58.4 - 58.1 Calcium (mg/L) HGWC-109 58.4 - 42.6 Calcium (mg/L) HGWC-109 58.4 - 70.9 Calcium (mg/L) HGWC-117 58.4 - 70.9 Calcium (mg/L) HGWC-118 58.4 - 70.9 Calcium (mg/L) HGWC-118 58.4 - 84.2 Chloride (mg/L) HGWC-101 5.7 - 6.1 Chloride (mg/L) HGWC-107 5.7	Boron (mg/L)	HGWC-105	0.023	-	1.3
Boron (mg/L) HGWC-117 0.023 - 0.65	Boron (mg/L)	HGWC-107	0.023	-	0.91
Boron (mg/L) HGWC-118 0.023 - 0.65	Boron (mg/L)	HGWC-109		-	0.32
Calcium (mg/L) HGWC-101 58.4 - 21.9 Calcium (mg/L) HGWC-103 58.4 - 86.5 Calcium (mg/L) HGWC-105 58.4 - 89.4 Calcium (mg/L) HGWC-107 58.4 - 58.1 Calcium (mg/L) HGWC-109 58.4 - 42.6 Calcium (mg/L) HGWC-117 58.4 - 70.9 Calcium (mg/L) HGWC-118 58.4 - 70.9 Calcium (mg/L) HGWC-118 58.4 - 70.9 Calcium (mg/L) HGWC-101 5.7 - 5.5 Chloride (mg/L) HGWC-103 5.7 - 6.1 Chloride (mg/L) HGWC-105 5.7 - 3.6 Chloride (mg/L) HGWC-109 5.7 - 4.6 Chloride (mg/L) HGWC-117 5.7 - 12.1 Chloride (mg/L) HGWC-118 5.7 - 4.5 Fluoride (mg/L) HGWC-103 0.23	Boron (mg/L)	HGWC-117	0.023	-	1.0
Calcium (mg/L) HGWC-103 58.4 - 86.5 Calcium (mg/L) HGWC-105 58.4 - 89.4 Calcium (mg/L) HGWC-107 58.4 - 58.1 Calcium (mg/L) HGWC-109 58.4 - 42.6 Calcium (mg/L) HGWC-117 58.4 - 70.9 Calcium (mg/L) HGWC-118 58.4 - 84.2 Chloride (mg/L) HGWC-101 5.7 - 5.5 Chloride (mg/L) HGWC-103 5.7 - 6.1 Chloride (mg/L) HGWC-105 5.7 - 3.6 Chloride (mg/L) HGWC-107 5.7 - 3.6 Chloride (mg/L) HGWC-109 5.7 - 4.6 Chloride (mg/L) HGWC-117 5.7 - 12.1 Chloride (mg/L) HGWC-118 5.7 - 4.5 Fluoride (mg/L) HGWC-103 0.23 - ND Fluoride (mg/L) HGWC-105 0.23	Boron (mg/L)	HGWC-118	0.023	-	0.65
Calcium (mg/L) HGWC-105 58.4 - 89.4 Calcium (mg/L) HGWC-107 58.4 - 58.1 Calcium (mg/L) HGWC-109 58.4 - 42.6 Calcium (mg/L) HGWC-117 58.4 - 70.9 Calcium (mg/L) HGWC-118 58.4 - 84.2 Chloride (mg/L) HGWC-101 5.7 - 5.5 Chloride (mg/L) HGWC-103 5.7 - 6.1 Chloride (mg/L) HGWC-105 5.7 - 3.6 Chloride (mg/L) HGWC-107 5.7 - 3.6 Chloride (mg/L) HGWC-109 5.7 - 4.6 Chloride (mg/L) HGWC-117 5.7 - 4.5 Fluoride (mg/L) HGWC-118 5.7 - 4.5 Fluoride (mg/L) HGWC-103 0.23 - ND Fluoride (mg/L) HGWC-105 0.23 - ND Fluoride (mg/L) HGWC-107 0.23	Calcium (mg/L)	HGWC-101	58.4	-	21.9
Calcium (mg/L) HGWC-107 58.4 - 58.1 Calcium (mg/L) HGWC-109 58.4 - 42.6 Calcium (mg/L) HGWC-117 58.4 - 70.9 Calcium (mg/L) HGWC-118 58.4 - 84.2 Chloride (mg/L) HGWC-101 5.7 - 5.5 Chloride (mg/L) HGWC-103 5.7 - 6.1 Chloride (mg/L) HGWC-105 5.7 - 3.6 Chloride (mg/L) HGWC-107 5.7 - 3.6 Chloride (mg/L) HGWC-109 5.7 - 4.6 Chloride (mg/L) HGWC-117 5.7 - 4.6 Chloride (mg/L) HGWC-118 5.7 - 4.5 Fluoride (mg/L) HGWC-101 0.23 - ND Fluoride (mg/L) HGWC-103 0.23 - ND Fluoride (mg/L) HGWC-107 0.23 - 0.047 Fluoride (mg/L) HGWC-109 0.23	Calcium (mg/L)			-	86.5
Calcium (mg/L) HGWC-109 58.4 - 42.6 Calcium (mg/L) HGWC-117 58.4 - 70.9 Calcium (mg/L) HGWC-118 58.4 - 84.2 Chloride (mg/L) HGWC-101 5.7 - 5.5 Chloride (mg/L) HGWC-103 5.7 - 6.1 Chloride (mg/L) HGWC-105 5.7 - 3.6 Chloride (mg/L) HGWC-107 5.7 - 3.6 Chloride (mg/L) HGWC-109 5.7 - 4.6 Chloride (mg/L) HGWC-109 5.7 - 4.6 Chloride (mg/L) HGWC-118 5.7 - 4.5 Fluoride (mg/L) HGWC-101 0.23 - ND Fluoride (mg/L) HGWC-105 0.23 - ND Fluoride (mg/L) HGWC-107 0.23 - 0.047 Fluoride (mg/L) HGWC-109 0.23 - 0.042 Fluoride (mg/L) HGWC-101 7.1	Calcium (mg/L)		58.4	-	
Calcium (mg/L) HGWC-117 58.4 - 70.9 Calcium (mg/L) HGWC-118 58.4 - 84.2 Chloride (mg/L) HGWC-101 5.7 - 5.5 Chloride (mg/L) HGWC-103 5.7 - 6.1 Chloride (mg/L) HGWC-105 5.7 - 3.6 Chloride (mg/L) HGWC-107 5.7 - 3.6 Chloride (mg/L) HGWC-109 5.7 - 4.6 Chloride (mg/L) HGWC-117 5.7 - 12.1 Chloride (mg/L) HGWC-118 5.7 - 4.5 Fluoride (mg/L) HGWC-101 0.23 - ND Fluoride (mg/L) HGWC-103 0.23 - ND Fluoride (mg/L) HGWC-107 0.23 - 0.047 Fluoride (mg/L) HGWC-109 0.23 - 0.042 Fluoride (mg/L) HGWC-118 0.23 - 0.087 pH (s.u.) HGWC-103 7.1	Calcium (mg/L)	HGWC-107	58.4	-	58.1
Calcium (mg/L) HGWC-118 58.4 - 84.2 Chloride (mg/L) HGWC-101 5.7 - 5.5 Chloride (mg/L) HGWC-103 5.7 - 6.1 Chloride (mg/L) HGWC-105 5.7 - 3.6 Chloride (mg/L) HGWC-107 5.7 - 3.6 Chloride (mg/L) HGWC-109 5.7 - 4.6 Chloride (mg/L) HGWC-117 5.7 - 12.1 Chloride (mg/L) HGWC-118 5.7 - 4.5 Fluoride (mg/L) HGWC-101 0.23 - ND Fluoride (mg/L) HGWC-103 0.23 - ND Fluoride (mg/L) HGWC-105 0.23 - 0.047 Fluoride (mg/L) HGWC-109 0.23 - 0.099 Fluoride (mg/L) HGWC-118 0.23 - 0.087 pH (s.u.) HGWC-101 7.1 5.5 5.5 pH (s.u.) HGWC-103 7.1	Calcium (mg/L)			-	
Chloride (mg/L) HGWC-101 5.7 - 5.5 Chloride (mg/L) HGWC-103 5.7 - 6.1 Chloride (mg/L) HGWC-105 5.7 - 3.6 Chloride (mg/L) HGWC-107 5.7 - 3.6 Chloride (mg/L) HGWC-109 5.7 - 4.6 Chloride (mg/L) HGWC-117 5.7 - 12.1 Chloride (mg/L) HGWC-118 5.7 - 4.5 Fluoride (mg/L) HGWC-101 0.23 - ND Fluoride (mg/L) HGWC-103 0.23 - ND Fluoride (mg/L) HGWC-107 0.23 - 0.047 Fluoride (mg/L) HGWC-109 0.23 - 0.042 Fluoride (mg/L) HGWC-117 0.23 - 0.042 Fluoride (mg/L) HGWC-118 0.23 - 0.042 Fluoride (mg/L) HGWC-118 0.23 - 0.087 pH (s.u.) HGWC-103 7.1	Calcium (mg/L)			-	
Chloride (mg/L) HGWC-103 5.7 - 6.1 Chloride (mg/L) HGWC-105 5.7 - 3.6 Chloride (mg/L) HGWC-107 5.7 - 3.6 Chloride (mg/L) HGWC-109 5.7 - 4.6 Chloride (mg/L) HGWC-117 5.7 - 12.1 Chloride (mg/L) HGWC-118 5.7 - 4.5 Fluoride (mg/L) HGWC-101 0.23 - ND Fluoride (mg/L) HGWC-103 0.23 - ND Fluoride (mg/L) HGWC-105 0.23 - ND Fluoride (mg/L) HGWC-107 0.23 - 0.047 Fluoride (mg/L) HGWC-109 0.23 - 0.042 Fluoride (mg/L) HGWC-118 0.23 - 0.042 Fluoride (mg/L) HGWC-118 0.23 - 0.042 Fluoride (mg/L) HGWC-101 7.1 5.5 5.5 pH (s.u.) HGWC-103 7.1		HGWC-118	58.4	-	84.2
Chloride (mg/L) HGWC-105 5.7 - 3.6 Chloride (mg/L) HGWC-107 5.7 - 3.6 Chloride (mg/L) HGWC-109 5.7 - 4.6 Chloride (mg/L) HGWC-117 5.7 - 12.1 Chloride (mg/L) HGWC-118 5.7 - 4.5 Fluoride (mg/L) HGWC-101 0.23 - ND Fluoride (mg/L) HGWC-103 0.23 - ND Fluoride (mg/L) HGWC-105 0.23 - ND Fluoride (mg/L) HGWC-107 0.23 - 0.047 Fluoride (mg/L) HGWC-109 0.23 - 0.099 Fluoride (mg/L) HGWC-118 0.23 - 0.042 Fluoride (mg/L) HGWC-118 0.23 - 0.087 pH (s.u.) HGWC-101 7.1 5.5 5.5 pH (s.u.) HGWC-105 7.1 5.5 6.5 pH (s.u.) HGWC-107 7.1 <t< td=""><td></td><td>HGWC-101</td><td></td><td>-</td><td>5.5</td></t<>		HGWC-101		-	5.5
Chloride (mg/L) HGWC-107 5.7 - 3.6 Chloride (mg/L) HGWC-109 5.7 - 4.6 Chloride (mg/L) HGWC-117 5.7 - 12.1 Chloride (mg/L) HGWC-118 5.7 - 4.5 Fluoride (mg/L) HGWC-101 0.23 - ND Fluoride (mg/L) HGWC-103 0.23 - ND Fluoride (mg/L) HGWC-105 0.23 - 0.047 Fluoride (mg/L) HGWC-107 0.23 - 0.047 Fluoride (mg/L) HGWC-109 0.23 - 0.099 Fluoride (mg/L) HGWC-117 0.23 - 0.042 Fluoride (mg/L) HGWC-118 0.23 - 0.087 pH (s.u.) HGWC-101 7.1 5.5 5.3 pH (s.u.) HGWC-103 7.1 5.5 6.5 pH (s.u.) HGWC-107 7.1 5.5 6.5 pH (s.u.) HGWC-109 7.1 <td< td=""><td>· · ·</td><td></td><td></td><td>-</td><td>6.1</td></td<>	· · ·			-	6.1
Chloride (mg/L) HGWC-109 5.7 - 4.6 Chloride (mg/L) HGWC-117 5.7 - 12.1 Chloride (mg/L) HGWC-118 5.7 - 4.5 Fluoride (mg/L) HGWC-101 0.23 - ND Fluoride (mg/L) HGWC-103 0.23 - ND Fluoride (mg/L) HGWC-105 0.23 - ND Fluoride (mg/L) HGWC-107 0.23 - 0.047 Fluoride (mg/L) HGWC-109 0.23 - 0.099 Fluoride (mg/L) HGWC-117 0.23 - 0.042 Fluoride (mg/L) HGWC-118 0.23 - 0.042 Fluoride (mg/L) HGWC-118 0.23 - 0.087 pH (s.u.) HGWC-101 7.1 5.5 5.3 pH (s.u.) HGWC-103 7.1 5.5 6.5 pH (s.u.) HGWC-105 7.1 5.5 6.5 pH (s.u.) HGWC-107 7.1 <td< td=""><td></td><td>HGWC-105</td><td>5.7</td><td>-</td><td>3.6</td></td<>		HGWC-105	5.7	-	3.6
Chloride (mg/L) HGWC-117 5.7 - 12.1 Chloride (mg/L) HGWC-118 5.7 - 4.5 Fluoride (mg/L) HGWC-101 0.23 - ND Fluoride (mg/L) HGWC-103 0.23 - ND Fluoride (mg/L) HGWC-105 0.23 - ND Fluoride (mg/L) HGWC-107 0.23 - 0.047 Fluoride (mg/L) HGWC-109 0.23 - 0.099 Fluoride (mg/L) HGWC-117 0.23 - 0.042 Fluoride (mg/L) HGWC-118 0.23 - 0.087 pH (s.u.) HGWC-101 7.1 5.5 5.3 pH (s.u.) HGWC-103 7.1 5.5 5.5 pH (s.u.) HGWC-105 7.1 5.5 6.2 pH (s.u.) HGWC-109 7.1 5.5 6.6	,			-	
Chloride (mg/L) HGWC-118 5.7 - 4.5 Fluoride (mg/L) HGWC-101 0.23 - ND Fluoride (mg/L) HGWC-103 0.23 - ND Fluoride (mg/L) HGWC-105 0.23 - ND Fluoride (mg/L) HGWC-107 0.23 - 0.047 Fluoride (mg/L) HGWC-109 0.23 - 0.099 Fluoride (mg/L) HGWC-117 0.23 - 0.042 Fluoride (mg/L) HGWC-118 0.23 - 0.087 pH (s.u.) HGWC-101 7.1 5.5 5.3 pH (s.u.) HGWC-103 7.1 5.5 6.5 pH (s.u.) HGWC-105 7.1 5.5 6.2 pH (s.u.) HGWC-109 7.1 5.5 6.6	Chloride (mg/L)	HGWC-109	5.7	1	
Fluoride (mg/L) HGWC-101 0.23 - ND Fluoride (mg/L) HGWC-103 0.23 - ND Fluoride (mg/L) HGWC-105 0.23 - ND Fluoride (mg/L) HGWC-107 0.23 - 0.047 Fluoride (mg/L) HGWC-109 0.23 - 0.099 Fluoride (mg/L) HGWC-117 0.23 - 0.042 Fluoride (mg/L) HGWC-118 0.23 - 0.087 pH (s.u.) HGWC-101 7.1 5.5 5.3 pH (s.u.) HGWC-103 7.1 5.5 5.5 pH (s.u.) HGWC-105 7.1 5.5 6.5 pH (s.u.) HGWC-107 7.1 5.5 6.2 pH (s.u.) HGWC-109 7.1 5.5 6.6		HGWC-117	5.7	1	12.1
Fluoride (mg/L) HGWC-103 0.23 - ND Fluoride (mg/L) HGWC-105 0.23 - ND Fluoride (mg/L) HGWC-107 0.23 - 0.047 Fluoride (mg/L) HGWC-109 0.23 - 0.099 Fluoride (mg/L) HGWC-117 0.23 - 0.042 Fluoride (mg/L) HGWC-118 0.23 - 0.087 pH (s.u.) HGWC-101 7.1 5.5 5.3 pH (s.u.) HGWC-103 7.1 5.5 5.5 pH (s.u.) HGWC-105 7.1 5.5 6.5 pH (s.u.) HGWC-107 7.1 5.5 6.2 pH (s.u.) HGWC-109 7.1 5.5 6.6	Chloride (mg/L)	HGWC-118	5.7	-	4.5
Fluoride (mg/L) HGWC-105 0.23 - ND Fluoride (mg/L) HGWC-107 0.23 - 0.047 Fluoride (mg/L) HGWC-109 0.23 - 0.099 Fluoride (mg/L) HGWC-117 0.23 - 0.042 Fluoride (mg/L) HGWC-118 0.23 - 0.087 pH (s.u.) HGWC-101 7.1 5.5 5.3 pH (s.u.) HGWC-103 7.1 5.5 5.5 pH (s.u.) HGWC-105 7.1 5.5 6.5 pH (s.u.) HGWC-107 7.1 5.5 6.2 pH (s.u.) HGWC-109 7.1 5.5 6.6	Fluoride (mg/L)	HGWC-101	0.23	-	ND
Fluoride (mg/L) HGWC-107 0.23 - 0.047 Fluoride (mg/L) HGWC-109 0.23 - 0.099 Fluoride (mg/L) HGWC-117 0.23 - 0.042 Fluoride (mg/L) HGWC-118 0.23 - 0.087 pH (s.u.) HGWC-101 7.1 5.5 5.3 pH (s.u.) HGWC-103 7.1 5.5 5.5 pH (s.u.) HGWC-105 7.1 5.5 6.5 pH (s.u.) HGWC-107 7.1 5.5 6.2 pH (s.u.) HGWC-109 7.1 5.5 6.6	Fluoride (mg/L)	HGWC-103	0.23	-	ND
Fluoride (mg/L) HGWC-109 0.23 - 0.099 Fluoride (mg/L) HGWC-117 0.23 - 0.042 Fluoride (mg/L) HGWC-118 0.23 - 0.087 pH (s.u.) HGWC-101 7.1 5.5 5.3 pH (s.u.) HGWC-103 7.1 5.5 5.5 pH (s.u.) HGWC-105 7.1 5.5 6.5 pH (s.u.) HGWC-107 7.1 5.5 6.2 pH (s.u.) HGWC-109 7.1 5.5 6.6	Fluoride (mg/L)	HGWC-105	0.23	-	ND
Fluoride (mg/L) HGWC-117 0.23 - 0.042 Fluoride (mg/L) HGWC-118 0.23 - 0.087 pH (s.u.) HGWC-101 7.1 5.5 5.3 pH (s.u.) HGWC-103 7.1 5.5 5.5 pH (s.u.) HGWC-105 7.1 5.5 6.5 pH (s.u.) HGWC-107 7.1 5.5 6.2 pH (s.u.) HGWC-109 7.1 5.5 6.6	Fluoride (mg/L)	HGWC-107	0.23	-	0.047 J
Fluoride (mg/L) HGWC-117 0.23 - 0.042 Fluoride (mg/L) HGWC-118 0.23 - 0.087 pH (s.u.) HGWC-101 7.1 5.5 5.3 pH (s.u.) HGWC-103 7.1 5.5 5.5 pH (s.u.) HGWC-105 7.1 5.5 6.5 pH (s.u.) HGWC-107 7.1 5.5 6.2 pH (s.u.) HGWC-109 7.1 5.5 6.6	Fluoride (mg/L)	HGWC-109	0.23	-	0.099 J
Fluoride (mg/L) HGWC-118 0.23 - 0.087 pH (s.u.) HGWC-101 7.1 5.5 5.3 pH (s.u.) HGWC-103 7.1 5.5 5.5 pH (s.u.) HGWC-105 7.1 5.5 6.5 pH (s.u.) HGWC-107 7.1 5.5 6.2 pH (s.u.) HGWC-109 7.1 5.5 6.6		HGWC-117	0.23	-	0.042 J
pH (s.u.) HGWC-103 7.1 5.5 5.5 pH (s.u.) HGWC-105 7.1 5.5 6.5 pH (s.u.) HGWC-107 7.1 5.5 6.2 pH (s.u.) HGWC-109 7.1 5.5 6.6		HGWC-118	0.23	-	0.087 J
pH (s.u.) HGWC-105 7.1 5.5 6.5 pH (s.u.) HGWC-107 7.1 5.5 6.2 pH (s.u.) HGWC-109 7.1 5.5 6.6	pH (s.u.)	HGWC-101	7.1	5.5	5.3
pH (s.u.) HGWC-107 7.1 5.5 6.2 pH (s.u.) HGWC-109 7.1 5.5 6.6	pH (s.u.)	HGWC-103	7.1	5.5	5.5
pH (s.u.) HGWC-109 7.1 5.5 6.6	pH (s.u.)	HGWC-105	7.1	5.5	6.5
	pH (s.u.)	HGWC-107	7.1	5.5	6.2
	. ,				6.6
ppн (s.u.)	pH (s.u.)	HGWC-117	7.1	5.5	6.2
pH (s.u.) HGWC-118 7.1 5.5 7.0	. ` ′		7.1	5.5	7.0
Sulfate (mg/L) HGWC-101 14 - 101	. ,	HGWC-101	14	-	101
Sulfate (mg/L) HGWC-103 14 - 248					
Sulfate (mg/L) HGWC-105 14 - 162	` • /				
Sulfate (mg/L) HGWC-107 14 - 123				-	
Sulfate (mg/L) HGWC-109 14 - 23.2	, j			-	
Sulfate (mg/L) HGWC-117 14 - 133	, j			-	
Sulfate (mg/L) HGWC-118 14 - 80.9	, j			-	

1 of 2 March 2020

Table 1
Assessment Monitoring Interwell Prediction Limit Comparison
Plant Hammond AP-4, Floyd County, Georgia

Parameter	Well ID	Upper PL	Lower PL	Oct 21-23 2019
		Purpose of Sa	mpling Event:	Verification
TDS (mg/L)	HGWC-101	249	-	221
TDS (mg/L)	HGWC-103	249	-	507
TDS (mg/L)	HGWC-105	249	-	419
TDS (mg/L)	HGWC-107	249	-	308
TDS (mg/L)	HGWC-109	249	-	212
TDS (mg/L)	HGWC-117	249	-	348
TDS (mg/L)	HGWC-118	249	-	354

Notes:

- = Not applicable
- -- = Indicates the parameter was not analyzed as part of the verification event.
- J = Indicates that analyte was estimated and detected between the laboratory Method I (MDL) and Reporting Limit (RL).

mg/L = milligrams per liter

ND = Indicates the parameter was not detected above the laboratory MDL.

PL = Prediction Limit

s.u. = standard unit

TDS = Total Dissolved Solids

- (1) Shaded values indicate an exceedance of the statistically derived PL.
- (2) The pH value presented was recorded at the time of sample collection in the field. parameter in which the field result is compared to both the upper and lower PL.

2 of 2 March 2020

Interwell Prediction Limit - Significant Results

Client: Georgia Power Data: Hammond AP-4 Printed 3/12/2020, 3:51 PM Hammond AP Constituent Well Upper Lim. Lower Lim. <u>Date</u> Observ. <u>Bg N</u> %NDs Transform <u>Alpha</u> Method Sig. 10/23/2019 30 Boron (mg/L) **HGWC-101** 0.02274 n/a 0.1 Yes 20 sqrt(x) 0.001075 Param Inter 1 of 2 20 Boron (mg/L) **HGWC-103** 0.02274 n/a 10/23/2019 2.3 Yes 30 sqrt(x) 0.001075 Param Inter 1 of 2 Boron (mg/L) **HGWC-105** 0.02274 10/23/2019 1.3 30 20 0.001075 n/a Yes sqrt(x) Param Inter 1 of 2 Boron (mg/L) **HGWC-107** 10/22/2019 0.91 0.001075 Param Inter 1 of 2 0.02274 n/a Yes 30 20 sqrt(x) 10/22/2019 Boron (mg/L) **HGWC-109** 0.02274 n/a 0.32 Yes 30 20 sqrt(x) 0.001075 Param Inter 1 of 2 Boron (mg/L) **HGWC-117** 0.02274 10/22/2019 1 Yes 30 20 0.001075 Param Inter 1 of 2 n/a sqrt(x) Boron (mg/L) **HGWC-118** 0.02274 10/22/2019 0.65 30 20 0.001075 Param Inter 1 of 2 n/a Yes sqrt(x) Calcium (mg/L) 10/23/2019 0 NP Inter (normality) 1 of 2 **HGWC-103** 58.4 n/a 86.5 Yes 30 n/a 0.00191 Calcium (mg/L) **HGWC-105** 58.4 n/a 10/23/2019 89.4 Yes 30 0 n/a 0.00191 NP Inter (normality) 1 of 2 Calcium (mg/L) **HGWC-117** 58.4 n/a 10/22/2019 70.9 Yes 30 0 0.00191 NP Inter (normality) 1 of 2 n/a Calcium (mg/L) **HGWC-118** 58.4 n/a 10/22/2019 84.2 Yes 30 0 n/a 0.00191 NP Inter (normality) 1 of 2 10/23/2019 Chloride (mg/L) **HGWC-103** 5.7 n/a 6.1 Yes 30 0 n/a 0.00191 NP Inter (normality) 1 of 2 Chloride (mg/L) **HGWC-117** 5.7 n/a 10/22/2019 12.1 Yes 30 n/a 0.00191 NP Inter (normality) 1 of 2 10/23/2019 0.003256 pH (s.u.) **HGWC-101** 7.09 5.47 5.33 Yes 33 0 n/a NP Inter (normality) 1 of 2 10/23/2019 Sulfate (mg/L) **HGWC-101** 14 n/a 101 Yes 30 0 n/a 0.00191 NP Inter (normality) 1 of 2 Sulfate (mg/L) **HGWC-103** 14 10/23/2019 248 Yes 30 0.00191 NP Inter (normality) 1 of 2 n/a 0 n/a 10/23/2019 **HGWC-105** 14 162 0.00191 NP Inter (normality) 1 of 2 Sulfate (mg/L) n/a Yes 30 0 n/a 10/22/2019 Sulfate (mg/L) **HGWC-107** 14 n/a 123 Yes 30 0 0.00191 NP Inter (normality) 1 of 2 n/a 10/22/2019 Sulfate (mg/L) **HGWC-109** 14 n/a 23.2 Yes 30 0 n/a 0.00191 NP Inter (normality) 1 of 2 Sulfate (mg/L) **HGWC-117** 14 10/22/2019 133 Yes 30 0 0.00191 NP Inter (normality) 1 of 2 n/a n/a Sulfate (mg/L) **HGWC-118** 14 10/22/2019 80.9 30 0.00191 NP Inter (normality) 1 of 2 n/a Yes 0 n/a Total Dissolved Solids (mg/L) 10/23/2019 507 **HGWC-103** 248.8 n/a Yes 29 0 In(x) 0.001075 Param Inter 1 of 2 Total Dissolved Solids (mg/L) **HGWC-105** 248.8 n/a 10/23/2019 419 Yes 29 0 In(x) 0.001075 Param Inter 1 of 2 10/22/2019 Total Dissolved Solids (mg/L) **HGWC-107** 248.8 n/a 308 Yes 29 0 In(x) 0.001075 Param Inter 1 of 2 Total Dissolved Solids (mg/L) **HGWC-117** 248.8 n/a 10/22/2019 348 Yes 29 0 In(x) 0.001075 Param Inter 1 of 2 Total Dissolved Solids (mg/L) **HGWC-118** 248.8 n/a 10/22/2019 354 Yes 29 0 In(x) 0.001075 Param Inter 1 of 2

Interwell Prediction Limit - All Results

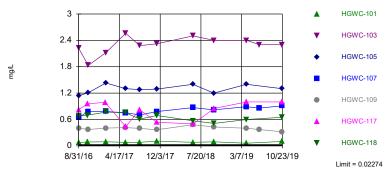
Hammond AP Client: Georgia Power Data: Hammond AP-4 Printed 3/12/2020, 3:51 PM

Constituent	Well	Upper Lim.	Lower Lim.	<u>Date</u>	Observ.	Sig.	Bg N	%NDs	<u>Transform</u>	<u>Alpha</u>	Method
Boron (mg/L)	HGWC-101	0.02274	n/a	10/23/2019	0.1	Yes	30	20	sqrt(x)	0.001075	Param Inter 1 of 2
Boron (mg/L)	HGWC-103	0.02274	n/a	10/23/2019	2.3	Yes	30	20	sqrt(x)	0.001075	Param Inter 1 of 2
Boron (mg/L)	HGWC-105	0.02274	n/a	10/23/2019	1.3	Yes	30	20	sqrt(x)	0.001075	Param Inter 1 of 2
Boron (mg/L)	HGWC-107	0.02274	n/a	10/22/2019	0.91	Yes	30	20	sqrt(x)	0.001075	Param Inter 1 of 2
Boron (mg/L)	HGWC-109	0.02274	n/a	10/22/2019	0.32	Yes	30	20	sqrt(x)	0.001075	Param Inter 1 of 2
Boron (mg/L)	HGWC-117	0.02274	n/a	10/22/2019	1	Yes	30	20	sqrt(x)	0.001075	Param Inter 1 of 2
Boron (mg/L)	HGWC-118	0.02274	n/a	10/22/2019	0.65	Yes	30	20	sqrt(x)	0.001075	Param Inter 1 of 2
Calcium (mg/L)	HGWC-101	58.4	n/a	10/23/2019	21.9	No	30	0	n/a	0.00191	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-103	58.4	n/a	10/23/2019	86.5	Yes	30	0	n/a	0.00191	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-105	58.4	n/a	10/23/2019	89.4	Yes	30	0	n/a	0.00191	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-107	58.4	n/a	10/22/2019	58.1	No	30	0	n/a	0.00191	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-109	58.4	n/a	10/22/2019	42.6	No	30	0	n/a	0.00191	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-117	58.4	n/a	10/22/2019	70.9	Yes	30	0	n/a	0.00191	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-118	58.4	n/a	10/22/2019	84.2	Yes	30	0	n/a	0.00191	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-101	5.7	n/a	10/23/2019	5.5	No	30	0	n/a	0.00191	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-103	5.7	n/a	10/23/2019	6.1	Yes	30	0	n/a	0.00191	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-105	5.7	n/a	10/23/2019	3.6	No	30	0	n/a	0.00191	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-107	5.7	n/a	10/22/2019	3.6	No	30	0	n/a	0.00191	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-109	5.7	n/a	10/22/2019	4.6	No	30	0	n/a	0.00191	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-117	5.7	n/a	10/22/2019	12.1	Yes	30	0	n/a	0.00191	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-118	5.7	n/a	10/22/2019	4.5	No	30	0	n/a	0.00191	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-101	0.2306	n/a	10/23/2019	0.3ND	No	33	24.24	sqrt(x)	0.001075	Param Inter 1 of 2
Fluoride (mg/L)	HGWC-103	0.2306	n/a	10/23/2019	0.3ND	No	33	24.24	sqrt(x)	0.001075	Param Inter 1 of 2
Fluoride (mg/L)	HGWC-105	0.2306	n/a	10/23/2019	0.3ND	No	33	24.24	sqrt(x)	0.001075	Param Inter 1 of 2
Fluoride (mg/L)	HGWC-107	0.2306	n/a	10/22/2019	0.047	No	33	24.24	sqrt(x)	0.001075	Param Inter 1 of 2
Fluoride (mg/L)	HGWC-109	0.2306	n/a	10/22/2019	0.099	No	33	24.24	sqrt(x)	0.001075	Param Inter 1 of 2
Fluoride (mg/L)	HGWC-117	0.2306	n/a	10/22/2019	0.042	No	33	24.24	sqrt(x)	0.001075	Param Inter 1 of 2
Fluoride (mg/L)	HGWC-118	0.2306	n/a	10/22/2019	0.087	No	33	24.24	sqrt(x)	0.001075	Param Inter 1 of 2
pH (s.u.)	HGWC-101	7.09	5.47	10/23/2019	5.33	Yes	33	0	n/a	0.003256	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-103	7.09	5.47	10/23/2019	5.49	No	33	0	n/a	0.003256	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-105	7.09	5.47	10/23/2019	6.46	No	33	0	n/a	0.003256	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-107	7.09	5.47	10/22/2019	6.19	No	33	0	n/a	0.003256	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-109	7.09	5.47	10/22/2019	6.58	No	33	0	n/a	0.003256	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-117	7.09	5.47	10/22/2019	6.17	No	33	0	n/a	0.003256	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-118	7.09	5.47	10/22/2019	7.03	No	33	0	n/a	0.003256	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-101	14	n/a	10/23/2019	101	Yes	30	0	n/a	0.00191	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-103	14	n/a	10/23/2019	248	Yes	30	0	n/a	0.00191	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-105	14	n/a	10/23/2019	162	Yes	30	0	n/a	0.00191	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-107	14	n/a	10/22/2019	123	Yes	30	0	n/a	0.00191	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-109	14	n/a	10/22/2019	23.2	Yes		0	n/a	0.00191	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-117	14	n/a	10/22/2019	133	Yes	30	0	n/a	0.00191	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-118	14	n/a	10/22/2019	80.9	Yes	30	0	n/a	0.00191	NP Inter (normality) 1 of 2
Total Dissolved Solids (mg/L) Total Dissolved Solids (mg/L)	HGWC-101 HGWC-103	248.8 248.8	n/a	10/23/2019 10/23/2019	221 507	No Vos	29 29	0 0	ln(x)	0.001075 0.001075	Param Inter 1 of 2 Param Inter 1 of 2
Total Dissolved Solids (mg/L) Total Dissolved Solids (mg/L)	HGWC-105		n/a			Yes			ln(x)		
Total Dissolved Solids (mg/L) Total Dissolved Solids (mg/L)	HGWC-105	248.8 248.8	n/a n/a	10/23/2019 10/22/2019	419 308	Yes Yes	29 29	0 0	ln(x) ln(x)	0.001075 0.001075	Param Inter 1 of 2 Param Inter 1 of 2
Total Dissolved Solids (mg/L) Total Dissolved Solids (mg/L)	HGWC-107	248.8	n/a n/a	10/22/2019	212	No	2 9	0	ln(x)	0.001075	Param Inter 1 of 2
Total Dissolved Solids (mg/L) Total Dissolved Solids (mg/L)	HGWC-109	248.8	n/a n/a	10/22/2019	348	Yes	29 29	0	In(x)	0.001075 0.001075	Param Inter 1 of 2
Total Dissolved Solids (mg/L) Total Dissolved Solids (mg/L)	HGWC-117	248.8	n/a	10/22/2019	354 354	Yes	29	0	ln(x)	0.001075	Param Inter 1 of 2
. Star Bissorrea Collas (mg/L)	110110-110	240.0	ına	10/22/2013	004	.63	-3	v	···(^)	0.001070	. Grain into: 1 Of E

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Exceeds Limit: HGWC-101, HGWC-103, HGWC-105, HGWC-107, HGWC-109, HGWC-117, HGWC-118

Prediction Limit
Interwell Parametric



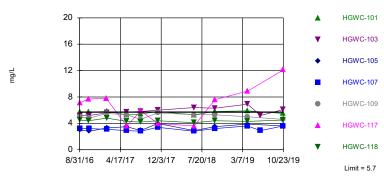
Background Data Summary (based on square root transformation) (after Kaplan-Meier Adjustment): Mean=0.09644, Std. Dev.=0.02682, n=30, 20% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9044, critical = 0.9 Kappa = 2.027 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.001075. Comparing 7 points to limit.

Constituent: Boron Analysis Run 3/12/2020 3:48 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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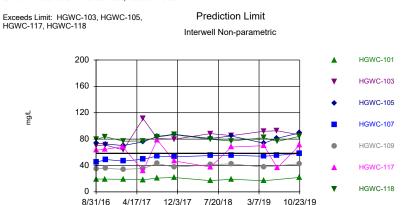
Exceeds Limit: HGWC-103, HGWC-117

Prediction Limit
Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 30 background values. Annual per-constituent alpha = 0.02642. Individual comparison alpha = 0.00191 (1 of 2). Comparing 7 points to limit.

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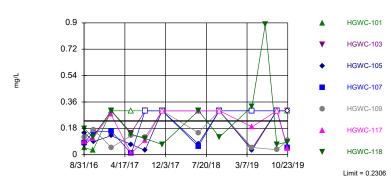
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 30 background values. Annual per-constituent alpha = 0.02642. Individual comparison alpha = 0.00191 (1 of 2). Comparing 7 points to limit.

Limit = 58.4

Constituent: Calcium Analysis Run 3/12/2020 3:48 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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Within Limit Prediction Limit
Interwell Parametric

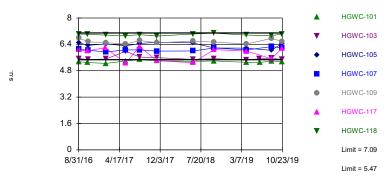


Background Data Summary (based on square root transformation) (after Kaplan-Meier Adjustment): Mean=0.2662, Std. Dev.=0.1067, n=33, 24.24% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9166, critical = 0.906. Kappa = 2.007 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.001075. Comparing 7 points to limit.

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Exceeds Limits: HGWC-101

Prediction Limit
Interwell Non-parametric



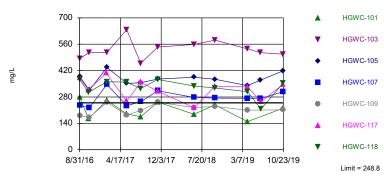
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limits are highest and lowest of 33 background values. Annual perconstituent alpha = 0.04511. Individual comparison alpha = 0.003256 (1 of 2). Comparing 7 points to limit.

Constituent: pH Analysis Run 3/12/2020 3:48 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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Exceeds Limit: HGWC-103, HGWC-105, HGWC-107, HGWC-117, HGWC-118

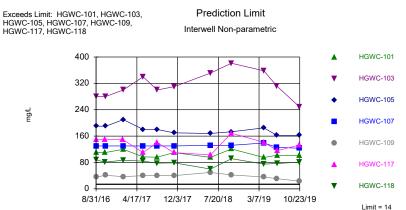
Prediction Limit
Interwell Parametric



Background Data Summary (based on natural log transformation): Mean=4.636, Std. Dev.=0,4322, n=29. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9377, critical = 0.898. Kappa = 2.037 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.001075. Comparing 7 points to limit.

Constituent: Total Dissolved Solids Analysis Run 3/12/2020 3:48 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 30 background values. Annual per-constituent alpha = 0.002642. Individual comparison alpha = 0.00191 (1 of 2). Comparing 7 points to limit.

Constituent: Sulfate Analysis Run 3/12/2020 3:48 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

Trend Test - Significant Results

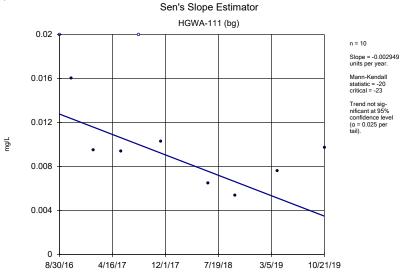
	Hai	mmond AP Client: G	eorgia Power	Data: Hammon	d AP-4	Printed 3/	12/2020, 3	:58 PM			
Constituent	Well	Slope	Calc.	<u>Critical</u>	Sig.	<u>N</u>	%NDs	<u>Normality</u>	<u>Xform</u>	<u>Alpha</u>	Method
Boron (mg/L)	HGWC-107	0.05659	37	27	Yes	11	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWC-107	3.563	43	27	Yes	11	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWC-103	0.5087	30	27	Yes	11	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWA-113 (bg)	-1.978	-33	-23	Yes	10	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-105	-9.35	-34	-27	Yes	11	0	n/a	n/a	0.05	NP

Trend Test - All Results

		Hammond AP	Client: Georgia Power	Data: Han	nmond AP-4	Printed	3/12/2020,	3:58 PM			
Constituent	<u>Well</u>	Slope	<u>Calc.</u>	Critical	Sig.	<u>N</u>	%NDs	Normality	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Boron (mg/L)	HGWA-111 (bg)	-0.002949		-23	No	10	20	n/a	n/a	0.05	NP
Boron (mg/L)	HGWA-112 (bg)	-0.001613	3 -14	-23	No	10	30	n/a	n/a	0.05	NP
Boron (mg/L)	HGWA-113 (bg)	-0.004208	3 -21	-23	No	10	10	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-101	0.004089	7	23	No	10	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-103	0.06603	15	27	No	11	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-105	0.03802	11	23	No	10	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-107	0.05659	37	27	Yes	11	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-109	-0.008063	3 -11	-27	No	11	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-117	0.0179	11	23	No	10	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-118	-0.04563	-19	-23	No	10	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWA-111 (bg)	1.092	1	23	No	10	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWA-112 (bg)	-0.07411	-3	-23	No	10	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWA-113 (bg)	0.2427	14	23	No	10	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWC-103	7.128	27	27	No	11	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWC-105	4.589	25	27	No	11	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWC-107	3.563	43	27	Yes	11	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWC-117	1.843	7	27	No	11	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWC-118	0.1664	1	27	No	11	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWA-111 (bg)	-0.25	-7	-23	No	10	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWA-112 (bg)	0.1446	23	23	No	10	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWA-113 (bg)	-0.04101	-9	-23	No	10	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWC-103	0.5087	30	27	Yes	11	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWC-117	0.6938	10	23	No	10	0	n/a	n/a	0.05	NP
pH (s.u.)	HGWA-111 (bg)	-0.04585	-4	-27	No	11	0	n/a	n/a	0.05	NP
pH (s.u.)	HGWA-112 (bg)	-0.02226	-3	-27	No	11	0	n/a	n/a	0.05	NP
pH (s.u.)	HGWA-113 (bg)	0.003891	4	27	No	11	0	n/a	n/a	0.05	NP
pH (s.u.)	HGWC-101	0	0	30	No	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWA-111 (bg)	0	0	23	No	10	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWA-112 (bg)	-0.005155	5 -2	-23	No	10	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWA-113 (bg)	-1.978	-33	-23	Yes	10	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-101	-2.86	-14	-27	No	11	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-103	12.72	19	27	No	11	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-105	-9.35	-34	-27	Yes	11	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-107	0	1	27	No	11	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-109	-1.73	-11	-27	No	11	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-117	-5.41	-13	-27	No	11	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-118	-2.386	-19	-27	No	11	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWA-111 (bg)	4.773	3	23	No	10	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWA-112 (bg)	3.916	11	20	No	9	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWA-113 (bg)	2.173	6	23	No	10	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWC-103	7.365	1	27	No	11	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWC-105	8.714	3	27	No	11	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWC-107	18.53	13	27	No	11	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWC-117	-18.12	-13	-27	No	11	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWC-118	-19.75	-18	-27	No	11	0	n/a	n/a	0.05	NP
1											

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Hollow symbols indicate censored values.



Constituent: Boron Analysis Run 3/12/2020 3:55 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

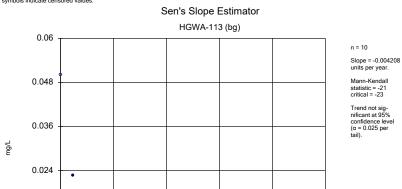
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0.012

8/30/16

4/16/17

12/2/17



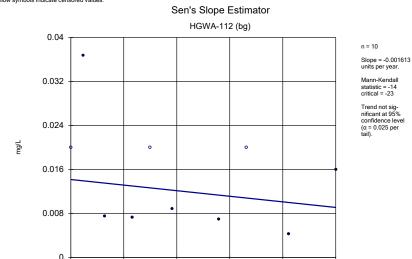
Constituent: Boron Analysis Run 3/12/2020 3:55 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

7/19/18

3/6/19

10/22/19

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Hammond AP Client: Georgia Power Data: Hammond AP-4

7/19/18

3/6/19

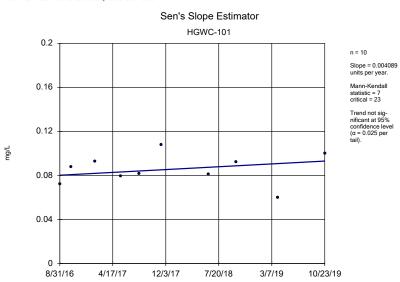
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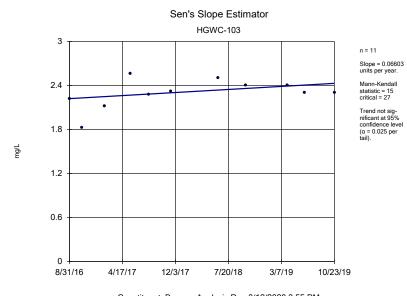
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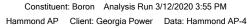
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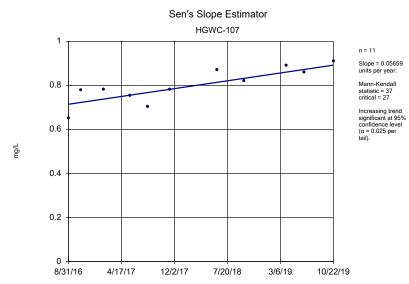


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Hammond AP Client: Georgia Power Data: Hammond AP-4

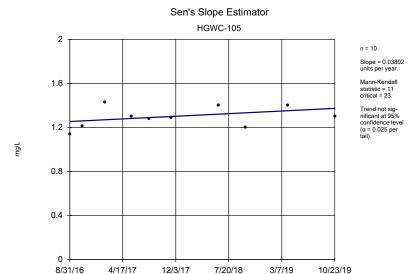




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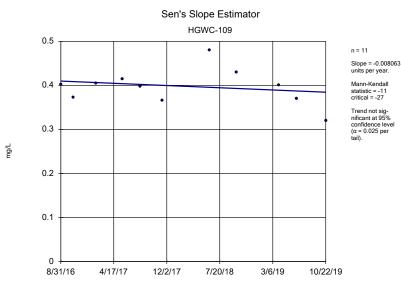


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Hammond AP Client: Georgia Power Data: Hammond AP-4

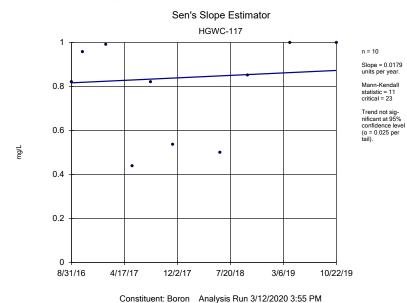


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Hammond AP Client: Georgia Power Data: Hammond AP-4

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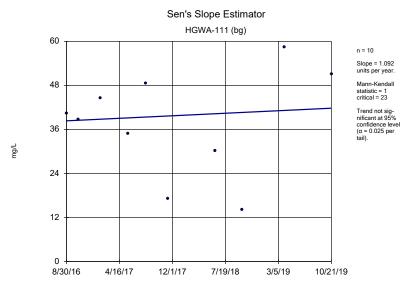


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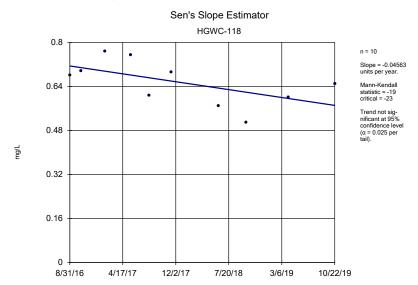


Hammond AP Client: Georgia Power Data: Hammond AP-4

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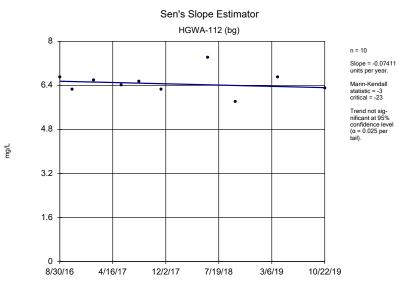


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Hammond AP Client: Georgia Power Data: Hammond AP-4

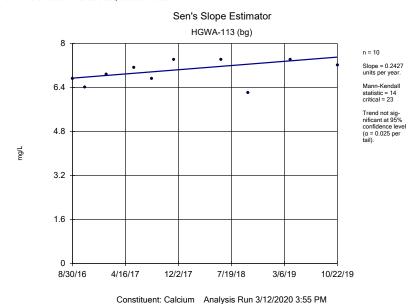


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Hammond AP Client: Georgia Power Data: Hammond AP-4

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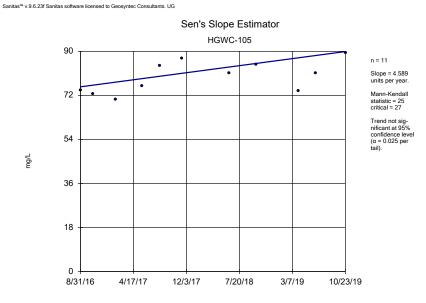


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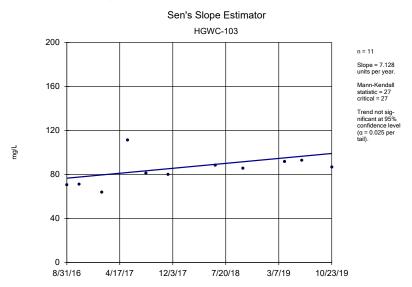


Hammond AP Client: Georgia Power Data: Hammond AP-4



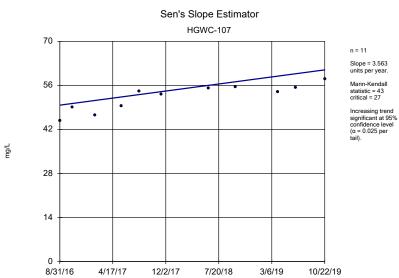


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Hammond AP Client: Georgia Power Data: Hammond AP-4

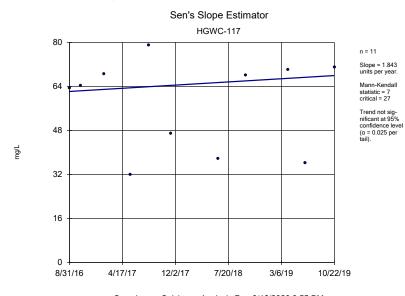


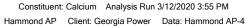
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Hammond AP Client: Georgia Power Data: Hammond AP-4

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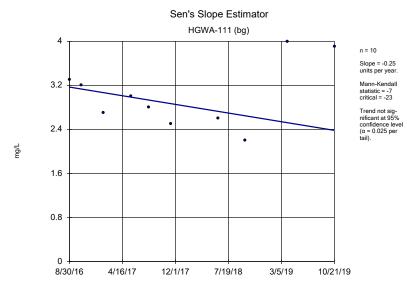


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Hammond AP Client: Georgia Power Data: Hammond AP-4

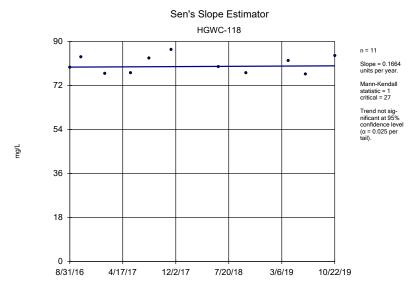




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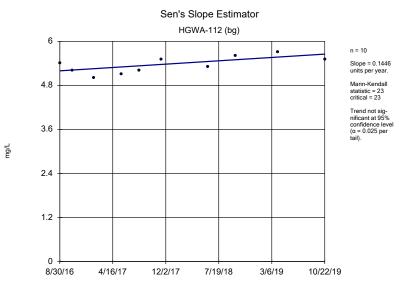
Constituent: Chloride Analysis Run 3/12/2020 3:55 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4



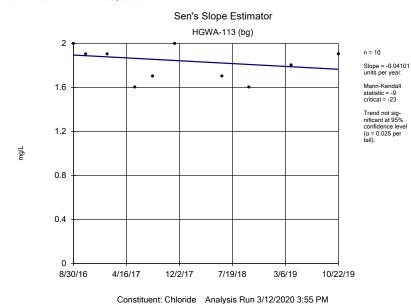
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Hammond AP Client: Georgia Power Data: Hammond AP-4

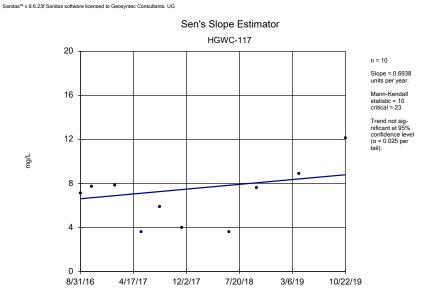
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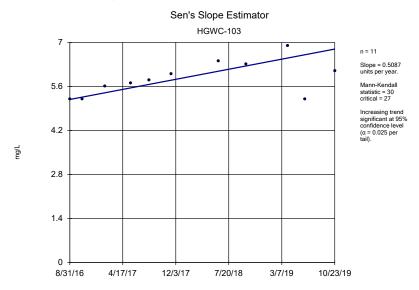
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Hammond AP Client: Georgia Power Data: Hammond AP-4



Hammond AP Client: Georgia Power Data: Hammond AP-4

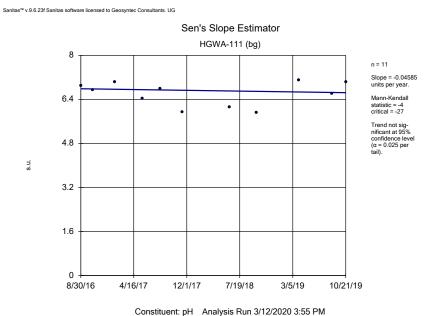


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Hammond AP Client: Georgia Power Data: Hammond AP-4

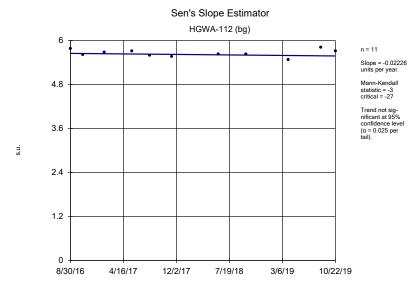


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Hammond AP Client: Georgia Power Data: Hammond AP-4

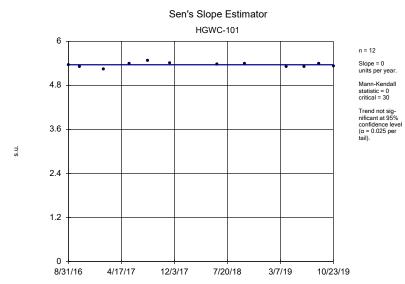


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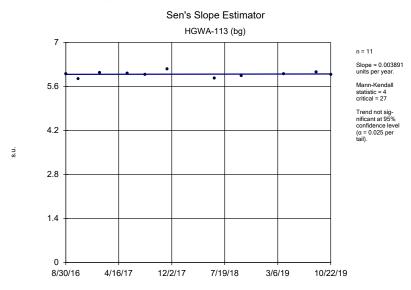




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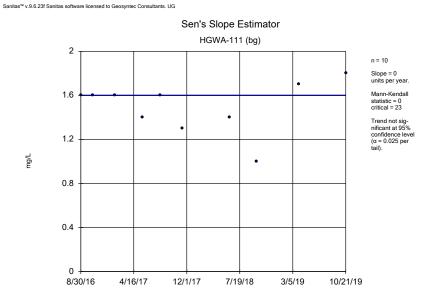


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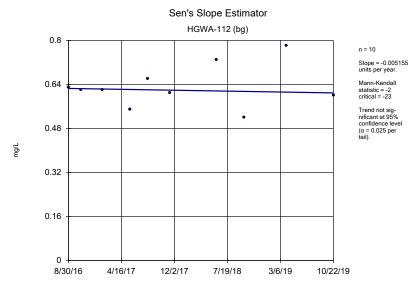


Constituent: pH Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4

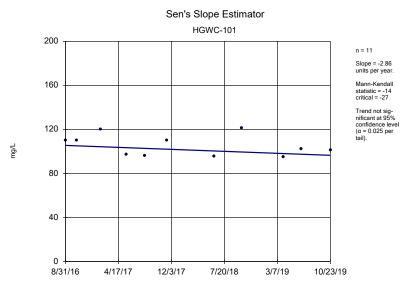


Constituent: Sulfate Analysis Run 3/12/2020 3:55 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

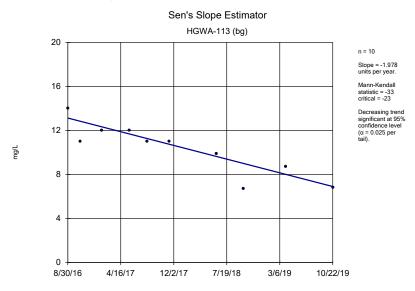


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Hammond AP Client: Georgia Power Data: Hammond AP-4

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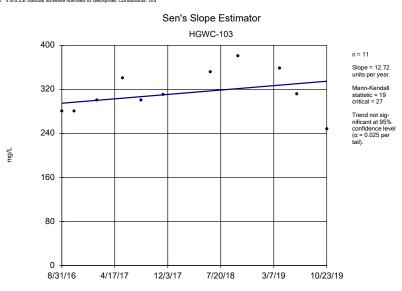
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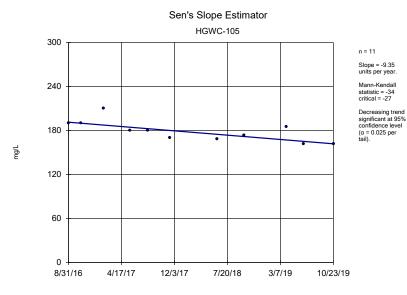
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Hammond AP Client: Georgia Power Data: Hammond AP-4

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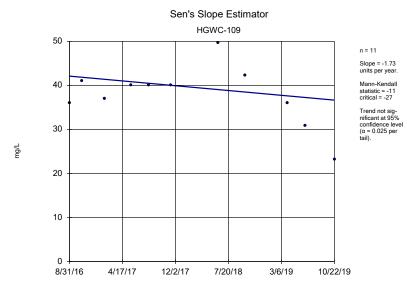


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Hammond AP Client: Georgia Power Data: Hammond AP-4

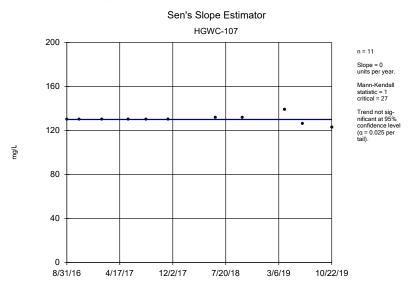


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Hammond AP Client: Georgia Power Data: Hammond AP-4

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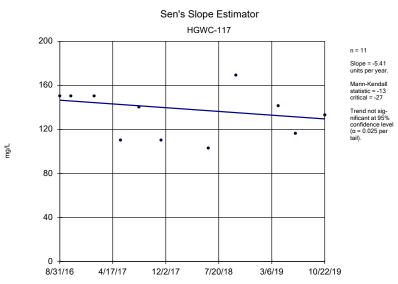


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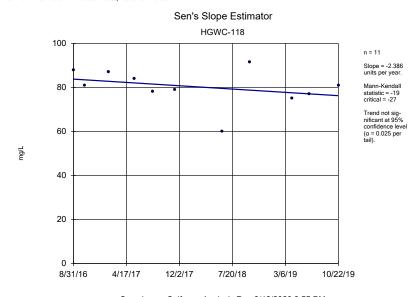


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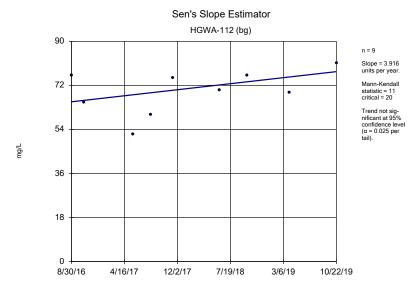


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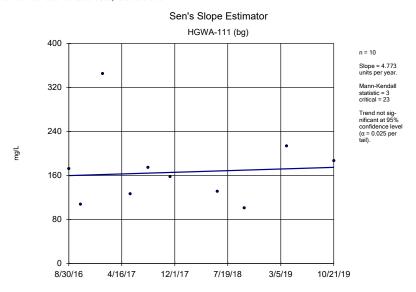


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Hammond AP Client: Georgia Power Data: Hammond AP-4

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Constituent: Total Dissolved Solids Analysis Run 3/12/2020 3:55 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4



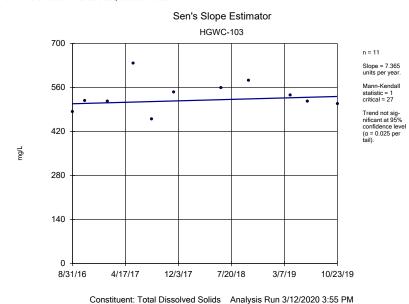
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Hammond AP Client: Georgia Power Data: Hammond AP-4

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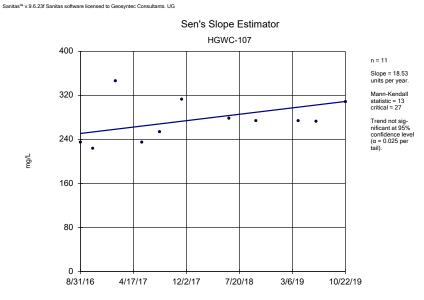


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Hammond AP Client: Georgia Power Data: Hammond AP-4

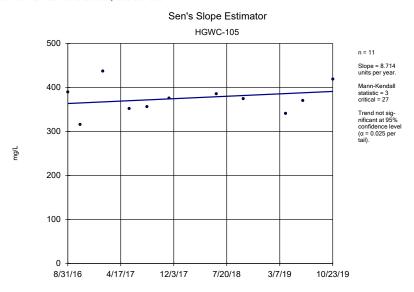


Hammond AP Client: Georgia Power Data: Hammond AP-4





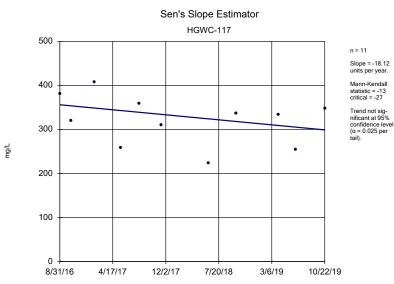
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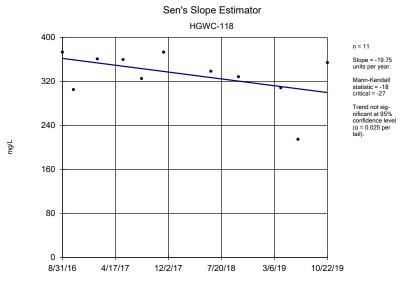
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Hammond AP Client: Georgia Power Data: Hammond AP-4

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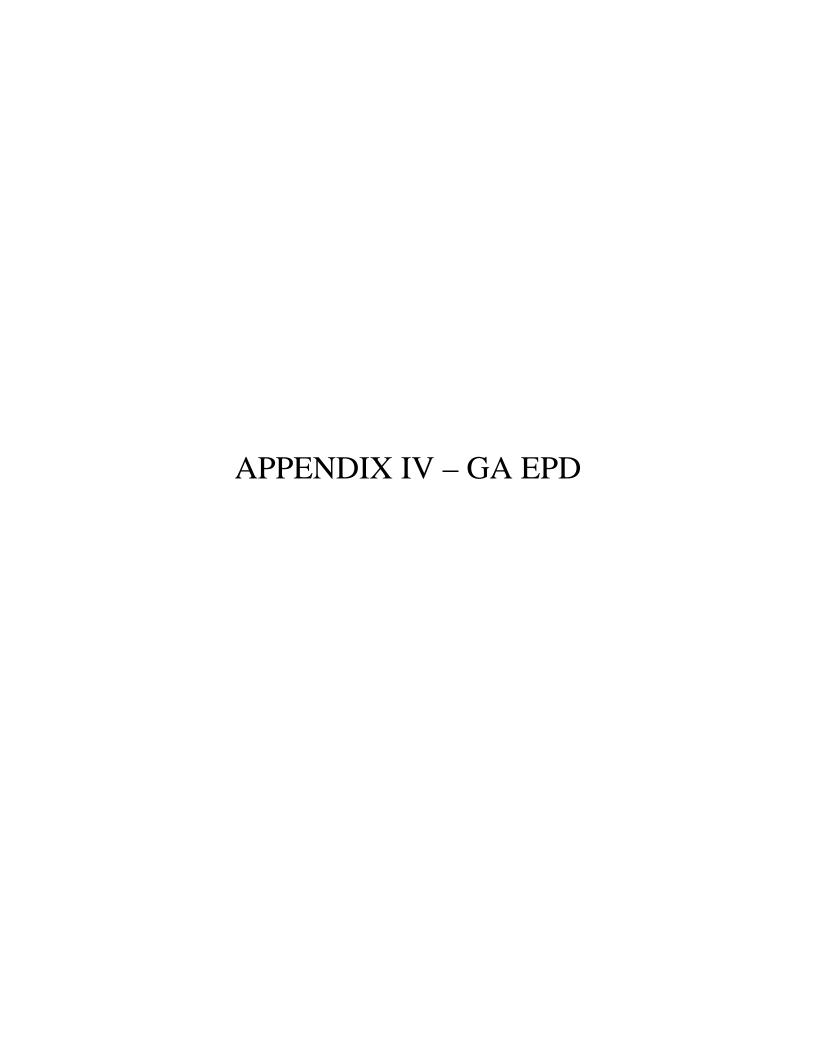


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Hammond AP Client: Georgia Power Data: Hammond AP-4



Constituent: Total Dissolved Solids Analysis Run 3/12/2020 3:55 PM

Hammond AP Client: Georgia Power Data: Hammond AP-4



Tolerance Limit (EPD)

		Hammond AP C	lient: Georgia Po	wer Data: Ham	mond A	P-4 Pr	inted 3/13/20	20, 2:54 PM		
Constituent	<u>Well</u>	Upper Lim.	<u>Date</u>	Observ.	Sig.	Bg N	%NDs	<u>Transform</u>	<u>Alpha</u>	Method
Antimony (mg/L)	n/a	0.003	n/a	n/a	n/a	27	100	n/a	0.2503	NP Inter(NDs)
Arsenic (mg/L)	n/a	0.005	n/a	n/a	n/a	30	100	n/a	0.2146	NP Inter(NDs)
Barium (mg/L)	n/a	0.03276	n/a	n/a	n/a	30	0	No	0.05	Inter
Beryllium (mg/L)	n/a	0.003	n/a	n/a	n/a	30	96.67	n/a	0.2146	NP Inter(NDs)
Cadmium (mg/L)	n/a	0.0025	n/a	n/a	n/a	30	100	n/a	0.2146	NP Inter(NDs)
Chromium (mg/L)	n/a	0.008602	n/a	n/a	n/a	30	26.67	ln(x)	0.05	Inter
Cobalt (mg/L)	n/a	0.005	n/a	n/a	n/a	30	90	n/a	0.2146	NP Inter(NDs)
Fluoride (mg/L)	n/a	0.2495	n/a	n/a	n/a	33	24.24	sqrt(x)	0.05	Inter
Lead (mg/L)	n/a	0.005	n/a	n/a	n/a	30	83.33	n/a	0.2146	NP Inter(NDs)
Lithium (mg/L)	n/a	0.03	n/a	n/a	n/a	30	63.33	n/a	0.2146	NP Inter(NDs)
Mercury (mg/L)	n/a	0.0005	n/a	n/a	n/a	27	66.67	n/a	0.2503	NP Inter(NDs)
Molybdenum (mg/L)	n/a	0.01	n/a	n/a	n/a	27	100	n/a	0.2503	NP Inter(NDs)
Selenium (mg/L)	n/a	0.01	n/a	n/a	n/a	27	70.37	n/a	0.2503	NP Inter(NDs)
Thallium (mg/L)	n/a	0.001	n/a	n/a	n/a	27	100	n/a	0.2503	NP Inter(NDs)
Total Radium (pCi/L)	n/a	1.373	n/a	n/a	n/a	30	0	No	0.05	Inter

Table 2 EPD Based Groundwater Protection Standards Plant Hammond - Ash Pond 4 Floyd County, Georgia

Constituent	CAS	Units	MCL	Statistically Derived Upper Tolerance Limits for Background	GWPS ¹
Antimony	7440-36-0	mg/L	0.006	0.003	0.006
Arsenic	7440-38-2	mg/L	0.01	0.005	0.01
Barium	7440-39-3	mg/L	2	0.033	2
Beryllium	7440-41-7	mg/L	0.004	0.003	0.004
Cadmium	7440-43-9	mg/L	0.005	0.0025	0.005
Chromium (III+VI)	7440-47-3	mg/L	0.1	0.0086	0.1
Cobalt ²	7440-48-4	mg/L	N/A	0.005	0.005
Fluoride	16984-48-8	mg/L	4	0.25	4
Lead ²	7439-92-1	mg/L	N/A	0.005	0.005
Lithium ²	7439-93-2	mg/L	N/A	0.03	0.03
Mercury	7439-97-6	mg/L	0.002	0.0005	0.002
Molybdenum ²	7439-98-7	mg/L	N/A	0.01	0.01
Selenium	7782-49-2	mg/L	0.05	0.01	0.05
Thallium	7440-28-0	mg/L	0.002	0.001	0.002
Total Radium	7440-14-4	pCi/L	5	1.37	5

Notes:

MCL - Maximum Contaminant Level

GWPS - Groundwater Protection Standards

mg/L - milligram per liter

N/A - Not Available

pCi/L - Picocuries per liter

¹GWPS selected as the greater value between the MCL and the background Upper Tolerance Limit.

²Constituent without established MCL.

Confidence Interval (EPD) - Significant Results

Hammond AP Client: Georgia Power Data: Hammond AP-4 Printed 3/13/2020, 3:05 PM

<u>Constituent</u> <u>Well Upper Lim. Lower Lim. Compliance Sig. N %NDs Transform Alpha Method</u>

Confidence Interval (EPD) - All Results

		Hamman d AD	Olit- Oi-	Davis Data I		- 1 4 15 4	D-i-4 1 0/40	0/0000 0.05 DM		
		Hammond AP	Client: Georgia	Power Data: F	Hammon	d AP-4	Printed 3/13	3/2020, 3:05 PM		
Constituent	Well	Upper Lim.	Lower Lim.	<u>Compliance</u>	Sig.	<u>N</u>	%NDs	<u>Transform</u>	<u>Alpha</u>	Method
Arsenic (mg/L)	HGWC-101	0.005	0.005	0.01	No	10	100	No	0.011	NP (NDs)
Arsenic (mg/L)	HGWC-103	0.005	0.005	0.01	No	10	100	No	0.011	NP (NDs)
Arsenic (mg/L)	HGWC-105	0.005	0.005	0.01	No	10	100	No	0.011	NP (NDs)
Arsenic (mg/L)	HGWC-107	0.005	0.005	0.01	No	10	100	No	0.011	NP (NDs)
Arsenic (mg/L)	HGWC-109	0.00321	0.00123	0.01	No	10	0	No	0.01	Param.
Arsenic (mg/L)	HGWC-117	0.005	0.005	0.01	No	10	100	No	0.011	NP (NDs)
Arsenic (mg/L)	HGWC-118	0.005	0.005	0.01	No	10	100	No	0.011	NP (NDs)
Barium (mg/L)	HGWC-101	0.04896	0.0409	2	No	10	0	No	0.01	Param.
Barium (mg/L)	HGWC-103	0.04283	0.03349	2	No	10	0	No	0.01	Param.
Barium (mg/L)	HGWC-105	0.068	0.066	2	No	10	0	No	0.011	NP (normality)
Barium (mg/L)	HGWC-107	0.03959	0.03791	2	No	10	0	No	0.01	Param.
Barium (mg/L)	HGWC-109	0.09077	0.08253	2	No	10	0	No	0.01	Param.
Barium (mg/L)	HGWC-117	0.05096	0.0375	2	No	10	0	No	0.01	Param.
Barium (mg/L)	HGWC-118	0.0652	0.05452	2	No	10	0	No	0.01	Param.
Beryllium (mg/L)	HGWC-101	0.003	0.000065	0.004	No	10	60	No	0.011	NP (NDs)
Beryllium (mg/L)	HGWC-103	0.003	0.003	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	HGWC-105	0.003	0.003	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	HGWC-107	0.003	0.003	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	HGWC-109	0.003	0.003	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	HGWC-117	0.003	0.000079	0.004	No	10	80	No	0.011	NP (NDs)
Beryllium (mg/L)	HGWC-118	0.003	0.003	0.004	No	10	100	No	0.011	NP (NDs)
Cadmium (mg/L)	HGWC-101	0.0003	0.0001	0.005	No	10	10	No	0.011	NP (normality)
Cadmium (mg/L)	HGWC-103	0.0008144	0.0006296	0.005	No	10	0	No	0.01	Param.
Cadmium (mg/L)	HGWC-105	0.0025	0.0025	0.005	No	10	100	No	0.011	NP (NDs)
Cadmium (mg/L)	HGWC-107	0.0025	0.00009	0.005	No	10	30	No	0.011	NP (normality)
Cadmium (mg/L)	HGWC-109	0.0025	0.0025	0.005	No	10	100	No	0.011	NP (NDs)
Cadmium (mg/L)	HGWC-117	0.0007621	0.0004979	0.005	No	10	0	No	0.01	Param.
Cadmium (mg/L)	HGWC-118	0.0025	0.0025	0.005	No	10	100	No	0.011	NP (NDs)
Cobalt (mg/L)	HGWC-101	0.003637	0.001743	0.005	No	10	10	No	0.01	Param.
Cobalt (mg/L)	HGWC-103	0.002486	0.001614	0.005	No	10	0	No	0.01	Param.
Cobalt (mg/L)	HGWC-105	0.0009898	0.0004476	0.005	No	10	20	ln(x)	0.01	Param.
Cobalt (mg/L)	HGWC-107	0.005	0.005	0.005	No	10	100	No	0.011	NP (NDs)
Cobalt (mg/L)	HGWC-109	0.002248	0.001234	0.005	No	10	0	No	0.01	Param.
Cobalt (mg/L)	HGWC-117	0.008403	0.003637	0.005	No	10	0	No	0.01	Param.
Cobalt (mg/L)	HGWC-118	0.005	0.0003	0.005	No	10	50	No	0.011	NP (normality)
Fluoride (mg/L)	HGWC-101	0.3	0.05	4	No	11	81.82	No	0.006	NP (NDs)
Fluoride (mg/L)	HGWC-103	0.3	0.06	4	No	11	63.64	No	0.006	NP (NDs)
Fluoride (mg/L)	HGWC-105	0.1174	0.04663	4	No	11	36.36	No	0.01	Param.
Fluoride (mg/L)	HGWC-107	0.1067	0.02707	4	No	11	45.45	No	0.01	Param.
Fluoride (mg/L)	HGWC-109	0.135	0.05196	4	No	11	18.18	No	0.01	Param.
Fluoride (mg/L)	HGWC-117	0.1879	0.04697	4	No	11	36.36	No	0.01	Param.
Fluoride (mg/L)	HGWC-118	0.3482	0.08218	4	No	12	0	sqrt(x)	0.01	Param.
Lead (mg/L)	HGWC-101	0.005	0.005	0.005	No	10	90	No	0.011	NP (NDs)
Lead (mg/L)	HGWC-103	0.005	0.005	0.005	No	10	90	No	0.011	NP (NDs)
Lead (mg/L)	HGWC-105	0.005	0.005	0.005	No	10	90	No	0.011	NP (NDs)
Lead (mg/L)	HGWC-107	0.005	0.005	0.005	No	10	90	No	0.011	NP (NDs)
Lead (mg/L)	HGWC-109	0.005	0.000058	0.005	No	10	80	No	0.011	NP (NDs)
Lead (mg/L)	HGWC-117	0.005	0.005	0.005	No	10	90	No	0.011	NP (NDs)
Lead (mg/L)	HGWC-118	0.005	0.005	0.005	No	10	90	No	0.011	NP (NDs)
Lithium (mg/L)	HGWC-101	0.03	0.03	0.03	No	10	100	No	0.011	NP (NDs)
, ,										` '

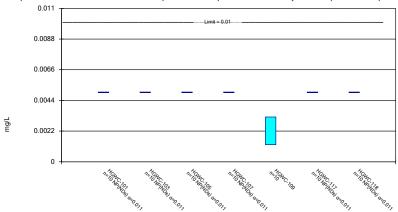
Confidence Interval (EPD) - All Results

		Hammond AP	Client: Georgia P	ower Data: H	ammono	d AP-4	Printed 3/13	/2020, 3:05 PM		
Constituent	<u>Well</u>	Upper Lim.	Lower Lim.	<u>Compliance</u>	Sig.	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	Method
Lithium (mg/L)	HGWC-103	0.03	0.0015	0.03	No	10	30	No	0.011	NP (normality)
Lithium (mg/L)	HGWC-105	0.004275	0.003785	0.03	No	10	0	No	0.01	Param.
Lithium (mg/L)	HGWC-107	0.03	0.00094	0.03	No	10	70	No	0.011	NP (NDs)
Lithium (mg/L)	HGWC-109	0.03	0.0009	0.03	No	10	50	No	0.011	NP (normality)
Lithium (mg/L)	HGWC-117	0.03	0.0012	0.03	No	10	30	No	0.011	NP (normality)
Lithium (mg/L)	HGWC-118	0.03	0.0015	0.03	No	10	60	No	0.011	NP (NDs)
Thallium (mg/L)	HGWC-101	0.001	0.001	0.002	No	9	100	No	0.002	NP (NDs)
Thallium (mg/L)	HGWC-103	0.001	0.001	0.002	No	9	100	No	0.002	NP (NDs)
Thallium (mg/L)	HGWC-105	0.001	0.001	0.002	No	9	100	No	0.002	NP (NDs)
Thallium (mg/L)	HGWC-107	0.001	0.001	0.002	No	9	100	No	0.002	NP (NDs)
Thallium (mg/L)	HGWC-109	0.001	0.001	0.002	No	9	100	No	0.002	NP (NDs)
Thallium (mg/L)	HGWC-117	0.001	0.001	0.002	No	9	100	No	0.002	NP (NDs)
Thallium (mg/L)	HGWC-118	0.001	0.001	0.002	No	9	100	No	0.002	NP (NDs)
Total Radium (pCi/L)	HGWC-101	1.122	0.4672	5	No	10	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-103	1.165	0.4613	5	No	10	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-105	1.037	0.5372	5	No	10	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-107	1.383	0.6152	5	No	10	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-109	0.9161	0.4447	5	No	10	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-117	1.051	0.4905	5	No	10	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-118	1.46	0.3832	5	No	9	0	No	0.01	Param.

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Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk at Alpha = 0.01.



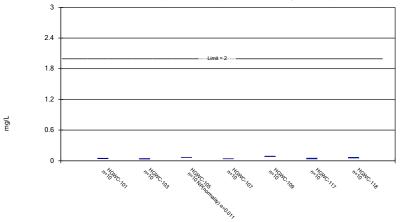
Constituent: Arsenic Analysis Run 3/13/2020 3:03 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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Constituent: Beryllium Analysis Run 3/13/2020 3:03 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk at Alpha = 0.01.

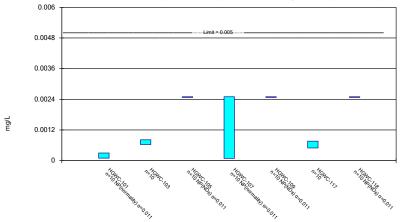


Constituent: Barium Analysis Run 3/13/2020 3:03 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Cadmium Analysis Run 3/13/2020 3:03 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

Constituent: Arsenic (mg/L) Analysis Run 3/13/2020 3:05 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

	HGWC-101	HGWC-103	HGWC-105	HGWC-107	HGWC-109	HGWC-117	HGWC-118
8/31/2016	<0.005	<0.005	<0.005	<0.005	0.0045 (J)	<0.005	<0.005
10/20/2016	<0.005					<0.005	<0.005
10/24/2016		<0.005					
10/25/2016			<0.005	<0.005	0.003 (J)		
1/27/2017						<0.005	
1/31/2017	<0.005	<0.005	<0.005	<0.005	0.0022 (J)		<0.005
5/23/2017	<0.005	<0.005				<0.005	<0.005
5/24/2017			<0.005	<0.005	0.0012 (J)		
8/10/2017	<0.005	<0.005	<0.005	<0.005	0.0016 (J)	<0.005	<0.005
11/14/2017	<0.005	<0.005	<0.005	<0.005	0.0011 (J)	<0.005	<0.005
6/6/2018	<0.005	<0.005	<0.005	<0.005	0.0018 (J)		
6/7/2018						<0.005	<0.005
10/2/2018			<0.005	<0.005	0.0014 (J)		
10/3/2018	<0.005	<0.005				<0.005	<0.005
8/22/2019	<0.005	<0.005	<0.005			<0.005	<0.005
8/23/2019				<0.005	0.0035 (J)		
10/22/2019				<0.005	0.0019 (J)	<0.005	<0.005
10/23/2019	<0.005	<0.005	<0.005				
Mean	0.005	0.005	0.005	0.005	0.00222	0.005	0.005
Std. Dev.	0	0	0	0	0.001109	0	0
Upper Lim.	0.005	0.005	0.005	0.005	0.00321	0.005	0.005
Lower Lim.	0.005	0.005	0.005	0.005	0.00123	0.005	0.005

Constituent: Barium (mg/L) Analysis Run 3/13/2020 3:05 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

	HGWC-101	HGWC-103	HGWC-105	HGWC-107	HGWC-109	HGWC-117	HGWC-118
8/31/2016	0.0527	0.045	0.067	0.0391	0.0883	0.0547	0.0595
10/20/2016	0.0477					0.0529	0.055
10/24/2016		0.0386					
10/25/2016			0.0745	0.041	0.0831		
1/27/2017						0.049	
1/31/2017	0.0527	0.0365	0.0674	0.0382	0.0844		0.0613
5/23/2017	0.0436	0.0254				0.0352	0.068
5/24/2017			0.0668	0.0377	0.0784		
8/10/2017	0.0419	0.0396	0.067	0.0385	0.0903	0.0457	0.0638
11/14/2017	0.0407	0.0385	0.0643	0.039	0.083	0.0368	0.07
6/6/2018	0.043	0.043	0.068	0.039	0.095		
6/7/2018						0.036	0.059
10/2/2018			0.066	0.038	0.089		
10/3/2018	0.041	0.04				0.047	0.056
8/22/2019	0.043	0.036	0.066			0.036	0.052
8/23/2019				0.038	0.088		
10/22/2019				0.039	0.087	0.049	0.054
10/23/2019	0.043	0.039	0.066				
Mean	0.04493	0.03816	0.0673	0.03875	0.08665	0.04423	0.05986
Std. Dev.	0.00452	0.005238	0.002725	0.0009407	0.004622	0.007545	0.005983
Upper Lim.	0.04896	0.04283	0.068	0.03959	0.09077	0.05096	0.0652
Lower Lim.	0.0409	0.03349	0.066	0.03791	0.08253	0.0375	0.05452

Constituent: Beryllium (mg/L) Analysis Run 3/13/2020 3:05 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

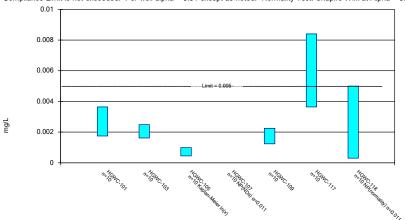
	HGWC-101	HGWC-103	HGWC-105	HGWC-107	HGWC-109	HGWC-117	HGWC-118
8/31/2016	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
10/20/2016	<0.003					<0.003	<0.003
10/24/2016		<0.003					
10/25/2016			<0.003	<0.003	<0.003		
1/27/2017						<0.003	
1/31/2017	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003
5/23/2017	7E-05 (J)	<0.003				<0.003	<0.003
5/24/2017			<0.003	<0.003	<0.003		
8/10/2017	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
11/14/2017	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
6/6/2018	5.9E-05 (J)	<0.003	<0.003	<0.003	<0.003		
6/7/2018						6.8E-05 (J)	<0.003
10/2/2018			<0.003	<0.003	<0.003		
10/3/2018	6.5E-05 (J)	<0.003				<0.003	<0.003
8/22/2019	<0.003	<0.003	<0.003			7.9E-05 (J)	<0.003
8/23/2019				<0.003	<0.003		
10/22/2019				<0.003	<0.003	<0.003	<0.003
10/23/2019	7.5E-05 (J)	<0.003	<0.003				
Mean	0.001827	0.003	0.003	0.003	0.003	0.002415	0.003
Std. Dev.	0.001514	0	0	0	0	0.001234	0
Upper Lim.	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Lower Lim.	6.5E-05	0.003	0.003	0.003	0.003	7.9E-05	0.003

Constituent: Cadmium (mg/L) Analysis Run 3/13/2020 3:05 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

	HGWC-101	HGWC-103	HGWC-105	HGWC-107	HGWC-109	HGWC-117	HGWC-118
8/31/2016	0.0002 (J)	0.0006 (J)	<0.0025	0.0001 (J)	<0.0025	0.0008 (J)	<0.0025
10/20/2016	0.0003 (J)					0.0008 (J)	<0.0025
10/24/2016		0.0008 (J)					
10/25/2016			<0.0025	8E-05 (J)	<0.0025		
1/27/2017						0.0007 (J)	
1/31/2017	0.0001 (J)	0.0006 (J)	<0.0025	9E-05 (J)	<0.0025		<0.0025
5/23/2017	0.0002 (J)	0.0006 (J)				0.0005 (J)	<0.0025
5/24/2017			<0.0025	0.0001 (J)	<0.0025		
8/10/2017	0.0002 (J)	0.0007 (J)	<0.0025	<0.0025	<0.0025	0.0004 (J)	<0.0025
11/14/2017	<0.0025	0.0007 (J)	<0.0025	<0.0025	<0.0025	0.0005 (J)	<0.0025
6/6/2018	9.5E-05 (J)	0.00073 (J)	<0.0025	0.00012 (J)	<0.0025		
6/7/2018						0.00049 (J)	<0.0025
10/2/2018			<0.0025	0.0001 (J)	<0.0025		
10/3/2018	0.00018 (J)	0.00078 (J)				0.00079 (J)	<0.0025
8/22/2019	0.00014 (J)	0.0008 (J)	<0.0025			0.00064 (J)	<0.0025
8/23/2019				0.00011 (J)	<0.0025		
10/22/2019				<0.0025	<0.0025	0.00068 (J)	<0.0025
10/23/2019	0.0002 (J)	0.00091 (J)	<0.0025				
Mean	0.0004115	0.000722	0.0025	0.00082	0.0025	0.00063	0.0025
Std. Dev.	0.0007362	0.0001036	0	0.001159	0	0.000148	0
Upper Lim.	0.0003	0.0008144	0.0025	0.0025	0.0025	0.0007621	0.0025
Lower Lim.	0.0001	0.0006296	0.0025	9E-05	0.0025	0.0004979	0.0025

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Cobalt Analysis Run 3/13/2020 3:03 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

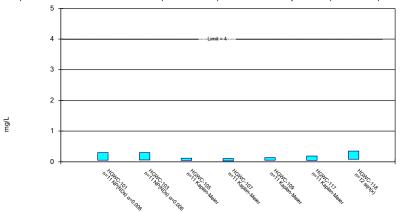
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Non-Parametric Confidence Interval Compliance Limit is not exceeded. 0.006 0.0048 0.0036 0.0024 0.0012

Constituent: Lead Analysis Run 3/13/2020 3:03 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk at Alpha = 0.01.

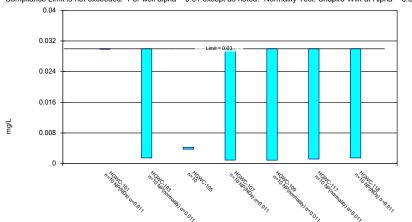


Constituent: Fluoride Analysis Run 3/13/2020 3:03 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

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Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Lithium Analysis Run 3/13/2020 3:03 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

Constituent: Cobalt (mg/L) Analysis Run 3/13/2020 3:05 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

	HGWC-101	HGWC-103	HGWC-105	HGWC-107	HGWC-109	HGWC-117	HGWC-118
8/31/2016	0.0033 (J)	0.0018 (J)	0.0014 (J)	<0.005	0.0023 (J)	0.0035 (J)	<0.005
10/20/2016	0.0025 (J)					0.0045 (J)	<0.005
10/24/2016		0.0018 (J)					
10/25/2016			0.0013 (J)	<0.005	0.0017 (J)		
1/27/2017						0.0041 (J)	
1/31/2017	0.001 (J)	0.0016 (J)	0.0006 (J)	<0.005	0.0017 (J)		<0.005
5/23/2017	0.0025 (J)	0.0014 (J)				0.0071 (J)	0.0005 (J)
5/24/2017			0.0007 (J)	<0.005	0.002 (J)		
8/10/2017	0.0029 (J)	0.0025 (J)	0.0006 (J)	<0.005	0.0012 (J)	0.0031 (J)	0.0003 (J)
11/14/2017	0.003 (J)	0.002 (J)	0.0005 (J)	<0.005	0.0014 (J)	0.0062 (J)	0.0004 (J)
6/6/2018	0.0016 (J)	0.0031 (J)	0.00056 (J)	<0.005	0.0014 (J)		
6/7/2018						0.0083 (J)	<0.005
10/2/2018			<0.005	<0.005	0.00081 (J)		
10/3/2018	0.0028 (J)	0.0023 (J)				0.005 (J)	<0.005
8/22/2019	<0.005	0.0019 (J)	<0.005			0.012	0.0003 (J)
8/23/2019				<0.005	0.0027 (J)		
10/22/2019				<0.005	0.0022 (J)	0.0064	0.00061 (J)
10/23/2019	0.0023 (J)	0.0021 (J)	0.00038 (J)				
Mean	0.00269	0.00205	0.001604	0.005	0.001741	0.00602	0.002711
Std. Dev.	0.001061	0.0004882	0.001821	0	0.0005682	0.002671	0.002414
Upper Lim.	0.003637	0.002486	0.0009898	0.005	0.002248	0.008403	0.005
Lower Lim.	0.001743	0.001614	0.0004476	0.005	0.001234	0.003637	0.0003

Constituent: Fluoride (mg/L) Analysis Run 3/13/2020 3:05 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

	HGWC-101	HGWC-103	HGWC-105	HGWC-107	HGWC-109	HGWC-117	HGWC-118
8/31/2016	0.05 (J)	0.06 (J)	0.15 (J)	0.08 (J)	0.12 (J)	0.09 (J)	0.18 (J)
10/20/2016	0.03 (J)					0.11 (J)	0.12 (J)
10/24/2016		0.13 (J)					
10/25/2016			0.09 (J)	0.16 (J)	0.17 (J)		
1/27/2017						0.28 (J)	
1/31/2017	<0.3	<0.3	0.13 (J)	0.16 (J)	0.05 (J)		0.3
5/23/2017	<0.3	0.15 (J)				0.01 (J)	0.14 (J)
5/24/2017			0.07 (J)	0.009 (J)	0.13 (J)		
8/10/2017	<0.3	<0.3	0.03 (J)	<0.3	0.12 (J)	0.1 (J)	0.11 (J)
11/14/2017	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.07 (J)
6/6/2018	<0.3	<0.3	0.074 (J)	0.057 (J)	0.15 (J)		
6/7/2018						<0.3	0.3
10/2/2018			<0.3	<0.3	<0.3		
10/3/2018	<0.3	<0.3				<0.3	0.12 (J)
4/3/2019				<0.3	0.05 (J)		
4/4/2019	<0.3	0.042 (J)	0.03 (J)				
4/5/2019						0.19 (J)	0.33
6/18/2019							0.89
8/22/2019	<0.3	<0.3	<0.3			<0.3	0.07 (J)
8/23/2019				<0.3	0.034 (J)		
10/22/2019				0.047 (J)	0.099 (J)	0.042 (J)	0.087 (J)
10/23/2019	<0.3	<0.3	<0.3				
Mean	0.2527	0.2256	0.1613	0.183	0.1385	0.1838	0.2264
Std. Dev.	0.1053	0.1071	0.1156	0.1203	0.09066	0.1161	0.2288
Upper Lim.	0.3	0.3	0.1174	0.1067	0.135	0.1879	0.3482
Lower Lim.	0.05	0.06	0.04663	0.02707	0.05196	0.04697	0.08218

Constituent: Lead (mg/L) Analysis Run 3/13/2020 3:05 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

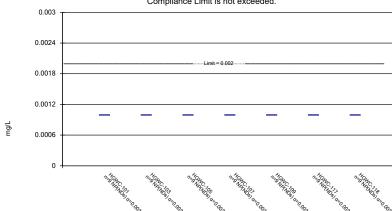
	HGWC-101	HGWC-103	HGWC-105	HGWC-107	HGWC-109	HGWC-117	HGWC-118
8/31/2016	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
10/20/2016	<0.005					<0.005	<0.005
10/24/2016		<0.005					
10/25/2016			<0.005	<0.005	<0.005		
1/27/2017						<0.005	
1/31/2017	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005
5/23/2017	0.0009 (J)	<0.005				<0.005	<0.005
5/24/2017			<0.005	<0.005	<0.005		
8/10/2017	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
11/14/2017	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
6/6/2018	<0.005	<0.005	<0.005	<0.005	<0.005		
6/7/2018						<0.005	<0.005
10/2/2018			<0.005	<0.005	<0.005		
10/3/2018	<0.005	<0.005				<0.005	<0.005
8/22/2019	<0.005	<0.005	<0.005			<0.005	<0.005
8/23/2019				<0.005	5.8E-05 (J)		
10/22/2019				7.9E-05 (J)	5.4E-05 (J)	0.00016 (J)	0.00025 (J)
10/23/2019	<0.005	0.00043 (J)	6.8E-05 (J)				
Mean	0.00459	0.004543	0.004507	0.004508	0.004011	0.004516	0.004525
Std. Dev.	0.001297	0.001445	0.00156	0.001556	0.002085	0.001531	0.001502
Upper Lim.	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Lower Lim.	0.005	0.005	0.005	0.005	5.8E-05	0.005	0.005

Constituent: Lithium (mg/L) Analysis Run 3/13/2020 3:05 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

	HGWC-101	HGWC-103	HGWC-105	HGWC-107	HGWC-109	HGWC-117	HGWC-118
8/31/2016	<0.03	<0.03	0.0034 (J)	<0.03	<0.03	0.0024 (J)	<0.03
10/20/2016	<0.03					0.0027 (J)	<0.03
10/24/2016		<0.03					
10/25/2016			0.0043 (J)	<0.03	<0.03		
1/27/2017						<0.03	
1/31/2017	<0.03	<0.03	0.0042 (J)	<0.03	<0.03		<0.03
5/23/2017	<0.03	0.0012 (J)				<0.03	0.0012 (J)
5/24/2017			0.0039 (J)	<0.03	0.0012 (J)		
8/10/2017	<0.03	0.0016 (J)	0.004 (J)	<0.03	<0.03	0.0021 (J)	<0.03
11/14/2017	<0.03	0.0015 (J)	0.0044 (J)	<0.03	<0.03	<0.03	<0.03
6/6/2018	<0.03	0.0017 (J)	0.0041 (J)	0.00099 (J)	0.0013 (J)		
6/7/2018						0.0011 (J)	0.0015 (J)
10/2/2018			0.0041 (J)	<0.03	0.0013 (J)		
10/3/2018	<0.03	0.0016 (J)				0.0021 (J)	<0.03
8/22/2019	<0.03	0.0015 (J)	0.004 (J)			0.0012 (J)	0.0018 (J)
8/23/2019				0.00092 (J)	0.0009 (J)		
10/22/2019				0.00094 (J)	0.00088 (J)	0.0028 (J)	0.0027 (J)
10/23/2019	<0.03	0.002 (J)	0.0039 (J)				
Mean	0.03	0.01011	0.00403	0.02128	0.01556	0.01044	0.01872
Std. Dev.	0	0.01373	0.0002751	0.01403	0.01522	0.01351	0.01457
Upper Lim.	0.03	0.03	0.004275	0.03	0.03	0.03	0.03
Lower Lim.	0.03	0.0015	0.003785	0.00094	0.0009	0.0012	0.0015

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Non-Parametric Confidence Interval Compliance Limit is not exceeded.

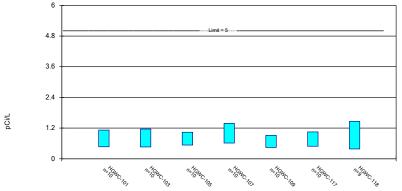


Constituent: Thallium Analysis Run 3/13/2020 3:03 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

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Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Total Radium Analysis Run 3/13/2020 3:04 PM
Hammond AP Client: Georgia Power Data: Hammond AP-4

Constituent: Thallium (mg/L) Analysis Run 3/13/2020 3:05 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

8/31/2016 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <0.001 <th></th> <th>HGWC-101</th> <th>HGWC-103</th> <th>HGWC-105</th> <th>HGWC-107</th> <th>HGWC-109</th> <th>HGWC-117</th> <th>HGWC-118</th>		HGWC-101	HGWC-103	HGWC-105	HGWC-107	HGWC-109	HGWC-117	HGWC-118
10/24/2016	8/31/2016	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
10/25/2016	10/20/2016	<0.001					<0.001	<0.001
1/27/2017 <0.001	10/24/2016		<0.001					
1/31/2017 <0.001	10/25/2016			<0.001	<0.001	<0.001		
5/23/2017 <0.001	1/27/2017						<0.001	
5/24/2017 <0.001	1/31/2017	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001
8/10/2017 <0.001	5/23/2017	<0.001	<0.001				<0.001	<0.001
11/14/2017 <0.001	5/24/2017			<0.001	<0.001	<0.001		
6/6/2018 <0.001	8/10/2017	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
6/7/2018 < 0.001	11/14/2017	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
10/2/2018 <0.001	6/6/2018	<0.001	<0.001	<0.001	<0.001	<0.001		
10/3/2018 <0.001	6/7/2018						<0.001	<0.001
8/22/2019 <0.001	10/2/2018			<0.001	<0.001	<0.001		
8/23/2019 <0.001	10/3/2018	<0.001	<0.001				<0.001	<0.001
Mean 0.001 0.001 0.001 0.001 0.001 0.001 0.001 Std. Dev. 0 0 0 0 0 0 0 Upper Lim. 0.001 0.001 0.001 0.001 0.001 0.001 0.001	8/22/2019	<0.001	<0.001	<0.001			<0.001	<0.001
Std. Dev. 0 0 0 0 0 0 0 Upper Lim. 0.001 <td< td=""><td>8/23/2019</td><td></td><td></td><td></td><td><0.001</td><td><0.001</td><td></td><td></td></td<>	8/23/2019				<0.001	<0.001		
Upper Lim. 0.001 0.001 0.001 0.001 0.001 0.001 0.001	Mean	0.001	0.001	0.001	0.001	0.001	0.001	0.001
••	Std. Dev.	0	0	0	0	0	0	0
Lower Lim. 0.001 0.001 0.001 0.001 0.001 0.001 0.001	Upper Lim.	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	Lower Lim.	0.001	0.001	0.001	0.001	0.001	0.001	0.001

Constituent: Total Radium (pCi/L) Analysis Run 3/13/2020 3:05 PM Hammond AP Client: Georgia Power Data: Hammond AP-4

	HGWC-101	HGWC-103	HGWC-105	HGWC-107	HGWC-109	HGWC-117	HGWC-118
8/31/2016	0.621 (U)	1.62	0.906 (U)	1.2	1.03	1.12	
10/20/2016	1.4					0.803 (U)	1.97
10/24/2016		1.01 (U)					
10/25/2016			1.03	1.11 (U)	1.07		
1/27/2017						1.08 (U)	
1/31/2017	0.906 (U)	0.976 (U)	0.868 (U)	1.45	0.588 (U)		1.03
5/23/2017	0.388 (U)	0.891 (U)				0.624 (U)	0.398 (U)
5/24/2017			0.728 (U)	0.393 (U)	0.593 (U)		
8/10/2017	1.03 (U)	0.601 (U)	1.35	0.84 (U)	0.691 (U)	0.695 (U)	0.938 (U)
11/14/2017	0.769 (U)	0.567 (U)	0.817 (U)	1.01 (U)	0.653 (U)	0.99 (U)	0.335 (U)
6/6/2018	1.28 (U)	0.836 (U)	0.559 (U)	0.365 (U)	0.939 (U)		
6/7/2018						1.04 (U)	0.696 (U)
10/2/2018			0.336 (U)	1.23	0.225 (U)		
10/3/2018	0.302 (U)	0.111 (U)				0.198 (U)	1.6 (U)
8/22/2019	0.474 (U)	0.946 (U)	0.694 (U)			0.333 (U)	0.904 (U)
8/23/2019				1.69	0.47 (U)		
10/22/2019				0.705 (U)	0.545 (U)	0.827 (U)	0.424 (U)
10/23/2019	0.776 (U)	0.571 (U)	0.584 (U)				
Mean	0.7946	0.8129	0.7872	0.9993	0.6804	0.771	0.9217
Std. Dev.	0.3669	0.3941	0.2802	0.4305	0.2641	0.3143	0.5577
Upper Lim.	1.122	1.165	1.037	1.383	0.9161	1.051	1.46
Lower Lim.	0.4672	0.4613	0.5372	0.6152	0.4447	0.4905	0.3832

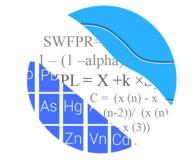
GROUNDWATER STATS CONSULTING

July 27, 2020

Southern Company Services Attn: Ms. Lauren Petty 3535 Colonnade Parkway Birmingham, AL 35243

Re: Plant Hammond Ash Pond 4 (AP-4) Statistical Analysis Spring 2020

Dear Ms. Petty,



Groundwater Stats Consulting, formerly the statistical consulting division of Sanitas Technologies, is pleased to provide the Spring 2020 Semi-Annual Groundwater Monitoring and Corrective Action Statistical summary of the analysis of groundwater quality for Georgia Power Company's Plant Hammond AP-4. The analysis complies with the Georgia Environmental Protection Division Rules for Solid Waste Management Chapter 391-3-4-.10, and follows the United States Environmental Protection Agency (USEPA) Unified Guidance (2009).

Sampling began for Hammond AP-4 in 2016, and at least 8 background samples have been collected at each of the groundwater monitoring wells analyzed in this report. The monitoring well network, as provided by Southern Company Services, consists of the following:

- o **Upgradient well:** HGWA-111, HGWA-112, HGWA-113
- Downgradient wells: HGWC-101, HGWC-102, HGWC-103, HGWC-105, HGWC-107, HGWC-109, HGWC-117, HGWC-118

Note that well HGWC-102 was first sampled in October 2019. The most recent sampling event for this well occurred in June 2020, whereas the most recent sampling event at the other wells occurred in April 2020.

Data were sent electronically to Groundwater Stats Consulting, and the statistical analysis was reviewed Kristina Rayner, Groundwater Statistician and Founder of Groundwater Stats Consulting.

The following constituents are evaluated:

- Appendix III (Detection Monitoring) boron, calcium, chloride, fluoride, pH, sulfate, and TDS
- Appendix IV (Assessment Monitoring) antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, combined radium 226 + 228, fluoride, lead, lithium, mercury, molybdenum, selenium, and thallium

Note that when there are no detections present in downgradient wells for a given constituent, statistical analyses are not required. A summary of well/constituent pairs with 100% nondetects follows this letter. A substitution of the most recent reporting limit is used for nondetect data.

Additionally, the following constituents, which were not detected during the Scan event in August 2019 at existing wells (all wells besides HGWC-102) were not sampled during the April 2020 sampling event: antimony, mercury, molybdenum, selenium, and thallium. These constituents, however, were sampled during the April 2020 and June 2020 sampling events at well HGWC-102 and are included in this analysis.

Time series plots for Appendix III and IV parameters at all wells are provided for the purpose of screening data at these wells (Figure A). Additionally, a separate section of box plots is included for all constituents at upgradient and downgradient wells (Figure B). The time series plots are used to initially screen for suspected outliers and trends, while the box plots provide visual representation of variation within individual wells and between all wells. Values in background which have been flagged as outliers may be seen in a lighter font and as a disconnected symbol on the graphs. A summary of flagged outliers follows this report (Figure C).

In earlier analyses, data at all wells were evaluated for the following: 1) outliers; 2) trends; 3) most appropriate statistical method for Appendix III parameters based on site characteristics of groundwater data upgradient of the facility; and 4) eligibility of downgradient wells when intrawell statistical methods are recommended. A power curve is provided to demonstrate that the selected statistical methods for Appendix III parameters comply with the USEPA Unified Guidance. The EPA suggests the selected statistical method should provide at least 55% power at 3 standard deviations or at least 80% power at 4 standard deviations. The power curve is based on the following:

CCR Appendix III Constituents:

- Semi-Annual Sampling
- Interwell Prediction Limits with 1-of-2 resample plan (all parameters)
- # Constituents: 7
- # Downgradient wells: 8

Parametric prediction limits are utilized when the screened historical data follow a normal or transformed-normal distribution. When data cannot be normalized or the majority of data are nondetects, a nonparametric test is utilized. While the false positive rate associated with the parametric limits is based on an annual 10% (5% per semi-annual event) as recommended by the EPA Unified Guidance (2009), the false positive rate associated with the nonparametric limits is dependent upon the available background sample size, number of future comparisons, and verification resample plan. The distribution of data is tested using the Shapiro-Wilk/Shapiro-Francia test for normality. After testing for normality and performing any adjustments as discussed below (US EPA, 2009) data are analyzed using either parametric or non-parametric prediction limits.

- No statistical analyses are required on wells and analytes containing 100% nondetects (USEPA Unified Guidance, 2009, Chapter 6).
- When data contain <15% nondetects in background, simple substitution of onehalf the reporting limit is utilized in the statistical analysis. The reporting limit utilized for nondetects is the practical quantification limit (PQL) as reported by the laboratory.
- When data contain between 15-50% nondetects, the Kaplan-Meier nondetect adjustment is applied to the background data. This technique adjusts the mean and standard deviation of the historical concentrations to account for concentrations below the reporting limit.
- Nonparametric prediction limits are used on data containing greater than 50% nondetects.

Natural systems continuously evolve due to physical changes made to the environment. Examples include capping a landfill, paving areas near a well, or lining a drainage channel to prevent erosion. Periodic updating of background statistical limits is necessary to accommodate these types of changes. In the interwell case, prediction limits are updated with upgradient well data during each event after careful screening for any new outliers. In some cases, the earlier portion of data are deselected prior to construction of limits to provide sensitive limits that will rapidly detect changes in groundwater quality. Even

though the data are excluded from the calculation, the values will continue to be reported and shown in tables and graphs.

Background Screening

Outlier and Trend Testing

Time series plots are used to identify suspected outliers, or extreme values that would result in limits that are not representative of the current background data population. Suspected outliers at all wells for Appendix III and Appendix IV parameters were formally tested using Tukey's box plot method and, when identified, flagged in the computer database with "o" and deselected prior to construction of statistical limits.

Using the Tukey box plot method, a few outliers were identified. Often, when the most recent value is identified as an outlier, values are not flagged in the database at this time as they may represent a possible trend. If future values do not remain at similar concentrations, these values will be flagged as outliers and deselected. Several low values exist in the data sets and appear on the graphs as possible low outliers relative to the laboratory's Practical Quantitation Limit. However, these values are observed trace values (i.e. measurements reported by the laboratory between the Method Detection Limit and the Practical Quantitation Limit) and, therefore, were not flagged as outliers.

Of the outliers identified by Tukey's method, only one outlier was flagged as all other values are similar to remaining measurements within a given well or neighboring wells, or were reported nondetects.

Additionally, when any values are flagged in the database as outliers, they are plotted in a disconnected and lighter symbol on the time series graph. The accompanying data pages display the flagged value in a lighter font as well. A substitution of the most recent reporting limit was applied when varying detection limits existed in data.

No obvious seasonal patterns were observed on the time series plots for any of the detected data; therefore, no deseasonalizing adjustments were made to the data. When seasonal patterns are observed, data may be deseasonalized so that the resulting limits will correctly account for the seasonality as a predictable pattern rather than random variation or a release.

While trends may be identified by visual inspection, a quantification of the trend and its significance is needed. The Sen's Slope/Mann Kendall trend test was used to evaluate all data at each well to identify statistically significant increasing or decreasing trends. In the

absence of suspected contamination, significant trending data are typically not included as part of the background data used for construction of prediction limits. This step serves to eliminate the trend and, thus, reduce variation in background. When statistically significant decreasing trends are present, all available data are evaluated to determine whether earlier concentration levels are significantly different than current reported concentrations and will be deselected as necessary. When any records of data are truncated for the reasons above, a summary report will be provided to show the date ranges used in construction of the statistical limits.

The results of the trend analyses were included with the previous screening and showed a few statistically significant decreasing and increasing trends for the Appendix III parameters. Most trends noted were relatively low in magnitude when compared to average concentrations, and the background period is short; therefore, no adjustments were made to the data sets at this time.

Appendix III – Determination of Spatial Variation

The Analysis of Variance (ANOVA) was used to statistically evaluate differences in average concentrations among upgradient wells, which assists in identifying the most appropriate statistical approach. Interwell tests, which compare downgradient well data to statistical limits constructed from pooled upgradient well data, are appropriate when average concentrations are similar across upgradient wells. Intrawell tests, which compare compliance data from a single well to screened historical data within the same well, are appropriate when upgradient wells exhibit spatial variation; when statistical limits constructed from upgradient wells would not be conservative from a regulatory perspective; and when downgradient water quality is unimpacted compared to upgradient water quality for the same parameter.

The ANOVA identified no variation among upgradient well data for boron or fluoride, making these constituents eligible for interwell analyses. Variation was noted for calcium, chloride, pH, sulfate and TDS. While data were further tested for intrawell eligibility during the screening, interwell methods will be used for all Appendix III constituents in accordance with Georgia EPD requirements.

Statistical Analysis of Appendix III Parameters - Spring 2020

Interwell prediction limits, combined with a 1-of-2 resample plan, were constructed using all historical upgradient well data through April 2020 (Figure D). Interwell prediction limits pool upgradient well data to establish a background limit for an individual constituent. The most recent sample from each downgradient well, which is April 2020 for wells

HGWC-101, HGWC-103, HGWC-105, HGWC-107, HGWC-109, HGWC-117, and HGWC-118 and June 2020 for well HGWC-102, is compared to the background limit to determine whether there are statistically significant increases (SSIs).

In the event of an initial exceedance of compliance well data, the 1-of-2 resample plan allows for collection of one additional sample to determine whether the initial exceedance is confirmed. When a resample confirms the initial exceedance, a statistically significant increase is identified and further research would be required to identify the cause of the exceedance (i.e. impact from the site, natural variation, or an off-site source). If the resample falls within the statistical limit, the initial exceedance is considered to be a false positive result and, therefore, no exceedance is noted and no further action is necessary. If no resample is collected, the original result is considered a confirmed exceedance. Several prediction limit exceedances were noted for Appendix III parameters. A summary table of the interwell prediction limits follows this letter.

When prediction limit exceedances are identified in downgradient wells, data are further evaluated using the Sen's Slope/Mann Kendall trend test to determine whether concentrations are statistically increasing, decreasing, or stable (Figure E). Upgradient wells are included in the trend analyses for all parameters found to exceed their prediction limit in downgradient wells to identify whether similar patterns exist upgradient of the site which is an indication of natural variability in groundwater unrelated to practices at the site. A summary of the trend test results follows this letter. Statistically significant trends were noted for the following well/constituent pairs:

Increasing trends:

Boron: HGWC-107

Decreasing trends:

• Sulfate: HGWA-113 (upgradient) and HGWC-105

Statistical Analysis of Appendix IV Parameters – Spring 2020

Interwell tolerance limits were used to calculate the site-specific background limits from pooled upgradient well data for Appendix IV constituents (Figure F). Parametric tolerance limits are used when data follow a normal or transformed-normal distribution such as for barium, chromium, combined radium, and fluoride. When data contained greater than 50% nondetects or did not follow a normal or transformed-normal distribution, non-parametric tolerance limits were used. The background limits were then used when determining the groundwater protection standard (GWPS) Georgia EPD Rule 391-3-4-.10(6)(a). For sites regulated under Georgia EPD Rules, the GWPS is:

- The MCL or
- The background concentration when an MCL is not established or when the background concentration is higher than the MCL.

Following the above Georgia EPD Rule requirements, State GWPS were established for statistical comparison of Appendix IV constituents for the Spring 2020 sampling event (Figure G).

To complete the statistical comparison to GWPS, State confidence intervals were constructed for the Appendix IV constituents in accordance with the state requirements in each downgradient well (Figure H). Well/constituent pairs with 100% nondetects require no statistical analysis. The Sanitas software was used to calculate the tolerance limits and the confidence intervals. The confidence intervals were compared to the GWPS established using the Georgia EPD Rules 391-3-4-.10(6)(a) for the State requirements. Only when the entire confidence interval is above a GWPS is the downgradient well/constituent pair considered to exceed its respective standard. A summary of the confidence intervals follows this letter. If there is an exceedance of the GWPS, a statistically significant level (SSL) exceedance is identified. No exceedances were noted for any well/constituent pairs.

Thank you for the opportunity to assist you in the statistical analysis of groundwater quality for Hammond AP-4. If you have any questions or comments, please feel free to contact us.

For Groundwater Stats Consulting,

Andrew T. Collins Groundwater Analyst Kristina L. Rayner Groundwater Statistician

Kristina Rayner

Sanitas™ v.9.6.26d Groundwater Stats Consulting. U

100% Non-Detects

Analysis Run 7/16/2020 2:52 PM View: 100% Nondetect Well-Constituent Pairs Plant Hammond Client: Southern Company Data: Hammond AP-4

Antimony (mg/L)

HGWA-111, HGWA-112, HGWA-113, HGWC-101, HGWC-105, HGWC-109, HGWC-117, HGWC-118

Arsenic (mg/L)

HGWA-112, HGWC-103, HGWC-105, HGWC-107, HGWC-118

Beryllium (mg/L)

HGWA-111, HGWA-112, HGWC-102, HGWC-103, HGWC-105, HGWC-107, HGWC-109, HGWC-118

Cadmium (mg/L)

HGWA-111, HGWA-112, HGWA-113, HGWC-105, HGWC-109, HGWC-118

Cobalt (mg/L)

HGWA-111, HGWA-112, HGWC-107

Lithium (mg/L)

HGWA-112, HGWC-101

Mercury (mg/L)

HGWC-102, HGWC-105, HGWC-107

Molybdenum (mg/L)

HGWA-111, HGWA-112, HGWA-113, HGWC-101, HGWC-102, HGWC-103, HGWC-105, HGWC-107, HGWC-109, HGWC-117, HGWC-118

Selenium (mg/L)

HGWA-111, HGWA-112, HGWC-101, HGWC-103, HGWC-105, HGWC-107, HGWC-109, HGWC-117, HGWC-118

Thallium (mg/L)

HGWA-111, HGWA-112, HGWA-113, HGWC-101, HGWC-103, HGWC-105, HGWC-107, HGWC-109, HGWC-117, HGWC-118

		Plant Hammond	Summary Data: Hammond AP-4	Printed 7/16/2020, 2:34 PM
/25/2017	HGWA-112 Total Dissolved Solids (r 152 (o)	_{ng} IL)		
12312011	152 (0)			

Appendix III Interwell Prediction Limits - Significant Results Plant Hammond Client: Southern Company Data: Hammond AP-4 Printed 7/16/2020, 2:37 PM

	Pla	nt Hammond	Client: S	outhern Con	npany D	ata: Ham	mond AP-4	Printed 7/1	6/2020, 2	2:37 PM			
Constituent	Well	Upper Lim	Lower Lim	. Date	Observ.	Sig. Bg	NBg Mean	Std. Dev.	%NDs	ND Adj.	Transfor	mAlpha	Method
Boron (mg/L)	HGWC-102	0.022	n/a	6/18/2020	2.9	Yes 33	0.09613	0.02563	18.18	Kaplan-Meier	sqrt(x)	0.0009403	Param Inter 1 of 2
Boron (mg/L)	HGWC-103	0.022	n/a	3/25/2020	2.3	Yes 33	0.09613	0.02563	18.18	Kaplan-Meier	sqrt(x)	0.0009403	Param Inter 1 of 2
Boron (mg/L)	HGWC-105	0.022	n/a	3/25/2020	1.4	Yes 33	0.09613	0.02563	18.18	Kaplan-Meier	sqrt(x)	0.0009403	Param Inter 1 of 2
Boron (mg/L)	HGWC-107	0.022	n/a	3/25/2020	0.87	Yes 33	0.09613	0.02563	18.18	Kaplan-Meier	sqrt(x)	0.0009403	Param Inter 1 of 2
Boron (mg/L)	HGWC-109	0.022	n/a	3/25/2020	0.36	Yes 33	0.09613	0.02563	18.18	Kaplan-Meier	sqrt(x)	0.0009403	Param Inter 1 of 2
Boron (mg/L)	HGWC-117	0.022	n/a	3/24/2020	1	Yes 33	0.09613	0.02563	18.18	Kaplan-Meier	sqrt(x)	0.0009403	Param Inter 1 of 2
Boron (mg/L)	HGWC-118	0.022	n/a	3/25/2020	0.7	Yes 33	0.09613	0.02563	18.18	Kaplan-Meier	sqrt(x)	0.0009403	Param Inter 1 of 2
Calcium (mg/L)	HGWC-102	61	n/a	6/18/2020	124	Yes 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-103	61	n/a	3/25/2020	86.8	Yes 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-105	61	n/a	3/25/2020	91.4	Yes 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-117	61	n/a	3/24/2020	68	Yes 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-118	61	n/a	3/25/2020	86.8	Yes 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-102	5.7	n/a	6/18/2020	6.9	Yes 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-117	5.7	n/a	3/24/2020	12.5	Yes 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-103	7.4	5.5	3/25/2020	5.49	Yes 36	n/a	n/a	0	n/a	n/a	0.002737	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-101	14	n/a	3/25/2020	85.5	Yes 33	n/a	n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-102	14	n/a	6/18/2020	349	Yes 33	n/a	n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-103	14	n/a	3/25/2020	251	Yes 33	n/a	n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-105	14	n/a	3/25/2020	161	Yes 33	n/a	n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-107	14	n/a	3/25/2020	116	Yes 33	n/a	n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-109	14	n/a	3/25/2020	27.9	Yes 33	n/a	n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-117	14	n/a	3/24/2020	129	Yes 33	n/a	n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-118	14	n/a	3/25/2020	78.4	Yes 33	n/a	n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Total Dissolved Solids (mg/L)	HGWC-102	250	n/a	6/18/2020	652	Yes 32	4.71	0.7713	0	None	x^(1/3)	0.0009403	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-103	250	n/a	3/25/2020	507	Yes 32	4.71	0.7713	0	None	x^(1/3)	0.0009403	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-105	250	n/a	3/25/2020	417	Yes 32	4.71	0.7713	0	None	x^(1/3)	0.0009403	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-107	250	n/a	3/25/2020	297	Yes 32	4.71	0.7713	0	None	x^(1/3)	0.0009403	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-117	250	n/a	3/24/2020	331	Yes 32	4.71	0.7713	0	None	x^(1/3)	0.0009403	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-118	250	n/a	3/25/2020	347	Yes 32	4.71	0.7713	0	None	x^(1/3)	0.0009403	Param Inter 1 of 2

Appendix III Interwell Prediction Limits - All Results

Plant Hammond Client: Southern Company Data: Hammond AP-4 Printed 7/16/2020, 2:37 PM

Constituent	Well	Upper Lim	Lower Lim	. <u>Date</u>	Observ.	Sig. Bg	NBg Mean	Std. Dev.	%NDs	ND Adj.	Transfor	mAlpha	Method
Boron (mg/L)	HGWC-101	0.022	n/a	3/25/2020	0.08J		0.09613	0.02563	18.18	Kaplan-Meier	sqrt(x)	0.0009403	Param Inter 1 of 2
Boron (mg/L)	HGWC-102	0.022	n/a	6/18/2020	2.9	Yes 33	0.09613	0.02563	18.18	Kaplan-Meier	sqrt(x)	0.0009403	Param Inter 1 of 2
Boron (mg/L)	HGWC-103	0.022	n/a	3/25/2020	2.3	Yes 33	0.09613	0.02563	18.18	Kaplan-Meier	sqrt(x)	0.0009403	Param Inter 1 of 2
Boron (mg/L)	HGWC-105	0.022	n/a	3/25/2020	1.4	Yes 33	0.09613	0.02563	18.18	Kaplan-Meier	sqrt(x)	0.0009403	Param Inter 1 of 2
Boron (mg/L)	HGWC-107	0.022	n/a	3/25/2020	0.87	Yes 33	0.09613	0.02563	18.18	Kaplan-Meier	sqrt(x)	0.0009403	Param Inter 1 of 2
Boron (mg/L)	HGWC-109	0.022	n/a	3/25/2020	0.36	Yes 33	0.09613	0.02563	18.18	Kaplan-Meier		0.0009403	Param Inter 1 of 2
Boron (mg/L)	HGWC-117	0.022	n/a	3/24/2020	1	Yes 33	0.09613	0.02563	18.18	Kaplan-Meier	sqrt(x)	0.0009403	Param Inter 1 of 2
Boron (mg/L)	HGWC-118	0.022	n/a	3/25/2020	0.7	Yes 33	0.09613	0.02563	18.18	Kaplan-Meier	sqrt(x)	0.0009403	Param Inter 1 of 2
Calcium (mg/L)	HGWC-101	61	n/a	3/25/2020	18.4	No 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-102	61	n/a	6/18/2020	124	Yes 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-103	61	n/a	3/25/2020	86.8	Yes 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-105	61	n/a	3/25/2020	91.4	Yes 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-107	61	n/a	3/25/2020	59.5	No 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-109	61	n/a	3/25/2020	42.6	No 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-117	61	n/a	3/24/2020	68	Yes 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-118	61	n/a	3/25/2020	86.8	Yes 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-101	5.7	n/a	3/25/2020	5.2	No 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-102	5.7	n/a	6/18/2020	6.9	Yes 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-103	5.7	n/a	3/25/2020	5.1	No 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-105	5.7	n/a	3/25/2020	3.2	No 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-107	5.7	n/a	3/25/2020	3	No 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-109	5.7	n/a	3/25/2020	3.9	No 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-117	5.7	n/a	3/24/2020	12.5	Yes 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-118	5.7	n/a	3/25/2020	3.6	No 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-101	0.2	n/a	3/25/2020	0.1ND	No 36	0.08088	0.05726	25	Kaplan-Meier	No	0.0009403	Param Inter 1 of 2
Fluoride (mg/L)	HGWC-102	0.2	n/a	6/18/2020	0.1ND	No 36	0.08088	0.05726	25	Kaplan-Meier	No	0.0009403	Param Inter 1 of 2
Fluoride (mg/L)	HGWC-103	0.2	n/a	3/25/2020	0.1ND	No 36	0.08088	0.05726	25	Kaplan-Meier	No	0.0009403	Param Inter 1 of 2
Fluoride (mg/L)	HGWC-105	0.2	n/a	3/25/2020	0.1ND	No 36	0.08088	0.05726	25	Kaplan-Meier	No		Param Inter 1 of 2
Fluoride (mg/L)	HGWC-107	0.2	n/a	3/25/2020			0.08088	0.05726	25	•	No		Param Inter 1 of 2
Fluoride (mg/L)	HGWC-109	0.2	n/a	3/25/2020			0.08088	0.05726	25	•	No	0.0009403	Param Inter 1 of 2
Fluoride (mg/L)	HGWC-117	0.2	n/a	3/24/2020			0.08088	0.05726	25	•	No		Param Inter 1 of 2
Fluoride (mg/L)	HGWC-118	0.2	n/a	3/25/2020		No 36	0.08088	0.05726	25	Kaplan-Meier	No	0.0009403	Param Inter 1 of 2
pH (s.u.)	HGWC-101	7.4	5.5	3/25/2020		No 36		n/a	0	n/a	n/a	0.002737	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-102	7.4	5.5	6/18/2020		No 36		n/a	0	n/a	n/a	0.002737	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-103	7.4	5.5	3/25/2020	5.49	Yes 36	n/a	n/a	0	n/a	n/a	0.002737	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-105	7.4	5.5	3/25/2020		No 36		n/a	0	n/a	n/a	0.002737	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-107	7.4	5.5	3/25/2020	6.13	No 36	n/a	n/a	0	n/a	n/a	0.002737	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-109	7.4	5.5	3/25/2020	6.56	No 36	n/a	n/a	0	n/a	n/a	0.002737	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-117	7.4	5.5	3/24/2020	5.99	No 36		n/a	0	n/a	n/a	0.002737	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-118	7.4	5.5	3/25/2020		No 36		n/a	0	n/a	n/a	0.002737	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-101	14	n/a	3/25/2020		Yes 33	n/a	n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-102	14	n/a	6/18/2020	349	Yes 33	n/a	n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-103	14	n/a	3/25/2020		Yes 33		n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-105	14	n/a	3/25/2020		Yes 33		n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-107	14	n/a	3/25/2020		Yes 33		n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-109	14	n/a	3/25/2020		Yes 33		n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-117	14	n/a	3/24/2020		Yes 33		n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-118	14	n/a	3/25/2020		Yes 33		n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Total Dissolved Solids (mg/L)	HGWC-101	250	n/a	3/25/2020		No 32		0.7713	0	None	x^(1/3)		Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-102	250	n/a	6/18/2020		Yes 32		0.7713	0	None	x^(1/3)		Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-103	250	n/a	3/25/2020		Yes 32		0.7713	0	None	x^(1/3)		Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-105	250	n/a	3/25/2020		Yes 32		0.7713	0	None	x^(1/3)		Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-107	250	n/a	3/25/2020		Yes 32		0.7713	0	None	x^(1/3)		Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-109	250	n/a	3/25/2020		No 32		0.7713	0	None	x^(1/3)		Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-117	250	n/a	3/24/2020		Yes 32		0.7713	0	None	x^(1/3)		Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-118	250	n/a	3/25/2020		Yes 32		0.7713	0	None	x^(1/3)		Param Inter 1 of 2
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Appendix III Trend Tests - Prediction Limit Exceedances - Significant Results

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	Plant Hammond Client: Southern Company Data: Hammond AP-4 Printed 7/16/2020, 2:44 PM										
Constituent	Well	Slope	Calc.	Critical	Sig.	<u>N</u>	%NDs	Normality	<u>Xform</u>	<u>Alpha</u>	Method
Boron (mg/L)	HGWC-107	0.05006	43	38	Yes	12	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWA-113 (bg)	-1.874	-43	-34	Yes	11	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWC-105	-8.601	-45	-38	Yes	12	0	n/a	n/a	0.01	NP

Appendix III Trend Tests - Prediction Limit Exceedances - All Results Plant Hammond Client: Southern Company Data: Hammond AP-4 Printed 7/16/2020, 2:44 PM

	Plant Hammond	Client: Southern Compa	ny Data: Ha	ammond A	P-4 Prin	ted 7/1						
Constituent	Well		Slope	Calc.	Critical	Sig.	<u>N</u>	%NDs	Normality	Xform	<u>Alpha</u>	Method
Boron (mg/L)	HGWA-111 (bg)		-0.002212	-16	-34	No	11	18.18	n/a	n/a	0.01	NP
Boron (mg/L)	HGWA-112 (bg)		-0.001613	-14	-34	No	11	27.27	n/a	n/a	0.01	NP
Boron (mg/L)	HGWA-113 (bg)		-0.002853	-16	-34	No	11	9.091	n/a	n/a	0.01	NP
Boron (mg/L)	HGWC-102		-0.6991	-2	-12	No	5	0	n/a	n/a	0.01	NP
Boron (mg/L)	HGWC-103		0.02703	14	38	No	12	0	n/a	n/a	0.01	NP
Boron (mg/L)	HGWC-105		0.04572	17	34	No	11	0	n/a	n/a	0.01	NP
Boron (mg/L)	HGWC-107		0.05006	43	38	Yes	12	0	n/a	n/a	0.01	NP
Boron (mg/L)	HGWC-109		-0.01236	-20	-38	No	12	0	n/a	n/a	0.01	NP
Boron (mg/L)	HGWC-117		0.02526	19	34	No	11	0	n/a	n/a	0.01	NP
Boron (mg/L)	HGWC-118		-0.0216	-13	-34	No	11	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWA-111 (bg)		4.806	11	34	No	11	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWA-112 (bg)		0.0167	5	34	No	11	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWA-113 (bg)		0.3746	24	34	No	11	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWC-102		-42.96	-2	-12	No	5	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWC-103		5.162	30	38	No	12	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWC-105		4.827	36	38	No	12	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWC-117		1.467	9	38	No	12	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWC-118		0.9722	12	38	No	12	0	n/a	n/a	0.01	NP
Chloride (mg/L)	HGWA-111 (bg)		-0.07374	-1	-34	No	11	0	n/a	n/a	0.01	NP
Chloride (mg/L)	HGWA-112 (bg)		0.1134	19	34	No	11	0	n/a	n/a	0.01	NP
Chloride (mg/L)	HGWA-113 (bg)		-0.08753	-19	-34	No	11	0	n/a	n/a	0.01	NP
Chloride (mg/L)	HGWC-102		-1.861	-6	-12	No	5	0	n/a	n/a	0.01	NP
Chloride (mg/L)	HGWC-117		1.481	20	34	No	11	0	n/a	n/a	0.01	NP
pH (s.u.)	HGWA-111 (bg)		0.0729	7	38	No	12	0	n/a	n/a	0.01	NP
pH (s.u.)	HGWA-112 (bg)		-0.006326	-2	-38	No	12	0	n/a	n/a	0.01	NP
pH (s.u.)	HGWA-113 (bg)		0.01899	13	38	No	12	0	n/a	n/a	0.01	NP
pH (s.u.)	HGWC-103		-0.01538	-16	-43	No	13	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWA-111 (bg)		0	2	34	No	11	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWA-112 (bg)		-0.0125	-12	-34	No	11	9.091	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWA-113 (bg)		-1.874	-43	-34	Yes	11	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWC-101		-4.024	-25	-38	No	12	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWC-102		140.5	2	12	No	5	20	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWC-103		7.785	10	38	No	12	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWC-105		-8.601	-45	-38	Yes	12	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWC-107		0	-10	-38	No	12	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWC-109		-2.35	-20	-38	No	12	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWC-117		-5.533	-16	-38	No	12	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWC-118		-2.25	-22	-38	No	12	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWA-111 (bg)		9.812	9	34	No	11	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWA-112 (bg)		1.134	3	30	No	10	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWA-113 (bg)		-2.626	-4	-34	No	11	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWC-102		-131.9	-4	-12	No	5	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWC-103		-1.807	-5	-38	No	12	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWC-105		12.77	10	38	No	12	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWC-107		17.93	18	38	No	12	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWC-117		-10.59	-14	-38	No	12	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWC-118		-10.05	-17	-38	No	12	0	n/a	n/a	0.01	NP

Tolerance Limit Summary Table

Plant Hammond Client: Southern Company Data: Hammond AP-4 Printed 7/16/2020, 2:47 PM Upper Lim.Lower Lim.Date %NDs ND Adj. Constituent <u>Well</u> Observ. Sig. Bg N Bg Mean Std. Dev. Transform Alpha Method 0.0030 n/a n/a 27 100 n/a n/a NP Inter(NDs) Antimony (mg/L) n/a n/a n/a n/a 0.0050 n/a 33 93.94 n/a 0.184 NP Inter(NDs) Arsenic (mg/L) n/a n/a n/a n/a n/a n/a n/a Barium (mg/L) 0.034 n/a n/a n/a 33 0.02766 0.002762 0 None No 0.05 Inter n/a n/a NP Inter(NDs) Beryllium (mg/L) n/a 0.0030 n/a n/a n/a n/a 33 n/a n/a 96.97 n/a n/a 0.184 Cadmium (mg/L) 0.0025 NP Inter(NDs) n/a n/a n/a n/a n/a 33 n/a n/a 100 n/a n/a 0.184 Chromium (mg/L) n/a 0.009 n/a n/a 33 -6.416 0.7793 24.24 Kaplan-Meier In(x) 0.05 Inter NP Inter(NDs) Cobalt (mg/L) 0.0050 87.88 n/a 0.184 n/a n/a n/a n/a 33 n/a n/a n/a n/a Combined Radium 226 & 228 (pCi/L) n/a 1.3 n/a n/a n/a 33 0.6677 0.3051 None No 0.05 Inter Fluoride (mg/L) 0.24 n/a n/a n/a 36 0.2649 0.1036 25 Kaplan-Meier 0.05 Inter n/a n/a sqrt(x) Lead (mg/L) 0.0050 n/a 33 75.76 n/a NP Inter(NDs) Lithium (mg/L) 0.030 n/a NP Inter(NDs) n/a n/a n/a n/a n/a 33 60.61 n/a 0.184 n/a n/a Mercury (mg/L) n/a 0.00050 n/a n/a 27 n/a 66.67 n/a 0.2503 NP Inter(NDs) Molybdenum (mg/L) 0.010 0.2503 NP Inter(NDs) n/a 27 100 n/a n/a n/a n/a n/a n/a n/a n/a Selenium (mg/L) n/a 0.010 n/a 27 70.37 n/a 0.2503 NP Inter(NDs) Thallium (mg/L) 0.0010 n/a 27 100 n/a n/a 0.2503 NP Inter(NDs) n/a n/a n/a n/a n/a n/a

PLANT HAMMOND AP-4 GWPS												
Constituent Name	MCL	Background Limit	GWPS									
Antimony, Total (mg/L)	0.006	0.003	0.006									
Arsenic, Total (mg/L)	0.01	0.005	0.01									
Barium, Total (mg/L)	2	0.034	2									
Beryllium, Total (mg/L)	0.004	0.003	0.004									
Cadmium, Total (mg/L)	0.005	0.0025	0.005									
Chromium, Total (mg/L)	0.1	0.01*	0.1									
Cobalt, Total (mg/L)		0.005	0.005									
Combined Radium, Total (pCi/L)	5	1.3	5									
Fluoride, Total (mg/L)	4	0.24	4									
Lead, Total (mg/L)		0.005	0.005									
Lithium, Total (mg/L)		0.03	0.03									
Mercury, Total (mg/L)	0.002	0.0005	0.002									
Molybdenum, Total (mg/L)		0.01	0.01									
Selenium, Total (mg/L)	0.05	0.01	0.05									
Thallium, Total (mg/L)	0.002	0.001	0.002									

^{*}No detections of chromium in upgradient wells. Background limit is established at the reporting limit of 0.01 mg/L.

^{*}MCL = Maximum Contaminant Level

^{*}GWPS = Groundwater Protection Standard

State Confidence Interval Summary - All Results (No Significant) Plant Hammond Client: Southern Company Data: Hammond AP-4 Printed 7/17/2020, 12:31 PM

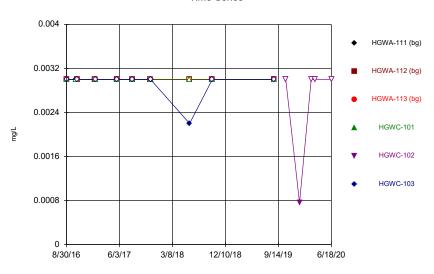
		Plant Hammond	Client: Sou	thern Compar	ny I	Data:	Hammond Al	P-4 Printed	7/17/20)20, 12:31 PM			
Constituent	<u>Well</u>	Upper Lim	. Lower Lim	. Compliance	Sig.	N	<u>Mean</u>	Std. Dev.	%NDs	ND Adj.	<u>Transform</u>	<u>Alpha</u>	Method
Antimony (mg/L)	HGWC-102	0.003	0.00076	0.006	No	5	0.002552	0.001002	80	None	No	0.031	NP (NDs)
Antimony (mg/L)	HGWC-103	0.003	0.0022	0.006	No	9	0.002911	0.0002667	88.89	None	No	0.002	NP (NDs)
Antimony (mg/L)	HGWC-107	0.003	0.0011	0.006	No	9	0.002789	0.0006333	88.89	None	No	0.002	NP (NDs)
Arsenic (mg/L)	HGWC-101	0.005	0.005	0.01	No	11	0.004581	0.00139	90.91	None	No	0.006	NP (NDs)
Arsenic (mg/L)	HGWC-102	0.001092	0.0003012	2 0.01	No	5	0.002386	0.002394	40	Kaplan-Meier	x^(1/3)	0.01	Param.
Arsenic (mg/L)	HGWC-109	0.003125	0.001366	0.01	No	11	0.002245	0.001056	0	None	No	0.01	Param.
Arsenic (mg/L)	HGWC-117	0.005	0.005	0.01	No	11	0.004579	0.001396	90.91	None	No	0.006	NP (NDs)
Barium (mg/L)	HGWC-101	0.04827	0.04033	2	No	11	0.0443	0.00477	0	None	No	0.01	Param.
Barium (mg/L)	HGWC-102	0.04078	0.02282	2	No	5	0.0318	0.005357	0	None	No	0.01	Param.
Barium (mg/L)	HGWC-103	0.04214	0.03379	2	No	11	0.03796	0.005012	0	None	No	0.01	Param.
Barium (mg/L)	HGWC-105	0.074	0.066	2	No	11	0.06791	0.003281	0	None	No	0.006	NP (normality)
Barium (mg/L)	HGWC-107	0.03945	0.03773	2	No	11	0.03859	0.001037	0	None	No	0.01	Param.
Barium (mg/L)	HGWC-109	0.09012	0.08269	2	No	11	0.08641	0.004457	0	None	No	0.01	Param.
Barium (mg/L)	HGWC-117	0.05105	0.03864	2	No	11	0.04485	0.007443	0	None	No	0.01	Param.
Barium (mg/L)	HGWC-118	0.0646	0.05514	2	No	11	0.05987	0.005676	0	None	No	0.01	Param.
Beryllium (mg/L)	HGWC-101	0.003	0.000065			11	0.001934	0.00148	63.64	None	No		NP (NDs)
Beryllium (mg/L)	HGWC-117	0.003	0.000079	0.004		11	0.002468	0.001184	81.82		No		NP (NDs)
Cadmium (mg/L)	HGWC-101	0.0003	0.0001	0.005		11	0.0002732	0.000329	9.091	None	No		NP (normality)
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Cadmium (mg/L)	HGWC-102		0.0000397			5	0.000374		0	None	No No	0.01	Param.
Cadmium (mg/L)	HGWC-103		0.0006356			11	0.0007182	0.00009908		None	No No	0.01	Param.
Cadmium (mg/L)	HGWC-107	0.00125	0.00009	0.005		11	0.0005182	0.0005803	36.36	None	No No		NP (normality)
Cadmium (mg/L)	HGWC-117		0.0005208			11	0.0006445		0	None	No	0.01	Param.
Chromium (mg/L)	HGWC-101	0.01	0.00064	0.1		11	0.007475	0.004326		None	No		NP (NDs)
Chromium (mg/L)	HGWC-102	0.01	0.00051	0.1		5	0.006228	0.005165	60	None	No		NP (NDs)
Chromium (mg/L)	HGWC-103	0.01	0.00063	0.1		11	0.007507	0.004277		None	No		NP (NDs)
Chromium (mg/L)	HGWC-105	0.01	0.0013	0.1		11	0.008336	0.003707	81.82		No		NP (NDs)
Chromium (mg/L)	HGWC-107	0.01	0.01	0.1		11	0.009158	0.002792	90.91		No		NP (NDs)
Chromium (mg/L)	HGWC-109	0.01	0.0014	0.1	No	11	0.008365	0.003641	81.82	None	No		NP (NDs)
Chromium (mg/L)	HGWC-117	0.01	0.01	0.1	No	11	0.0092	0.002653		None	No		NP (NDs)
Chromium (mg/L)	HGWC-118	0.01	0.00081	0.1	No	11	0.008315	0.003748	81.82	None	No	0.006	NP (NDs)
Cobalt (mg/L)	HGWC-101	0.002956	0.001862	0.005	No	11	0.002409	0.0006564	9.091	None	No	0.01	Param.
Cobalt (mg/L)	HGWC-102	0.003796	0.0005242	2 0.005	No	5	0.00216	0.0009762	0	None	No	0.01	Param.
Cobalt (mg/L)	HGWC-103	0.002451	0.001676	0.005	No	11	0.002064	0.0004653	0	None	No	0.01	Param.
Cobalt (mg/L)	HGWC-105	0.0009181	0.0004465	0.005	No	11	0.001046	0.0007903	18.18	Kaplan-Meier	ln(x)	0.01	Param.
Cobalt (mg/L)	HGWC-109	0.002246	0.001319	0.005	No	11	0.001783	0.0005565	0	None	No	0.01	Param.
Cobalt (mg/L)	HGWC-117	0.00848	0.004047	0.005	No	11	0.006264	0.00266	0	None	No	0.01	Param.
Cobalt (mg/L)	HGWC-118	0.0025	0.0003	0.005	No	11	0.001555	0.001088	54.55	None	No	0.006	NP (NDs)
Combined Radium 226 & 228 (pCi/L)	HGWC-101	1.071	0.4831	5	No	11	0.7772	0.3529	0	None	No	0.01	Param.
Combined Radium 226 & 228 (pCi/L)	HGWC-102	1.466	0.586	5	No	5	1.026	0.2624	0	None	No	0.01	Param.
Combined Radium 226 & 228 (pCi/L)	HGWC-103	1.104	0.4475	5	No	11	0.7756	0.3938	0	None	No	0.01	Param.
Combined Radium 226 & 228 (pCi/L)	HGWC-105	0.9996	0.5522	5	No	11	0.7759	0.2684	0	None	No	0.01	Param.
Combined Radium 226 & 228 (pCi/L)	HGWC-107	1.32	0.6196	5	No	11	0.9696	0.4201	0	None	No	0.01	Param.
Combined Radium 226 & 228 (pCi/L)	HGWC-109	0.878	0.4515	5	No	11	0.6647	0.2559	0	None	No	0.01	Param.
Combined Radium 226 & 228 (pCi/L)	HGWC-117	1.024	0.5262	5	No	11	0.775	0.2985	0	None	No	0.01	Param.
Combined Radium 226 & 228 (pCi/L)	HGWC-118	1.39	0.4518	5	No	10	0.921	0.5258	0	None	No	0.01	Param.
Fluoride (mg/L)	HGWC-101	0.1	0.05	4	No	12	0.09	0.02374	83.33	None	No	0.01	NP (NDs)
Fluoride (mg/L)	HGWC-102	0.22	0.1	4	No	5	0.124	0.05367	80	None	No	0.031	NP (NDs)
Fluoride (mg/L)	HGWC-103	0.13	0.06	4	No	12	0.0985	0.02753	66.67	None	No	0.01	NP (NDs)
Fluoride (mg/L)	HGWC-105	0.1153	0.0487	4	No	12	0.0895	0.0351	41.67	Kaplan-Meier	No	0.01	Param.
Fluoride (mg/L)	HGWC-107	0.1044	0.02939	4	No	12	0.09275	0.04254	50	Kaplan-Meier	No	0.01	Param.
Fluoride (mg/L)	HGWC-109	0.1291	0.05501	4	No	12	0.09983	0.04165	16.67	Kaplan-Meier	No	0.01	Param.
Fluoride (mg/L)	HGWC-117	0.19	0.042	4	No	12	0.1102	0.06804	41.67	None	No	0.01	NP (normality)
Fluoride (mg/L)	HGWC-118	0.2752	0.08951	4	No	13	0.215	0.2229	0	None	ln(x)	0.01	Param.
Lead (mg/L)	HGWC-101	0.005	0.005	0.005	No	11	0.004627	0.001236	90.91	None	No	0.006	NP (NDs)
Lead (mg/L)	HGWC-102	0.005	0.00011	0.005	No	5	0.004022	0.002187	80	None	No	0.031	NP (NDs)

State Confidence Interval Summary - All Results (No Significant) Page 2

	Plant	Hammond	Client: Sou	ithern Compar	ıy l	Data:	Hammond A	P-4 Printed	7/17/20	020, 12:31 PM			
Constituent	Well	Upper Lim	n. Lower Lim	. Compliance	Sig.	<u>N</u>	Mean	Std. Dev.	%NDs	ND Adj.	Transform	<u>Alpha</u>	Method
Lead (mg/L)	HGWC-103	0.005	0.00043	0.005	No	11	0.004137	0.001922	81.82	None	No	0.006	NP (NDs)
Lead (mg/L)	HGWC-105	0.005	0.000085	0.005	No	11	0.004105	0.001992	81.82	None	No	0.006	NP (NDs)
Lead (mg/L)	HGWC-107	0.005	0.00021	0.005	No	11	0.004117	0.001964	81.82	None	No	0.006	NP (NDs)
Lead (mg/L)	HGWC-109	0.005	0.000058	0.005	No	11	0.004101	0.002	81.82	None	No	0.006	NP (NDs)
Lead (mg/L)	HGWC-117	0.005	0.00025	0.005	No	11	0.004128	0.00194	81.82	None	No	0.006	NP (NDs)
Lead (mg/L)	HGWC-118	0.005	0.00025	0.005	No	11	0.004123	0.001952	81.82	None	No	0.006	NP (NDs)
Lithium (mg/L)	HGWC-102	0.001468	0.0008278	3 0.03	No	5	0.001148	0.0001911	0	None	No	0.01	Param.
Lithium (mg/L)	HGWC-103	0.03	0.0015	0.03	No	11	0.009336	0.01327	27.27	None	No	0.006	NP (normality)
Lithium (mg/L)	HGWC-105	0.004255	0.003818	0.03	No	11	0.004036	0.0002618	0	None	No	0.01	Param.
Lithium (mg/L)	HGWC-107	0.03	0.00092	0.03	No	11	0.01943	0.01466	63.64	None	No	0.006	NP (NDs)
Lithium (mg/L)	HGWC-109	0.03	0.0009	0.03	No	11	0.01687	0.01508	54.55	None	No	0.006	NP (NDs)
Lithium (mg/L)	HGWC-117	0.03	0.0012	0.03	No	11	0.009755	0.01302	27.27	None	No	0.006	NP (normality)
Lithium (mg/L)	HGWC-118	0.03	0.0015	0.03	No	11	0.01717	0.01474	54.55	None	No	0.006	NP (NDs)
Mercury (mg/L)	HGWC-101	0.0005	0.000093	0.002	No	9	0.0004548	0.0001357	88.89	None	No	0.002	NP (NDs)
Mercury (mg/L)	HGWC-103	0.0005	80000.0	0.002	No	9	0.0004533	0.00014	88.89	None	No	0.002	NP (NDs)
Mercury (mg/L)	HGWC-109	0.0005	80000.0	0.002	No	9	0.0004533	0.00014	88.89	None	No	0.002	NP (NDs)
Mercury (mg/L)	HGWC-117	0.0005	0.00007	0.002	No	9	0.0004522	0.0001433	88.89	None	No	0.002	NP (NDs)
Selenium (mg/L)	HGWC-102	0.01	0.0015	0.05	No	5	0.0083	0.003801	80	None	No	0.031	NP (NDs)
Thallium (mg/L)	HGWC-102	0.001	0.00008	0.002	No	5	0.000816	0.0004114	80	None	No	0.031	NP (NDs)

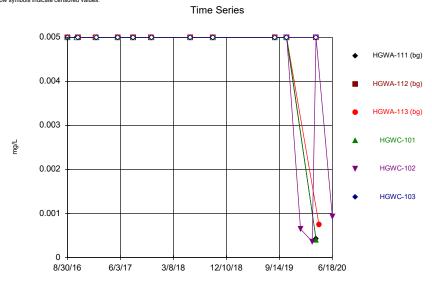
FIGURE A.

Time Series



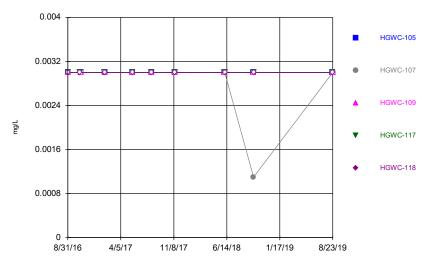
Constituent: Antimony Analysis Run 7/17/2020 12:24 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

Sanitas™ v.9.6.26f Sanitas software utilized by Groundwater Stats Consulting. EPA Hollow symbols indicate censored values.

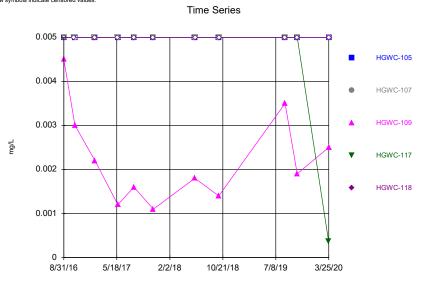


Constituent: Arsenic Analysis Run 7/17/2020 12:24 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

Time Series

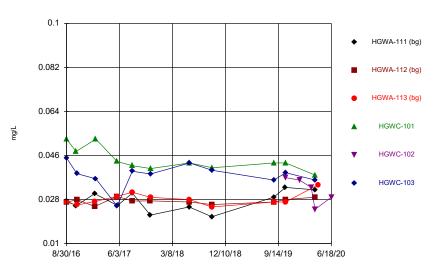


Constituent: Antimony Analysis Run 7/17/2020 12:24 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4



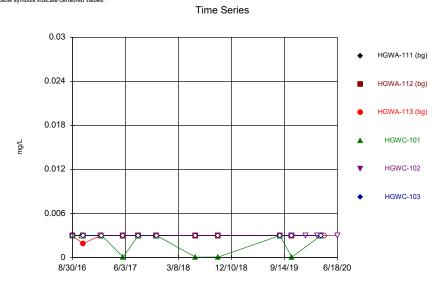
Constituent: Arsenic Analysis Run 7/17/2020 12:24 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4





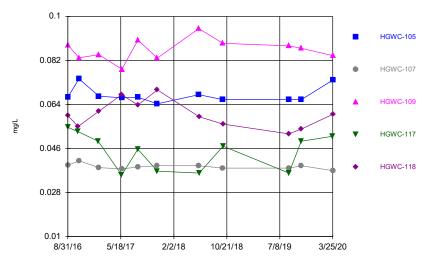
Constituent: Barium Analysis Run 7/17/2020 12:24 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

Sanitas™ v.9.6.26f Sanitas software utilized by Groundwater Stats Consulting. EPA Hollow symbols indicate censored values.

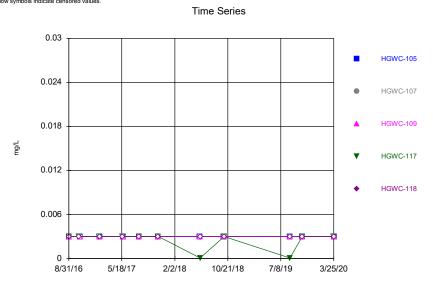


Constituent: Beryllium Analysis Run 7/17/2020 12:24 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

Time Series

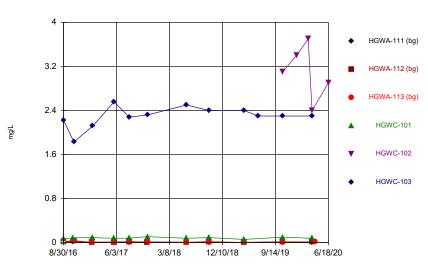


Constituent: Barium Analysis Run 7/17/2020 12:24 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4



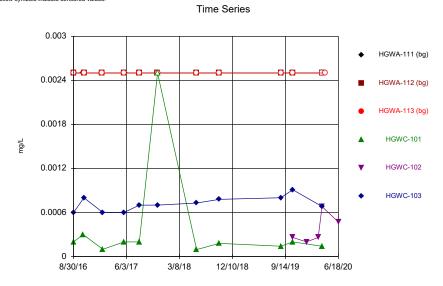
Constituent: Beryllium Analysis Run 7/17/2020 12:24 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4

Time Series



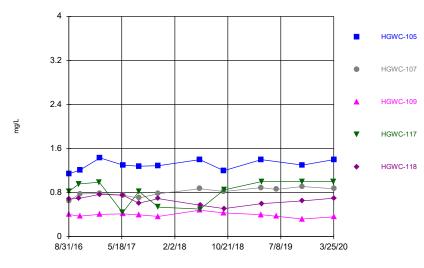
Constituent: Boron Analysis Run 7/17/2020 12:24 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

Sanitas™ v.9.6.26f Sanitas software utilized by Groundwater Stats Consulting. EPA Hollow symbols indicate censored values.

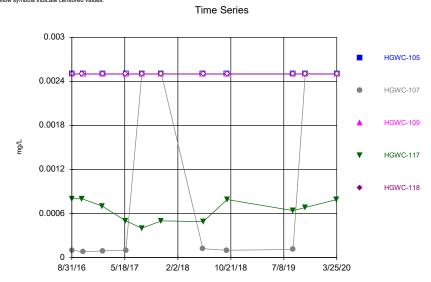


Constituent: Cadmium Analysis Run 7/17/2020 12:24 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

Time Series

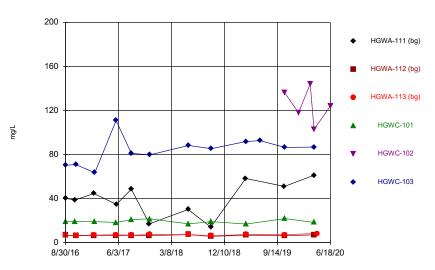


Constituent: Boron Analysis Run 7/17/2020 12:24 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4



Constituent: Cadmium Analysis Run 7/17/2020 12:24 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4





Constituent: Calcium Analysis Run 7/17/2020 12:24 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4

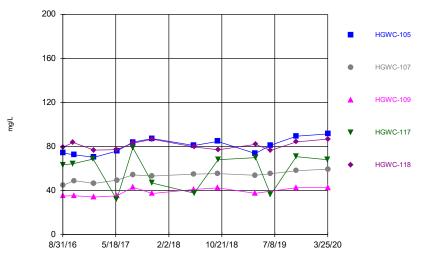
Time Series

Sanitas™ v.9.6.26f Sanitas software utilized by Groundwater Stats Consulting. EPA

20 HGWA-111 (bg) 16 HGWA-112 (bg) 12 HGWC-101 HGWC-102 HGWC-103

Constituent: Chloride Analysis Run 7/17/2020 12:24 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4

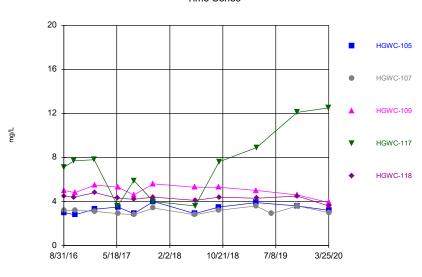
Time Series



Constituent: Calcium Analysis Run 7/17/2020 12:24 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

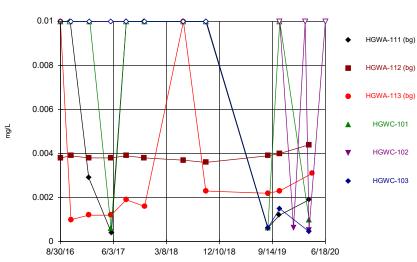
Sanitas™ v.9.6.26f Sanitas software utilized by Groundwater Stats Consulting. EPA

Time Series



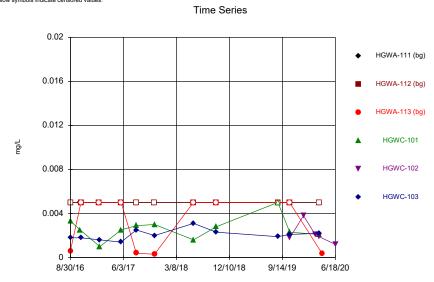
Constituent: Chloride Analysis Run 7/17/2020 12:24 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4





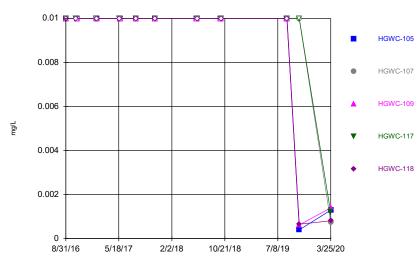
Constituent: Chromium Analysis Run 7/17/2020 12:24 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

Sanitas™ v.9.6.26f Sanitas software utilized by Groundwater Stats Consulting. EPA Hollow symbols indicate censored values.

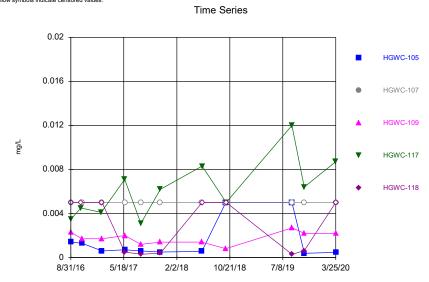


Constituent: Cobalt Analysis Run 7/17/2020 12:24 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

Time Series

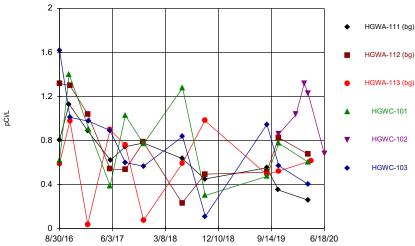


Constituent: Chromium Analysis Run 7/17/2020 12:24 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4



Constituent: Cobalt Analysis Run 7/17/2020 12:24 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

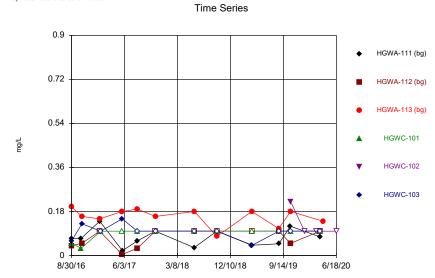




Time Series

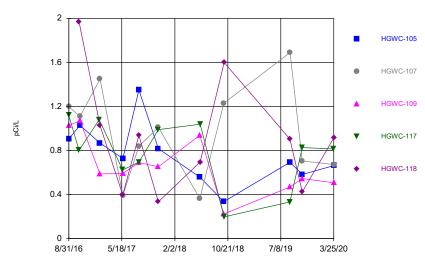
Constituent: Combined Radium 226 & 228 Analysis Run 7/17/2020 12:24 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

Sanitas™ v.9.6.26f Sanitas software utilized by Groundwater Stats Consulting. EPA

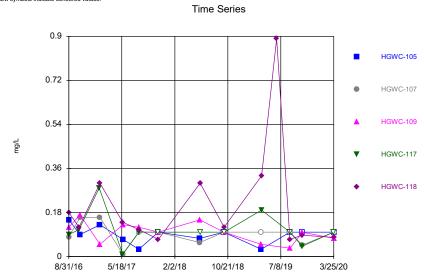


Constituent: Fluoride Analysis Run 7/17/2020 12:24 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

Time Series

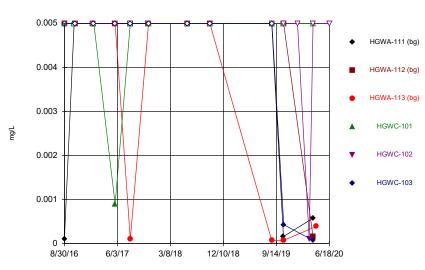


Constituent: Combined Radium 226 & 228 Analysis Run 7/17/2020 12:24 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4



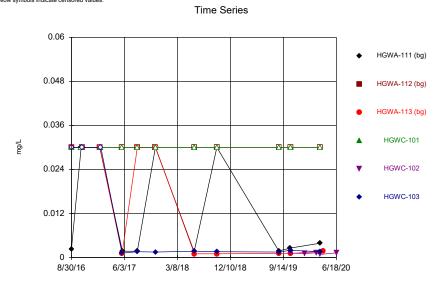
Constituent: Fluoride Analysis Run 7/17/2020 12:24 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4





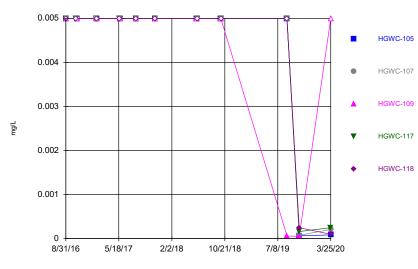
Constituent: Lead Analysis Run 7/17/2020 12:24 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

Sanitas™ v.9.6.26f Sanitas software utilized by Groundwater Stats Consulting. EPA Hollow symbols indicate censored values.

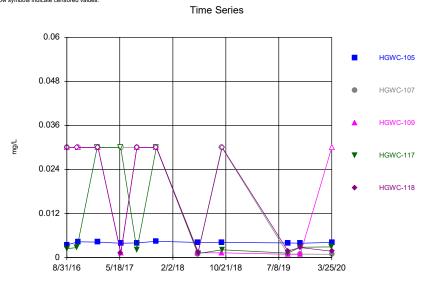


Constituent: Lithium Analysis Run 7/17/2020 12:24 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

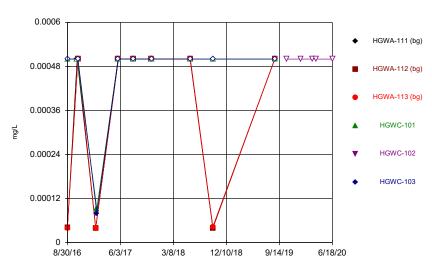




Constituent: Lead Analysis Run 7/17/2020 12:24 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

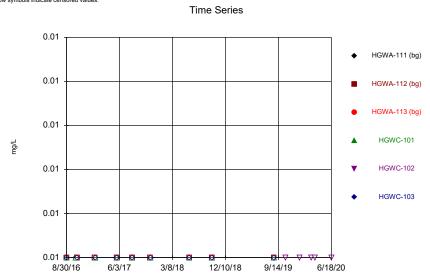


Constituent: Lithium Analysis Run 7/17/2020 12:24 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4



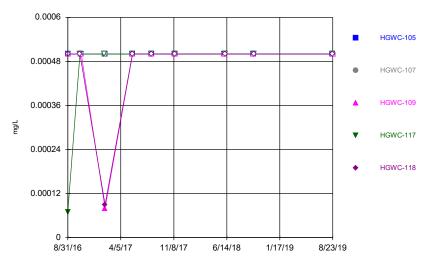
Constituent: Mercury Analysis Run 7/17/2020 12:24 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4

Sanitas™ v.9.6.26f Sanitas software utilized by Groundwater Stats Consulting. EPA Hollow symbols indicate censored values.

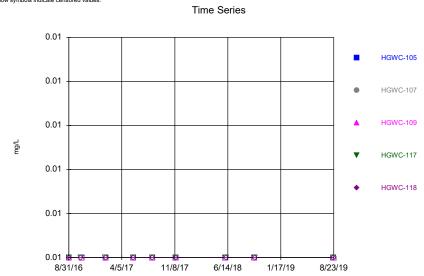


Constituent: Molybdenum Analysis Run 7/17/2020 12:24 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

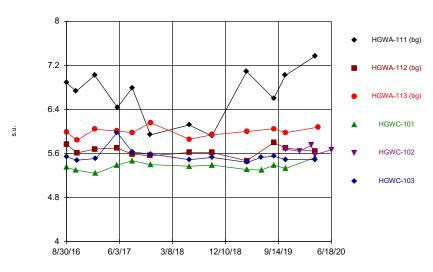
Time Series



Constituent: Mercury Analysis Run 7/17/2020 12:24 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4

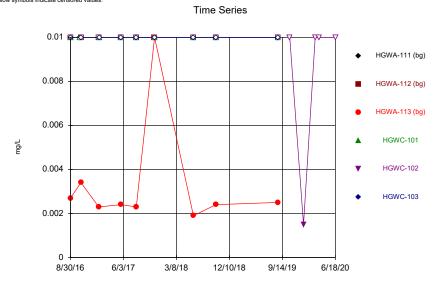


Constituent: Molybdenum Analysis Run 7/17/2020 12:24 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4



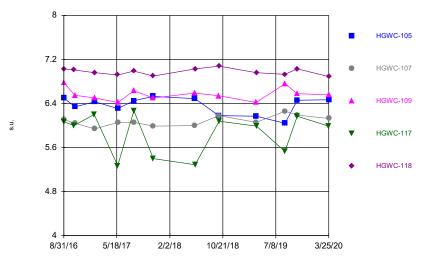
Constituent: pH Analysis Run 7/17/2020 12:24 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

Sanitas™ v.9.6.26f Sanitas software utilized by Groundwater Stats Consulting. EPA Hollow symbols indicate censored values.

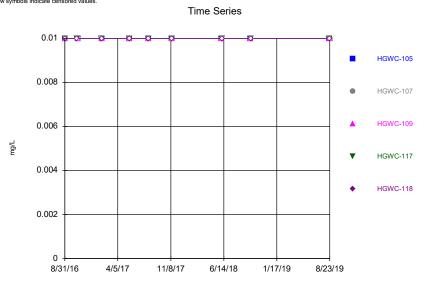


Constituent: Selenium Analysis Run 7/17/2020 12:24 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

Time Series

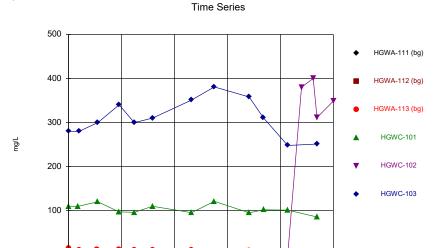


Constituent: pH Analysis Run 7/17/2020 12:24 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4



Constituent: Selenium Analysis Run 7/17/2020 12:24 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4

lollow symbols indicate censored values.



Constituent: Sulfate Analysis Run 7/17/2020 12:24 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

12/10/18

3/8/18

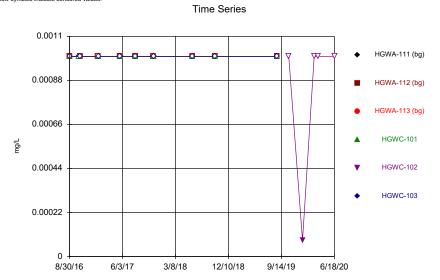
9/14/19

6/18/20

Sanitas™ v.9.6.26f Sanitas software utilized by Groundwater Stats Consulting. EPA Hollow symbols indicate censored values.

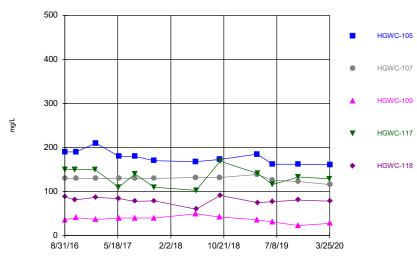
8/30/16

6/3/17

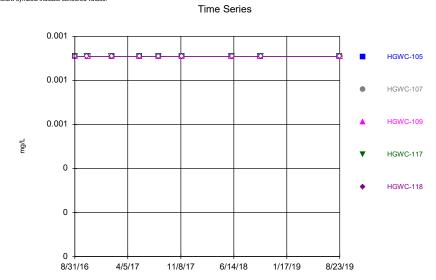


Constituent: Thallium Analysis Run 7/17/2020 12:24 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4

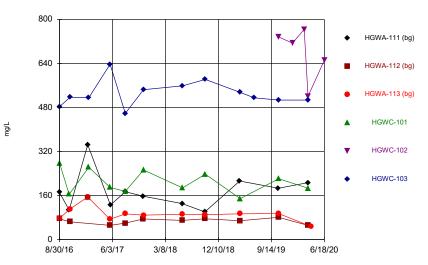
Time Series



Constituent: Sulfate Analysis Run 7/17/2020 12:24 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4

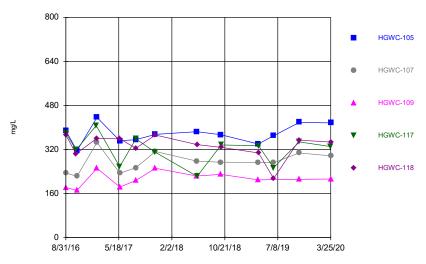


Constituent: Thallium Analysis Run 7/17/2020 12:24 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4



Constituent: Total Dissolved Solids Analysis Run 7/17/2020 12:25 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

Time Series



Constituent: Total Dissolved Solids Analysis Run 7/17/2020 12:25 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

Constituent: Antimony (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWA-111 (bg)	HGWA-112 (bg)	HGWA-113 (bg)	HGWC-101	HGWC-102	HGWC-103	HGWC-105	HGWC-107	HGWC-109
8/30/2016	<0.003	<0.003	<0.003						
8/31/2016				<0.003		<0.003	<0.003	<0.003	<0.003
10/20/2016	<0.003			<0.003					
10/24/2016		<0.003	<0.003			<0.003			
10/25/2016							<0.003	<0.003	<0.003
1/25/2017	<0.003	<0.003	<0.003						
1/31/2017				<0.003		<0.003	<0.003	<0.003	<0.003
5/23/2017		<0.003	<0.003	<0.003		<0.003			
5/24/2017	<0.003						<0.003	<0.003	<0.003
8/10/2017	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003
11/13/2017	<0.003	<0.003							
11/14/2017			<0.003	<0.003		<0.003	<0.003	<0.003	<0.003
6/4/2018	<0.003	<0.003							
6/5/2018			<0.003						
6/6/2018				<0.003		0.0022 (J)	<0.003	<0.003	<0.003
10/1/2018	<0.003	<0.003	<0.003						
10/2/2018							<0.003	0.0011 (J)	<0.003
10/3/2018				<0.003		<0.003			
8/21/2019	<0.003	<0.003	<0.003						
8/22/2019				<0.003		<0.003	<0.003		
8/23/2019								<0.003	<0.003
10/23/2019					<0.003				
1/3/2020					0.00076 (J)				
3/4/2020					<0.003				
3/24/2020					<0.003				
6/18/2020					<0.003				

Constituent: Antimony (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWC-117	HGWC-118
8/31/2016	<0.003	<0.003
10/20/2016	<0.003	<0.003
1/27/2017	<0.003	
1/31/2017		<0.003
5/23/2017	<0.003	<0.003
8/10/2017	<0.003	<0.003
11/14/2017	<0.003	<0.003
6/7/2018	<0.003	<0.003
10/3/2018	<0.003	<0.003
8/22/2019	<0.003	< 0.003

Constituent: Arsenic (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWA-111 (bg)	HGWA-112 (bg)	HGWA-113 (bg)	HGWC-101	HGWC-102	HGWC-103	HGWC-105	HGWC-107	HGWC-109
8/30/2016	<0.005	<0.005	<0.005						
8/31/2016				<0.005		<0.005	<0.005	<0.005	0.0045 (J)
10/20/2016	<0.005			<0.005					
10/24/2016		<0.005	<0.005			<0.005			
10/25/2016							<0.005	<0.005	0.003 (J)
1/25/2017	<0.005	<0.005	<0.005						
1/31/2017				<0.005		<0.005	<0.005	<0.005	0.0022 (J)
5/23/2017		<0.005	<0.005	<0.005		<0.005			
5/24/2017	<0.005						<0.005	<0.005	0.0012 (J)
8/10/2017	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	0.0016 (J)
11/13/2017	<0.005	<0.005							
11/14/2017			<0.005	<0.005		<0.005	<0.005	<0.005	0.0011 (J)
6/4/2018	<0.005	<0.005							
6/5/2018			<0.005						
6/6/2018				<0.005		<0.005	<0.005	<0.005	0.0018 (J)
10/1/2018	<0.005	<0.005	<0.005						
10/2/2018							<0.005	<0.005	0.0014 (J)
10/3/2018				<0.005		<0.005			
8/21/2019	<0.005	<0.005	<0.005						
8/22/2019				<0.005		<0.005	<0.005		
8/23/2019								<0.005	0.0035 (J)
10/21/2019	<0.005								
10/22/2019		<0.005	<0.005					<0.005	0.0019 (J)
10/23/2019				<0.005	<0.005	<0.005	<0.005		
1/3/2020					0.00065 (J)				
3/4/2020					0.00036 (J)				
3/24/2020	0.00042 (J)	<0.005			<0.005				
3/25/2020				0.00039 (J)		<0.005	<0.005	<0.005	0.0025 (J)
4/9/2020			0.00074 (J)						
6/18/2020					0.00092 (J)				

Constituent: Arsenic (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWC-117	HGWC-118
8/31/2016	<0.005	<0.005
10/20/2016	<0.005	<0.005
1/27/2017	<0.005	
1/31/2017		<0.005
5/23/2017	<0.005	<0.005
8/10/2017	<0.005	<0.005
11/14/2017	<0.005	<0.005
6/7/2018	<0.005	<0.005
10/3/2018	<0.005	<0.005
8/22/2019	<0.005	<0.005
10/22/2019	<0.005	<0.005
3/24/2020	0.00037 (J)	
3/25/2020		< 0.005

Constituent: Barium (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

8/30/2016	HGWA-111 (bg) 0.0275	HGWA-112 (bg) 0.0269	HGWA-113 (bg) 0.0269	HGWC-101	HGWC-102	HGWC-103	HGWC-105	HGWC-107	HGWC-109
8/31/2016				0.0527		0.045	0.067	0.0391	0.0883
10/20/2016	0.0255			0.0477					
10/24/2016		0.028	0.0258			0.0386			
10/25/2016							0.0745	0.041	0.0831
1/25/2017	0.0304	0.0252	0.0272						
1/31/2017				0.0527		0.0365	0.0674	0.0382	0.0844
5/23/2017		0.0293	0.0293	0.0436		0.0254			
5/24/2017	0.0256						0.0668	0.0377	0.0784
8/10/2017	0.0306	0.0274	0.031	0.0419		0.0396	0.067	0.0385	0.0903
11/13/2017	0.0217	0.0275							
11/14/2017			0.0289	0.0407		0.0385	0.0643	0.039	0.083
6/4/2018	0.025	0.027							
6/5/2018			0.028						
6/6/2018				0.043		0.043	0.068	0.039	0.095
10/1/2018	0.021	0.026	0.025						
10/2/2018							0.066	0.038	0.089
10/3/2018				0.041		0.04			
8/21/2019	0.029	0.027	0.027						
8/22/2019				0.043		0.036	0.066		
8/23/2019								0.038	0.088
10/21/2019	0.033								
10/22/2019		0.028	0.027					0.039	0.087
10/23/2019				0.043	0.037	0.039	0.066		
1/3/2020					0.036				
3/4/2020					0.033				
3/24/2020	0.032	0.029			0.024				
3/25/2020				0.038		0.036	0.074	0.037	0.084
4/9/2020			0.034						
6/18/2020					0.029				

Constituent: Barium (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWC-117	HGWC-118
8/31/2016	0.0547	0.0595
10/20/2016	0.0529	0.055
1/27/2017	0.049	
1/31/2017		0.0613
5/23/2017	0.0352	0.068
8/10/2017	0.0457	0.0638
11/14/2017	0.0368	0.07
6/7/2018	0.036	0.059
10/3/2018	0.047	0.056
8/22/2019	0.036	0.052
10/22/2019	0.049	0.054
3/24/2020	0.051	
3/25/2020		0.06

Constituent: Beryllium (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

0/00/0010	HGWA-111 (bg)	HGWA-112 (bg)	HGWA-113 (bg)	HGWC-101	HGWC-102	HGWC-103	HGWC-105	HGWC-107	HGWC-109
8/30/2016	<0.003	<0.003	<0.003					0.000	
8/31/2016	-0.000			<0.003		<0.003	<0.003	<0.003	<0.003
10/20/2016	<0.003	-0.000	0.0010 (1)	<0.003		-0.000			
10/24/2016		<0.003	0.0019 (J)			<0.003			
10/25/2016 1/25/2017	<0.003	<0.003	<0.003				<0.003	<0.003	<0.003
	<0.003	<0.003	<0.003	-0.000		10.000	-0.000	-0.000	-0.000
1/31/2017		-0.000	-0.000	<0.003		<0.003	<0.003	<0.003	<0.003
5/23/2017	.0.000	<0.003	<0.003	7E-05 (J)		<0.003			
5/24/2017	<0.003	-0.000	-0.000	-0.000		-0.000	<0.003	<0.003	<0.003
8/10/2017	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003
11/13/2017	<0.003	<0.003		0.000		.0.000			
11/14/2017	-0.000	-0.000	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003
6/4/2018	<0.003	<0.003	-0.000						
6/5/2018			<0.003	5.05.05.(I)		-0.000	-0.000	-0.000	-0.000
6/6/2018	-0.000	-0.000	-0.000	5.9E-05 (J)		<0.003	<0.003	<0.003	<0.003
10/1/2018	<0.003	<0.003	<0.003				-0.000	-0.000	-0.000
10/2/2018				0.55.05.41)		-0.000	<0.003	<0.003	<0.003
10/3/2018			0.000	6.5E-05 (J)		<0.003			
8/21/2019	<0.003	<0.003	<0.003	-0.000		-0.000	-0.000		
8/22/2019				<0.003		<0.003	<0.003	-0.000	-0.000
8/23/2019	-0.000							<0.003	<0.003
10/21/2019	<0.003	-0.000	-0.000					-0.000	-0.000
10/22/2019		<0.003	<0.003	7.55.05.41)	-0.000	<0.003	-0.000	<0.003	<0.003
10/23/2019				7.5E-05 (J)	<0.003	<0.003	<0.003		
1/3/2020					<0.003				
3/4/2020	-0.000	<0.003			<0.003				
3/24/2020	<0.003	<0.003		-0.000	<0.003	-0.000	-0.000	-0.000	-0.000
3/25/2020			-0.000	<0.003		<0.003	<0.003	<0.003	<0.003
4/9/2020			<0.003		10.000				
6/18/2020					<0.003				

Constituent: Beryllium (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWC-117	HGWC-118
8/31/2016	<0.003	<0.003
10/20/2016	<0.003	<0.003
1/27/2017	<0.003	
1/31/2017		<0.003
5/23/2017	<0.003	<0.003
8/10/2017	<0.003	<0.003
11/14/2017	<0.003	<0.003
6/7/2018	6.8E-05 (J)	<0.003
10/3/2018	<0.003	<0.003
8/22/2019	7.9E-05 (J)	<0.003
10/22/2019	<0.003	<0.003
3/24/2020	<0.003	
3/25/2020		< 0.003

Constituent: Boron (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWA-111 (bg)	HGWA-112 (bg)	HGWA-113 (bg)	HGWC-101	HGWC-102	HGWC-103	HGWC-105	HGWC-107	HGWC-109
8/30/2016	<0.04	<0.04	<0.04						
8/31/2016				0.0724 (J)		2.22	1.14	0.651	0.402
10/20/2016	0.016 (J)			0.0877 (J)					
10/24/2016		0.0367 (J)	0.0226 (J)			1.83			
10/25/2016							1.21	0.778	0.372
1/25/2017	0.0095 (J)	0.0075 (J)	0.009 (J)						
1/31/2017				0.0928		2.12	1.43	0.782	0.404
5/23/2017		0.0073 (J)	0.0082 (J)	0.0795		2.56			
5/24/2017	0.0094 (J)						1.3	0.753	0.415
8/10/2017	<0.04	<0.04	0.0061 (J)	0.0814		2.28	1.28	0.702	0.397
11/13/2017	0.0103 (J)	0.0089 (J)							
11/14/2017			0.012 (J)	0.108		2.32	1.29	0.78	0.366
6/4/2018	0.0065 (J)	0.007 (J)							
6/5/2018			0.0085 (J)						
6/6/2018				0.081		2.5	1.4	0.87	0.48
10/1/2018	0.0054 (J)	<0.04	0.0042 (J)						
10/2/2018							1.2	0.82	0.43
10/3/2018				0.092		2.4			
4/1/2019	0.0076 (J)								
4/2/2019		0.0043 (J)	0.0059 (J)						
4/3/2019								0.89	0.4
4/4/2019				0.06 (X)		2.4	1.4 (X)		
6/17/2019						2.3		0.86	0.37
10/21/2019	0.0097 (J)								
10/22/2019		0.016 (J)	0.01 (J)					0.91	0.32
10/23/2019				0.1	3.1	2.3	1.3		
1/3/2020					3.4				
3/4/2020					3.7				
3/24/2020	0.011 (J)	0.012 (J)			2.4				
3/25/2020				0.08 (J)		2.3	1.4	0.87	0.36
4/9/2020			0.012 (J)						
6/18/2020					2.9				

Constituent: Boron (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWC-117	HGWC-118
8/31/2016	0.821	0.681
10/20/2016	0.956	0.697
1/27/2017	0.99	
1/31/2017		0.768
5/23/2017	0.438	0.754
8/10/2017	0.821	0.608
11/14/2017	0.536	0.691
6/7/2018	0.5	0.57
10/3/2018	0.85	0.51
4/5/2019	1 (X)	0.6 (X)
10/22/2019	1	0.65
3/24/2020	1	
3/25/2020		0.7

Constituent: Cadmium (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWA-111 (bg)	HGWA-112 (bg)	HGWA-113 (bg)	HGWC-101	HGWC-102	HGWC-103	HGWC-105	HGWC-107	HGWC-109
8/30/2016	<0.0025	<0.0025	<0.0025						
8/31/2016				0.0002 (J)		0.0006 (J)	<0.0025	0.0001 (J)	<0.0025
10/20/2016	<0.0025			0.0003 (J)					
10/24/2016		<0.0025	<0.0025			0.0008 (J)			
10/25/2016							<0.0025	8E-05 (J)	<0.0025
1/25/2017	<0.0025	<0.0025	<0.0025						
1/31/2017				0.0001 (J)		0.0006 (J)	<0.0025	9E-05 (J)	<0.0025
5/23/2017		<0.0025	<0.0025	0.0002 (J)		0.0006 (J)			
5/24/2017	<0.0025						<0.0025	0.0001 (J)	<0.0025
8/10/2017	<0.0025	<0.0025	<0.0025	0.0002 (J)		0.0007 (J)	<0.0025	<0.0025	<0.0025
11/13/2017	<0.0025	<0.0025							
11/14/2017			<0.0025	<0.0025		0.0007 (J)	<0.0025	<0.0025	<0.0025
6/4/2018	<0.0025	<0.0025							
6/5/2018			<0.0025						
6/6/2018				9.5E-05 (J)		0.00073 (J)	<0.0025	0.00012 (J)	<0.0025
10/1/2018	<0.0025	<0.0025	<0.0025						
10/2/2018							<0.0025	0.0001 (J)	<0.0025
10/3/2018				0.00018 (J)		0.00078 (J)			
8/21/2019	<0.0025	<0.0025	<0.0025						
8/22/2019				0.00014 (J)		0.0008 (J)	<0.0025		
8/23/2019								0.00011 (J)	<0.0025
10/21/2019	<0.0025								
10/22/2019		<0.0025	<0.0025					<0.0025	<0.0025
10/23/2019				0.0002 (J)	0.00026 (J)	0.00091 (J)	<0.0025		
1/3/2020					0.0002 (J)				
3/4/2020					0.00026 (J)				
3/24/2020	<0.0025	<0.0025			0.00068 (J)				
3/25/2020				0.00014 (J)		0.00068 (J)	<0.0025	<0.0025	<0.0025
4/9/2020			<0.0025						
6/18/2020					0.00047 (J)				

Constituent: Cadmium (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWC-117	HGWC-118
8/31/2016	0.0008 (J)	<0.0025
10/20/2016	0.0008 (J)	<0.0025
1/27/2017	0.0007 (J)	
1/31/2017		<0.0025
5/23/2017	0.0005 (J)	<0.0025
8/10/2017	0.0004 (J)	<0.0025
11/14/2017	0.0005 (J)	<0.0025
6/7/2018	0.00049 (J)	<0.0025
10/3/2018	0.00079 (J)	<0.0025
8/22/2019	0.00064 (J)	<0.0025
10/22/2019	0.00068 (J)	<0.0025
3/24/2020	0.00079 (J)	
3/25/2020		<0.0025

Constituent: Calcium (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWA-111 (bg)	HGWA-112 (bg)	HGWA-113 (bg)	HGWC-101	HGWC-102	HGWC-103	HGWC-105	HGWC-107	HGWC-109
8/30/2016	40.3	6.69	6.72						
8/31/2016				19.4		70.4	74.2	44.7	35.1
10/20/2016	38.7			19.3					
10/24/2016		6.25	6.4			70.9			
10/25/2016							72.5	49	35.4
1/25/2017	44.6	6.58	6.87						
1/31/2017				19.1		63.6	70.3	46.6	34.2
5/23/2017		6.4	7.13	18.3		111			
5/24/2017	34.8						75.9	49.5	35.3
8/10/2017	48.6	6.54	6.71	20.9		81.2	84	54.2	43.1
11/13/2017	17.1	6.26							
11/14/2017			7.4	21.7		79.7	87.2	53.2	37.4
6/4/2018	30.1	7.4							
6/5/2018			7.4						
6/6/2018				17		88.3	81	55	41.1
10/1/2018	14.2 (J)	5.8	6.2						
10/2/2018							84.7	55.4	42.5
10/3/2018				19.1 (J)		85.3			
4/1/2019	58.4								
4/2/2019		6.7	7.4						
4/3/2019								54	37.5
4/4/2019				16.9		91.9	73.8		
6/17/2019						92.6	81.2	55.3	
10/21/2019	51								
10/22/2019		6.3	7.2					58.1	42.6
10/23/2019				21.9	136	86.5	89.4		
1/3/2020					118				
3/4/2020					144				
3/24/2020	61.2	7			103				
3/25/2020				18.4		86.8	91.4	59.5	42.6
4/9/2020			8.3						
6/18/2020					124				

Constituent: Calcium (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWC-117	HGWC-118
8/31/2016	63.4	79.3
10/20/2016	64.4	83.7
1/27/2017	68.6	
1/31/2017		76.8
5/23/2017	32	77.2
8/10/2017	78.9	83.1
11/14/2017	46.9	86.7
6/7/2018	37.7	79.7
10/3/2018	68	77.1
4/5/2019	70	82
6/18/2019	36.3	76.5
10/22/2019	70.9	84.2
3/24/2020	68	
3/25/2020		86.8

Constituent: Chloride (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWA-111 (bg)	HGWA-112 (bg)	HGWA-113 (bg)	HGWC-101	HGWC-102	HGWC-103	HGWC-105	HGWC-107	HGWC-109
8/30/2016	3.3	5.4	2						
8/31/2016				5.7		5.2	3	3.2	5
10/20/2016	3.2			5.7					
10/24/2016		5.2	1.9			5.2			
10/25/2016							2.8	3.2	4.8
1/25/2017	2.7	5	1.9						
1/31/2017				5.8		5.6	3.3	3.1	5.5
5/23/2017		5.1	1.6	5.3		5.7			
5/24/2017	3						3.5	2.9	5.3
8/10/2017	2.8	5.2	1.7	5.4		5.8	2.9	2.8	4.6
11/13/2017	2.5	5.5							
11/14/2017			2	5.8		6	4	3.4	5.6
6/4/2018	2.6	5.3							
6/5/2018			1.7						
6/6/2018				5.3		6.4	2.9	2.8	5.3
10/1/2018	2.2	5.6	1.6						
10/2/2018							3.5	3.2	5.3
10/3/2018				5.8		6.3			
4/1/2019	4								
4/2/2019		5.7	1.8						
4/3/2019								3.6	5
4/4/2019				5.9		6.9	3.9		
6/17/2019						5.2		2.9	
10/21/2019	3.9								
10/22/2019		5.5	1.9					3.6	4.6
10/23/2019				5.5	7.9	6.1	3.6		
1/3/2020					7				
3/4/2020					7.1				
3/24/2020	3.6	5.2			6.5				
3/25/2020				5.2		5.1	3.2	3	3.9
4/9/2020			1.4						
6/18/2020					6.9				

Constituent: Chloride (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

HGWC-117	HGWC-118
7.1	4.5
7.7	4.4
7.8	
	4.8
3.6	4.3
5.9	4.2
4	4.4
3.6	4.1
7.6	4.4
8.9	4.3
12.1	4.5
12.5	
	3.6
	7.1 7.7 7.8 3.6 5.9 4 3.6 7.6 8.9

Constituent: Chromium (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

8/30/2016	HGWA-111 (bg)	HGWA-112 (bg) 0.0038 (J)	HGWA-113 (bg) <0.01	HGWC-101	HGWC-102	HGWC-103	HGWC-105	HGWC-107	HGWC-109
8/31/2016	<0.01	0.0038 (3)	\0.01	<0.01		<0.01	<0.01	<0.01	<0.01
10/20/2016	<0.01			<0.01		40.01	40.01	10.01	40.01
10/24/2016	10.01	0.0039 (J)	0.001 (J)	10.01		<0.01			
10/25/2016		0.0055 (5)	0.001 (0)			40.01	<0.01	<0.01	<0.01
1/25/2017	0.0029 (J)	0.0038 (J)	0.0012 (J)				40.01	10.01	40.01
1/31/2017	0.0020 (0)	0.0000 (0)	0.0012 (0)	<0.01		<0.01	<0.01	<0.01	<0.01
5/23/2017		0.0038 (J)	0.0012 (J)	0.0006 (J)		<0.01	10.01	-0.01	-0.01
5/24/2017	0.0004 (J)	0.0000 (0)	0.0012 (0)	0.0000 (0)		10.01	<0.01	<0.01	<0.01
8/10/2017	<0.01	0.0039 (J)	0.0019 (J)	<0.01		<0.01	<0.01	<0.01	<0.01
11/13/2017	<0.01	0.0038 (J)	(-)						
11/14/2017		(-)	0.0016 (J)	<0.01		<0.01	<0.01	<0.01	<0.01
6/4/2018	<0.01	0.0037 (J)	(-)						
6/5/2018		,	<0.01						
6/6/2018				<0.01		<0.01	<0.01	<0.01	<0.01
10/1/2018	<0.01	0.0036 (J)	0.0023 (J)						
10/2/2018							<0.01	<0.01	<0.01
10/3/2018				<0.01		<0.01			
8/21/2019	0.00061 (J)	0.0039 (J)	0.0022 (J)						
8/22/2019				0.00064 (J)		0.00063 (J)	<0.01		
8/23/2019								<0.01	<0.01
10/21/2019	0.0012 (J)								
10/22/2019		0.004 (J)	0.0023 (J)					<0.01	0.00062 (J)
10/23/2019				<0.01	<0.01	0.0015 (J)	0.0004 (J)		
1/3/2020					0.00063 (J)				
3/4/2020					<0.01				
3/24/2020	0.0019 (J)	0.0044 (J)			0.00051 (J)				
3/25/2020				0.00098 (J)		0.00045 (J)	0.0013 (J)	0.00074 (J)	0.0014 (J)
4/9/2020			0.0031 (J)						
6/18/2020					<0.01				

Constituent: Chromium (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWC-117	HGWC-118
8/31/2016	<0.01	<0.01
10/20/2016	<0.01	<0.01
1/27/2017	<0.01	
1/31/2017		<0.01
5/23/2017	<0.01	<0.01
8/10/2017	<0.01	<0.01
11/14/2017	<0.01	<0.01
6/7/2018	<0.01	<0.01
10/3/2018	<0.01	<0.01
8/22/2019	<0.01	<0.01
10/22/2019	<0.01	0.00066 (J)
3/24/2020	0.0012 (J)	
3/25/2020		0.00081 (J)

Constituent: Cobalt (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWA-111 (bg)	HGWA-112 (bg)	HGWA-113 (bg)	HGWC-101	HGWC-102	HGWC-103	HGWC-105	HGWC-107	HGWC-109
8/30/2016	<0.005	<0.005	0.0006 (J)	0.0000 (1)		0.0040 (1)	0.004470	.0.005	0.0000 (1)
8/31/2016	.0.005			0.0033 (J)		0.0018 (J)	0.0014 (J)	<0.005	0.0023 (J)
10/20/2016	<0.005	0.005	0.005	0.0025 (J)		0.0040 (1)			
10/24/2016		<0.005	<0.005			0.0018 (J)	0.0040 (1)	.0.005	0.0047 (1)
10/25/2016	-0.005	-0.005	-0.005				0.0013 (J)	<0.005	0.0017 (J)
1/25/2017	<0.005	<0.005	<0.005	0.001 (1)		0.0016 (1)	0.0000 (1)	-0.005	0.0017 (1)
1/31/2017		-0.005	-0.005	0.001 (J)		0.0016 (J)	0.0006 (J)	<0.005	0.0017 (J)
5/23/2017	.0.005	<0.005	<0.005	0.0025 (J)		0.0014 (J)	0.0007 (1)	.0.005	0.000 (1)
5/24/2017	<0.005	-0.005	0.0004 (1)	0.0000 (1)		0.0005 (1)	0.0007 (J)	<0.005	0.002 (J)
8/10/2017	<0.005	<0.005	0.0004 (J)	0.0029 (J)		0.0025 (J)	0.0006 (J)	<0.005	0.0012 (J)
11/13/2017	<0.005	<0.005	0.0002 (1)	0.002 (1)		0.000 (1)	0.0005 (1)	-0.005	0.001471)
11/14/2017 6/4/2018	<0.005	<0.005	0.0003 (J)	0.003 (J)		0.002 (J)	0.0005 (J)	<0.005	0.0014 (J)
6/5/2018	<0.005	<0.005	<0.005						
6/6/2018			<0.005	0.0016 (J)		0.0031 (J)	0.00056 (J)	<0.005	0.0014 (J)
10/1/2018	<0.005	<0.005	<0.005	0.0016 (3)		0.0031 (3)	0.00056 (3)	<0.005	0.0014 (J)
10/1/2018	<0.005	<0.005	<0.005				<0.005	<0.005	0.00081 (J)
10/3/2018				0.0028 (J)		0.0023 (J)	<0.005	<0.005	0.00061 (3)
8/21/2019	<0.005	<0.005	<0.005	0.0028 (3)		0.0023 (3)			
8/22/2019	~ 0.003	~ 0.003	~ 0.003	<0.005		0.0019 (J)	<0.005		
8/23/2019				~0.003		0.0019 (3)	<0.003	<0.005	0.0027 (J)
10/21/2019	<0.005							10.000	0.0027 (0)
10/22/2019	<0.003	<0.005	<0.005					<0.005	0.0022 (J)
10/23/2019		~0.003	~0.003	0.0023 (J)	0.0018 (J)	0.0021 (J)	0.00038 (J)	~ 0.003	0.0022 (3)
1/3/2020				0.0023 (0)	0.0018 (J)	0.0021 (0)	0.00000 (0)		
3/4/2020					0.0021 (J)				
3/24/2020	<0.005	<0.005			0.0021 (J)				
3/25/2020	0.000	5.500		0.0021 (J)	3.3010 (0)	0.0022 (J)	0.00047 (J)	<0.005	0.0022 (J)
4/9/2020			0.00037 (J)	0.0021(0)		3.30ZZ (0)	3.33047 (0)	3.000	J.JULE (U)
6/18/2020			3.33007 (0)		0.0012 (J)				
J J. LULU					3.3012 (0)				

Constituent: Cobalt (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWC-117	HGWC-118
8/31/2016	0.0035 (J)	<0.005
10/20/2016	0.0045 (J)	<0.005
1/27/2017	0.0041 (J)	
1/31/2017		<0.005
5/23/2017	0.0071 (J)	0.0005 (J)
8/10/2017	0.0031 (J)	0.0003 (J)
11/14/2017	0.0062 (J)	0.0004 (J)
6/7/2018	0.0083 (J)	<0.005
10/3/2018	0.005 (J)	<0.005
8/22/2019	0.012	0.0003 (J)
10/22/2019	0.0064	0.00061 (J)
3/24/2020	0.0087	
3/25/2020		< 0.005

Constituent: Combined Radium 226 & 228 (pCi/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWA-111 (bg)	HGWA-112 (bg)	HGWA-113 (bg)	HGWC-101	HGWC-102	HGWC-103	HGWC-105	HGWC-107	HGWC-109
8/30/2016	0.804 (U)	1.32 (U)	0.587 (U)						
8/31/2016				0.621 (U)		1.62	0.906 (U)	1.2	1.03
10/20/2016	1.13 (U)			1.4					
10/24/2016		1.3 (U)	0.979 (U)			1.01 (U)			
10/25/2016							1.03	1.11 (U)	1.07
1/25/2017	0.888 (U)	1.04 (U)	0.038 (U)						
1/31/2017				0.906 (U)		0.976 (U)	0.868 (U)	1.45	0.588 (U)
5/23/2017		0.541 (U)	0.898 (U)	0.388 (U)		0.891 (U)			
5/24/2017	0.622 (U)						0.728 (U)	0.393 (U)	0.593 (U)
8/10/2017	0.745 (U)	0.536 (U)	0.759 (U)	1.03 (U)		0.601 (U)	1.35	0.84 (U)	0.691 (U)
11/13/2017	0.778 (U)	0.786 (U)							
11/14/2017			0.0762 (U)	0.769 (U)		0.567 (U)	0.817 (U)	1.01 (U)	0.653 (U)
6/4/2018	0.637 (U)	0.233 (U)							
6/5/2018			0.594 (U)						
6/6/2018				1.28 (U)		0.836 (U)	0.559 (U)	0.365 (U)	0.939 (U)
10/1/2018	0.451 (U)	0.494 (U)	0.982						
10/2/2018							0.336 (U)	1.23	0.225 (U)
10/3/2018				0.302 (U)		0.111 (U)			
8/21/2019	0.553 (U)	0.514 (U)	0.492 (U)						
8/22/2019				0.474 (U)		0.946 (U)	0.694 (U)		
8/23/2019								1.69	0.47 (U)
10/21/2019	0.351 (U)								
10/22/2019		0.828 (U)	0.523 (U)					0.705 (U)	0.545 (U)
10/23/2019				0.776 (U)	0.858 (U)	0.571 (U)	0.584 (U)		
1/22/2020					1.04 (U)				
3/4/2020					1.32				
3/24/2020	0.26 (U)	0.677 (U)			1.23 (U)				
3/25/2020				0.603 (U)		0.403 (U)	0.663 (U)	0.673 (U)	0.508 (U)
4/9/2020			0.617 (U)						
6/18/2020					0.681 (U)				

Constituent: Combined Radium 226 & 228 (pCi/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWC-117	HGWC-118
8/31/2016	1.12	
10/20/2016	0.803 (U)	1.97
1/27/2017	1.08 (U)	
1/31/2017		1.03
5/23/2017	0.624 (U)	0.398 (U)
8/10/2017	0.695 (U)	0.938 (U)
11/14/2017	0.99 (U)	0.335 (U)
6/7/2018	1.04 (U)	0.696 (U)
10/3/2018	0.198 (U)	1.6 (U)
8/22/2019	0.333 (U)	0.904 (U)
10/22/2019	0.827 (U)	0.424 (U)
3/24/2020	0.815 (U)	
3/25/2020		0.915 (U)

Constituent: Fluoride (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWA-111 (bg)	HGWA-112 (bg)	HGWA-113 (bg)	HGWC-101	HGWC-102	HGWC-103	HGWC-105	HGWC-107	HGWC-109
8/30/2016	0.07 (J)	0.04 (J)	0.2 (J)						
8/31/2016				0.05 (J)		0.06 (J)	0.15 (J)	0.08 (J)	0.12 (J)
10/20/2016	0.07 (J)			0.03 (J)					
10/24/2016		0.05 (J)	0.16 (J)			0.13 (J)			
10/25/2016							0.09 (J)	0.16 (J)	0.17 (J)
1/25/2017	0.14 (J)	<0.1	0.15 (J)						
1/31/2017				<0.1		<0.1	0.13 (J)	0.16 (J)	0.05 (J)
5/23/2017		0.004 (J)	0.18 (J)	<0.1		0.15 (J)			
5/24/2017	0.02 (J)						0.07 (J)	0.009 (J)	0.13 (J)
8/10/2017	0.06 (J)	0.03 (J)	0.19 (J)	<0.1		<0.1	0.03 (J)	<0.1	0.12 (J)
11/13/2017	<0.1	<0.1							
11/14/2017			0.16 (J)	<0.1		<0.1	<0.1	<0.1	<0.1
6/4/2018	0.032 (J)	<0.1							
6/5/2018			0.18 (J)						
6/6/2018				<0.1		<0.1	0.074 (J)	0.057 (J)	0.15 (J)
10/1/2018	<0.1	<0.1	0.078 (J)						
10/2/2018							<0.1	<0.1	<0.1
10/3/2018				<0.1		<0.1			
4/1/2019	0.042 (J)								
4/2/2019		<0.1	0.18 (J)						
4/3/2019								<0.1	0.05 (J)
4/4/2019				<0.1		0.042 (J)	0.03 (J)		
8/21/2019	0.048 (J)	<0.1	0.11 (J)						
8/22/2019				<0.1		<0.1	<0.1		
8/23/2019								<0.1	0.034 (J)
10/21/2019	0.12 (J)								
10/22/2019		0.05 (J)	0.18 (J)					0.047 (J)	0.099 (J)
10/23/2019				<0.1	0.22 (J)	<0.1	<0.1		
1/3/2020					<0.1				
3/4/2020					<0.1				
3/24/2020	0.076 (J)	<0.1			<0.1				
3/25/2020				<0.1		<0.1	<0.1	<0.1	0.075 (J)
4/9/2020			0.14 (J)						
6/18/2020					<0.1				

Constituent: Fluoride (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWC-117	HGWC-118
8/31/2016	0.09 (J)	0.18 (J)
10/20/2016	0.11 (J)	0.12 (J)
1/27/2017	0.28 (J)	
1/31/2017		0.3
5/23/2017	0.01 (J)	0.14 (J)
8/10/2017	0.1 (J)	0.11 (J)
11/14/2017	<0.1	0.07 (J)
6/7/2018	<0.1	0.3
10/3/2018	<0.1	0.12 (J)
4/5/2019	0.19 (J)	0.33
6/18/2019		0.89
8/22/2019	<0.1	0.07 (J)
10/22/2019	0.042 (J)	0.087 (J)
3/24/2020	<0.1	
3/25/2020		0.078 (J)

Constituent: Lead (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

0/00/0010	HGWA-111 (bg)	HGWA-112 (bg)	HGWA-113 (bg) <0.005	HGWC-101	HGWC-102	HGWC-103	HGWC-105	HGWC-107	HGWC-109
8/30/2016 8/31/2016	0.0001 (J)	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005
10/20/2016	<0.005			<0.005		<0.005	<0.005	<0.005	<0.005
10/24/2016	<0.003	<0.005	<0.005	~0.003		<0.005			
10/25/2016		~0.003	~0.003			~ 0.003	<0.005	<0.005	<0.005
1/25/2017	<0.005	<0.005	<0.005				<0.003	<0.003	<0.003
1/31/2017	10.000	-0.000	10.000	<0.005		<0.005	<0.005	<0.005	<0.005
5/23/2017		<0.005	<0.005	0.0009 (J)		<0.005	0.000	0.000	0.000
5/24/2017	<0.005	0.000	0.000	0.0000 (0)		0.000	<0.005	<0.005	<0.005
8/10/2017	<0.005	<0.005	0.0001 (J)	<0.005		<0.005	<0.005	<0.005	<0.005
11/13/2017	<0.005	<0.005	(1)						
11/14/2017			<0.005	<0.005		<0.005	<0.005	<0.005	<0.005
6/4/2018	<0.005	<0.005							
6/5/2018			<0.005						
6/6/2018				<0.005		<0.005	<0.005	<0.005	<0.005
10/1/2018	<0.005	<0.005	<0.005						
10/2/2018							<0.005	<0.005	<0.005
10/3/2018				<0.005		<0.005			
8/21/2019	<0.005	<0.005	7.1E-05 (J)						
8/22/2019				<0.005		<0.005	<0.005		
8/23/2019								<0.005	5.8E-05 (J)
10/21/2019	0.00016 (J)								
10/22/2019		<0.005	7.3E-05 (J)					7.9E-05 (J)	5.4E-05 (J)
10/23/2019				<0.005	<0.005	0.00043 (J)	6.8E-05 (J)		
1/3/2020					<0.005				
3/4/2020					0.00011 (J)				
3/24/2020	0.00058 (J)	0.00016 (J)			<0.005				
3/25/2020				<0.005		7.6E-05 (J)	8.5E-05 (J)	0.00021 (J)	<0.005
4/9/2020			0.00039 (J)						
6/18/2020					<0.005				

Constituent: Lead (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWC-117	HGWC-118
8/31/2016	<0.005	<0.005
10/20/2016	<0.005	<0.005
1/27/2017	<0.005	
1/31/2017		<0.005
5/23/2017	<0.005	<0.005
8/10/2017	<0.005	<0.005
11/14/2017	<0.005	<0.005
6/7/2018	<0.005	<0.005
10/3/2018	<0.005	<0.005
8/22/2019	<0.005	<0.005
10/22/2019	0.00016 (J)	0.00025 (J)
3/24/2020	0.00025 (J)	
3/25/2020		0.0001 (J)

Constituent: Lithium (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWA-111 (bg)	HGWA-112 (bg)	HGWA-113 (bg)	HGWC-101	HGWC-102	HGWC-103	HGWC-105	HGWC-107	HGWC-109
8/30/2016	0.0022 (J)	<0.03	<0.03						
8/31/2016				<0.03		<0.03	0.0034 (J)	<0.03	<0.03
10/20/2016	<0.03			<0.03					
10/24/2016		<0.03	<0.03			<0.03			
10/25/2016							0.0043 (J)	<0.03	<0.03
1/25/2017	<0.03	<0.03	<0.03						
1/31/2017				<0.03		<0.03	0.0042 (J)	<0.03	<0.03
5/23/2017		<0.03	0.0011 (J)	<0.03		0.0012 (J)			
5/24/2017	0.0017 (J)						0.0039 (J)	<0.03	0.0012 (J)
8/10/2017	0.0017 (J)	<0.03	<0.03	<0.03		0.0016 (J)	0.004 (J)	<0.03	<0.03
11/13/2017	<0.03	<0.03							
11/14/2017			<0.03	<0.03		0.0015 (J)	0.0044 (J)	<0.03	<0.03
6/4/2018	0.0016 (J)	<0.03							
6/5/2018			0.001 (J)						
6/6/2018				<0.03		0.0017 (J)	0.0041 (J)	0.00099 (J)	0.0013 (J)
10/1/2018	<0.03	<0.03	0.001 (J)						
10/2/2018							0.0041 (J)	<0.03	0.0013 (J)
10/3/2018				<0.03		0.0016 (J)			
8/21/2019	0.0018 (J)	<0.03	0.0011 (J)						
8/22/2019				<0.03		0.0015 (J)	0.004 (J)		
8/23/2019								0.00092 (J)	0.0009 (J)
10/21/2019	0.0026 (J)								
10/22/2019		<0.03	0.0011 (J)					0.00094 (J)	0.00088 (J)
10/23/2019				<0.03	0.0012 (J)	0.002 (J)	0.0039 (J)		
1/3/2020					0.0011 (J)				
3/4/2020					0.0013 (J)				
3/24/2020	0.0039 (J)	<0.03			0.00084 (J)				
3/25/2020				<0.03		0.0016 (J)	0.0041 (J)	0.00091 (J)	<0.03
4/9/2020			0.0017 (J)						
6/18/2020					0.0013 (J)				

Constituent: Lithium (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWC-117	HGWC-118
8/31/2016	0.0024 (J)	<0.03
10/20/2016	0.0027 (J)	<0.03
1/27/2017	<0.03	
1/31/2017		<0.03
5/23/2017	<0.03	0.0012 (J)
8/10/2017	0.0021 (J)	<0.03
11/14/2017	<0.03	<0.03
6/7/2018	0.0011 (J)	0.0015 (J)
10/3/2018	0.0021 (J)	<0.03
8/22/2019	0.0012 (J)	0.0018 (J)
10/22/2019	0.0028 (J)	0.0027 (J)
3/24/2020	0.0029 (J)	
3/25/2020		0.0017 (J)

Constituent: Mercury (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWA-111 (bg)	HGWA-112 (bg)	HGWA-113 (bg)	HGWC-101	HGWC-102	HGWC-103	HGWC-105	HGWC-107	HGWC-109
8/30/2016	4E-05 (J)	4.1E-05 (J)	4E-05 (J)						
8/31/2016				<0.0005		<0.0005	<0.0005	<0.0005	<0.0005
10/20/2016	<0.0005			<0.0005					
10/24/2016		<0.0005	<0.0005			<0.0005			
10/25/2016							<0.0005	<0.0005	<0.0005
1/25/2017	4E-05 (J)	4E-05 (J)	4E-05 (J)						
1/31/2017				9.3E-05 (J)		8E-05 (J)	<0.0005	<0.0005	8E-05 (J)
5/23/2017		<0.0005	<0.0005	<0.0005		<0.0005			
5/24/2017	<0.0005						<0.0005	<0.0005	<0.0005
8/10/2017	<0.0005	<0.0005	<0.0005	<0.0005		<0.0005	<0.0005	<0.0005	<0.0005
11/13/2017	<0.0005	<0.0005							
11/14/2017			<0.0005	<0.0005		<0.0005	<0.0005	<0.0005	<0.0005
6/4/2018	<0.0005	<0.0005							
6/5/2018			<0.0005						
6/6/2018				<0.0005		<0.0005	<0.0005	<0.0005	<0.0005
10/1/2018	4.3E-05 (J)	3.9E-05 (J)	4.3E-05 (J)						
10/2/2018							<0.0005	<0.0005	<0.0005
10/3/2018				<0.0005		<0.0005			
8/21/2019	<0.0005	<0.0005	<0.0005						
8/22/2019				<0.0005		<0.0005	<0.0005		
8/23/2019								<0.0005	<0.0005
10/23/2019					<0.0005				
1/3/2020					<0.0005				
3/4/2020					<0.0005				
3/24/2020					<0.0005				
6/18/2020					<0.0005				

Constituent: Mercury (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWC-117	HGWC-118
8/31/2016	7E-05 (J)	<0.0005
10/20/2016	<0.0005	<0.0005
1/27/2017	<0.0005	
1/31/2017		9E-05 (J)
5/23/2017	<0.0005	<0.0005
8/10/2017	<0.0005	<0.0005
11/14/2017	<0.0005	<0.0005
6/7/2018	<0.0005	<0.0005
10/3/2018	<0.0005	<0.0005
8/22/2019	< 0.0005	< 0.0005

Constituent: Molybdenum (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWA-111 (bg)	HGWA-112 (bg)	HGWA-113 (bg)	HGWC-101	HGWC-102	HGWC-103	HGWC-105	HGWC-107	HGWC-109
8/30/2016	<0.01	<0.01	<0.01						
8/31/2016				<0.01		<0.01	<0.01	<0.01	<0.01
10/20/2016	<0.01			<0.01					
10/24/2016		<0.01	<0.01			<0.01			
10/25/2016							<0.01	<0.01	<0.01
1/25/2017	<0.01	<0.01	<0.01						
1/31/2017				<0.01		<0.01	<0.01	<0.01	<0.01
5/23/2017		<0.01	<0.01	<0.01		<0.01			
5/24/2017	<0.01						<0.01	<0.01	<0.01
8/10/2017	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01
11/13/2017	<0.01	<0.01							
11/14/2017			<0.01	<0.01		<0.01	<0.01	<0.01	<0.01
6/4/2018	<0.01	<0.01							
6/5/2018			<0.01						
6/6/2018				<0.01		<0.01	<0.01	<0.01	<0.01
10/1/2018	<0.01	<0.01	<0.01						
10/2/2018							<0.01	<0.01	<0.01
10/3/2018				<0.01		<0.01			
8/21/2019	<0.01	<0.01	<0.01						
8/22/2019				<0.01		<0.01	<0.01		
8/23/2019								<0.01	<0.01
10/23/2019					<0.01				
1/3/2020					<0.01				
3/4/2020					<0.01				
3/24/2020					<0.01				
6/18/2020					<0.01				

Constituent: Molybdenum (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWC-117	HGWC-118
8/31/2016	<0.01	<0.01
10/20/2016	<0.01	<0.01
1/27/2017	<0.01	
1/31/2017		<0.01
5/23/2017	<0.01	<0.01
8/10/2017	<0.01	<0.01
11/14/2017	<0.01	<0.01
6/7/2018	<0.01	<0.01
10/3/2018	<0.01	<0.01
8/22/2019	<0.01	<0.01

Constituent: pH (s.u.) Analysis Run 7/17/2020 12:26 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWA-111 (bg)	HGWA-112 (bg)	HGWA-113 (bg)	HGWC-101	HGWC-102	HGWC-103	HGWC-105	HGWC-107	HGWC-109
8/30/2016	6.89	5.77	5.99						
8/31/2016				5.35		5.54	6.5	6.11	6.78
10/20/2016	6.73			5.3					
10/24/2016		5.61	5.84			5.48			
10/25/2016							6.34	6.04	6.55
1/25/2017	7.02	5.68	6.04						
1/31/2017				5.24		5.51	6.43	5.94	6.5
5/23/2017		5.7	6.01	5.39		5.98			
5/24/2017	6.44						6.31	6.06	6.42
8/10/2017	6.79	5.59	5.98	5.47		5.63	6.45	6.06	6.63
11/13/2017	5.94	5.56							
11/14/2017			6.16	5.4		5.59	6.53	5.99	6.5
6/4/2018	6.12	5.62							
6/5/2018			5.86						
6/6/2018				5.37		5.49	6.49	6	6.59
10/1/2018	5.92	5.62	5.94						
10/2/2018							6.18	6.18	6.54
10/3/2018				5.39		5.53			
4/1/2019	7.09								
4/2/2019		5.47	6						
4/3/2019								6.06	6.42
4/4/2019				5.31		5.44	6.17		
6/17/2019						5.53			
6/18/2019				5.3					
8/21/2019	6.6	5.8	6.05						
8/22/2019				5.39		5.55	6.04		
8/23/2019								6.26	6.76
10/21/2019	7.02								
10/22/2019		5.7	5.98					6.19	6.58
10/23/2019				5.33	5.68	5.49	6.46		
1/3/2020					5.64				
3/4/2020					5.75				
3/24/2020	7.37	5.64			5.58				
3/25/2020				5.53		5.49	6.47	6.13	6.56
4/9/2020			6.08						
6/18/2020					5.67				

Constituent: pH (s.u.) Analysis Run 7/17/2020 12:26 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWC-117	HGWC-118
8/31/2016	6.07	7.03
10/20/2016	6	7.01
1/27/2017	6.2	
1/31/2017		6.96
5/23/2017	5.27	6.92
8/10/2017	6.27	6.99
11/14/2017	5.4	6.9
6/7/2018	5.29	7.03
10/3/2018	6.08	7.08
4/5/2019	5.99	6.96
8/22/2019	5.53	6.93
10/22/2019	6.17	7.03
3/24/2020	5.99	
3/25/2020		6.89

Constituent: Selenium (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWA-111 (bg)	HGWA-112 (bg)	HGWA-113 (bg)	HGWC-101	HGWC-102	HGWC-103	HGWC-105	HGWC-107	HGWC-109
8/30/2016	<0.01	<0.01	0.0027 (J)						
8/31/2016				<0.01		<0.01	<0.01	<0.01	<0.01
10/20/2016	S <0.01			<0.01					
10/24/2016	5	<0.01	0.0034 (J)			<0.01			
10/25/2016	5						<0.01	<0.01	<0.01
1/25/2017	<0.01	<0.01	0.0023 (J)						
1/31/2017				<0.01		<0.01	<0.01	<0.01	<0.01
5/23/2017		<0.01	0.0024 (J)	<0.01		<0.01			
5/24/2017	<0.01						<0.01	<0.01	<0.01
8/10/2017	<0.01	<0.01	0.0023 (J)	<0.01		<0.01	<0.01	<0.01	<0.01
11/13/2017	<0.01	<0.01							
11/14/2017	7		<0.01	<0.01		<0.01	<0.01	<0.01	<0.01
6/4/2018	<0.01	<0.01							
6/5/2018			0.0019 (J)						
6/6/2018				<0.01		<0.01	<0.01	<0.01	<0.01
10/1/2018	<0.01	<0.01	0.0024 (J)						
10/2/2018							<0.01	<0.01	<0.01
10/3/2018				<0.01		<0.01			
8/21/2019	<0.01	<0.01	0.0025 (J)						
8/22/2019				<0.01		<0.01	<0.01		
8/23/2019								<0.01	<0.01
10/23/2019)				<0.01				
1/3/2020					0.0015 (J)				
3/4/2020					<0.01				
3/24/2020					<0.01				
6/18/2020					<0.01				

Constituent: Selenium (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWC-117	HGWC-118
8/31/2016	<0.01	<0.01
10/20/2016	<0.01	<0.01
1/27/2017	<0.01	
1/31/2017		<0.01
5/23/2017	<0.01	<0.01
8/10/2017	<0.01	<0.01
11/14/2017	<0.01	<0.01
6/7/2018	<0.01	<0.01
10/3/2018	<0.01	<0.01
8/22/2019	<0.01	<0.01

Constituent: Sulfate (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWA-111 (bg)	HGWA-112 (bg)	HGWA-113 (bg)	HGWC-101	HGWC-102	HGWC-103	HGWC-105	HGWC-107	HGWC-109
8/30/2016	1.6	0.63 (J)	14						
8/31/2016				110		280	190	130	36
10/20/2016	1.6			110					
10/24/2016		0.62 (J)	11			280			
10/25/2016							190	130	41
1/25/2017	1.6	0.62 (J)	12						
1/31/2017				120		300	210	130	37
5/23/2017		0.55 (J)	12	97		340			
5/24/2017	1.4						180	130	40
8/10/2017	1.6	0.66 (J)	11	96		300	180	130	40
11/13/2017	1.3	0.61 (J)							
11/14/2017			11	110		310	170	130	40
6/4/2018	1.4	0.73 (J)							
6/5/2018			9.9						
6/6/2018				95.5		351	168	132	49.7
10/1/2018	1	0.52 (J)	6.7						
10/2/2018							173	132	42.3
10/3/2018				121		381			
4/1/2019	1.7								
4/2/2019		0.78 (J)	8.7						
4/3/2019								139	36
4/4/2019				95.1		358	185		
6/17/2019						311	162	126	30.9
6/18/2019				102					
10/21/2019	1.8								
10/22/2019		0.6 (J)	6.8					123	23.2
10/23/2019				101	<1	248	162		
1/3/2020					380				
3/4/2020					400				
3/24/2020	1.6	<1			311				
3/25/2020				85.5		251	161	116	27.9
4/9/2020			6.6						
6/18/2020					349				

Constituent: Sulfate (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWC-117	HGWC-118
8/31/2016	150	88
10/20/2016	150	81
1/27/2017	150	
1/31/2017		87
5/23/2017	110	84
8/10/2017	140	78
11/14/2017	110	79
6/7/2018	103	60.1
10/3/2018	169	91.5
4/5/2019	141	75.1
6/18/2019	116	77
10/22/2019	133	80.9
3/24/2020	129	
3/25/2020		78.4

Constituent: Thallium (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4

		HGWA-111 (bg)	HGWA-112 (bg)	HGWA-113 (bg)	HGWC-101	HGWC-102	HGWC-103	HGWC-105	HGWC-107	HGWC-109
8	/30/2016	<0.001	<0.001	<0.001						
8	/31/2016				<0.001		<0.001	<0.001	<0.001	<0.001
1	0/20/2016	<0.001			<0.001					
1	0/24/2016		<0.001	<0.001			<0.001			
1	0/25/2016							<0.001	<0.001	<0.001
1	/25/2017	<0.001	<0.001	<0.001						
1	/31/2017				<0.001		<0.001	<0.001	<0.001	<0.001
5	/23/2017		<0.001	<0.001	<0.001		<0.001			
5	/24/2017	<0.001						<0.001	<0.001	<0.001
8	/10/2017	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001
1	1/13/2017	<0.001	<0.001							
1	1/14/2017			<0.001	<0.001		<0.001	<0.001	<0.001	<0.001
6	/4/2018	<0.001	<0.001							
6	/5/2018			<0.001						
6	/6/2018				<0.001		<0.001	<0.001	<0.001	<0.001
1	0/1/2018	<0.001	<0.001	<0.001						
1	0/2/2018							<0.001	<0.001	<0.001
1	0/3/2018				<0.001		<0.001			
8	/21/2019	<0.001	<0.001	<0.001						
	/22/2019				<0.001		<0.001	<0.001		
8	/23/2019								<0.001	<0.001
1	0/23/2019					<0.001				
	/3/2020					8E-05 (J)				
	/4/2020					<0.001				
	/24/2020					<0.001				
6	/18/2020					<0.001				

Constituent: Thallium (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWC-117	HGWC-118
8/31/2016	<0.001	<0.001
10/20/2016	<0.001	<0.001
1/27/2017	<0.001	
1/31/2017		<0.001
5/23/2017	<0.001	<0.001
8/10/2017	<0.001	<0.001
11/14/2017	<0.001	<0.001
6/7/2018	<0.001	<0.001
10/3/2018	<0.001	<0.001
8/22/2019	< 0.001	< 0.001

Constituent: Total Dissolved Solids (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4

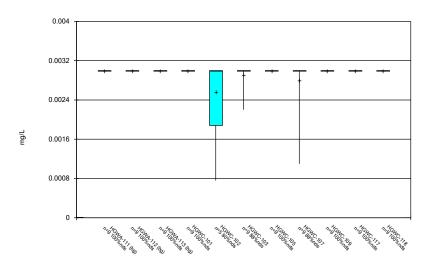
	HGWA-111 (bg)	HGWA-112 (bg)	HGWA-113 (bg)	HGWC-101	HGWC-102	HGWC-103	HGWC-105	HGWC-107	HGWC-109
8/30/2016	172	76	77						
8/31/2016				278		483	389	235	182
10/20/2016	108			165					
10/24/2016		65	111			517			.=-
10/25/2016	245	150 (-)	155				316	223	172
1/25/2017	345	152 (o)	155	202		F10	407	240	050
1/31/2017		50	74	263		516	437	346	252
5/23/2017	100	52	74	190		637	050	004	101
5/24/2017	126	00	04	175		450	352	234	184
8/10/2017	174	60 75	94	175		459	356	254	208
11/13/2017	158	/5	00	050		E45	075	212	050
11/14/2017 6/4/2018	101	70	89	253		545	375	313	252
	131	70	02						
6/5/2018			92	100		EEO	205	270	224
6/6/2018	101	70	0.1	188		559	385	278	224
10/1/2018	101	76	91				274	274	220
10/2/2018 10/3/2018				220		582	374	274	230
4/1/2019	213			238		502			
4/1/2019	213	69	94						
4/2/2019		09	94					273	210
4/4/2019				149		E2E	240	2/3	210
6/17/2019				149		535 515	340	272	
10/21/2019	187					515	370	272	
10/21/2019	107	81	95					308	212
10/22/2019		01	95	221	736	507	419	306	212
1/3/2020				221	736	507	419		
3/4/2020					764				
3/24/2020	207	52			521				
3/25/2020	207	JZ		187	JZI	507	417	297	213
4/9/2020			48	107		307	417	231	۷ ای
6/18/2020			70		652				
0/10/2020					002				

Constituent: Total Dissolved Solids (mg/L) Analysis Run 7/17/2020 12:26 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWC-117	HGWC-118
8/31/2016	381	373
10/20/2016	319	305
1/27/2017	407	
1/31/2017		361
5/23/2017	258	359
8/10/2017	359	325
11/14/2017	310	373
6/7/2018	223	338
10/3/2018	337	328
4/5/2019	334	308
6/18/2019	254	215
10/22/2019	348	354
3/24/2020	331	
3/25/2020		347

FIGURE B.

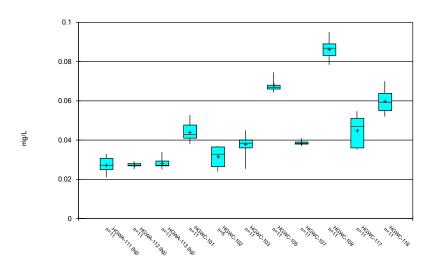
Box & Whiskers Plot



Constituent: Antimony Analysis Run 7/17/2020 12:27 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

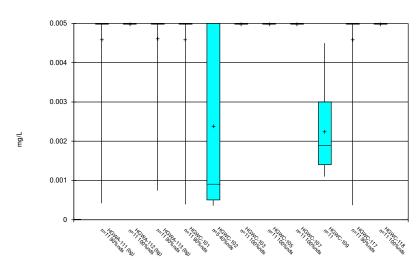
Sanitas™ v.9.6.26f Sanitas software utilized by Groundwater Stats Consulting. EPA

Box & Whiskers Plot



Constituent: Barium Analysis Run 7/17/2020 12:27 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4

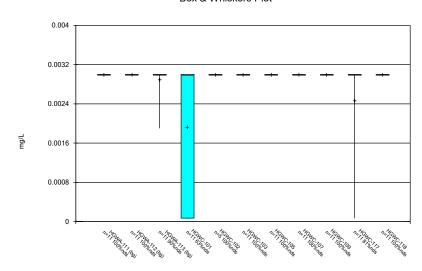
Box & Whiskers Plot



Constituent: Arsenic Analysis Run 7/17/2020 12:27 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

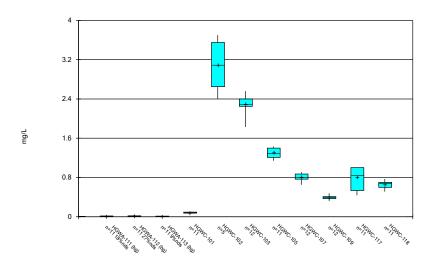
Sanitas™ v.9.6.26f Sanitas software utilized by Groundwater Stats Consulting. EPA

Box & Whiskers Plot



Constituent: Beryllium Analysis Run 7/17/2020 12:27 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4

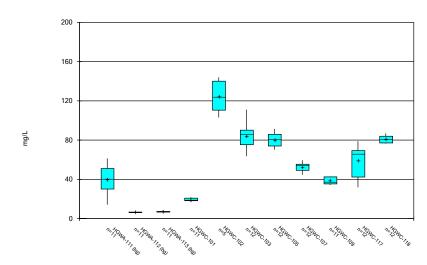
Box & Whiskers Plot



Constituent: Boron Analysis Run 7/17/2020 12:27 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

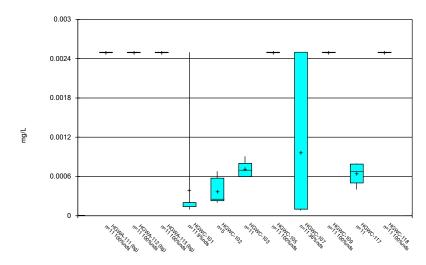
Sanitas™ v.9.6.26f Sanitas software utilized by Groundwater Stats Consulting. EPA

Box & Whiskers Plot



Constituent: Calcium Analysis Run 7/17/2020 12:27 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4

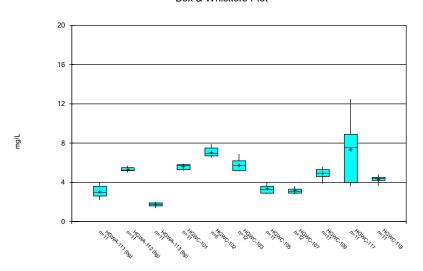
Box & Whiskers Plot



Constituent: Cadmium Analysis Run 7/17/2020 12:27 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

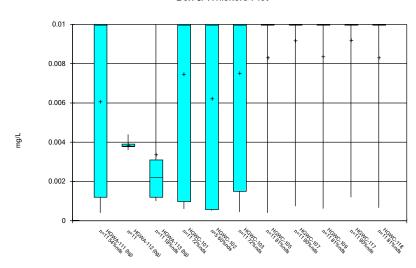
Sanitas™ v.9.6.26f Sanitas software utilized by Groundwater Stats Consulting. EPA

Box & Whiskers Plot



Constituent: Chloride Analysis Run 7/17/2020 12:27 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

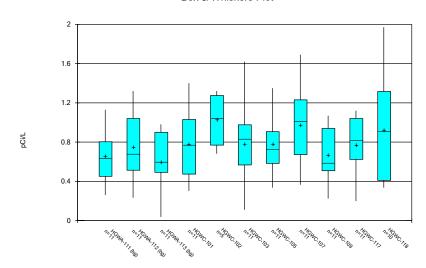




Constituent: Chromium Analysis Run 7/17/2020 12:27 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

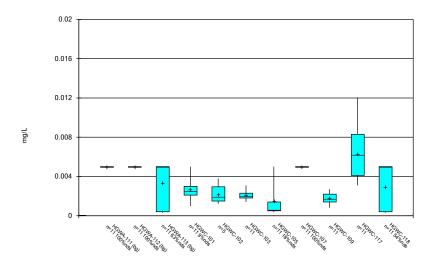
Sanitas™ v.9.6.26f Sanitas software utilized by Groundwater Stats Consulting. EPA

Box & Whiskers Plot



Constituent: Combined Radium 226 & 228 Analysis Run 7/17/2020 12:27 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4

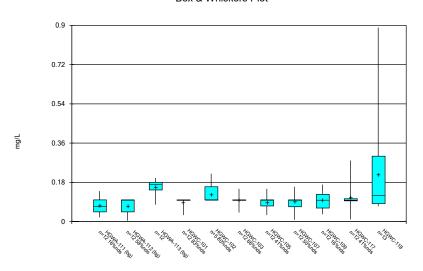
Box & Whiskers Plot



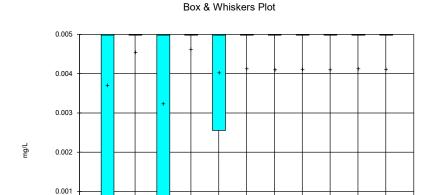
Constituent: Cobalt Analysis Run 7/17/2020 12:27 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

Sanitas™ v.9.6.26f Sanitas software utilized by Groundwater Stats Consulting. EPA

Box & Whiskers Plot



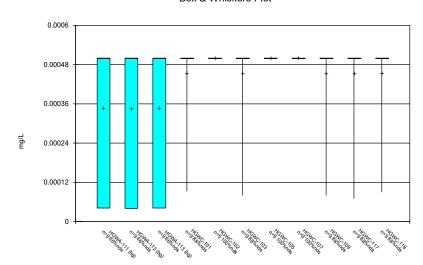
Constituent: Fluoride Analysis Run 7/17/2020 12:27 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4



Constituent: Lead Analysis Run 7/17/2020 12:27 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

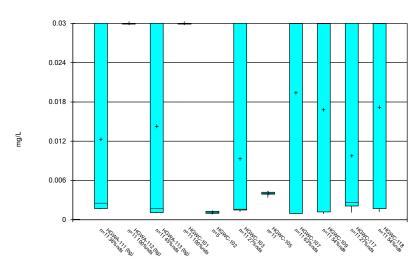
Sanitas™ v.9.6.26f Sanitas software utilized by Groundwater Stats Consulting. EPA

Box & Whiskers Plot



Constituent: Mercury Analysis Run 7/17/2020 12:27 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4

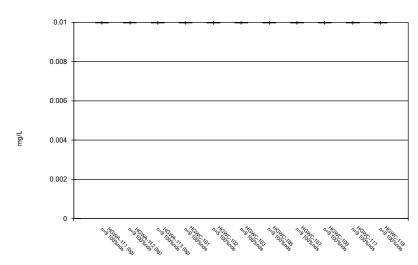
Box & Whiskers Plot



Constituent: Lithium Analysis Run 7/17/2020 12:27 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

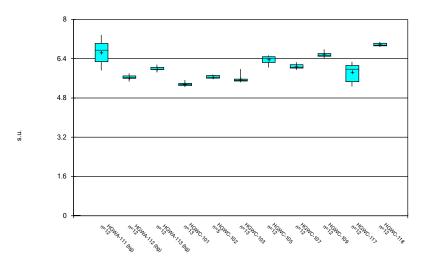
Sanitas™ v.9.6.26f Sanitas software utilized by Groundwater Stats Consulting. EPA

Box & Whiskers Plot



Constituent: Molybdenum Analysis Run 7/17/2020 12:27 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

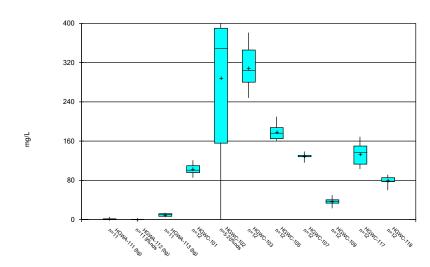
Box & Whiskers Plot



Constituent: pH Analysis Run 7/17/2020 12:27 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

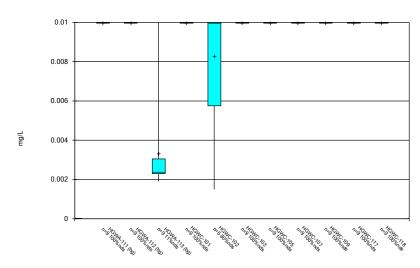
Sanitas™ v.9.6.26f Sanitas software utilized by Groundwater Stats Consulting. EPA

Box & Whiskers Plot



Constituent: Sulfate Analysis Run 7/17/2020 12:27 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4

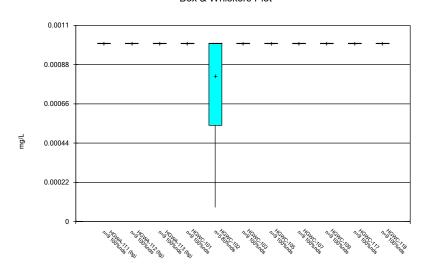
Box & Whiskers Plot



Constituent: Selenium Analysis Run 7/17/2020 12:27 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

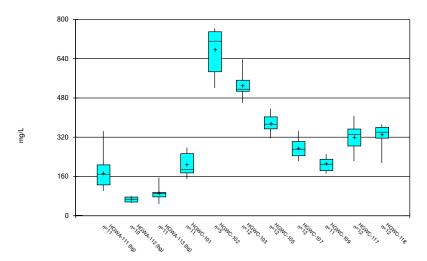
Sanitas™ v.9.6.26f Sanitas software utilized by Groundwater Stats Consulting. EPA

Box & Whiskers Plot



Constituent: Thallium Analysis Run 7/17/2020 12:27 PM View: Descriptive
Plant Hammond Client: Southern Company Data: Hammond AP-4

Box & Whiskers Plot



Constituent: Total Dissolved Solids Analysis Run 7/17/2020 12:27 PM View: Descriptive Plant Hammond Client: Southern Company Data: Hammond AP-4

FIGURE C.

		Plant Hammond	Summary Data: Hammond AP-4	Printed 7/16/2020, 2:34 PM
/25/2017	HGWA-112 Total Dissolved Solids (r 152 (o)	_{ng} IL)		
12312011	152 (0)			

FIGURE D.

Appendix III Interwell Prediction Limits - Significant Results Plant Hammond Client: Southern Company Data: Hammond AP-4 Printed 7/16/2020, 2:37 PM

	Pla	nt Hammond	Client: S	outhern Con	npany D	ata: Ham	mond AP-4	Printed 7/1	6/2020, 2	2:37 PM			
Constituent	Well	Upper Lim	Lower Lim	. Date	Observ.	Sig. Bg	NBg Mean	Std. Dev.	%NDs	ND Adj.	Transfor	mAlpha	Method
Boron (mg/L)	HGWC-102	0.022	n/a	6/18/2020	2.9	Yes 33	0.09613	0.02563	18.18	Kaplan-Meier	sqrt(x)	0.0009403	Param Inter 1 of 2
Boron (mg/L)	HGWC-103	0.022	n/a	3/25/2020	2.3	Yes 33	0.09613	0.02563	18.18	Kaplan-Meier	sqrt(x)	0.0009403	Param Inter 1 of 2
Boron (mg/L)	HGWC-105	0.022	n/a	3/25/2020	1.4	Yes 33	0.09613	0.02563	18.18	Kaplan-Meier	sqrt(x)	0.0009403	Param Inter 1 of 2
Boron (mg/L)	HGWC-107	0.022	n/a	3/25/2020	0.87	Yes 33	0.09613	0.02563	18.18	Kaplan-Meier	sqrt(x)	0.0009403	Param Inter 1 of 2
Boron (mg/L)	HGWC-109	0.022	n/a	3/25/2020	0.36	Yes 33	0.09613	0.02563	18.18	Kaplan-Meier	sqrt(x)	0.0009403	Param Inter 1 of 2
Boron (mg/L)	HGWC-117	0.022	n/a	3/24/2020	1	Yes 33	0.09613	0.02563	18.18	Kaplan-Meier	sqrt(x)	0.0009403	Param Inter 1 of 2
Boron (mg/L)	HGWC-118	0.022	n/a	3/25/2020	0.7	Yes 33	0.09613	0.02563	18.18	Kaplan-Meier	sqrt(x)	0.0009403	Param Inter 1 of 2
Calcium (mg/L)	HGWC-102	61	n/a	6/18/2020	124	Yes 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-103	61	n/a	3/25/2020	86.8	Yes 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-105	61	n/a	3/25/2020	91.4	Yes 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-117	61	n/a	3/24/2020	68	Yes 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-118	61	n/a	3/25/2020	86.8	Yes 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-102	5.7	n/a	6/18/2020	6.9	Yes 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-117	5.7	n/a	3/24/2020	12.5	Yes 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-103	7.4	5.5	3/25/2020	5.49	Yes 36	n/a	n/a	0	n/a	n/a	0.002737	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-101	14	n/a	3/25/2020	85.5	Yes 33	n/a	n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-102	14	n/a	6/18/2020	349	Yes 33	n/a	n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-103	14	n/a	3/25/2020	251	Yes 33	n/a	n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-105	14	n/a	3/25/2020	161	Yes 33	n/a	n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-107	14	n/a	3/25/2020	116	Yes 33	n/a	n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-109	14	n/a	3/25/2020	27.9	Yes 33	n/a	n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-117	14	n/a	3/24/2020	129	Yes 33	n/a	n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-118	14	n/a	3/25/2020	78.4	Yes 33	n/a	n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Total Dissolved Solids (mg/L)	HGWC-102	250	n/a	6/18/2020	652	Yes 32	4.71	0.7713	0	None	x^(1/3)	0.0009403	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-103	250	n/a	3/25/2020	507	Yes 32	4.71	0.7713	0	None	x^(1/3)	0.0009403	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-105	250	n/a	3/25/2020	417	Yes 32	4.71	0.7713	0	None	x^(1/3)	0.0009403	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-107	250	n/a	3/25/2020	297	Yes 32	4.71	0.7713	0	None	x^(1/3)	0.0009403	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-117	250	n/a	3/24/2020	331	Yes 32	4.71	0.7713	0	None	x^(1/3)	0.0009403	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-118	250	n/a	3/25/2020	347	Yes 32	4.71	0.7713	0	None	x^(1/3)	0.0009403	Param Inter 1 of 2

Appendix III Interwell Prediction Limits - All Results

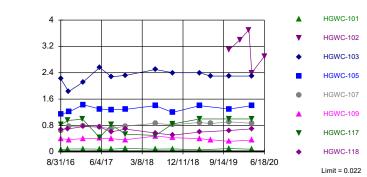
Plant Hammond Client: Southern Company Data: Hammond AP-4 Printed 7/16/2020, 2:37 PM

Constituent	Well	Upper Lim	Lower Lim	. <u>Date</u>	Observ.	Sig. Bg	NBg Mean	Std. Dev.	%NDs	ND Adj.	Transfor	mAlpha	Method
Boron (mg/L)	HGWC-101	0.022	n/a	3/25/2020	0.08J		0.09613	0.02563	18.18	Kaplan-Meier	sqrt(x)	0.0009403	Param Inter 1 of 2
Boron (mg/L)	HGWC-102	0.022	n/a	6/18/2020	2.9	Yes 33	0.09613	0.02563	18.18	Kaplan-Meier	sqrt(x)	0.0009403	Param Inter 1 of 2
Boron (mg/L)	HGWC-103	0.022	n/a	3/25/2020	2.3	Yes 33	0.09613	0.02563	18.18	Kaplan-Meier	sqrt(x)	0.0009403	Param Inter 1 of 2
Boron (mg/L)	HGWC-105	0.022	n/a	3/25/2020	1.4	Yes 33	0.09613	0.02563	18.18	Kaplan-Meier	sqrt(x)	0.0009403	Param Inter 1 of 2
Boron (mg/L)	HGWC-107	0.022	n/a	3/25/2020	0.87	Yes 33	0.09613	0.02563	18.18	Kaplan-Meier	sqrt(x)	0.0009403	Param Inter 1 of 2
Boron (mg/L)	HGWC-109	0.022	n/a	3/25/2020	0.36	Yes 33	0.09613	0.02563	18.18	Kaplan-Meier		0.0009403	Param Inter 1 of 2
Boron (mg/L)	HGWC-117	0.022	n/a	3/24/2020	1	Yes 33	0.09613	0.02563	18.18	Kaplan-Meier	sqrt(x)	0.0009403	Param Inter 1 of 2
Boron (mg/L)	HGWC-118	0.022	n/a	3/25/2020	0.7	Yes 33	0.09613	0.02563	18.18	Kaplan-Meier	sqrt(x)	0.0009403	Param Inter 1 of 2
Calcium (mg/L)	HGWC-101	61	n/a	3/25/2020	18.4	No 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-102	61	n/a	6/18/2020	124	Yes 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-103	61	n/a	3/25/2020	86.8	Yes 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-105	61	n/a	3/25/2020	91.4	Yes 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-107	61	n/a	3/25/2020	59.5	No 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-109	61	n/a	3/25/2020	42.6	No 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-117	61	n/a	3/24/2020	68	Yes 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-118	61	n/a	3/25/2020	86.8	Yes 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-101	5.7	n/a	3/25/2020	5.2	No 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-102	5.7	n/a	6/18/2020	6.9	Yes 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-103	5.7	n/a	3/25/2020	5.1	No 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-105	5.7	n/a	3/25/2020	3.2	No 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-107	5.7	n/a	3/25/2020	3	No 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-109	5.7	n/a	3/25/2020	3.9	No 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-117	5.7	n/a	3/24/2020	12.5	Yes 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-118	5.7	n/a	3/25/2020	3.6	No 33	n/a	n/a	0	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-101	0.2	n/a	3/25/2020	0.1ND	No 36	0.08088	0.05726	25	Kaplan-Meier	No	0.0009403	Param Inter 1 of 2
Fluoride (mg/L)	HGWC-102	0.2	n/a	6/18/2020		No 36	0.08088	0.05726	25	Kaplan-Meier	No	0.0009403	Param Inter 1 of 2
Fluoride (mg/L)	HGWC-103	0.2	n/a	3/25/2020			0.08088	0.05726	25		No		Param Inter 1 of 2
Fluoride (mg/L)	HGWC-105	0.2	n/a	3/25/2020			0.08088	0.05726	25	•	No		Param Inter 1 of 2
Fluoride (mg/L)	HGWC-107	0.2	n/a	3/25/2020			0.08088	0.05726	25	•	No		Param Inter 1 of 2
Fluoride (mg/L)	HGWC-109	0.2	n/a	3/25/2020			0.08088	0.05726	25		No		Param Inter 1 of 2
Fluoride (mg/L)	HGWC-117	0.2	n/a	3/24/2020			0.08088	0.05726	25	•	No		Param Inter 1 of 2
Fluoride (mg/L)	HGWC-118	0.2	n/a	3/25/2020		No 36		0.05726	25	' Kaplan-Meier	No		Param Inter 1 of 2
pH (s.u.)	HGWC-101	7.4	5.5	3/25/2020		No 36		n/a	0	n/a	n/a	0.002737	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-102	7.4	5.5	6/18/2020		No 36		n/a	0	n/a	n/a	0.002737	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-103	7.4	5.5	3/25/2020		Yes 36		n/a	0	n/a	n/a	0.002737	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-105	7.4	5.5	3/25/2020		No 36		n/a	0	n/a	n/a	0.002737	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-107	7.4	5.5	3/25/2020		No 36		n/a	0	n/a	n/a	0.002737	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-109	7.4	5.5	3/25/2020		No 36		n/a	0	n/a	n/a	0.002737	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-117	7.4	5.5	3/24/2020		No 36		n/a	0	n/a	n/a	0.002737	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-118	7.4	5.5	3/25/2020		No 36		n/a	0	n/a	n/a	0.002737	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-101	14	n/a	3/25/2020		Yes 33		n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-102	14	n/a	6/18/2020		Yes 33		n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-103	14	n/a	3/25/2020		Yes 33		n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-105	14	n/a	3/25/2020		Yes 33		n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-107	14	n/a	3/25/2020		Yes 33		n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-109	14	n/a	3/25/2020		Yes 33		n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-117	14	n/a	3/24/2020		Yes 33		n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-118	14	n/a	3/25/2020		Yes 33		n/a	3.03	n/a	n/a	0.001617	NP Inter (normality) 1 of 2
Total Dissolved Solids (mg/L)	HGWC-101	250	n/a	3/25/2020		No 32		0.7713	0	None	x^(1/3)		Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-102	250	n/a	6/18/2020		Yes 32		0.7713	0	None	x^(1/3)		Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-103	250	n/a	3/25/2020		Yes 32		0.7713	0	None	x^(1/3)		Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-105	250	n/a	3/25/2020		Yes 32		0.7713	0	None	x^(1/3)		Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-107	250	n/a	3/25/2020		Yes 32		0.7713	0	None	x^(1/3)		Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-109	250	n/a	3/25/2020		No 32		0.7713	0	None	x^(1/3)		Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-117	250	n/a	3/24/2020		Yes 32		0.7713	0	None	x^(1/3)		Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-118	250	n/a	3/25/2020		Yes 32		0.7713	0	None	x^(1/3)		Param Inter 1 of 2
(02			-		()		

Exceeds Limit: HGWC-102, HGWC-103, HGWC-105, HGWC-107, HGWC-109, HGWC-117, HGWC-118

Prediction Limit

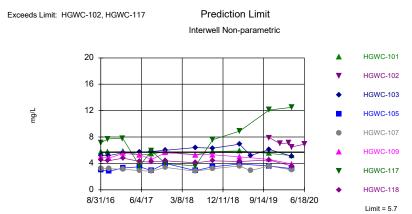
Interwell Parametric



Background Data Summary (based on square root transformation) (after Kaplan-Meier Adjustment): Mean=0.09613, Std. Dev.=0.02563, n=33, 18.18% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.92, critical = 0.906. Kappa = 2.05 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.0009403. Comparing 8 points to limit.

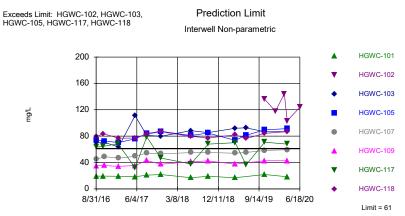
Constituent: Boron Analysis Run 7/16/2020 2:35 PM View: Appendix III
Plant Hammond Client: Southern Company Data: Hammond AP-4

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 33 background values. Annual per-constituent alpha = 0.001515, Individual comparison alpha = 0.001617 (1 of 2). Comparing 8 points to limit.

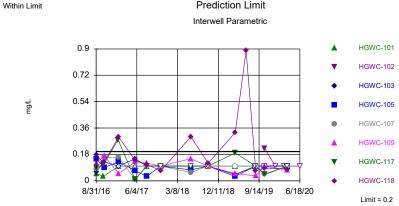
Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 33 background values. Annual per-constituent alpha = 0.001617 (1 of 2). Comparing 8 points to limit.

Constituent: Calcium Analysis Run 7/16/2020 2:35 PM View: Appendix III
Plant Hammond Client: Southern Company Data: Hammond AP-4

 ${\it Sanitas}^{\text{\tiny TM}} \ v.9.6.26d \ Groundwater \ Stats \ Consulting. \ UG \\ Hollow \ symbols \ indicate \ censored \ values.$

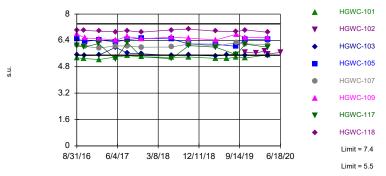


Background Data Summary (after Kaplan-Meier Adjustment): Mean=0.08088, Std. Dev.=0.05726, n=36, 25% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9469, critical = 0.912. Kappa = 2.031 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.0009403. Comparing 8 points to limit

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Exceeds Limits: HGWC-103

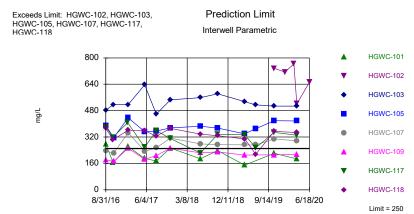
Prediction Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limits are highest and lowest of 36 background values. Annual perconstituent alpha = 0.04335. Individual comparison alpha = 0.002737 (1 of 2). Comparing 8 points to limit.

Constituent: pH Analysis Run 7/16/2020 2:35 PM View: Appendix III
Plant Hammond Client: Southern Company Data: Hammond AP-4

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG



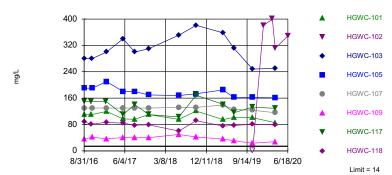
Background Data Summary (based on cube root transformation): Mean=4.71, Std. Dev.=0.7713, n=32. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9206, critical = 0.904. Kappa = 2.056 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.009403. Comparing 8 points to limit.

Constituent: Total Dissolved Solids Analysis Run 7/16/2020 2:35 PM View: Appendix III
Plant Hammond Client: Southern Company Data: Hammond AP-4

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG Hollow symbols indicate censored values.

Exceeds Limit: HGWC-101, HGWC-102, HGWC-103, HGWC-105, HGWC-107, HGWC-109, HGWC-117, HGWC-118

Prediction Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 33 background values. 3.03% NDs. Annual perconstituent alpha = 0.02556. Individual comparison alpha = 0.001617 (1 of 2). Comparing 8 points to limit.

Constituent: Sulfate Analysis Run 7/16/2020 2:35 PM View: Appendix III

Plant Hammond Client: Southern Company Data: Hammond AP-4

Constituent: Boron (mg/L) Analysis Run 7/16/2020 2:37 PM View: Appendix III
Plant Hammond Client: Southern Company Data: Hammond AP-4

8/30/2016	HGWA-111 (bg) <0.04	HGWA-113 (bg) <0.04	HGWA-112 (bg) <0.04	HGWC-107	HGWC-105	HGWC-118	HGWC-109	HGWC-117	HGWC-101
8/31/2016				0.651	1.14	0.681	0.402	0.821	0.0724 (J)
10/20/2016	0.016 (J)					0.697		0.956	0.0877 (J)
10/24/2016		0.0226 (J)	0.0367 (J)						
10/25/2016				0.778	1.21		0.372		
1/25/2017	0.0095 (J)	0.009 (J)	0.0075 (J)						
1/27/2017								0.99	
1/31/2017				0.782	1.43	0.768	0.404		0.0928
5/23/2017		0.0082 (J)	0.0073 (J)			0.754		0.438	0.0795
5/24/2017	0.0094 (J)			0.753	1.3		0.415		
8/10/2017	<0.04	0.0061 (J)	<0.04	0.702	1.28	0.608	0.397	0.821	0.0814
11/13/2017	0.0103 (J)		0.0089 (J)						
11/14/2017		0.012 (J)		0.78	1.29	0.691	0.366	0.536	0.108
6/4/2018	0.0065 (J)		0.007 (J)						
6/5/2018		0.0085 (J)							
6/6/2018				0.87	1.4		0.48		0.081
6/7/2018						0.57		0.5	
10/1/2018	0.0054 (J)	0.0042 (J)	<0.04						
10/2/2018				0.82	1.2		0.43		
10/3/2018						0.51		0.85	0.092
4/1/2019	0.0076 (J)								
4/2/2019		0.0059 (J)	0.0043 (J)						
4/3/2019				0.89			0.4		
4/4/2019					1.4 (X)				0.06 (X)
4/5/2019						0.6 (X)		1 (X)	
6/17/2019				0.86			0.37		
10/21/2019	0.0097 (J)								
10/22/2019		0.01 (J)	0.016 (J)	0.91		0.65	0.32	1	
10/23/2019					1.3				0.1
1/3/2020									
3/4/2020									
3/24/2020	0.011 (J)		0.012 (J)					1	
3/25/2020				0.87	1.4	0.7	0.36		0.08 (J)
4/9/2020		0.012 (J)							
6/18/2020									

Constituent: Boron (mg/L) Analysis Run 7/16/2020 2:37 PM View: Appendix III
Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWC-103	HGWC-102
8/30/2016		
8/31/2016	2.22	
10/20/2016		
10/24/2016	1.83	
10/25/2016		
1/25/2017		
1/27/2017		
1/31/2017	2.12	
5/23/2017	2.56	
5/24/2017		
8/10/2017	2.28	
11/13/2017		
11/14/2017	2.32	
6/4/2018		
6/5/2018		
6/6/2018	2.5	
6/7/2018		
10/1/2018		
10/2/2018		
10/3/2018	2.4	
4/1/2019		
4/2/2019		
4/3/2019		
4/4/2019	2.4	
4/5/2019		
6/17/2019	2.3	
10/21/2019		
10/22/2019		
10/23/2019	2.3	3.1
1/3/2020		3.4
3/4/2020		3.7
3/24/2020		2.4
3/25/2020	2.3	
4/9/2020		
6/18/2020		2.9

Constituent: Calcium (mg/L) Analysis Run 7/16/2020 2:37 PM View: Appendix III
Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWA-111 (bg)	HGWA-112 (bg)	HGWA-113 (bg)	HGWC-117	HGWC-109	HGWC-107	HGWC-105	HGWC-103	HGWC-118
8/30/2016	40.3	6.69	6.72						
8/31/2016				63.4	35.1	44.7	74.2	70.4	79.3
10/20/2016	38.7			64.4					83.7
10/24/2016		6.25	6.4					70.9	
10/25/2016					35.4	49	72.5		
1/25/2017	44.6	6.58	6.87						
1/27/2017				68.6					
1/31/2017					34.2	46.6	70.3	63.6	76.8
5/23/2017		6.4	7.13	32				111	77.2
5/24/2017	34.8				35.3	49.5	75.9		
8/10/2017	48.6	6.54	6.71	78.9	43.1	54.2	84	81.2	83.1
11/13/2017	17.1	6.26							
11/14/2017			7.4	46.9	37.4	53.2	87.2	79.7	86.7
6/4/2018	30.1	7.4							
6/5/2018			7.4						
6/6/2018					41.1	55	81	88.3	
6/7/2018				37.7					79.7
10/1/2018	14.2 (J)	5.8	6.2						
10/2/2018					42.5	55.4	84.7		
10/3/2018				68				85.3	77.1
4/1/2019	58.4								
4/2/2019		6.7	7.4						
4/3/2019					37.5	54			
4/4/2019							73.8	91.9	
4/5/2019				70					82
6/17/2019						55.3	81.2	92.6	
6/18/2019				36.3					76.5
10/21/2019	51								
10/22/2019		6.3	7.2	70.9	42.6	58.1			84.2
10/23/2019							89.4	86.5	
1/3/2020									
3/4/2020									
3/24/2020	61.2	7		68					
3/25/2020					42.6	59.5	91.4	86.8	86.8
4/9/2020			8.3						
6/18/2020									

Constituent: Calcium (mg/L) Analysis Run 7/16/2020 2:37 PM View: Appendix III
Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWC-101	HGWC-102
8/30/2016		
8/31/2016	19.4	
10/20/2016	19.3	
10/24/2016		
10/25/2016		
1/25/2017		
1/27/2017		
1/31/2017	19.1	
5/23/2017	18.3	
5/24/2017		
8/10/2017	20.9	
11/13/2017		
11/14/2017	21.7	
6/4/2018		
6/5/2018		
6/6/2018	17	
6/7/2018		
10/1/2018		
10/2/2018		
10/3/2018	19.1 (J)	
4/1/2019		
4/2/2019		
4/3/2019		
4/4/2019	16.9	
4/5/2019		
6/17/2019		
6/18/2019		
10/21/2019		
10/22/2019		
10/23/2019	21.9	136
1/3/2020		118
3/4/2020		144
3/24/2020		103
3/25/2020	18.4	
4/9/2020		
6/18/2020		124

Constituent: Chloride (mg/L) Analysis Run 7/16/2020 2:37 PM View: Appendix III Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWA-111 (bg)	HGWA-113 (bg)	HGWA-112 (bg)	HGWC-109	HGWC-107	HGWC-117	HGWC-105	HGWC-103	HGWC-101
8/30/2016	3.3	2	5.4						
8/31/2016				5	3.2	7.1	3	5.2	5.7
10/20/2016	3.2					7.7			5.7
10/24/2016		1.9	5.2					5.2	
10/25/2016				4.8	3.2		2.8		
1/25/2017	2.7	1.9	5						
1/27/2017						7.8			
1/31/2017				5.5	3.1		3.3	5.6	5.8
5/23/2017		1.6	5.1			3.6		5.7	5.3
5/24/2017	3			5.3	2.9		3.5		
8/10/2017	2.8	1.7	5.2	4.6	2.8	5.9	2.9	5.8	5.4
11/13/2017	2.5		5.5						
11/14/2017		2		5.6	3.4	4	4	6	5.8
6/4/2018	2.6		5.3						
6/5/2018		1.7							
6/6/2018				5.3	2.8		2.9	6.4	5.3
6/7/2018						3.6			
10/1/2018	2.2	1.6	5.6						
10/2/2018				5.3	3.2		3.5		
10/3/2018						7.6		6.3	5.8
4/1/2019	4								
4/2/2019		1.8	5.7						
4/3/2019				5	3.6				
4/4/2019							3.9	6.9	5.9
4/5/2019						8.9			
6/17/2019					2.9			5.2	
10/21/2019	3.9								
10/22/2019		1.9	5.5	4.6	3.6	12.1			
10/23/2019							3.6	6.1	5.5
1/3/2020									
3/4/2020									
3/24/2020	3.6		5.2			12.5			
3/25/2020				3.9	3		3.2	5.1	5.2
4/9/2020		1.4							
6/18/2020									

Constituent: Chloride (mg/L) Analysis Run 7/16/2020 2:37 PM View: Appendix III Plant Hammond Client: Southern Company Data: Hammond AP-4

8/30/2016 8/31/2016 10/20/2016 10/24/2016	HGWC-118	HGWC-102
8/31/2016 10/20/2016		
10/20/2016	4.5	
10/24/2016	4.4	
10/25/2016		
1/25/2017		
1/27/2017		
1/31/2017	4.8	
5/23/2017	4.3	
5/24/2017		
8/10/2017	4.2	
11/13/2017		
11/14/2017	4.4	
6/4/2018		
6/5/2018		
6/6/2018		
6/7/2018	4.1	
10/1/2018		
10/2/2018		
10/3/2018	4.4	
4/1/2019		
4/2/2019		
4/3/2019		
4/4/2019		
4/5/2019	4.3	
6/17/2019		
10/21/2019		
10/22/2019	4.5	
10/23/2019		7.9
1/3/2020		7
3/4/2020		7.1
3/24/2020		6.5
3/25/2020	3.6	
4/9/2020		
6/18/2020		6.9

Constituent: Fluoride (mg/L) Analysis Run 7/16/2020 2:37 PM View: Appendix III
Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWA-111 (bg)	HGWA-113 (bg)	HGWA-112 (bg)	HGWC-118	HGWC-103	HGWC-105	HGWC-107	HGWC-101	HGWC-117
8/30/2016	0.07 (J)	0.2 (J)	0.04 (J)						
8/31/2016				0.18 (J)	0.06 (J)	0.15 (J)	0.08 (J)	0.05 (J)	0.09 (J)
10/20/2016	0.07 (J)			0.12 (J)				0.03 (J)	0.11 (J)
10/24/2016		0.16 (J)	0.05 (J)		0.13 (J)				
10/25/2016						0.09 (J)	0.16 (J)		
1/25/2017	0.14 (J)	0.15 (J)	<0.1						
1/27/2017									0.28 (J)
1/31/2017				0.3	<0.1	0.13 (J)	0.16 (J)	<0.1	
5/23/2017		0.18 (J)	0.004 (J)	0.14 (J)	0.15 (J)			<0.1	0.01 (J)
5/24/2017	0.02 (J)					0.07 (J)	0.009 (J)		
8/10/2017	0.06 (J)	0.19 (J)	0.03 (J)	0.11 (J)	<0.1	0.03 (J)	<0.1	<0.1	0.1 (J)
11/13/2017	<0.1		<0.1						
11/14/2017		0.16 (J)		0.07 (J)	<0.1	<0.1	<0.1	<0.1	<0.1
6/4/2018	0.032 (J)		<0.1						
6/5/2018		0.18 (J)							
6/6/2018					<0.1	0.074 (J)	0.057 (J)	<0.1	
6/7/2018				0.3					<0.1
10/1/2018	<0.1	0.078 (J)	<0.1						
10/2/2018						<0.1	<0.1		
10/3/2018				0.12 (J)	<0.1			<0.1	<0.1
4/1/2019	0.042 (J)								
4/2/2019		0.18 (J)	<0.1						
4/3/2019							<0.1		
4/4/2019					0.042 (J)	0.03 (J)		<0.1	
									0.19 (J)
				0.89					
	0.048 (J)	0.11 (J)	<0.1						
				0.07 (J)	<0.1	<0.1		<0.1	<0.1
							<0.1		
	0.12 (J)								
		0.18 (J)	0.05 (J)	0.087 (J)			0.047 (J)		0.042 (J)
					<0.1	<0.1		<0.1	
	υ.076 (J)		<0.1						<0.1
				0.078 (J)	<0.1	<0.1	<0.1	<0.1	
		0.14 (J)							
6/18/2020									
	8/31/2016 10/20/2016 10/24/2016 10/25/2016 1/25/2017 1/27/2017 1/31/2017 5/23/2017 5/24/2017 8/10/2017 11/13/2017 11/14/2017 6/4/2018 6/5/2018 6/6/2018 6/7/2018 10/1/2018 10/2/2018 10/2/2018 10/2/2018 4/3/2019 4/3/2019	8/30/2016 0.07 (J) 8/31/2016 10/20/2016 0.07 (J) 10/24/2016 10/25/2016 11/25/2017 0.14 (J) 11/27/2017 1/31/2017 5/23/2017 5/24/2017 0.06 (J) 11/13/2017 0.06 (J) 11/13/2017 0.06 (J) 11/14/2017 6/4/2018 0.032 (J) 6/5/2018 6/6/2018 6/6/2018 6/7/2018 10/1/2018 10/1/2018 10/1/2018 10/3/2018 4/1/2019 4/3/2019 4/4/2019 4/4/2019 4/5/2019 8/23/2019 10/21/2019 10/21/2019 10/22/2019 10/23/2019 11/3/2020 3/4/2020 3/24/2020 4/9/2020	8/30/2016	8/30/2016	8/30/2016 0.07 (J) 0.2 (J) 0.04 (J) 8/31/2016 0.07 (J)	830302016 0.07 (J) 0.2 (J) 0.04 (J) 83112016 0.07 (J)	8302016 0.07 (J) 0.2 (J) 0.04 (J) 0.18 (J) 0.06 (J) 0.15 (J) 8312016 0.07 (J) 1.2 (J) 0.16 (J) 0.12 (J) 0.15 (J) 0.10 (J) 10202016 0.7 (J) 0.16 (J) 0.05 (J) 0.12 (J) 0.09 (J) 10252016 1.4 (J) 0.15 (J) 0.1 0.09 (J) 0.09 (J) 1/272017 0.14 (J) 0.15 (J) 0.1 0.1 0.09 (J) 1/272017 1.2 (J) 0.18 (J) 0.04 (J) 0.15 (J) 0.07 (J) 5/232017 0.2 (J) 0.18 (J) 0.04 (J) 0.15 (J) 0.07 (J) 5/232017 0.06 (J) 0.19 (J) 0.03 (J) 0.11 (J) 0.15 (J) 0.07 (J) 1/1/32017 0.1 0.14 (J) 0.11 (J) 0.10 (J) 0.01 (J) 1/1/32017 0.1 0.18 (J) 0.14 (J) 0.11 (J) 0.14 (J) 6/5/2018 0.032 (J) 0.18 (J) 0.12 (J) 0.14 (J) 0.14 (J) 1/1/2019 0.04 (J) <t< td=""><td>8302016 07 (J) 0.2 (J) 0.9 (J) 0.18 (J) 0.06 (J) 0.15 (J) 0.8 (J) 8312016 1 (J) 1 (J) 0.16 (J) 0.11 (J) 0.15 (J) 0.07 (J)</td><td>8302016 0.7(1) 0.2(1) 0.94(1) 1.81(2) 0.15(1) 0.15(1) 0.</td></t<>	8302016 07 (J) 0.2 (J) 0.9 (J) 0.18 (J) 0.06 (J) 0.15 (J) 0.8 (J) 8312016 1 (J) 1 (J) 0.16 (J) 0.11 (J) 0.15 (J) 0.07 (J)	8302016 0.7(1) 0.2(1) 0.94(1) 1.81(2) 0.15(1) 0.15(1) 0.

Constituent: Fluoride (mg/L) Analysis Run 7/16/2020 2:37 PM View: Appendix III
Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWC-109	HGWC-102			
8/30/2016					
8/31/2016	0.12 (J)				
10/20/2016					
10/24/2016					
10/25/2016	0.17 (J)				
1/25/2017					
1/27/2017					
1/31/2017	0.05 (J)				
5/23/2017					
5/24/2017	0.13 (J)				
8/10/2017	0.12 (J)				
11/13/2017					
11/14/2017	<0.1				
6/4/2018					
6/5/2018					
6/6/2018	0.15 (J)				
6/7/2018					
10/1/2018					
10/2/2018	<0.1				
10/3/2018					
4/1/2019					
4/2/2019					
4/3/2019	0.05 (J)				
4/4/2019					
4/5/2019					
6/18/2019					
8/21/2019					
8/22/2019					
8/23/2019	0.034 (J)				
10/21/2019					
10/22/2019	0.099 (J)				
10/23/2019		0.22 (J)			
1/3/2020		<0.1			
3/4/2020		<0.1			
3/24/2020		<0.1			
3/25/2020	0.075 (J)				
4/9/2020					
6/18/2020		<0.1			

Constituent: pH (s.u.) Analysis Run 7/16/2020 2:37 PM View: Appendix III

Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWA-111 (bg)	HGWA-113 (bg)	HGWA-112 (bg)	HGWC-107	HGWC-105	HGWC-103	HGWC-117	HGWC-101	HGWC-118
8/30/2016	6.89	5.99	5.77						
8/31/2016				6.11	6.5	5.54	6.07	5.35	7.03
10/20/2016	6.73						6	5.3	7.01
10/24/2016		5.84	5.61			5.48			
10/25/2016				6.04	6.34				
1/25/2017	7.02	6.04	5.68						
1/27/2017							6.2		
1/31/2017				5.94	6.43	5.51		5.24	6.96
5/23/2017		6.01	5.7			5.98	5.27	5.39	6.92
5/24/2017	6.44			6.06	6.31				
8/10/2017	6.79	5.98	5.59	6.06	6.45	5.63	6.27	5.47	6.99
11/13/2017	5.94		5.56						
11/14/2017		6.16		5.99	6.53	5.59	5.4	5.4	6.9
6/4/2018	6.12		5.62						
6/5/2018		5.86							
6/6/2018				6	6.49	5.49		5.37	
6/7/2018							5.29		7.03
10/1/2018	5.92	5.94	5.62						
10/2/2018				6.18	6.18				
10/3/2018						5.53	6.08	5.39	7.08
4/1/2019	7.09								
4/2/2019		6	5.47						
4/3/2019				6.06					
4/4/2019					6.17	5.44		5.31	
4/5/2019							5.99		6.96
6/17/2019						5.53			
6/18/2019								5.3	
8/21/2019	6.6	6.05	5.8						
8/22/2019					6.04	5.55	5.53	5.39	6.93
8/23/2019				6.26					
10/21/2019	7.02								
10/22/2019		5.98	5.7	6.19			6.17		7.03
10/23/2019					6.46	5.49		5.33	
1/3/2020									
3/4/2020									
3/24/2020	7.37		5.64				5.99		
3/25/2020				6.13	6.47	5.49		5.53	6.89
4/9/2020		6.08							
6/18/2020									

Constituent: pH (s.u.) Analysis Run 7/16/2020 2:37 PM View: Appendix III

Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWC-109	HGWC-102
8/30/2016		
8/31/2016	6.78	
10/20/2016		
10/24/2016		
10/25/2016	6.55	
1/25/2017		
1/27/2017		
1/31/2017	6.5	
5/23/2017		
5/24/2017	6.42	
8/10/2017	6.63	
11/13/2017		
11/14/2017	6.5	
6/4/2018		
6/5/2018		
6/6/2018	6.59	
6/7/2018		
10/1/2018		
10/2/2018	6.54	
10/3/2018		
4/1/2019		
4/2/2019		
4/3/2019	6.42	
4/4/2019		
4/5/2019		
6/17/2019		
6/18/2019		
8/21/2019		
8/22/2019		
8/23/2019	6.76	
10/21/2019		
10/22/2019	6.58	
10/23/2019		5.68
1/3/2020		5.64
3/4/2020		5.75
3/24/2020		5.58
3/25/2020	6.56	
4/9/2020		
6/18/2020		5.67

Constituent: Sulfate (mg/L) Analysis Run 7/16/2020 2:37 PM View: Appendix III
Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWA-111 (bg)	HGWA-112 (bg)	HGWA-113 (bg)	HGWC-117	HGWC-109	HGWC-107	HGWC-105	HGWC-103	HGWC-118
8/30/2016	1.6	0.63 (J)	14						
8/31/2016				150	36	130	190	280	88
10/20/2016	1.6			150					81
10/24/2016		0.62 (J)	11					280	
10/25/2016					41	130	190		
1/25/2017	1.6	0.62 (J)	12						
1/27/2017				150					
1/31/2017					37	130	210	300	87
5/23/2017		0.55 (J)	12	110				340	84
5/24/2017	1.4				40	130	180		
8/10/2017	1.6	0.66 (J)	11	140	40	130	180	300	78
11/13/2017	1.3	0.61 (J)							
11/14/2017			11	110	40	130	170	310	79
6/4/2018	1.4	0.73 (J)							
6/5/2018			9.9						
6/6/2018					49.7	132	168	351	
6/7/2018				103					60.1
10/1/2018	1	0.52 (J)	6.7						
10/2/2018					42.3	132	173		
10/3/2018				169				381	91.5
4/1/2019	1.7								
4/2/2019		0.78 (J)	8.7						
4/3/2019					36	139			
4/4/2019							185	358	
4/5/2019				141					75.1
6/17/2019					30.9	126	162	311	
6/18/2019				116					77
10/21/2019	1.8								
10/22/2019		0.6 (J)	6.8	133	23.2	123			80.9
10/23/2019							162	248	
1/3/2020									
3/4/2020									
3/24/2020	1.6	<1		129					
3/25/2020					27.9	116	161	251	78.4
4/9/2020			6.6						
6/18/2020									

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 7/16/2020 2:37 PM View: Appendix III
Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWC-101	HGWC-102
8/30/2016		
8/31/2016	110	
10/20/2016	110	
10/24/2016		
10/25/2016		
1/25/2017		
1/27/2017		
1/31/2017	120	
5/23/2017	97	
5/24/2017		
8/10/2017	96	
11/13/2017		
11/14/2017	110	
6/4/2018		
6/5/2018		
6/6/2018	95.5	
6/7/2018		
10/1/2018		
10/2/2018		
10/3/2018	121	
4/1/2019		
4/2/2019		
4/3/2019		
4/4/2019	95.1	
4/5/2019		
6/17/2019		
6/18/2019	102	
10/21/2019		
10/22/2019		
10/23/2019	101	<1
1/3/2020		380
3/4/2020		400
3/24/2020		311
3/25/2020	85.5	
4/9/2020		
6/18/2020		349

Prediction Limit

Constituent: Total Dissolved Solids (mg/L) Analysis Run 7/16/2020 2:37 PM View: Appendix III
Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWA-111 (bg)	HGWA-113 (bg)	HGWA-112 (bg)	HGWC-103	HGWC-105	HGWC-107	HGWC-109	HGWC-117	HGWC-101
8/30/2016	172	77	76						
8/31/2016				483	389	235	182	381	278
10/20/2016	108							319	165
10/24/2016		111	65	517					
10/25/2016					316	223	172		
1/25/2017	345	155	152 (o)						
1/27/2017								407	
1/31/2017				516	437	346	252		263
5/23/2017		74	52	637				258	190
5/24/2017	126				352	234	184		
8/10/2017	174	94	60	459	356	254	208	359	175
11/13/2017	158		75						
11/14/2017		89		545	375	313	252	310	253
6/4/2018	131		70						
6/5/2018		92							
6/6/2018				559	385	278	224		188
6/7/2018								223	
10/1/2018	101	91	76						
10/2/2018					374	274	230		
10/3/2018				582				337	238
4/1/2019	213								
4/2/2019		94	69						
4/3/2019						273	210		
4/4/2019				535	340				149
4/5/2019								334	
6/17/2019				515	370	272			
6/18/2019								254	
10/21/2019	187								
10/22/2019		95	81			308	212	348	
10/23/2019				507	419				221
1/3/2020									
3/4/2020									
3/24/2020	207		52					331	
3/25/2020				507	417	297	213		187
4/9/2020		48							
6/18/2020									

Prediction Limit

Constituent: Total Dissolved Solids (mg/L) Analysis Run 7/16/2020 2:37 PM View: Appendix III
Plant Hammond Client: Southern Company Data: Hammond AP-4

	HGWC-118	HGWC-102
8/30/2016		
8/31/2016	373	
10/20/2016	305	
10/24/2016		
10/25/2016		
1/25/2017		
1/27/2017		
1/31/2017	361	
5/23/2017	359	
5/24/2017		
8/10/2017	325	
11/13/2017		
11/14/2017	373	
6/4/2018		
6/5/2018		
6/6/2018		
6/7/2018	338	
10/1/2018		
10/2/2018		
10/3/2018	328	
4/1/2019		
4/2/2019		
4/3/2019		
4/4/2019		
4/5/2019	308	
6/17/2019		
6/18/2019	215	
10/21/2019		
10/22/2019	354	
10/23/2019		736
1/3/2020		714
3/4/2020		764
3/24/2020		521
3/25/2020	347	
4/9/2020		
6/18/2020		652

FIGURE E.

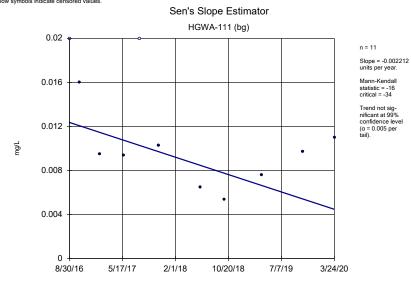
Appendix III Trend Tests - Prediction Limit Exceedances - Significant Results

	——————————————————————————————————————											
	Plant Hammond Client: Southern Company Data: Hammond AP-4 Printed 7/16/2020, 2:44 PM											
Constituent	Well	Slope	Calc.	Critical	Sig.	<u>N</u>	%NDs	Normality	<u>Xform</u>	<u>Alpha</u>	Method	
Boron (mg/L)	HGWC-107	0.05006	43	38	Yes	12	0	n/a	n/a	0.01	NP	
Sulfate (mg/L)	HGWA-113 (bg)	-1.874	-43	-34	Yes	11	0	n/a	n/a	0.01	NP	
Sulfate (mg/L)	HGWC-105	-8.601	-45	-38	Yes	12	0	n/a	n/a	0.01	NP	

Appendix III Trend Tests - Prediction Limit Exceedances - All Results Plant Hammond Client: Southern Company Data: Hammond AP-4 Printed 7/16/2020, 2:44 PM

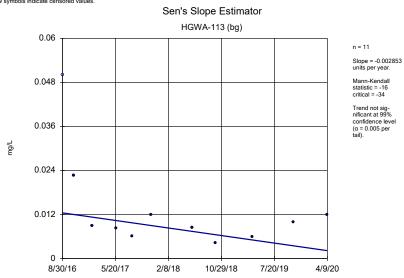
	Plant Hammond	Client: Southern Compa	ny Data: Ha	ammond A	ond AP-4 Prir		6/2020,	2:44 PI	M			
Constituent	Well		Slope	Calc.	Critical	Sig.	N	%NDs	Normality	<u>Xform</u>	<u>Alpha</u>	Method
Boron (mg/L)	HGWA-111 (bg)		-0.002212	-16	-34	No	11	18.18	n/a	n/a	0.01	NP
Boron (mg/L)	HGWA-112 (bg)		-0.001613	-14	-34	No	11	27.27	n/a	n/a	0.01	NP
Boron (mg/L)	HGWA-113 (bg)		-0.002853	-16	-34	No	11	9.091	n/a	n/a	0.01	NP
Boron (mg/L)	HGWC-102		-0.6991	-2	-12	No	5	0	n/a	n/a	0.01	NP
Boron (mg/L)	HGWC-103		0.02703	14	38	No	12	0	n/a	n/a	0.01	NP
Boron (mg/L)	HGWC-105		0.04572	17	34	No	11	0	n/a	n/a	0.01	NP
Boron (mg/L)	HGWC-107		0.05006	43	38	Yes	12	0	n/a	n/a	0.01	NP
Boron (mg/L)	HGWC-109		-0.01236	-20	-38	No	12	0	n/a	n/a	0.01	NP
Boron (mg/L)	HGWC-117		0.02526	19	34	No	11	0	n/a	n/a	0.01	NP
Boron (mg/L)	HGWC-118		-0.0216	-13	-34	No	11	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWA-111 (bg)		4.806	11	34	No	11	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWA-112 (bg)		0.0167	5	34	No	11	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWA-113 (bg)		0.3746	24	34	No	11	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWC-102		-42.96	-2	-12	No	5	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWC-103		5.162	30	38	No	12	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWC-105		4.827	36	38	No	12	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWC-117		1.467	9	38	No	12	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWC-118		0.9722	12	38	No	12	0	n/a	n/a	0.01	NP
Chloride (mg/L)	HGWA-111 (bg)		-0.07374	-1	-34	No	11	0	n/a	n/a	0.01	NP
Chloride (mg/L)	HGWA-112 (bg)		0.1134	19	34	No	11	0	n/a	n/a	0.01	NP
Chloride (mg/L)	HGWA-113 (bg)		-0.08753	-19	-34	No	11	0	n/a	n/a	0.01	NP
Chloride (mg/L)	HGWC-102		-1.861	-6	-12	No	5	0	n/a	n/a	0.01	NP
Chloride (mg/L)	HGWC-117		1.481	20	34	No	11	0	n/a	n/a	0.01	NP
pH (s.u.)	HGWA-111 (bg)		0.0729	7	38	No	12	0	n/a	n/a	0.01	NP
pH (s.u.)	HGWA-112 (bg)		-0.006326	-2	-38	No	12	0	n/a	n/a	0.01	NP
pH (s.u.)	HGWA-113 (bg)		0.01899	13	38	No	12	0	n/a	n/a	0.01	NP
pH (s.u.)	HGWC-103		-0.01538	-16	-43	No	13	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWA-111 (bg)		0	2	34	No	11	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWA-112 (bg)		-0.0125	-12	-34	No	11	9.091	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWA-113 (bg)		-1.874	-43	-34	Yes	11	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWC-101		-4.024	-25	-38	No	12	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWC-102		140.5	2	12	No	5	20	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWC-103		7.785	10	38	No	12	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWC-105		-8.601	-45	-38	Yes	12	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWC-107		0	-10	-38	No	12	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWC-109		-2.35	-20	-38	No	12	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWC-117		-5.533	-16	-38	No	12	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWC-118		-2.25	-22	-38	No	12	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWA-111 (bg)		9.812	9	34	No	11	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWA-112 (bg)		1.134	3	30	No	10	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWA-113 (bg)		-2.626	-4	-34	No	11	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWC-102		-131.9	-4	-12	No	5	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWC-103		-1.807	-5	-38	No	12	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWC-105		12.77	10	38	No	12	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWC-107		17.93	18	38	No	12	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWC-117		-10.59	-14	-38	No	12	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWC-118		-10.05	-17	-38	No	12	0	n/a	n/a	0.01	NP

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG Hollow symbols indicate censored values.



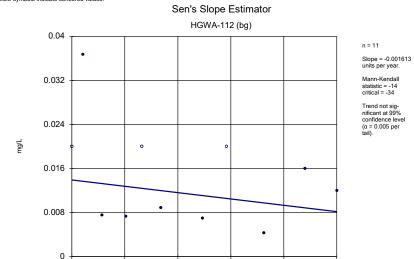
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Plant Hammond Client: Southern Company Data: Hammond AP-4

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG Hollow symbols indicate censored values.



Constituent: Boron Analysis Run 7/16/2020 2:43 PM View: Appendix III - Trend Tests
Plant Hammond Client: Southern Company Data: Hammond AP-4

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG Hollow symbols indicate censored values.



Constituent: Boron Analysis Run 7/16/2020 2:43 PM View: Appendix III - Trend Tests
Plant Hammond Client: Southern Company Data: Hammond AP-4

10/20/18

7/7/19

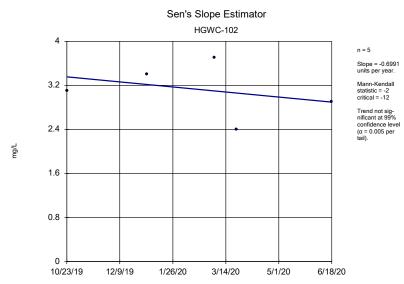
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3/24/20

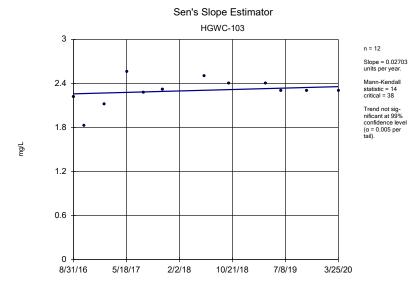
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8/30/16

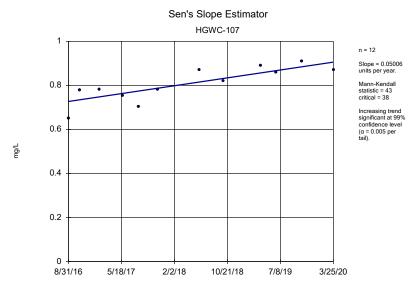
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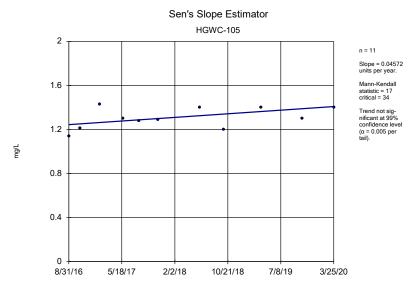
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Plant Hammond Client: Southern Company Data: Hammond AP-4



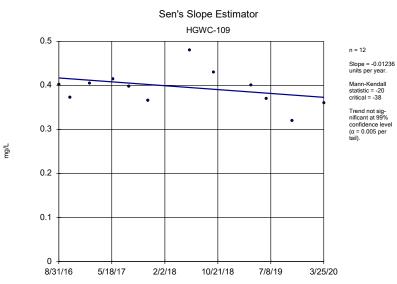
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Plant Hammond Client: Southern Company Data: Hammond AP-4



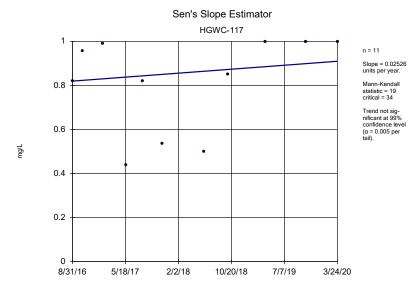
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Plant Hammond Client: Southern Company Data: Hammond AP-4



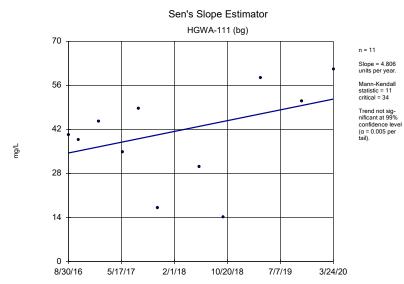
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Plant Hammond Client: Southern Company Data: Hammond AP-4



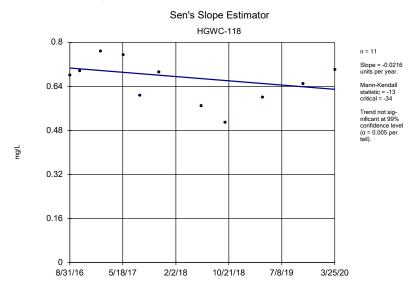
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Plant Hammond Client: Southern Company Data: Hammond AP-4



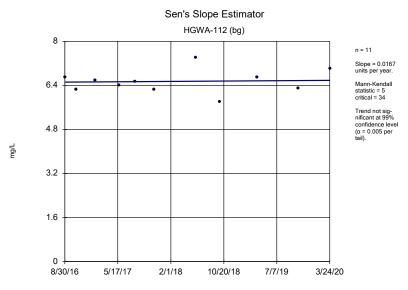
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Plant Hammond Client: Southern Company Data: Hammond AP-4



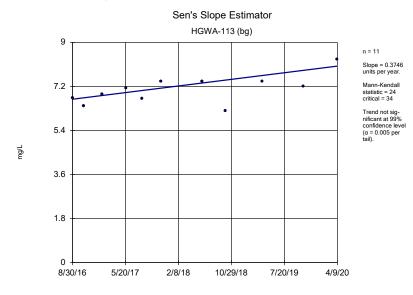
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Plant Hammond Client: Southern Company Data: Hammond AP-4



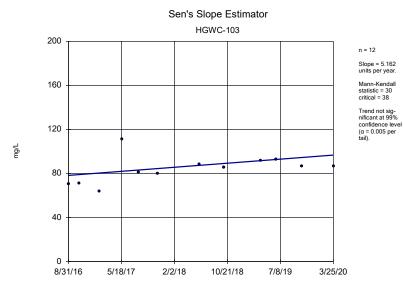
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Plant Hammond Client: Southern Company Data: Hammond AP-4



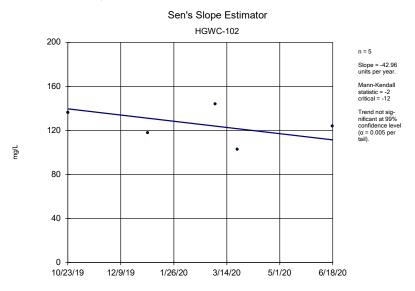
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Plant Hammond Client: Southern Company Data: Hammond AP-4



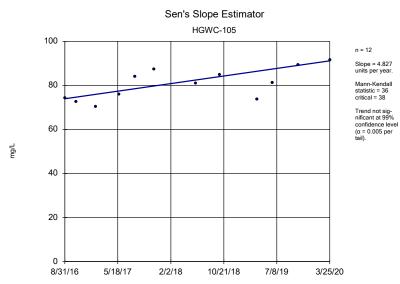
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Plant Hammond Client: Southern Company Data: Hammond AP-4



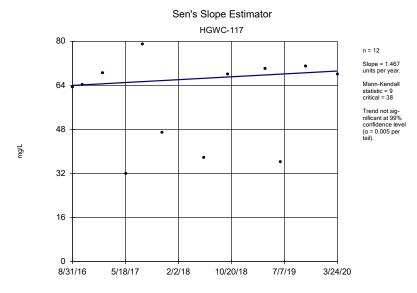
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Plant Hammond Client: Southern Company Data: Hammond AP-4



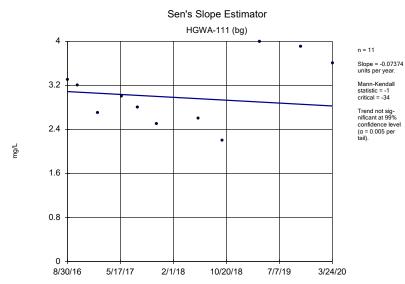
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Plant Hammond Client: Southern Company Data: Hammond AP-4



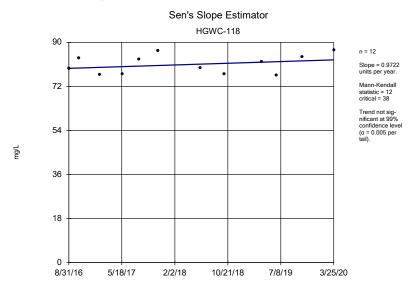
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Plant Hammond Client: Southern Company Data: Hammond AP-4



Constituent: Calcium Analysis Run 7/16/2020 2:43 PM View: Appendix III - Trend Tests
Plant Hammond Client: Southern Company Data: Hammond AP-4



Constituent: Chloride Analysis Run 7/16/2020 2:43 PM View: Appendix III - Trend Tests
Plant Hammond Client: Southern Company Data: Hammond AP-4



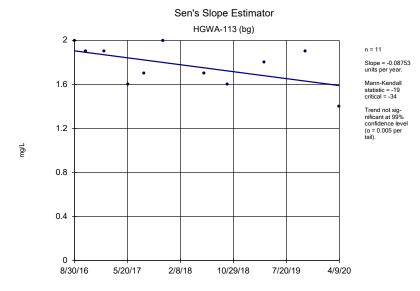
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Data: Hammond AP-4

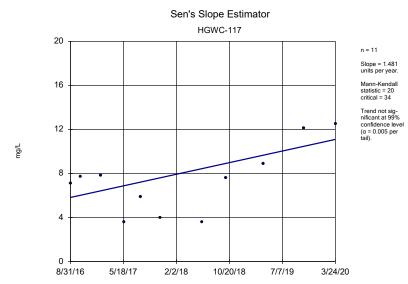
Plant Hammond Client: Southern Company



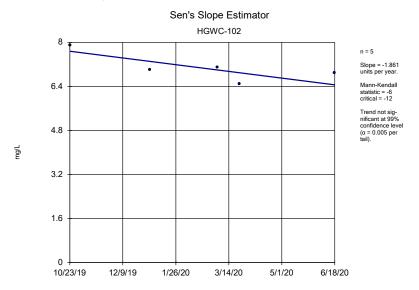
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Plant Hammond Client: Southern Company Data: Hammond AP-4



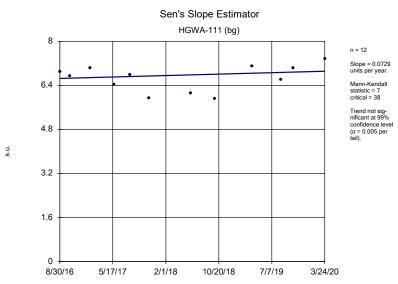
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Plant Hammond Client: Southern Company Data: Hammond AP-4



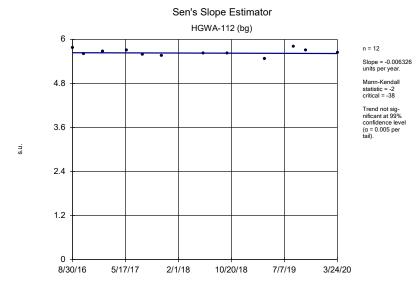
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Plant Hammond Client: Southern Company Data: Hammond AP-4



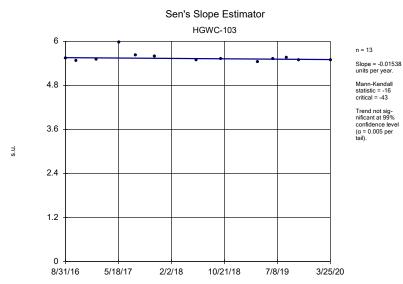
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Plant Hammond Client: Southern Company Data: Hammond AP-4



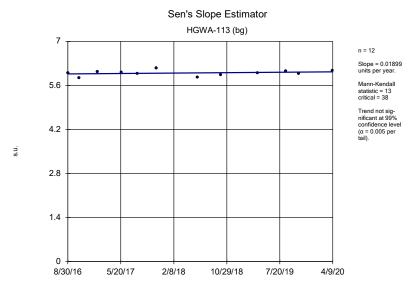
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Plant Hammond Client: Southern Company Data: Hammond AP-4



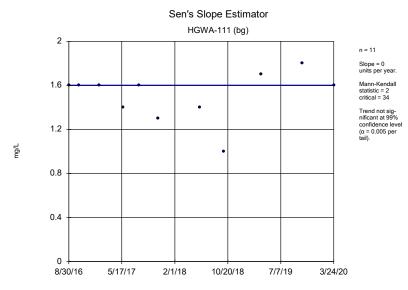
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Plant Hammond Client: Southern Company Data: Hammond AP-4



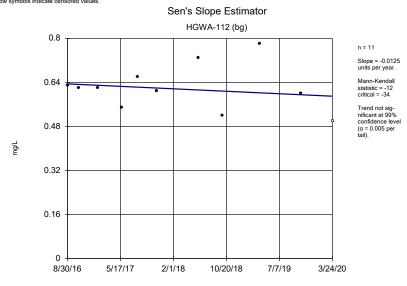
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Plant Hammond Client: Southern Company Data: Hammond AP-4



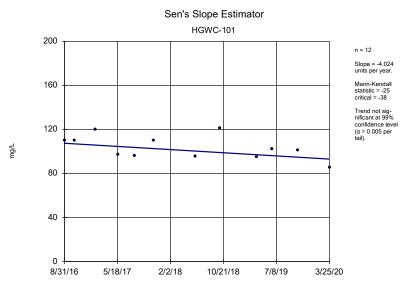
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Plant Hammond Client: Southern Company Data: Hammond AP-4



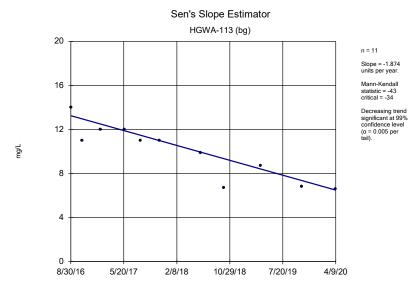
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Plant Hammond Client: Southern Company Data: Hammond AP-4

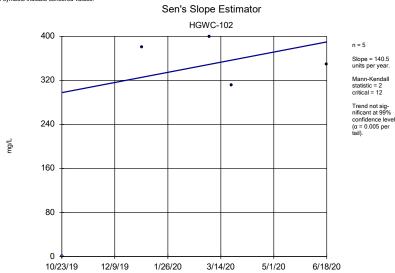


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Plant Hammond Client: Southern Company Data: Hammond AP-4

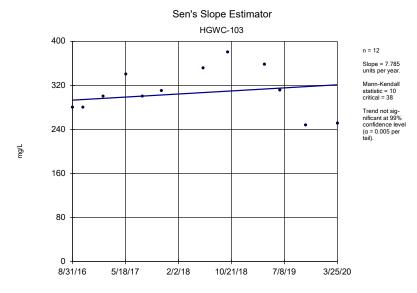


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Plant Hammond Client: Southern Company Data: Hammond AP-4

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG Hollow symbols indicate censored values.

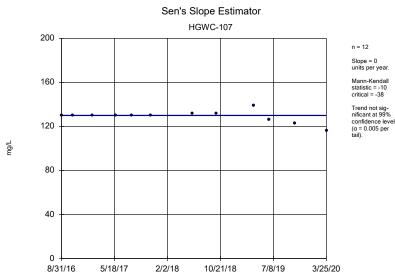


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Constituent: Sulfate Analysis Run 7/16/2020 2:43 PM View: Appendix III - Trend Tests
Plant Hammond Client: Southern Company Data: Hammond AP-4

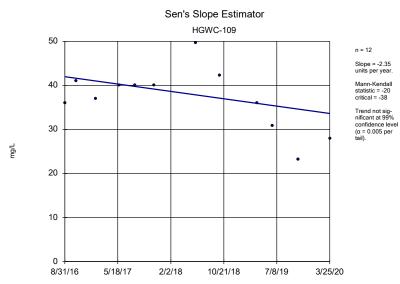
Sanitas $^{\text{\tiny TM}}$ v.9.6.26d Groundwater Stats Consulting. UG



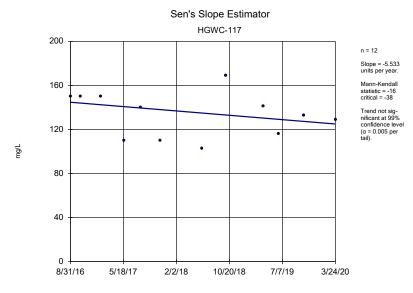
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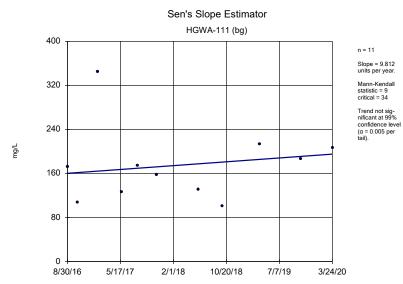
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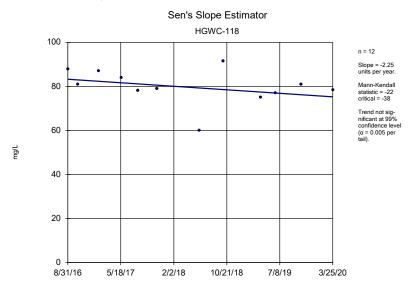
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Plant Hammond Client: Southern Company Data: Hammond AP-4



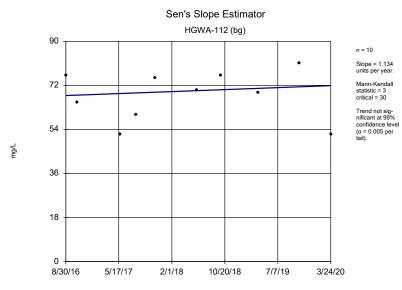
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Plant Hammond Client: Southern Company Data: Hammond AP-4



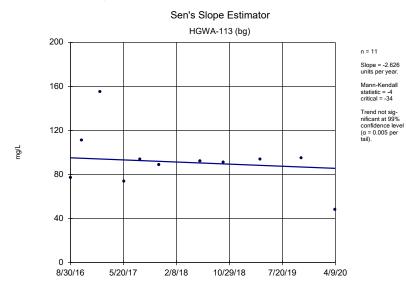
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Plant Hammond Client: Southern Company Data: Hammond AP-4



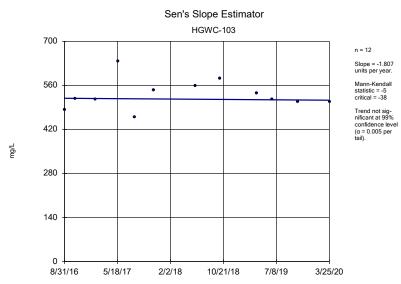
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Plant Hammond Client: Southern Company Data: Hammond AP-4



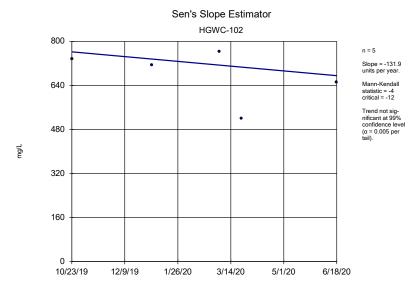
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Plant Hammond Client: Southern Company Data: Hammond AP-4



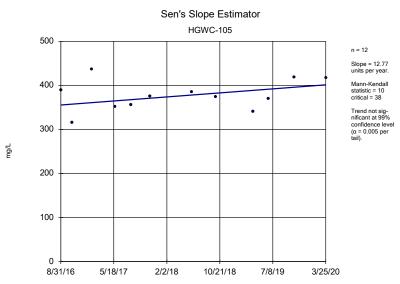
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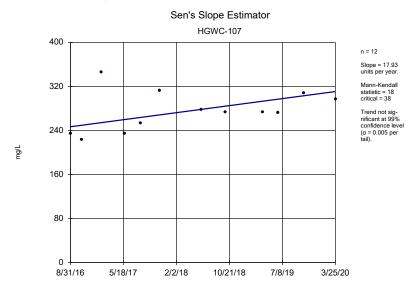
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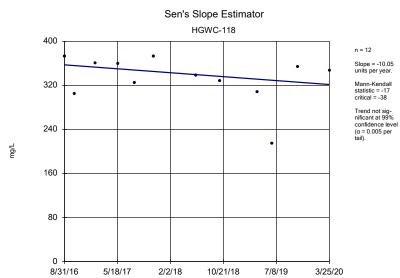


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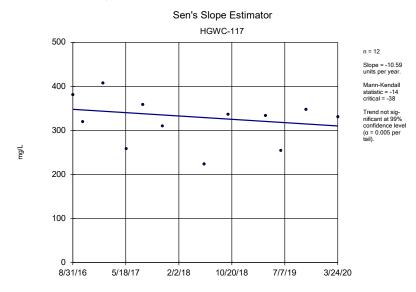


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Plant Hammond Client: Southern Company Data: Hammond AP-4

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG



Constituent: Total Dissolved Solids Analysis Run 7/16/2020 2:43 PM View: Appendix III - Trend Tests
Plant Hammond Client: Southern Company Data: Hammond AP-4



Constituent: Total Dissolved Solids Analysis Run 7/16/2020 2:43 PM View: Appendix III - Trend Tests
Plant Hammond Client: Southern Company Data: Hammond AP-4

FIGURE F.

Tolerance Limit Summary Table

Plant Hammond Client: Southern Company Data: Hammond AP-4 Printed 7/16/2020, 2:47 PM Upper Lim.Lower Lim.Date %NDs ND Adj. Constituent <u>Well</u> Observ. Sig. Bg N Bg Mean Std. Dev. Transform Alpha Method 0.0030 n/a n/a 27 100 n/a n/a NP Inter(NDs) Antimony (mg/L) n/a n/a n/a n/a 0.0050 n/a 33 93.94 n/a 0.184 NP Inter(NDs) Arsenic (mg/L) n/a n/a n/a n/a n/a n/a n/a Barium (mg/L) 0.034 n/a n/a n/a 33 0.02766 0.002762 0 None No 0.05 Inter n/a n/a NP Inter(NDs) Beryllium (mg/L) n/a 0.0030 n/a n/a n/a n/a 33 n/a n/a 96.97 n/a n/a 0.184 Cadmium (mg/L) 0.0025 NP Inter(NDs) n/a n/a n/a n/a n/a 33 n/a n/a 100 n/a n/a 0.184 Chromium (mg/L) n/a 0.009 n/a n/a 33 -6.416 0.7793 24.24 Kaplan-Meier In(x) 0.05 Inter NP Inter(NDs) Cobalt (mg/L) 0.0050 87.88 n/a 0.184 n/a n/a n/a n/a 33 n/a n/a n/a n/a Combined Radium 226 & 228 (pCi/L) n/a 1.3 n/a n/a n/a 33 0.6677 0.3051 None No 0.05 Inter Fluoride (mg/L) 0.24 n/a n/a n/a 36 0.2649 0.1036 25 Kaplan-Meier 0.05 Inter n/a n/a sqrt(x) Lead (mg/L) 0.0050 n/a 33 75.76 n/a NP Inter(NDs) Lithium (mg/L) 0.030 n/a NP Inter(NDs) n/a n/a n/a n/a n/a 33 60.61 n/a 0.184 n/a n/a Mercury (mg/L) n/a 0.00050 n/a n/a 27 n/a 66.67 n/a 0.2503 NP Inter(NDs) Molybdenum (mg/L) 0.010 0.2503 NP Inter(NDs) n/a 27 100 n/a n/a n/a n/a n/a n/a n/a n/a Selenium (mg/L) n/a 0.010 n/a 27 70.37 n/a 0.2503 NP Inter(NDs) Thallium (mg/L) 0.0010 n/a 27 100 n/a n/a 0.2503 NP Inter(NDs) n/a n/a n/a n/a n/a n/a

FIGURE G.

PLANT HAMMOND AP-4 GWPS												
Constituent Name	MCL	Background Limit	GWPS									
Antimony, Total (mg/L)	0.006	0.003	0.006									
Arsenic, Total (mg/L)	0.01	0.005	0.01									
Barium, Total (mg/L)	2	0.034	2									
Beryllium, Total (mg/L)	0.004	0.003	0.004									
Cadmium, Total (mg/L)	0.005	0.0025	0.005									
Chromium, Total (mg/L)	0.1	0.01*	0.1									
Cobalt, Total (mg/L)		0.005	0.005									
Combined Radium, Total (pCi/L)	5	1.3	5									
Fluoride, Total (mg/L)	4	0.24	4									
Lead, Total (mg/L)		0.005	0.005									
Lithium, Total (mg/L)		0.03	0.03									
Mercury, Total (mg/L)	0.002	0.0005	0.002									
Molybdenum, Total (mg/L)		0.01	0.01									
Selenium, Total (mg/L)	0.05	0.01	0.05									
Thallium, Total (mg/L)	0.002	0.001	0.002									

^{*}No detections of chromium in upgradient wells. Background limit is established at the reporting limit of 0.01 mg/L.

^{*}MCL = Maximum Contaminant Level

^{*}GWPS = Groundwater Protection Standard

FIGURE H.

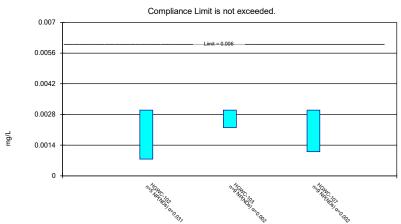
State Confidence Interval Summary - All Results (No Significant) Plant Hammond Client: Southern Company Data: Hammond AP-4 Printed 7/17/2020, 12:31 PM

		Plant Hammond	Client: So	uthern Compa	ny l	Data:	Hammond A	P-4 Printed	7/17/20)20, 12:31 PM			
Constituent	Well	Upper L	im. Lower Lin	n. Compliance	Sig.	N	<u>Mean</u>	Std. Dev.	%NDs	ND Adj.	<u>Transform</u>	<u>Alpha</u>	Method
Antimony (mg/L)	HGWC-102	0.003	0.00076	0.006	No	5	0.002552	0.001002	80	None	No	0.031	NP (NDs)
Antimony (mg/L)	HGWC-103	0.003	0.0022	0.006	No	9	0.002911	0.0002667	88.89	None	No	0.002	NP (NDs)
Antimony (mg/L)	HGWC-107	0.003	0.0011	0.006	No	9	0.002789	0.0006333	88.89	None	No	0.002	NP (NDs)
Arsenic (mg/L)	HGWC-101	0.005	0.005	0.01	No	11	0.004581	0.00139	90.91	None	No	0.006	NP (NDs)
Arsenic (mg/L)	HGWC-102	0.00109	2 0.000301	2 0.01	No	5	0.002386	0.002394	40	Kaplan-Meier	x^(1/3)	0.01	Param.
Arsenic (mg/L)	HGWC-109	0.00312	5 0.001366	0.01	No	11	0.002245	0.001056	0	None	No	0.01	Param.
Arsenic (mg/L)	HGWC-117	0.005	0.005	0.01	No	11	0.004579	0.001396	90.91	None	No	0.006	NP (NDs)
Barium (mg/L)	HGWC-101	0.04827	0.04033	2	No	11	0.0443	0.00477	0	None	No	0.01	Param.
Barium (mg/L)	HGWC-102	0.04078	0.02282	2	No	5	0.0318	0.005357	0	None	No	0.01	Param.
Barium (mg/L)	HGWC-103	0.04214	0.03379	2	No	11	0.03796	0.005012	0	None	No	0.01	Param.
Barium (mg/L)	HGWC-105	0.074	0.066	2	No	11	0.06791	0.003281	0	None	No	0.006	NP (normality)
Barium (mg/L)	HGWC-107	0.03945	0.03773	2	No	11	0.03859	0.001037	0	None	No	0.01	Param.
Barium (mg/L)	HGWC-109	0.09012		2	No	11	0.08641	0.004457	0	None	No	0.01	Param.
Barium (mg/L)	HGWC-117	0.05105		2	No	11	0.04485	0.007443	0	None	No	0.01	Param.
Barium (mg/L)	HGWC-118	0.0646	0.05514	2	No	11	0.05987	0.005676	0	None	No	0.01	Param.
Beryllium (mg/L)	HGWC-101	0.003	0.000065		No	11	0.001934	0.00148	63.64	None	No		NP (NDs)
Beryllium (mg/L)	HGWC-117	0.003	0.000079		No	11	0.002468	0.001184	81.82		No		NP (NDs)
Cadmium (mg/L)	HGWC-101	0.0003	0.0001	0.005	No	11	0.0002732	0.000329	9.091	None	No		NP (normality)
Cadmium (mg/L)	HGWC-102		82 0.000039		No	5	0.000374		0	None	No	0.000	Param.
Cadmium (mg/L)	HGWC-102		07 0.000635		No	11	0.000374	0.00009908		None	No	0.01	Param.
Cadmium (mg/L)	HGWC-107	0.00125		0.005	No	11	0.0007102	0.0005803	36.36	None	No		NP (normality)
Cadmium (mg/L)	HGWC-117		83 0.000520			11	0.0006445	0.0003003	0	None	No	0.000	Param.
Chromium (mg/L)	HGWC-101	0.00	0.00064	0.1		11	0.007475	0.004326		None	No		NP (NDs)
, - ,		0.01	0.00004				0.006228	0.004320	60				NP (NDs)
Chromium (mg/L)	HGWC-102			0.1						None	No		, ,
Chromium (mg/L)	HGWC-103	0.01	0.00063	0.1		11	0.007507	0.004277		None	No		NP (NDs)
Chromium (mg/L)	HGWC-105	0.01	0.0013	0.1	No	11	0.008336	0.003707	81.82		No		NP (NDs)
Chromium (mg/L)	HGWC-107	0.01	0.01	0.1	No	11	0.009158	0.002792	90.91		No		NP (NDs)
Chromium (mg/L)	HGWC-109	0.01	0.0014	0.1	No	11	0.008365	0.003641	81.82		No No		NP (NDs)
Chromium (mg/L)	HGWC-117	0.01	0.01	0.1	No	11	0.0092	0.002653		None	No		NP (NDs)
Chromium (mg/L)	HGWC-118	0.01	0.00081	0.1	No	11	0.008315	0.003748	81.82		No		NP (NDs)
Cobalt (mg/L)	HGWC-101	0.00295				11	0.002409	0.0006564		None	No	0.01	Param.
Cobalt (mg/L)	HGWC-102		6 0.000524		No	5	0.00216		0	None	No	0.01	Param.
Cobalt (mg/L)	HGWC-103		1 0.001676			11	0.002064		0	None	No	0.01	Param.
Cobalt (mg/L)	HGWC-105		81 0.000446			11	0.001046	0.0007903	18.18	Kaplan-Meier	. ,	0.01	Param.
Cobalt (mg/L)	HGWC-109		6 0.001319			11	0.001783	0.0005565		None	No	0.01	Param.
Cobalt (mg/L)	HGWC-117	0.00848			No	11	0.006264	0.00266	0	None	No	0.01	Param.
Cobalt (mg/L)	HGWC-118	0.0025	0.0003	0.005		11	0.001555	0.001088	54.55		No		NP (NDs)
Combined Radium 226 & 228 (pCi/L)	HGWC-101	1.071	0.4831	5		11	0.7772	0.3529	0	None	No	0.01	Param.
Combined Radium 226 & 228 (pCi/L)	HGWC-102	1.466	0.586	5	No		1.026	0.2624	0	None	No	0.01	Param.
Combined Radium 226 & 228 (pCi/L)	HGWC-103	1.104	0.4475	5		11	0.7756	0.3938	0	None	No	0.01	Param.
Combined Radium 226 & 228 (pCi/L)	HGWC-105	0.9996	0.5522	5	No	11	0.7759	0.2684	0	None	No	0.01	Param.
Combined Radium 226 & 228 (pCi/L)	HGWC-107	1.32	0.6196	5	No	11	0.9696	0.4201	0	None	No	0.01	Param.
Combined Radium 226 & 228 (pCi/L)	HGWC-109	0.878	0.4515	5	No	11	0.6647	0.2559	0	None	No	0.01	Param.
Combined Radium 226 & 228 (pCi/L)	HGWC-117	1.024	0.5262	5	No	11	0.775	0.2985	0	None	No	0.01	Param.
Combined Radium 226 & 228 (pCi/L)	HGWC-118	1.39	0.4518	5	No	10	0.921	0.5258	0	None	No	0.01	Param.
Fluoride (mg/L)	HGWC-101	0.1	0.05	4	No	12	0.09	0.02374	83.33	None	No	0.01	NP (NDs)
Fluoride (mg/L)	HGWC-102	0.22	0.1	4	No	5	0.124	0.05367	80	None	No		NP (NDs)
Fluoride (mg/L)	HGWC-103	0.13	0.06	4	No	12	0.0985	0.02753	66.67	None	No	0.01	NP (NDs)
Fluoride (mg/L)	HGWC-105	0.1153	0.0487	4	No	12	0.0895	0.0351	41.67	Kaplan-Meier	No	0.01	Param.
Fluoride (mg/L)	HGWC-107	0.1044	0.02939	4	No	12	0.09275	0.04254	50	Kaplan-Meier	No	0.01	Param.
Fluoride (mg/L)	HGWC-109	0.1291	0.05501	4	No	12	0.09983	0.04165	16.67	Kaplan-Meier	No	0.01	Param.
Fluoride (mg/L)	HGWC-117	0.19	0.042	4	No	12	0.1102	0.06804	41.67	None	No	0.01	NP (normality)
Fluoride (mg/L)	HGWC-118	0.2752	0.08951	4	No	13	0.215	0.2229	0	None	ln(x)	0.01	Param.
Lead (mg/L)	HGWC-101	0.005	0.005	0.005	No	11	0.004627	0.001236	90.91	None	No	0.006	NP (NDs)
Lead (mg/L)	HGWC-102	0.005	0.00011	0.005	No	5	0.004022	0.002187	80	None	No	0.031	NP (NDs)

State Confidence Interval Summary - All Results (No Significant) Page 2

	Plant	Hammond	Client: Sou	ithern Compar	ny	Data:	Hammond A	P-4 Printed	7/17/20	020, 12:31 PM			
Constituent	Well	Upper Lim	n. Lower Lim	. Compliance	Sig.	<u>N</u>	Mean	Std. Dev.	%NDs	ND Adj.	Transform	<u>Alpha</u>	Method
Lead (mg/L)	HGWC-103	0.005	0.00043	0.005	No	11	0.004137	0.001922	81.82	None	No	0.006	NP (NDs)
Lead (mg/L)	HGWC-105	0.005	0.000085	0.005	No	11	0.004105	0.001992	81.82	None	No	0.006	NP (NDs)
Lead (mg/L)	HGWC-107	0.005	0.00021	0.005	No	11	0.004117	0.001964	81.82	None	No	0.006	NP (NDs)
Lead (mg/L)	HGWC-109	0.005	0.000058	0.005	No	11	0.004101	0.002	81.82	None	No	0.006	NP (NDs)
Lead (mg/L)	HGWC-117	0.005	0.00025	0.005	No	11	0.004128	0.00194	81.82	None	No	0.006	NP (NDs)
Lead (mg/L)	HGWC-118	0.005	0.00025	0.005	No	11	0.004123	0.001952	81.82	None	No	0.006	NP (NDs)
Lithium (mg/L)	HGWC-102	0.001468	0.0008278	3 0.03	No	5	0.001148	0.0001911	0	None	No	0.01	Param.
Lithium (mg/L)	HGWC-103	0.03	0.0015	0.03	No	11	0.009336	0.01327	27.27	None	No	0.006	NP (normality)
Lithium (mg/L)	HGWC-105	0.004255	0.003818	0.03	No	11	0.004036	0.0002618	0	None	No	0.01	Param.
Lithium (mg/L)	HGWC-107	0.03	0.00092	0.03	No	11	0.01943	0.01466	63.64	None	No	0.006	NP (NDs)
Lithium (mg/L)	HGWC-109	0.03	0.0009	0.03	No	11	0.01687	0.01508	54.55	None	No	0.006	NP (NDs)
Lithium (mg/L)	HGWC-117	0.03	0.0012	0.03	No	11	0.009755	0.01302	27.27	None	No	0.006	NP (normality)
Lithium (mg/L)	HGWC-118	0.03	0.0015	0.03	No	11	0.01717	0.01474	54.55	None	No	0.006	NP (NDs)
Mercury (mg/L)	HGWC-101	0.0005	0.000093	0.002	No	9	0.0004548	0.0001357	88.89	None	No	0.002	NP (NDs)
Mercury (mg/L)	HGWC-103	0.0005	80000.0	0.002	No	9	0.0004533	0.00014	88.89	None	No	0.002	NP (NDs)
Mercury (mg/L)	HGWC-109	0.0005	80000.0	0.002	No	9	0.0004533	0.00014	88.89	None	No	0.002	NP (NDs)
Mercury (mg/L)	HGWC-117	0.0005	0.00007	0.002	No	9	0.0004522	0.0001433	88.89	None	No	0.002	NP (NDs)
Selenium (mg/L)	HGWC-102	0.01	0.0015	0.05	No	5	0.0083	0.003801	80	None	No	0.031	NP (NDs)
Thallium (mg/L)	HGWC-102	0.001	0.00008	0.002	No	5	0.000816	0.0004114	80	None	No	0.031	NP (NDs)

Non-Parametric Confidence Interval

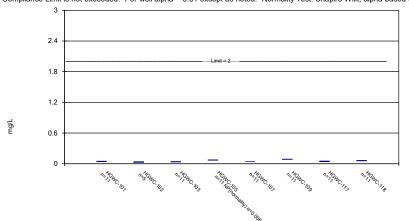


Constituent: Antimony Analysis Run 7/17/2020 12:29 PM View: Confidence Intervals
Plant Hammond Client: Southern Company Data: Hammond AP-4

Sanitas™ v.9.6.26f Sanitas software utilized by Groundwater Stats Consulting. EPA

Parametric and Non-Parametric (NP) Confidence Interval

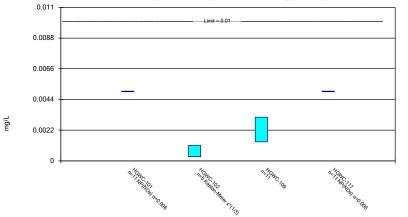
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Barium Analysis Run 7/17/2020 12:29 PM View: Confidence Intervals
Plant Hammond Client: Southern Company Data: Hammond AP-4

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Arsenic Analysis Run 7/17/2020 12:29 PM View: Confidence Intervals
Plant Hammond Client: Southern Company Data: Hammond AP-4

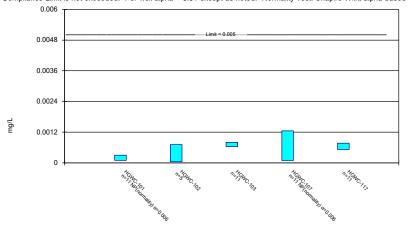
Sanitas™ v.9.6.26f Sanitas software utilized by Groundwater Stats Consulting. EPA

Non-Parametric Confidence Interval



Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.

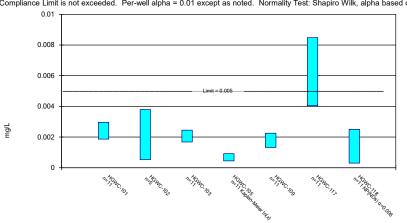


Constituent: Cadmium Analysis Run 7/17/2020 12:29 PM View: Confidence Intervals Plant Hammond Client: Southern Company Data: Hammond AP-4

Sanitas™ v.9.6.26f Sanitas software utilized by Groundwater Stats Consulting. EPA

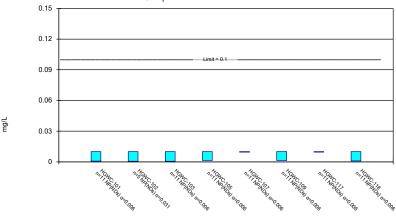
Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

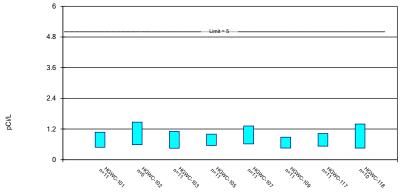


Constituent: Chromium Analysis Run 7/17/2020 12:29 PM View: Confidence Intervals Plant Hammond Client: Southern Company Data: Hammond AP-4

Sanitas™ v.9.6.26f Sanitas software utilized by Groundwater Stats Consulting. EPA

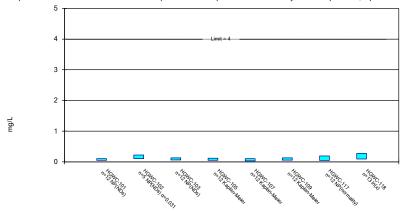
Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.

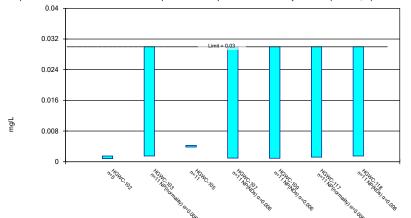


Constituent: Fluoride Analysis Run 7/17/2020 12:29 PM View: Confidence Intervals
Plant Hammond Client: Southern Company Data: Hammond AP-4

Sanitas™ v.9.6.26f Sanitas software utilized by Groundwater Stats Consulting. EPA

Parametric and Non-Parametric (NP) Confidence Interval

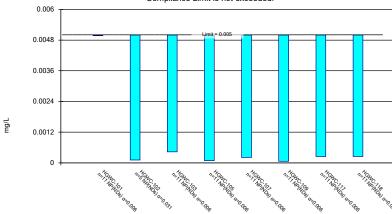
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lithium Analysis Run 7/17/2020 12:29 PM View: Confidence Intervals
Plant Hammond Client: Southern Company Data: Hammond AP-4

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



Constituent: Lead Analysis Run 7/17/2020 12:29 PM View: Confidence Intervals
Plant Hammond Client: Southern Company Data: Hammond AP-4

Sanitas™ v.9.6.26f Sanitas software utilized by Groundwater Stats Consulting. EPA

Non-Parametric Confidence Interval Compliance Limit is not exceeded.

0.0024

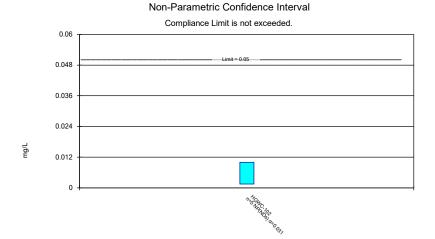
0.0012

0.0012

0.0006

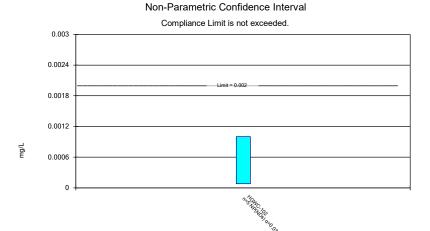
0.0006

Sanitas™ v.9.6.26f Sanitas software utilized by Groundwater Stats Consulting. EPA



Constituent: Selenium Analysis Run 7/17/2020 12:29 PM View: Confidence Intervals
Plant Hammond Client: Southern Company Data: Hammond AP-4

Sanitas™ v.9.6.26f Sanitas software utilized by Groundwater Stats Consulting. EPA



Constituent: Thallium Analysis Run 7/17/2020 12:29 PM View: Confidence Intervals
Plant Hammond Client: Southern Company Data: Hammond AP-4