Prepared for

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2021 SEMIANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

PLANT HAMMOND ASH POND 3 (AP-3)

Prepared by

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Project Number GW6581

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CERTIFICATION STATEMENT

This *2021 Semiannual Groundwater Monitoring and Corrective Action Report, Plant Hammond – Ash Pond 3 (AP-3)* has been prepared in compliance with the United States Environmental Protection Agency Coal Combustion Residual Rule [40 Code of Federal Regulations 257 Subpart D], specifically 40 CFR § 257.90(e), 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.

Whitney Law
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February 28, 2022
Date

SUMMARY

This summary of the *2021 Semiannual Groundwater Monitoring and Corrective Action Report* provides the status of groundwater monitoring and corrective action program for the reporting period of July through December 2021 (referred herein as the reporting period) at the Georgia Power Company (Georgia Power) Plant Hammond Ash Pond 3 (AP-3) (the Site). This summary was prepared by Geosyntec Consultants, Inc. (Geosyntec) on behalf of Georgia Power to meet the requirements listed in Part A, Section 6[1] of the United States Environmental Protection Agency (USEPA) Coal Combustion Residual Rule (federal CCR Rule) (40 Code of Federal Regulations [CFR] 257 Subpart D).

Plant Hammond and Location of AP-3

Plant Hammond is located at 5963 Alabama Highway SW, approximately 10 miles west of Rome in Floyd County, Georgia. Plant Hammond was a four-unit, coal-fired electric generating facility. All four units at Plant Hammond were decommissioned in July 2019 and no longer produce electricity. AP-3 is located on the northeastern corner of the Plant Hammond property. Ash sluicing and placement operations at AP-3 commenced in June 1977. In the early 1980's, AP-3 was converted into a dry ash disposal area and in the early 1990's the pond stopped receiving CCR materials. Final capping of the pond with a low-permeability cover system was completed in the second quarter of 2018. A Closure Plan for AP-3 was submitted to the Georgia Environmental Protection Division (GA EPD) as part of the closure permit application package, which described the closure activities and requirements in accordance with § 257.102.

Groundwater at the Site is monitored using a comprehensive monitoring network that meets federal and state monitoring requirements. Groundwater monitoring-related activities have been performed at AP-3 since August 2016. Based on groundwater conditions at the Site, an assessment monitoring program and assessment of corrective measures program were established in August 2019 and July 2020, respectively. During

[1] 80 FR 21468, Apr. 17, 2015, as amended at 81 FR 51807, Aug. 5, 2016; 83 FR 36452, July 30, 2018; 85 FR 53561, Aug. 28, 2020

the reporting period, the Site remained in assessment monitoring as corrective measures are being evaluated.

During the reporting period, Geosyntec conducted one groundwater sampling event in August 2021. Groundwater samples were submitted to Pace Analytical Services, LLC., for analysis. Per the federal CCR Rule, groundwater data for the August 2021 event were evaluated in accordance with the certified statistical methods. That evaluation identified statistically significant values of Appendix III[2] and Appendix IV[3] constituents in excess of state groundwater protection standards in select monitoring wells, as summarized in the table below.

Based on review of the Appendix III and Appendix IV statistical results completed for the groundwater monitoring and corrective action program for the reporting period, the Site will continue in assessment monitoring. Georgia Power will continue routine groundwater monitoring and reporting at the Site. Reports will be posted to Georgia Power's CCR Rule Compliance website and provided to GA EPD semiannually.

Appendix III Constituent	***August 2021***
Boron	HGWC-120, HGWC-121A, HGWC-124, HGWC-125
Calcium	HGWC-120, HGWC-121A, HGWC-125, HGWC-126
Sulfate	HGWC-120, HGWC-121A, HGWC-125
Total dissolved solids (TDS)	HGWC-125
Appendix IV Constituent[4]	***August 2021***
Molybdenum	*State only:* HGWC-120, MW-32, MW-39, MW-41

[2] Boron, calcium, chloride, fluoride, pH, sulfate, and total dissolved solids (TDS)
[3] Antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, selenium, thallium, and radium 226 + 228
[4] A state statistically significant level (SSL)-related constituent is determined by comparing the confidence intervals developed to either the constituent's maximum contaminant level (MCL), if available, or the calculated background interwell tolerance limit. A federal SSL-related constituent is determined by comparing the confidence intervals developed to either the constituent's MCL, if available, the USEPA Regional Screening Level, if no MCL is available, or the calculated background interwell tolerance limit.

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LIST OF ACRONYMS AND ABBREVIATIONS

ACM	assessment of corrective measures
AP-3	Ash Pond 3
CCR	coal combustion residuals
CFR	Code of Federal Regulations
cm/sec	centimeters per second
DO	dissolved oxygen
ft	feet
ft/day	feet per day
ft/ft	feet per foot
GA EPD	Georgia Environmental Protection Division
Georgia Power	Georgia Power Company
Geosyntec	Geosyntec Consultants, Inc.
GSC	Groundwater Stats Consulting
GWPS	Groundwater Protection Standard
HAR	Hydrogeologic Assessment Report
HDPE	high density polyethylene
K_h	horizontal hydraulic conductivity
MCL	Maximum Contaminant Level
mg/L	milligram per liter
n_e	effective porosity
NELAP	National Environmental Laboratory Accreditation Program
NTU	Nephelometric turbidity units
ORP	oxidation-reduction potential
Pace Analytical	Pace Analytical Services, LLC.
PE	professional engineer
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
Unified Guidance	Statistical Analysis of Groundwater Data at RCRA Facilities Unified Guidance
USEPA	United States Environmental Protection Agency

1.0 INTRODUCTION

In accordance with the United States Environmental Protection Agency (USEPA) Coal Combustion Residual Rule (CCR Rule) [40 Code of Federal Regulations (CFR) Part 257, Subpart D] and the Georgia Environmental Protection Division (GA EPD) Rules for Solid Waste Management 391-3-4-.10, Geosyntec Consultants, Inc. (Geosyntec) has prepared this *2021 Semiannual Groundwater Monitoring and Corrective Action Report* to document groundwater monitoring activities conducted at Georgia Power Company (Georgia Power) Plant Hammond (Site) Ash Pond 3 (AP-3) for the reporting period of July through December 2021 (referred herein as the reporting period).

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

AP-3 ceased receiving waste prior to the effective date of the federal CCR Rule promulgated in April 2015. A notification of intent to initiate closure of the inactive CCR surface impoundment was certified on December 7, 2015, and posted to Georgia Power's website. Groundwater monitoring and reporting for AP-3 are being completed in accordance with the alternate schedule in § 257.100(e)(5) of the revised federal CCR Rule (August 5, 2016).

Due to a statistically significant level (SSL) of molybdenum identified in the *2020 Annual Groundwater Monitoring and Corrective Action Report* (Geosyntec, 2020a), Georgia Power initiated an assessment of corrective measures (ACM) program for AP-3 in July 2020. Pursuant to § 257.96(b), Georgia Power continues to monitor groundwater associated with AP-3 in accordance with the assessment monitoring program established for the unit in 2019, including annual and semiannual monitoring and reporting pursuant to § 257.90 through § 257.95 of the federal CCR Rule. This report includes the results of the semiannual assessment monitoring event conducted in August 2021.

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 was 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-3 is a 25-acre former ash pond that was constructed in 1973 and 1974. Ash sluicing and placement operations at AP-3 commenced in June 1977. In the early 1980's, AP-3 was converted into a dry ash disposal area, and in the early 1990's, the pond stopped receiving CCR materials.

Closure of AP-3 commenced in 2016. As part of closure, AP-3 was dewatered sufficiently to remove the free liquids. The CCR material remaining in AP-3 was graded, and a final cover system installed. The final cover system consists of a 60-millimeter-high density polyethylene (HDPE) liner, geocomposite drainage media, a minimum 18-inch-thick protective soil cover, and a 6-inch-thick vegetative layer. The final cover system was designed to limit infiltration of precipitation with low permeability materials and is graded to promote positive drainage and shed stormwater away from AP-3 via riprap drainage ditches toward three outfall locations around AP-3. Final capping of the unit was completed in the second quarter of 2018.

1.2 Regional Geology and Hydrogeologic Setting

The following section summarizes the geologic and hydrogeologic conditions at AP-3 as described in the *Hydrogeologic Assessment Report Revision 01 – Ash Pond 3* (HAR Rev 01) submitted to GA EPD in support of the AP-3 closure permit application (Geosyntec, 2020b).

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. The Valley and Ridge 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-3 is underlain by the middle units of the Cambrian age Conasauga Formation, consisting of mostly shaley limestone. Based on review of site-specific subsurface investigations, the bedrock at AP-3 was identified as limestone or shaley limestone. AP-3 is underlain

primarily by five lithologic units: (i) fill material; (ii) terrace alluvium; (iii) residuum; (iv) highly weathered/fractured limestone bedrock; and (v) unweathered limestone bedrock.

Based on subsurface investigations, the fill is composed of lean clay or gravelly lean clay with sand, sometimes identified by the presence of wood or roots. The terrace alluvium consists of unconsolidated sediments with high sand and gravel content associated with deposition from the Coosa River and Cabin Creek. Residual or native soils have been derived from the in-place weathering of the shaley limestone bedrock. The residuum is generally described as fat clay with typically only trace amounts of sand, and rarely gravel. Just below the residuum clay layer is a gradational zone of varying proportions of clayey residuum and sand, gravel, and cobble-sized angular pieces of partially weathered limestone, grading into a zone of fractured limestone, before grading into unweathered, fresh limestone. The upper highly weathered zone appears more as residuum with various sized rock fragments. The lower zone becomes less clayey with depth and is estimated to be approximately 5 feet thick. Most of the limestone is described as medium to dark gray with a slabby or flaggy habit when broken in pieces by the sonic drilling. The limestone is very finely laminated with lighter and darker gray layers, and contains interbeds of calcareous shale.

1.2.2 Hydrogeologic Setting

The uppermost aquifer at AP-3 is a regional groundwater aquifer that occurs within the residuum and the weathered and fractured bedrock. The uppermost aquifer is considered to be unconfined; however, localized, semi-confined conditions may be encountered due to the low-permeability clayey nature of the residual soils, or as a result of perched groundwater or poorly interconnected fracture networks in the bedrock. Based on observations of soil types and horizontal conductivity values, the movement of groundwater in the soil, and to some degree the highly weathered bedrock zone, can be characterized as low-to moderate permeability, porous media flow. Groundwater flow in the more competent underlying bedrock is characterized as fracture flow. Flow direction within the area of AP-3 is generally from west to east.

1.3 Groundwater Monitoring Well Network

In accordance with § 257.91, a groundwater monitoring system was installed at AP-3 that (consists of a sufficient number of wells installed at appropriate locations and depths to yield groundwater samples from the uppermost aquifer to represent the groundwater quality both upgradient of the unit (i.e., background conditions) and passing the waste

boundary of the unit. The number, spacing, and depths of the groundwater monitoring wells were selected based on the characterization of site-specific hydrogeologic conditions.

As part of the assessment monitoring program, delineation wells have been installed since late 2019 to characterize the nature and extent of molybdenum in groundwater downgradient of AP-3. Pursuant to § 257.195(g)(1)(iv), the wells classified as "delineation wells" will continue to be sampled concurrently with the compliance monitoring well network as part of the ongoing assessment groundwater monitoring program.

An on-site network of piezometers is used to gauge water levels to define groundwater flow direction and gradients. The piezometers may be sampled as needed to support the ACM program.

The locations of the compliance monitoring wells, delineation wells, and piezometers associated with AP-3 are shown on **Figure 2**; well construction details are listed in **Table 1**.

2.0 GROUNDWATER MONITORING ACTIVITIES

In accordance with § 257.90(e), the following describes groundwater monitoring-related activities performed during the reporting period and discusses any change in status of the monitoring program. Groundwater sampling was performed in accordance with § 257.93.

2.1 Monitoring Well Installation and Maintenance

No additional compliance monitoring wells, delineation wells, or piezometers were installed during this reporting period.

The well and piezometer networks are inspected semiannually to determine if any repairs or corrective actions are necessary to meet the requirements of the Georgia Water Well Standards Act (O.C.G.A. § 12-5-134(5)(d)(vii)). In August 2021, the networks were inspected, necessary corrective actions were identified and subsequently completed, as documented in **Appendix A**. This documentation will serve as the required five year well inspection and was performed under the direction of a professional geologist or engineer registered in the State of Georgia.

2.2 Assessment Monitoring

Georgia Power initiated an assessment monitoring program for groundwater at AP-3 in August 2019. Statistical analyses of the groundwater data from the August 2019, October 2019, and March 2020 assessment monitoring events identified SSLs of lithium and molybdenum in compliance well HGWC-120. A reduced lithium groundwater concentration reported in March 2020 for HGWC-120 reduced the lower confidence interval to below the state groundwater protection standard (GWPS); and therefore, an SSL for lithium was no longer identified in HGWC-120. Details regarding the statistical analyses are provided in the *2020 Annual Groundwater and Corrective Action Monitoring Report* (Geosyntec, 2020a).

Pursuant to § 257.96, an ACM was initiated for AP-3 in July 2020. An *Assessment of Corrective Measures Report – Plant Hammond Ash Pond 3 (AP-3)* (ACM Report) was subsequently prepared for AP-3 (Geosyntec, 2020c) and submitted to GA EPD in December 2020 and posted to the Georgia Power CCR compliance website. In accordance with § 257.96(b), groundwater continues to be monitored at AP-3 under the assessment monitoring program as the ACM phase is implemented.

Since initiating the ACM, Georgia Power has undertaken multiple ACM-specific field investigations and data evaluation efforts to characterize the nature and extent of molybdenum in groundwater at AP-3 and evaluate applicable corrective measures pursuant to the federal CCR Rule and GA EPD Rules. A summary of the efforts conducted during the reporting period to evaluate corrective measures is presented in the *Semiannual Remedy Selection and Design Progress Report* provided in **Appendix B**.

For the current reporting period, the semiannual assessment monitoring event was conducted in August 2021. The number of groundwater samples collected for analysis and the dates the samples were collected at AP-3 during the reporting period are summarized in **Table 2**. Details of this event and analytical results are discussed in Section 3, while the statistical results are discussed in Section 4.

2.3 Additional Surface Water Sampling

Due to the presence of surface water features in the downgradient direction of MW-41, Georgia Power collected surface water samples in September 2021 from three locations along Cabin Creek, two of which are applicable to evaluating the surface water conditions downgradient of AP-3 (i.e., H-SCC NBR and H-SCC E41), as shown on **Figure 2**. The laboratory report associated with the September 2021 surface water sampling event is provided in **Appendix C**. Georgia Power will continue collecting the surface water samples semiannually to support assessment of corrective measures.

In response to GA EPD comments received on January 26, 2021, Georgia Power added three surface water sampling locations to the stormwater outfalls at AP-3. Upon issuance of the Hammond AP-3 solid waste permit, these will be sampled semiannually for the full Appendix IV constituent list.

3.0 SAMPLING METHODOLOGY AND ANALYSES

The following section presents a summary of the field sampling procedures that were implemented, and the groundwater sampling results that were obtained in connection with the assessment monitoring program conducted at AP-3 during the reporting period.

3.1 Groundwater and Surface Water Level Measurement

A synoptic round of depth-to-groundwater-level measurements was recorded from the AP-3 wells and piezometers during the August 2021 assessment monitoring event and used to calculate the corresponding groundwater elevations, which are presented in **Table 3.** The August 2021 elevations reported are generally representative of the groundwater elevations reported for prior monitoring events.

Surface water elevations were recorded from two surveyed gauging points located along Cabin Creek east of AP-3, as shown on **Figure 2**. One gauging location, referenced in **Table 3** as "Cabin Creek (Hwy 20)", is located midway across the bridge along GA-20 Alabama Highway spanning Cabin Creek. This gauging location is co-located with the surface water sampling point, H-SCC NBR. The second Cabin Creek gauging location is along the railroad bridge southeast of AP-3; this location is referred to in **Table 3** as "Cabin Creek (Railroad bridge)".

The groundwater and surface water elevation data presented in **Table 3** were used to prepare a potentiometric surface contour map for the August 2021 event, which is presented on **Figure 3**. Groundwater in the AP-3 area flows under the influence of topography from slightly higher ground surface elevations on the western side of the Site toward lower elevations to the east of AP-3. The flow direction is consistent with previous observations for AP-3.

3.2 Groundwater Gradient and Flow Velocity

The horizontal groundwater hydraulic gradient within the uppermost aquifer beneath AP-3 was calculated using the groundwater elevation data from the August 2021 event. The hydraulic gradient is commonly calculated along the groundwater flow path perpendicular to groundwater elevation contours. Ideally, this flow path originates and concludes with groundwater elevations reported for two wells, but this may not be feasible and still remain perpendicular to the contours. The hydraulic gradient in this report has been calculated between an upgradient and downgradient well pair selected to provide the most accurate alignment possible relative to the interpreted groundwater flow

path (i.e., between MW-21 and HGWC-121A). The hydraulic gradient calculation is presented in **Table 4**. The general trajectory of the flow path is shown on **Figure 3**. The average hydraulic gradient for this reporting period across AP-3 is 0.0078 feet per foot (ft/ft).

The approximate horizontal flow velocity associated with AP-3 groundwater was calculated using the following derivative of Darcy's Law. The calculation is provided in **Table 4**.

$$V = \frac{K_h * i}{n_e}$$

where:

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

K_h = Horizontal Hydraulic Conductivity $\left(\frac{feet}{day}\right)$

i = Horizontal hydraulic gradient $\left(\frac{feet}{foot}\right) = \frac{h_1 - h_2}{L}$

h_1 and h_2 = Groundwater elevation at location 1 and 2

L = distance between location 1 and 2

n_e = Effective porosity

Aquifer testing was conducted by LETCO in 1977, Southern Company Services (SCS) in 2014, and Geosyntec in 2017 to evaluate horizontal hydraulic conductivity (K_h) of the water bearing units in the vicinity of AP-3. Slug testing was performed to estimate the K_h for units above the top of bedrock, while single packer testing was used to estimate the K_h for the bedrock intervals. Additional details are presented in the HAR Rev 01 (Geosyntec, 2020b).

The groundwater flow velocity calculation was performed using the geometric mean value for K_h of the highly weathered/fractured rock of 9.8×10^{-4} centimeters per second (cm/sec) or 2.76 feet per day (ft/day). An estimated effective porosity (n_e) of 0.15 is used to represent average lithologic conditions at AP-3, derived based on review of literature, observed site lithology, and professional judgement. With these variables assigned, and accounting for the hydraulic gradient discussed above, the horizontal groundwater flow velocity underneath AP-3 for this reporting period was calculated to be 0.14 ft/day.

3.3 Groundwater Sampling Procedures

Groundwater samples were collected using low-flow sampling procedures in accordance with § 257.93(a). Purging and sampling was performed using dedicated bladder pumps with dedicated tubing, non-dedicated bladder pumps, or peristaltic pumps. For wells sampled with non-dedicated bladder pumps and peristaltic pumps, the pump intake was lowered to the midpoint of the well screen (or as appropriate based on the groundwater level). Non-dedicated bladder pump and peristaltic pump samples were collected using new disposable polyethylene tubing; all non-dedicated tubing was disposed of following the sampling event. All non-disposable equipment was decontaminated before use and between well locations.

An in-situ water quality field meter (Aqua TROLL 400) was used to monitor and record field water quality parameters [i.e., pH, conductivity, dissolved oxygen (DO), temperature, and oxidation reduction potential (ORP)] during well purging to verify stabilization prior to sampling. Turbidity was monitored using a LaMotte 2020we (or similar) portable turbidity meter. Groundwater samples were collected once the following stabilization criteria were met:

- pH ± 0.1 standard units (s.u.).
- Conductivity ± 5%.
- ±0.2 milligrams per liter (mg/L) or ±10%, whichever is greater, for DO > 0.5 mg/L. No criterion applies if DO < 0.5 mg/L, record only.
- Turbidity measured less than 5 nephelometric turbidity units (NTU) or measured between 5 and 10 NTU following three hours of purging.

Following purging, and once stabilization was achieved, unfiltered 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. (Pace Analytical) in Peachtree Corners, Georgia following chain-of-custody protocol. The field sampling and equipment calibration forms generated during the reporting period are provided in **Appendix C**.

3.4 Laboratory Analyses

Laboratory analyses were performed by 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 groundwater sample analysis, and the associated results, are listed in the analytical laboratory reports included in **Appendix C**. The groundwater analytical results from the August 2021 sampling event are summarized in **Table 5**.

3.5 Quality Assurance and Quality Control Summary

Quality assurance/quality control (QA/QC) samples were collected during the groundwater monitoring events in accordance with the Site's *Groundwater Monitoring Plan* (Geosyntec, 2021), and included the following: field duplicates, equipment blanks, and field blank samples. QA/QC samples were collected in appropriately preserved laboratory-provided containers 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, 2011; USEPA, 2017). Where necessary, the data were qualified with supporting documentation and justifications. The data are considered usable for meeting project objectives and the results are considered valid. The associated data validation report is provided in **Appendix C,** along 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), Georgia Power established GWPS for the Appendix IV constituents and completed statistical analyses of the Appendix IV groundwater monitoring data obtained during the reporting period. The data were analyzed by Groundwater Stats Consulting (GSC); the report generated from the analyses is provided in **Appendix D**.

4.1 Statistical Methods

Groundwater data from the reporting period were statistically analyzed in accordance with the Professional Engineer-certified (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 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 (PLs) combined with a 1-of-2 verification resample plan for each of the Appendix III constituents. Interwell PLs pool upgradient well data 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 significant statistical 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.

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 and delineation monitoring well with a minimum of four samples. In accordance with Section 21.1.1 of the Unified Guidance (USEPA, 2009), four independent data are the minimum population size recommended to construct confidence intervals required to assess SSLs for Appendix IV constituents. Due to non-routine (or ACM investigation) sampling, some Appendix IV constituents at a well location have differing numbers of analytical data points.

The confidence intervals are compared to both the state and federal GWPS. Only when the entire confidence interval is above a GWPS is the well/constituent pair considered to exceed its GWPS. If a confidence interval exceeds a GWPS, an SSL is identified.

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

(1) The maximum contaminant level (MCL) established under § 141.62 and § 141.66.

(2) Where an MCL has not been established:

(i) Cobalt 0.006 mg/L;

(ii) Lead 0.015 mg/L;

(iii) Lithium 0.040 mg/L; and

(iv) Molybdenum 0.10 mg/L.

(3) Background levels for constituents where the background level is higher than the MCL or rule-specified GWPS.

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

(1) The federally established MCL.

(2) Where an MCL has not been established, the background concentration.

(3) Background levels for constituents where the background level is higher than the MCL.

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

4.2 Statistical Analyses Results

Based on review of the full Appendix III statistical analysis discussion presented in **Appendix D**, groundwater conditions have not returned to background and assessment monitoring should continue. Based on the statistical analysis of Appendix IV constituents, the following constituents exceeded the state GWPS for the reporting period:

AP-3 (federal CCR Rule):

- No SSLs were reported above federal GWPS.

AP-3 (GA EPD CCR Rule):

- Molybdenum: HGWC-120, MW-32, MW-39, and MW-41

The identified SSLs of molybdenum in exceedance of the state GWPS are consistent with the statistical results of previous reporting periods. A groundwater exceedance notification acknowledging the SSLs of molybdenum was placed in the Operating Record on January 31, 2022, pursuant to § 257.95(g).

5.0 NATURE AND EXTENT

Due to the presence of a surface water feature (Cabin Creek) east of AP-3 in the downgradient direction of MW-41 (refer to **Figure 2**), installation of additional wells to horizontally characterize this area is infeasible. Georgia Power began collecting surface water samples in December 2020 from three locations along Cabin Creek, two of which are applicable to evaluating the surface water conditions downgradient of AP-3 (i.e., H-SCC NBR and H-SCC E41). Molybdenum was not detected above the laboratory reporting limit (0.010 mg/L) in surface water samples collected in September 2021 from these two locations. No molybdenum impacts to surface water have been detected and therefore the molybdenum SSL observed in MW-41 is horizontally delineated to below the state GWPS. The surface water analytical results from the September 2021 sampling event are summarized in **Table 7**. The laboratory report associated with the September 2021 surface water sampling event is provided in **Appendix C.** Georgia Power will continue collecting the surface water samples semiannually.

In August 2020, Georgia Power installed a well (MW-46D) to vertically delineate the molybdenum SSL identified in compliance well HGWC-120. The molybdenum SSL identified in HGWC-120 is vertically delineated to below the state GWPS, as determined by the statistically derived confidence interval for MW-46D. Vertical delineation of molybdenum in MW-32, MW-39, and MW-41 may require the installation of (an) additional vertical delineation well(s) adjacent to their respective locations and is currently under evaluation.

6.0 MONITORING PROGRAM STATUS

6.1 Assessment Monitoring Status

Pursuant to § 257.96(b), Georgia Power will continue to monitor the groundwater at AP-3 in accordance with the assessment monitoring program regulations of § 257.95 while ACM efforts continue to be evaluated. Pursuant to § 257. 95(g)(1)(iv), the delineation wells will continue to be sampled as part of the ongoing assessment groundwater monitoring program.

6.2 Assessment of Corrective Measures

The ACM efforts completed during the reporting period covered by this groundwater monitoring and corrective action report are presented in the *Semiannual Remedy Selection and Design Progress Report* provided in **Appendix B**. The Semiannual Progress Report summarizes:

(i) the current conceptual site model applicable to evaluating groundwater corrective measures proposed in the ACM Report (Geosyntec, 2020c);

(ii) the analytical data obtained during supplemental ACM-specific field investigations;

(iii) the status of evaluating applicable corrective measures; and

(iv) the planned activities and anticipated schedule for the following semi-annual reporting period.

Georgia Power will include future Semiannual Progress Reports with each groundwater monitoring and corrective action report.

7.0 CONCLUSIONS AND FUTURE ACTIONS

This *2021 Semiannual Groundwater Monitoring and Corrective Action Report* for Plant Hammond AP-3 was prepared to fulfill the requirements of the federal CCR Rule and the GA EPD Rules for Solid Waste Management 391-3-4-.10. Statistical evaluations of the groundwater monitoring data for the AP-3 well network confirmed the continued presence of an SSL of molybdenum above the state GWPS, but not the federal GWPS, in HGWC-120, MW-32, MW-39, and MW-41.

Georgia Power collected surface water samples in September 2021 from locations along Cabin Creek. The surface water samples collected from the two locations near AP-3 for the September 2021 event indicate molybdenum was not detected. Based on molybdenum results for data collected to date, no molybdenum impacts to surface water have been detected, and horizontal delineation to below the state GWPS is considered complete.

The molybdenum SSL identified in HGWC-120 is vertically delineated to below the state GWPS, as determined by the statistically derived confidence interval for MW-46D. Vertical delineation of the molybdenum SSLs in MW-32, MW-39, and MW-41 may require the installation of additional wells adjacent to their locations and is under evaluation.

Georgia Power will continue to monitor AP-3 groundwater under the assessment monitoring program and proceed with the evaluation of remedies presented in the ACM Report (Geosyntec, 2020c). The next routine semiannual assessment monitoring event for AP-3 is scheduled for February 2022. The February 2022 semiannual assessment monitoring event will include sampling and analysis of all Appendix III and IV constituents.

8.0 REFERENCES

Geosyntec, 2020a. *2020 Annual Groundwater Monitoring and Corrective Action Report – Georgia Power Company, Plant Hammond Ash Pond 3 (AP-3)*. July 2020.

Geosyntec, 2020b. *Hydrogeologic Assessment Report (Revision 1) – Plant Hammond Ash Pond 3 (AP-3)*. November 2020.

Geosyntec, 2020c. *Assessment of Corrective Measures Report – Plant Hammond Ash Pond 3 (AP-3)*. December 2020.

Geosyntec, 2021. *Groundwater Monitoring Plan – Plant Hammond Ash Pond 3 (AP-3)*. September 2019, revised January 2021.

Golder Associates, 2018. *Geologic and Hydrogeologic Report – Plant Hammond*. November 2018.

Sanitas: Groundwater Statistical Software, v. 9.6.05 (2018). Sanitas Technologies©, Boulder, CO.

USEPA, 2009. *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance*. Office of Resource Conservation and Recovery – Program Implementation and Information Division. March 2009.

USEPA, 2011. *Region* 4 *Data Validation Standard Operating Procedures.* Science and Ecosystem Support Division. Region IV. Athens, GA. September 2011.

USEPA, 2017. *National Functional Guidelines for Inorganic Superfund Methods Data Review*. Office of Superfund Remediation and Technology Innovation. OLEM 9355.0-135 [EPA-540-R-2017-001]. Washington, DC. January 2017.

TABLES

Table 1
Monitoring Well Network Summary
Plant Hammond AP-3, Floyd County, Georgia

Well ID	Hydraulic Location	Installation Date	Northing [1]	Easting [1]	Top of Casing Elevation [2] (ft)	Top of Screen Elevation [2] (ft)	Bottom of Screen Elevation [2] (ft)	Well Depth (ft BTOC) [3]	Screen Interval Length (ft)
Compliance Monitoring Well									
HGWA-1	Upgradient	12/3/2014	1550423.32	1940770.00	595.21	573.12	563.12	32.49	10
HGWA-2	Upgradient	12/2/2015	1549796.87	1939845.15	587.92	570.29	560.29	27.95	10
HGWA-3	Upgradient	12/2/2015	1549794.41	1939833.39	587.74	553.23	543.23	44.51	10
HGWA-43D	Upgradient	8/26/2020	1550422.85	1940753.80	595.08	544.08	534.08	61.25	10
HGWA-44D	Upgradient	8/25/2020	1550409.13	1940756.18	594.79	491.76	481.76	113.28	10
HGWA-45D	Upgradient	8/19/2020	1551157.68	1941907.54	586.95	535.23	525.23	62.87	10
HGWA-122	Upgradient	11/20/2014	1551251.42	1941887.11	587.90	570.54	560.54	27.76	10
HGWC-120	Downgradient	6/27/2016	1551067.24	1942926.62	605.82	548.83	538.83	67.00	10
HGWC-121A	Downgradient	7/17/2017	1550607.97	1943030.44	584.69	556.71	546.71	37.98	10
HGWC-124	Downgradient	11/13/2014	1551624.93	1942781.05	582.52	557.80	547.80	35.12	10
HGWC-125	Downgradient	5/4/2020	1550821.41	1942962.87	608.89	556.03	546.03	63.19	10
HGWC-126 [4]	Downgradient	11/25/2019	1550422.03	1942689.40	611.24	552.72	542.72	68.52	10
Delineation Well									
MW-32	Downgradient	11/22/2019	1551092.83	1943021.47	585.46	559.30	549.30	36.16	10
MW-41	Downgradient	5/18/2020	1551158.16	1943196.47	577.25	563.20	553.20	24.38	10
MW-46D	Downgradient	8/18/2020	1551056.48	1942929.10	605.72	513.92	503.92	102.05	10
Piezometer									
MW-21	Upgradient	12/3/2014	1550270.15	1941809.76	586.27	570.40	560.40	26.28	10
MW-23	Downgradient	11/24/2014	1551641.44	1942496.83	584.91	563.03	553.03	32.28	10
MW-39	Downgradient	3/16/2020	1551111.45	1943089.26	580.42	564.93	554.93	25.82	10

Notes:
ft = feet
ft BTOC = feet below top of casing
(1) Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet. Survey data certified by GEL Solutions May 19, 2020. Survey data for wells HGWA-43D, HGWA-44D, HGWA-45D, and MW-46D certified by GEL Solutions September 10, 2020.
(2) Elevations referenced to the North American Vertical Datum of 1988 (NAVD88). Survey completed by GEL Solutions May 19, 2020. Survey data for wells HGWA-43D, HGWA-44D, HGWA-45D, and MW-46D certified by GEL Solutions September 10, 2020.
(3) Total well depth accounts for sump if sump depth data was provided on well construction logs.
(4) HGWC-126 was originally installed as piezometer MW-31 but reclassified as a compliance monitoring well in May 2020.

Table 2
Groundwater Sampling Event Summary
Plant Hammond AP-3, Floyd County, Georgia

Well ID	Hydraulic Location	August 11-19, 2021	Status of Monitoring Well
	Purpose of Sampling Event:	**Assessment**	
Compliance Monitoring Well			
HGWA-1	Upgradient	X	Assessment
HGWA-2	Upgradient	X	Assessment
HGWA-3	Upgradient	X	Assessment
HGWA-43D	Upgradient	X	Assessment
HGWA-44D	Upgradient	X	Assessment
HGWA-45D	Upgradient	X	Assessment
HGWA-122	Upgradient	X	Assessment
HGWC-120	Downgradient	X	Assessment
HGWC-121A	Downgradient	X	Assessment
HGWC-124	Downgradient	X	Assessment
HGWC-125	Downgradient	X	Assessment
HGWC-126	Downgradient	X	Assessment
Delineation Well			
MW-32	Downgradient	X	Assessment
MW-41	Downgradient	X	Assessment
MW-46D	Downgradient	X	Assessment
Piezometer			
MW-39	Downgradient	X	Assessment

Table 3

Summary of Groundwater and Surface Water Elevations

Plant Hammond AP-3, Floyd County, Georgia

Well ID	Top of Casing Elevation (ft) [1]	August 11, 2021	
		Depth to Water (ft BTOC)	Groundwater Elevation (ft)[1]
Compliance Monitoring Well			
HGWA-1	595.21	18.86	576.35
HGWA-2	587.92	10.72	577.20
HGWA-3	587.74	10.41	577.33
HGWA-43D	595.08	18.66	576.42
HGWA-44D	594.79	18.12	576.67
HGWA-45D	586.95	12.05	574.90
HGWA-122	587.90	13.09	574.81
HGWC-120	605.82	40.60	565.22
HGWC-121A	584.69	17.92	566.77
HGWC-124	582.52	16.10	566.42
HGWC-125	608.89	43.97	564.92
HGWC-126	611.24	41.26	569.98
Delineation Well			
MW-32	585.46	20.21	565.25
MW-41	577.25	12.21	565.04
MW-46D	605.72	40.49	565.23
Piezometer			
MW-21	586.27	9.50	576.77
MW-23	584.91	13.80	571.11
MW-39	580.42	15.22	565.20
Surface Water Gauging Location			
Cabin Creek (Hwy 20)	594.46	28.87	565.59
Cabin Creek (Railroad bridge)	586.60	22.00	564.60

Notes:

ft = feet

ft BTOC = feet below top of casing

(1) Elevations referenced to the North American Vertical Datum of 1988 (ft NAVD88). Survey data certified on May 19, 2020. Survey data for wells HGWA-43D, HGWA-44D, HGWA-45D, and MW-46D certified on September 10, 2020.

Table 4

Horizontal Groundwater Gradient and Flow Velocity Calculations

Plant Hammond AP-3, Floyd County, Georgia

	August 11, 2021			
Flow Path Direction[(1)]	**h_1 (ft)**	**h_2 (ft)**	**L (ft)**	**i (ft/ft)**
Easterly Flow Path (MW-21 to HGWC-121A)	576.77	566.77	1,278	0.0078

Flow Path Direction [(1)]	**K_h (ft/day)**	**n_e**	**i (ft/ft)**	**V (ft/day)[(2)]**
Easterly Flow Path (MW-21 to HGWC-121A)	2.76	0.15	0.0078	0.14

Notes:

ft = feet

ft/day = feet per day

ft/ft = feet per foot

h_1, h_2 = groundwater elevation at location 1 and 2

i = h1-h2/L = horizontal hydraulic gradient

K_h = horizontal hydraulic conductivity

L = distance between location 1 and 2 along the flow path

n_e = effective porosity

V = groundwater flow velocity

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

(2) Groundwater flow velocity equation: $V = [K_h * i] / n_e$

Table 5
Summary of Groundwater Analytical Data
Plant Hammond AP-3, Floyd County, Georgia

	Well ID:	HGWA-1	HGWA-2	HGWA-3	HGWA-43D	HGWA-44D	HGWA-45D	HGWA-122	HGWC-120	HGWC-121A	HGWC-124	HGWC-125	HGWC-126	MW-32	MW-39	MW-41	MW-46D
	Sample Date:	8/11/2021	8/12/2021	8/12/2021	8/11/2021	8/13/2021	8/13/2021	8/13/2021	8/16/2021	8/16/2021	8/16/2021	8/19/2021	8/19/2021	8/18/2021	8/19/2021	8/18/2021	8/16/2021
	Parameter [1,2]																
APPENDIX III	Boron	0.020 J	0.044	<0.0086	0.042	0.31	0.15	0.19	1.1	2.0	0.44	1.5	0.011 J	1.2	1.2	1.1	0.87
	Calcium	113	21.9	84.0	61.0	28.9	53.0	62.9	171	162	106	196	139	155	171	175	45.8
	Chloride	9.6	5.2	4.8	3.5	39.9	3.3	2.6	2.4	18.0	2.6	4.5	7.8	2.2	2.3	2.8	3.7
	Fluoride	0.058 J	<0.050	<0.050	0.15	0.87	0.20	0.065 J	0.39	0.15	<0.050	0.17	0.43	0.24	0.25	0.20	1.0
	pH [3]	6.98	5.05	7.31	7.40	7.77	7.42	6.56	6.92	6.74	7.09	7.24	7.32	6.89	6.90	6.93	7.65
	Sulfate	48.9	47.4	38.6	30.5	56.1	8.1	42.1	211	158	74.0	264	64.4	162	173	180	144
	TDS	366	118	265	277	436	272	201	632	626	352	732	488	554	628	602	516
APPENDIX IV	Antimony	<0.00078	<0.00078	<0.00078	<0.00078	<0.00078	<0.00078	<0.00078	<0.00078	<0.00078	<0.00078	<0.00078	<0.00078	<0.00078	<0.00078	<0.00078	<0.00078
	Arsenic	<0.0011	<0.0011	<0.0011	0.0015 J	<0.0011	0.0012 J	<0.0011	0.0015 J	0.0014 J	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	0.0032 J
	Barium	0.030	0.12	0.11	0.28	0.22	0.51	0.033	0.052	0.060	0.069	0.044	0.27	0.054	0.060	0.064	0.026
	Beryllium	<0.000054	0.00014 J	<0.000054	<0.000054	<0.000054	<0.000054	<0.000054	<0.000054	<0.000054	<0.000054	<0.000054	<0.000054	<0.000054	<0.000054	<0.000054	<0.000054
	Cadmium	<0.00011	0.00014 J	<0.00011	<0.00011	<0.00011	<0.00011	<0.00011	<0.00011	<0.00011	<0.00011	<0.00011	<0.00011	<0.00011	<0.00011	<0.00011	<0.00011
	Chromium	<0.0011	<0.0011	<0.0011	<0.0011	0.0016 J	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011
	Cobalt	<0.00039	0.022	<0.00039	<0.00039	<0.00039	<0.00039	<0.00039	0.0037 J	<0.00039	<0.00039	0.0054	<0.00039	0.0036 J	0.0025 J	0.00064 J	<0.00039
	Fluoride	0.058 J	<0.050	<0.050	0.15	0.87	0.20	0.065 J	0.39	0.15	<0.050	0.17	0.43	0.24	0.25	0.20	1.0
	Lead	<0.00089	<0.00089	<0.00089	<0.00089	<0.00089	<0.00089	<0.00089	<0.00089	<0.00089	<0.00089	<0.00089	<0.00089	<0.00089	<0.00089	<0.00089	<0.00089
	Lithium	0.00078 J	0.0012 J	0.0028 J	0.0024 J	0.032	0.0044 J	<0.00073	0.025 J	0.0075 J	0.0011 J	0.0074 J	0.0032 J	0.031	0.032	0.029 J	0.0062 J
	Mercury	<0.000078	<0.000078	<0.000078	<0.000078	<0.000078	<0.000078	<0.000078	<0.000078	<0.000078	<0.000078	<0.000078	<0.000078	<0.000078	<0.000078	<0.000078	<0.000078
	Molybdenum	<0.00074	<0.00074	<0.00074	0.0034 J	0.0051 J	<0.00074	0.0022 J	0.035	<0.00074	0.00091 J	0.021	<0.00074	0.061	0.063	0.042	0.0012 J
	Comb. Radium 226/228	0.115 U	0.746 U	0.498 U	0.394 U	0.959 U	1.20	0.914 U	1.25	0.192 U	0.734 U	0.721 U	1.11	1.14	0.619 U	1.18	0.625 U
	Selenium	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014
	Thallium	<0.00018	<0.00018	<0.00018	<0.00018	<0.00018	<0.00018	<0.00018	<0.00018	<0.00018	<0.00018	<0.00018	<0.00018	<0.00018	<0.00018	<0.00018	<0.00018

Notes:

< = Indicates the parameter was not detected above the analytical method detection limit (MDL).

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

TDS = Total dissolved solids

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

(1) Appendix III/IV parameter per 40 CFR 257 Subpart D. Parameters are reported in units of milligrams per liter (mg/L), except for pH reported as s.u. (standard units) and combined radium reported as picocuries per liter (pCi/L).

(2) Metals were analyzed by EPA Method 6010D, 6020B and 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.

Table 6

Summary of Background Concentrations and Groundwater Protection Standards

Plant Hammond AP-3, Floyd County, Georgia

Analyte	Units	Background [1]	Federal GWPS [2]	State GWPS [3]
Antimony	mg/L	0.003	0.006	0.006
Arsenic	mg/L	0.005	0.01	0.01
Barium	mg/L	0.54	2	2
Beryllium	mg/L	0.0005	0.004	0.004
Cadmium	mg/L	0.0005	0.005	0.005
Chromium	mg/L	0.0079	0.1	0.1
Cobalt	mg/L	0.038	0.038	0.038
Fluoride	mg/L	0.87	4	4
Lead[4]	mg/L	0.001	0.015	0.001
Lithium	mg/L	0.032	0.04	0.032
Mercury	mg/L	0.0002	0.002	0.002
Molybdenum	mg/L	0.01	0.1	0.01
Selenium	mg/L	0.005	0.05	0.05
Thallium	mg/L	0.001	0.002	0.002
Combined Radium-226/228	pCi/L	4.36	5	5

Notes:

"mg/L" = milligrams per liter

"pCi/L" = picocuries per liter

(1) The background limits were used when determining the groundwater protection standard (GWPS) under 40 CFR §257.95(h) and Georgia Environmental Protection Division (GA EPD) Rule 391-3-4-.10(6)(a).

(2) Under 40 CFR §257.95(h)(1-3) the GWPS is: (i) the maximum contaminant level (MCL) established under 141.62 and 141.66 of this title; (ii) where an MCL has not been established a rule-specific GWPS is used; or (iii) background concentrations for constituents were the background level is higher than the MCL or rule-specified GWPS.

(3) Under the existing GA EPD rules, the GWPS is: (i) the maximum MCL; (ii) where the MCL is not established, the background concentration; or (iii) background concentrations for constituents were the background level is higher than the MCL.

(4) Laboratory reporting limits for lead decreased from 0.005 mg/L to 0.001 mg/L since the March 2021 sampling event, resulting in lower background limits. The state GWPS for lead is defined as the background limit.

Table 7

Summary of Surface Water Analytical Data

Plant Hammond AP-3, Floyd County, Georgia

	Sample ID[1]:	H-SCC NBR	H-SCC E41
	Sample Date:	**9/13/2021**	**9/13/2021**
	Parameter[2,3]		
APP. III	**Boron**	0.081	0.15
	Calcium	27.8	38.8
	Chloride	1.5	1.7
	Fluoride	<0.10	<0.10
	Sulfate	9.7	19.5
	TDS	123	173
APP. IV	**Fluoride**	<0.10	<0.10
	Molybdenum	<0.010	<0.010
GEOCHEM	**Bicarbonate Alkalinity**	94.5	117
	Magnesium	5.6	6.8
	Potassium	0.92	1.3
	Sodium	1.8	2.5

Notes:

< = Indicates the parameter was not detected above the analytical reporting limit (RL).

TDS = Total dissolved solids

(1) Refer to Figure 2 for locations.

(2) Appendix (App.) III/IV parameter per 40 CFR 257 Subpart D. Parameters are reported in units of milligrams per liter (mg/L).

(3) Metals were analyzed by EPA Method 6010D/6020B, anions were analyzed by EPA Method 300.0, and TDS was analyzed by SM2540C.

FIGURES

N

LEGEND

Plant Hammond Property Boundary

Note:
1. Aerial photograph source: Google Earth Pro, August 2019.

0 400 800 1,600

SCALE IN FEET

SITE LOCATION MAP

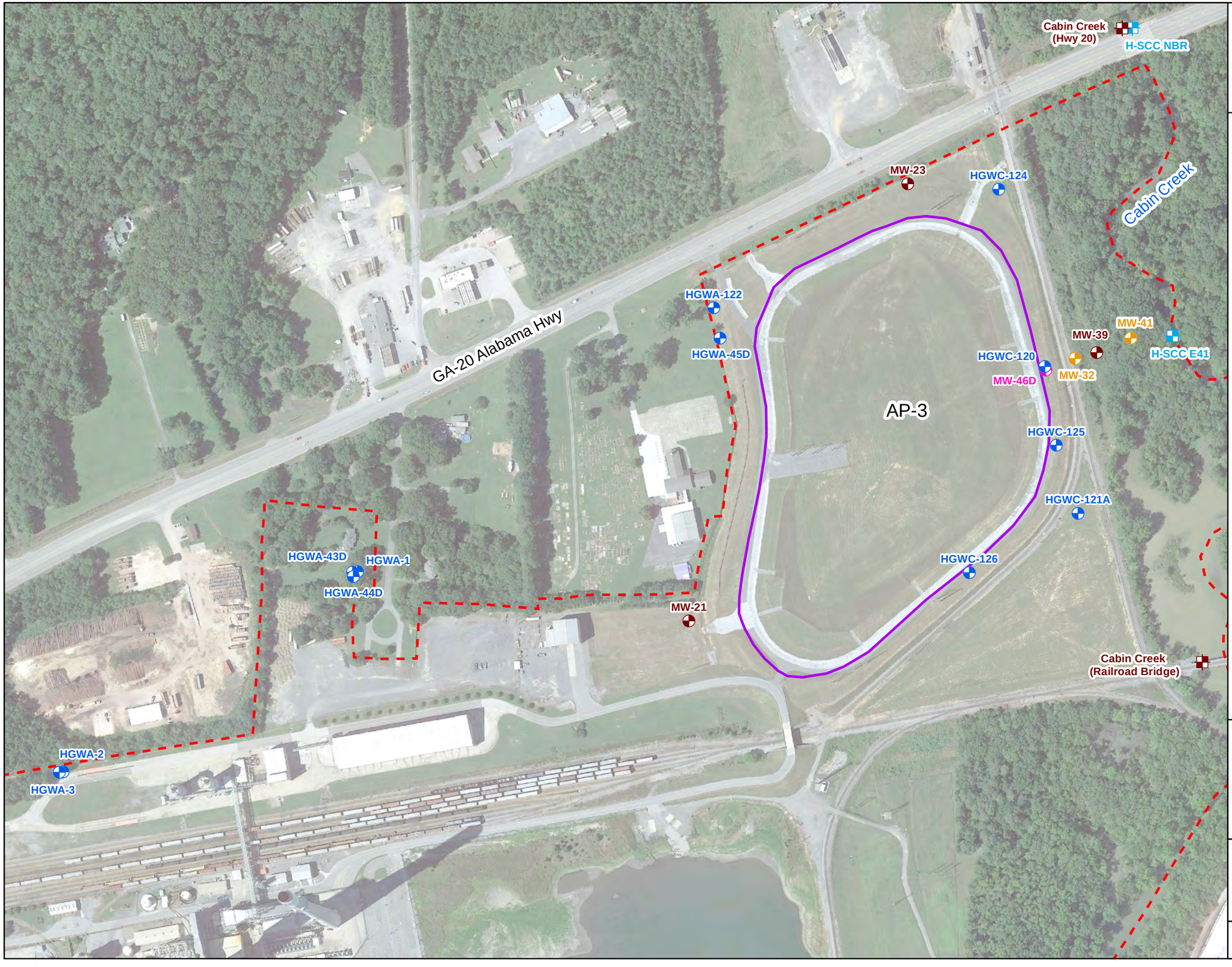
GEORGIA POWER COMPANY
PLANT HAMMOND AP-3
FLOYD COUNTY, GEORGIA

Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA | FEBRUARY 2022

FIGURE 1



N

LEGEND

- Compliance Monitoring Well
- Horizontal Delineation Well
- Vertical Delineation Well
- Piezometer
- Surface Water Sample Point
- Surface Water Level Gauge Point
- Approximate AP-3 Boundary
- Plant Hammond Property Boundary

Notes:
1. Aerial photograph source: Google Earth Pro, August 2019.
2. Surface water sample point H-SCC NBR and Cabin Creek (Hwy 20) surface water level gauge point are co-located.

0 150 300 600

SCALE IN FEET

MONITORING WELL NETWORK AND SAMPLING LOCATION MAP

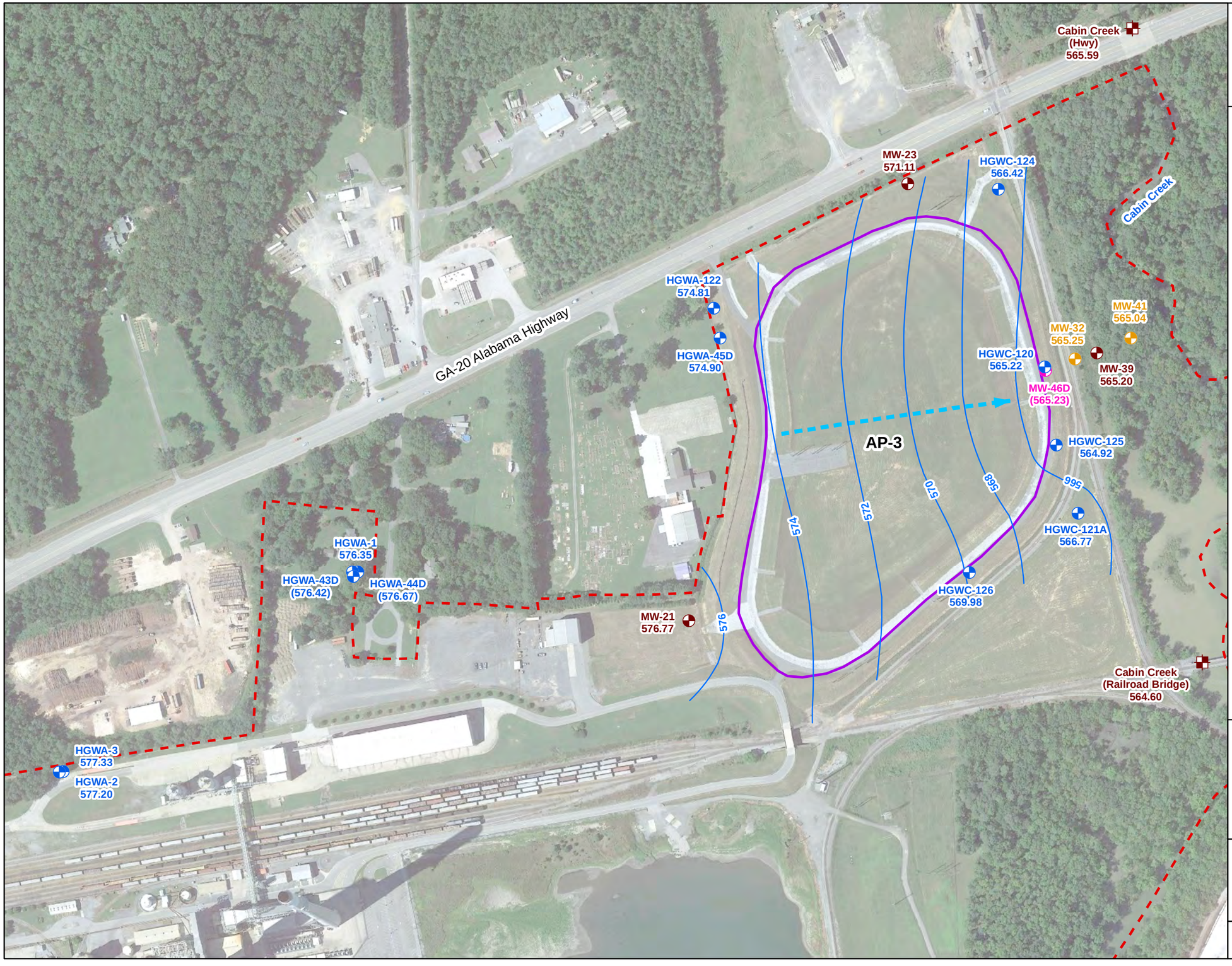
GEORGIA POWER COMPANY
PLANT HAMMOND AP-3
FLOYD COUNTY, GEORGIA

Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA | FEBRUARY 2022

FIGURE 2



N

LEGEND

- Compliance Monitoring Well
- Horizontal Delineation Well
- Vertical Delineation Well
- Piezometer
- Surface Water Level Gauge Point
- Groundwater Elevation Iso-Contour
- Approximate Groundwater Flow Direction
- Approximate AP-3 Boundary
- Plant Hammond Property Boundary

Notes:
1. Water level elevation recorded on August 11, 2021. Elevation provided in feet (ft) referenced to the North American Vertical Datum of 1988 (NAVD 88).
2. Groundwater elevations in parentheses were not used to make the groundwater contours because these wells are screened at a different elevation in the formation/aquifer.
3. Aerial photograph source: Google Earth Pro, August 2019.

0 150 300 600

SCALE IN FEET

GEORGIA REGISTERED No. PE019510 PROFESSIONAL ENGINEER WHITNEY B. LAW

POTENTIOMETRIC SURFACE CONTOUR MAP - AUGUST 2021

GEORGIA POWER COMPANY
PLANT HAMMOND AP-3
FLOYD COUNTY, GEORGIA

Prepared For: Georgia Power

Prepared By: Geosyntec consultants

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FIGURE 3

APPENDIX A

Well Maintenance and Repair Documentation Memorandum

Geosyntec consultants

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Kennesaw, Georgia 30144
PH 678.202.9500
FAX 678.202.9501
www.geosyntec.com

MEMORANDUM

DATE: December 20, 2021

TO: Kristen Jurinko, P.G., Southern Company Services, Inc.

CC: Ben Hodges, P.G. Georgia Power Company

FROM: Geosyntec Consultants

SUBJECT: **Plant Hammond Ash Pond 3 (AP-3) – Well Maintenance and Repair Documentation, Georgia Power Company**

Geosyntec Consultants has prepared this memorandum to provide documentation of groundwater monitoring well maintenance and/or repair performed at Plant Hammond AP-3 during the 2021 semiannual reporting period. All repairs and maintenance were completed in accordance with the Georgia Environmental Protection Division (GA EPD) guidance on routine visual inspections of groundwater monitoring wells. Documentation of the well inspections are provided as an attachment to this memorandum.

Georgia Power Site/Unit	Date Performed	Well ID	Maintenance/ Repair Performed
Hammond/AP-3	8/4/2021	All Wells	Checked and cleared weep holes of debris.
Hammond/AP-3	8/13/2021	HGWC-126	Replaced well lock.

ATTACHMENT

Well Inspection Forms

August 2021

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: HGWA-1
Date, field conditions: 6/11/21 sunny 92°F

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: HGWA-2
Date, field conditions: 8/4/21 8/12/21

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

7 Corrective actions as needed, by date:
NONE

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: HGWA-3
Date, field conditions: 8/12/21

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: Eg HGWA 43D
Date, field conditions: ~~8/9~~ 8/9/21 sunny, hot

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Mummert
Permit Number:
Well ID: MW-44D
Date, field conditions: 8/9/21

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

7 Corrective actions as needed, by date:

pump Broken

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: HGWA-45D
Date, field conditions: 8/13/21

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: HGWA-122
Date, field conditions: ~~8/12~~ 8/13/21 cc

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: HGWC-120
Date, field conditions: 8/16/21 Partly Cloudy 82°F

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: HGWC-121A
Date, field conditions: 8/16/21 Partly Cloudy 86°F

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: HGWC-124
Date, field conditions: 8/16/21 Cloudy 76° F

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: HGWC-17S
Date, field conditions: 8/9, 8/11 sunny, hot 8/11/21

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: Hadwc-126
Date, field conditions: ~~8/4~~ 8/17/21 Hot

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Hunt Manufacturing
Permit Number:
Well ID: MW-32
Date, field conditions: 8/19-8/19/21 Sunny Hot

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: MW-41
Date, field conditions: 8/11/21 8/18/21

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

7 Corrective actions as needed, by date:
NONE

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: MW-46D
Date, field conditions: 8/16/21 Cloudy 88°F

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: MW-21
Date, field conditions: 8/11/21

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: MW-23
Date, field conditions: 8/11/21

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

7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Groundwater Monitoring Well Integrity Form

Site Name: Plant Hammond
Permit Number:
Well ID: MW-39
Date, field conditions: 8/11/21 8/18/21

		yes	no	n/a
1	Location/Identification			
a	Is the well visible and accessible?	X		
b	Is the well properly identified with the correct well ID?	X		
c	Is the well in a high traffic area and does the well require protection from traffic?		X	
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	X		
2	Protective Casing			
a	Is the protective casing free from apparent damage and able to be secured?	X		
b	Is the casing free of degradation or deterioration?	X		
c	Does the casing have a functioning weep hole?	X		
d	Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?	X		
e	Is the well locked and is the lock in good condition?	X		
3	Surface pad			
a	Is the well pad in good condition (not cracked or broken)?	X		
b	Is the well pad sloped away from the protective casing?	X		
c	Is the well pad in complete contact with the protective casing?	X		
d	Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	X		
e	Is the pad surface clean (not covered with sediment or debris)?	X		
4	Internal casing			
a	Does the cap prevent entry of foreign material into the well?	X		
b	Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?	X		
c	Is the well properly vented for equilibration of air pressure?	X		
d	Is the survey point clearly marked on the inner casing?		X	
e	Is the depth of the well consistent with the original well log?	X		
f	Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	X		
5	Sampling: Groundwater Wells Only:			
a	Does well recharge adequately when purged?	X		
b	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?			X
c	Does the well require redevelopment (low flow, turbid)?	X*	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:
none.

Signature and Seal of PE/PG responsible for inspection

APPENDIX B

Semiannual Remedy Selection and Design Progress Report

Prepared for

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

SEMIANNUAL REMEDY SELECTION AND DESIGN PROGRESS REPORT

PLANT HAMMOND ASH POND 3 (AP-3)

Prepared by

engineers | scientists | innovators

1255 Roberts Boulevard, Suite 200
Kennesaw, Georgia 30144

Project Number GW6581

February 2022

SEMIANNUAL REMEDY SELECTION AND DESIGN PROGRESS REPORT

PLANT HAMMOND ASH POND 3 (AP-3)

This *Semiannual Remedy Selection and Design Progress Report, Plant Hammond Ash Pond 3 (AP-3),* has been prepared in accordance with the United States Environmental Protection Agency Coal Combustion Residual Rule, specifically 40 Code of Federal (CFR) 257.97(a) and the Georgia Environmental Protection Division Rules for Solid Waste Management 391-3-4-.10(6)(a). This report describes the progress made in selecting and designing a remedy as previously documented in the *Assessment of Corrective Measures Report – Plant Hammond Ash Pond 3 (AP-3).*

Report Prepared by:

Whitney B. Law, P.E.
Georgia Professional Engineer No. 036641

February 28, 2022
Date

Geosyntec consultants

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LIST OF ACRONYMS AND ABBREVIATIONS

ACM	Assessment of Corrective Measures
AEM	Advanced Engineering Method
AP-3	Ash Pond 3
CCR	coal combustion residuals
CFR	Code of Federal Regulations
CSM	conceptual site model
DPT	direct-push technology
ft bgs	feet below ground surface
GA EPD	Georgia Environmental Protection Division
Georgia Power	Georgia Power Company
Geosyntec	Geosyntec Consultants, Inc.
GWPS	groundwater protection standard
HDPE	high density polyethylene
ISCO	in situ chemical oxidation
ISCR	in situ chemical reduction
K_d	distribution coefficient
Li	lithium
L/kg	liters per kilogram
mg/kg	milligram per kilogram
mg/L	milligram per liter
MNA	monitored natural attenuation
Mo	molybdenum
ORP	oxidation reduction potential
PRB	permeable reactive barrier
SEP	sequential extraction procedure
SGU	Geological Survey of Sweden
SiREM	SiREM laboratories
SSI	statistically significant increase
SSL	statistically significant level
USEPA	United States Environmental Protection Agency

1.0 INTRODUCTION

1.1 Purpose

This *Semiannual Remedy Selection and Design Progress Report* (the semiannual progress report) was prepared by Geosyntec Consultants, Inc. (Geosyntec) for Georgia Power Company (Georgia Power) Plant Hammond Ash Pond 3 (AP-3 or Site) in accordance with the United States Environmental Protection Agency (USEPA) Coal Combustion Residual Rule (federal CCR Rule) (40 Code of Federal Regulations [CFR] 257 Subpart D), specifically 40 CFR 257.97(a), and the Georgia Environmental Protection Division (GA EPD) Rules for Solid Waste Management 391-3-4-.10(6)(a). This progress report describes the progress made since the prior semiannual progress report in selecting and designing a remedy. Potentially applicable groundwater corrective measures were previously described in the *Assessment of Corrective Measures Report – Plant Hammond Ash Pond 3 (AP-3)* (Geosyntec, 2020a) (ACM Report).

The purpose of the ACM Report (and subsequent semiannual progress reports) is to document the process of evaluating and selecting corrective measure(s) to improve groundwater quality. This process is typically iterative and may be composed of multiple steps to analyze the effectiveness of corrective measures. Once potential corrective measures are identified, they are further evaluated using the criteria outlined in § 257.96(c) and Rule 391-3-4-.10(6)(a). The selected corrective measure must meet the additional protection criteria outlined in § 257.97(b) and corresponding Rule 391-3-4-.10(6)(a). Pursuant to § 257.97(a) and Rule 391-3-4-.10(6)(a), semiannual progress reports have been regularly submitted to document the efforts of evaluating and progressing toward selecting a groundwater corrective measure (Geosyntec, 2021a, 2021b).

1.2 Site Background and Overview of AP-3 Pond Closure

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 four coal-fired electric generating units at Plant Hammond are decommissioned, and electricity is no longer produced at the Site.

AP-3 is a 25-acre former ash pond that was constructed in 1973 and 1974. Ash sluicing and placement operations at AP-3 commenced in June 1977. In the early 1980s, AP-3

was converted into a dry ash stacking area and, in the early 1990s, the pond stopped receiving CCR materials (i.e., AP-3 ceased receiving waste prior to the effective date of the CCR rule promulgated in April 2015).

Georgia Power commenced closure of AP-3 in 2016 via closure in place and capping. A notification of intent to close AP-3 was placed in the Operating Record on December 7, 2015 and posted to Plant Hammond's CCR website within 30 days. The Closure Plan was submitted to the GA EPD as part of the closure permit application package, which described the closure activities and requirements in accordance with § 257.102. The Closure Plan and notification of closure completion are posted on Plant Hammond's publicly available website.

Because AP-3 was converted to a dry stacking operation in the early 1980s and operated as such until the early 1990s when the unit ceased receiving CCR material, AP-3 did not contain standing water and minimal liquid removal was required to prepare the subgrade for final cover system construction. The CCR material remaining in AP-3 was graded and a final cover system was installed in the second quarter of 2018. The final cover system consists of a 60-mil high density polyethylene (HDPE) liner, geocomposite drainage media, a minimum 18-inch thick protective soil cover, and a 6-inch thick vegetative layer. The final cover system was designed to limit infiltration of precipitation with low permeability materials and is graded to promote positive drainage and shed stormwater away from AP-3 via riprap drainage ditches toward three outfall locations around AP-3. Final capping of the unit was completed in the second quarter of 2018.

The closure of AP-3 in the manner described minimizes the potential for migration of CCR constituents to groundwater. Corrective measures discussed in this progress report are being evaluated to address statistically significant levels (SSLs) in groundwater at the waste boundary.

1.3 Regulatory Program Status and Nature and Extent

CCR compliance groundwater monitoring-related activities have been performed for AP-3 since August 2016 pursuant to the CCR Rule. Georgia Power initiated an assessment monitoring program in August 2019 after identifying statistically significant increases (SSIs) of Appendix III constituents in groundwater.

Statistical analyses of Appendix IV assessment monitoring groundwater data collected in October 2019 identified SSLs of molybdenum (Mo) and lithium (Li) at concentrations exceeding the state groundwater protection standards (GWPS), but not the associated

federal GWPS, in compliance monitoring well HGWC-120. Since October 2019, concentrations of Li in HGWC-120 have declined, and Li is no longer an SSL at AP-3. Lithium in HGWC-120 will continue to be listed in the remedy selection and design progress reports and considered in the assessment of corrective measures.

Pursuant to § 257.96, Georgia Power initiated an assessment of corrective measures for AP-3 in July 2020. The associated ACM Report was subsequently prepared for AP-3 and submitted to GA EPD in December 2020 and posted to the CCR compliance website.

The current groundwater monitoring well network consists of a comprehensive monitoring network that meets federal and state monitoring requirements. Delineation wells and piezometers are also used to characterize groundwater conditions upgradient and downgradient of AP-3. The locations of the monitoring wells, delineation wells, and piezometers associated with AP-3 are shown on **Figure 2**; well construction details are listed in **Table 1**.

Statistical analysis of the August 2021 semiannual assessment monitoring groundwater data identified SSLs of Mo above the state GWPS (0.010 milligrams per liter [mg/L]), but not the federal GWPS (0.10 mg/L), in HGWC-120, MW-32, MW-39, and MW-41. The Mo SSLs have been horizontally delineated to below the state GWPS based on a lack of detected molybdenum above the reporting limit (0.010 mg/L) for surface water samples collected from Cabin Creek in September 2021. The Mo SSL identified in HGWC-120 is vertically delineated to below the state GWPS. Vertical delineation of Mo in MW-32, MW-39, and MW-41 may require the installation of (an) additional vertical delineation well(s) adjacent to their respective locations and is currently under evaluation. Details are provided in the *2021 Semiannual Groundwater Monitoring and Corrective Action Report* (2021 Semiannual Report) (Geosyntec, 2022). The groundwater data from the August 2021 semiannual assessment monitoring event and the September 2021 surface water data were used to generate the Mo iso-concentration map presented on **Figure 3**.

Based on GA EPD guidance, wells with SSLs were further evaluated by Groundwater Stats Consulting using the Sen's Slope/Mann Kendall trend test (**Appendix A**). The full report generated from the analyses is provided in the 2021 Semiannual Report. No statistically significant trends were identified when the August 2021 data were analyzed.

Georgia Power will continue to adaptively manage the Site and use ongoing data collection to evaluate the need for additional wells at AP-3. Pursuant to § 257.96,

groundwater in the vicinity of AP-3 continues to be monitored during the ACM phase in accordance with the established assessment monitoring program.

1.4 Corrective Measures Evaluated

As discussed in the ACM Report, the following corrective measures were initially considered to be potentially feasible for use at AP-3. A comparative screening of the corrective measures is provided in **Table 2**.

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

As outlined in the ACM Report, traditional phytoremediation was initially considered as a potential remedy but eliminated from further consideration given the groundwater that would be targeted for treatment is too deep for traditional root access (i.e., depths greater than 15 feet below ground surface [ft bgs]). However, Georgia Power has decided to install an engineered ***TreeWell®*** system as an Advanced Engineering Method (AEM). The *TreeWell* system can access deeper groundwater zones than traditional phytoremediation systems because vertical casings are used to drive root growth downward.

The design of that *TreeWell* system has been completed and is currently under Georgia Power review. While the purpose of the AEM is different than corrective measures, Georgia Power plans to evaluate the effectiveness of the AEM before assessing if additional *TreeWell* units or enhancements to the *TreeWell* system should be incorporated into the ACM for AP-3.

Georgia Power proactively initiated adaptive site management as outlined in the ACM Report to support the groundwater remedy selection process and address potential changes in site conditions (e.g., successful reduction of constituent concentrations or changing trends) as appropriate. The adaptive site management approach will take existing site conditions, including natural attenuation mechanisms, into account.

Characterization activities to evaluate attenuation mechanisms at the Site include collection of data necessary to progressively evaluate the existing and long-term effectiveness of these processes in the aquifer and reduce uncertainty for decision making

at each screening step as listed in the USEPA guidelines for MNA of inorganic constituents (USEPA, 1999, 2007, 2015). The 1999 MNA guidance originally introduced the "tiered approach" with three tiers of site-specific information, or lines of evidence, to evaluate the appropriate use of MNA at certain sites (USEPA, 1999). In 2007, the USEPA issued MNA technical guidance specific to inorganic contaminants (USEPA, 2007) that contained four "tiers." The 2015 MNA guidance retains these four "tiers," but describes them as "phases" as described below (USEPA, 2015). This 2015 MNA document for inorganic contaminants expands on and is designed to be a companion to the 1999 and 2007 MNA guidance.

- Phase I: Demonstration that the groundwater plume is *not expanding*.
- Phase II: Determination that the *mechanism and rate* of the attenuation process are sufficient.
- Phase III: Determination that the *capacity* of the aquifer is sufficient to attenuate the mass of contaminant within the plume and the *stability* of the immobilized contaminant is sufficient to resist re-mobilization.
- Phase IV: Design of a *performance monitoring program* based on an understanding of the mechanism of the attenuation process, and establishment of contingency remedies tailored to site-specific characteristics.

Georgia Power will address Phase IV, as appropriate, during the development of the future corrective action monitoring plan, after the final remedy selection report.

The data collection approach and the data interpretation presented within this semiannual progress report are informed by this phased MNA guidance. It is noted, however, that the characterization data collected under this approach are also used to refine the conceptual site model (CSM) and evaluate other retained potential corrective measures.

1.5 Risk Evaluation

In addition to the assessment monitoring program at the Site, Georgia Power conducted a human health and ecological risk evaluation of groundwater data reported between August 2016 and March 2020 to evaluate the Mo SSLs in groundwater at AP-3. The results of the risk evaluation were presented in the *2020 Risk Evaluation Report – Georgia Power Company – Plant Hammond Ash Pond 3*, submitted to GA EPD in December 2020 (Geosyntec, 2020b). The evaluation provides one of many lines of evidence that will be evaluated and factored into the remedy selection process, which will be completed in

accordance with § 257.97. Based upon this evaluation, concentrations of Mo detected in groundwater at AP-3 between August 2016 and March 2020 are not expected to pose a risk to human health or the environment. Data collected since March 2020 are consistent with data used in the risk evaluation; therefore, the conclusions provided in the *2020 Risk Evaluation Report* are supported by current conditions reported during the 2021 reporting period.

As requested by GA EPD, an updated potable well survey of potential groundwater wells within a two-mile radius of AP-3 was conducted in December 20021 through January 2022 and consisted of reviewing federal, state, county records, and online sources. A survey conducted by Environmental Data Resources (EDR) is included in **Appendix B**. Additional federal, state, county records and online sources outside of the EDR survey were also reviewed. The Floyd County Health Department declined Geosyntec's request for information due to department security protocol. The findings from the 2021-2022 well survey are consistent with the 2020 well survey (NewFields, 2020).

2.0 SUMMARY OF WORK COMPLETED

The following summarizes the field investigations and data evaluations completed in support of the ACM program since the issuance of the prior semiannual progress report in July 2021 (Geosyntec, 2021b). The routine assessment monitoring event conducted in August 2021 is discussed in the 2021 Semiannual Report (Geosyntec, 2022).

2.1 Field Activities

No additional field investigation activities were conducted since submitting the previous semiannual progress report in July 2021. The field efforts associated with the data analyses presented herein, including collecting groundwater samples and aquifer solids samples, were discussed in previously submitted semiannual progress reports (Geosyntec, 2021a, 2021b). The locations of direct-push technology (DPT) boreholes and the monitoring well network associated with AP-3 are shown on **Figure 2**. As described in the previous semiannual progress report, samples of the aquifer solids and groundwater were shipped to SiREM laboratories (SiREM) located in Guelph, Ontario, for subsequent characterization and batch sorption and desorption studies.

2.2 Data Analysis Activities

As described above, aquifer solids and groundwater samples were shipped to SiREM for laboratory treatability studies to assess the sorption and desorption behavior of Mo and Li, as further described below. In general, sorption studies use soils collected from background locations and groundwater with constituent concentrations above GWPSs to evaluate attenuation mechanisms and capacity, consistent with Phases II and III of the MNA guidance. Desorption studies can be used to assess attenuation stability of the constituents of interest, and generally utilize soils collected proximal to areas with exceedances of GWPSs and groundwater with background constituent concentrations. Sorption tests are used to calculate a site-specific distribution coefficient (K_d) between the solid phase and the aqueous phase. The K_d values can be used in a fate and transport model to estimate future groundwater concentrations and evaluate potential corrective actions at the Site.

2.2.1 Sorption Studies

Prior to selecting aquifer solids for the sorption studies, the lithology as well as the chemical and mineralogical characterization data for the samples previously collected from DPT-01 through DPT-04 borings were evaluated for potential differences in characteristics. The baseline characterization study and associated results were presented

in a previous semiannual progress report (Geosyntec, 2021b). Please refer to the SiREM report included as **Appendix C** for a summary of characterization results obtained to date. Both the lithology and the characterization data were generally consistent among the four DPT locations; and therefore, the background location DPT-01 was selected for the sorption studies. Unimpacted groundwater from background well HGWA-122 was used together with unimpacted aquifer solids from DPT-01 to construct batch reactors to evaluate sorption of Mo and Li.

Groundwater from HGWA-122 was spiked with Mo and Li at five concentration levels. The highest spike concentration level (Level 5) of each constituent was at least twice as high as the highest Mo or Li concentration observed in groundwater at the Site. Reactors were constructed in duplicate and incubated for seven days under ambient (i.e., aerobic) conditions consistent with conditions in the aquifer downgradient of AP-3. Samples were collected from the reactors at the beginning of the study (i.e., Day 0) and at the end of the study (Day 7). The samples were analyzed for dissolved Mo and Li, pH, and oxidation-reduction potential (ORP). The concentrations of Mo and Li sorbed to the aquifer solids were calculated based on the concentration difference in the aqueous phase of the initial spike and Day 7 and the mass of aquifer solids in each reactor. A detailed description of the methods and materials used to complete the sorption study is included in the SiREM report provided in **Appendix C**.

Based on the results of the laboratory batch testing, the concentrations of sorbed constituents (in milligrams per kilogram (mg/kg)) and dissolved constituents remaining in aqueous solution (in mg/L) were plotted for each spiked concentration level. These graphs represent sorption isotherms that can be used to calculate distribution coefficients (K_d) values. Linear regression lines were fit to the data using the method of least squares in Microsoft Excel, and the slopes of these regression lines represent the K_d values for each constituent (USEPA, 2008).

2.2.2 Desorption Studies

Similar to the sorption studies, the lithology as well as the chemical and mineralogical characterization data of the four DPT borings were assessed to evaluate which aquifer solids sample should be used for the desorption studies. One of the important characteristics for this evaluation was the total concentration of the constituents of interest reported in the aquifer solids collected from these borings. The highest Mo concentration (i.e., 3.6 mg/kg) was detected in aquifer solids from DPT-02 downgradient of delineation well MW-32; and therefore, this sample was selected to evaluate desorption behavior of

Mo. This sample also had the second-highest Li concentration at 210 mg/kg, which made it also suitable to evaluate desorption behavior of Li.

Batch reactors were constructed in duplicate using these aquifer solids, which were combined with background groundwater from HGWA-122 to evaluate desorption behavior. The desorption reactors were tested under ambient (aerobic) conditions consistent with groundwater conditions downgradient of AP-3. As noted previously, more detailed descriptions of the methods and materials are included in the SiREM report provided in **Appendix C**.

3.0 SUMMARY OF RESULTS

The following presents the results of the data analysis activities outlined in Section 2.

3.1 Sorption Results

The results of the batch sorption tests are summarized in **Tables 3A** and **3B** and included in the SiREM report provided in **Appendix C**.

As can be seen in **Table 3A**, all five spiked concentration levels for Mo (target spiking concentrations between 0.03 mg/L and 0.17 mg/L) were completely sorbed by the aquifer materials since all dissolved Mo concentrations were non-detect (i.e., <0.00004 mg/L) after seven days of incubation. Moreover, sorption kinetics were fast given that samples collected on Day 0, which were collected approximately one hour after reactor setup, already indicated Mo concentrations substantially lower than the spiked concentrations. The results are also depicted on **Figure 4A**, with dissolved concentrations (in mg/L) plotted on the x-axis and the sorbed concentrations (in mg/kg) plotted on the y-axis. Since all of the Mo was sorbed, no sorption isotherm can be plotted, and no K_d value can be calculated for Mo. Under these experimental conditions, sorption of Mo is infinite.

Lithium (target spiking concentrations between 0.02 mg/L and 0.07 mg/L) sorption results are also summarized in **Table 3B** and depicted on **Figure 4B**. The Li results indicate some sorption onto aquifer materials and suggest a linear sorption isotherm with a calculated K_d value of approximately 17.7 liters per kilogram (L/kg). While the USEPA (2005) does not report K_d values for Li in soil/water systems, the Geological Survey of Sweden (SGU) has published K_d values for Li for seven selected soils and sediments that ranged between 190 L/kg and 370 L/kg (SGU, 2009). Therefore, the calculated Li K_d value of 17.7 L/kg appears to be reasonable, but on the lower end of what may be observed in surface soils.

3.2 Desorption Results

The results of the desorption batch study are summarized in **Table 4**. As described in Section 2.2.2, aquifer solids from boring DPT-02 located downgradient of delineation well MW-32 were used to evaluate desorption behavior of Mo and Li under ambient (aerobic) conditions using background groundwater from background well HGWA-122. The total concentrations of these elements obtained through the baseline characterization of these samples are included in **Table 4** to provide some context for the desorption results.

As can be seen in **Table 4**, very low concentrations of Li were reported after a seven-day incubation period. This observation suggests that desorption of Li from aquifer solids surfaces is not readily occurring and that the substantial Li concentration of 210 mg/kg within the aquifer solids is of natural (i.e., geogenic) origin and largely immobile under ambient conditions. This result is consistent with the sequential extraction procedure (SEP) results reported during the last semiannual progress report (Geosyntec, 2021b), which indicated that most of the Li was associated with the more recalcitrant fractions (i.e., especially Steps 4, 6, and 7) of the 7-step SEP.

However, Mo concentrations increased from 0.0126 mg/L after one hour of incubation (Day 0) to 0.0538 mg/L after seven days of incubation, which is consistent with the Mo concentrations detected in groundwater within the area where samples from DPT-02 were collected. This observation suggests that a fraction of Mo within the aquifer matrix at this location can be desorbed resulting in dissolved concentrations below the federal GWPS. These results are also consistent with the previously reported SEP results (Geosyntec, 2021b), which indicated some liberation of Mo associated with the exchangeable phase (Step 1) as well as the non-crystalline materials phase (Step 3), which provides some sorption capacity for Mo.

4.0 UPDATED CONCEPTUAL SITE MODEL

AP-3 was closed by capping the unit with a 60-mil HDPE liner, geocomposite drainage media, a minimum 18-inch thick protective soil cover, and a 6-inch thick vegetative layer. This final cover reduces the potential for migration of CCR-related constituents to groundwater. The CSM indicates that groundwater exceedances are limited to Mo above the state GWPS, but below the federal GWPS, along a narrow path between compliance well HGWC-120 and delineation well MW-41. The additional data collected since the issuance of the previous semiannual progress report in July 2021 (Geosyntec, 2021d) are consistent with and support the CSM described in the July 2021 progress update. The following bullets summarize the current understanding of the CSM within the context of selecting an appropriate groundwater corrective measure for AP-3.

- The sorption and desorption studies presented herein confirm that Mo is sorbed to the aquifer solids, but that desorption of Mo is occurring to an extent that can explain Mo groundwater concentrations detected during routine groundwater sampling. Conversely, Li was relatively weakly sorbed during the sorption batch studies (i.e., calculated K_d of 17.7 L/kg), but it was not readily mobilized during the desorption study. This observation suggests that the majority of Li concentrations found in the aquifer solids is likely of natural (i.e., geogenic) origin. The behavior of both of these elements during the sorption and desorption studies is consistent with the SEP results as well as the groundwater monitoring results.

- The site-specific attenuation capacity for Mo appears to be sufficient to attenuate Mo concentrations to below the federal GWPS, despite minor concentrations of Mo observed in the desorption tests.

- A previously reported SSL for Li is no longer present, and Li detections are likely associated with naturally elevated levels of Li in the aquifer matrix. The sorption and desorption results presented herein are consistent with this conclusion.

5.0 UPDATED EVALUATION OF CORRECTIVE MEASURES

Two of the five potential groundwater corrective measures (i.e., a permeable reactive barrier [PRB] and a vertical barrier wall) were previously removed from further consideration, while three of the potential corrective measures will be retained for further evaluation as described in more detail below:

- Geochemical Manipulation (In-Situ Injection):

  Geochemical injections include the use of an injection well network, or other means of introducing reagents or air into the subsurface, to provide suitable reagents for either anaerobic or aerobic attenuation of Mo. Under anaerobic conditions, Mo may be attenuated within sparingly soluble sulfide minerals. Under aerobic conditions, soluble iron or manganese and oxygen (either via air sparging or through a chemical oxidant) would be injected to promote the formation of iron or manganese (oxy-) hydroxides for subsequent sorption of Mo onto these mineral phases. If sufficient iron is present in groundwater, the use of air sparging alone may be considered to precipitate iron (oxy-) hydroxides for sorption. In-situ chemical oxidation (ISCO) or in-situ chemical reduction (ISCR) can be used to chemically alter the redox environment in the subsurface to affect the mobility of certain inorganic compounds, including Mo. This potential corrective measure may be feasible along a narrow groundwater flow path downgradient of HGWC-120.

- Hydraulic Containment:

  Hydraulic containment refers to the use of groundwater extraction to induce a hydraulic gradient for hydraulic capture or control the migration of impacted groundwater downgradient of the permitted unit. This approach considers the application of interceptor trenches to capture a continuous linear cross-section of the groundwater, which may subsequently require above-ground treatment and permitted discharge to a receiving water feature, reinjection into the groundwater, or reuse. It is applicable to a variable mix of inorganic constituents, including dissolved Mo. This potential corrective measure may still be feasible through targeted extraction of impacted groundwater.

- Monitored Natural Attenuation:

  MNA relies on natural attenuation processes to achieve site-specific remediation objectives within a reasonable time frame relative to more active methods. Under certain conditions (e.g., through sorption, mineral precipitation or oxidation-reduction [redox] reactions), MNA effectively reduces the dissolved concentrations of inorganic constituents in groundwater. For Mo, the main attenuation process at AP-3 includes sorption to iron and manganese oxides under aerobic conditions at the Site. The sorption and desorption batch studies presented herein suggest that the aquifer matrix has attenuation capacity for Mo, but that desorption of Mo from aquifer solids appears to be occurring consistent with Mo concentrations below the federal GWPS observed during routine groundwater monitoring events. Therefore, MNA remains a viable corrective measure to control migration of Mo under the federal GWPS.

Continued groundwater monitoring and updates to the statistical analyses will further refine the CSM and allow for the continued evaluation of an appropriate groundwater corrective measure at the Site.

6.0 PLANNED ACTIVITIES & ANTICIPATED SCHEDULE

Source control at AP-3 is considered addressed as a result of the closure and capping described in Section 1.2. Specifically, closure of AP-3 was completed in 2018 via closure in place with the construction of a final engineered cover system, including a geomembrane component, to cap the unit. The closure of AP-3 in this manner minimizes the potential for migration of CCR constituents to groundwater. In addition, an AEM has been selected to enhance the closure of AP-3. The selected *TreeWell* approach downgradient of AP-3 has been designed and is currently under review by Georgia Power. Implementation of the AEM is pending state approval of supporting designs and permits necessary to install the AEM.

Georgia Power proactively initiated adaptive site management as outlined in the ACM Report to support the remedial strategy and address potential changes in site conditions as appropriate. The adaptive site management approach may be adjusted over the Site's life cycle as new site information and technologies become available. To this end, Georgia Power will continue its data collection efforts as necessary in support of efforts to refine the CSM and to further evaluate the feasibility of the corrective measures retained for evaluation. Once sufficient data are available to make technically sound decision regarding the ability to implement one or more specific corrective measures, necessary steps will be taken to design and implement a remedy for AP-3 in accordance with § 257.98.

The supplemental data collection and evaluation activities proposed to be completed during the next semiannual reporting period are presented in **Table 5** and summarized below.

- *Evaluate conceptual layouts for hydraulic containment corrective measures to evaluate hydraulic capture zones.*

- *Evaluate vertical delineation of the Mo SSLs in delineation wells to assess if additional vertical delineation wells are necessary.*

Georgia Power will continue to prepare semiannual progress reports to document AP-3 groundwater conditions, results associated with additional data collection, and the progress in selecting and designing a groundwater remedy in accordance with § 257.97(a). Georgia Power will include future semiannual progress reports in routine groundwater monitoring and corrective action reports. Record keeping, notifications, and publicly accessible internet site requirements for the semiannual progress reports will be

provided in accordance with § 257.105(h)(12), § 257.106(h)(9), and § 257.107(h)(9), respectively.

7.0 REFERENCES

Geological Survey of Sweden (SGU), 2009. *Solid/liquid partition coefficients (Kd) for selected soils and sediments at Forsmark and Laxemar-Simpevarp*. R-09-27. March 2009.

Geosyntec, 2020a. *Assessment of Corrective Measures Report – Plant Hammond Ash Pond 3 (AP-3)*. December 2020.

Geosyntec, 2020b. *Risk Evaluation Report – Plant Hammond Ash Pond 3, Rome, Floyd County, Georgia.* December 2020.

Geosyntec, 2021a. *Semiannual Remedy Selection and Design Progress Report – Plant Hammond Ash Pond 3 (AP-3)*. February 2021.

Geosyntec, 2021b. *Semiannual Remedy Selection and Design Progress Report – Plant Hammond Ash Pond 3 (AP-3)*. July 2021.

Geosyntec, 2022. *2021 Semiannual Groundwater Monitoring and Corrective Action Report – Plant Hammond Ash Pond 3 (AP-3).* February 2022.

NewFields, 2020. *Well Survey, Plant Hammond Ash Pond 1, Ash Pond 2, Ash Pond 3, Ash Pond 4, Rome, GA.* March 2020.

USEPA, 1999. *Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites*. Office of Solid Waste and Emergency Response; Directive 9200.4-17P. April 1999.

USEPA, 2005. *Partition Coefficients for Metals in Surface Water, Soil, and Waste.* Office of Research and Development. EPA/600/R-05/074. July 2005.

USEPA, 2007. *Monitored Natural Attenuation of Inorganic Contaminants in Ground Water. Volume 1 – Technical Basis for Assessment*. National Risk Management Laboratory. EPA/600/R-07/139. October 2007.

USEPA, 2008. *Fate, Transport and Transformation Test Guidelines OPPTS 835.1230 Adsorption/Desorption (Batch Equilibrium).* Office of Prevention, Pesticides and Toxic Substances. October 2008.

USEPA, 2015. *Use of Monitored Natural Attenuation for Inorganic Contaminants in Groundwater at Superfund Sites.* Office of Solid Waste and Emergency Response Directive 9283.1-36. August 2015.

TABLES

Table 1
Monitoring Well Network Summary
Plant Hammond AP-3, Floyd County, Georgia

Well ID	Hydraulic Location	Installation Date	Northing [1]	Easting [1]	Top of Casing Elevation [2] (ft)	Top of Screen Elevation [2] (ft)	Bottom of Screen Elevation [2] (ft)	Well Depth (ft BTOC) [3]	Screen Interval Length (ft)
Compliance Monitoring Well									
HGWA-1	Upgradient	12/3/2014	1550423.32	1940770.00	595.21	573.12	563.12	32.49	10
HGWA-2	Upgradient	12/2/2015	1549796.87	1939845.15	587.92	570.29	560.29	27.95	10
HGWA-3	Upgradient	12/2/2015	1549794.41	1939833.39	587.74	553.23	543.23	44.51	10
HGWA-43D	Upgradient	8/26/2020	1550422.85	1940753.80	595.08	544.08	534.08	61.25	10
HGWA-44D	Upgradient	8/25/2020	1550409.13	1940756.18	594.79	491.76	481.76	113.28	10
HGWA-45D	Upgradient	8/19/2020	1551157.68	1941907.54	586.95	535.23	525.23	62.87	10
HGWA-122	Upgradient	11/20/2014	1551251.42	1941887.11	587.90	570.54	560.54	27.76	10
HGWC-120	Downgradient	6/27/2016	1551067.24	1942926.62	605.82	548.83	538.83	67.00	10
HGWC-121A	Downgradient	7/17/2017	1550607.97	1943030.44	584.69	556.71	546.71	37.98	10
HGWC-124	Downgradient	11/13/2014	1551624.93	1942781.05	582.52	557.80	547.80	35.12	10
HGWC-125	Downgradient	5/4/2020	1550821.41	1942962.87	608.89	556.03	546.03	63.19	10
HGWC-126 [4]	Downgradient	11/25/2019	1550422.03	1942689.40	611.24	552.72	542.72	68.52	10
Delineation Well									
MW-32	Downgradient	11/22/2019	1551092.83	1943021.47	585.46	559.30	549.30	36.16	10
MW-41	Downgradient	5/18/2020	1551158.16	1943196.47	577.25	563.20	553.20	24.38	10
MW-46D	Downgradient	8/18/2020	1551056.48	1942929.10	605.72	513.92	503.92	102.05	10
Piezometer									
MW-21	Upgradient	12/3/2014	1550270.15	1941809.76	586.27	570.40	560.40	26.28	10
MW-23	Downgradient	11/24/2014	1551641.44	1942496.83	584.91	563.03	553.03	32.28	10
MW-39	Downgradient	3/16/2020	1551111.45	1943089.26	580.42	564.93	554.93	25.82	10

Notes:
ft = feet
ft BTOC = feet below top of casing
(1) Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet. Survey data certified by GEL Solutions May 19, 2020. Survey data for wells HGWA-43D, HGWA-44D, HGWA-45D, and MW-46D certified by GEL Solutions September 10, 2020.
(2) Elevations referenced to the North American Vertical Datum of 1988 (NAVD88). Survey completed by GEL Solutions May 19, 2020. Survey data for wells HGWA-43D, HGWA-44D, HGWA-45D, and MW-46D certified by GEL Solutions September 10, 2020.
(3) Total well depth accounts for sump if sump depth data was provided on well construction logs.
(4) HGWC-126 was originally installed as piezometer MW-31 but reclassified as a compliance monitoring well in May 2020.

Table 2
Evaluation of Remedial Technologies
Plant Hammond AP-3, Floyd County, Georgia

	Regulatory Citation for Criteria:	40 CFR 257.96(C)(1)		40 CFR 257.96(C)(1)
Corrective Measure	**Description**	**Performance**	**Reliability**	**Ease of Implementation**
Geochemical Manipulation (In-Situ Injection)	Use of an injection well network, or other means of introducing reagents or air into the subsurface, to provide suitable reagents for either anaerobic or aerobic attenuation of molybdenum (Mo). Under anaerobic conditions, Mo may be attenuated within sparingly soluble sulfide minerals. Under aerobic conditions, soluble iron or manganese and oxygen (either via air sparging or through a chemical oxidant) would be injected to promote the formation of iron or manganese (oxy-) hydroxides for subsequent sorption of Mo onto these mineral phases. If sufficient iron is present in groundwater, the use of air sparging alone may be considered to precipitate iron (oxy-) hydroxides for sorption. In-situ chemical oxidation (ISCO) or in-situ chemical reduction (ISCR) can be used to chemically alter the redox environment in the subsurface to affect the mobility of certain inorganic compounds, including Mo.	The effective immobilization of Mo under promoted anaerobic condition (involving the injection of an electron donor together with iron or manganese and sulfur) requires careful study and testing. While aerobic approaches involving sorption are somewhat less complex, they may also be more reversible compared to mineral precipitation. Mo attenuation under both aerobic and anaerobic conditions needs to be further evaluated, but data to date have shown sorption of Mo occurs under ambient/aerobic conditions. Mo is more strongly sorbed to aluminum oxides than other metal oxides, and it is generally less sorptive and more mobile compared to other inorganics (e.g., arsenic[As]). Laboratory desorption batch studies have indicated some limited desorption of Mo under ambient/aerobic conditions that are consistent with groundwater monitoring results that show Mo concentrations below the federal GWPS.	Reliability dependent on permeability of the subsurface and the amount and distribution of secondary iron or manganese (oxy-) hydroxides (for aerobic approach), or electron donors and soluble iron or manganese and sulfur that can be consistently distributed (for anaerobic approach). Reliable technology if injected materials can be distributed throughout the impacted aquifer. Bench- and/or pilot-scale treatability testing programs are needed to understand the biogeochemical processes that would effectively reduce migration of Mo in groundwater. Laboratory desorption batch studies have indicated some reversibility of Mo sorption under ambient/aerobic conditions that may require switching to anaerobic approaches if additional reductions of Mo concentrations in groundwater are required.	Moderate. Installation of injection well network or other injection infrastructure would be required. Alternative installation approaches may be considered, such as along the downgradient edge of impacted groundwater, which would function similar to a PRB application. Potential for clogging of aquifer matrix and/or injection well infrastructure. Chemical distribution during injections (i.e., radius of influence) needs to be evaluated.
Hydraulic Containment (Pump and Treat)	Hydraulic containment refers to the use of groundwater extraction to induce a hydraulic gradient for hydraulic capture or control the migration of impacted groundwater. This approach uses interceptor trenches to capture groundwater, which may subsequently require above-ground treatment and permitted discharge to a receiving water feature, reinjection into the groundwater, or reuse (e.g., land application, CCR conditioning, etc.). The use of extraction wells was considered but due to geotechnical considerations in the immediate vicinity of AP-3 in the context of the site-specific geology, extraction wells were removed from consideration. Pump and treat is applicable to a variable mix of inorganic constituents, including dissolved Mo.	Hydraulic containment is effective and can achieve concentrations below GWPS despite minor Mo desorption observed in batch desorption tests. At AP-3, implementation of the corrective measure is contingent on completing additional assessment activities (i.e. high-resolution site characterization, additional pump tests, flow modeling, and capture zone analysis). This is needed to refine the constituent distribution in the subsurface to target specific zones for pumping for improved mass recovery efficiency/ effectiveness and to further evaluate the potential remedy performance. Proximity of the extraction system to Cabin Creek needs to be considered to avoid capturing surface water.	Generally reliable for hydraulic containment, but uncertainty exists whether groundwater remediation goals can be achieved within a reasonable time frame. The laboratory sorption/desorption batch studies suggest that desorption of already attenuated Mo may occur but concentrations below GWPSs.	Moderate. Proven approach, and supplemental installation of interceptor trenches are fairly straightforward. The extracted groundwater may potentially require an above-ground treatment system. A variety of sorption and precipitation approaches exist for ex-situ treatment of Mo. Operation and maintenance (O&M) requirements are expected to include upkeep of infrastructure components (pumps, pipes, tanks, instrumentation and controls, above-ground treatment system) and handling of treatment residuals.
Monitored Natural Attenuation (MNA)	MNA relies on natural attenuation processes to achieve site-specific remediation objectives within a reasonable time frame relative to more active methods. Under certain conditions (e.g., through sorption, mineral precipitation or oxidation-reduction reactions), MNA effectively reduces the dissolved concentrations of inorganic constituents in groundwater. Attenuation mechanisms for inorganic constituents at CCR sites, including Mo, are either physical (e.g. dilution, dispersion, flushing, and related processes) or chemical (sorption or oxidation reduction reactions). Chemical attenuation processes include precipitation, and sorption reactions such as adsorption on the surfaces of soil minerals, absorption into the matrix of soil minerals, or partitioning into organic matter. Further, oxidation-reduction (redox) reactions, via abiotic or biotic processes, can transform the valence states of some inorganic constituents to less soluble and thus less mobile forms. For Mo, the main attenuation process includes sorption to iron and manganese oxides and formation of insoluble minerals under sulfate-reducing conditions.	Physical and chemical MNA mechanisms for Mo, including dilution, dispersion, sorption, and oxidation reduction reactions can be effective at achieving groundwater protection standards (GWPS) within a reasonable time frame. Sorption and desorption laboratory batch studies using site-specific aquifer materials have demonstrated that minor Mo desorption is occurring under ambient/aerobic conditions downgradient of AP-3, but will result in concentrations below the federal GWPS.	Reliable as long as the aquifer conditions that result in Mo attenuation remain favorable and/or are being enhanced and sufficient attenuation capacity is present. MNA may be used as a stand-alone corrective measure for groundwater impacted by dissolved Mo, but is frequently used in combination with a second technology. Sorption and desorption laboratory batch studies have demonstrated that both sorption and desorption are occurring. Data to date indicate that attenuation mechanisms are sufficient to maintain Mo concentrations below the federal GWPS.	Reasonably implementable with respect to infrastructure, but moderate to complex with respect to documentation. Proven approach, but additional data are needed to show that the existing attenuation capacity is sufficient to meet site objectives within a reasonable timeframe. A monitoring well network already exists to implement future groundwater monitoring efforts.
Permeable Reactive Barrier	Permeable reactive barrier (PRB) technology typically involves the installation of a permeable subsurface wall constructed with reactive media for the removal of constituents as groundwater passes through. Either ZVI-Carbon matrix or solid carbon (bio-barrier) are currently proposed for the removal of Mo. The carbon could be composed of peat moss, mulch or another carbon source. Exact placement of the PRB is determined by site-specific characterization. PRB walls are typically keyed into the bedrock. While the shallow groundwater in the residuum and fractured bedrock is connected to the groundwater in more competent bedrock, the higher permeability/conductivity of the PRB is not expected to impede groundwater flow. PRBs can also be constructed as “funnel and gate” systems, where a barrier wall directs groundwater to a smaller “treatment gate” filled with reactive media.	PRBs have been tested to address Mo in groundwater, but additional testing is required to select the appropriate reactive media. The approach is expected to achieve GWPS for Mo as impacted groundwater passes through the reactive barrier. Mo redox kinetics may be slow and hence a thicker wall might be needed relative to the treatment of other inorganics (e.g., arsenic).	Reliable groundwater corrective measure technology for select inorganics, but loss of reactivity over time may require re-installation depending on the duration of the remedy. Additional data collection, including conducting a bench and/or pilot study, is needed to better characterize current attenuation mechanisms and/or select the appropriate reactive media mix for a PRB wall.	Moderate to difficult. Trenching would be required to install a mix of reactive materials in the subsurface. Continuous trenching may be the most feasible construction method. Installation methods and materials are readily available. Once installed, treatment will be passive and O&M requirements are minimal if replacement of the PRB is not necessary. Depth to competent bedrock varies on a small-scale (feet to tens of feet) spatially depending on the weathering characteristics of the fractured bedrock, limiting the feasibility of constructing a PRB along the entire length and depth of the affected areas.
Subsurface Vertical Barrier Walls	This approach involves placing a barrier to groundwater flow in the subsurface, frequently around a source area, to prevent future migration of dissolved constituents in groundwater from beneath the source to downgradient areas. In general, barrier walls are designed to provide containment; localized treatment achieved through the sorption or chemical precipitation reactions from construction of the walls are incidental to the design objective. Barrier walls can also be used in downgradient applications to limit discharge to a surface water feature or to reduce aquifer recharge from an adjacent surface water feature when groundwater extraction wells are placed near one. A variety of barrier materials can be used, including cement and/or bentonite slurries, geomembrane composite materials, or driven materials such as steel or vinyl sheet pile. Groundwater extraction from upgradient of the barrier is required to avoid groundwater mounding behind the barrier.	Barrier walls are a proven technology for seepage control and/or groundwater cutoff at impoundments. Slurry walls are limited by the depth of installation; sheet piling and trenching are typically limited to depths of approximately 50 feet belowground surface (ft bgs); specialty drilling/installation techniques can achieve depths greater up to approximately 90 ft bgs. However, site-specific geologic and technology-specific considerations may limit this depth to shallower installations. Within the context of AP-3, a barrier wall might be used in conjunction with a “funnel and gate” system for a PRB rather than a stand-alone technology. As such, groundwater with Mo above GWPS could either be directed to “treatment gates” for passive treatment (in a PRB) or migration of impacted groundwater could be minimized via barrier wall installation. Additional subsurface investigations, aquifer testing, and compatibility testing with site-specific groundwater will be needed.	Generally reliable as a barrier to groundwater flow; however, treatment of downgradient groundwater is incidental and not the primary objective.	Moderate to difficult. Trenching would be required to fill in the various slurry mixes; alternatively, sheet pile installations could be accomplished without excavation of trenches. The application of barrier walls is limited by the depth of installation, which similar to PRBs, should be keyed into a low permeability layer such as a thick clay layer or bedrock. Installation methods and materials are readily available. Once installed, above-ground infrastructure to pump and treat groundwater will be required. O&M requirements are expected to include upkeep of infrastructure components (pumps, pipes, tanks, instrumentation and controls, above-ground treatment system) and handling of treatment residuals. Depth to competent bedrock varies on a small-scale (feet to tens of feet) spatially depending on the weathering characteristics of the fractured bedrock, limiting the feasibility of constructing a barrier wall along the entire length and depth of the affected areas.

Table 2
Evaluation of Remedial Technologies
Plant Hammond AP-3, Floyd County, Georgia

	40 CFR 257.96(C)(1)	40 CFR 257.96(C)(2)	40 CFR 257.96(C)(3)
Corrective Measure	**Potential Impacts**	**Time Requirement to Begin/Complete**	**Institutional Requirements**
Geochemical Manipulation (In-Situ Injection)	Minimal impacts are expected if remedy works as designed, based on a thorough pre-design investigation, geochemical modeling, and bench/pilot study results. Redox-altering processes have the potential to mobilize naturally-occurring constituents as an unintended consequence if not properly studied and implemented.	Installation of the injection network can be accomplished relatively quickly (1 to 2 months). However, a thorough pre-design investigation, geochemical modeling, and/or bench- and/or pilot-testing will be required to obtain design parameters prior to design and construction of the corrective measure, which may take up to 24 months. Once installed, the time required to achieve GWPS within the treatment area may be relatively quick but depends on the attenuation process kinetics of each targeted constituent. The time for complete distribution of the injected materials throughout the treatment area is also variable.	Deed restrictions may be necessary until in-situ treatment has achieved GWPS. A new UIC permit (for in-situ injections) would be required to implement this corrective measure. No other institutional requirements are expected at this time.
Hydraulic Containment (Pump and Treat)	Moderate. The main potential impacts are related to the presence and operation of an on-site above-ground water treatment facility and related infrastructure to convey and treat extracted groundwater. Proximity of the extraction system to Cabin Creek needs to be considered to avoid capturing surface water.	Installation of interceptor trenches can be accomplished relatively quickly (1 to 2 months). However, additional aquifer testing, system design and installation, and permit approval may be required, which may take up to 24 months. The initiation of the approach would be contingent on the start-up of the wastewater treatment infrastructure. Hydraulic containment can be achieved relatively quickly after startup of the extraction system, but uncertainty exists with respect to the time to achieve GWPS without additional data collection to better understand attenuation mechanisms for Mo.	Depending on the effluent management strategy, modifications to the existing NPDES permit may be required, or obtaining a new underground injection control (UIC) permit may be needed if groundwater reinjection is chosen. In addition, deed restrictions may be required as long as groundwater conditions are above regulatory standards for unrestricted use.
Monitored Natural Attenuation (MNA)	None. MNA relies on the natural processes active in the aquifer matrix to reduce constituent concentrations without disturbing the surface or the subsurface.	The infrastructure to initiate MNA is already in place. Data to demonstrate attenuation mechanisms and capacity have been collected over the past 18 months and are believed to be sufficient to evaluate MNA as a corrective measure to remain below federal GWPS for Mo.	MNA may require the implementation of institutional controls, such as deed restrictions, to preclude potential exposure to groundwater within the footprint of impacted groundwater until GWPS are achieved.
Permeable Reactive Barrier	Minimal impacts are expected following the construction of the remedy. However, ZVI has the potential to create anaerobic conditions downgradient of the PRB wall that may mobilize redox-sensitive naturally-occurring constituents. These conditions need to be carefully monitored. Short-term impacts during the construction of the remedy can be mitigated through appropriate planning and health and safety measures.	Installation of a PRB can be accomplished relatively quickly (6 to 12 months), depending on the final location and configuration. However, bench- and/or pilot-testing would be required to obtain design parameters prior to design and construction of the remedy, which may take up to 24 months. Once installed, the time to achieve GWPS downgradient of the PRB is anticipated to be relatively quick.	Deed restrictions may be necessary for groundwater areas upgradient of the PRB (if not installed along the waste boundary). No other institutional requirements are expected at this time.
Subsurface Vertical Barrier Walls	Minimal impacts are expected following the construction of the remedy. Short-term impacts during the construction of the remedy can be mitigated through appropriate planning and health and safety measures. Changes to groundwater flow patterns due to installation of the barrier wall are expected, which can affect other aspects of groundwater corrective action. Pumping activity may unintentionally alter the geochemistry within the hydraulic capture zone that may result in the mobilization of other constituents that may require treatment.	Installation of a barrier wall can be accomplished relatively quickly (6 to 12 months), depending on the final location and configuration. However, some design phase and additional aquifer and compatibility testing will be required, which may take up to 24 months. Once installed, preventing migration of constituents dissolved in groundwater is anticipated to be relatively quick. Since this approach does not treat the downgradient area of impacted groundwater but prevents migration from a source area, it will likely have to be maintained long-term and coupled with other approaches.	Deed restrictions may be necessary for groundwater areas downgradient of the barrier wall until remedial goals are met. No other institutional requirements are expected at this time.

Table 2
Evaluation of Remedial Technologies
Plant Hammond AP-3, Floyd County, Georgia

	40 CFR 257.96(C)(3)		
Corrective Measure	**Other Env or Public Health Requirements**	**Relative Costs**	**Retention Evaluation**
Geochemical Manipulation (In-Situ Injection)	Based on the results of the Risk Evaluation Report (Geosyntec, 2020b), the SSL-related constituent (Mo) evaluated from AP-3 is not expected to pose a risk to human health or the environment; therefore, no further risk evaluation for groundwater is warranted based on the current data set. Georgia Power will proactively evaluate the data and update this evaluation, if necessary. Potential for mobilization of redox-sensitive constituents exists during implementation of an anerobic attenuation approach. Following installation, the remedy is passive.	Medium (depending on expanse of injection network required and injectate volume required per derived design parameters)	Retained for further analysis. Mo is the primary constituent of concern, yet immobilization of Mo with in-situ injections is less established and may prove less effective than other viable options. The sorption/desorption study results indicated some Mo desorption under ambient/aerobic conditions may occur and are consistent with groundwater monitoring results at AP-3.
Hydraulic Containment (Pump and Treat)	Based on the results of the Risk Evaluation Report (Geosyntec, 2020b), the SSL-related constituent (Mo) evaluated from AP-3 is not expected to pose a risk to human health or the environment; therefore, no further risk evaluation for groundwater is warranted based on the current data set. Georgia Power will proactively evaluate the data and update this evaluation, if necessary. Above-ground treatment components may need to be present for an extended period of time, generating residuals requiring management and disposal.	Medium to high (depending on remedy duration, complexity of above-ground treatment system, and volume of water processed)	Retained for further analysis; may need to be used in conjunction with other potential groundwater corrective measures; could be considered an effective measure to maintain hydraulic control along Cabin Creek as an interim groundwater treatment measure, if warranted. Further evaluation pending receipt of results from the hydraulic capture zone study.
Monitored Natural Attenuation (MNA)	Little to no physical disruption to remediation areas and no adverse construction-related impacts are expected on the surrounding community. Based on the results of the Risk Evaluation Report (Geosyntec, 2020b), the SSL-related constituent (Mo) evaluated from AP-3 is not expected to pose a risk to human health or the environment; therefore, no further risk evaluation for groundwater is warranted based on the current data set. Georgia Power will proactively evaluate the data and update this evaluation, if necessary.	Low to medium	Retained for further analysis; may be used as a stand-alone corrective measure or in conjunction with other potential groundwater corrective measures to maintain groundwater conditions below federal GWPS.
Permeable Reactive Barrier	Based on the results of the Risk Evaluation Report (Geosyntec, 2020b), the SSL-related constituent (Mo) evaluated from AP-3 is not expected to pose a risk to human health or the environment; therefore, no further risk evaluation for groundwater is warranted based on the current data set. Georgia Power will proactively evaluate the data and update this evaluation, if necessary. Following installation, the remedy is passive. However, certain treatment media (such as ZVI) have the potential to mobilize naturally-occurring constituents downgradient of the PRB.	Medium to high (for installation) - minimal O&M requirements if replacement is not necessary	Not retained for further analysis; complex geology to key a PRB into bedrock, and uncertainty related to effectiveness of reactive media testing; does not address downgradient groundwater when installed along the compliance boundary; potential for increased maintenance due to potential biofouling and mineral precipitation.
Subsurface Vertical Barrier Walls	Based on the results of the Risk Evaluation Report (Geosyntec, 2020b), the SSL-related constituent (Mo) evaluated from AP-3 is not expected to pose a risk to human health or the environment; therefore, no further risk evaluation for groundwater is warranted based on the current data set. Georgia Power will proactively evaluate the data and update this evaluation, if necessary. Due to the need for groundwater extraction associated with barrier walls, above-ground treatment components may need to be present for an extended period of time, generating residuals requiring management and disposal.	Medium to high (depending on length and depth of wall, remedy duration and complexity of above-ground treatment system)	Not retained for further analysis; complex geology to key a barrier wall into bedrock; does not address downgradient groundwater when installed along the compliance boundary.

Table 3A
Summary of Sorption Test Results: Molybdenum
Plant Hammond AP-3, Floyd County, Georgia

Groundwater Sample ID	Site Material Sample ID	Treatment [1]	Date	Day [2]	Replicate	Dissolved Molybdenum (mg/L)	Mass of Aquifer Solids in Reactor (g)	Mass of Water in Reactor (g)	Sorbed Molybdenum (mg/kg) [3]	pH (s.u.)	ORP (mV)
HGWA-122	DPT01(10-18)	Concentration Level 1	7/13/2021	0	***Spiked Aqueous Concentration***	***0.0330***	--	--	--	--	--
					HAP3DPT01_33a	0.0146	100.45	145.97	0.027	6.78	189
					HAP3DPT01_34a	0.0202	99.49	150.67	0.019	6.81	185
					Average Concentration (mg/L)	**0.0174**	**99.97**	**148.32**	**0.023**	**6.80**	**187**
			7/20/2021	7	HAP3DPT01_33b	< 0.00004	100.18	146.20	0.048	5.29	168
					HAP3DPT01_34b	< 0.00004	100.91	141.41	0.046	5.28	177
					Average Concentration (mg/L)	**< 0.00004**	**100.55**	**143.81**	**0.047**	**5.29**	**173**
		Concentration Level 2	7/13/2021	0	***Spiked Aqueous Concentration***	***0.0501***	--	--	--	--	--
					HAP3DPT01_35a	0.0196	100.29	147.54	0.045	6.81	135
					HAP3DPT01_36a	0.0247	98.86	146.34	0.038	6.83	142
					Average Concentration (mg/L)	**0.0222**	**99.58**	**146.94**	**0.041**	**6.82**	**139**
			7/20/2021	7	HAP3DPT01_35b	< 0.00004	100.97	144.80	0.072	5.31	204
					HAP3DPT01_36b	< 0.00004	100.91	148.22	0.074	5.39	212
					Average Concentration (mg/L)	**< 0.00004**	**100.94**	**146.51**	**0.073**	**5.35**	**208**
		Concentration Level 3	7/14/2021	0	***Spiked Aqueous Concentration***	***0.0886***	--	--	--	--	--
					HAP3DPT01_37a	0.0495	100.93	148.89	0.058	6.83	156
					HAP3DPT01_38a	0.0522	99.75	144.62	0.053	6.87	166
					Average Concentration (mg/L)	**0.0509**	**100.34**	**146.76**	**0.055**	**6.85**	**161**
			7/21/2021	7	HAP3DPT01_37b	< 0.00004	100.11	149.13	0.132	5.56	240
					HAP3DPT01_38b	< 0.00004	99.43	143.76	0.128	5.30	259
					Average Concentration (mg/L)	**< 0.00004**	**99.77**	**146.45**	**0.130**	**5.43**	**250**
		Concentration Level 4	7/14/2021	0	***Spiked Aqueous Concentration***	***0.103***	--	--	--	--	--
					HAP3DPT01_39a	0.0709	98.91	145.58	0.047	6.90	146
					HAP3DPT01_40a	0.0688	99.14	147.38	0.051	6.84	157
					Average Concentration (mg/L)	**0.0699**	**99.03**	**146.48**	**0.049**	**6.87**	**152**
			7/21/2021	7	HAP3DPT01_39b	< 0.00004	99.74	151.16	0.156	5.43	282
					HAP3DPT01_40b	< 0.00004	100.61	147.37	0.151	5.22	299
					Average Concentration (mg/L)	**< 0.00004**	**100.18**	**149.27**	**0.153**	**5.33**	**291**
		Concentration Level 5	7/14/2021	0	***Spiked Aqueous Concentration***	***0.165***	--	--	--	--	--
					HAP3DPT01_41a	0.107	99.53	143.65	0.084	6.93	203
					HAP3DPT01_42a	0.104	98.59	142.83	0.088	6.89	214
					Average Concentration (mg/L)	**0.106**	**99.06**	**143.24**	**0.086**	**6.91**	**209**
			7/21/2021	7	HAP3DPT01_41b	< 0.00004	99.60	146.26	0.242	5.21	298
					HAP3DPT01_42b	< 0.00004	98.55	147.88	0.248	5.53	268
					Average Concentration (mg/L)	**< 0.00004**	**99.08**	**147.07**	**0.245**	**5.37**	**283**

Notes:
-- = Not applicable
< = Indicates the constituent was not detected above the analytical method detection limit (MDL)
mg/L = milligrams per liter
mV = millivolts
ORP = oxidation reduction potential
s.u. = standard units
(1) The highest spike concentration (Level 5) of lithium was at least two times greater than the highest molybdenum concentration observed in either coal combustion residue pore water or groundwater at the Site.
(2) Day 0 samples were collected approximately one hour after reactor setup.
(3) The sorbed concentration per unit mass of aquifer solids is calculated as shown in the equation below. Non-detect concentrations were assumed to be equal to ½ of the MDL for calculating sorbed mass.

$$S_{Solids} = \frac{(C_{Spike} - C_{Final}) \times M_{Water}}{M_{Solids} \times \rho_{Water}}$$

Where:
S_{Solids} = sorbed concentration per unit mass of aquifer solids (mg/kg)
$C_{Spike,Final}$ = dissolved concentration of the intial spike or final dissolved concentration at Day 0 or Day 7 (mg/L)
$M_{Solids,Water}$ = mass of water or aquifer solids in reactor (g)

Table 3B
Summary of Sorption Test Results: Lithium
Plant Hammond AP-3, Floyd County, Georgia

Groundwater Sample ID	Site Material Sample ID	Treatment [1]	Date	Day [2]	Replicate	Dissolved Lithium (mg/L)	Mass of Aquifer Solids in Reactor (g)	Mass of Water in Reactor (g)	Sorbed Lithium (mg/kg) [3]	pH (s.u.)	ORP (mV)
HGWA-122	DPT01(10-18)	Concentration Level 1	7/13/2021	0	***Spiked Aqueous Concentration***	***0.0149***	--	--	--	--	--
					HAP3DPT01_33a	0.0110	100.45	145.97	0.006	6.78	189
					HAP3DPT01_34a	0.0119	99.49	150.67	0.005	6.81	185
					Average Concentration (mg/L)	**0.0115**	**99.97**	**148.32**	**0.005**	**6.80**	**187**
			7/20/2021	7	HAP3DPT01_33b	0.0030	100.18	146.20	0.017	5.29	168
					HAP3DPT01_34b	0.0020	100.91	141.41	0.018	5.28	177
					Average Concentration (mg/L)	**0.0025**	**100.55**	**143.81**	**0.018**	**5.29**	**173**
		Concentration Level 2	7/13/2021	0	***Spiked Aqueous Concentration***	***0.0306***	--	--	--	--	--
					HAP3DPT01_35a	0.0175	100.29	147.54	0.019	6.81	135
					HAP3DPT01_36a	0.0189	98.86	146.34	0.017	6.83	142
					Average Concentration (mg/L)	**0.0182**	**99.58**	**146.94**	**0.018**	**6.82**	**139**
			7/20/2021	7	HAP3DPT01_35b	0.0024	100.97	144.80	0.040	5.31	204
					HAP3DPT01_36b	0.0017	100.91	148.22	0.042	5.39	212
					Average Concentration (mg/L)	**0.0021**	**100.94**	**146.51**	**0.041**	**5.35**	**208**
		Concentration Level 3	7/14/2021	0	***Spiked Aqueous Concentration***	***0.0430***	--	--	--	--	--
					HAP3DPT01_37a	0.0326	100.93	148.89	0.015	6.83	156
					HAP3DPT01_38a	0.0331	99.75	144.62	0.014	6.87	166
					Average Concentration (mg/L)	**0.0329**	**100.34**	**146.76**	**0.015**	**6.85**	**161**
			7/21/2021	7	HAP3DPT01_37b	0.0038	100.11	149.13	0.058	5.56	240
					HAP3DPT01_38b	0.0045	99.43	143.76	0.056	5.30	259
					Average Concentration (mg/L)	**0.0042**	**99.77**	**146.45**	**0.057**	**5.43**	**250**
		Concentration Level 4	7/14/2021	0	***Spiked Aqueous Concentration***	***0.0558***	--	--	--	--	--
					HAP3DPT01_39a	0.0455	98.91	145.58	0.015	6.90	146
					HAP3DPT01_40a	0.0447	99.14	147.38	0.017	6.84	157
					Average Concentration (mg/L)	**0.0451**	**99.03**	**146.48**	**0.016**	**6.87**	**152**
			7/21/2021	7	HAP3DPT01_39b	0.0036	99.74	151.16	0.079	5.43	282
					HAP3DPT01_40b	0.0050	100.61	147.37	0.074	5.22	299
					Average Concentration (mg/L)	**0.0043**	**100.18**	**149.27**	**0.077**	**5.33**	**291**
		Concentration Level 5	7/14/2021	0	***Spiked Aqueous Concentration***	***0.0705***	--	--	--	--	--
					HAP3DPT01_41a	0.0543	99.53	143.65	0.023	6.93	203
					HAP3DPT01_42a	0.0554	98.59	142.83	0.022	6.89	214
					Average Concentration (mg/L)	**0.0549**	**99.06**	**143.24**	**0.023**	**6.91**	**209**
			7/21/2021	7	HAP3DPT01_41b	0.0053	99.60	146.26	0.096	5.21	298
					HAP3DPT01_42b	0.0023	98.55	147.88	0.102	5.53	268
					Average Concentration (mg/L)	**0.0038**	**99.08**	**147.07**	**0.099**	**5.37**	**283**

Notes:
-- = Not applicable
< = Indicates the constituent was not detected above the analytical method detection limit (MDL)
mg/L = milligrams per liter
mV = millivolts
ORP = oxidation reduction potential
s.u. = standard units
(1) The highest spike concentration (Level 5) of lithium was at least two times greater than the highest lithium concentration observed in either coal combustion residue pore water or groundwater at the Site.
(2) Day 0 samples were collected approximately one hour after reactor setup.
(3) The sorbed concentration per unit mass of aquifer solids is calculated as shown in the equation below. Non-detect concentrations were assumed to be equal to ½ of the MDL for calculating sorbed mass.

$$S_{Solids} = \frac{(C_{Spike} - C_{Final}) \times M_{Water}}{M_{Solids} \times \rho_{Water}}$$

Where:
S_{Solids} = sorbed concentration per unit mass of aquifer solids (mg/kg)
$C_{Spike,Final}$ = dissolved concentration of the intial spike or final dissolved concentration at Day 0 or Day 7 (mg/L)
$M_{Solids,Water}$ = mass of water or aquifer solids in reactor (g)

Table 4
Summary of Desorption Test Dissolved Metals Results
Plant Hammond AP-3, Floyd County, Georgia

Molybdenum									
Groundwater Sample ID	**Site Material Sample ID**	**Chemical Characteristics (Baseline Characterization) (1)**	**Treatment**	**Date**	**Day (2)**	**Replicate**	**Dissolved Molybdenum (mg/L)**	**pH (s.u.)**	**ORP (mV)**
HGWA-122	**DPT02**	**Aquifer Solids:** **Molybdenum:** 3.6 mg/kg **Groundwater:** **Molybdenum:** 0.0014 J - 0.0022 J mg/L **pH:** 6.63 s.u. **ORP:** 62.3 mV	**Ambient Conditions**	8/31/2021	0	HAP3DPT02_9a HAP3DPT02_10a **Average Concentration (mg/L)**	0.0112 0.0139 **0.0126**	7.21 7.20 **7.21**	243 236 **240**
				9/15/2021	7	HAP3DPT02_9b HAP3DPT02_10b **Average Concentration (mg/L)**	0.0534 0.0542 **0.0538**	7.40 7.51 **7.46**	163 158 **161**

Lithium									
Groundwater Sample ID	**Site Material Sample ID**	**Chemical Characteristics (Baseline Characterization) (1)**	**Treatment**	**Date**	**Day (2)**	**Replicate**	**Dissolved Lithium (mg/L)**	**pH (s.u.)**	**ORP (mV)**
HGWA-122	**DPT02**	**Aquifer Solids:** **Lithium:** 210 mg/kg **Groundwater:** **Lithium:** <0.00073 - <0.00081 mg/L **pH:** 6.63s.u. **ORP:** 62.3 mV	**Ambient Conditions**	8/31/2021	0	HAP3DPT02_9a HAP3DPT02_10a **Average Concentration (mg/L)**	0.0057 0.0065 **0.0061**	7.21 7.20 **7.21**	243 236 **240**
				9/15/2021	7	HAP3DPT02_9b HAP3DPT02_10b **Average Concentration (mg/L)**	0.0077 0.0077 **0.0077**	7.40 7.51 **7.46**	163 158 **161**

Notes:
< = Indicates the constituent was not detected above the analytical method detection limit (MDL)
J = Indicates the parameter was estimated and detected between the MDL and the reporting limit (RL)
mg/kg - milligrams per kilogram
mg/L = milligrams per liter
mV = millivolts
ORP = oxidation reduction potential
s.u. = standard units
(1) Reported molybdenum and lithium concentrations in HGWA-122 groundwater were measured during the 2021 semiannual sampling events. Reported pH and ORP values were measured during batch sample collection on 5/26/21 and are consistent with values observed during the 2021 semiannual sampling events.
(2) Day 0 samples were collected approximately one hour after reactor setup. Samples for Day 7 were prepared on 9/8/2021.

Table 5

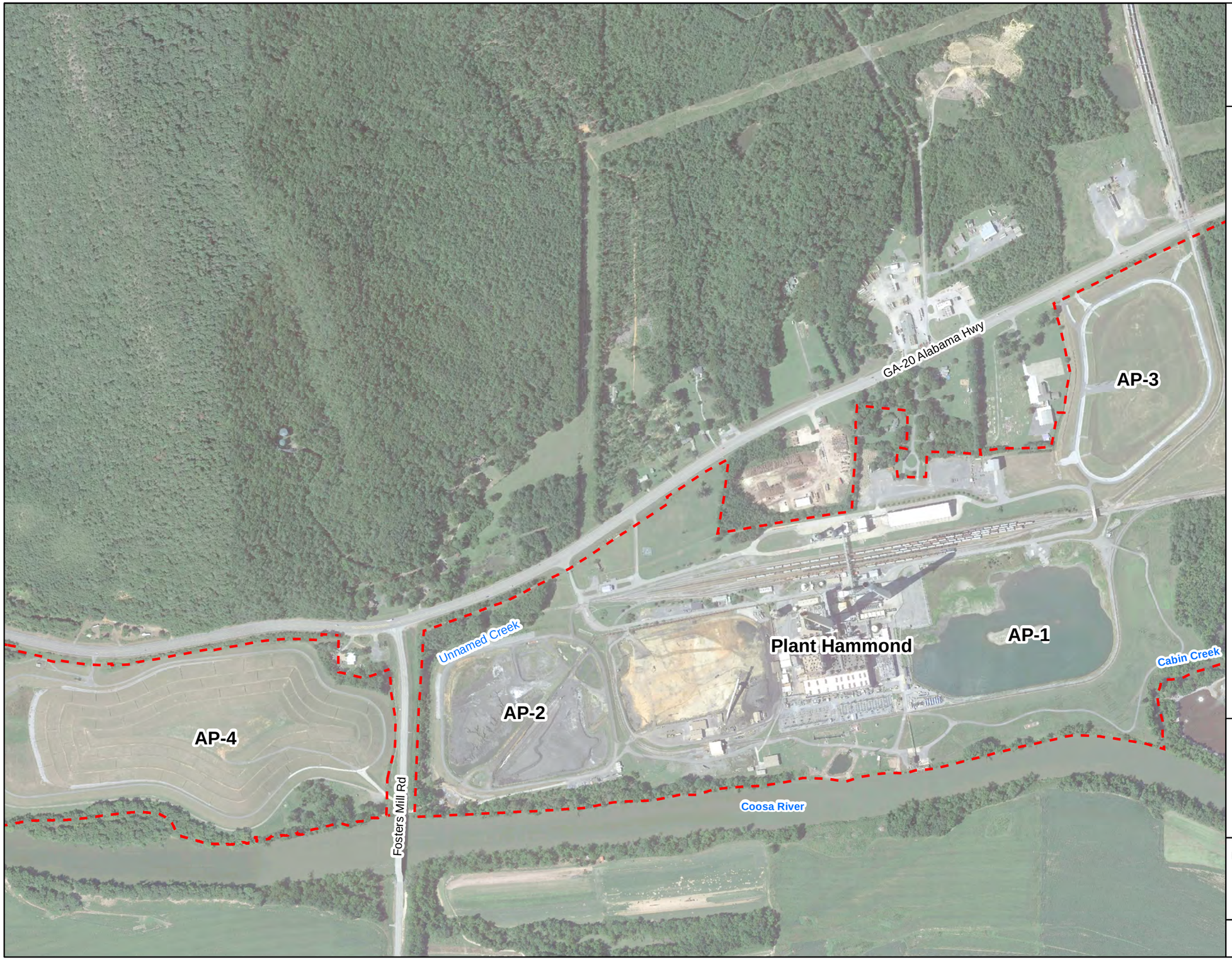
Proposed ACM Supplementary Data Analyses and Collection Tasks for First Semiannual Period 2022

Plant Hammond AP-3, Floyd County, Georgia

Data Collection Event	Applicable CMs (1)	Applicability/Rationale	Field Component	Parameters of Interest (POI)	Analytical Lab Performing Analysis
Evaluate the installation of additional vertical delineation wells	1, 2, 3	Determine if additional vertical delineation wells are necessary to delineate Mo concentrations associated with MW-32, MW-39, and MW-41.	Not Applicable (Desktop Study)	Appendix III and IV constituents	No lab data required; Geosyntec desktop analyses
Perform a conceptual-level feasibility study of applied corrective measures	2	Evaluate potential hydraulic capture zones using groundwater extraction systems; determine conceptual layouts to achieve hydraulic capture.	Not Applicable (Desktop Study)	Conceptually determine layouts for interceptor trenches to provide effective hydraulic containment while minimizing land requirements.	No lab data required; Geosyntec desktop analyses

Note:
(1) Corrective Measure (CM) Codes:
1 - Geochemical Manipulation (In-Situ Injections)
2 - Hydraulic Containment
3 - Monitored Natural Attenuation (MNA)

FIGURES



N

LEGEND

Plant Hammond Property Boundary

Note:
1. Aerial photograph source: Google Earth Pro, August 2019.

0 400 800 1,600

SCALE IN FEET

SITE LOCATION MAP

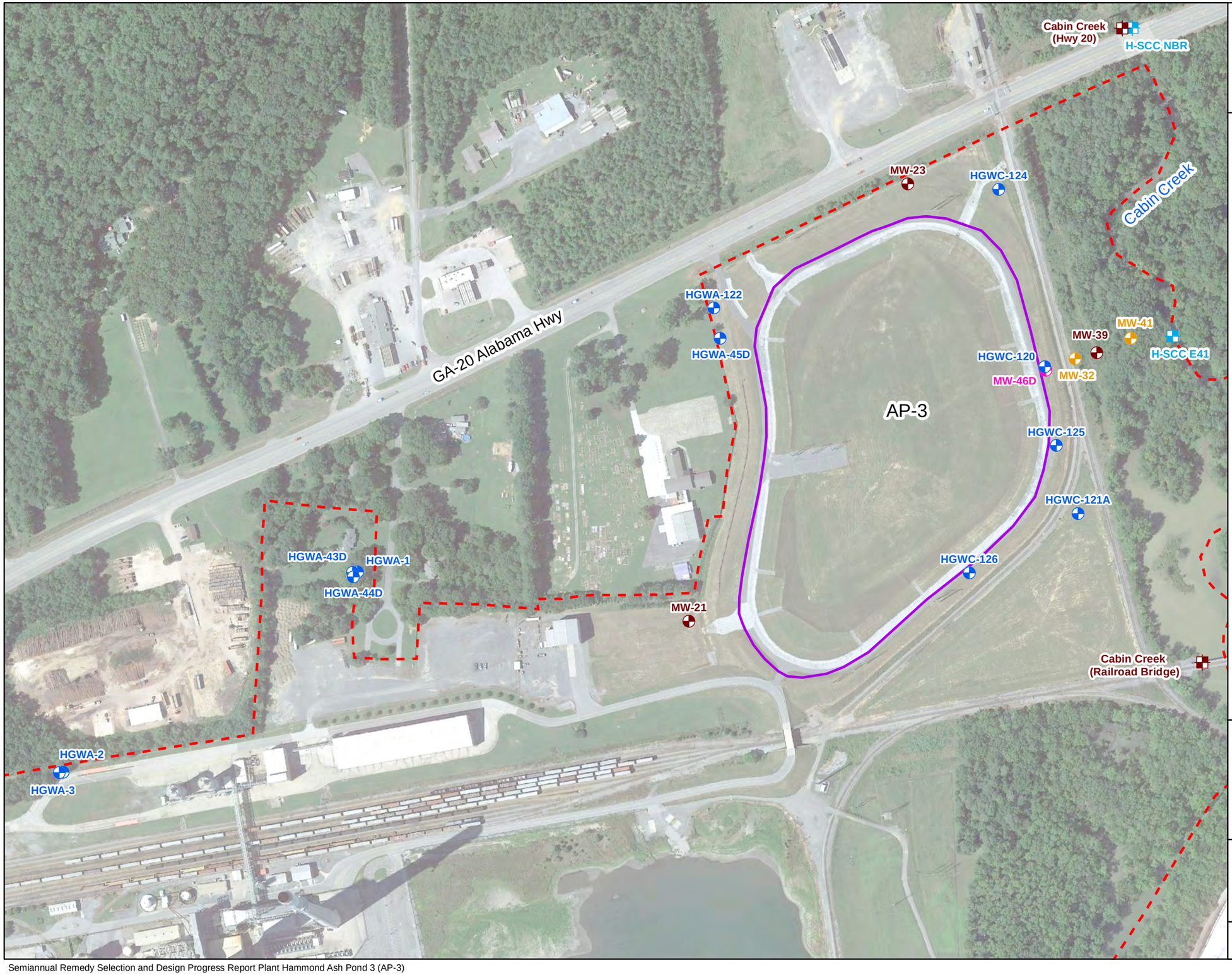
GEORGIA POWER COMPANY
PLANT HAMMOND AP-3
FLOYD COUNTY, GEORGIA

Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA | FEBRUARY 2022

FIGURE 1



N

LEGEND

- Compliance Monitoring Well
- Horizontal Delineation Well
- Vertical Delineation Well
- Piezometer
- Surface Water Sample Point
- Surface Water Level Gauge Point
- Approximate AP-3
- Plant Hammond Property Boundary

Notes:
1. Aerial photograph source: Google Earth Pro, August 2019.
2. Surface water sample point H-SCC NBR and Cabin Creek (Hwy 20) surface water level gauge point are co-located.

0 150 300 600

SCALE IN FEET

MONITORING WELL NETWORK AND SAMPLING LOCATION MAP

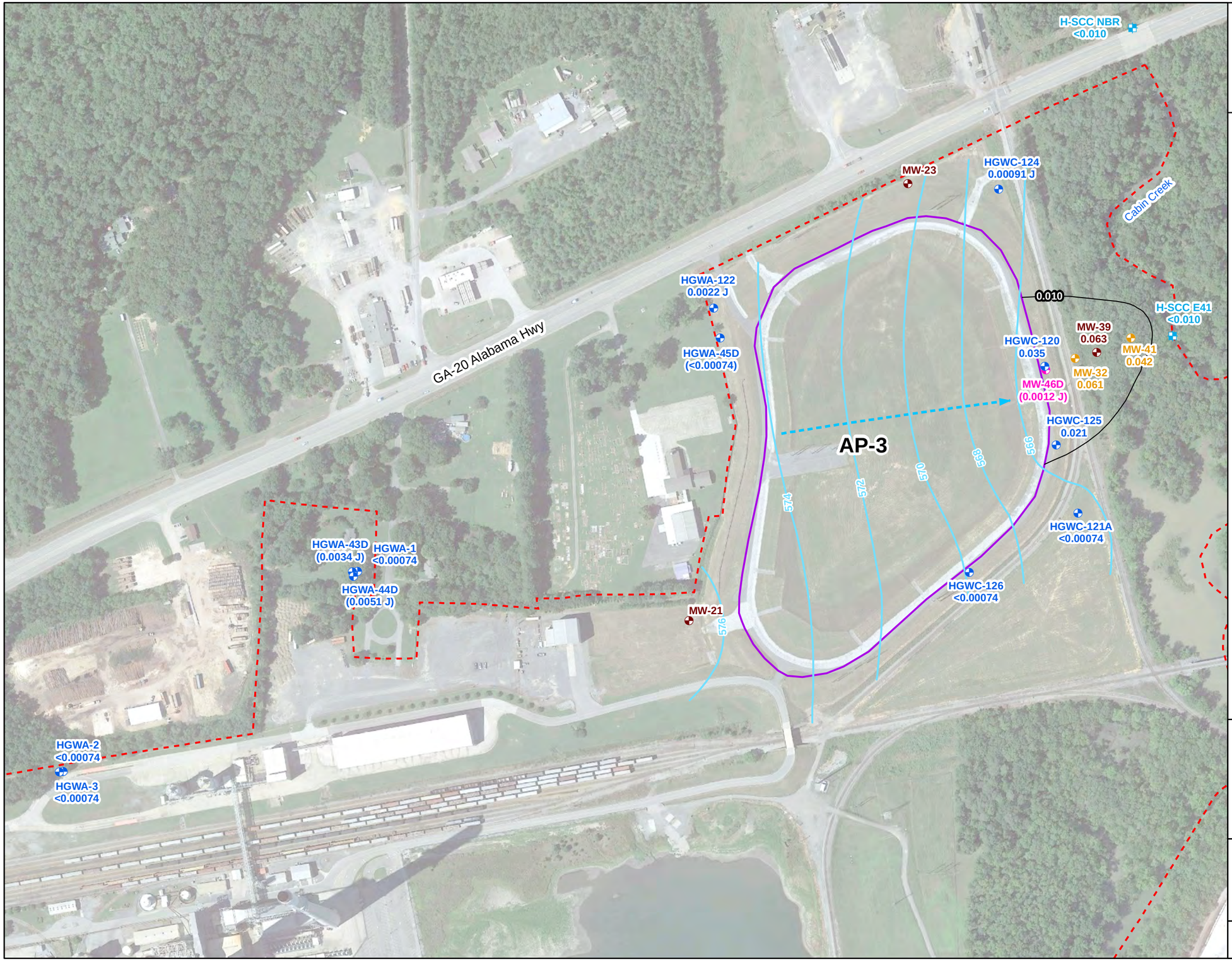
GEORGIA POWER COMPANY
PLANT HAMMOND AP-3
FLOYD COUNTY, GEORGIA

Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA | FEBRUARY 2022

FIGURE 2



N

LEGEND

- Compliance Monitoring Well
- Horizontal Delineation Well
- Vertical Delineation Well (Not Used for Contouring)
- Piezometer
- Surface Water Sample Point
- State GWPS Molybdenum Iso-Concentration Contour (mg/L)
- Groundwater Elevation Iso-Contour
- Approximate Groundwater Flow Direction
- Approximate AP-3 Boundary
- Plant Hammond Property Boundary

Notes:
1. Concentration data from groundwater samples collected during the August 2021 semiannual monitoring event. Surface water data collected in September 2021. Data reported for wells screened deeper in the aquifer were not used to generate the iso-concentration contour (HGWA-43D, HGWA-44D, HGWA-45D, MW-46D). Concentrations are reported in milligrams per liter (mg/L).
2. Water level elevations recorded on August 11, 2021. Elevations provided in feet (ft) referenced to the North American Vertical Datum (NAVD) 88.
3. GA EPD groundwater protection standard (GWPS) for molybdenum is 0.010 mg/L.
4. Aerial photograph source: Google Earth Pro, August 2019.

0 150 300 600

SCALE IN FEET

ISO-CONCENTRATION MAP MOLYBDENUM - AUGUST 2021

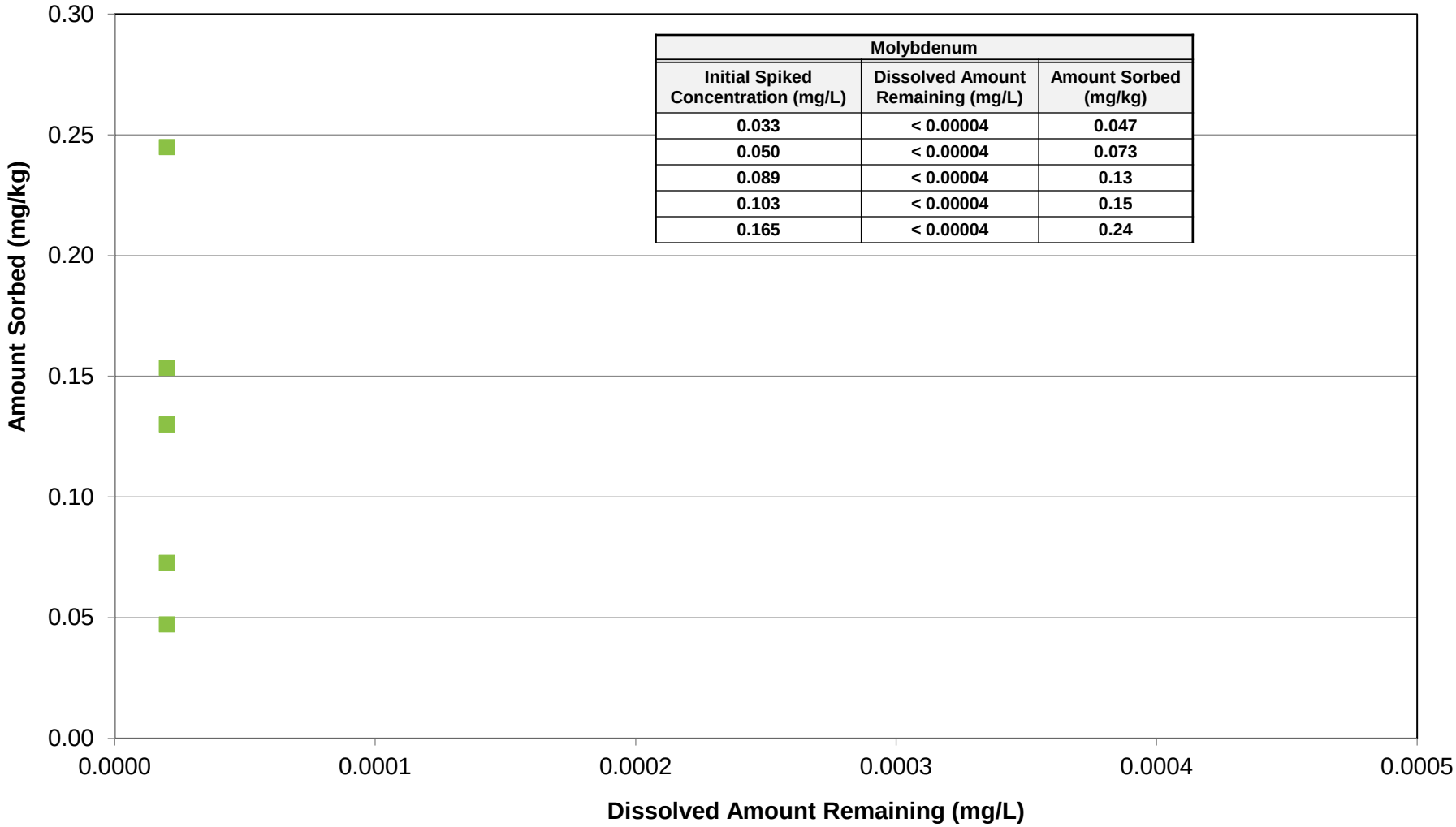
GEORGIA POWER COMPANY
PLANT HAMMOND AP-3
FLOYD COUNTY, GEORGIA

Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA | FEBRUARY 2022

FIGURE 3



Molybdenum		
Initial Spiked Concentration (mg/L)	Dissolved Amount Remaining (mg/L)	Amount Sorbed (mg/kg)
0.033	< 0.00004	0.047
0.050	< 0.00004	0.073
0.089	< 0.00004	0.13
0.103	< 0.00004	0.15
0.165	< 0.00004	0.24

Notes:
1. mg/L = milligrams of constituent per liter; mg/kg = milligrams of constituent per kilogram of aquifer solids.
2. The distribution coefficient (K_d) is the ratio of sorbed and dissolved concentrations under equilibrium conditions. The bulk K_d is equal to the slope of a line through individual measurements of sorbed and dissolved concentrations. A site-specific molybdenum K_d cannot be calculated as all molybdenum was completely sorbed at all concentration levels.
3. Non-detect concentrations are plotted as ½ the method detection limit.

SORPTION TEST RESULTS – MOLYBDENUM

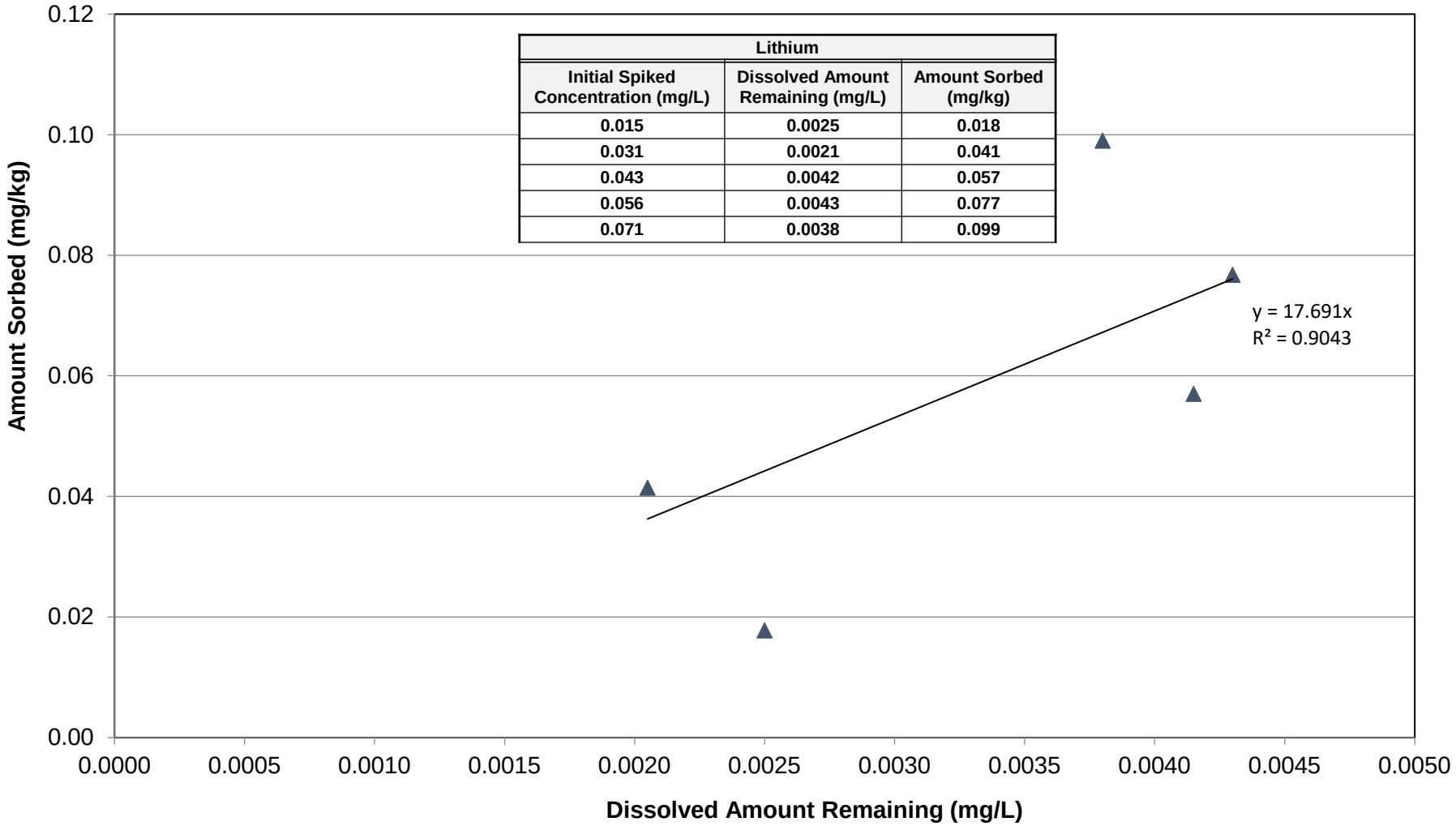
GEORGIA POWER COMPANY
PLANT HAMMOND AP-3
FLOYD COUNTY, GEORGIA

Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA | FEBRUARY 2022

Figure 4A



Notes:
1. mg/L = milligrams of constituent per liter; mg/kg = milligrams of constituent per kilogram of aquifer solids.
2. The distribution coefficient (K_d) is the ratio of sorbed and dissolved concentrations under equilibrium conditions. The bulk K_d is equal to the slope of a line through individual measurements of sorbed and dissolved concentrations.
3. Non-detect concentrations are plotted as ½ the method detection limit.

SORPTION TEST RESULTS – LITHIUM

GEORGIA POWER COMPANY
PLANT HAMMOND AP-3
FLOYD COUNTY, GEORGIA

Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA | FEBRUARY 2022

Figure 4B

APPENDIX A

Appendix IV Constituent Trend Tests

Appendix IV Trend Tests - All Results (No Significant)

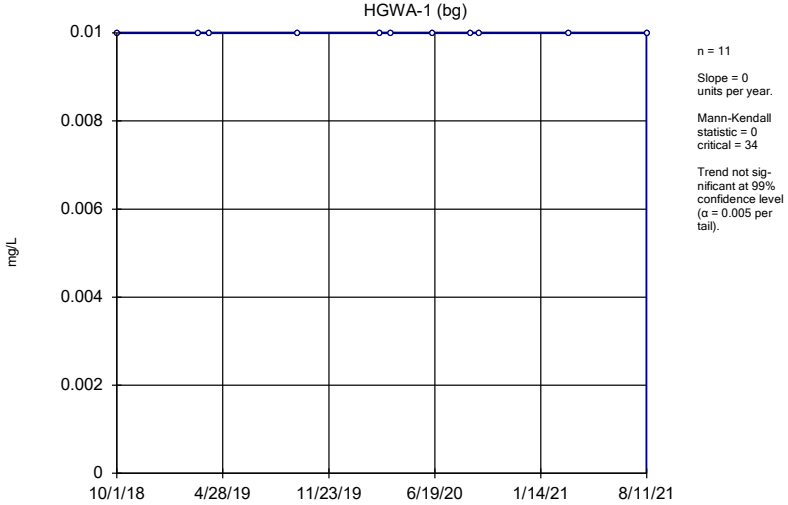
Plant Hammond Client: Southern Company Data: Hammond AP-3 Printed 1/31/2022, 1:11 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Molybdenum (mg/L)	HGWA-1 (bg)	0	0	34	No	11	100	n/a	n/a	0.01	NP
Molybdenum (mg/L)	HGWA-122 (bg)	-0.002326	-14	-21	No	8	12.5	n/a	n/a	0.01	NP
Molybdenum (mg/L)	HGWA-2 (bg)	0	0	30	No	10	100	n/a	n/a	0.01	NP
Molybdenum (mg/L)	HGWA-3 (bg)	0	0	34	No	11	100	n/a	n/a	0.01	NP
Molybdenum (mg/L)	HGWA-43D (bg)	-0.001527	-6	-14	No	6	0	n/a	n/a	0.01	NP
Molybdenum (mg/L)	HGWA-44D (bg)	0.001043	6	14	No	6	16.67	n/a	n/a	0.01	NP
Molybdenum (mg/L)	HGWA-45D (bg)	0.006769	7	14	No	6	16.67	n/a	n/a	0.01	NP
Molybdenum (mg/L)	HGWC-120	-0.0006924	-2	-21	No	8	0	n/a	n/a	0.01	NP
Molybdenum (mg/L)	MW-32	0.0006155	3	18	No	7	0	n/a	n/a	0.01	NP
Molybdenum (mg/L)	MW-39	0.001127	6	14	No	6	0	n/a	n/a	0.01	NP
Molybdenum (mg/L)	MW-41	0.006357	6	12	No	5	0	n/a	n/a	0.01	NP

Sanitas™ v.9.6.32 Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWA-1 (bg)



n = 11

Slope = 0 units per year.

Mann-Kendall statistic = 0 critical = 34

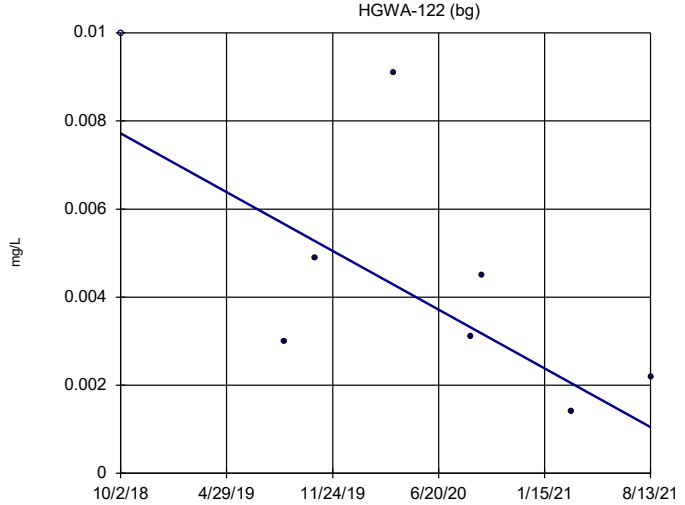
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Molybdenum Analysis Run 1/31/2022 1:10 PM View: Appendix IV Trend Tests
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWA-122 (bg)



n = 8

Slope = -0.002326 units per year.

Mann-Kendall statistic = -14 critical = -21

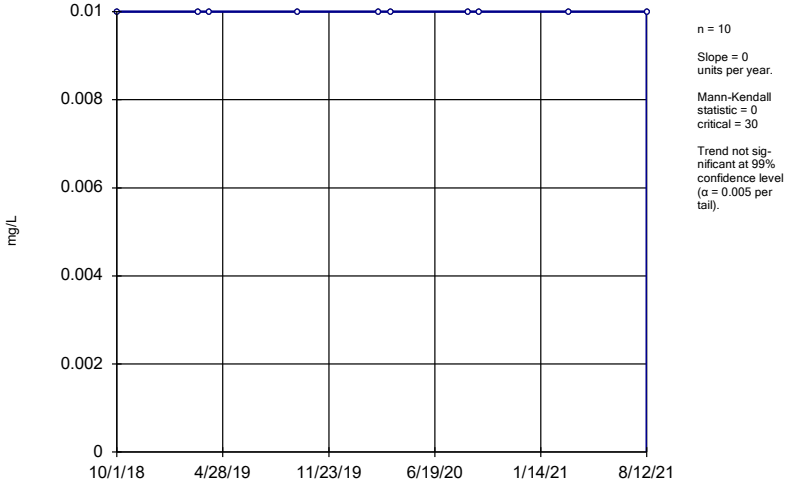
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Molybdenum Analysis Run 1/31/2022 1:10 PM View: Appendix IV Trend Tests
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWA-2 (bg)



n = 10

Slope = 0 units per year.

Mann-Kendall statistic = 0 critical = 30

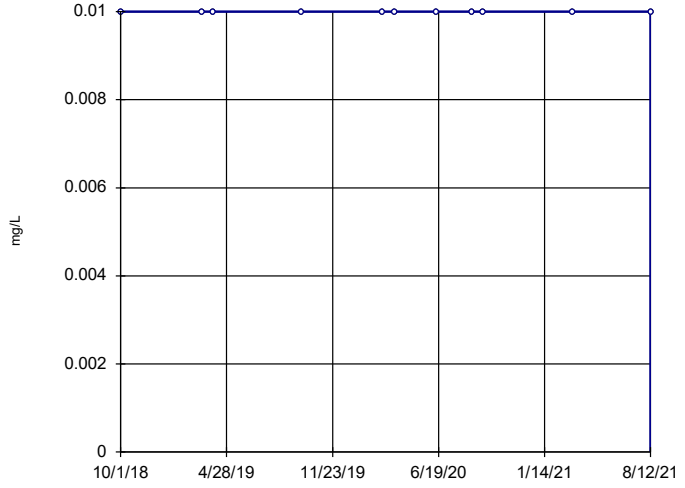
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Molybdenum Analysis Run 1/31/2022 1:10 PM View: Appendix IV Trend Tests
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWA-3 (bg)



n = 11

Slope = 0 units per year.

Mann-Kendall statistic = 0 critical = 34

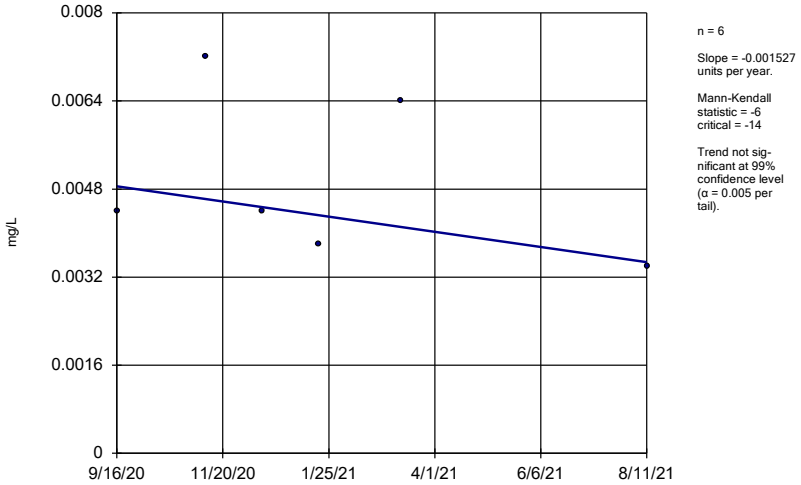
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Molybdenum Analysis Run 1/31/2022 1:10 PM View: Appendix IV Trend Tests
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 Groundwater Stats Consulting. UG

Sen's Slope Estimator

HGWA-43D (bg)



n = 6

Slope = -0.001527 units per year.

Mann-Kendall statistic = -6
critical = -14

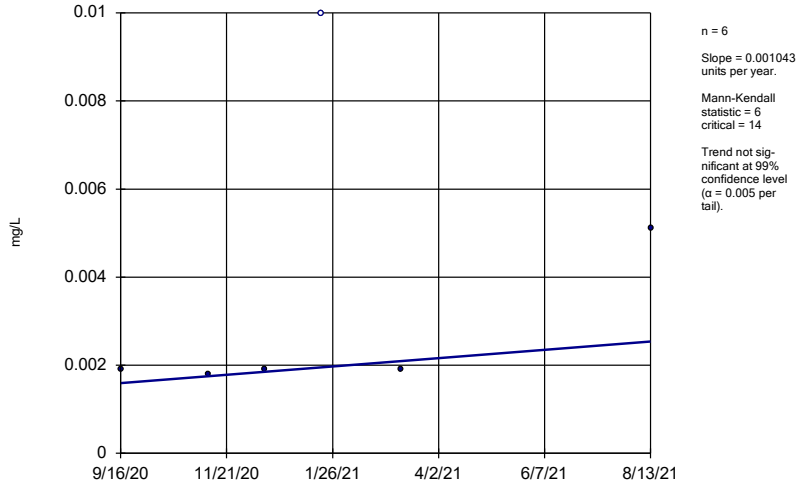
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Molybdenum Analysis Run 1/31/2022 1:10 PM View: Appendix IV Trend Tests
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWA-44D (bg)



n = 6

Slope = 0.001043 units per year.

Mann-Kendall statistic = 6
critical = 14

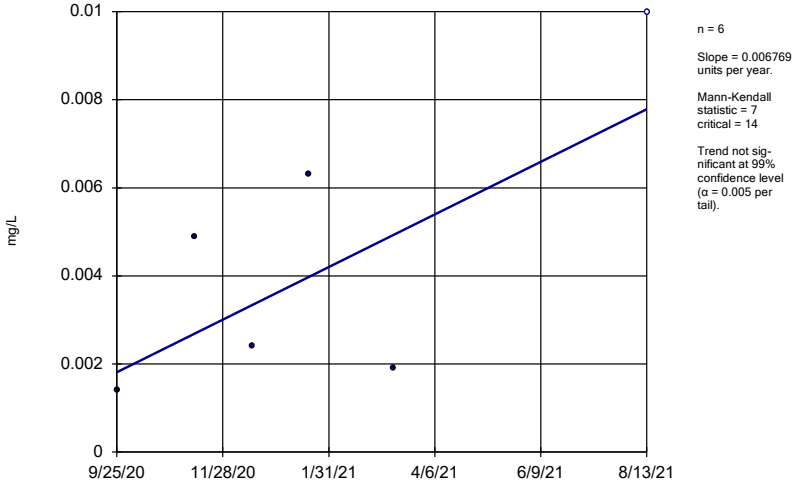
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Molybdenum Analysis Run 1/31/2022 1:10 PM View: Appendix IV Trend Tests
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWA-45D (bg)



n = 6

Slope = 0.006769 units per year.

Mann-Kendall statistic = 7
critical = 14

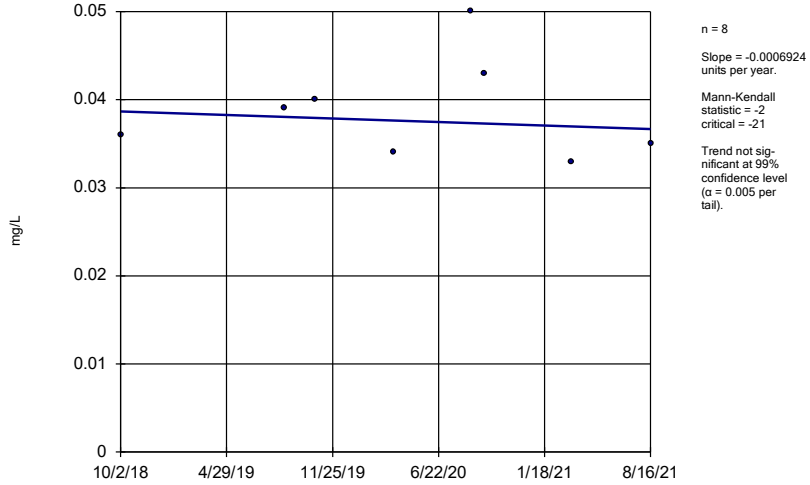
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Molybdenum Analysis Run 1/31/2022 1:10 PM View: Appendix IV Trend Tests
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 Groundwater Stats Consulting. UG

Sen's Slope Estimator

HGWC-120



n = 8

Slope = -0.0006924 units per year.

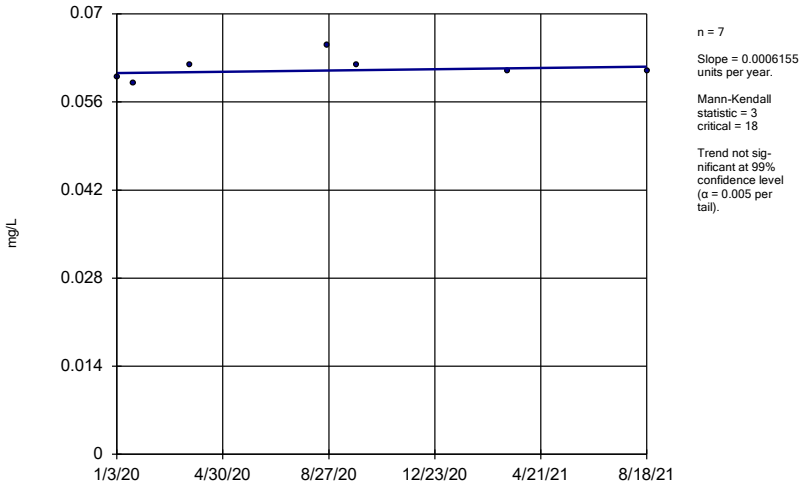
Mann-Kendall statistic = -2
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Molybdenum Analysis Run 1/31/2022 1:10 PM View: Appendix IV Trend Tests
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sen's Slope Estimator

MW-32



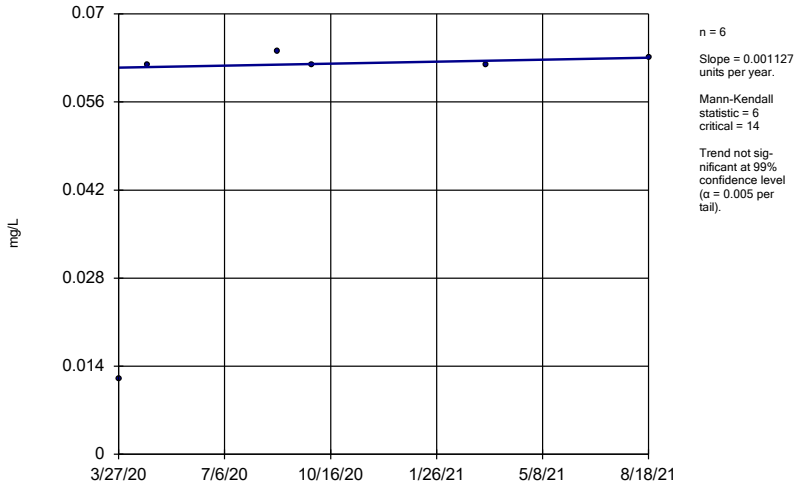
Constituent: Molybdenum Analysis Run 1/31/2022 1:10 PM View: Appendix IV Trend Tests

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 Groundwater Stats Consulting. UG

Sen's Slope Estimator

MW-39



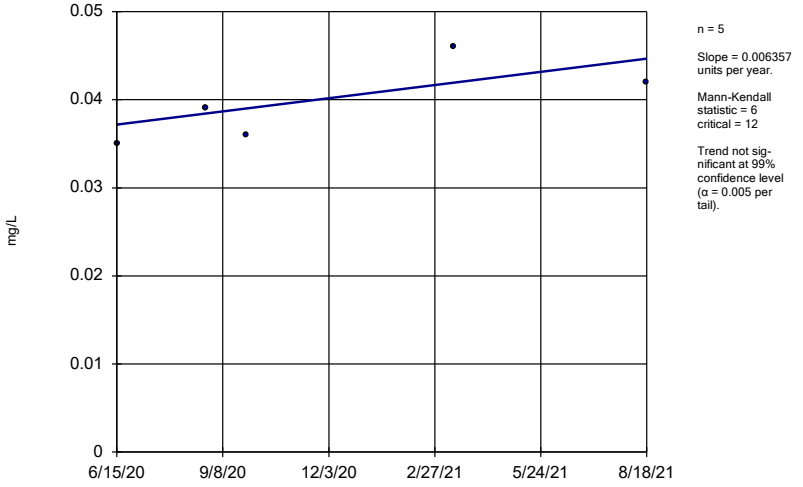
Constituent: Molybdenum Analysis Run 1/31/2022 1:10 PM View: Appendix IV Trend Tests

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 Groundwater Stats Consulting. UG

Sen's Slope Estimator

MW-41



Constituent: Molybdenum Analysis Run 1/31/2022 1:10 PM View: Appendix IV Trend Tests

Plant Hammond Client: Southern Company Data: Hammond AP-3

APPENDIX B

EDR Well Survey Report

Plant Hammond
5963 Alabama Hwy
Rome, GA 30165

Inquiry Number: 06760773.1r
November 22, 2021

The EDR GeoCheck® Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION **PAGE**

GEOCHECK ADDENDUM

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

GEOCHECK® - PHYSICAL SETTING SOURCE REPORT

TARGET PROPERTY ADDRESS

PLANT HAMMOND
5963 ALABAMA HWY
ROME, GA 30165

TARGET PROPERTY COORDINATES

Latitude (North):	34.251229 - 34ˆ 15’ 4.42’’
Longitude (West):	85.351141 - 85ˆ 21’ 4.11’’
Universal Tranverse Mercator:	Zone 16
UTM X (Meters):	651830.0
UTM Y (Meters):	3791046.8
Elevation:	578 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	34085-C3 ROCK MOUNTAIN, GA
Version Date:	1985
South Map:	34085-B3 LIVINGSTON, GA
Version Date:	1982

EDR’s GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

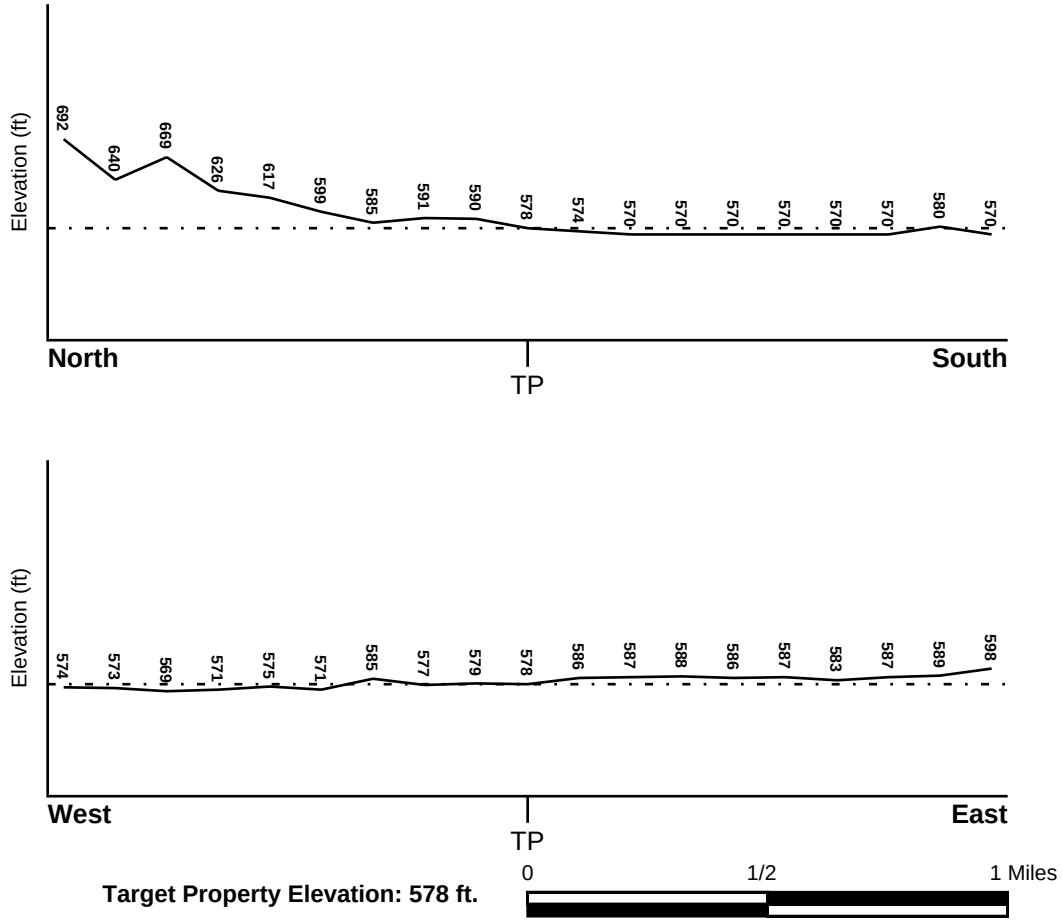
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SSW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
13115C0163E	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
13115C0164E	FEMA FIRM Flood data
13115C0252E	FEMA FIRM Flood data
13115C0251E	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
ROCK MOUNTAIN	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Era:	Paleozoic
System:	Cambrian
Series:	Cambrian
Code:	C *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratified Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name:	ETOWAH
Soil Surface Texture:	loam
Hydrologic Group:	Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.
Soil Drainage Class:	Well drained. Soils have intermediate water holding capacity. Depth to water table is more than 6 feet.

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel: LOW

Depth to Bedrock Min: > 60 inches

Depth to Bedrock Max: > 60 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	7 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 2.00 Min: 0.60	Max: 5.50 Min: 4.50
2	7 inches	38 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 2.00 Min: 0.60	Max: 5.50 Min: 4.50
3	38 inches	70 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 2.00 Min: 0.60	Max: 5.50 Min: 4.50

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: silt loam
clay loam

Surficial Soil Types: silt loam
clay loam

Shallow Soil Types: sandy clay loam
clay loam
silty clay loam
silty clay

Deeper Soil Types: clay loam
stratified
clay
cherty - clay loam
weathered bedrock
loam

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	2.000
Federal FRDS PWS	2.000
State Database	2.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
B3	USGS40000266955	1/8 - 1/4 Mile NNE
C5	USGS40000266962	1/4 - 1/2 Mile NNE
D7	USGS40000266956	1/4 - 1/2 Mile NE
C10	USGS40000266965	1/2 - 1 Mile NNE
D12	USGS40000266957	1/2 - 1 Mile ENE
E14	USGS40000266972	1/2 - 1 Mile NNE
E17	USGS40000266968	1/2 - 1 Mile NE
F18	USGS40000266981	1/2 - 1 Mile NNE
G21	USGS40000266978	1 - 2 Miles ENE
H22	USGS40000266969	1 - 2 Miles ENE
H25	USGS40000266975	1 - 2 Miles ENE
I27	USGS40000266890	1 - 2 Miles South

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

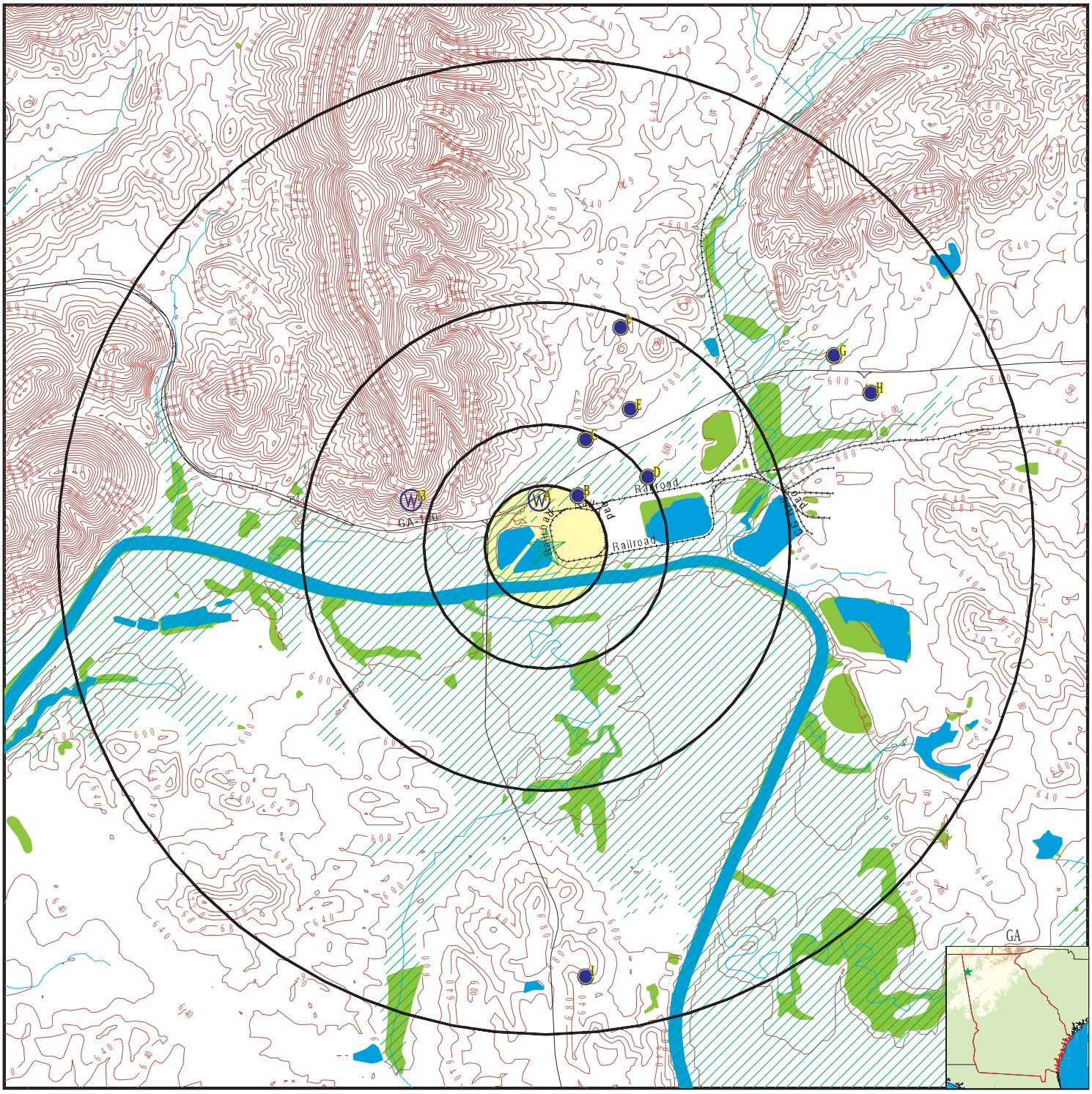
MAP ID	WELL ID	LOCATION FROM TP
A1	0000004168	1/8 - 1/4 Mile North
A2	0000004169	1/8 - 1/4 Mile North
B4	0000004171	1/8 - 1/4 Mile NNE
C6	0000004175	1/4 - 1/2 Mile NNE
D8	0000004172	1/4 - 1/2 Mile NE
C9	0000004177	1/2 - 1 Mile NNE
D11	0000004173	1/2 - 1 Mile ENE
13	0000004170	1/2 - 1 Mile WNW
E15	0000004181	1/2 - 1 Mile NNE
E16	0000004179	1/2 - 1 Mile NE
F19	0000004188	1/2 - 1 Mile NNE
G20	0000004185	1 - 2 Miles ENE
H23	0000004180	1 - 2 Miles ENE
H24	0000004183	1 - 2 Miles ENE

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
I26	0000004144	1 - 2 Miles South

PHYSICAL SETTING SOURCE MAP - 06760773.1r



- County Boundary
- Major Roads
- Contour Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

0 1/2 1 2 Miles

- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- Wildlife Areas

SITE NAME:	Plant Hammond	CLIENT:	Geosyntec Consultants
ADDRESS:	5963 Alabama Hwy Rome GA 30165	CONTACT:	Christine Hug
		INQUIRY #:	06760773.1r
LAT/LONG:	34.251229 / 85.351141	DATE:	November 22, 2021 1:00 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
A1 **North** **1/8 - 1/4 Mile** **Higher**	**GA WELLS**	**0000004168**

County code:	115	Well num:	03JJS2
Remarks:	JOE EARLY	Lat:	341514
Lon:	0852106	Latlon datum:	NAD27
Alt:	590	Alt datum:	NGVD29
Depth:	Not Reported	Depth to casing:	Not Reported
Casing dia:	Not Reported	Casing matl:	Not Reported
Depth to top:	Not Reported	Depth to bot:	Not Reported
Opening type:	Not Reported	Constr date:	Not Reported
Discharge:	208.3	Prim use:	Not Reported
Aquifer code:	Not Reported	Edr id:	0000004168

A2 **North** **1/8 - 1/4 Mile** **Higher**	**GA WELLS**	**0000004169**

County code:	115	Well num:	03JJS2
Remarks:	JOE EARLY	Lat:	341514
Lon:	0852106	Latlon datum:	NAD27
Alt:	590	Alt datum:	NGVD29
Depth:	Not Reported	Depth to casing:	Not Reported
Casing dia:	Not Reported	Casing matl:	Not Reported
Depth to top:	Not Reported	Depth to bot:	Not Reported
Opening type:	Not Reported	Constr date:	Not Reported
Discharge:	208.3	Prim use:	Not Reported
Aquifer code:	Not Reported	Edr id:	0000004169

B3 **NNE** **1/8 - 1/4 Mile** **Higher**	**FED USGS**	**USGS40000266955**

Organization ID:	USGS-GA	Organization Name:	USGS Georgia Water Science Center
Monitor Location:	03JJ41	Type:	Well
Description:	GA POWER, PLANT HAMMOND	HUC:	03150105
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Valley and Ridge aquifers	Formation Type:	Conasauga Formation
Aquifer Type:	Not Reported	Construction Date:	19511101
Well Depth:	411	Well Depth Units:	ft
Well Hole Depth:	411	Well Hole Depth Units:	ft

B4 **NNE** **1/8 - 1/4 Mile** **Higher**	**GA WELLS**	**0000004171**

County code:	115	Well num:	03JJ41
Remarks:	GA POWER, PLANT HAMMOND	Lat:	341515
Lon:	0852056	Latlon datum:	NAD27
Alt:	586.00	Alt datum:	NGVD29

Depth:	411	Depth to casing:	44.5
Casing dia:	12.	Casing matl:	Not Reported
Depth to top:	44.5	Depth to bot:	411.
Opening type:	X	Constr date:	19551101
Discharge:	69.60	Prim use:	N
Aquifer code:	371CNSG	Edr id:	0000004171

C5
NNE
1/4 - 1/2 Mile
Higher

FED USGS **USGS40000266962**

Organization ID:	USGS-GA	Organization Name:	USGS Georgia Water Science Center
Monitor Location:	03JJ31	Type:	Well
Description:	RUTH BRIDGES	HUC:	03150105
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Valley and Ridge aquifers	Formation Type:	Floyd Shale
Aquifer Type:	Not Reported	Construction Date:	1949
Well Depth:	96	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1961-11-07
Feet below surface:	20	Feet to sea level:	Not Reported
Note:	Not Reported		

C6
NNE
1/4 - 1/2 Mile
Higher

GA WELLS **0000004175**

County code:	115	Well num:	03JJ31
Remarks:	RUTH BRIDGES	Lat:	341524
Lon:	0852052	Latlon datum:	NAD27
Alt:	590	Alt datum:	NGVD29
Depth:	96	Depth to casing:	20
Casing dia:	6	Casing matl:	Not Reported
Depth to top:	20	Depth to bot:	96
Opening type:	X	Constr date:	1949
Discharge:	10	Prim use:	H
Aquifer code:	331FLYD	Edr id:	0000004175

D7
NE
1/4 - 1/2 Mile
Higher

FED USGS **USGS40000266956**

Organization ID:	USGS-GA	Organization Name:	USGS Georgia Water Science Center
Monitor Location:	03JJ35	Type:	Well
Description:	GA. POWER CO. WELL NO.3	HUC:	03150105
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Valley and Ridge aquifers	Formation Type:	Conasauga Formation
Aquifer Type:	Not Reported	Construction Date:	195111
Well Depth:	405	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

D8
NE
1/4 - 1/2 Mile
Higher

GA WELLS **0000004172**

County code:	115	Well num:	03JJ35
Remarks:	GA. POWER CO. WELL NO.3	Lat:	341518
Lon:	0852041	Latlon datum:	NAD27
Alt:	590.0	Alt datum:	NGVD29
Depth:	405.0	Depth to casing:	22.0
Casing dia:	12.0	Casing matl:	Not Reported
Depth to top:	22.0	Depth to bot:	405.0
Opening type:	X	Constr date:	195111
Discharge:	Not Reported	Prim use:	Not Reported
Aquifer code:	371CNSG	Edr id:	0000004172

C9
NNE
1/2 - 1 Mile
Higher

GA WELLS **0000004177**

County code:	115	Well num:	03JJ14
Remarks:	MRS. ARTHUR L. LLOYD	Lat:	341530
Lon:	0852056	Latlon datum:	NAD27
Alt:	595	Alt datum:	NGVD29
Depth:	87	Depth to casing:	21
Casing dia:	6	Casing matl:	Not Reported
Depth to top:	21	Depth to bot:	87
Opening type:	X	Constr date:	1948
Discharge:	16.7	Prim use:	H
Aquifer code:	371CNSG	Edr id:	0000004177

C10
NNE
1/2 - 1 Mile
Higher

FED USGS **USGS40000266965**

Organization ID:	USGS-GA	Organization Name:	USGS Georgia Water Science Center
Monitor Location:	03JJ14	Type:	Well
Description:	MRS. ARTHUR L. LLOYD	HUC:	03150105
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Valley and Ridge aquifers	Formation Type:	Conasauga Formation
Aquifer Type:	Not Reported	Construction Date:	1948
Well Depth:	87	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1948
Feet below surface:	4	Feet to sea level:	Not Reported
Note:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

D11
ENE
1/2 - 1 Mile
Higher

GA WELLS **0000004173**

County code:	115	Well num:	03JJ40
Remarks:	GA POWER CO, HAMMOND PLNT	Lat:	341520
Lon:	0852035	Latlon datum:	NAD27
Alt:	590	Alt datum:	NGVD29
Depth:	405	Depth to casing:	Not Reported
Casing dia:	Not Reported	Casing matl:	Not Reported
Depth to top:	Not Reported	Depth to bot:	Not Reported
Opening type:	Not Reported	Constr date:	195111
Discharge:	40.	Prim use:	N
Aquifer code:	371CNSG	Edr id:	0000004173

D12
ENE
1/2 - 1 Mile
Higher

FED USGS **USGS40000266957**

Organization ID:	USGS-GA	Organization Name:	USGS Georgia Water Science Center
Monitor Location:	03JJ40	Type:	Well
Description:	GA POWER CO, HAMMOND PLNT	HUC:	03150105
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Valley and Ridge aquifers	Formation Type:	Conasauga Formation
Aquifer Type:	Not Reported	Construction Date:	195111
Well Depth:	405	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1951-11
Feet below surface:	15	Feet to sea level:	Not Reported
Note:	Not Reported		

13
WNW
1/2 - 1 Mile
Higher

GA WELLS **0000004170**

County code:	115	Well num:	03JJ47
Remarks:	A.A. LOONEY	Lat:	341514
Lon:	0852139	Latlon datum:	NAD27
Alt:	800	Alt datum:	NGVD29
Depth:	Not Reported	Depth to casing:	Not Reported
Casing dia:	Not Reported	Casing matl:	Not Reported
Depth to top:	Not Reported	Depth to bot:	Not Reported
Opening type:	Not Reported	Constr date:	Not Reported
Discharge:	Not Reported	Prim use:	Not Reported
Aquifer code:	Not Reported	Edr id:	0000004170

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

E14
NNE
1/2 - 1 Mile
Higher

FED USGS **USGS40000266972**

Organization ID:	USGS-GA	Organization Name:	USGS Georgia Water Science Center
Monitor Location:	03JJ13	Type:	Well
Description:	ARTHUR W. LLOYD	HUC:	03150105
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Valley and Ridge aquifers	Formation Type:	Floyd Shale
Aquifer Type:	Not Reported	Construction Date:	1955
Well Depth:	72	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1955
Feet below surface:	15.0	Feet to sea level:	Not Reported
Note:	Not Reported		

E15
NNE
1/2 - 1 Mile
Higher

GA WELLS **0000004181**

County code:	115	Well num:	03JJ13
Remarks:	ARTHUR W. LLOYD	Lat:	341533
Lon:	0852047	Latlon datum:	NAD27
Alt:	625	Alt datum:	NGVD29
Depth:	72	Depth to casing:	28
Casing dia:	6	Casing matl:	Not Reported
Depth to top:	28	Depth to bot:	72
Opening type:	X	Constr date:	1955
Discharge:	15	Prim use:	H
Aquifer code:	331FLYD	Edr id:	0000004181

E16
NE
1/2 - 1 Mile
Higher

GA WELLS **0000004179**

County code:	115	Well num:	03JJ12
Remarks:	DEWEY H. WORTHY JR.	Lat:	341534
Lon:	0852038	Latlon datum:	NAD27
Alt:	600	Alt datum:	NGVD29
Depth:	60	Depth to casing:	55
Casing dia:	6	Casing matl:	Not Reported
Depth to top:	55	Depth to bot:	60
Opening type:	X	Constr date:	196106
Discharge:	10	Prim use:	H
Aquifer code:	331FLYD	Edr id:	0000004179

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

E17
NE
1/2 - 1 Mile
Higher

FED USGS **USGS40000266968**

Organization ID:	USGS-GA	Organization Name:	USGS Georgia Water Science Center
Monitor Location:	03JJ12	Type:	Well
Description:	DEWEY H. WORTHY JR.	HUC:	03150105
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Valley and Ridge aquifers	Formation Type:	Floyd Shale
Aquifer Type:	Not Reported	Construction Date:	196106
Well Depth:	60	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1961-11-07
Feet below surface:	15.35	Feet to sea level:	Not Reported
Note:	Not Reported		

F18
NNE
1/2 - 1 Mile
Higher

FED USGS **USGS40000266981**

Organization ID:	USGS-GA	Organization Name:	USGS Georgia Water Science Center
Monitor Location:	03JJ15	Type:	Well
Description:	ROME CRAFT	HUC:	03150105
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Valley and Ridge aquifers	Formation Type:	Floyd Shale
Aquifer Type:	Not Reported	Construction Date:	1958
Well Depth:	205	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1958
Feet below surface:	40.0	Feet to sea level:	Not Reported
Note:	Not Reported		

F19
NNE
1/2 - 1 Mile
Higher

GA WELLS **0000004188**

County code:	115	Well num:	03JJ15
Remarks:	ROME CRAFT	Lat:	341551
Lon:	0852045	Latlon datum:	NAD27
Alt:	640	Alt datum:	NGVD29
Depth:	205	Depth to casing:	179
Casing dia:	6	Casing matl:	Not Reported
Depth to top:	179	Depth to bot:	205
Opening type:	X	Constr date:	1958
Discharge:	6.5	Prim use:	C
Aquifer code:	331FLYD	Edr id:	0000004188

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
G20 **ENE** **1 - 2 Miles** **Higher**	**GA WELLS**	**0000004185**

County code:	115	Well num:	03JJ16
Remarks:	C.W. AKRIDGE	Lat:	341545
Lon:	0851950	Latlon datum:	NAD27
Alt:	590	Alt datum:	NGVD29
Depth:	89	Depth to casing:	7
Casing dia:	6	Casing matl:	Not Reported
Depth to top:	7	Depth to bot:	89
Opening type:	X	Constr date:	1941
Discharge:	5	Prim use:	H
Aquifer code:	331FLYD	Edr id:	0000004185

G21 **ENE** **1 - 2 Miles** **Higher**		**FED USGS**	**USGS40000266978**
Organization ID:	USGS-GA	Organization Name:	USGS Georgia Water Science Center
Monitor Location:	03JJ16	Type:	Well
Description:	C.W. AKRIDGE	HUC:	03150105
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Valley and Ridge aquifers	Formation Type:	Floyd Shale
Aquifer Type:	Not Reported	Construction Date:	1941
Well Depth:	89	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

---

H22 **ENE** **1 - 2 Miles** **Higher**		**FED USGS**	**USGS40000266969**
Organization ID:	USGS-GA	Organization Name:	USGS Georgia Water Science Center
Monitor Location:	03JJ17	Type:	Well
Description:	C.W. AKRIDGE	HUC:	03150105
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Valley and Ridge aquifers	Formation Type:	Floyd Shale
Aquifer Type:	Not Reported	Construction Date:	1945
Well Depth:	157	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

---

H23 **ENE** **1 - 2 Miles** **Higher**		**GA WELLS**	**0000004180**
County code:	115	Well num:	03JJ17
Remarks:	C.W. AKRIDGE	Lat:	341535
Lon:	0851942	Latlon datum:	NAD27
Alt:	605	Alt datum:	NGVD29

Depth:	157	Depth to casing:	Not Reported
Casing dia:	6.0	Casing matl:	Not Reported
Depth to top:	Not Reported	Depth to bot:	Not Reported
Opening type:	Not Reported	Constr date:	1945
Discharge:	5	Prim use:	H
Aquifer code:	331FLYD	Edr id:	0000004180

H24
ENE
1 - 2 Miles
Higher

GA WELLS **0000004183**

County code:	115	Well num:	03JJ18
Remarks:	C.H. JOHNSON	Lat:	341539
Lon:	0851939	Latlon datum:	NAD27
Alt:	600	Alt datum:	NGVD29
Depth:	96	Depth to casing:	35
Casing dia:	6	Casing matl:	Not Reported
Depth to top:	35	Depth to bot:	96
Opening type:	X	Constr date:	1959
Discharge:	Not Reported	Prim use:	H
Aquifer code:	331FLYD	Edr id:	0000004183

H25
ENE
1 - 2 Miles
Higher

FED USGS **USGS40000266975**

Organization ID:	USGS-GA	Organization Name:	USGS Georgia Water Science Center
Monitor Location:	03JJ18	Type:	Well
Description:	C.H. JOHNSON	HUC:	03150105
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Valley and Ridge aquifers	Formation Type:	Floyd Shale
Aquifer Type:	Not Reported	Construction Date:	1959
Well Depth:	96	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1961-11-07
Feet below surface:	33.28	Feet to sea level:	Not Reported
Note:	Not Reported		

I26
South
1 - 2 Miles
Higher

GA WELLS **0000004144**

County code:	115	Well num:	03HH27
Remarks:	SIDNEY EVANS	Lat:	341332
Lon:	0852054	Latlon datum:	NAD27
Alt:	660.0	Alt datum:	NGVD29
Depth:	129.0	Depth to casing:	50.0
Casing dia:	6.0	Casing matl:	Not Reported
Depth to top:	50.0	Depth to bot:	129.0
Opening type:	X	Constr date:	1956
Discharge:	9.0	Prim use:	H
Aquifer code:	371CNSG	Edr id:	0000004144

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

I27
South
1 - 2 Miles
Higher | **FED USGS** | **USGS40000266890**

Organization ID:	USGS-GA	Organization Name:	USGS Georgia Water Science Center
Monitor Location:	03HH27	Type:	Well
Description:	SIDNEY EVANS	HUC:	03150105
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Valley and Ridge aquifers	Formation Type:	Conasauga Formation
Aquifer Type:	Not Reported	Construction Date:	1956
Well Depth:	129	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for FLOYD County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for FLOYD COUNTY, GA

Number of sites tested: 14

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	1.586 pCi/L	93%	7%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	1.767 pCi/L	100%	0%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory
Source: Georgia GIS Clearinghouse
Telephone: 706-542-1581

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Georgia Public Supply Wells
Source: Georgia Department of Community Affairs
Telephone: 404-894-0127

USGS Georgia Water Wells
Source: USGS, Georgia District Office
Telephone: 770-903-9100

OTHER STATE DATABASE INFORMATION

DNR Managed Lands
Source: Department of Natural Resources
Telephone: 706-557-3032
This dataset provides 1:24,000-scale data depicting boundaries of land parcels making up the public lands managed by the Georgia Department of Natural Resources (GDNR). It includes polygon representations of State Parks, State Historic Parks, State Conservation Parks, State Historic Sites, Wildlife Management Areas, Public Fishing Areas, Fish Hatcheries, Natural Areas and other specially-designated areas. The data were collected and located by the Georgia Department of Natural Resources. Boundaries were digitized from survey plats or other information.

RADON

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary faultlines, prepared in 1975 by the United State Geological Survey

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

APPENDIX C

SiREM Laboratory Sorption and Desorption Treatability Study and Site Material Characterization Report

Prepared for:

Geosyntec Consultants, Inc.
1255 Roberts Blvd, Suite 200
Kennesaw, Georgia 30144

FINAL

Laboratory Sorption and Desorption Treatability Study and Site Material Characterization

Hammond Ash Pond-3, Floyd County, Georgia

Prepared by:

130 Stone Rd W
Guelph, Ontario N1G 3Z2

SiREM Ref: GW6581B

27 January 2022

siremlab.com

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LIST OF ABBREVIATIONS

%	percent
°C	degrees Celsius
µg/g	micrograms per gram
µm	micrometers
AEC	anion exchange capacity
AP	Ash Pond
CEC	cation exchange capacity
EDXA	energy dispersive X-ray analysis
g	grams
g/L	grams per liter
g/mL	grams per milliliter
Geosyntec	Geosyntec Consultants, Inc.
HDPE	high density polyethylene
ICP-MS	inductively coupled plasma-mass spectrometry
Li	lithium
meq/100g	milliequivalents per 100 grams
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
min	minutes
mL	milliliter
Mo	molybdenum
mV	millivolts
ORP	oxidation-reduction potential
RPM	revolutions per minute
SEM	scanning electron microscopy
SEP	sequential extraction procedure
SGS	SGS Environmental
SiREM	SiREM Laboratory
TOC	total organic carbon
XRD	X-ray diffraction

1. INTRODUCTION

Geosyntec Consultants, Inc. (Geosyntec) retained SiREM Laboratory (SiREM) to perform a laboratory treatability study to assess the sorption and desorption behaviour of lithium (Li) and molybdenum (Mo) in groundwater and geologic materials from the Hammond Ash Pond (AP)-3 site in Floyd County, GA (the Site).

The geologic materials were collected by Geosyntec personnel on 29 January 2021 and 1 February 2021 and were received by SiREM on 23 March 2021. The groundwater labelled HGWA-122, which is groundwater from a background well, was collected by Geosyntec personnel on 26 May 2021 and was received by SiREM on 1 June 2021. Upon arrival at SiREM, geological material and groundwater were stored at 4 degrees Celsius (°C) until required for reactor construction. Geological material samples were submitted for baseline characterization prior to the sorption and desorption tests and locations for testing were selected based on the baseline characterization results. The chain of custodies received with these samples are provided in Appendix A.

The remainder of this report is divided into two sections. Section 2 presents the experimental materials and methods and Section 3 presents the results.

2. MATERIALS AND METHODS

The following sections describe the materials and methods used for geologic material baseline characterization (Section 2.1), sorption test reactor construction and incubation (Section 2.2), desorption test reactor construction and incubation (Section 2.3), and sorption and desorption test sampling and analysis (Section 2.4).

2.1 Site Geologic Material Baseline Characterization

Geologic material baseline characterization was completed through SiREMNA™ testing and included anion exchange capacity (AEC), cation exchange capacity (CEC), total sulfur, total sulfide, total organic carbon (TOC) content, total metals, X-ray diffraction (XRD), scanning electron microscopy (SEM) with energy dispersive X-ray analysis (EDXA) and a follow-up sequential extraction procedure (SEP) on select aquifer solid samples.

On 25 March 2021 geologic material samples were individually homogenized and subsampled in a chemical fume hood prior to shipping to an external laboratory for analysis. The samples were shipped to external laboratories for analysis as outlined in the summary table below. Prior to performing the XRD analysis, SGS Environmental (SGS) in Lakefield, ON performed whole rock analysis on the samples to have as a reference for the mineral identification by XRD.

Parameter	Method	Laboratory
Total sulfur, total sulfide and TOC content	ASTM E1915-13	SGS, Lakefield, Ontario
Total metals	EPA 200.8	
Whole Rock Analysis	Borate Fusion and Xray Fluorescence Spectrometry	
XRD	Rietveld refinement method	
SEM and EDXA	SGS Internal method	
CEC	EPA method SW9081	SGS, Guelph, Ontario
AEC	Modified EPA method SW9081	Specialty Analytical, Clackamas, Oregon
Sequential extraction procedure	Methods SW846, 6010B and 3010A for SEP Steps 1-7	Eurofins TestAmerica, Knoxville, Tennessee

2.2 Sorption Test Reactor Construction and Incubation

One sample location of geological material was selected from the Hammond AP-3 Site to be tested for the sorption test. On 25 March 2021 the material from the DPT01 (10-18) location was homogenized by manually mixing for reproducibility between replicates. Reactors were constructed on 8 July 2021 by filling 250 milliliter (mL) (nominal volume) high density polyethylene (HDPE) Nalgene® bottles (Systems Plus, New Hamburg, ON) with 100 grams (g) of homogenized geologic material. Reactors were constructed in duplicate with an additional set of duplicate reactors constructed to be used for sampling at Time 0.

After adding geologic material to enough reactors to represent five testing concentration conditions on 8 July 2021, five separate volumes of HGWA-122 Site groundwater were spiked with Li and Mo to target the concentration levels for the sorption test as listed in Table 1A. For each concentration level, 700 mL of Site groundwater was spiked with Li as a 1 g/L lithium chloride (Sigma-Aldrich, Oakville, ON) stock solution and Mo as a 2 g/L sodium molybdate dihydrate (Sigma-Aldrich, Oakville, ON) stock solution. Once the groundwater for each concentration level was spiked, the reactors containing geologic material were each amended with 150 mL of the appropriately spiked groundwater. Note that “target” spiked concentrations and “actual concentrations” (as determined by subsequent laboratory analyses) may not be exactly the same. However, the sorption calculations used the measured spiked concentrations and not the target concentrations.

After construction on 13 July 2021, 14 July 2021 and 20 July 2021, the reactors were placed on an end-over-end tumbler at room temperature and mixed for a period of 7 days. Table 1A summarizes the details of reactor construction, incubation, amendments, sampling schedule and parameters of the sorption test reactors.

2.3 Desorption Test Reactor Construction and Incubation

One sample location from Hammond AP-3 was selected to be tested for the desorption test. On 25 March 2021 the materials from the DPT02 (13-18) location were homogenized by manually mixing for reproducibility between replicates. These materials were used to evaluate desorption of Li and Mo from aquifer materials collected in the vicinity of a Li and Mo-impacted well. Reactors were constructed by filling 250 mL (nominal volume) HDPE Nalgene® bottles (Systems Plus, New Hamburg, ON) with 100 g of geologic material and 150 mL of HGWA-122 Site groundwater.

Reactors were constructed in duplicate with an additional set of duplicate reactors constructed to be used for sampling at Time 0. One set of reactors were incubated at ambient conditions to evaluate desorption of Mo and Li. After construction on 8 September 2021, ambient condition reactors were placed on an end-over-end tumbler at room temperature and continually mixed for 7 days.

Table 1B summarizes the reactor construction, incubation, amendments, sampling schedule and parameters of the desorption test reactors.

2.4 Sorption and Desorption Test Sampling and Analysis

2.4.1 Reactor Sampling

Aqueous samples were collected from the sorption test reactors at Time 0 and after 7 days of incubation. Aqueous samples from the spiked Site groundwater from each concentration level which had not been combined with Site geological material was also sampled at Time 0. Aqueous samples were collected from the desorption test reactors at time 0 and after 7 days of incubation. Both sorption and desorption test reactors and the groundwater sampled at baseline were sampled for analysis of pH, oxidation-reduction potential (ORP), and dissolved metals.

Prior to sampling, contents of the reactors were transferred to 250 mL centrifuge bottles and centrifuged for 5 minutes (min) at 5,000 revolutions per minute (RPM) to separate the solid and aqueous phases. Once separated, the supernatant was sampled using 30 mL HDPE plastic syringes (Fisher Scientific, Whitby, ON).

The sampling and analytical methods employed by SiREM and SGS are described in Sections 2.3.2 to 2.3.4.

2.4.2 Analysis of pH

The pH measurements were performed using an Oakton pH spear with a combination pH electrode (Oakton, Vernon Hills, IL). A 0.5 mL sample was collected and placed into a 1.5 mL micro-centrifuge tube. The pH was measured on the lab bench. The pH spear was calibrated at

each sampling event according to the manufacturer's instructions using pH 4.0, 7.0 and 10 standards.

2.4.3 Analysis of ORP

The ORP measurements performed using an Omega PHH-127 Multi-Parameter Water Quality Monitor with ORP Probe (Omega, Laval, QC). A 1.2 mL sample was collected and placed in a 5 mL Thermo-Fisher vial. The ORP was measured on the lab bench immediately after sampling. The ORP probe was tested at each sampling event according to the manufacturer's instructions using Zobell's solution.

2.4.4 Analysis of Dissolved Metals at SGS Environmental

Analysis of dissolved metals was completed at SGS Environmental (SGS) in Lakefield, ON using an inductively coupled plasma-mass spectrometer (ICP-MS) based on Standard Method 3030B, EPA Method 200.8 and NIOSH 7300 Issue 2.

A 30 mL sample was collected and filtered through a 0.45 micrometer (µm) nylon syringe filter (Mandel Scientific, Guelph, ON) into a 30 mL HDPE bottle with a nitric acid preservative. Once collected, the samples were packaged on ice in a cooler and shipped overnight to SGS.

3. RESULTS

Appendix B presents the results of the baseline chemical characterization, Appendix C presents the baseline mineralogical results and Appendix D present the SEP results. Appendices E and F present the results of the sorption and desorption tests respectively. The tables in Appendices E and F present results for dissolved metals, pH and ORP as well as the recorded masses of Site geological materials and Site groundwater amended to each respective reactor. AEC and CEC are presented in units of milliequivalents per 100 grams (meq/100g). Total sulfur, total sulfide, TOC, whole rock analysis, XRD are presented as a percentage of the total weight of the geologic material. Bulk metals results are presented in units of micrograms per gram (µg/g). SEP results are presented in milligrams per kilogram (mg/kg). Concentrations of dissolved metals are provided in milligrams per liter (mg/L), ORP results are provided in millivolts (mV) and reactor weights are provided in g. The volume of Site groundwater amended to each reactor was calculated from the measured mass of water added to the reactor using a density of 1 gram per milliliter (g/mL). The external laboratory reports are presented in Appendix G.

TABLES

TABLE 1A: SUMMARY OF SORPTION TEST REACTORS, CONTROLS, TREATMENTS, AND AMENDMENTS
Hammond Ash Pond-3, Floyd County, Georgia

Groundwater Sample ID	Geologic Material Sample ID	Treatment	Number of Reactors	Number of Sacrificial Reactors	Reactor Numbers	Incubation Period and Sampling Frequency	Reactor Contents		Amendments		Analyses	
							Groundwater (L)	Geologic Material (kg)	Lithium	Molybdenum	Dissolved Li and Mo	pH/ORP
HGWA-122	DPT01(10-18)	Concentration Level 1	2	2	33 & 34	7 Days (Sampled at Time 0 and on Day 7)	0.150	0.100	Spiked with 0.02 mg/L Lithium	Spiked with 0.03 mg/L Molybdenum	4	4
		Concentration Level 2	2	2	35 & 36		0.150	0.100	Spiked with 0.04 mg/L Lithium	Spiked with 0.05 mg/L Molybdenum	4	4
		Concentration Level 3	2	2	37 & 38		0.150	0.100	Spiked with 0.06 mg/L Lithium	Spiked with 0.08 mg/L Molybdenum	4	4
		Concentration Level 4	2	2	39 & 40		0.150	0.100	Spiked with 0.08 mg/L Lithium	Spiked with 0.1 mg/L Molybdenum	4	4
		Concentration Level 5	2	2	41 & 42		0.150	0.100	Spiked with 0.1 mg/L Lithium	Spiked with 0.15 mg/L Molybdenum	4	4

Notes:

-- - not applicable
ID - identification
kg - kilogram
L - liter
Li - lithium
mg/L - milligrams per liter
Mo - molybdenum
ORP - oxidation-reduction potential

TABLE 1B: SUMMARY OF DESORPTION TEST REACTORS, CONTROLS, TREATMENTS, AND AMENDMENTS
Hammond Ash Pond-3, Floyd County, Georgia

Location	Groundwater Sample ID	Geologic Material Sample ID	Treatment	Number of Reactors	Number of Sacrificial Reactors	Reactor Numbers	Incubation Period and Sampling Frequency	Reactor Contents		Analyses		
								Groundwater (L)	Geologic Material (kg)	Dissolved Li and Mo	Target Constituents	pH/ORP
Hammond AP-3	HGWA-122	DPT02	Ambient Conditions	2	2	9 & 10	7 Days (Sampled at Time 0 and on Day 7)	0.150	0.100	4	Li, Mo	4

Notes:

-- - not applicable
ID - identification
kg - kilogram
L - liter
Li - lithium
mL - milliliters
Mo - molybdenum
mV - millivolt
ORP - oxidation-reduction potential

APPENDIX A:
Chain of Custody Documentation

SiREM

Chain-of-Custody Form

siremlab.com

130 Stone Road West
Guelph ON, Canada N1G 3Z2
(519) 822-2265

Lab # S-7677

*Project Name: Hammond AP1 AP2 AP3 ACM evaluation	*Project #: GW6581B/14; GW6581/22
*Project Manager: Whitney Law	*Company: Geosyntec Consultants
*Email Address: wlaw@geosyntec.com	
Address (Street): 1255 Roberts Blvd, NW, Suite 200	
City: Kennesaw	State/Province: GA	Country: USA
*Phone #: 678-202-9573	
*Sampler's Signature	*Sampler's Printed Name

Client Sample ID	Sampling Date	Sampling Time	Matrix	# of Containers	Anion exchange capacity (AEC)	Cation exchange capacity (CEC)	Total sulfur	Total sulfide	Organic carbon content	X-ray diff., SEM, EDXA	Total metal conc (see notes	Other Information
					2	2	2	2	2	2	2	
DPT07_AP1_012821_32-42	1/28/21		S	2	X	X	X	X	X	X	X	Rept total conc for: Mo, Li, F, As, Fe, Al, Mg
DPT11_AP2_012721_30-40	01/27/21		S	2	X	X	X	X	X	X	X	Rept total conc for: Mo, Co, Li, Fe, Al, Mg
DPT08_AP2_012621_10-20	1/26/21		S	2	X	X	X	X	X	X	X	Rept total conc for: Mo, Co, Li, Fe, Al, Mg
DPT07_AP2_020221_10-20	2/2/21		S	2	X	X	X	X	X	X	X	Rept total conc for: Mo, Co, Li, Fe, Al, Mg
DPT01_AP3_012921_10-18	1/29/21		S	2	X	X	X	X	X	X	X	Rept total conc for: Mo, Li, Fe, Al, Mn
DPT03_AP3_020121_13-18	2/1/21		S	1	X	X	X	X	X	X	X	Rept total conc for: Mo, Li, Fe, Al, Mn
DPT02_AP3_020121_13-18	2/1/21		S	1	X	X	X	X	X	X	X	Rept total conc for: Mo, Li, Fe, Al, Mn
DPT04_AP3_020121_13-21	2/1/21		S	2	X	X	X	X	X	X	X	Rept total conc for: Mo, Li, Fe, Al, Mn
DPT09_AP2_012621_20-30	1/26/21		S	2	X	X	X	X	X	X	X	Rept total conc for: Mo, Co, Li, Fe, Al, Mg
DPT10_AP2_012721_25-35	1/27/21		S	2	X	X	X	X	X	X	X	Rept total conc for: Mo, Co, Li, Fe, Al, Mg

WL 3/18/21

Preservative Key
0. None
1. HCL
2. Other ICE
3. Other
4. Other
5. Other
6. Other

Billing Information
P.O. #:
*Bill To: Speak with PM on how to partition invoice

Turnaround Time Requested
Normal [X]
Rush [ ]

For Lab Use Only
Cooler Condition: Good.
Cooler Temperature: 14°C
Custody Seals: Yes [ ] No [ ]

For Lab Use Only
Proposal #:

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: WLaw	Signature: NBrent	Signature:	Signature:	Signature:	Signature:
Printed Name: Whitney Law	Printed Name: Natasha Brent	Printed Name:	Printed Name:	Printed Name:	Printed Name:
Firm: Geosyntec Consultants	Firm: ~~FedEx~~ SiREM	Firm:	Firm:	Firm:	Firm:
Date/Time: 3/18/21, 16:00	Date/Time: 23 Mar 21 13 55	Date/Time:	Date/Time:	Date/Time:	Date/Time:

Distribution: White - return to Originator; Yellow - Lab Copy; Pink - Retained by Client

** Mandatory Fields*

SiREM

Chain-of-Custody Form

siremlab.com

130 Stone Rd. W
Guelph, ON N1G 3Z2
(519) 822-2265

Lab # S-8072

*Project Name: Hammond ATM reduction	*Project #: GEO6581B/14
*Project Manager: Whitney Law	*Company: Geosyntec Consultants
*Email Address: wlaw@geosyntec.com	
Address (Street): 1255 Roberts Blvd. NW, Suite 200	
City: Kennesaw / State/Province: GA 30144 / Country: USA	
*Phone #: 678 202 9573	
*Sampler's Signature: [signature] / *Sampler's Printed Name: Thomas Hessler	

Analysis

Client Sample ID	Sampling Date	Sampling Time	Matrix	# of Containers	Gene-Trac DHC	Gene-Trac FGA	Gene-Trac DHB	Gene-Trac DHG	Gene-Trac NGS	Volatile Fatty Acids	Dissolved hydrocarbon gases	Treatability Study	Other Information
HGWT-1	5/26/21	1025	W	2								X	
HGWT-122	5/26/21	1233	W	2								X	

Preservative Key
0. None
1. HCL
2. Other _____
3. Other _____
4. Other _____
5. Other _____
6. Other _____

P.O. #	**Billing Information**
*Bill To: GEO6581B/14/01	

Turnaround Time Requested
Normal ☐
Rush ☐

For Lab Use Only
Cooler Condition: good
Cooler Temperature: 18°C
Custody Seals: Yes ☒ No ☐

For Lab Use Only
Proposal #: _____

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: [signature]	Signature:	Signature:	Signature:	Signature:	Signature:
Printed Name: Thomas Hessler	Printed Name:	Printed Name:	Printed Name:	Printed Name:	Printed Name:
Firm: Geosyntec	Firm:	Firm:	Firm:	Firm:	Firm:
Date/Time: 5/27/21 1200	Date/Time:	Date/Time:	Date/Time:	Date/Time:	Date/Time:

Distribution: White - return to Originator Yellow - Lab Copy Pink - Retained by Client

* Mandatory Fields

APPENDIX B:
Baseline Chemical Characterization Results

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130 Stone Rd. W
Guelph, ON N1G 3Z2
(519) 822-2265

Analytical Results

SiREM File Reference: S-7677

Client: Geosyntec Consultants Inc.
Client Project Number: GW6581B/14;GW6581/22
Date Samples Received: March 23, 2021
Date Samples Analyzed: April 4, 12, 13 and 29, 2021

Client Sample ID	Laboratory Sample ID	Client Sample Date	Anion Exchange Capacity	Cation Exchange Capcity	Total Sulfur	Total Sulfide	Total Organic Carbon
			meq/100g	meq/100g	%	%	%
DPT01_AP3_012921_10-18	S-7677-5	29-Jan-21	6.76	13.47	0.023	< 0.04	0.17
DPT03_AP3_020121_13-18	S-7677-6	1-Feb-21	7.16	18.13	0.008	< 0.04	0.29
DPT02_AP3_020121_13-18	S-7677-7	1-Feb-21	7.18	23.97	0.005	< 0.04	0.60
DPT04_AP3_020121_13-21	S-7677-8	1-Feb-21	7.65	41.80	0.006	< 0.04	0.19

Comments:
% - percent
< - compound not detected, the associated value is the detection limit
meq/100g - milliequivalents per 100 grams

Analyst:

Kela Ashworth, B.Sc.
Senior Laboratory Technician

Results approved:

Michael Healey, B.Sc.
Laboratory Supervisor I

Date:

27-Aug-21

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130 Stone Rd. W
Guelph, ON N1G 3Z2
(519) 822-2265

Analytical Results - Total Metals

SiREM File Reference: S-7677

Client: Geosyntec Consultants Inc.
Client Project Number: GW6581B/14;GW6581/22
Date Samples Received: March 23, 2021
Date Samples Analyzed: April 15, 2021

Client Sample ID	Laboratory Sample ID	Client Sample Date	Molybdenum	Lithium	Cobalt	Arsenic	Iron	Aluminum	Manganese
			µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g
DPT01_AP3_012921_10-18	S-7677-5	29-Jan-21	0.6	55	21	6.7	37,000	67,000	780
DPT03_AP3_020121_13-18	S-7677-6	1-Feb-21	0.6	280	14	6.7	33,000	47,000	430
DPT02_AP3_020121_13-18	S-7677-7	1-Feb-21	3.6	210	12	7.3	31,000	57,000	640
DPT04_AP3_020121_13-21	S-7677-8	1-Feb-21	2.0	110	18	8.7	42,000	71,000	510

Comments:
µg/g - microgram per gram

Analyst:

Kela Ashworth, B.Sc.
Senior Laboratory Technician

Results approved:

Michael Healey, B.Sc.
Laboratory Supervisor I

Date:

27-Aug-21

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130 Stone Rd. W
Guelph, ON N1G 3Z2
(519) 822-2265

Analytical Results - Whole Rock Analysis

SiREM File Reference: S-7677

Client: Geosyntec Consultants Inc.
Client Project Number: GW6581B/14;GW6581/22
Date Samples Received: March 23, 2021
Date Samples Analyzed: April 6, 2021

Client Sample ID	Laboratory Sample ID	Client Sample Date	Quartz (SiO2)	Aluminum Oxide (Al2O3)	Ferric Oxide (Fe2O3)	Magnesium Oxide (MgO)	Calcium Oxide (CaO)	Sodium Oxide (Na2O)	Potassium Oxide (K2O)	Titanium Dioxide (TiO2)	Phosphorous Pentoxide (P2O5)	Manganese Oxide (MnO)	Chromium (III) Oxide (Cr2O3)	Vanadium Oxide (V2O5)	Loss on Ignition
			%	%	%	%	%	%	%	%	%	%	%	%	%
DPT01_AP3_012921_10-18	S-7677-5	29-Jan-21	66.9	14.1	5.98	1.54	0.30	0.07	2.43	0.64	0.20	0.10	< 0.01	0.02	7.35
DPT03_AP3_020121_13-18	S-7677-6	1-Feb-21	63.5	11.4	5.42	4.94	1.94	0.09	3.76	0.50	0.25	0.05	0.02	0.02	7.89
DPT02_AP3_020121_13-18	S-7677-7	1-Feb-21	60.9	11.9	5.01	4.49	2.96	0.27	4.39	0.57	0.28	0.09	0.02	< 0.01	8.73
DPT04_AP3_020121_13-21	S-7677-8	1-Feb-21	62.7	14.4	6.63	2.28	0.52	0.25	4.53	0.54	0.31	0.06	0.02	0.01	6.97

Comments:
% - percent
< - compound not detected, the associated value is the detection limit

Analyst:

Kela Ashworth, B.Sc.
Senior Laboratory Technician

Results approved:

Michael Healey, B.Sc.
Laboratory Supervisor I

Date:

27-Aug-21

APPENDIX C:
Baseline Mineralogical Results

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130 Stone Rd. W
Guelph, ON N1G 3Z2
(519) 822-2265

Analytical Results - Rietveld Quantitative X-Ray Diffraction

SiREM File Reference: S-7677

Client: Geosyntec Consultants Inc.
Client Project Number: GW6581B/14;GW6581/22
Date Samples Received: March 23, 2021
Date Samples Analyzed: April 16, 2021

Client Sample ID	Laboratory Sample ID	Client Sample Date	Quartz	Kaolinite	Muscovite	Microcline	Rutile	Albite	Anatase	Pyrite	Orthoclase	Calcite	Montmorillonite	Diopside	Biotite
			wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %	wt %
DPT01_AP3_012921_10-18	S-7677-5	29-Jan-21	46.1	17.1	26.9	5.1	1.1	2.4	1.2	-	-	-	-	-	-
DPT03_AP3_020121_13-18	S-7677-6	1-Feb-21	45.0	16.2	9.0	-	0.6	2.1	0.7	-	16.5	3.8	6.2	-	-
DPT02_AP3_020121_13-18	S-7677-7	1-Feb-21	36.6	17.7	8.0	-	0.9	3.8	0.7	-	20.4	2.8	0.5	3.8	4.7
DPT04_AP3_020121_13-21	S-7677-8	1-Feb-21	37.2	21.8	8.7	-	0.9	3.9	0.9	-	20.4	0.3	0.7	3.2	2.0

Comments:
-- not identified by analyst
wt % - weight percent

Analyst:

Kela Ashworth, B.Sc.
Senior Laboratory Technician

Results approved:

Michael Healey, B.Sc.
Laboratory Supervisor I

Date:

27-Aug-21

APPENDIX D:
Sequential Extraction Procedure Results

SiREM
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130 Stone Rd. W
Guelph, ON N1G 3Z2
(519) 822-2265

Analytical Results - Sequential Extraction Procedure

SiREM File Reference: S-7677

Client: Geosyntec Consultants Inc.
Client Project Number: GW6581B/14;GW6581/22
Date Samples Received: March 23, 2021
Date Samples Analyzed: April 20, 2021

Client Sample ID	Laboratory Sample ID	Client Sample Date	SEP Step 1		SEP Step 2		SEP Step 3		SEP Step 4		SEP Step 5		SEP Step 6		SEP Step 7		SEP Sum of Steps 1-7		Total	
			Lithium	Molybdenum	Lithium	Molybdenum	Lithium	Molybdenum	Lithium	Molybdenum	Lithium	Molybdenum	Lithium	Molybdenum	Lithium	Molybdenum	Lithium	Molybdenum	Lithium	Molybdenum
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
DPT01_AP3_012921_10-18	S-7677-5	29-Jan-21	<0.87	<0.47	<0.65	<0.36	0.58 J	< 0.12	6.4	<0.12	<3.2	<1.8	11	<0.14	24	<0.12	42	<0.082	58	<0.59
DPT03_AP3_020121_13-18	S-7677-6	1-Feb-21	<0.91	<0.50	0.88 J	<0.37	0.70 J	0.14 J	24	<0.12	6.6 J	<1.9	230	<0.15	41	<0.12	300	0.14 J	280	0.31 J
DPT02_AP3_020121_13-18	S-7677-7	1-Feb-21	<0.90	0.73 J	0.93 J	<0.37	0.55 J	1.3 J	17	0.81 J	5.6 J	<1.9	170	0.19 J	34	<0.12	230	3.1	190	3.2 J

Comments:
< - compound not detected, the associated value is the method detection limit.
J - result is less than the reporting limit, but greater than or equal to the method detection limit and the concentration is an approximate value.
mg/kg - milligram per kilogram

Analyst:

Kela Ashworth, B.Sc.
Senior Laboratory Technician

Results approved:

Michael Healey, B.Sc.
Laboratory Supervisor I

Date:

27-Aug-21

APPENDIX E:
Summary of Sorption Test Dissolved Metals, ORP and pH Results

Groundwater Sample ID	Site Material	Treatment	Date	Day	Replicate	Dissolved Molybdenum	Dissolved Lithium	Reactor Weight	Reactor + Soil Weight	Mass Soil	Reactor, Soil + Water Weight	Mass Water	pH	ORP
						mg/L	mg/L	g	g	g	g	g		
HGWA-122	DPT01(10-18)	Concentration Level 1	13-Jul-21	0	***Spiked Aqueous Concentration***	***0.03***	***0.02***	--	--	--	--	--	--	--
					HAP3DPT01_33a	0.0146	0.0110	36.63	137.08	100.45	283.05	145.97	6.78	189
					HAP3DPT01_34a	0.0202	0.0119	36.58	136.07	99.49	286.74	150.67	6.81	185
					Average Concentration (mg/L)	**0.0174**	**0.0115**	**36.61**	**136.58**	**99.97**	**284.90**	**148.32**	**6.80**	**187**
			20-Jul-21	7	HAP3DPT01_33b	< 0.00004	0.0030	36.57	136.75	100.18	282.95	146.20	5.29	168
					HAP3DPT01_34b	< 0.00004	0.0020	36.60	137.51	100.91	278.92	141.41	5.28	177
					Average Concentration (mg/L)	**ND**	**0.0025**	**36.59**	**137.13**	**100.55**	**280.94**	**143.81**	**5.29**	**173**
		Concentration Level 2	13-Jul-21	0	***Spiked Aqueous Concentration***	***0.05***	***0.04***	--	--	--	--	--	--	--
					HAP3DPT01_35a	0.0196	0.0175	36.56	136.85	100.29	284.39	147.54	6.81	135
					HAP3DPT01_36a	0.0247	0.0189	36.48	135.34	98.86	281.68	146.34	6.83	142
					Average Concentration (mg/L)	**0.0222**	**0.0182**	**36.52**	**136.10**	**99.58**	**283.04**	**146.94**	**6.82**	**139**
			20-Jul-21	7	HAP3DPT01_35b	< 0.00004	0.0024	36.52	137.49	100.97	282.29	144.80	5.31	204
					HAP3DPT01_36b	< 0.00004	0.0017	36.54	137.45	100.91	285.67	148.22	5.39	212
					Average Concentration (mg/L)	**ND**	**0.0021**	**36.53**	**137.47**	**100.94**	**283.98**	**146.51**	**5.35**	**208**
		Concentration Level 3	14-Jul-21	0	***Spiked Aqueous Concentration***	***0.08***	***0.06***	--	--	--	--	--	--	--
					HAP3DPT01_37a	0.0495	0.0326	36.55	137.48	100.93	286.37	148.89	6.83	156
					HAP3DPT01_38a	0.0522	0.0331	36.52	136.27	99.75	280.89	144.62	6.87	166
					Average Concentration (mg/L)	**0.0509**	**0.0329**	**36.54**	**136.88**	**100.34**	**283.63**	**146.76**	**6.85**	**161**
			21-Jul-21	7	HAP3DPT01_37b	< 0.00004	0.0038	36.48	136.59	100.11	285.72	149.13	5.56	240
					HAP3DPT01_38b	< 0.00004	0.0045	36.46	135.89	99.43	279.65	143.76	5.30	259
					Average Concentration (mg/L)	**ND**	**0.0042**	**36.47**	**136.24**	**99.77**	**282.69**	**146.45**	**5.43**	**250**
		Concentration Level 4	14-Jul-21	0	***Spiked Aqueous Concentration***	***0.10***	***0.08***	--	--	--	--	--	--	--
					HAP3DPT01_39a	0.0709	0.0455	36.54	135.45	98.91	281.03	145.58	6.90	146
					HAP3DPT01_40a	0.0688	0.0447	36.62	135.76	99.14	283.14	147.38	6.84	157
					Average Concentration (mg/L)	**0.0699**	**0.0451**	**36.58**	**135.61**	**99.03**	**282.09**	**146.48**	**6.87**	**152**
			21-Jul-21	7	HAP3DPT01_39b	< 0.00004	0.0036	36.53	136.27	99.74	287.43	151.16	5.43	282
					HAP3DPT01_40b	< 0.00004	0.0050	36.56	137.17	100.61	284.54	147.37	5.22	299
					Average Concentration (mg/L)	**ND**	**0.0043**	**36.55**	**136.72**	**100.18**	**285.99**	**149.27**	**5.33**	**291**
		Concentration Level 5	14-Jul-21	0	***Spiked Aqueous Concentration***	***0.15***	***0.10***	--	--	--	--	--	--	--
					HAP3DPT01_41a	0.107	0.0543	36.52	136.05	99.53	279.70	143.65	6.93	203
					HAP3DPT01_42a	0.104	0.0554	36.65	135.24	98.59	278.07	142.83	6.89	214
					Average Concentration (mg/L)	**0.106**	**0.0549**	**36.59**	**135.65**	**99.06**	**278.89**	**143.24**	**6.91**	**209**
			21-Jul-21	7	HAP3DPT01_41b	< 0.00004	0.0053	36.64	136.24	99.60	282.50	146.26	5.21	298
					HAP3DPT01_42b	< 0.00004	0.0023	36.59	135.14	98.55	283.02	147.88	5.53	268
					Average Concentration (mg/L)	**ND**	**0.0038**	**36.62**	**135.69**	**99.08**	**282.76**	**147.07**	**5.37**	**283**

Notes:

-- - not applicable
< - compound not detected, the associated value is the detection limit
g - gram
mg/L - milligrams per liter
mL - milliliter
ND - not detected
ORP - oxidation-reduction potential

APPENDIX F:
Summary of Desorption Test Dissolved Metals, ORP, and pH Results

APPENDIX F: SUMMARY OF DESORPTION TEST DISSOLVED METALS, ORP AND pH RESULTS
Hammond Ash Pond-3, Floyd County, Georgia

Groundwater Sample ID	Site Material	Chemical Characteristics (Baseline Characterization)	Treatment	Date	Day	Replicate	Dissolved Molybdenum	Dissolved Lithium	Reactor Weight	Reactor + Soil Weight	Mass Soil	Reactor, Soil + Water Weight	Mass Water	pH	ORP
							mg/L	mg/L	g	g	g	g	g		
HGWA-122	DPT02 (13-18)	Molybdenum: 3.6 µg/g Lithium: 210 µg/g	Ambient Conditions	31-Aug-21	0	HAP3DPT02 9a	0.0112	0.0057	36.62	137.33	100.71	288.18	150.85	7.21	243
						HAP3DPT02 10a	0.0139	0.0065	36.60	138.47	101.87	289.47	151.00	7.20	236
						Average Concentration (mg/L)	**0.0126**	**0.0061**	**36.61**	**137.90**	**101.29**	**288.83**	**150.93**	**7.21**	**240**
				15-Sep-21	7*	HAP3DPT02 9b	0.0534	0.0077	36.38	136.59	100.21	285.19	148.60	7.40	163
						HAP3DPT02 10b	0.0542	0.0077	36.33	135.98	99.65	285.70	149.72	7.51	158
						Average Concentration (mg/L)	**0.0538**	**0.0077**	**36.36**	**136.29**	**99.93**	**285.45**	**149.16**	**7.46**	**161**

Notes:

* Samples for Day 7 sampling were prepared on 8 September 2021
< - compound not detected, the associated value is the detection limit
g - grams
mg/kg - milligrams per kilogram
mg/L - milligrams per liter
ND - not detected
ORP - oxidation-reduction potential

APPENDIX G:
External Laboratory Reports

SGS Canada Inc.
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Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

Project : S-7677

12-January-2022

SiREM Laboratory
Attn : Kela Ashworth

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Guelph, ON
N1G 3Z2, Canada

Phone: 519-822-2265
Fax:519-822-3151

Date Rec. : 26 March 2021
LR Report: **CA14601-MAR21**

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CERTIFICATE OF ANALYSIS

S-7677_5_DPT01AP3

Sample ID	Sample Date & Time	Ag µg/g	Al µg/g	As µg/g	Ba µg/g	Be µg/g	Bi µg/g	Ca µg/g
1: Analysis Start Date		15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21
2: Analysis Start Time		19:04	19:04	19:04	19:04	19:04	19:04	19:04
3: Analysis Completed Date		16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21
4: Analysis Completed Time		10:28	10:28	10:28	10:28	10:28	10:28	10:28
9: S-7677_5_DPT01AP3	25-Mar-21	< 1	67000	6.7	180	4.2	0.30	1900

Sample ID	Cd µg/g	Co µg/g	Cr µg/g	Cu µg/g	Fe µg/g	K µg/g	Li µg/g	Mg µg/g
1: Analysis Start Date	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21
2: Analysis Start Time	19:04	19:04	19:04	19:04	19:04	19:04	19:04	19:04
3: Analysis Completed Date	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21
4: Analysis Completed Time	10:28	10:28	10:28	10:28	10:28	10:28	10:28	10:28
9: S-7677_5_DPT01AP3	0.15	21	70	32	37000	18000	55	8500

Sample ID	Mn µg/g	Mo µg/g	Ni µg/g	Pb µg/g	Sb µg/g	Se µg/g	Sn µg/g	Sr µg/g
1: Analysis Start Date	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21
2: Analysis Start Time	19:04	19:04	19:04	19:04	19:04	19:04	19:04	19:04
3: Analysis Completed Date	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21
4: Analysis Completed Time	10:28	10:28	10:28	10:28	10:28	10:28	10:28	10:28
9: S-7677_5_DPT01AP3	780	0.6	51	17	< 0.8	< 0.7	< 6	39

Sample ID	Ti µg/g	Tl µg/g	U µg/g	V µg/g	Y µg/g	Zn µg/g	S %	C %
1: Analysis Start Date	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	12-Apr-21	12-Apr-21
2: Analysis Start Time	19:04	19:04	19:04	19:04	19:04	19:04	10:54	10:54
3: Analysis Completed Date	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	13-Apr-21	13-Apr-21

SGS Canada Inc.
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Project : S-7677

LR Report : **CA14601-MAR21**

Sample ID	Ti µg/g	Tl µg/g	U µg/g	V µg/g	Y µg/g	Zn µg/g	S %	C %
4: Analysis Completed Time	10:28	10:28	10:28	10:28	10:28	10:28	11:02	11:00
9: S-7677_5_DPT01AP3	2900	0.49	3.3	84	36	84	0.023	0.201

Sample ID	Sulphide %	TOC %	
1: Analysis Start Date	13-Apr-21	12-Apr-21	---
2: Analysis Start Time	07:21	13:24	---
3: Analysis Completed Date	13-Apr-21	13-Apr-21	---
4: Analysis Completed Time	11:02	11:00	---
9: S-7677_5_DPT01AP3	< 0.04	0.174	1

Catharine Arnold

CHARTERED CHEMIST CATHARINE ARNOLD

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Project : S-7677

12-January-2022

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Date Rec. : 26 March 2021
LR Report: **CA14601-MAR21**

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CERTIFICATE OF ANALYSIS

S-7677_6_DPT03AP3

Sample ID	Sample Date & Time	Ag µg/g	Al µg/g	As µg/g	Ba µg/g	Be µg/g	Bi µg/g	Ca µg/g
1: Analysis Start Date		15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21
2: Analysis Start Time		19:04	19:04	19:04	19:04	19:04	19:04	19:04
3: Analysis Completed Date		16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21
4: Analysis Completed Time		10:28	10:28	10:28	10:28	10:28	10:28	10:28
10: S-7677_6_DPT03AP3	25-Mar-21	< 1	47000	6.7	230	2.2	0.13	12000

Sample ID	Cd µg/g	Co µg/g	Cr µg/g	Cu µg/g	Fe µg/g	K µg/g	Li µg/g	Mg µg/g
1: Analysis Start Date	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21
2: Analysis Start Time	19:04	19:04	19:04	19:04	19:04	19:04	19:04	19:04
3: Analysis Completed Date	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21
4: Analysis Completed Time	10:28	10:28	10:28	10:28	10:28	10:28	10:28	10:28
10: S-7677_6_DPT03AP3	0.15	14	46	20	33000	26000	280	25000

Sample ID	Mn µg/g	Mo µg/g	Ni µg/g	Pb µg/g	Sb µg/g	Se µg/g	Sn µg/g	Sr µg/g
1: Analysis Start Date	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21
2: Analysis Start Time	19:04	19:04	19:04	19:04	19:04	19:04	19:04	19:04
3: Analysis Completed Date	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21
4: Analysis Completed Time	10:28	10:28	10:28	10:28	10:28	10:28	10:28	10:28
10: S-7677_6_DPT03AP3	430	0.6	35	11	< 0.8	< 0.7	< 6	63

Sample ID	Ti µg/g	Tl µg/g	U µg/g	V µg/g	Y µg/g	Zn µg/g	S %	C %
1: Analysis Start Date	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	12-Apr-21	12-Apr-21
2: Analysis Start Time	19:04	19:04	19:04	19:04	19:04	19:04	10:54	10:54
3: Analysis Completed Date	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	13-Apr-21	13-Apr-21

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Project : S-7677

LR Report : **CA14601-MAR21**

Sample ID	Ti µg/g	Tl µg/g	U µg/g	V µg/g	Y µg/g	Zn µg/g	S %	C %
4: Analysis Completed Time	10:28	10:28	10:28	10:28	10:28	10:28	11:02	11:00
10: S-7677_6_DPT03AP3	2500	0.43	2.7	69	16	60	0.008	0.526

Sample ID	Sulphide %	TOC %	
1: Analysis Start Date	13-Apr-21	12-Apr-21	---
2: Analysis Start Time	07:21	13:24	---
3: Analysis Completed Date	13-Apr-21	13-Apr-21	---
4: Analysis Completed Time	11:02	11:00	---
10: S-7677_6_DPT03AP3	< 0.04	0.293	1

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Project : S-7677

12-January-2022

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Date Rec. : 26 March 2021
LR Report: **CA14601-MAR21**

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CERTIFICATE OF ANALYSIS

S-7677_7_DPT02AP3

Sample ID	Sample Date & Time	Ag µg/g	Al µg/g	As µg/g	Ba µg/g	Be µg/g	Bi µg/g	Ca µg/g
1: Analysis Start Date		15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21
2: Analysis Start Time		19:04	19:04	19:04	19:04	19:04	19:04	19:04
3: Analysis Completed Date		16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21
4: Analysis Completed Time		10:28	10:28	10:28	10:28	10:28	10:28	10:28
11: S-7677_7_DPT02AP3	25-Mar-21	< 1	57000	7.3	280	2.3	0.27	19000

Sample ID	Cd µg/g	Co µg/g	Cr µg/g	Cu µg/g	Fe µg/g	K µg/g	Li µg/g	Mg µg/g
1: Analysis Start Date	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21
2: Analysis Start Time	19:04	19:04	19:04	19:04	19:04	19:04	19:04	19:04
3: Analysis Completed Date	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21
4: Analysis Completed Time	10:28	10:28	10:28	10:28	10:28	10:28	10:28	10:28
11: S-7677_7_DPT02AP3	0.08	12	48	25	31000	33000	210	25000

Sample ID	Mn µg/g	Mo µg/g	Ni µg/g	Pb µg/g	Sb µg/g	Se µg/g	Sn µg/g	Sr µg/g
1: Analysis Start Date	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21
2: Analysis Start Time	19:04	19:04	19:04	19:04	19:04	19:04	19:04	19:04
3: Analysis Completed Date	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21
4: Analysis Completed Time	10:28	10:28	10:28	10:28	10:28	10:28	10:28	10:28
11: S-7677_7_DPT02AP3	640	3.6	35	13	< 0.8	< 0.7	< 6	130

Sample ID	Ti µg/g	Tl µg/g	U µg/g	V µg/g	Y µg/g	Zn µg/g	S %	C %
1: Analysis Start Date	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	12-Apr-21	12-Apr-21
2: Analysis Start Time	19:04	19:04	19:04	19:04	19:04	19:04	10:54	10:54
3: Analysis Completed Date	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	13-Apr-21	13-Apr-21

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Project : S-7677

LR Report : **CA14601-MAR21**

Sample ID	Ti µg/g	Tl µg/g	U µg/g	V µg/g	Y µg/g	Zn µg/g	S %	C %
4: Analysis Completed Time	10:28	10:28	10:28	10:28	10:28	10:28	11:02	11:00
11: S-7677_7_DPT02AP3	2700	0.49	3.5	67	29	67	0.005	1.05

Sample ID	Sulphide %	TOC %	
1: Analysis Start Date	13-Apr-21	12-Apr-21	---
2: Analysis Start Time	07:21	13:24	---
3: Analysis Completed Date	13-Apr-21	13-Apr-21	---
4: Analysis Completed Time	11:02	11:00	---
11: S-7677_7_DPT02AP3	< 0.04	0.601	1

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Project : S-7677

12-January-2022

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Fax:519-822-3151

Date Rec. : 26 March 2021
LR Report: **CA14601-MAR21**

Copy: #1

CERTIFICATE OF ANALYSIS

S-7677_8_DPT04AP3

Sample ID	Sample Date & Time	Ag µg/g	Al µg/g	As µg/g	Ba µg/g	Be µg/g	Bi µg/g	Ca µg/g
1: Analysis Start Date		15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21
2: Analysis Start Time		19:04	19:04	19:04	19:04	19:04	19:04	19:04
3: Analysis Completed Date		16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21
4: Analysis Completed Time		10:28	10:28	10:28	10:28	10:28	10:28	10:28
12: S-7677_8_DPT04AP3	25-Mar-21	< 1	71000	8.7	310	3.6	0.30	3500

Sample ID	Cd µg/g	Co µg/g	Cr µg/g	Cu µg/g	Fe µg/g	K µg/g	Li µg/g	Mg µg/g
1: Analysis Start Date	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21
2: Analysis Start Time	19:04	19:04	19:04	19:04	19:04	19:04	19:04	19:04
3: Analysis Completed Date	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21
4: Analysis Completed Time	10:28	10:28	10:28	10:28	10:28	10:28	10:28	10:28
12: S-7677_8_DPT04AP3	0.28	18	83	30	42000	34000	110	13000

Sample ID	Mn µg/g	Mo µg/g	Ni µg/g	Pb µg/g	Sb µg/g	Se µg/g	Sn µg/g	Sr µg/g
1: Analysis Start Date	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21
2: Analysis Start Time	19:04	19:04	19:04	19:04	19:04	19:04	19:04	19:04
3: Analysis Completed Date	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21
4: Analysis Completed Time	10:28	10:28	10:28	10:28	10:28	10:28	10:28	10:28
12: S-7677_8_DPT04AP3	510	2.0	67	15	< 0.8	< 0.7	< 6	70

Sample ID	Ti µg/g	Tl µg/g	U µg/g	V µg/g	Y µg/g	Zn µg/g	S %	C %
1: Analysis Start Date	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	15-Apr-21	12-Apr-21	12-Apr-21
2: Analysis Start Time	19:04	19:04	19:04	19:04	19:04	19:04	10:54	10:54
3: Analysis Completed Date	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	16-Apr-21	13-Apr-21	13-Apr-21

OnLine LIMS

00027697 29

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

Project : S-7677

LR Report : **CA14601-MAR21**

Sample ID	Ti µg/g	Tl µg/g	U µg/g	V µg/g	Y µg/g	Zn µg/g	S %	C %
4: Analysis Completed Time	10:28	10:28	10:28	10:28	10:28	10:28	11:02	11:00
12: S-7677_8_DPT04AP3	2700	0.70	3.1	92	32	95	0.006	0.208

Sample ID	Sulphide %	TOC %	
1: Analysis Start Date	13-Apr-21	12-Apr-21	---
2: Analysis Start Time	07:21	13:24	---
3: Analysis Completed Date	13-Apr-21	13-Apr-21	---
4: Analysis Completed Time	11:02	11:00	---
12: S-7677_8_DPT04AP3	< 0.04	0.188	1

Catharine Arnold

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Project Specialist,
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Project : S-7677

12-January-2022

SiREM Laboratory
Attn : Kela Ashworth

130 Stone Rd. W, Guelph
Canada, N1G 3Z2
Phone: 519-822-2265, Fax:519-822-3151

Date Rec. : 26 March 2021
LR Report: **CA14602-MAR21**
Reference: P.O# 800003210A

Copy: #1

CERTIFICATE OF ANALYSIS

S-7677_5_DPT01AP3

Sample ID	Sample Date & Time	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %
9: S-7677_5_DPT01AP3	25-Mar-21	66.9	14.1	5.98	1.54	0.30	0.07	2.43	0.64	0.20	0.10	< 0.01

Sample ID	V2O5 %	LOI %	Sum %
9: S-7677_5_DPT01AP3	0.02	7.35	99.7

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Project : S-7677

12-January-2022

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Date Rec. : 26 March 2021
LR Report: **CA14602-MAR21**
Reference: P.O# 800003210A

Copy: #1

CERTIFICATE OF ANALYSIS

S-7677_6_DPT03AP3

Sample ID	Sample Date & Time	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %
10: S-7677_6_DPT03AP3	25-Mar-21	63.5	11.4	5.42	4.94	1.94	0.09	3.76	0.50	0.25	0.05	0.02

Sample ID	V2O5 %	LOI %	Sum %
10: S-7677_6_DPT03AP3	0.02	7.89	99.7

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Project : S-7677

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Phone: 519-822-2265, Fax:519-822-3151

Date Rec. : 26 March 2021
LR Report: **CA14602-MAR21**
Reference: P.O# 800003210A

Copy: #1

CERTIFICATE OF ANALYSIS
S-7677_7_DPT02AP3

Sample ID	Sample Date & Time	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %
11: S-7677_7_DPT02AP3	25-Mar-21	60.9	11.9	5.01	4.49	2.96	0.27	4.39	0.57	0.28	0.09	0.02

Sample ID	V2O5 %	LOI %	Sum %
11: S-7677_7_DPT02AP3	< 0.01	8.73	99.6

Catharine Arnold

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Project : S-7677

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Date Rec. : 26 March 2021
LR Report: **CA14602-MAR21**
Reference: P.O# 800003210A

Copy: #1

CERTIFICATE OF ANALYSIS

S-7677_8_DPT04AP3

Sample ID	Sample Date & Time	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %
12: S-7677_8_DPT04AP3	25-Mar-21	62.7	14.4	6.63	2.28	0.52	0.25	4.53	0.54	0.31	0.06	0.02

Sample ID	V2O5 %	LOI %	Sum %
12: S-7677_8_DPT04AP3	0.01	6.97	99.2

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OnLine LIMS

0002769739

Quantitative X-Ray Diffraction by Rietveld Refinement

Report Prepared for:	*Environmental Services*
Project Number/ LIMS No.	*Custom MIN/MI5060-MAR21*
Sample Receipt:	*March 30, 2021*
Sample Analysis:	*April 12, 2021*
Reporting Date:	*May 5, 2021*

Instrument:	BRUKER AXS D8 Advance Diffractometer
Test Conditions:	Co radiation, 35 kV, 40 mA Regular Scanning: Step: 0.02°, Step time: 1s, 2θ range: 3-80°
Interpretations :	PDF2/PDF4 powder diffraction databases issued by the International Center for Diffraction Data (ICDD). DiffracPlus Eva and Topas software.
Detection Limit :	0.5-2%. Strongly dependent on crystallinity.

Contents:

Kim Gibbs, H.B.Sc., P.Geo.
Senior Mineralogist

Huyun Zhou, Ph.D., P.Geo.
Senior Mineralogist

ACCREDITATION: SGS Minerals Services Lakefield is accredited to the requirements of ISO/IEC 17025 for specific tests as listed on our scope of accreditation, including geochemical, mineralogical and trade mineral tests. To view a list of the accredited methods, please visit the following website and search SGS Canada - Minerals Services - Lakefield: http://palcan.scc.ca/SpecsSearch/GLSearchForm.do.

Method Summary

The Rietveld Method of Mineral Identification by XRD (ME-LR-MIN-MET-MN-D05) method used by SGS Minerals Services is accredited to the requirements of ISO/IEC 17025.

Mineral Identification and Interpretation:

Mineral identification and interpretation involves matching the diffraction pattern of an unknown material to patterns of single-phase reference materials. The reference patterns are compiled by the Joint Committee on Powder Diffraction Standards - International Center for Diffraction Data (JCPDS-ICDD) database and released on software as Powder Diffraction Files (PDF).

Interpretations do not reflect the presence of non-crystalline and/or amorphous compounds, except when internal standards have been added by request. Mineral proportions may be strongly influenced by crystallinity, crystal structure and preferred orientations. Mineral or compound identification and quantitative analysis results should be accompanied by supporting chemical assay data or other additional tests.

Quantitative Rietveld Analysis:

Quantitative Rietveld Analysis is performed by using Topas 4.2 (Bruker AXS), a graphics based profile analysis program built around a non-linear least squares fitting system, to determine the amount of different phases present in a multicomponent sample. Whole pattern analyses are predicated by the fact that the X-ray diffraction pattern is a total sum of both instrumental and specimen factors. Unlike other peak intensity-based methods, the Rietveld method uses a least squares approach to refine a theoretical line profile until it matches the obtained experimental patterns.

Rietveld refinement is completed with a set of minerals specifically identified for the sample. Zero values indicate that the mineral was included in the refinement calculations, but the calculated concentration was less than 0.05wt%. Minerals not identified by the analyst are not included in refinement calculations for specific samples and are indicated with a dash.

Summary of Rietveld Quantitative Analysis X-Ray Diffraction Results

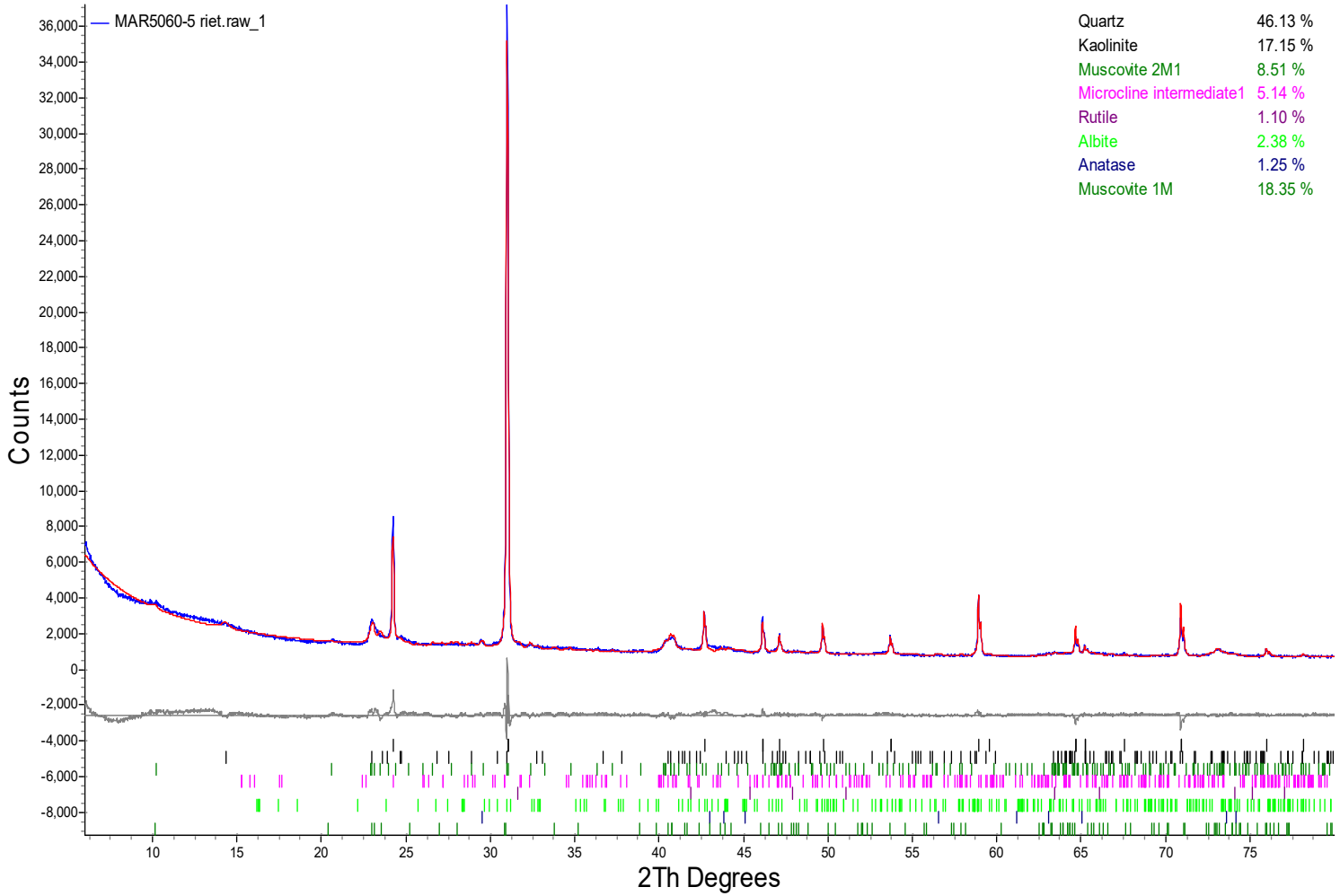
Mineral/Compound	S-7677_5_DPT01AP3 MAR5060-05 (wt %)
Quartz	46.1
Kaolinite	17.1
Muscovite	26.9
Microcline	5.1
Rutile	1.1
Albite	2.4
Anatase	1.2
TOTAL	100

The weight percent quantities indicated have been normalized to a sum of 100%.

The quantity of amorphous material has not been determined.

Mineral/Compound	Formula
Quartz	SiO_2
Kaolinite	$Al_2Si_2O_5(OH)_4$
Muscovite	$KAl_2(AlSi_3O_{10})(OH)_2$
Microcline	$KAlSi_3O_8$
Rutile	TiO_2
Albite	$NaAlSi_3O_8$
Anatase	TiO_2

S-7677_5_DPT01AP3



Quantitative X-Ray Diffraction by Rietveld Refinement

Report Prepared for:	*Environmental Services*
Project Number/ LIMS No.	*Custom MIN/MI5060-MAR21*
Sample Receipt:	*March 30, 2021*
Sample Analysis:	*April 12, 2021*
Reporting Date:	*May 5, 2021*

Instrument:	BRUKER AXS D8 Advance Diffractometer
Test Conditions:	Co radiation, 35 kV, 40 mA Regular Scanning: Step: 0.02°, Step time: 1s, 2θ range: 3-80°
Interpretations :	PDF2/PDF4 powder diffraction databases issued by the International Center for Diffraction Data (ICDD). DiffracPlus Eva and Topas software.
Detection Limit :	0.5-2%. Strongly dependent on crystallinity.

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Summary of Rietveld Quantitative Analysis X-Ray Diffraction Results

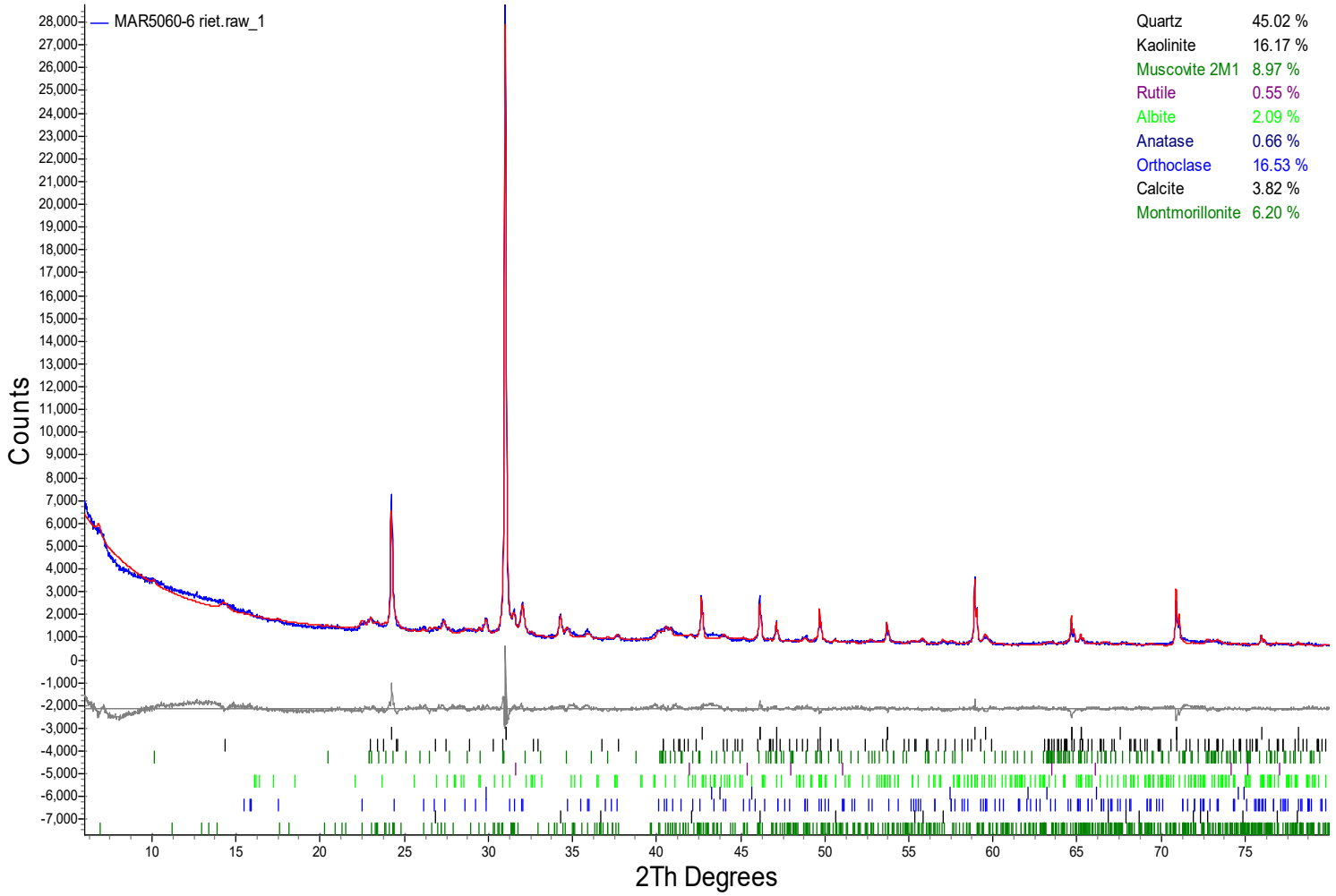
Mineral/Compound	S-7677_6_DPT03AP3 MAR5060-06 (wt %)
Quartz	45.0
Kaolinite	16.2
Muscovite	9.0
Rutile	0.6
Albite	2.1
Anatase	0.7
Orthoclase	16.5
Calcite	3.8
Montmorillonite	6.2
TOTAL	100

The weight percent quantities indicated have been normalized to a sum of 100%.

The quantity of amorphous material has not been determined.

Mineral/Compound	Formula
Quartz	SiO_2
Kaolinite	$Al_2Si_2O_5(OH)_4$
Muscovite	$KAl_2(AlSi_3O_{10})(OH)_2$
Microcline	$KAlSi_3O_8$
Rutile	TiO_2
Anatase	TiO_2
Orthoclase	$KAlSi_3O_8$
Calcite	$CaCO_3$
Montmorillonite	$(Na,Ca)_{0.3}(Al,Mg)_2Si_4O_{10}(OH)_2 \cdot nH_2O$

S-7677_6_DPT03AP3



Quantitative X-Ray Diffraction by Rietveld Refinement

Report Prepared for:	*Environmental Services*
Project Number/ LIMS No.	*Custom MIN/MI5060-MAR21*
Sample Receipt:	*March 30, 2021*
Sample Analysis:	*April 12, 2021*
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Summary of Rietveld Quantitative Analysis X-Ray Diffraction Results

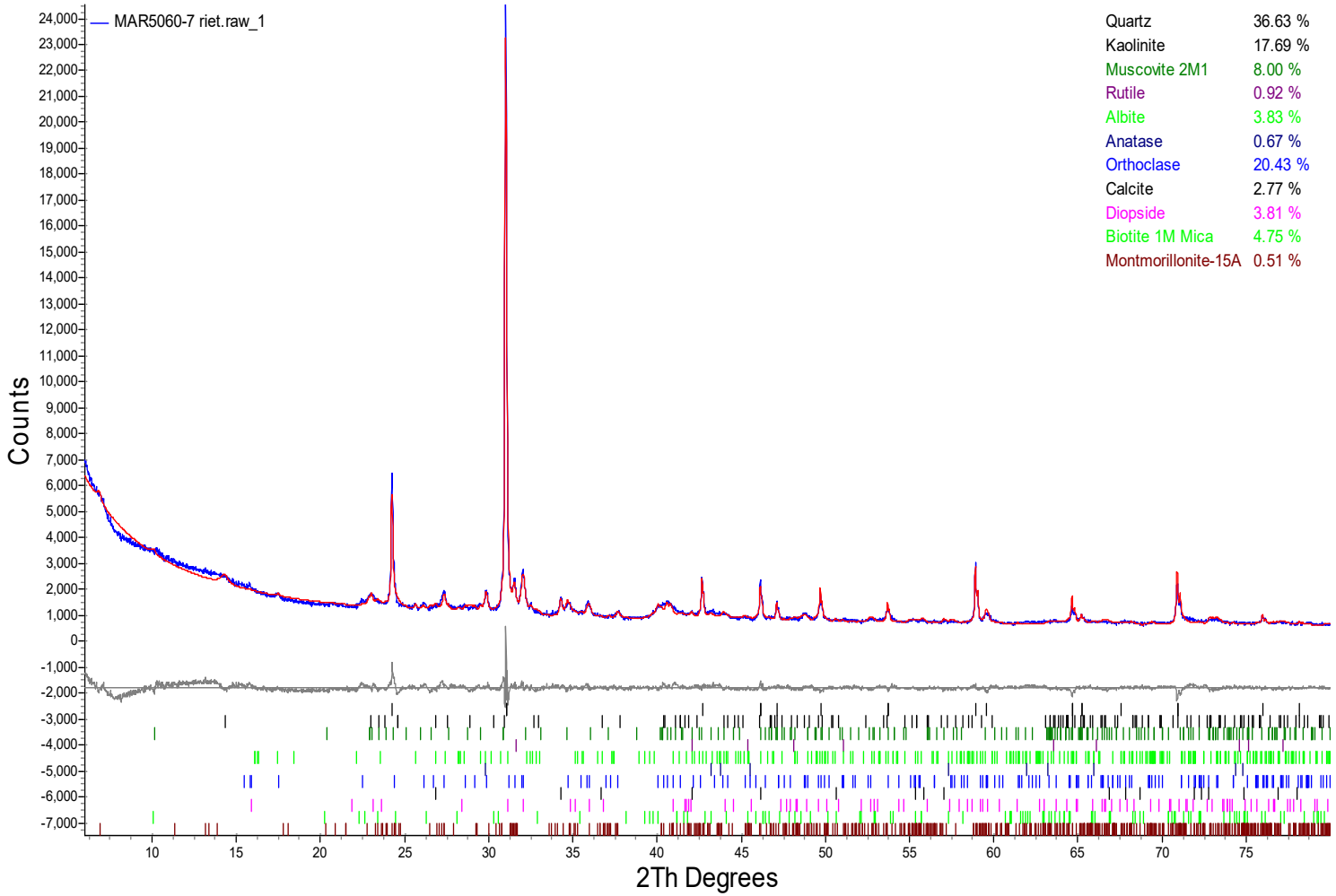
Mineral/Compound	S-7677_7_DPT02AP3 MAR5060-07 (wt %)
Quartz	36.6
Kaolinite	17.7
Muscovite	8.0
Rutile	0.9
Albite	3.8
Anatase	0.7
Orthoclase	20.4
Calcite	2.8
Montmorillonite	0.5
Diopside	3.8
Biotite	4.7
TOTAL	100

The weight percent quantities indicated have been normalized to a sum of 100%.

The quantity of amorphous material has not been determined.

Mineral/Compound	Formula
Quartz	SiO_2
Kaolinite	$Al_2Si_2O_5(OH)_4$
Muscovite	$KAl_2(AlSi_3O_{10})(OH)_2$
Rutile	TiO_2
Albite	$NaAlSi_3O_8$
Anatase	TiO_2
Orthoclase	$KAlSi_3O_8$
Calcite	$CaCO_3$
Montmorillonite	$(Na,Ca)_{0.3}(Al,Mg)_2Si_4O_{10}(OH)_2 \cdot nH_2O$
Diopside	$CaMgSi_2O_6$
Biotite	$K(Mg,Fe)_3(AlSi_3O_{10})(OH)_2$

S-7677_7_DPT02AP3



Quantitative X-Ray Diffraction by Rietveld Refinement

Report Prepared for:	*Environmental Services*
Project Number/ LIMS No.	*Custom MIN/MI5060-MAR21*
Sample Receipt:	*March 30, 2021*
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Summary of Rietveld Quantitative Analysis X-Ray Diffraction Results

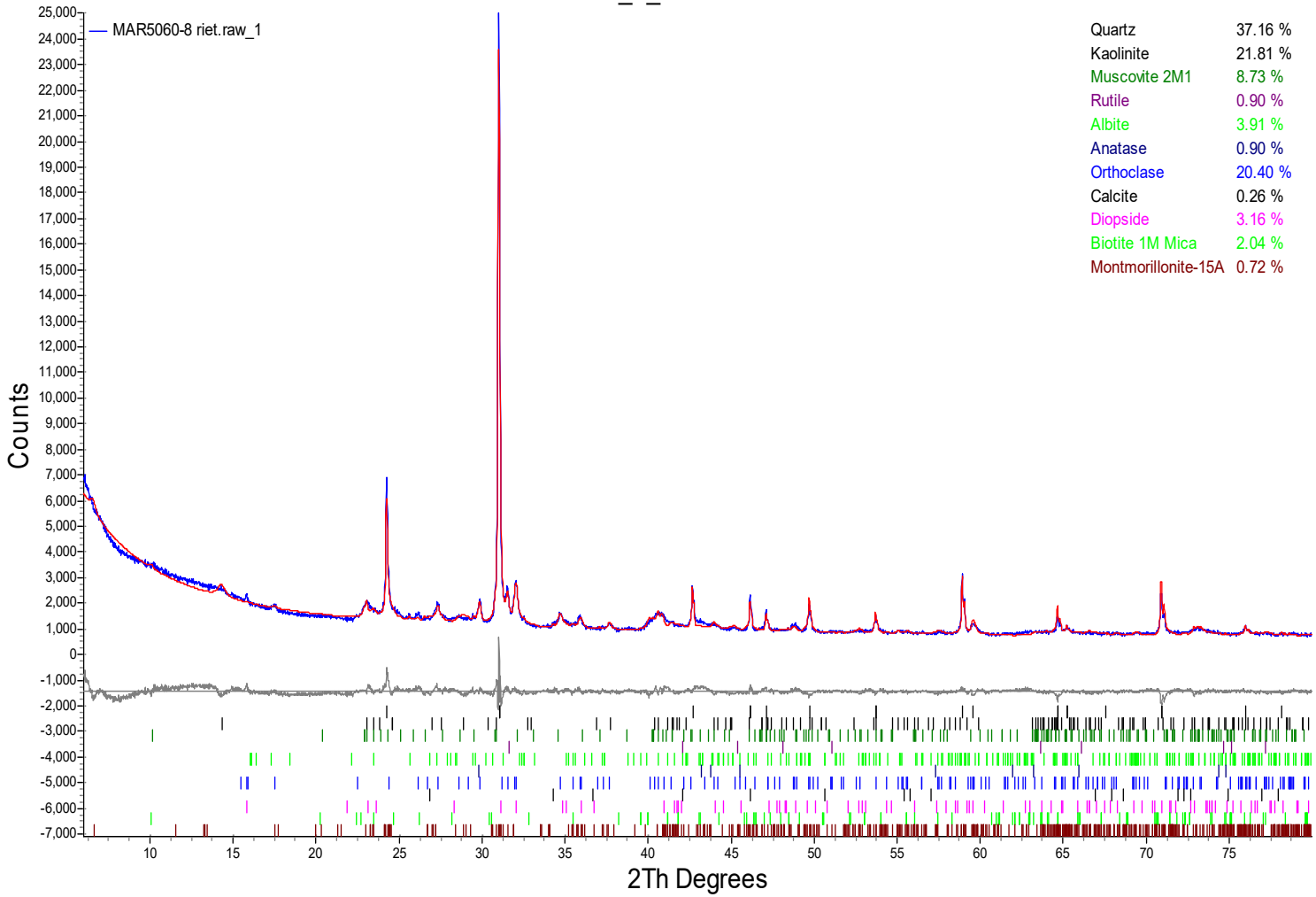
Mineral/Compound	S-7677_8_DPT04AP3 MAR5060-08 (wt %)
Quartz	37.2
Kaolinite	21.8
Muscovite	8.7
Rutile	0.9
Albite	3.9
Anatase	0.9
Orthoclase	20.4
Calcite	0.3
Montmorillonite	0.7
Diopside	3.2
Biotite	2.0
TOTAL	100

The weight percent quantities indicated have been normalized to a sum of 100%.

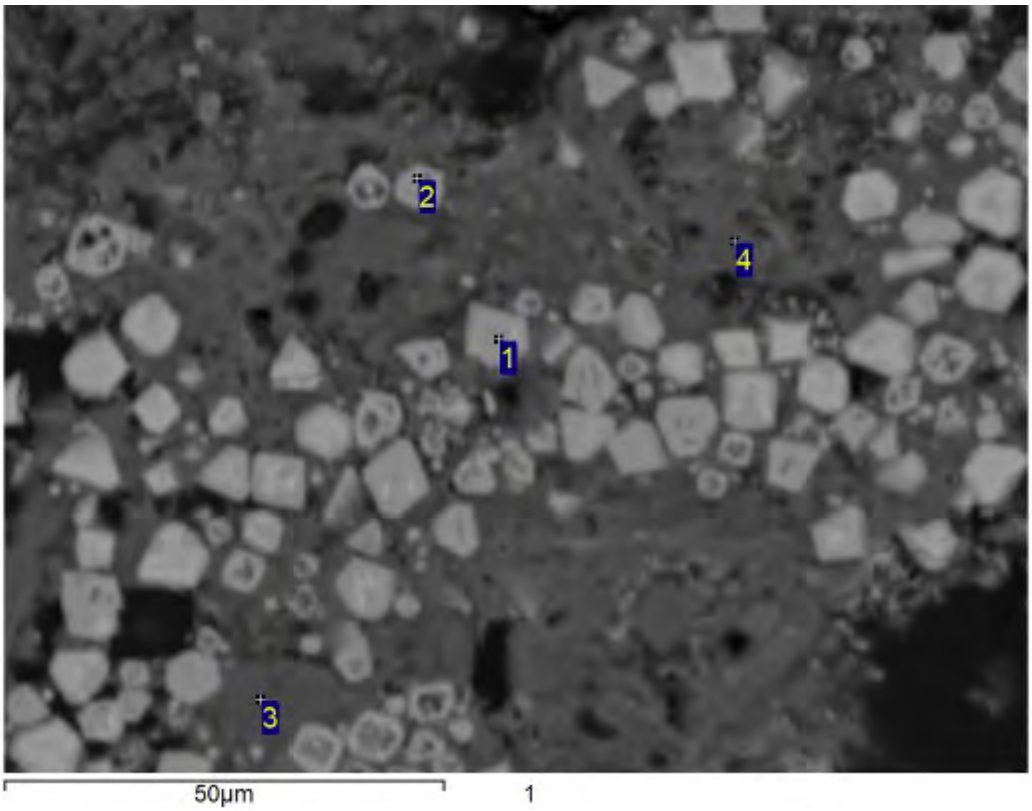
The quantity of amorphous material has not been determined.

Mineral/Compound	Formula
Quartz	SiO_2
Kaolinite	$Al_2Si_2O_5(OH)_4$
Muscovite	$KAl_2(AlSi_3O_{10})(OH)_2$
Rutile	TiO_2
Albite	$NaAlSi_3O_8$
Anatase	TiO_2
Orthoclase	$KAlSi_3O_8$
Calcite	$CaCO_3$
Montmorillonite	$(Na,Ca)_{0.3}(Al,Mg)_2Si_4O_{10}(OH)_2 \cdot nH_2O$
Diopside	$CaMgSi_2O_6$
Biotite	$K(Mg,Fe)_3(AlSi_3O_{10})(OH)_2$

S-7677_8_DPT04AP3



Sample Notes:
S-7677_5_DPT01AP3

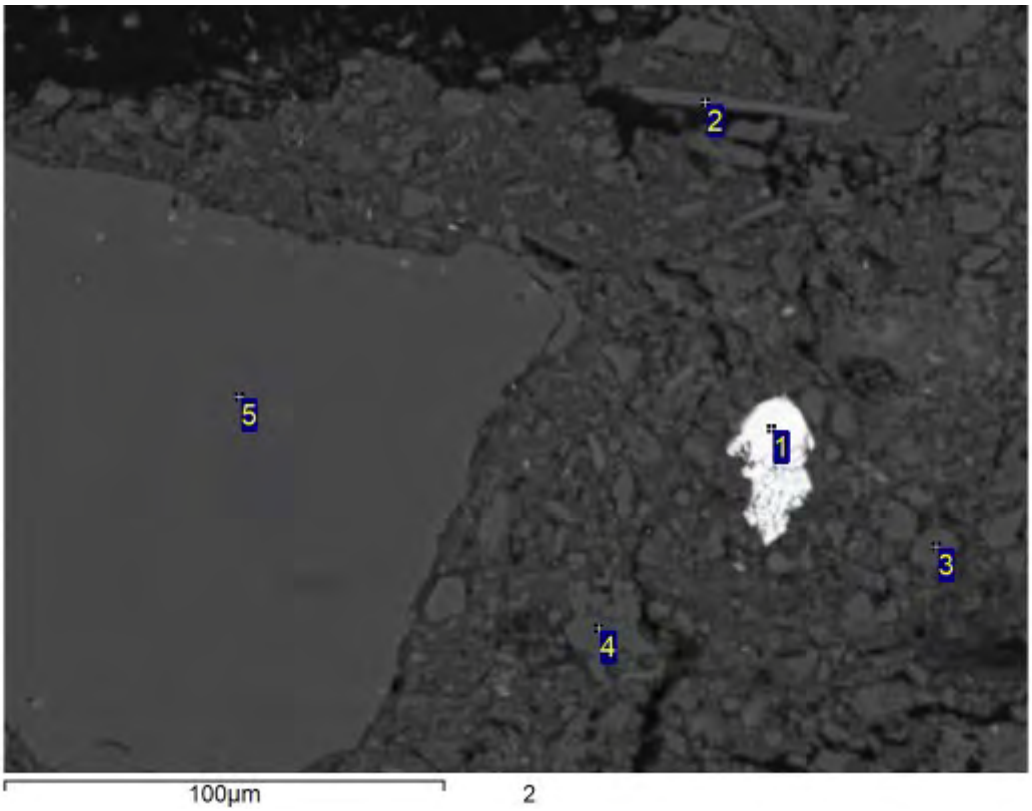


Processing option : All elements analysed (Normalised)

Spectrum	O	Mg	Al	Si	P	K	Fe	Total	Mineral ID
1	41.4		2.1	2.3	0.7		53.5	100.0	Fe-Oxide/Oxyhydroxide
2	42.7		3.0	4.6	0.6		49.0	100.0	Fe-Oxide/Oxyhydroxide
3	50.6			48.6			0.9	100.0	Quartz
4	47.5	1.5	9.2	32.0		3.6	6.2	100.0	Fe-Oxide/Oxyhydroxide/K-Feldspar mixture

All results in weight%

Sample Notes:
S-7677_5_DPT01AP3

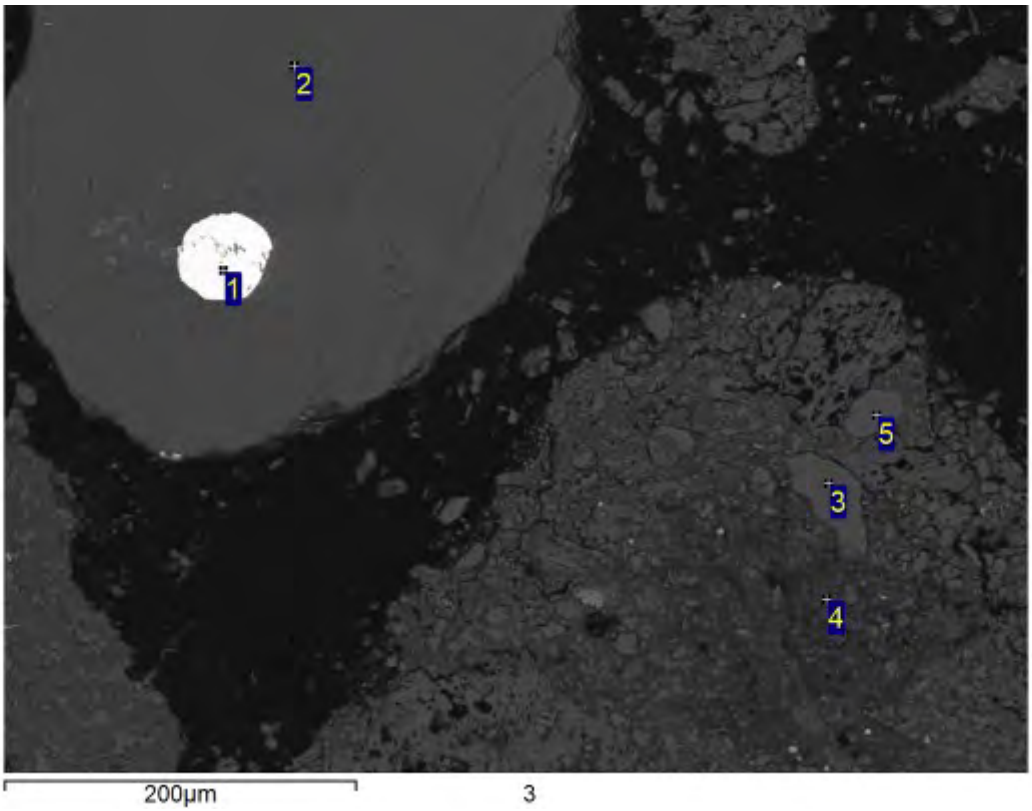


Processing option : All elements analysed (Normalised)

Spectrum	O	Mg	Al	Si	S	K	Ca	Fe	Sr	Ba	Total	Mineral ID
1	26.4				14.6				1.6	57.4	100.0	Barite
2	47.3	0.5	18.2	24.5		9.0		0.4			100.0	Mica
3	50.1			49.5				0.4			100.0	Quartz
4	51.0			48.7			0.3				100.0	Quartz
5	51.5			48.5							100.0	Quartz

All results in weight%

Sample Notes:
S-7677_5_DPT01AP3

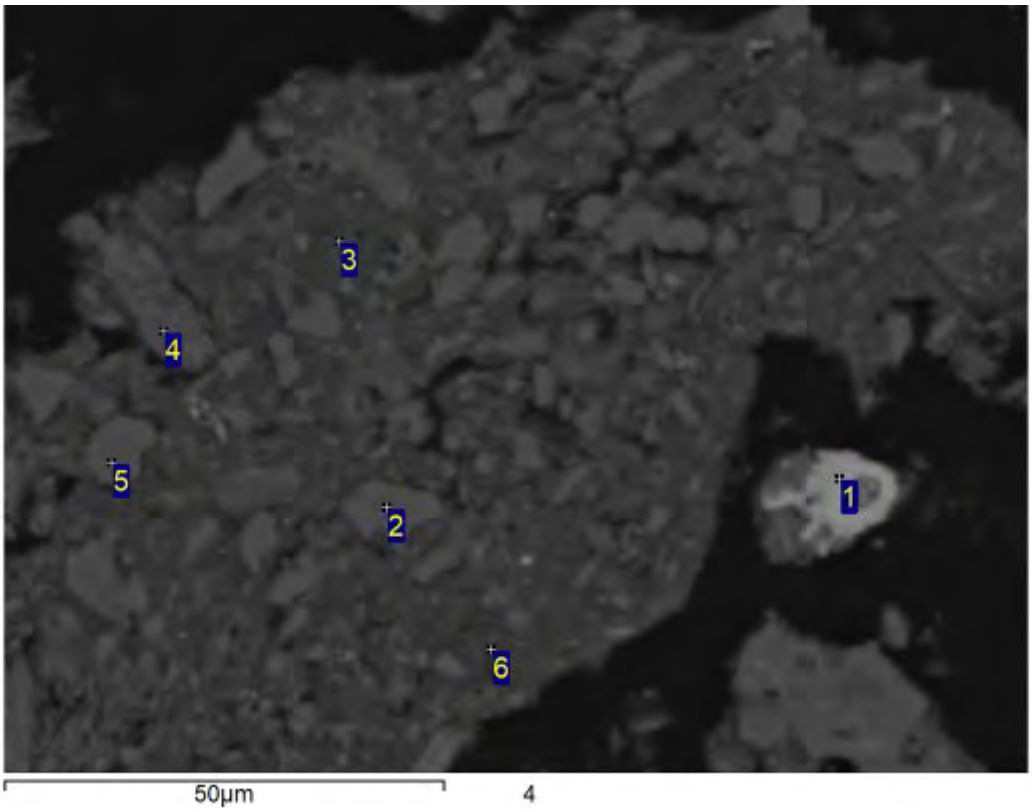


Processing option : All elements analysed (Normalised)

Spectrum	O	Mg	Al	Si	P	Cl	K	Ca	Ti	Fe	La	Ce	Nd	Th	Total	Mineral ID
1	29.4				14.3			0.5			12.5	28.6	10.4	4.2	100	Monazite
2	51.3			48.7											100	Quartz
3	51.3			48.7											100	Quartz
4	39.8	1.6	12.2	36.5		0.6	4.0		1.1	4.2					100	Clay
5	49.5	0.6	1.9	44.5						3.6					100	Quartz

All results in weight%

Sample Notes:
S-7677_5_DPT01AP3

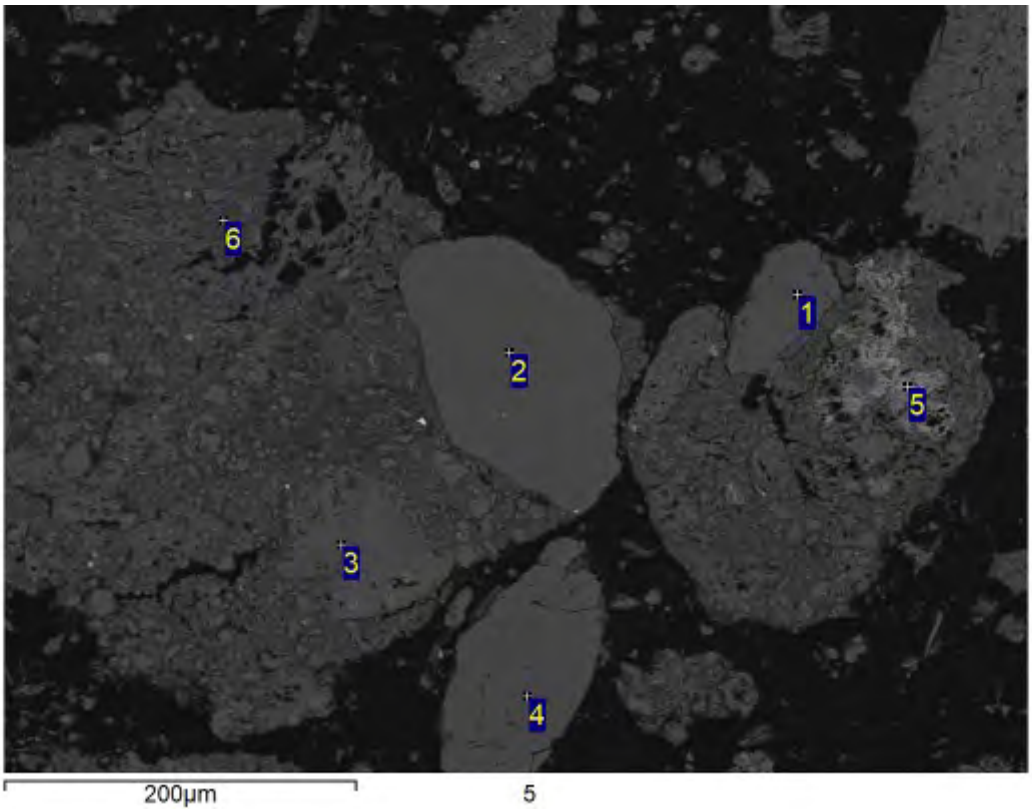


Processing option : All elements analysed (Normalised)

Spectrum	O	Mg	Al	Si	P	S	K	Ca	Ti	Fe	Total	Mineral ID
1	42.1		2.4	2.2	1.5					51.8	100.0	Fe-Oxide-Oxyhydroxide
2	51.6		0.6	47.8							100.0	Quartz
3	45.5	1.3	14.6	29.8		0.4	2.5	0.3	1.2	4.3	100.0	Kaolinite/Muscovite
4	46.4	2.3	9.7	34.5			4.0		0.6	2.4	100.0	K-Feldspar
5	51.3			48.7							100.0	Quartz
6	44.6	1.6	12.9	34.1			2.0			4.9	100.0	Kaolinite/Muscovite

All results in weight%

Sample Notes:
S-7677_5_DPT01AP3

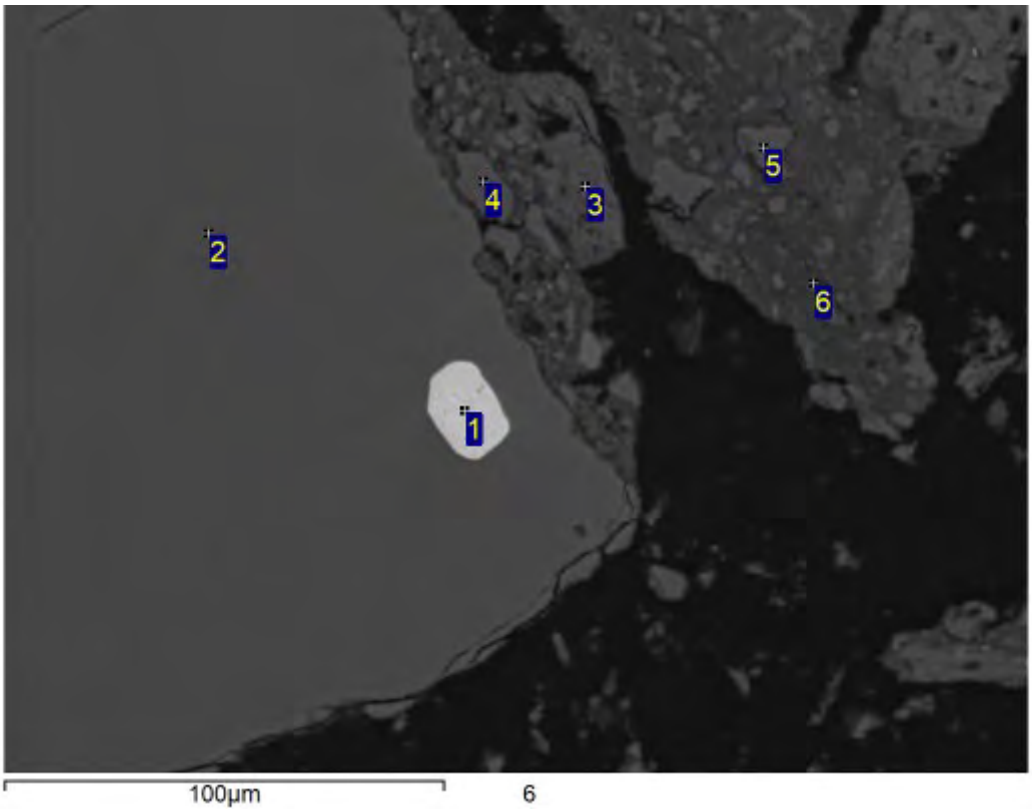


Processing option : All elements analysed (Normalised)

Spectrum	O	Mg	Al	Si	P	K	Ca	Ti	Mn	Fe	Total	Mineral ID
1	51.3			48.7							100.0	Quartz
2	51.0			49.0							100.0	Quartz
3	50.9		0.4	46.6						2.1	100.0	Quartz
4	50.3			49.7							100.0	Quartz
5	34.6		3.8	1.5	0.6		0.4		13.4	45.7	100.0	Fe-Oxide
6	44.4	1.1	11.7	35.7		2.4		0.5		4.1	100.0	Fe-Oxide/K-Feldspar mixture

All results in weight%

Sample Notes:
S-7677_5_DPT01AP3

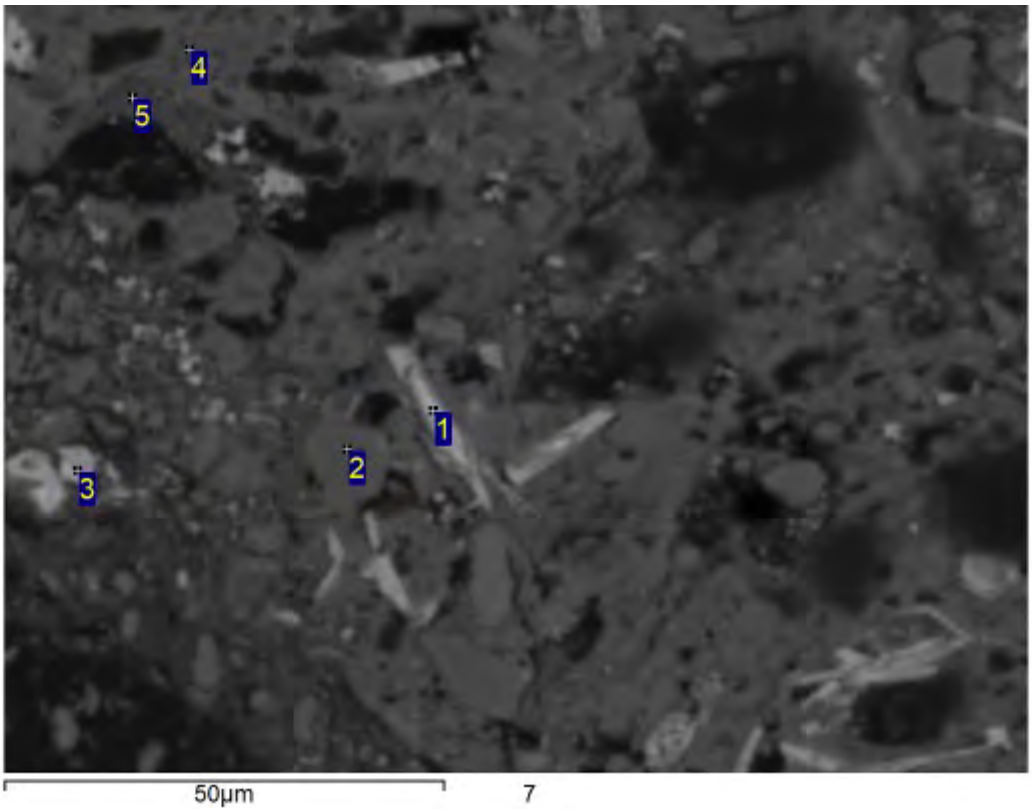


Processing option : All elements analysed (Normalised)

Spectrum	O	Mg	Al	Si	S	K	Ti	Fe	Zr	Hf	Total	Mineral ID
1	33.6			15.5				0.5	48.7	1.7	100.0	Zircon
2	51.1			48.9							100.0	Quartz
3	46.5	1.2	9.7	33.0		3.3	1.6	4.6			100.0	Fe-Oxide/K-Feldspar mixture
4	51.3			48.7							100.0	Quartz
5	51.7			48.3							100.0	Quartz
6	44.2	0.7	11.4	35.6	2.0	2.2	0.4	3.5			100.0	Fe-Oxide/K-Feldspar mixture

All results in weight%

Sample Notes:
S-7677_5_DPT01AP3

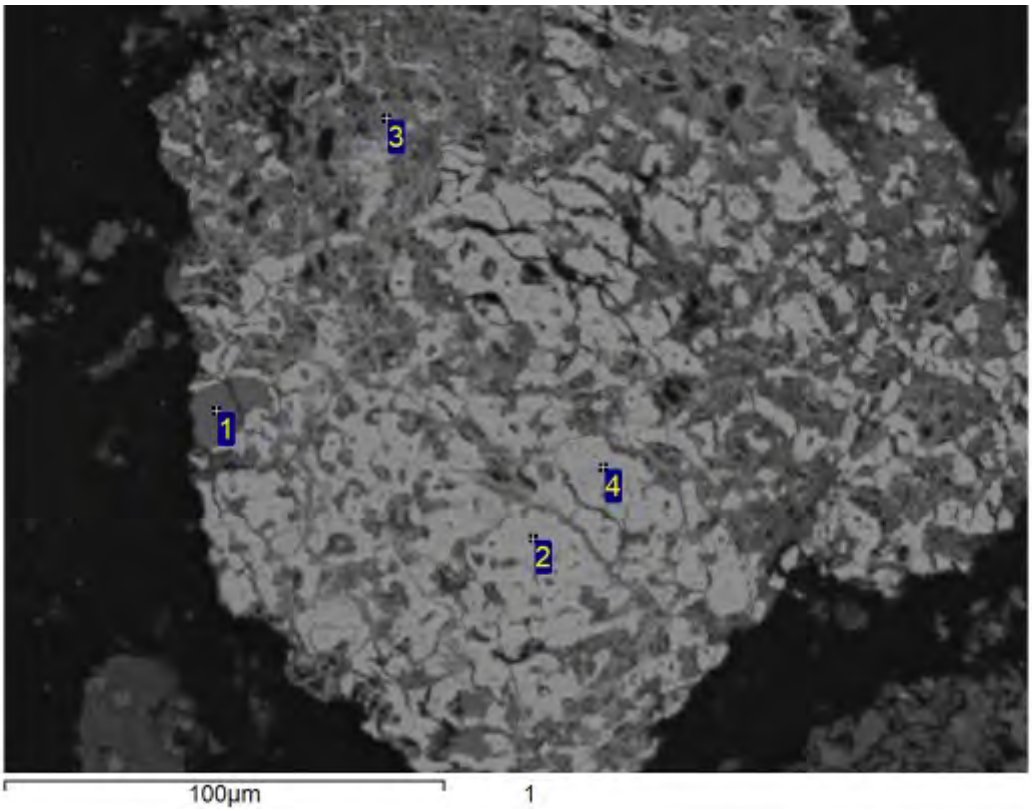


Processing option : All elements analysed (Normalised)

Spectrum	O	Mg	Al	Si	P	K	Ti	Mn	Fe	Total	Mineral ID
1	39.2		1.3	3.2	0.9			0.4	54.9	100.0	Fe-Oxide/Oxyhydroxide
2	52.1			46.3					1.6	100.0	Quartz
3	42.8		3.8	4.0	1.6	0.4			47.5	100.0	Fe-Oxide/Oxyhydroxide
4	46.2	2.0	9.4	34.4		3.7	0.3		3.9	100.0	Fe-Oxide/K-Feldspar mixture
5	43.5	1.8	11.6	30.8		2.7	2.4		7.3	100.0	Fe-Oxide/K-Feldspar mixture

All results in weight%

Sample Notes:
S-7677_6_DPT03AP3

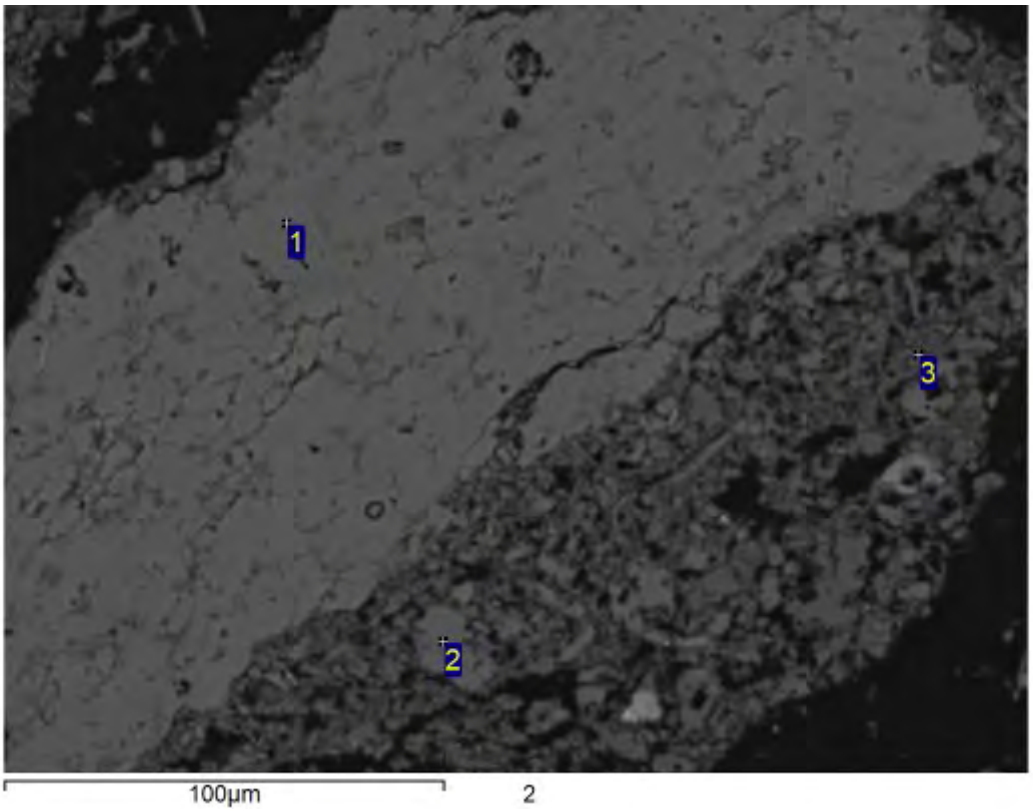


Processing option : All elements analysed (Normalised)

Spectrum	O	Al	Si	P	K	Ca	Fe	Total	Mineral ID
1	45.2	9.3	31.5		13.4		0.6	100.0	K-Feldspar
2	39.3	0.9	2.0	0.5			57.3	100.0	Fe-Oxide/Oxyhydroxide
3	32.8	2.4	2.8	1.3			60.7	100.0	Fe-Oxide/Oxyhydroxide
4	40.1	0.9	2.4	0.7		0.3	55.6	100.0	Fe-Oxide/Oxyhydroxide

All results in weight%

Sample Notes:
S-7677_6_DPT03AP3

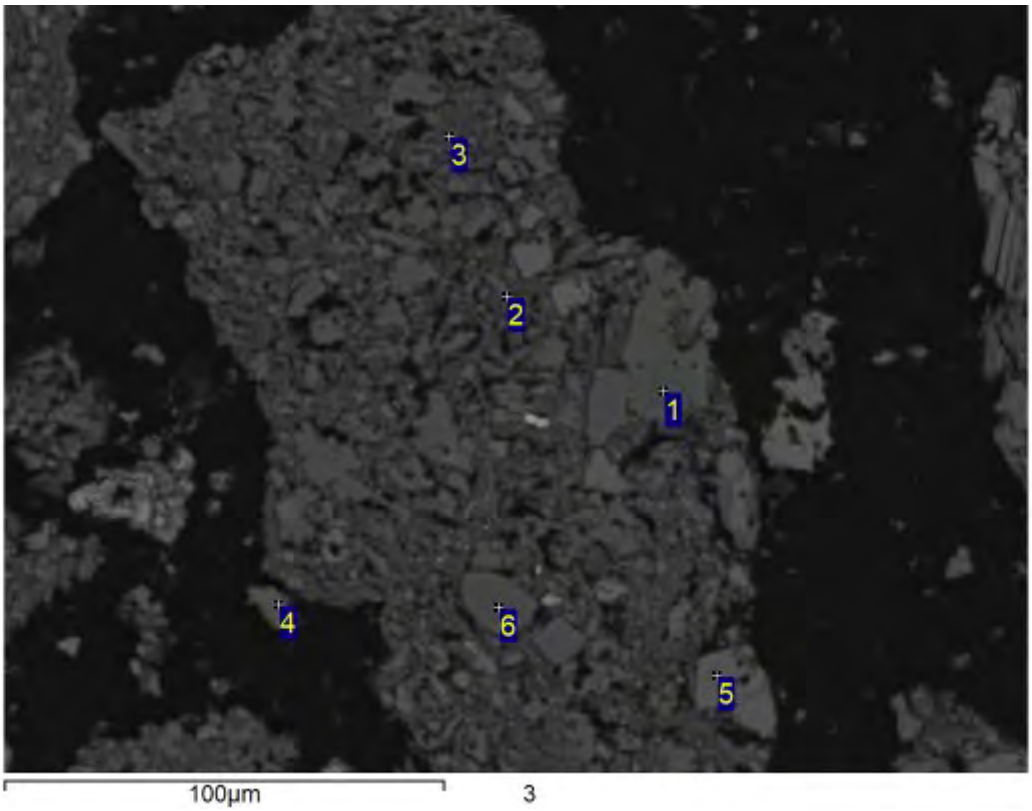


Processing option : All elements analysed (Normalised)

Spectrum	O	Mg	Al	Si	K	Ca	Fe	Total	Mineral ID
1	54.2	0.8				45.0		100.0	Calcite
2	45.9		9.1	31.9	13.1			100.0	K-Feldspar
3	41.2	2.9	7.7	37.5	8.9		1.7	100.0	K-Feldspar

All results in weight%

Sample Notes:
S-7677_6_DPT03AP3

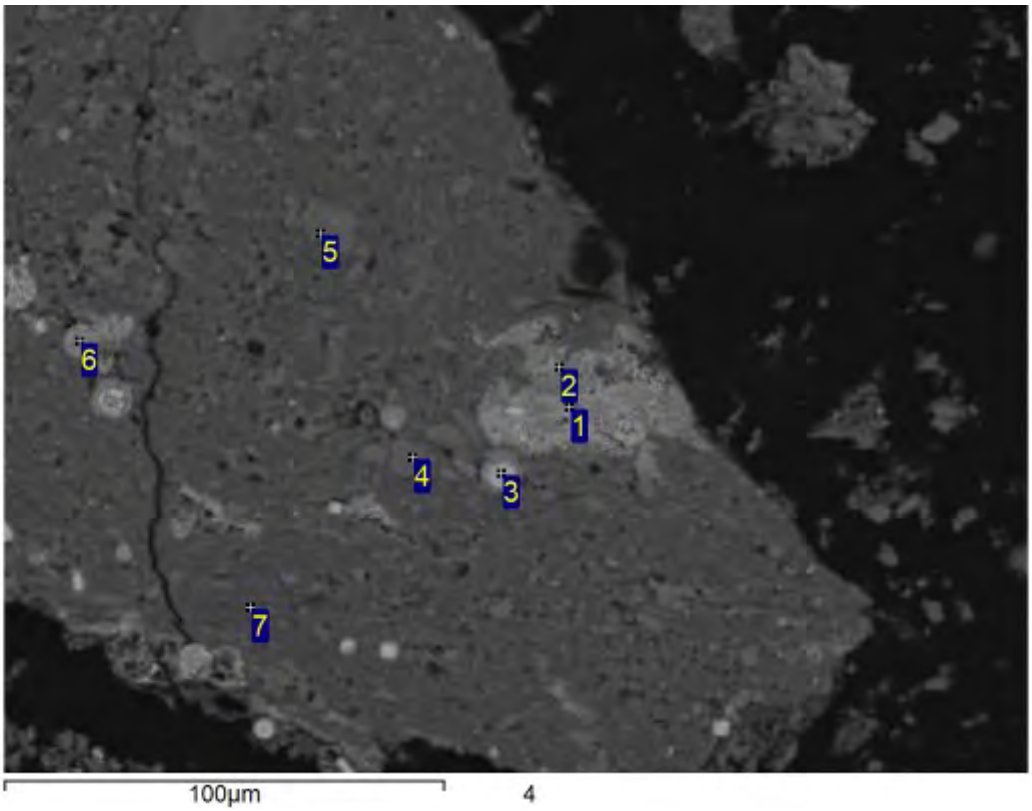


Processing option : All elements analysed (Normalised)

Spectrum	O	Mg	Al	Si	K	Ca	Ti	Fe	Total	Mineral ID
1	51.9			47.8		0.3			100.0	Quartz
2	45.4	2.2	8.7	34.8	6.0		0.6	2.3	100.0	Mica/K-Feldspar mixture
3	42.0	3.2	7.9	39.8	1.3	0.5	0.5	4.8	100.0	Mica/K-Feldspar mixture
4	44.9	0.6	9.0	32.7	12.8				100.0	K-Feldspar
5	45.2		9.5	32.0	13.4				100.0	K-Felspar
6	51.0			49.0					100.0	Quartz

All results in weight%

Sample Notes:
S-7677_6_DPT03AP3

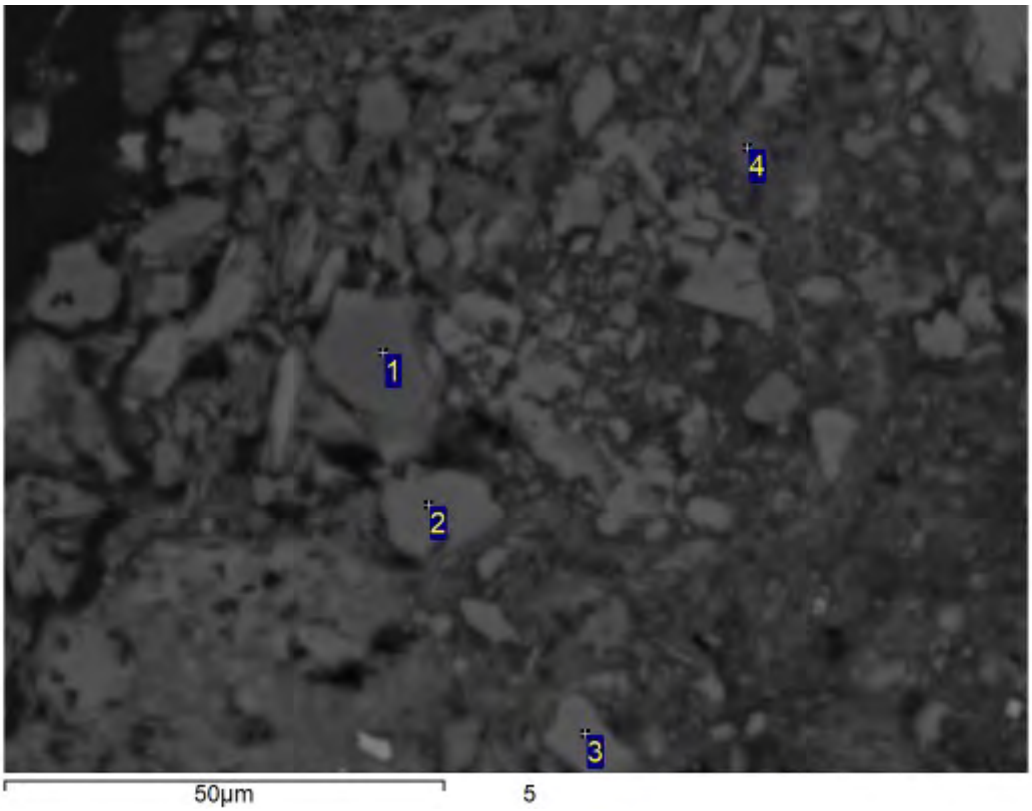


Processing option : All elements analysed (Normalised)

Spectrum	O	F	Na	Mg	Al	Si	P	K	Ca	Fe	Total	Mineral ID
1	45.0				5.6	19.7		7.4	0.6	21.5	100.0	Fe-Oxide/K-Feldspar mixture
2	37.0			6.2	2.8	12.8	0.5		1.3	39.5	100.0	Fe-Oxide/Clay mixture
3	35.4			1.1	0.9	4.8			1.1	56.7	100.0	Fe-Oxide/Oxyhydroxide
4	48.5			0.7	8.3	29.8		11.3	0.8	0.5	100.0	K-Feldspar
5	45.9		0.9	0.3	9.4	31.7		11.4		0.4	100.0	K-Feldspar
6	30.7			0.9	2.0	8.0	0.7	0.5	1.4	55.8	100.0	Fe-Oxide/Kaolinite mixture
7	48.6	1.9		8.9	6.1	27.7		3.8	0.4	2.7	100.0	Silicate mixture/Mica

All results in weight%

Sample Notes:
S-7677_6_DPT03AP3

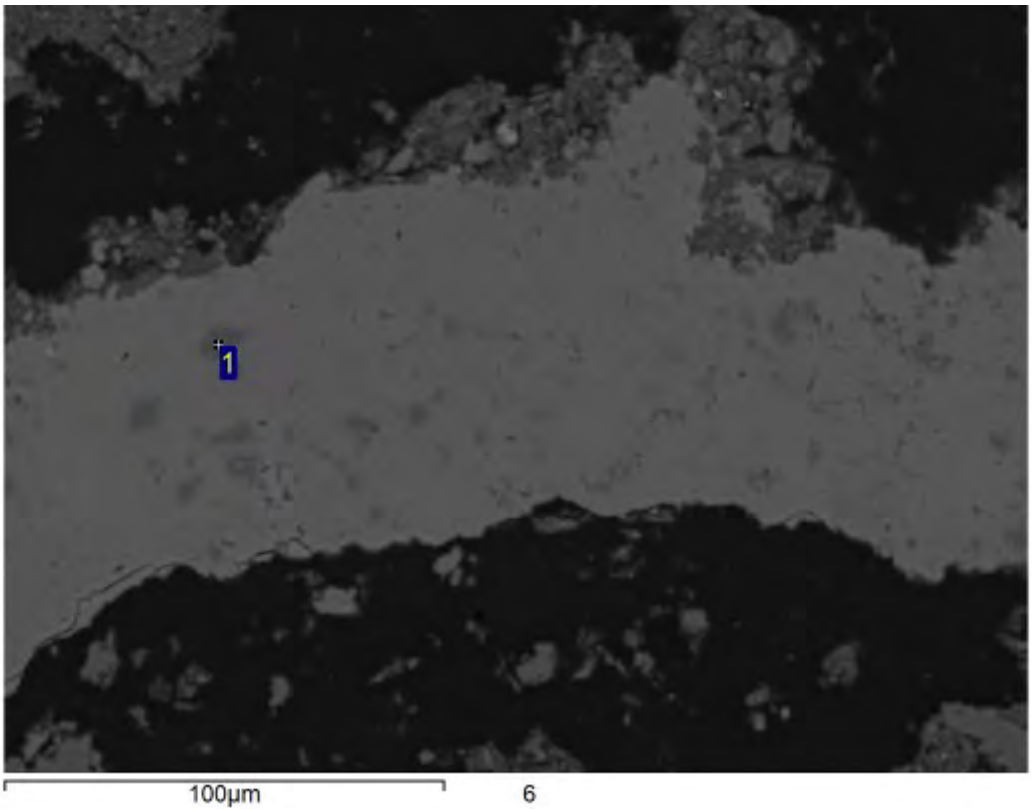


Processing option : All elements analysed (Normalised)

Spectrum	O	Mg	Al	Si	K	Fe	Total	Mineral ID
1	51.6			48.4			100.0	Quartz
2	44.3		9.4	32.4	13.9		100.0	K-Feldspar
3	47.8	11.5	10.8	15.0		14.9	100.0	Chlorite
4	44.5	1.8	3.5	46.5	1.9	1.7	100.0	Quartz

All results in weight%

Sample Notes:
S-7677_6_DPT03AP3

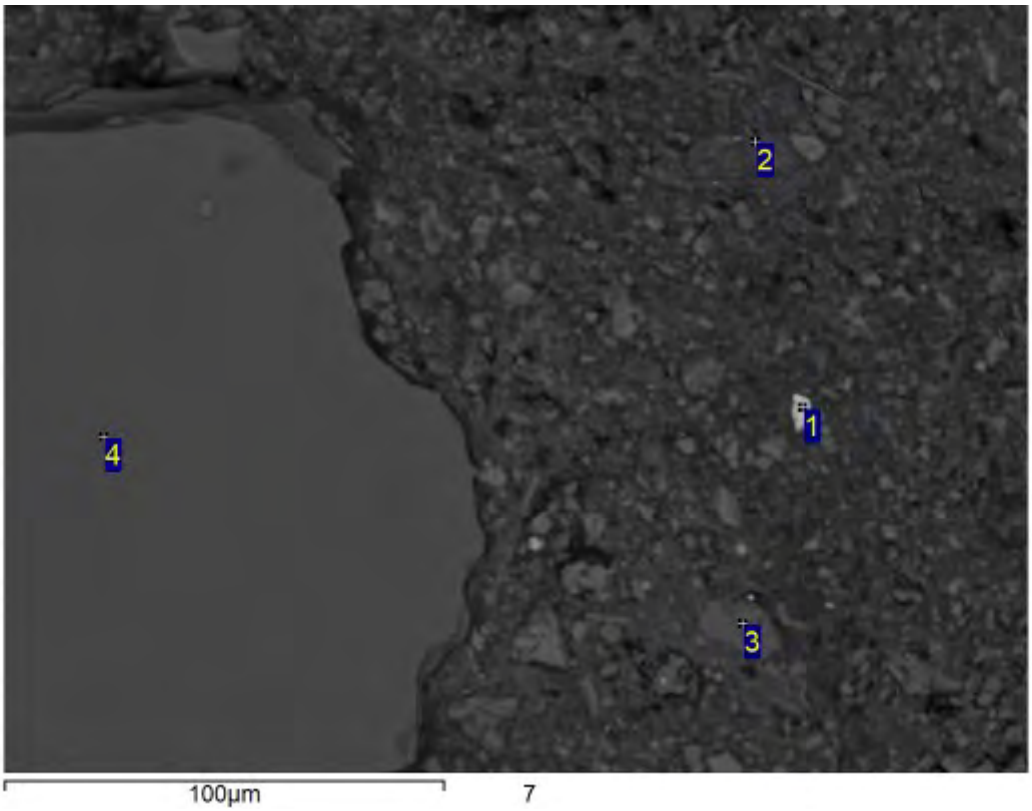


Processing option : All elements analysed (Normalised)

Spectrum	O	Si	Ca	Total	Mineral ID
1	51.5	47.9	0.7	100.0	Quartz

All results in weight%

Sample Notes:
S-7677_6_DPT03AP3

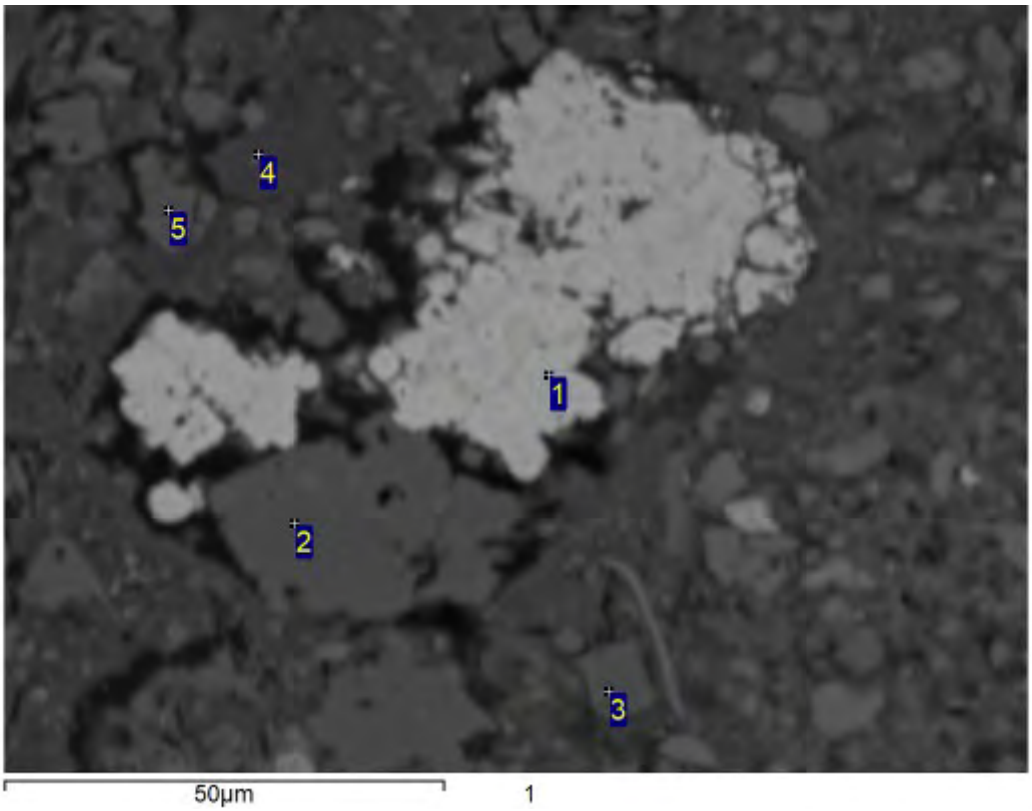


Processing option : All elements analysed (Normalised)

Spectrum	O	F	Mg	Al	Si	K	Ca	Ti	Fe	Zr	Total	Mineral ID
1	41.5			0.7	14.2		0.3		0.6	42.7	100.0	Zircon
2	47.6	2.6	5.7	11.1	26.1	2.8		1.0	3.1		100.0	Mica
3	52.8				47.2						100.0	Quartz
4	51.2				48.8						100.0	Quartz

All results in weight%

Sample Notes:
S-7677_7_DPT02AP3

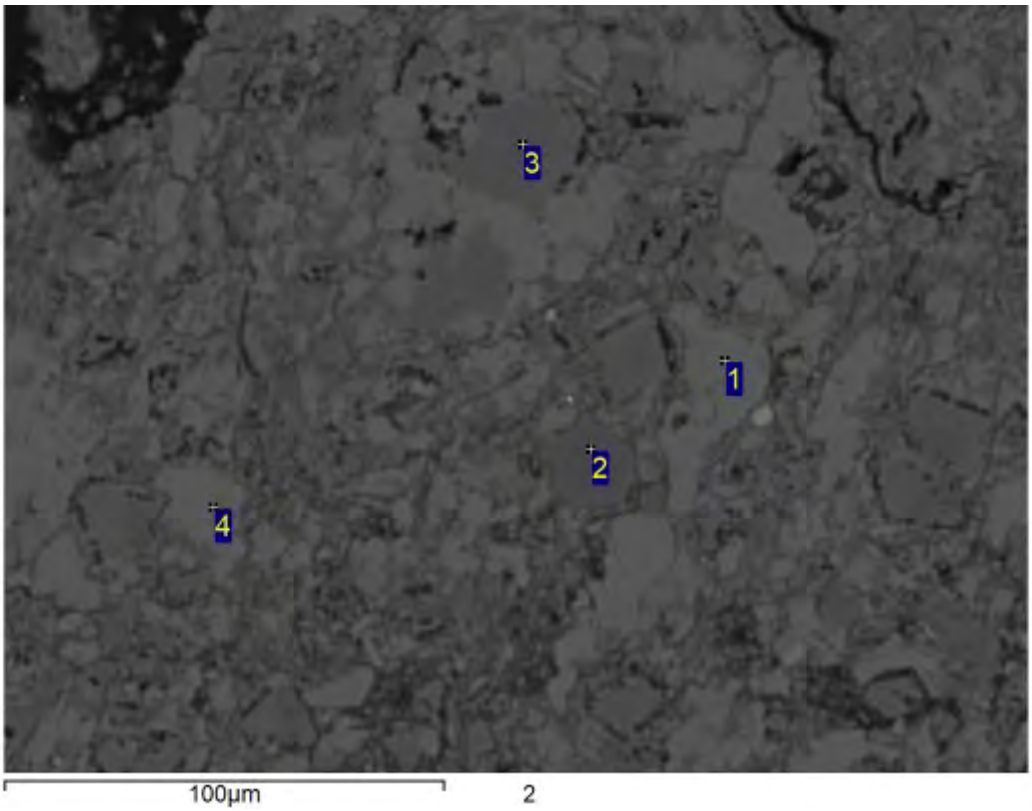


Processing option : All elements analysed (Normalised)

Spectrum	O	Mg	Al	Si	P	S	K	Ca	Ti	Fe	Total	Mineral ID
1	37.0		0.5	0.9	0.8			0.4		60.5	100.0	Fe-Oxide/Oxyhydroxide
2	52.0			46.9				0.7		0.4	100.0	Quartz
3	52.3		0.6	46.4						0.6	100.0	Quartz
4	44.4	1.4	14.7	28.1		1.3	2.1	0.4	0.4	7.0	100.0	Chlorite?
5	51.1	0.4		48.5							100.0	Quartz

All results in weight%

Sample Notes:
S-7677_7_DPT02AP3

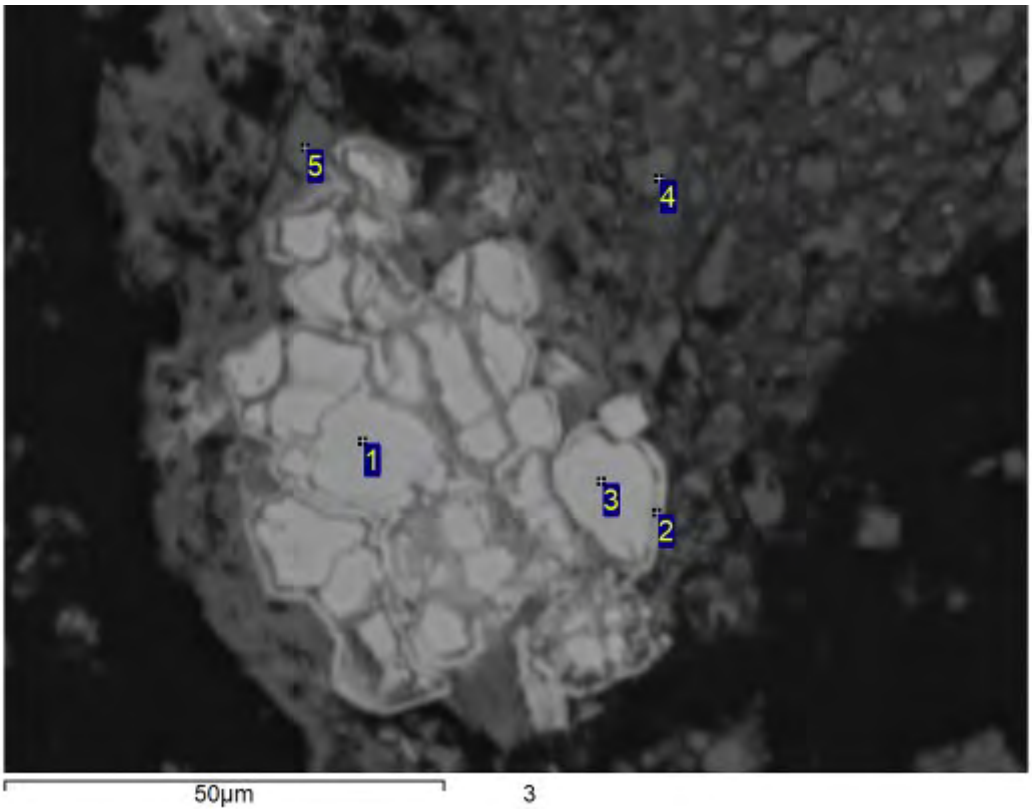


Processing option : All elements analysed (Normalised)

Spectrum	O	Mg	Si	Ca	Total	Mineral ID
1	52.9	0.7		46.4	100.0	Calcite
2	51.9		47.9	0.2	100.0	Quartz
3	56.9	13.8	0.4	28.9	100.0	Dolomite
4	55.1	0.6		44.2	100.0	Calcite

All results in weight%

Sample Notes:
S-7677_7_DPT02AP3

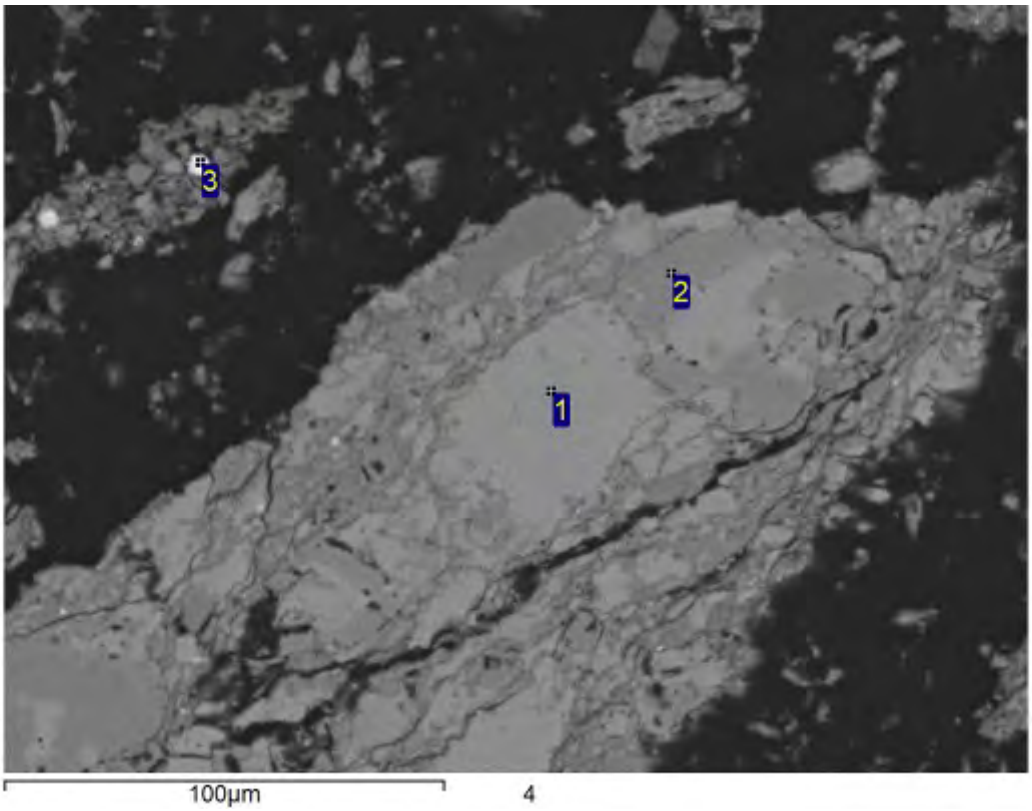


Processing option : All elements analysed (Normalised)

Spectrum	O	Mg	Al	Si	P	K	Ca	Fe	Total	Mineral ID
1	37.2			1.6	0.4		0.4	60.3	100.0	Fe-Oxide/Oxyhydroxide
2	40.4	0.8	0.6	5.6	0.5		1.0	51.2	100.0	Fe-Oxide/Oxyhydroxide
3	37.7			1.5	0.4		0.4	60.0	100.0	Fe-Oxide/Oxyhydroxide
4	45.4	0.7	8.7	32.5		11.8		0.9	100.0	K-Feldspar
5	45.7	0.6	8.6	31.0		11.5		2.5	100.0	K-Feldspar

All results in weight%

Sample Notes:
S-7677_7_DPT02AP3

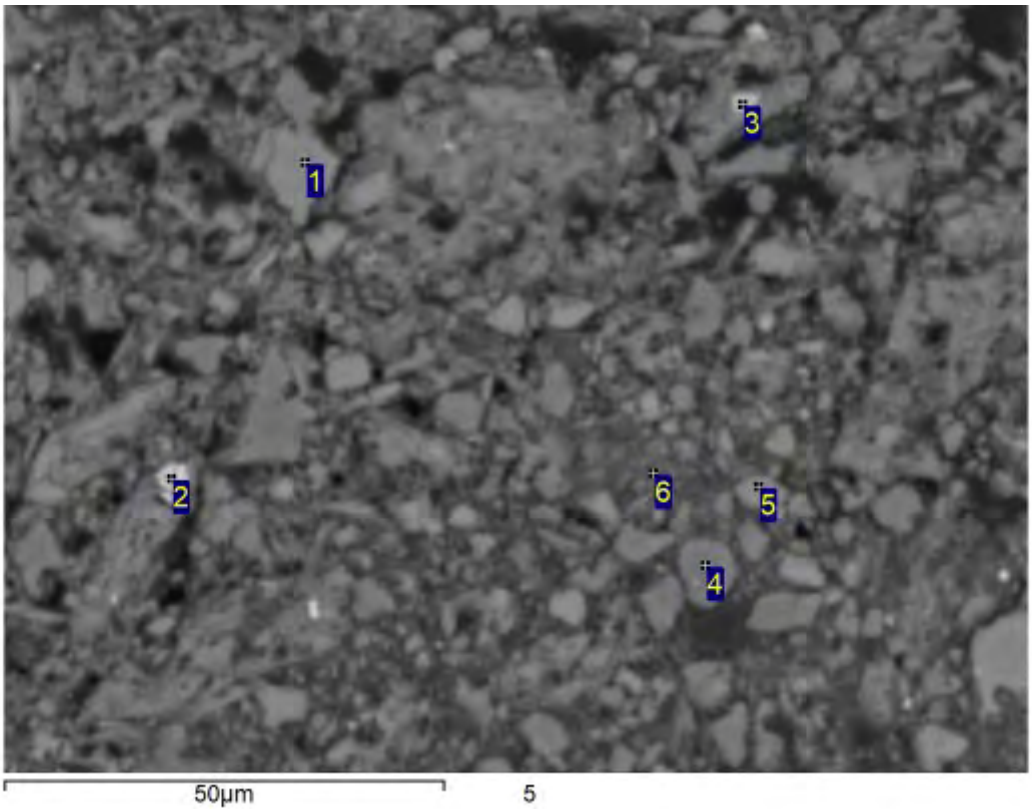


Processing option : All elements analysed (Normalised)

Spectrum	O	Mg	Al	Si	P	Ca	Fe	Total	Mineral ID
1	53.3	1.5		0.9		44.3		100.0	Calcite
2	56.2	13.7				28.8	1.3	100.0	Dolomite
3	38.8		1.7	5.9	1.0	0.4	52.2	100.0	Fe-Oxide/Oxyhydroxide

All results in weight%

Sample Notes:
S-7677_7_DPT02AP3

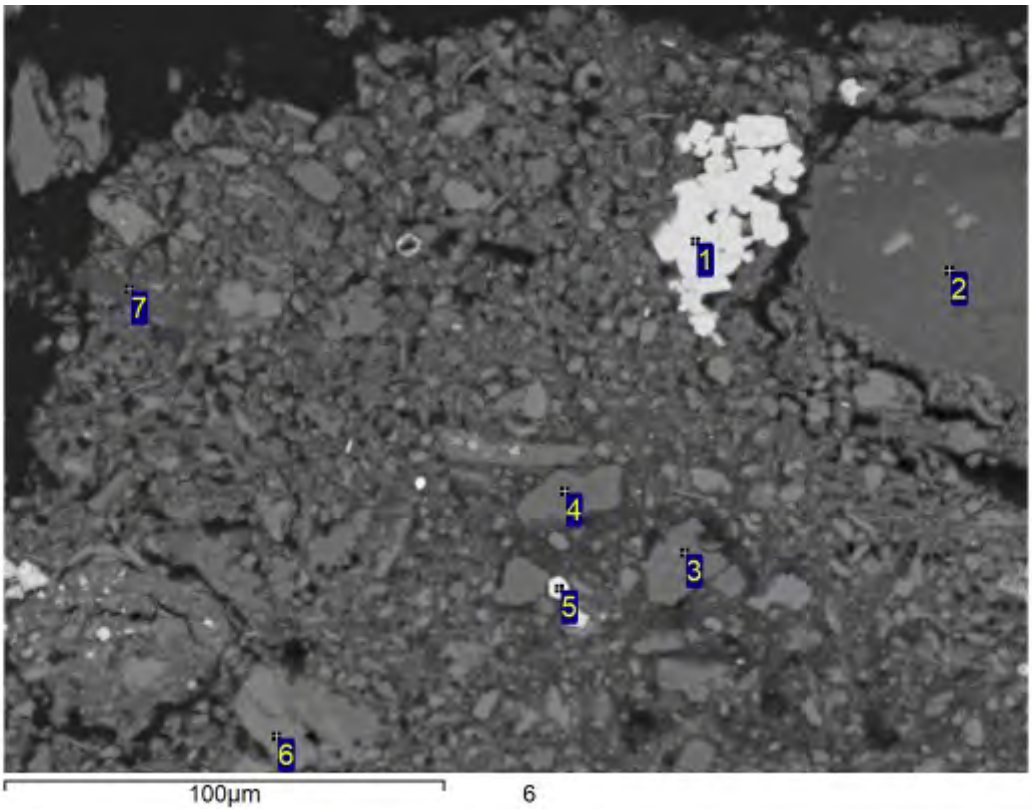


Processing option : All elements analysed (Normalised)

Spectrum	O	Na	Mg	Al	Si	Cl	K	Ca	Ti	Fe	Total	Mineral ID
1	46.6			9.6	31.5		12.3				100.0	K-Feldspar
2	47.8		4.1	6.8	32.0	0.5	4.8	1.3		2.9	100.0	Clay/Mica mixture
3	43.2		4.7	5.1	39.7		2.5	0.8		4.0	100.0	Clay/Mica mixture
4	30.7		4.8	4.4	51.5		4.0	0.9		3.7	100.0	Clay/Mica mixture
5	44.6		7.6	5.4	34.3		2.1	0.7		5.4	100.0	Clay/Mica mixture
6	43.0	3.6	3.6	8.4	33.4		4.1		0.5	3.3	100.0	Clay/Mica mixture

All results in weight%

Sample Notes:
S-7677_7_DPT02AP3

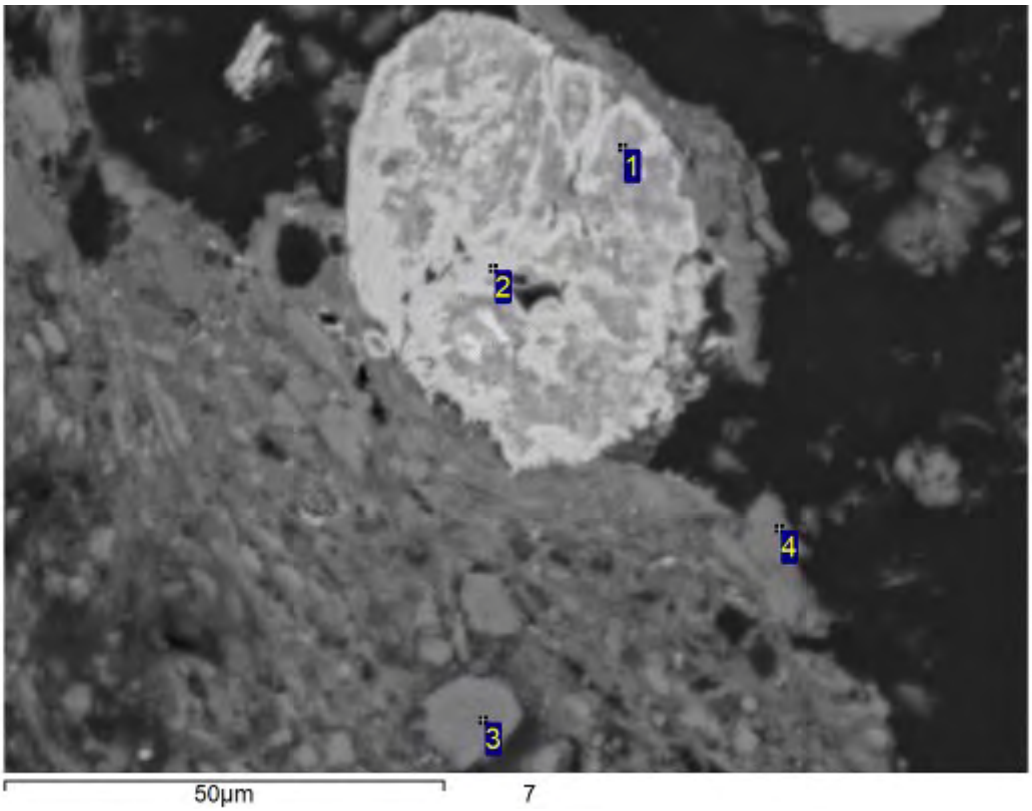


Processing option : All elements analysed (Normalised)

Spectrum	O	Mg	Al	Si	S	K	Ca	Ti	Fe	Total	Mineral ID
1	36.1			1.4					62.6	100.0	Fe-Oxide/Oxyhydroxide
2	45.2		16.1	28.1		1.5	0.6	0.6	7.9	100.0	Fe-Oxide/Oxyhydroxide /Kaolinite mixture
3	56.7			24.4			18.8			100.0	Wollastonite
4	52.0			48.0						100.0	Quartz
5				0.6	54.4				44.9	100.0	Pyrite
6	45.4		9.3	32.1		13.2				100.0	K-Feldspar
7	41.5	1.5	13.4	33.1		1.5	0.6		8.3	100.0	Fe-Oxide/Oxyhydroxide /Kaolinite mixture

All results in weight%

Sample Notes:
S-7677_7_DPT02AP3

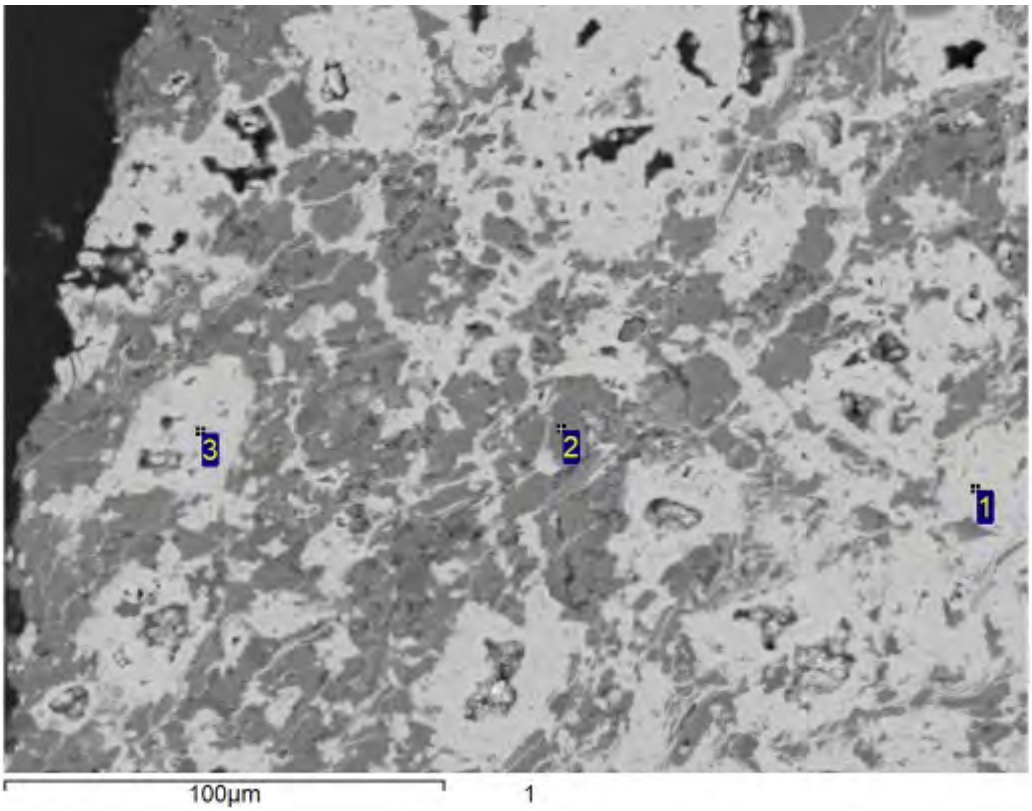


Processing option : All elements analysed (Normalised)

Spectrum	O	Al	Si	P	K	Ca	Fe	Total	Mineral ID
1	34.5	1.7	2.9	2.2		1.4	57.4	100.0	Fe-Oxide/Oxyhydroxide
2	41.7	2.2	2.4	1.1		0.4	52.1	100.0	Fe-Oxide/Oxyhydroxide
3	45.0	9.6	32.0		13.4			100.0	K-Feldspar
4	46.4	9.4	31.4		12.8			100.0	K-Feldspar

All results in weight%

Sample Notes:
S-7677_8_DPT04AP3

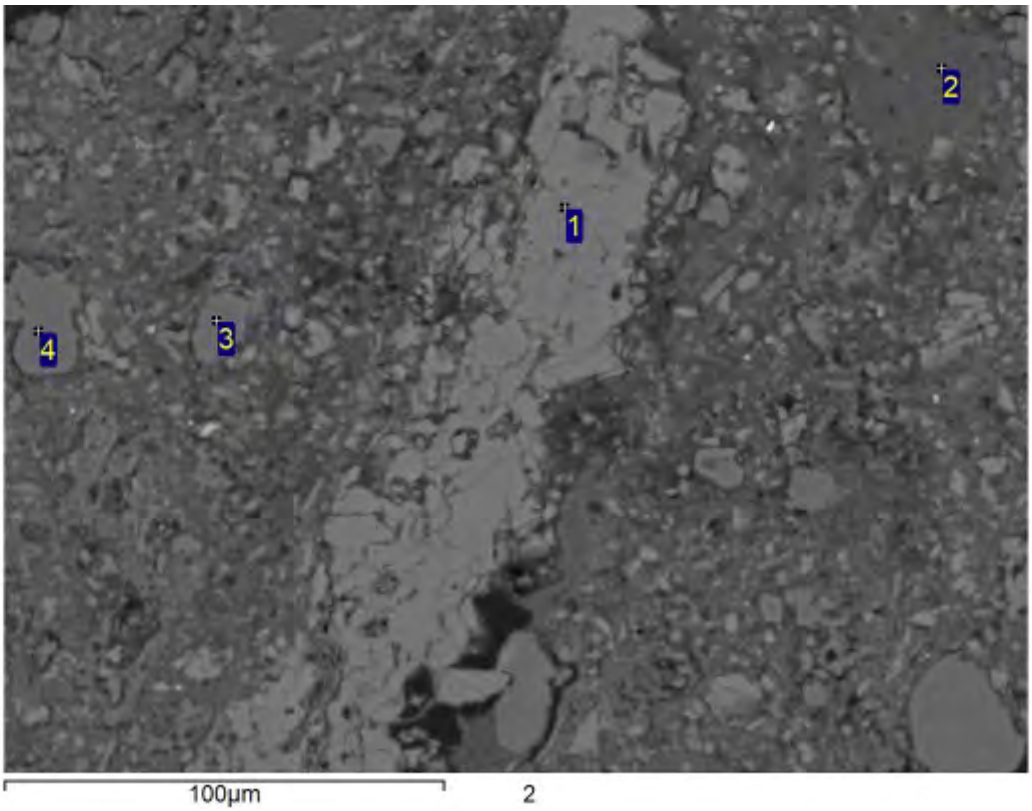


Processing option : All elements analysed (Normalised)

Spectrum	O	Al	Si	P	K	Fe	Total	Mineral ID
1	41.0		3.3	0.6		55.1	100.0	Fe-Oxide/Oxyhydroxide
2	46.6	8.6	30.7		13.0	1.1	100.0	K-Feldspar
3	40.6	1.1	3.0	0.9		54.4	100.0	Fe-Oxide/Oxyhydroxide

All results in weight%

Sample Notes:
S-7677_8_DPT04AP3

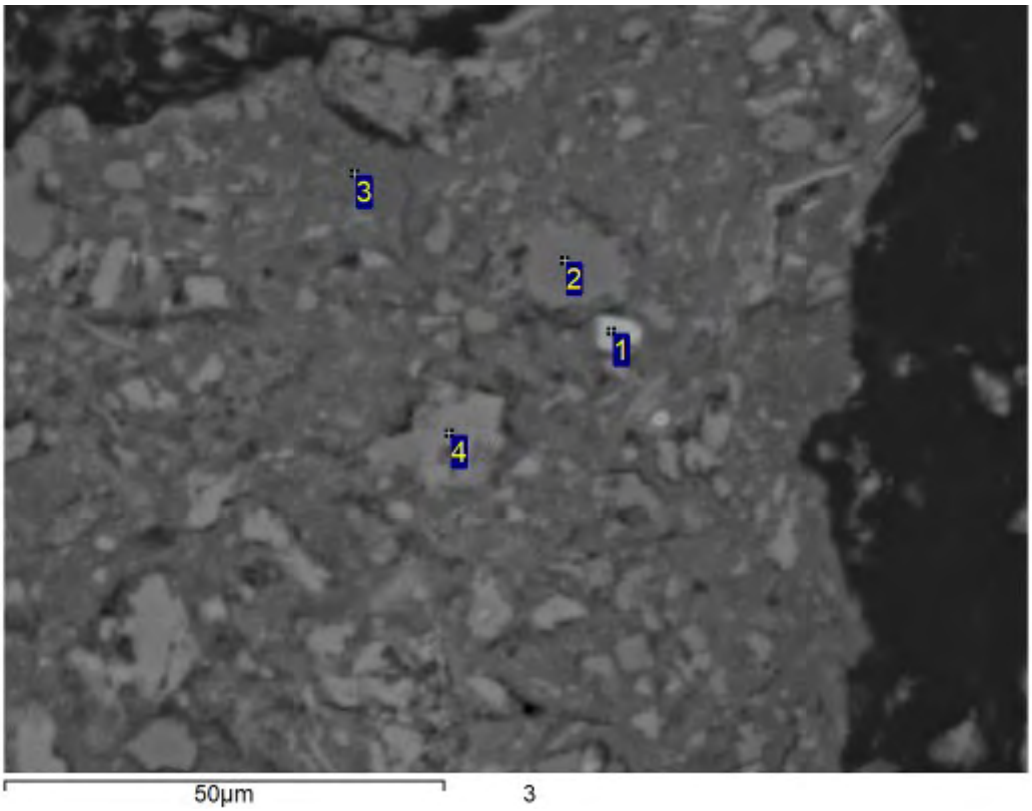


Processing option : All elements analysed (Normalised)

Spectrum	O	Mg	Al	Si	K	Fe	Total	Mineral ID
1	45.7		9.1	32.2	13.0		100.0	K-Feldspar
2	44.0	1.0	18.1	26.6	1.2	9.0	100.0	Fe-Oxide/Kaolinite mixture
3	51.5			48.5			100.0	Quartz
4	52.0		0.5	46.3	1.1		100.0	Quartz

All results in weight%

Sample Notes:
S-7677_8_DPT04AP3

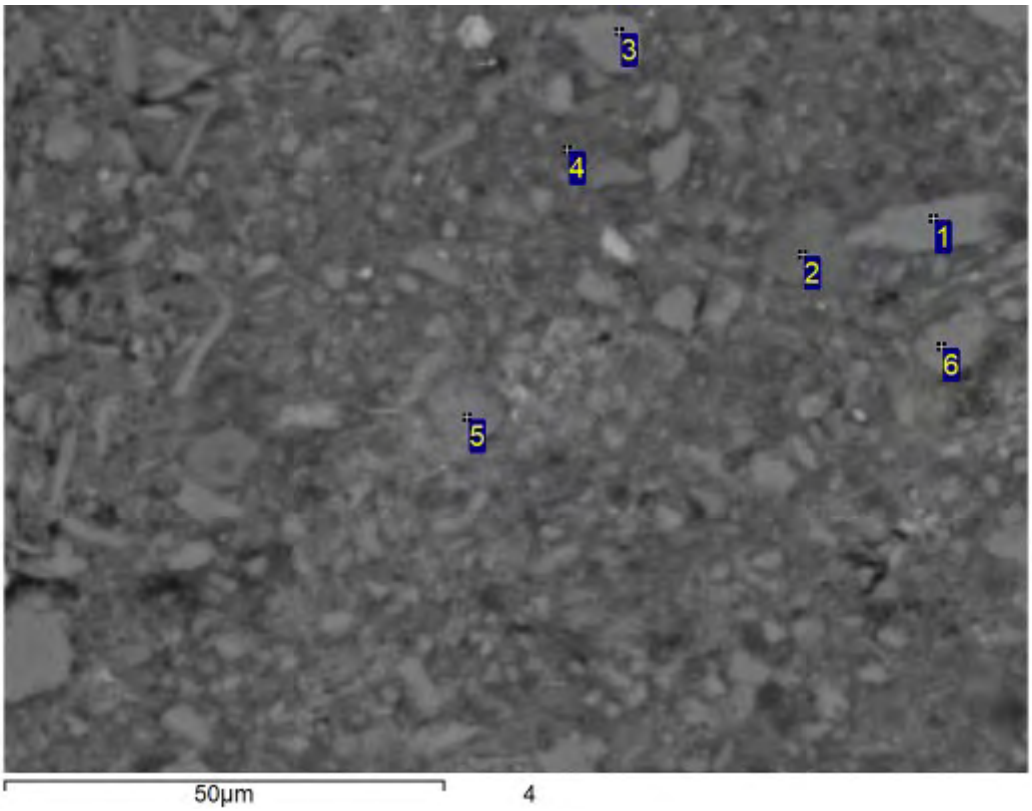


Processing option : All elements analysed (Normalised)

Spectrum	O	F	Mg	Al	Si	P	K	Ca	Ti	Fe	Total	Mineral ID
1	42.7	6.8		0.7	1.0	16.1		32.8			100.0	Apatite
2	52.2				47.8						100.0	Quartz
3	45.9		1.0	12.7	29.5		6.1		0.6	4.2	100.0	Mica
4	44.8			7.8	36.8		10.5				100.0	K-Feldspar

All results in weight%

Sample Notes:
S-7677_8_DPT04AP3

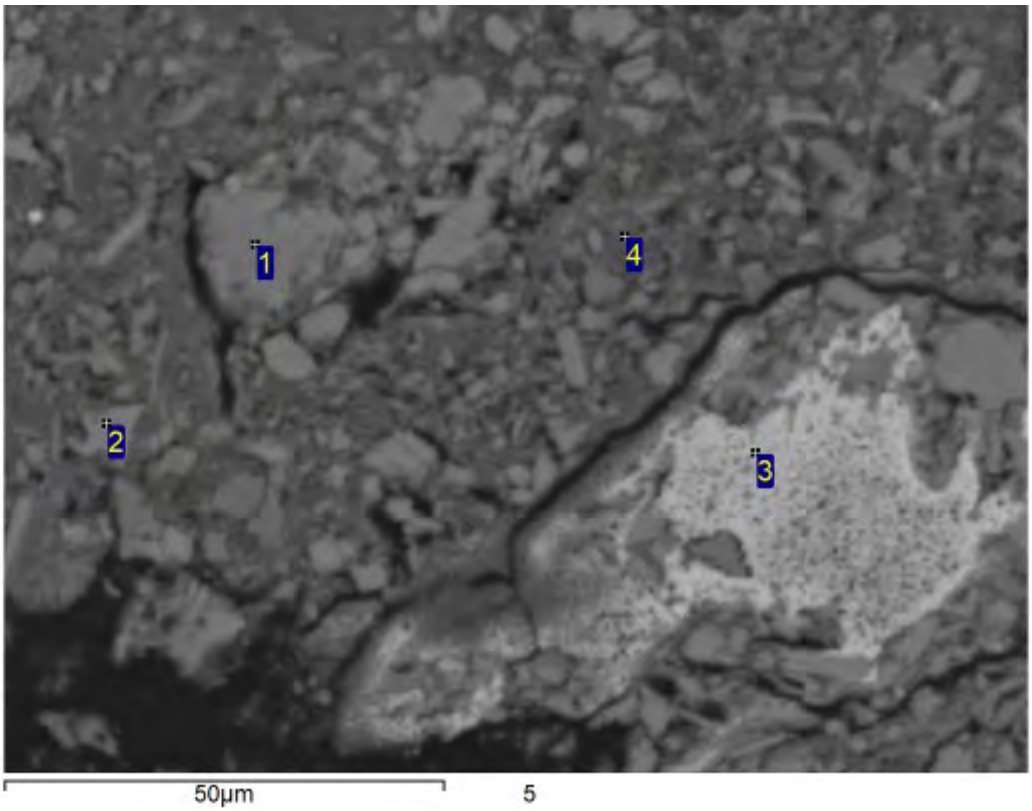


Processing option : All elements analysed (Normalised)

Spectrum	O	Mg	Al	Si	P	K	Ti	Fe	Total	Mineral ID
1	47.9		9.2	30.3		12.0		0.6	100.0	K-Feldspar
2	43.4	1.2	11.1	24.8		6.0	0.6	12.8	100.0	Fe-Oxide/K-Feldspar mixture
3	46.6		8.0	32.1		8.4		4.9	100.0	Mica
4	38.6	1.2	8.6	25.5		5.3	1.6	19.2	100.0	Fe-Oxide/K-Feldspar mixture
5	41.1	4.2	8.0	15.8	0.7	2.4	1.2	26.5	100.0	Fe-Oxide/K-Feldspar mixture
6	44.6		8.0	22.8		5.6	0.9	18.1	100.0	Fe-Oxide/K-Feldspar mixture

All results in weight%

Sample Notes:
S-7677_8_DPT04AP3

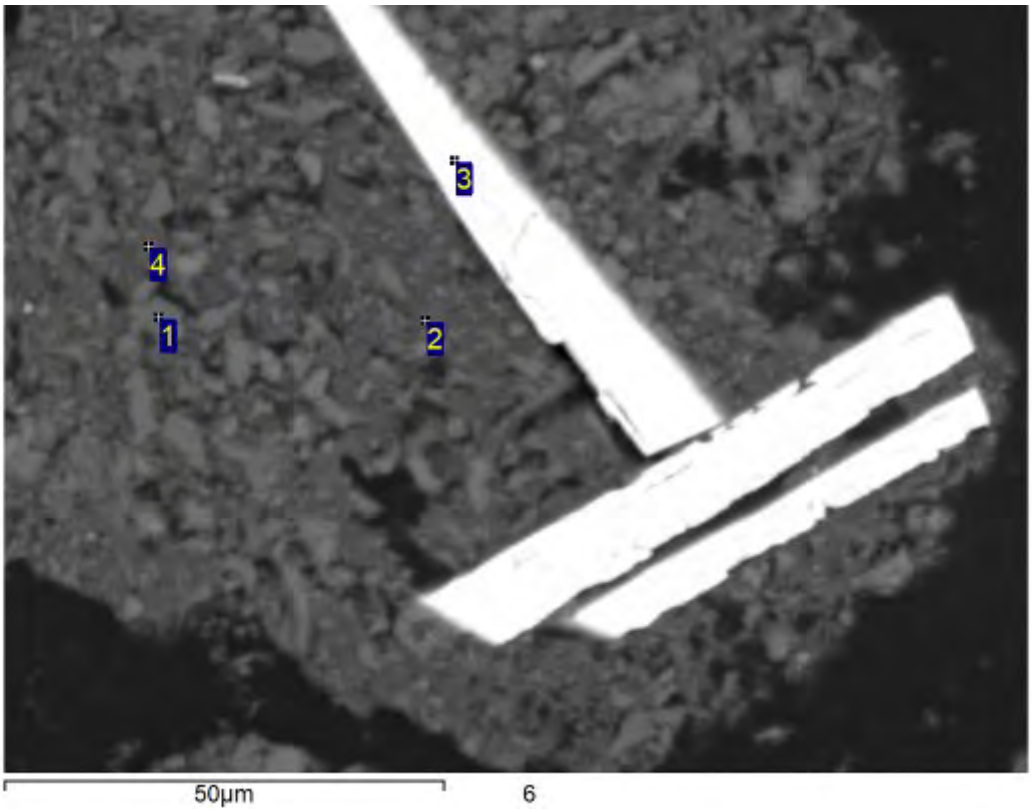


Processing option : All elements analysed (Normalised)

Spectrum	O	Na	Mg	Al	Si	P	K	Ca	Fe	Total	Mineral ID
1	44.8			9.3	32.7		13.3			100.0	K-Feldspar
2	47.6	1.5		9.6	30.9		10.5			100.0	K-Feldspar
3	39.4		0.6	3.9	4.3	1.2		0.4	50.1	100.0	Fe-Oxide/Oxyhydroxide
4	42.2		2.6	13.9	30.1		3.8		7.4	100.0	Mica?

All results in weight%

Sample Notes:
S-7677_8_DPT04AP3

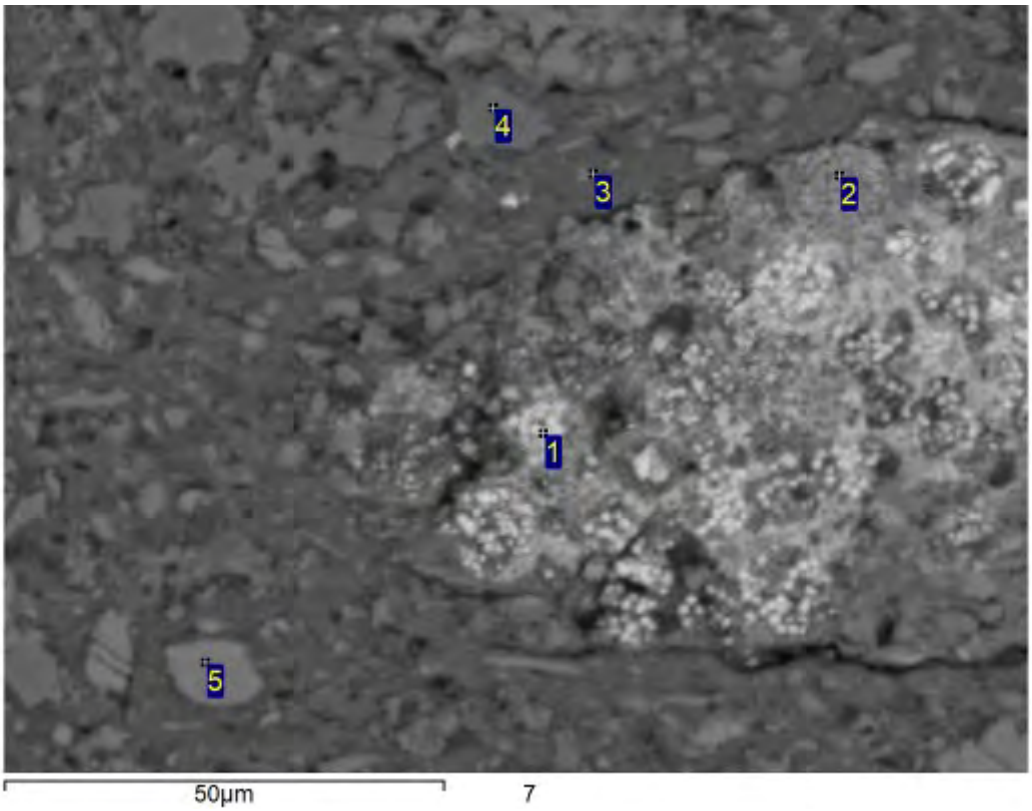


Processing option : All elements analysed (Normalised)

Spectrum	O	Mg	Al	Si	S	K	Fe	Sr	Ba	Total	Mineral ID
1	52.6			47.4						100.0	Quartz
2	46.1	1.2	11.9	31.4		5.7	3.6			100.0	Muscovite
3	25.7				14.5			2.0	57.9	100.0	Barite
4	43.3	1.0	9.8	38.4		2.1	5.4			100.0	Muscovite/Kaolinite

All results in weight%

Sample Notes:
S-7677_8_DPT04AP3



Processing option : All elements analysed (Normalised)

Spectrum	O	Mg	Al	Si	P	K	Ca	Fe	Total	Mineral ID
1	35.3		1.2	2.1	1.1			60.2	100.0	Fe-Oxide/Oxyhydroxide
2	32.3		2.8	12.0	1.9		1.4	49.7	100.0	Fe-Oxide/Kaolinite mixture
3	44.8	1.2	13.2	29.6		3.8		7.3	100.0	Fe-Oxide/K-Feldspar mixture
4	54.0			45.5				0.5	100.0	Quartz
5	46.0		9.4	31.9		12.7			100.0	K-Feldspar

All results in weight%

Analysis Report

GS21-00731

F402001 SGS LAKEFIELD RESEARCH
PO BOX 4300
185 CONCESSION STREET
LAKEFIELD, ONTARIO ON K0L 2H0
CANADA

Received: 31-Mar-2021
Completed: 29-Apr-2021
Order Reference: Kela Ashworth - S767 CEC

Laboratory ID:	GS21-00731.005
Client Sample #:	S-7677-5
Description:	S-7677_5_DPT01AP3
CEC Actual (meq/100g)	13.47

Report File Reference Number: 0000206187

NOTE:
The analysis report above refers to the time and place of testing, and strictly to the supplied sample(s) only, without reference to any other matter. This report does not evidence or refer to any consignment or shipment or/and SGS sampling and inspection.

Signed and dated in Guelph, ON
On 13-Jan-2022

For and on behalf of SGS Canada Inc., Agriculture and Food

Jack Legg, CCA-ON, 4R NMS
Branch Manager, Agronomist

Analysis Report

GS21-00731

F402001 SGS LAKEFIELD RESEARCH
PO BOX 4300
185 CONCESSION STREET
LAKEFIELD, ONTARIO ON K0L 2H0
CANADA

Received: 31-Mar-2021
Completed: 29-Apr-2021
Order Reference: Kela Ashworth - S767 CEC

Laboratory ID:	GS21-00731.006
Client Sample #:	S-7677-6
Description:	S-7677_6_DPT03AP3
CEC Actual (meq/100g)	18.13

Report File Reference Number: 0000206189

NOTE:
The analysis report above refers to the time and place of testing, and strictly to the supplied sample(s) only, without reference to any other matter. This report does not evidence or refer to any consignment or shipment or/and SGS sampling and inspection.

Signed and dated in Guelph, ON
On 13-Jan-2022

For and on behalf of SGS Canada Inc., Agriculture and Food

Jack Legg, CCA-ON, 4R NMS
Branch Manager, Agronomist

Analysis Report

GS21-00731

F402001 SGS LAKEFIELD RESEARCH
PO BOX 4300
185 CONCESSION STREET
LAKEFIELD, ONTARIO ON K0L 2H0
CANADA

Received: 31-Mar-2021
Completed: 29-Apr-2021
Order Reference: Kela Ashworth - S767 CEC

Laboratory ID:	GS21-00731.007
Client Sample #:	S-7677-7
Description:	S-7677_7_DPT02AP3
CEC Actual (meq/100g)	23.97

Report File Reference Number: 0000206191

NOTE:
The analysis report above refers to the time and place of testing, and strictly to the supplied sample(s) only, without reference to any other matter. This report does not evidence or refer to any consignment or shipment or/and SGS sampling and inspection.

Signed and dated in Guelph, ON
On 13-Jan-2022

For and on behalf of SGS Canada Inc., Agriculture and Food

Jack Legg, CCA-ON, 4R NMS
Branch Manager, Agronomist

Analysis Report

GS21-00731

F402001 SGS LAKEFIELD RESEARCH
PO BOX 4300
185 CONCESSION STREET
LAKEFIELD, ONTARIO ON K0L 2H0
CANADA

Received: 31-Mar-2021
Completed: 29-Apr-2021
Order Reference: Kela Ashworth - S767 CEC

Laboratory ID:	GS21-00731.008
Client Sample #:	S-7677-8
Description:	S-7677_8_DPT04AP3
CEC Actual (meq/100g)	41.80

Report File Reference Number: 0000206193

NOTE:
The analysis report above refers to the time and place of testing, and strictly to the supplied sample(s) only, without reference to any other matter. This report does not evidence or refer to any consignment or shipment or/and SGS sampling and inspection.

Signed and dated in Guelph, ON
On 13-Jan-2022

For and on behalf of SGS Canada Inc., Agriculture and Food

Jack Legg, CCA-ON, 4R NMS
Branch Manager, Agronomist

Specialty Analytical

9011 SE Jannsen Rd
Clackamas, OR 97015
TEL: (503) 607-1331
Website: www.specialtyanalytical.com

January 25, 2022

Kela Ashworth
SiREM Lab
130 Stone Road West
Guelph, Ontario N1G3Z2
TEL: (519) 822-2265
FAX:

RE: S-7677 Order No.: 2201249

Dear Kela Ashworth:

There were no problems with the analysis and all data for associated QC met EPA or laboratory specifications, except where noted in the Case Narrative, or as qualified with flags. Results apply only to the samples analyzed. Without approval of the laboratory, the reproduction of this report is only permitted in its entirety.

If you have any questions regarding these tests, please feel free to call.

Sincerely,

Marty French
Lab Director

CLIENT: SiREM Lab
Project: S-7677

Lab ID: 2201249-001 **Matrix:** SOIL
Client Sample ID S-7677_5_DPT01AP3 **Collection Date:** 3/25/2021

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ANION EXCHANGE CAPACITY				**SW9081**		Analyst: **EG**
Anion Exchange Capacity	6.76	0.000200		meq/100g	1	4/1/2021 10:43:06 AM

Lab ID: 2201249-002 **Matrix:** SOIL
Client Sample ID S-7677_6_DPT03AP3 **Collection Date:** 3/25/2021

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ANION EXCHANGE CAPACITY				**SW9081**		Analyst: **EG**
Anion Exchange Capacity	7.16	0.000200		meq/100g	1	4/1/2021 10:44:06 AM

Lab ID: 2201249-003 **Matrix:** SOIL
Client Sample ID S-7677_7_DPT02AP3 **Collection Date:** 3/25/2021

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ANION EXCHANGE CAPACITY				**SW9081**		Analyst: **EG**
Anion Exchange Capacity	7.18	0.000200		meq/100g	1	4/1/2021 10:45:06 AM

Lab ID: 2201249-004 **Matrix:** SOIL
Client Sample ID S-7677_8_DPT04AP3 **Collection Date:** 3/25/2021

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ANION EXCHANGE CAPACITY				**SW9081**		Analyst: **EG**
Anion Exchange Capacity	7.65	0.000200		meq/100g	1	4/1/2021 10:46:06 AM

Qualifiers: H Holding times for preparation or analysis exceeded

QC SUMMARY REPORT

Specialty Analytical

WO#: **2201249**

1/25/2022

Client: SiREM Lab

Project: S-7677 **TestCode:** **AEC_S**

Sample ID: **2201248-003ADUP** SampType: **DUP** TestCode: **AEC_S** Units: **meq/100g** Prep Date: RunNo: **39875**

Client ID: **BatchQC** Batch ID: **R39875** TestNo: **SW9081** Analysis Date: **4/1/2021** SeqNo: **513304**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Anion Exchange Capacity	7.21	0.000200						6.836	5.36	20	

Qualifiers: H Holding times for preparation or analysis exceeded

Specialty Analytical
9011 SE Jannsen Rd
Clackamas, Oregon 97015
TEL: 503-607-1331 FAX: 503-607-1336
Website: www.specialtyanalytical.com

Sample Receipt Checklist

Client Name SIREM Work Order Number 2201249

RcptNo: 1 Date and Time Received 3/29/2021 9:10:00 AM Received by: Katherine Lynch

Completed by Reviewed by:

Completed Date: 1/25/2022 11:12:15 AM Reviewed Date: 1/25/2022 11:12:18 AM

Carrier name: FedEx

Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	Not Present ☐
Are matrices correctly identified on Chain of custody?	Yes ☑	No ☐	
Is it clear what analyses were requested?	Yes ☑	No ☐	
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Samples in proper container/bottle?	Yes ☑	No ☐	
Were correct preservatives used and noted?	Yes ☑	No ☐	NA ☐
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
Were container lables complete (ID, Pres, Date)?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
All samples received at a temp. of > 0° C to 6.0° C?	Yes ☐	No ☑	NA ☐
Response when temperature is outside of range:	Approved by client.		
Preservative added to bottles:			
Sample Temp. taken and recorded upon receipt?	Yes ☑	No ☐	To 10.1 ºC
Water - Were bubbles absent in VOC vials?	Yes ☐	No ☐	No Vials ☑
Water - Was there Chlorine Present?	Yes ☐	No ☐	NA ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	NA ☑
Are Samples considered acceptable?	Yes ☑	No ☐	
Custody Seals present?	Yes ☐	No ☑	
Traffic Report or Packing Lists present?	Yes ☐	No ☑	
Airbill or Sticker?	Air Bill ☐	Sticker ☐	Not Present ☑
Airbill No:			
Sample Tags Present?	Yes ☐	No ☑	
Sample Tags Listed on COC?	Yes ☐	No ☑	
Tag Numbers:			
Sample Condition?	Intact ☑	Broken ☐	Leaking ☐

Case Number: SDG: SAS:

Adjusted? _____ Checked by

Any No and/or NA (not applicable) response must be detailed in the comments section be

Specialty Analytical
9011 SE Jannsen Rd
Clackamas, Oregon 97015
TEL: 503-607-1331 FAX: 503-607-1336
Website: www.specialtyanalytical.com

Sample Receipt Checklist

Client Contacted? ☐ Yes ☑ No ☐ NA Person Contacted:

Contact Mode: ☐ Phone: ☐ Fax: ☐ Email: ☐ In Person:

Client Instructions:

Date Contacted: Contacted By:

Regarding:

CorrectiveAction:

Comments:
Job split 1/25/22 at client request.

Specialty Analytical
9011 SE Jannsen Rd
Clackamas, OR 97015
Phone: 503-607-1331
Fax: 503-607-1336

Chain of Custody Record

Date: | Page: 1 of: 1 | Laboratory Project No (internal): 2103288

Project Name: | Temperature on Receipt: 10.1 °C

Client: SiREM Lab | Project No: S-7677 PO No: | Cooling: Yes Cooler + Ice | Shipped Via: FedEx

Address: 130 Stone Road West | Collected by: Kela Ashworth | Custody Seal: Y / (N) Intact / Broken Cooler / Bottle

City, State, Zip: Guelph, Ontario, N1G 3Z2 | State Collected: OR [ ] WA [ ] OTHER | MDL [ ] TIER IV [ ] EDD [ ]

Telephone: 519-822-2265 | Report To (PM): Kela Ashworth | Sample Disposal: [ ] Return to client [X] Disposal by lab (after 60 days)

AP Email: accountspayablecan@siremlab.com | PM Email: kashworth@siremlab.com

Sample Name	Sample Date	Sample Time	Sample Matrix*	# of Containers	Requested Tests: Anion Exchange Capacity										Anion Exchange Capacity		Comments
1 S-7677_1_DPT07AP1	25-Mar-21		S	1	✓												
2 S-7677_2_DPT11AP2	25-Mar-21		S	1	✓												
3 S-7677_3_DPT08AP2	25-Mar-21		S	1	✓												
4 S-7677_4_DPT07AP2	25-Mar-21		S	1	✓												
5 S-7677_5_DPT01AP3	25-Mar-21		S	1	✓												
6 S-7677_6_DPT03AP3	25-Mar-21		S	1	✓												
7 S-7677_7_DPT02AP3	25-Mar-21		S	1	✓												
8 S-7677_8_DPT04AP3	25-Mar-21		S	1	✓												
9 S-7677_9_DPT09AP2	25-Mar-21		S	1	✓												
10 S-7677_10_DPT10AP2	25-Mar-21		S	1	✓												

*Matrix: A = Air, AQ = Aqueous, L = Liquid, O = Oil, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water, M = Miscellaneous

Turn-around Time: Standard (5-7 Business): ✓ 3 Day: [ ] 2 Day: [ ] Next Day: [ ] Same Day: [ ]

Expedited turn-around requests should be coordinated in advance

Relinquished	Date/Time	Received	Date/Time
x Kela Ashworth	25 March 21 / 16:30	x	3-29-2021 9:10
x		x	
x		x	

Specialty Analytical
9011 SE Jannsen Ra
Clackamas, Oregon 97015
TEL: 503-607-1331 FAX: 503-607-133€
Website: www.specialtyanalytical.com

Definition Only

WO#: **2201249**
Date: **1/25/2022**

Definitions:

KEY TO FLAGS

A: This sample contains a Gasoline Range Organic not identified as a specific hydrocarbon product. The result was qualified against gasoline calibration standards.

A1: This sample contains a Diesel Range Organic not identified as a specific hydrocarbon product. The result was qualified against diesel calibration standards.

A2: This sample contains a Lube Oil Range Organic not identified as a specific hydrocarbon product. The result was qualified against lube oil calibration standards.

A3: The results was determined to be Non-Detect based on hydrocarbon pattern recognition. The product was carry-over from another hydrocarbon type.

A4: The product appears to be aged or degraded.

B: The blank exhibited a positive result greater than the reporting limit for this compound.

CN: See Case Narrative.

E: Result exceeds the calibration range for this compound. The result should be considered an estimate.

F: The positive result for this hydrocarbon is due to single component contamination. The product does not match any hydrocarbon in the fuels library.

FS: Follow-up testing is suggested.

G: Result may be biased high due to biogenic interferences. Clean up is recommended.

H: Sample was analyzed outside recommended holding time.

HT: At client's request, samples was analyzed outside of recommended holding time.

HP: Sample was analyzed outside recommended holding time due to VOA having pH >2.

J: The results for this analyte is between the MDL and the PQL and should be considered an

Definitions:

estimated concentration.

K: Diesel result is biased high due to amount of Oil contained in the sample.

L: Diesel result is biased high due to amount of Gasoline contained in the sample.

M: Oil result is biased high due to amount of Diesel contained in the sample.

N: Gasoline result is biased high due to amount of Diesel contained in the sample.

MC: Sample concentration is greater than 4x the spiked value, the spiked value is considered insignificant.

MI: Result is outside control limits due to matrix interference.

NH: Sample matrix is non-homogeneous

MSA: Value determined by Method of Standard Addition.

O: Laboratory Control Standard (LCS) exceeded laboratory control limits but meets CCV criteria. Data meets EPA requirements.

Q: Detection levels elevated due to sample matrix.

R: RPD control limits were exceeded

RF: Duplicate failed due to result being at or near the method-reporting limit.

RP: Matrix spike values exceed established QC limits; post digestion spike is in control.

S: Recovery is outside control limits.

SC: CCV or LCS exceeded high recovery control limits, but associated samples are non-detect. Data meets EPA requirements.

SL: LCS exceeded recovery control limits, but associated MS/MSD passing. Data meets EPA requirements.

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
Tel: (865)291-3000

Laboratory Job ID: 140-22793-2
Client Project/Site: S-7677 SiREMNA

For:
Sirem, div of Geosyntec Consultants
130 Stone Rd West
Guelph, Ontario N1G 3Z2

Attn: Kela Ashworth

Ryan Henry

Authorized for release by:
7/14/2021 4:38:12 PM

Ryan Henry, Project Manager I
(865)291-3000
williamr.henry@eurofinset.com

Table of Contents

Definitions/Glossary

Client: Sirem, div of Geosyntec Consultants
Job ID: 140-22793-2
Project/Site: S-7677 SiREMNA

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 140-22793-2

Laboratory: Eurofins TestAmerica, Knoxville

Narrative

Job Narrative
140-22793-2

Receipt
The samples were received on 4/22/2021 at 10:30am and arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 9.6º C.

Receipt Exceptions
The following samples were received at the laboratory outside the required temperature criteria: S-7677_5_DPT01AP3 (140-22793-4), S-7677_6_DPT03AP3 (140-22793-5) and S-7677_7_DPT02AP3 (140-22793-6). The client was contacted regarding this issue, and the laboratory was instructed to proceed with analysis.

Metals
7 Step Sequential Extraction Procedure

These soil samples were prepared and analyzed using Eurofins TestAmerica Knoxville standard operating procedure KNOX-MT-0008, "7 Step Sequential Extraction Procedure". SW-846 Method 6010B as incorporated in Eurofins TestAmerica Knoxville standard operating procedure KNOX-MT-0007 was used to perform the final instrument analyses.

An aliquot of each sample was sequentially extracted using the steps listed below:

· Step 1 - Exchangeable Fraction: A 5 gram aliquot of sample was extracted with 25 mL of 1M magnesium sulfate (MgSO4), centrifuged and filtered. 5 mL of the resulting leachate was digested using method 3010A and analyzed by method 6010B. Results are reported in mg/kg on a dry weight basis.
· Step 2 - Carbonate Fraction: The sample residue from step 1 was extracted with 25 mL of 1M sodium acetate/acetic acid (NaOAc/HOAc) at pH 5, centrifuged and filtered. 5 mL of the resulting leachate was digested using method 3010A and analyzed by method 6010B. Results are reported in mg/kg on a dry weight basis.
· Step 3 - Non-crystalline Materials Fraction: The sample residue from step 2 was extracted with 25 mL of 0.2M ammonium oxalate (pH 3), centrifuged and filtered. 5 mL of the resulting leachate was digested using method 3010A and analyzed by method 6010B. Results are reported in mg/kg on a dry weight basis.
· Step 4 - Metal Hydroxide Fraction: The sample residue from step 3 was extracted with 25 mL of 1M hydroxylamine hydrochloride solution in 25% v/v acetic acid, centrifuged and filtered. 5 mL of the resulting leachate was digested using method 3010A and analyzed by method 6010B. Results are reported in mg/kg on a dry weight basis.
· Step 5 - Organic-bound Fraction: The sample residue from step 4 was extracted three times with 25 mL of 5% sodium hypochlorite (NaClO) at pH 9.5, centrifuged and filtered. The resulting leachates were combined and 5 mL were digested using method 3010A and analyzed by method 6010B. Results are reported in mg/kg on a dry weight basis.
· Step 6 - Acid/Sulfide Fraction: The sample residue from step 5 was extracted with 25 mL of a 3:1:2 v/v solution of HCl-HNO3-H2O, centrifuged and filtered. 5 mL of the resulting leachate was diluted to 50 mL with reagent water and analyzed by method 6010B. Results are reported in mg/kg on a dry weight basis.
· Step 7 - Residual Fraction: A 1.0 g aliquot of the sample residue from step 6 was digested using HF, HNO3, HCl and H3BO3. The digestate was analyzed by ICP using method 6010B. Results are reported in mg/kg on a dry weight basis.

In addition, a 1.0 g aliquot of the original sample was digested using HF, HNO3, HCl and H3BO3. The digestate was analyzed by ICP using method 6010B. Total metal results are reported in mg/kg on a dry weight basis.

Results were calculated using the following equation:

Result, µg/g or mg/Kg, dry weight = (C × V × V1 × D) / (W × S × V2)

Where:
C = Concentration from instrument readout, µg/mL
V = Final volume of digestate, mL
D = Instrument dilution factor
V1 = Total volume of leachate, mL

Job ID: 140-22793-2 (Continued)

Laboratory: Eurofins TestAmerica, Knoxville (Continued)

V2 = Volume of leachate digested, mL
W = Wet weight of sample, g
S = Percent solids/100

A method blank, laboratory control sample and laboratory control sample duplicate were prepared and analyzed with each SEP step in order to provide information about both the presence of elements of interest in the extraction solutions, and the recovery of elements of interest from the extraction solutions. Results outside of laboratory QC limits do not reflect out of control performance, but rather the effect of the extraction solution upon the analyte.

A laboratory sample duplicate was prepared and analyzed with each batch of samples in order to provide information regarding the reproducibility of the procedure.

SEP Report Notes:

The final report lists the results for each step, the result for the total digestion of the sample, and a sum of the results of steps 1 through 7 by element.

Magnesium was not reported for step 1 because the extraction solution for this step (magnesium sulfate) contains high levels of magnesium. Sodium was not reported for steps 2 and 5 since the extraction solutions for these steps contain high levels of sodium. The sum of steps 1 through 7 is much higher than the total result for sodium and magnesium due to the magnesium and sodium introduced by the extraction solutions.

The digestates for steps 1, 2 and 5 were analyzed at a dilution due to instrument problems caused by the high solids content of the digestates. The reporting limits were adjusted accordingly.

Method 6010B: Due to sample matrix effect on the internal standard (ISTD), a dilution was required for the following samples: S-7677_5_DPT01AP3 (140-22793-4) and S-7677_7_DPT02AP3 (140-22793-6).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: Sirem, div of Geosyntec Consultants
Project/Site: S-7677 SiREMNA

Job ID: 140-22793-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
140-22793-4	S-7677_5_DPT01AP3	Solid	04/20/21 00:00	04/22/21 10:30	
140-22793-5	S-7677_6_DPT03AP3	Solid	04/20/21 00:00	04/22/21 10:30	
140-22793-6	S-7677_7_DPT02AP3	Solid	04/20/21 00:00	04/22/21 10:30	

Client Sample ID: S-7677_5_DPT01AP3
Lab Sample ID: 140-22793-4

Date Collected: 04/20/21 00:00
Matrix: Solid

Date Received: 04/22/21 10:30
Percent Solids: 69.1

Method: 6010B SEP - SEP Metals (ICP) - Step 1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		14	0.87	mg/Kg	☼	04/29/21 08:00	05/05/21 14:08	4
Molybdenum	ND		12	0.47	mg/Kg	☼	04/29/21 08:00	05/05/21 14:08	4

Method: 6010B SEP - SEP Metals (ICP) - Step 2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		11	0.65	mg/Kg	☼	04/30/21 08:00	05/05/21 15:31	3
Molybdenum	ND		8.7	0.36	mg/Kg	☼	04/30/21 08:00	05/05/21 15:31	3

Method: 6010B SEP - SEP Metals (ICP) - Step 3

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.58**	**J**	3.6	0.22	mg/Kg	☼	05/03/21 08:00	05/05/21 17:05	1
Molybdenum	ND		2.9	0.12	mg/Kg	☼	05/03/21 08:00	05/05/21 17:05	1

Method: 6010B SEP - SEP Metals (ICP) - Step 4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**6.4**		3.6	0.22	mg/Kg	☼	05/04/21 08:00	05/10/21 15:16	1
Molybdenum	ND		2.9	0.12	mg/Kg	☼	05/04/21 08:00	05/10/21 15:16	1

Method: 6010B SEP - SEP Metals (ICP) - Step 5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		54	3.2	mg/Kg	☼	05/06/21 08:00	05/10/21 16:40	5
Molybdenum	ND		43	1.8	mg/Kg	☼	05/06/21 08:00	05/10/21 16:40	5

Method: 6010B SEP - SEP Metals (ICP) - Step 6

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**11**		3.6	0.22	mg/Kg	☼	05/06/21 08:00	05/10/21 18:14	1
Molybdenum	ND		2.9	0.14	mg/Kg	☼	05/06/21 08:00	05/10/21 18:14	1

Method: 6010B SEP - SEP Metals (ICP) - Step 7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**24**		3.6	0.22	mg/Kg	☼	05/10/21 08:00	05/11/21 15:34	1
Molybdenum	ND		2.9	0.12	mg/Kg	☼	05/10/21 08:00	05/11/21 15:34	1

Method: 6010B SEP - SEP Metals (ICP) - Sum of Steps 1-7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**42**		2.5	0.15	mg/Kg			05/13/21 10:05	1
Molybdenum	ND		2.0	0.082	mg/Kg			05/13/21 10:05	1

Method: 6010B - SEP Metals (ICP) - Total

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**58**		18	1.1	mg/Kg	☼	04/27/21 08:00	05/11/21 19:49	5
Molybdenum	ND		14	0.59	mg/Kg	☼	04/27/21 08:00	05/11/21 19:49	5

Client Sample ID: S-7677_6_DPT03AP3
Lab Sample ID: 140-22793-5
Date Collected: 04/20/21 00:00
Matrix: Solid
Date Received: 04/22/21 10:30
Percent Solids: 65.9

Method: 6010B SEP - SEP Metals (ICP) - Step 1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		15	0.91	mg/Kg	☼	04/29/21 08:00	05/05/21 14:12	4
Molybdenum	ND		12	0.50	mg/Kg	☼	04/29/21 08:00	05/05/21 14:12	4

Method: 6010B SEP - SEP Metals (ICP) - Step 2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.88**	**J**	11	0.68	mg/Kg	☼	04/30/21 08:00	05/05/21 15:36	3
Molybdenum	ND		9.1	0.37	mg/Kg	☼	04/30/21 08:00	05/05/21 15:36	3

Method: 6010B SEP - SEP Metals (ICP) - Step 3

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.70**	**J**	3.8	0.23	mg/Kg	☼	05/03/21 08:00	05/05/21 17:10	1
Molybdenum	**0.14**	**J**	3.0	0.12	mg/Kg	☼	05/03/21 08:00	05/05/21 17:10	1

Method: 6010B SEP - SEP Metals (ICP) - Step 4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**24**		3.8	0.23	mg/Kg	☼	05/04/21 08:00	05/10/21 15:21	1
Molybdenum	ND		3.0	0.12	mg/Kg	☼	05/04/21 08:00	05/10/21 15:21	1

Method: 6010B SEP - SEP Metals (ICP) - Step 5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**6.6**	**J**	57	3.3	mg/Kg	☼	05/06/21 08:00	05/10/21 16:45	5
Molybdenum	ND		46	1.9	mg/Kg	☼	05/06/21 08:00	05/10/21 16:45	5

Method: 6010B SEP - SEP Metals (ICP) - Step 6

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**230**		3.8	0.23	mg/Kg	☼	05/06/21 08:00	05/10/21 18:19	1
Molybdenum	ND		3.0	0.15	mg/Kg	☼	05/06/21 08:00	05/10/21 18:19	1

Method: 6010B SEP - SEP Metals (ICP) - Step 7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**41**		3.8	0.23	mg/Kg	☼	05/10/21 08:00	05/11/21 15:39	1
Molybdenum	ND		3.0	0.12	mg/Kg	☼	05/10/21 08:00	05/11/21 15:39	1

Method: 6010B SEP - SEP Metals (ICP) - Sum of Steps 1-7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**300**		2.5	0.15	mg/Kg			05/13/21 10:05	1
Molybdenum	**0.14**	**J**	2.0	0.082	mg/Kg			05/13/21 10:05	1

Method: 6010B - SEP Metals (ICP) - Total

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**280**		3.8	0.23	mg/Kg	☼	04/27/21 08:00	05/11/21 16:49	1
Molybdenum	**0.31**	**J**	3.0	0.12	mg/Kg	☼	04/27/21 08:00	05/11/21 16:49	1

Client Sample ID: S-7677_7_DPT02AP3
Lab Sample ID: 140-22793-6
Date Collected: 04/20/21 00:00
Matrix: Solid
Date Received: 04/22/21 10:30
Percent Solids: 67.0

Method: 6010B SEP - SEP Metals (ICP) - Step 1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	ND		15	0.90	mg/Kg	☼	04/29/21 08:00	05/05/21 14:17	4
Molybdenum	**0.73**	**J**	12	0.49	mg/Kg	☼	04/29/21 08:00	05/05/21 14:17	4

Method: 6010B SEP - SEP Metals (ICP) - Step 2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.93**	**J**	11	0.67	mg/Kg	☼	04/30/21 08:00	05/05/21 15:41	3
Molybdenum	ND		9.0	0.37	mg/Kg	☼	04/30/21 08:00	05/05/21 15:41	3

Method: 6010B SEP - SEP Metals (ICP) - Step 3

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**0.55**	**J**	3.7	0.22	mg/Kg	☼	05/03/21 08:00	05/05/21 17:15	1
Molybdenum	**1.3**	**J**	3.0	0.12	mg/Kg	☼	05/03/21 08:00	05/05/21 17:15	1

Method: 6010B SEP - SEP Metals (ICP) - Step 4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**17**		3.7	0.22	mg/Kg	☼	05/04/21 08:00	05/10/21 15:26	1
Molybdenum	**0.81**	**J**	3.0	0.12	mg/Kg	☼	05/04/21 08:00	05/10/21 15:26	1

Method: 6010B SEP - SEP Metals (ICP) - Step 5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**5.6**	**J**	56	3.3	mg/Kg	☼	05/06/21 08:00	05/10/21 16:50	5
Molybdenum	ND		45	1.9	mg/Kg	☼	05/06/21 08:00	05/10/21 16:50	5

Method: 6010B SEP - SEP Metals (ICP) - Step 6

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**170**		3.7	0.22	mg/Kg	☼	05/06/21 08:00	05/10/21 18:23	1
Molybdenum	**0.19**	**J**	3.0	0.15	mg/Kg	☼	05/06/21 08:00	05/10/21 18:23	1

Method: 6010B SEP - SEP Metals (ICP) - Step 7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**34**		3.7	0.22	mg/Kg	☼	05/10/21 08:00	05/11/21 15:44	1
Molybdenum	ND		3.0	0.12	mg/Kg	☼	05/10/21 08:00	05/11/21 15:44	1

Method: 6010B SEP - SEP Metals (ICP) - Sum of Steps 1-7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**230**		2.5	0.15	mg/Kg			05/13/21 10:05	1
Molybdenum	**3.1**		2.0	0.082	mg/Kg			05/13/21 10:05	1

Method: 6010B - SEP Metals (ICP) - Total

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	**190**		7.5	0.45	mg/Kg	☼	04/27/21 08:00	05/11/21 19:38	2
Molybdenum	**3.2**	**J**	6.0	0.24	mg/Kg	☼	04/27/21 08:00	05/11/21 19:38	2

Default Detection Limits

Client: Sirem, div of Geosyntec Consultants
Job ID: 140-22793-2
Project/Site: S-7677 SiREMNA

Method: 6010B SEP - SEP Metals (ICP) - Step 1
Prep: 3010A
SEP: Exchangeable

Analyte	RL	MDL	Units
Lithium	2.5	0.15	mg/Kg
Molybdenum	2.0	0.082	mg/Kg

Method: 6010B SEP - SEP Metals (ICP) - Step 2
Prep: 3010A
SEP: Carbonate

Analyte	RL	MDL	Units
Lithium	2.5	0.15	mg/Kg
Molybdenum	2.0	0.082	mg/Kg

Method: 6010B SEP - SEP Metals (ICP) - Step 3
Prep: 3010A
SEP: Non-Crystalline

Analyte	RL	MDL	Units
Lithium	2.5	0.15	mg/Kg
Molybdenum	2.0	0.082	mg/Kg

Method: 6010B SEP - SEP Metals (ICP) - Step 4
Prep: 3010A
SEP: Metal Hydroxide

Analyte	RL	MDL	Units
Lithium	2.5	0.15	mg/Kg
Molybdenum	2.0	0.082	mg/Kg

Method: 6010B SEP - SEP Metals (ICP) - Step 5
Prep: 3010A
SEP: Organic-Bound

Analyte	RL	MDL	Units
Lithium	7.5	0.44	mg/Kg
Molybdenum	6.0	0.25	mg/Kg

Method: 6010B SEP - SEP Metals (ICP) - Step 6
SEP: Acid/Sulfide

Analyte	RL	MDL	Units
Lithium	2.5	0.15	mg/Kg
Molybdenum	2.0	0.099	mg/Kg

Method: 6010B SEP - SEP Metals (ICP) - Step 7
Prep: Residual

Analyte	RL	MDL	Units
Lithium	2.5	0.15	mg/Kg
Molybdenum	2.0	0.082	mg/Kg

Method: 6010B SEP - SEP Metals (ICP) - Sum of Steps 1-7

Analyte	RL	MDL	Units
Lithium	2.5	0.15	mg/Kg
Molybdenum	2.0	0.082	mg/Kg

Method: 6010B - SEP Metals (ICP) - Total

Default Detection Limits

Client: Sirem, div of Geosyntec Consultants
Job ID: 140-22793-2
Project/Site: S-7677 SiREMNA

Method: 6010B - SEP Metals (ICP) - Total

Prep: Total

Analyte	RL	MDL	Units
Lithium	2.5	0.15	mg/Kg
Molybdenum	2.0	0.082	mg/Kg

Metals

Prep Batch: 49213

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-22793-4	S-7677_5_DPT01AP3	Total/NA	Solid	Total	
140-22793-5	S-7677_6_DPT03AP3	Total/NA	Solid	Total	
140-22793-6	S-7677_7_DPT02AP3	Total/NA	Solid	Total	

SEP Batch: 49214

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-22793-4	S-7677_5_DPT01AP3	Step 1	Solid	Exchangeable	
140-22793-5	S-7677_6_DPT03AP3	Step 1	Solid	Exchangeable	
140-22793-6	S-7677_7_DPT02AP3	Step 1	Solid	Exchangeable	

Prep Batch: 49305

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-22793-4	S-7677_5_DPT01AP3	Step 1	Solid	3010A	49214
140-22793-5	S-7677_6_DPT03AP3	Step 1	Solid	3010A	49214
140-22793-6	S-7677_7_DPT02AP3	Step 1	Solid	3010A	49214

SEP Batch: 49306

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-22793-4	S-7677_5_DPT01AP3	Step 2	Solid	Carbonate	
140-22793-5	S-7677_6_DPT03AP3	Step 2	Solid	Carbonate	
140-22793-6	S-7677_7_DPT02AP3	Step 2	Solid	Carbonate	

Prep Batch: 49358

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-22793-4	S-7677_5_DPT01AP3	Step 2	Solid	3010A	49306
140-22793-5	S-7677_6_DPT03AP3	Step 2	Solid	3010A	49306
140-22793-6	S-7677_7_DPT02AP3	Step 2	Solid	3010A	49306

SEP Batch: 49359

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-22793-4	S-7677_5_DPT01AP3	Step 3	Solid	Non-Crystalline	
140-22793-5	S-7677_6_DPT03AP3	Step 3	Solid	Non-Crystalline	
140-22793-6	S-7677_7_DPT02AP3	Step 3	Solid	Non-Crystalline	

Prep Batch: 49393

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-22793-4	S-7677_5_DPT01AP3	Step 3	Solid	3010A	49359
140-22793-5	S-7677_6_DPT03AP3	Step 3	Solid	3010A	49359
140-22793-6	S-7677_7_DPT02AP3	Step 3	Solid	3010A	49359

SEP Batch: 49394

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-22793-4	S-7677_5_DPT01AP3	Step 4	Solid	Metal Hydroxide	
140-22793-5	S-7677_6_DPT03AP3	Step 4	Solid	Metal Hydroxide	
140-22793-6	S-7677_7_DPT02AP3	Step 4	Solid	Metal Hydroxide	

Prep Batch: 49441

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-22793-4	S-7677_5_DPT01AP3	Step 4	Solid	3010A	49394
140-22793-5	S-7677_6_DPT03AP3	Step 4	Solid	3010A	49394
140-22793-6	S-7677_7_DPT02AP3	Step 4	Solid	3010A	49394

Metals

SEP Batch: 49442

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-22793-4	S-7677_5_DPT01AP3	Step 5	Solid	Organic-Bound	
140-22793-5	S-7677_6_DPT03AP3	Step 5	Solid	Organic-Bound	
140-22793-6	S-7677_7_DPT02AP3	Step 5	Solid	Organic-Bound	

Prep Batch: 49541

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-22793-4	S-7677_5_DPT01AP3	Step 5	Solid	3010A	49442
140-22793-5	S-7677_6_DPT03AP3	Step 5	Solid	3010A	49442
140-22793-6	S-7677_7_DPT02AP3	Step 5	Solid	3010A	49442

SEP Batch: 49542

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-22793-4	S-7677_5_DPT01AP3	Step 6	Solid	Acid/Sulfide	
140-22793-5	S-7677_6_DPT03AP3	Step 6	Solid	Acid/Sulfide	
140-22793-6	S-7677_7_DPT02AP3	Step 6	Solid	Acid/Sulfide	

Analysis Batch: 49543

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-22793-4	S-7677_5_DPT01AP3	Step 1	Solid	6010B SEP	49305
140-22793-4	S-7677_5_DPT01AP3	Step 2	Solid	6010B SEP	49358
140-22793-4	S-7677_5_DPT01AP3	Step 3	Solid	6010B SEP	49393
140-22793-5	S-7677_6_DPT03AP3	Step 1	Solid	6010B SEP	49305
140-22793-5	S-7677_6_DPT03AP3	Step 2	Solid	6010B SEP	49358
140-22793-5	S-7677_6_DPT03AP3	Step 3	Solid	6010B SEP	49393
140-22793-6	S-7677_7_DPT02AP3	Step 1	Solid	6010B SEP	49305
140-22793-6	S-7677_7_DPT02AP3	Step 2	Solid	6010B SEP	49358
140-22793-6	S-7677_7_DPT02AP3	Step 3	Solid	6010B SEP	49393

Prep Batch: 49611

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-22793-4	S-7677_5_DPT01AP3	Step 7	Solid	Residual	
140-22793-5	S-7677_6_DPT03AP3	Step 7	Solid	Residual	
140-22793-6	S-7677_7_DPT02AP3	Step 7	Solid	Residual	

Analysis Batch: 49686

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-22793-4	S-7677_5_DPT01AP3	Step 4	Solid	6010B SEP	49441
140-22793-4	S-7677_5_DPT01AP3	Step 5	Solid	6010B SEP	49541
140-22793-4	S-7677_5_DPT01AP3	Step 6	Solid	6010B SEP	49542
140-22793-5	S-7677_6_DPT03AP3	Step 4	Solid	6010B SEP	49441
140-22793-5	S-7677_6_DPT03AP3	Step 5	Solid	6010B SEP	49541
140-22793-5	S-7677_6_DPT03AP3	Step 6	Solid	6010B SEP	49542
140-22793-6	S-7677_7_DPT02AP3	Step 4	Solid	6010B SEP	49441
140-22793-6	S-7677_7_DPT02AP3	Step 5	Solid	6010B SEP	49541
140-22793-6	S-7677_7_DPT02AP3	Step 6	Solid	6010B SEP	49542

Analysis Batch: 49736

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-22793-4	S-7677_5_DPT01AP3	Step 7	Solid	6010B SEP	49611
140-22793-4	S-7677_5_DPT01AP3	Total/NA	Solid	6010B	49213
140-22793-5	S-7677_6_DPT03AP3	Step 7	Solid	6010B SEP	49611

Metals (Continued)

Analysis Batch: 49736 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-22793-5	S-7677_6_DPT03AP3	Total/NA	Solid	6010B	49213
140-22793-6	S-7677_7_DPT02AP3	Step 7	Solid	6010B SEP	49611
140-22793-6	S-7677_7_DPT02AP3	Total/NA	Solid	6010B	49213

Analysis Batch: 49785

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-22793-4	S-7677_5_DPT01AP3	Sum of Steps 1-7	Solid	6010B SEP	
140-22793-5	S-7677_6_DPT03AP3	Sum of Steps 1-7	Solid	6010B SEP	
140-22793-6	S-7677_7_DPT02AP3	Sum of Steps 1-7	Solid	6010B SEP	

General Chemistry

Analysis Batch: 49285

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-22793-4	S-7677_5_DPT01AP3	Total/NA	Solid	Moisture	
140-22793-5	S-7677_6_DPT03AP3	Total/NA	Solid	Moisture	
140-22793-6	S-7677_7_DPT02AP3	Total/NA	Solid	Moisture	
140-22793-5 DU	S-7677_6_DPT03AP3	Total/NA	Solid	Moisture	

Lab Chronicle

Client: Sirem, div of Geosyntec Consultants
Project/Site: S-7677 SiREMNA

Job ID: 140-22793-2

Client Sample ID: S-7677_5_DPT01AP3
Date Collected: 04/20/21 00:00
Date Received: 04/22/21 10:30

Lab Sample ID: 140-22793-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Sum of Steps 1-7	Analysis	6010B SEP		1			49785	05/13/21 10:05	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			49285	04/28/21 07:50	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: S-7677_5_DPT01AP3
Date Collected: 04/20/21 00:00
Date Received: 04/22/21 10:30

Lab Sample ID: 140-22793-4
Matrix: Solid
Percent Solids: 69.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Total			1.000 g	50 mL	49213	04/27/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		5			49736	05/11/21 19:49	KNC	TAL KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	49214	04/28/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	49305	04/29/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			49543	05/05/21 14:08	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	49306	04/29/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5.00 mL	50.0 mL	49358	04/30/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			49543	05/05/21 15:31	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.00 g	25.0 mL	49359	04/30/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5.00 mL	50.0 mL	49393	05/03/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			49543	05/05/21 17:05	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.00 g	25.0 mL	49394	05/03/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5.00 mL	50.0 mL	49441	05/04/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			49686	05/10/21 15:16	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.00 g	75.00 mL	49442	05/04/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5.00 mL	50.0 mL	49541	05/06/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			49686	05/10/21 16:40	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.00 g	250.0 mL	49542	05/06/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			49686	05/10/21 18:14	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	49611	05/10/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			49736	05/11/21 15:34	KNC	TAL KNX
	Instrument ID: DUO									

Lab Chronicle

Client: Sirem, div of Geosyntec Consultants
Project/Site: S-7677 SiREMNA

Job ID: 140-22793-2

Client Sample ID: S-7677_6_DPT03AP3
Date Collected: 04/20/21 00:00
Date Received: 04/22/21 10:30

Lab Sample ID: 140-22793-5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Sum of Steps 1-7	Analysis	6010B SEP		1			49785	05/13/21 10:05	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			49285	04/28/21 07:50	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: S-7677_6_DPT03AP3
Date Collected: 04/20/21 00:00
Date Received: 04/22/21 10:30

Lab Sample ID: 140-22793-5
Matrix: Solid
Percent Solids: 65.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Total			1.000 g	50 mL	49213	04/27/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		1			49736	05/11/21 16:49	KNC	TAL KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	49214	04/28/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	49305	04/29/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			49543	05/05/21 14:12	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	49306	04/29/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5.00 mL	50.0 mL	49358	04/30/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			49543	05/05/21 15:36	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.00 g	25.0 mL	49359	04/30/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5.00 mL	50.0 mL	49393	05/03/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			49543	05/05/21 17:10	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.00 g	25.0 mL	49394	05/03/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5.00 mL	50.0 mL	49441	05/04/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			49686	05/10/21 15:21	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.00 g	75.00 mL	49442	05/04/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5.00 mL	50.0 mL	49541	05/06/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			49686	05/10/21 16:45	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.00 g	250.0 mL	49542	05/06/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			49686	05/10/21 18:19	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	49611	05/10/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			49736	05/11/21 15:39	KNC	TAL KNX
	Instrument ID: DUO									

Lab Chronicle

Client: Sirem, div of Geosyntec Consultants
Project/Site: S-7677 SiREMNA

Job ID: 140-22793-2

Client Sample ID: S-7677_7_DPT02AP3
Date Collected: 04/20/21 00:00
Date Received: 04/22/21 10:30

Lab Sample ID: 140-22793-6
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Sum of Steps 1-7	Analysis	6010B SEP		1			49785	05/13/21 10:05	DKW	TAL KNX
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Moisture		1			49285	04/28/21 07:50	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Client Sample ID: S-7677_7_DPT02AP3
Date Collected: 04/20/21 00:00
Date Received: 04/22/21 10:30

Lab Sample ID: 140-22793-6
Matrix: Solid
Percent Solids: 67.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Total			1.000 g	50 mL	49213	04/27/21 08:00	KNC	TAL KNX
Total/NA	Analysis	6010B		2			49736	05/11/21 19:38	KNC	TAL KNX
	Instrument ID: DUO									
Step 1	SEP	Exchangeable			5.000 g	25 mL	49214	04/28/21 08:00	KNC	TAL KNX
Step 1	Prep	3010A			5 mL	50 mL	49305	04/29/21 08:00	KNC	TAL KNX
Step 1	Analysis	6010B SEP		4			49543	05/05/21 14:17	KNC	TAL KNX
	Instrument ID: DUO									
Step 2	SEP	Carbonate			5.000 g	25 mL	49306	04/29/21 08:00	KNC	TAL KNX
Step 2	Prep	3010A			5.00 mL	50.0 mL	49358	04/30/21 08:00	KNC	TAL KNX
Step 2	Analysis	6010B SEP		3			49543	05/05/21 15:41	KNC	TAL KNX
	Instrument ID: DUO									
Step 3	SEP	Non-Crystalline			5.00 g	25.0 mL	49359	04/30/21 08:00	KNC	TAL KNX
Step 3	Prep	3010A			5.00 mL	50.0 mL	49393	05/03/21 08:00	KNC	TAL KNX
Step 3	Analysis	6010B SEP		1			49543	05/05/21 17:15	KNC	TAL KNX
	Instrument ID: DUO									
Step 4	SEP	Metal Hydroxide			5.00 g	25.0 mL	49394	05/03/21 08:00	KNC	TAL KNX
Step 4	Prep	3010A			5.00 mL	50.0 mL	49441	05/04/21 08:00	KNC	TAL KNX
Step 4	Analysis	6010B SEP		1			49686	05/10/21 15:26	KNC	TAL KNX
	Instrument ID: DUO									
Step 5	SEP	Organic-Bound			5.00 g	75.00 mL	49442	05/04/21 08:00	KNC	TAL KNX
Step 5	Prep	3010A			5.00 mL	50.0 mL	49541	05/06/21 08:00	KNC	TAL KNX
Step 5	Analysis	6010B SEP		5			49686	05/10/21 16:50	KNC	TAL KNX
	Instrument ID: DUO									
Step 6	SEP	Acid/Sulfide			5.00 g	250.0 mL	49542	05/06/21 08:00	KNC	TAL KNX
Step 6	Analysis	6010B SEP		1			49686	05/10/21 18:23	KNC	TAL KNX
	Instrument ID: DUO									
Step 7	Prep	Residual			1.000 g	50 mL	49611	05/10/21 08:00	KNC	TAL KNX
Step 7	Analysis	6010B SEP		1			49736	05/11/21 15:44	KNC	TAL KNX
	Instrument ID: DUO									

Lab Chronicle

Client: Sirem, div of Geosyntec Consultants
Job ID: 140-22793-2
Project/Site: S-7677 SiREMNA

Client Sample ID: S-7677_6_DPT03AP3
Lab Sample ID: 140-22793-5 DU
Date Collected: 04/20/21 00:00
Matrix: Solid
Date Received: 04/22/21 10:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			49285	04/28/21 07:50	BKD	TAL KNX
	Instrument ID: NOEQUIP									

Laboratory References:

TAL KNX = Eurofins TestAmerica, Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Accreditation/Certification Summary

Client: Sirem, div of Geosyntec Consultants
Job ID: 140-22793-2
Project/Site: S-7677 SiREMNA

Laboratory: Eurofins TestAmerica, Knoxville

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
	AFCEE	N/A	
ANAB	Dept. of Defense ELAP	L2311	02-13-22
ANAB	Dept. of Energy	L2311.01	02-13-22
ANAB	ISO/IEC 17025	L2311	02-13-22
Arkansas DEQ	State	88-0688	06-17-21
California	State	2423	06-30-22
Colorado	State	TN00009	02-28-22
Connecticut	State	PH-0223	09-30-21
Florida	NELAP	E87177	06-30-21
Georgia (DW)	State	906	12-11-22
Hawaii	State	NA	12-11-21
Kansas	NELAP	E-10349	10-31-21
Kentucky (DW)	State	90101	12-31-21
Louisiana	NELAP	83979	06-30-21
Louisiana (DW)	State	LA019	12-31-21
Maryland	State	277	03-31-22
Michigan	State	9933	12-11-22
Nevada	State	TN00009	07-12-21
New Hampshire	NELAP	299919	01-17-22
New Jersey	NELAP	TN001	06-30-21
New York	NELAP	10781	03-31-22
North Carolina (DW)	State	21705	07-31-21
North Carolina (WW/SW)	State	64	12-31-21
Ohio VAP	State	CL0059	06-02-23
Oklahoma	State	9415	08-31-21
Oregon	NELAP	TNI0189	01-01-22
Pennsylvania	NELAP	68-00576	12-31-21
Tennessee	State	02014	12-11-22
Texas	NELAP	T104704380-18-12	08-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	US Federal Programs	P330-19-00236	08-20-22
Utah	NELAP	TN00009	07-31-21
Virginia	NELAP	460176	09-14-21
Washington	State	C593	01-19-22
West Virginia (DW)	State	9955C	01-02-22
West Virginia DEP	State	345	04-30-22
Wisconsin	State	998044300	08-31-21

Method Summary

Client: Sirem, div of Geosyntec Consultants
Project/Site: S-7677 SiREMNA

Job ID: 140-22793-2

Method	Method Description	Protocol	Laboratory
6010B	SEP Metals (ICP) - Total	SW846	TAL KNX
6010B SEP	SEP Metals (ICP)	SW846	TAL KNX
Moisture	Percent Moisture	EPA	TAL KNX
3010A	Preparation, Total Metals	SW846	TAL KNX
Acid/Sulfide	Sequential Extraction Procedure, Acid/Sulfide Fraction	TAL-KNOX	TAL KNX
Carbonate	Sequential Extraction Procedure, Carbonate Fraction	TAL-KNOX	TAL KNX
Exchangeable	Sequential Extraction Procedure, Exchangeable Fraction	TAL-KNOX	TAL KNX
Metal Hydroxide	Sequential Extraction Procedure, Metal Hydroxide Fraction	TAL-KNOX	TAL KNX
Non-Crystalline	Sequential Extraction Procedure, Non-crystalline Materials	TAL-KNOX	TAL KNX
Organic-Bound	Sequential Extraction Procedure, Organic Bound Fraction	TAL-KNOX	TAL KNX
Residual	Sequential Extraction Procedure, Residual Fraction	TAL-KNOX	TAL KNX
Total	Preparation, Total Material	TAL-KNOX	TAL KNX

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL-KNOX = TestAmerica Laboratories, Knoxville, Facility Standard Operating Procedure.

Laboratory References:

TAL KNX = Eurofins TestAmerica, Knoxville, 5815 Middlebrook P ke, Knoxville, TN 37921, TEL (865)291-3000

Eurofins TestAmerica, Knoxville
5815 Middlebrook Pike

Knoxville, TN 37921-5947
phone 865.291.3000 fax 865.584.4315

Chain of Custody Record

eurofins | Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact	Project Manager: Kela Ashworth	Site Contact:	Date:	COC No:
SiREM	Email: kashworth@siremlab.com	Lab Contact:	Carrier:	1 of 1 COCs
130 Stone Road West	Tel/Fax:			TALS Project #:
Guelph, Ontario, N1G 2Z3	Analysis Turnaround Time			Sampler:
519-822-2265	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(xxx) xxx-xxxx FAX	TAT if different from Below ____			Walk-in Client:
Project Name: S-7677 SiREMNA	☐ 2 weeks			Lab Sampling:
Site:	☐ 1 week			
P O # 800003206	☐ 2 days			Job / SDG No.:
	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Sequential Extraction Procedure	Sample Specific Notes:
[redacted]	20-Apr-21			S	1			X	SEP for Cobalt
				S	1			X	SEP for Cobalt
				S	1			X	SEP for Cobalt
S-7677_5_DPT01AP3				S	1			X	SEP for Lithium & Molybdenum
S-7677_6_DPT03AP3				S	1			X	SEP for Lithium & Molybdenum
S-7677_7_DPT02AP3				S	1			X	SEP for Lithium & Molybdenum
NO CUSTODY SEALS									
RECEIVED AT RT 9.8/CT 9.6°C									
BKD 4-22-21									
COOLER FED X# 773497438746 INT PD									

140-22793 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 5=NaOH; 6= Other ____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: ____ Corr'd: ____		Therm ID No.: ____
Relinquished by: Kelaashworth	Company: SiREM	Date/Time: 16:30 21Apr21	Received by:	Company: ETA KNX	Date/Time: 4-22-21 1230
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Loc: 140
22793

EUROFINS/TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST **Log In Number:**

Review Items	Yes	No	NA	If No, what was the problem?
1. Are the shipping containers intact?	/			☐ **Containers, Broken**
2. Were ambient air containers received intact?			/	☐ Checked in lab
3. The coolers/containers custody seal if present, is it intact?			/	☐ Yes ☐ NA
4. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C) Thermometer ID : SC70 Correction factor: -0.2°C		/		☐ **Cooler Out of Temp, Client Contacted, Proceed/Cancel** ☐ **Cooler Out of Temp, Same Day Receipt**
5. Were all of the sample containers received intact?	/			☐ **Containers, Broken**
6. Were samples received in appropriate containers?	/			☐ **Containers, Improper; Client Contacted; Proceed/Cancel**
7. Do sample container labels match COC? (IDs, Dates, Times)	/			☐ **COC & Samples Do Not Match** ☐ **COC Incorrect/Incomplete** ☐ **COC Not Received**
8. Were all of the samples listed on the COC received?	/			☐ **Sample Received, Not on COC** ☐ **Sample on COC, Not Received**
9. Is the date/time of sample collection noted?	/			☐ **COC; No Date/Time; Client Contacted**
10. Was the sampler identified on the COC?			/	☐ **Sampler Not Listed on COC**
11. Is the client and project name/# identified?	/			☐ **COC Incorrect/Incomplete**
12. Are tests/parameters listed for each sample?	/			☐ **COC No tests on COC**
13. Is the matrix of the samples noted?	/			☐ **COC Incorrect/Incomplete**
14. Was COC relinquished? (Signed/Dated/Timed)	/			☐ **COC Incorrect/Incomplete**
15. Were samples received within holding time?	/			☐ **Holding Time - Receipt**
16. Were samples received with correct chemical preservative (excluding Encore)?			/	☐ **pH Adjusted, pH Included (See box 16A)** ☐ **Incorrect Preservative**
17. Were VOA samples received without headspace?			/	☐ **Headspace (VOA only)**
18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668) Chlorine test strip lot number:			/	☐ **Residual Chlorine**
19. For 1613B water samples is pH<9?			/	☐ If no, notify lab to adjust
20. For rad samples was sample activity info. Provided?			/	☐ Project missing info

Comments/Actions Taken

Labeling Verified by: **Date:**

pH test strip lot number:

Box 16A: pH Preservation	Box 18A: Residual Chlorine
Preservative:	
Lot Number:	
Exp Date:	
Analyst:	
Date:	
Time:	

Project #: 140006308 PM Instructions: NA

Sample Receiving Associate: Date: 4-22-21

QA026R32.doc, 062719

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

SiREM Laboratory
Attn : Michael Healey

130 Stone Road W
Guelph, ON
N1G 3Z2, Canada

Phone: 519-822-2265
Fax:519-822-3151

Project : Hammond MNA

22-July-2021

Date Rec. : 16 July 2021
LR Report: **CA13516-JUL21**
Reference: P.O# 800003210A

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: HAP3DPT01_33a	6: HAP3DPT01_34a	7: HAP3DPT01_35a	8: HAP3DPT01_36a	9: HAP3DPT01_37a	10: HAP3DPT01_38a	11: HAP3DPT01_39a	12: HAP3DPT01_40a
Sample Date & Time					13-Jul-21	13-Jul-21	13-Jul-21	13-Jul-21	14-Jul-21	14-Jul-21	14-Jul-21	14-Jul-21
Temperature Upon Receipt [°C]	---	---	---	---	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0
Silver (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	0.006	0.007	0.004	0.004	0.005	0.004	0.005	0.004
Arsenic (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Barium (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	0.0261	0.0301	0.0216	0.0229	0.0264	0.0271	0.0272	0.0279
Beryllium (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	0.000027	0.000023	0.000019	0.000016	0.000019	0.000021	0.000018	0.000022
Boron (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	0.063	0.046	0.041	0.022	0.020	0.020	0.018	0.020
Bismuth (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	0.00001	< 0.00001	< 0.00001	0.00001	< 0.00001	0.00001	< 0.00001	0.00001
Calcium (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	26.3	27.7	25.2	25.6	25.6	26.3	26.1	26.3
Cadmium (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	0.000020	0.000025	0.000025	0.000032	0.000040	0.000047	0.000046	0.000029
Cobalt (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	0.00125	0.00101	0.000894	0.000792	0.00130	0.000967	0.00104	0.000823
Chromium (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	0.00022	0.00019	0.00025	0.00021	0.00023	0.00019	0.00024	0.00024
Copper (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Iron (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	0.008	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
Potassium (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	1.22	1.15	1.03	0.896	0.914	0.927	0.945	0.948
Lithium (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	0.0110	0.0119	0.0175	0.0189	0.0326	0.0331	0.0455	0.0447
Magnesium (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	4.99	4.92	4.72	4.76	4.71	5.00	4.98	4.76
Manganese (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	0.0799	0.0794	0.0720	0.0706	0.0795	0.0779	0.0790	0.0746
Molybdenum (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	0.0146	0.0202	0.0196	0.0247	0.0495	0.0522	0.0709	0.0688
Sodium (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	6.58	6.55	6.50	6.34	6.29	6.65	6.51	6.31

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Project : Hammond MNA
LR Report : **CA13516-JUL21**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: HAP3DPT01_3 3a	6: HAP3DPT01_3 4a	7: HAP3DPT01_3 5a	8: HAP3DPT01_3 6a	9: HAP3DPT01_3 7a	10: HAP3DPT01_3 8a	11: HAP3DPT01_3 9a	12: HAP3DPT01_4 0a
Nickel (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	0.0029	0.0022	0.0035	0.0030	0.0025	0.0024	0.0022	0.0022
Lead (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009
Antimony (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009
Selenium (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	0.00014	0.00008	0.00014	0.00011	0.00010	0.00009	0.00010	0.00012
Tin (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	< 0.00006	< 0.00006	< 0.00006	< 0.00006	< 0.00006	< 0.00006	< 0.00006	< 0.00006
Strontium (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	0.0669	0.0686	0.0654	0.0659	0.0648	0.0676	0.0659	0.0663
Titanium (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	0.00017	0.00009	< 0.00005	0.00010	0.00007	0.00007	0.00011	0.00007
Thallium (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	< 0.000005	< 0.000005	< 0.000005	< 0.000005	0.000005	< 0.000005	< 0.000005	< 0.000005
Uranium (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	0.000019	0.000010	0.000008	0.000010	0.000006	0.000009	0.000011	0.000009
Vanadium (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	0.00003	0.00003	0.00002	0.00003	0.00002	0.00003	0.00003	0.00002
Tungsten (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Yttrium (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	0.00130	0.00116	0.00113	0.00106	0.00104	0.00104	0.00088	0.00091
Zinc (dissolved) [mg/L]	20-Jul-21	11:35	22-Jul-21	17:40	0.003	0.006	< 0.002	0.056	0.002	0.003	< 0.002	0.002

Analysis	13: HAP3DPT01_4 1a	14: HAP3DPT01_4 2a
Sample Date & Time	14-Jul-21	14-Jul-21
Temperature Upon Receipt [°C]	13.0	13.0
Silver (dissolved) [mg/L]	< 0.00005	< 0.00005
Aluminum (dissolved) [mg/L]	0.005	0.005
Arsenic (dissolved) [mg/L]	< 0.0002	< 0.0002
Barium (dissolved) [mg/L]	0.0273	0.0255
Beryllium (dissolved) [mg/L]	0.000017	0.000013
Boron (dissolved) [mg/L]	0.018	0.019
Bismuth (dissolved) [mg/L]	< 0.00001	0.00001
Calcium (dissolved) [mg/L]	25.6	25.6
Cadmium (dissolved) [mg/L]	0.000051	0.000054
Cobalt (dissolved) [mg/L]	0.000919	0.000819
Chromium (dissolved) [mg/L]	0.00027	0.00026
Copper (dissolved) [mg/L]	< 0.0002	< 0.0002
Iron (dissolved) [mg/L]	< 0.007	< 0.007
Potassium (dissolved) [mg/L]	0.947	0.968
Lithium (dissolved) [mg/L]	0.0543	0.0554
Magnesium (dissolved) [mg/L]	4.89	4.89
Manganese (dissolved) [mg/L]	0.0754	0.0738

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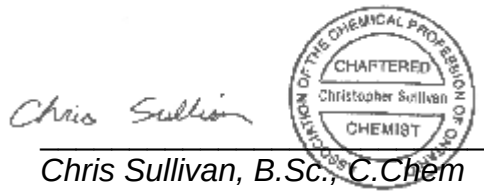
Project : Hammond MNA
LR Report : **CA13516-JUL21**

Analysis	13: HAP3DPT01_41a	14: HAP3DPT01_42a
Molybdenum (dissolved) [mg/L]	0.107	0.104
Sodium (dissolved) [mg/L]	6.44	6.62
Nickel (dissolved) [mg/L]	0.0022	0.0022
Lead (dissolved) [mg/L]	< 0.00009	< 0.00009
Antimony (dissolved) [mg/L]	< 0.0009	< 0.0009
Selenium (dissolved) [mg/L]	0.00008	0.00012
Tin (dissolved) [mg/L]	< 0.00006	< 0.00006
Strontium (dissolved) [mg/L]	0.0663	0.0653
Titanium (dissolved) [mg/L]	0.00012	0.00013
Thallium (dissolved) [mg/L]	< 0.000005	< 0.000005
Uranium (dissolved) [mg/L]	0.000009	0.000009
Vanadium (dissolved) [mg/L]	0.00003	0.00004
Tungsten (dissolved) [mg/L]	< 0.00002	< 0.00002
Yttrium (dissolved) [mg/L]	0.00086	0.00076
Zinc (dissolved) [mg/L]	< 0.002	0.002



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27-July-2021

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Date Rec. : 22 July 2021
LR Report: **CA15359-JUL21**

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CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: HAP3DPT01_33 b	6: HAP3DPT01_34 b	7: HAP3DPT01_35 b	8: HAP3DPT01_36 b	9: HAP3DPT01_37 b
Sample Date & Time					20-Jul-21	20-Jul-21	20-Jul-21	20-Jul-21	21-Jul-21
Temp Upon Receipt [°C]	---	---	---	---	7.0	7.0	7.0	7.0	7.0
Ag (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:22	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Al (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:22	0.051	0.037	0.029	0.022	0.043
As (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:22	0.0003	0.0003	0.0003	0.0003	0.0002
Ba (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:22	0.0289	0.0270	0.0271	0.0244	0.0279
Be (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:22	0.000671	0.000499	0.000434	0.000298	0.000538
B (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:22	0.142	0.146	0.150	0.137	0.145
Bi (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:22	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Ca (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:22	11.7	13.3	14.5	16.1	11.3
Cd (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:22	0.000061	0.000064	0.000061	0.000071	0.000057
Co (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:22	0.00314	0.00194	0.00158	0.00078	0.00234
Cr (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:22	0.00271	0.00213	0.00200	0.00196	0.00201
Cu (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:22	0.0004	0.0003	0.0005	0.0003	0.0002
Fe (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:22	< 0.007	< 0.007	0.129	0.019	< 0.007
K (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:22	0.571	0.493	0.546	0.550	0.464
Li (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:22	0.0030	0.0020	0.0024	0.0017	0.0038
Mg (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:22	2.59	3.18	3.26	3.86	2.70
Mn (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:22	0.0878	0.0760	0.0718	0.0634	0.0777
Mo (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:22	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004
Na (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:22	5.86	6.22	5.89	6.08	5.76
Ni (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:22	0.0080	0.0081	0.0083	0.0083	0.0077
Pb (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:23	< 0.00009	0.00032	< 0.00009	< 0.00009	< 0.00009
Sb (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:23	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009
Se (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:23	0.00104	0.00113	0.00111	0.00133	0.00100
Sn (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:23	< 0.00006	< 0.00006	< 0.00006	< 0.00006	< 0.00006
Sr (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:23	0.0404	0.0445	0.0480	0.0520	0.0384
Ti (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:23	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Tl (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:23	0.000005	< 0.000005	0.000005	0.000005	0.000005
U (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:23	0.000004	0.000003	0.000002	0.000003	0.000003
V (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:23	0.00008	0.00010	0.00010	0.00007	0.00008
W (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:23	0.00008	0.00007	0.00007	0.00006	0.00005
Y (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:23	0.00119	0.00115	0.00117	0.00111	0.00101
Zn (diss) [mg/L]	24-Jul-21	01:07	26-Jul-21	14:23	0.013	0.016	0.014	0.012	0.011

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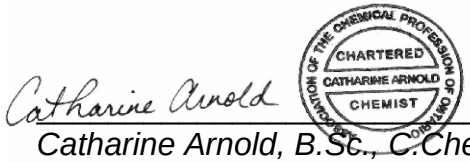
LR Report : **CA15359-JUL21**

Analysis	10: HAP3DPT01_38b	11: HAP3DPT01_39b	12: HAP3DPT01_40b	13: HAP3DPT01_41b	14: HAP3DPT01_42b
Sample Date & Time	21-Jul-21	21-Jul-21	21-Jul-21	21-Jul-21	21-Jul-21
Temp Upon Receipt [°C]	7.0	7.0	7.0	7.0	7.0
Ag (diss) [mg/L]	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Al (diss) [mg/L]	0.060	0.034	0.052	0.041	0.016
As (diss) [mg/L]	0.0002	0.0002	0.0002	< 0.0002	0.0002
Ba (diss) [mg/L]	0.0284	0.0274	0.0282	0.0286	0.0229
Be (diss) [mg/L]	0.000583	0.000496	0.000636	0.000615	0.000226
B (diss) [mg/L]	0.127	0.152	0.151	0.144	0.141
Bi (diss) [mg/L]	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Ca (diss) [mg/L]	11.5	13.3	11.4	12.2	18.3
Cd (diss) [mg/L]	0.000064	0.000076	0.000075	0.000071	0.000066
Co (diss) [mg/L]	0.00367	0.00168	0.00280	0.00215	0.00108
Cr (diss) [mg/L]	0.00259	0.00206	0.00208	0.00251	0.00172
Cu (diss) [mg/L]	0.0004	0.0003	0.0004	0.0003	< 0.0002
Fe (diss) [mg/L]	< 0.007	< 0.007	< 0.007	0.009	< 0.007
K (diss) [mg/L]	0.457	0.424	0.424	0.383	0.338
Li (diss) [mg/L]	0.0045	0.0036	0.0050	0.0053	0.0023
Mg (diss) [mg/L]	2.76	3.10	2.75	2.57	5.28
Mn (diss) [mg/L]	0.0970	0.0741	0.0811	0.0783	0.0793
Mo (diss) [mg/L]	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004
Na (diss) [mg/L]	6.13	5.91	5.87	5.85	5.96
Ni (diss) [mg/L]	0.0086	0.0082	0.0079	0.0080	0.0086
Pb (diss) [mg/L]	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009
Sb (diss) [mg/L]	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009
Se (diss) [mg/L]	0.00088	0.00122	0.00111	0.00096	0.00146
Sn (diss) [mg/L]	< 0.00006	< 0.00006	< 0.00006	< 0.00006	< 0.00006
Sr (diss) [mg/L]	0.0390	0.0436	0.0388	0.0438	0.0542
Ti (diss) [mg/L]	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00006
Tl (diss) [mg/L]	< 0.000005	0.000005	0.000005	0.000005	< 0.000005
U (diss) [mg/L]	0.000002	< 0.000002	0.000002	0.000003	0.000004
V (diss) [mg/L]	0.00011	0.00009	0.00007	0.00014	0.00013
W (diss) [mg/L]	0.00006	0.00005	0.00005	0.00004	0.00004
Y (diss) [mg/L]	0.00117	0.00120	0.00115	0.00118	0.00132
Zn (diss) [mg/L]	0.019	0.015	0.016	0.018	0.014



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Project : Hammond MNA

24-August-2021

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Date Rec. : 12 August 2021
LR Report: **CA15238-AUG21**
Reference: P.O# 800003210A

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CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: HAP1DPT06_[1]	6: HAP1DPT06_[2]	7: HAP1DPT06_[3]	8: HAP1DPT06_[4]	9: HAP1DPT06_[5]	10: HAP1DPT06_[6]
Sample Date & Time					29-Jun-21	29-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21
Temp Upon Receipt [°C]	---	---	---	---	13.0	13.0	13.0	13.0	13.0	13.0
Ag (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:51	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Al (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:51	0.004	0.004	< 0.001	< 0.001	< 0.001	< 0.001
As (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:51	0.0631	0.112	0.280	0.560	1.12	1.70
Ba (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:51	0.0435	0.0430	0.0411	0.0419	0.0427	0.0419
Be (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:51	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
B (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:51	0.018	0.018	0.017	0.016	0.017	0.017
Bi (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:51	0.00060	0.00050	0.00032	0.00031	0.00025	0.00020
Ca (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:51	129	125	129	128	127	125
Cd (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:51	0.000013	0.000015	0.000032	0.000088	0.000157	0.000357
Co (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:51	0.000051	0.000059	0.000052	0.000078	0.000058	0.000046
Cr (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:51	< 0.00008	0.00012	< 0.00008	< 0.00008	< 0.00008	< 0.00008
Cu (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:52	0.0003	0.0003	0.0002	< 0.0002	< 0.0002	< 0.0002
Fe (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:52	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
K (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:52	0.305	0.292	0.298	0.291	0.293	0.294
Li (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:52	0.0074	0.0131	0.0283	0.0412	0.0569	0.0709

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Project : Hammond MNA
LR Report : **CA15238-AUG21**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: HAP1DPT06_[1]	6: HAP1DPT06_[2]	7: HAP1DPT06_[3]	8: HAP1DPT06_[4]	9: HAP1DPT06_[5]	10: HAP1DPT06_[6]
Mg (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:52	4.31	4.12	4.24	4.16	4.12	3.97
Mn (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:52	0.0242	0.0235	0.0235	0.0230	0.0205	0.0106
Mo (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:52	0.0142	0.0522	0.105	0.261	0.587	1.20
Na (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:52	56.6	55.4	56.2	56.5	56.0	60.9
Ni (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:52	0.0002	0.0003	0.0003	0.0002	0.0002	0.0002
Pb (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:52	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009
Sb (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:58	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009
Se (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:58	0.00010	0.00010	0.00008	0.00011	0.00011	0.00012
Sn (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:58	< 0.00006	< 0.00006	< 0.00006	< 0.00006	< 0.00006	< 0.00006
Sr (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:58	0.390	0.389	0.389	0.425	0.402	0.387
Ti (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:58	< 0.00005	0.00010	< 0.00005	0.00011	0.00020	0.00026
Tl (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:58	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005
U (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:58	0.000743	0.000734	0.000705	0.000677	0.000740	0.000730
V (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:58	0.00021	0.00018	0.00019	0.00018	0.00021	0.00018
W (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:58	0.00007	0.00007	0.00008	0.00010	0.00014	0.00018
Y (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:58	0.00007	0.00007	0.00006	0.00007	0.00007	0.00006
Zn (diss) [mg/L]	17-Aug-21	12:55	18-Aug-21	16:58	0.003	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002

Analysis	11: HAP2DPT07&8_[1]	12: HAP2DPT07&8_[2]	13: HAP2DPT07&8_[3]	14: HAP2DPT07&8_[4]	15: HAP2DPT07&8_[5]	16: HAP3DPT01_[1]	17: HAP3DPT01_[2]	18: HAP3DPT01_[3]	19: HAP3DPT01_[4]	20: HAP3DPT01_[5]
Sample Date & Time	05-Jul-12	05-Jul-12	06-Jul-12	07-Jul-12	08-Jul-12	13-Jul-12	13-Jul-12	14-Jul-12	14-Jul-12	14-Jul-12
Temp Upon Receipt [°C]	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0
Ag (diss) [mg/L]	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Al (diss) [mg/L]	0.003	0.003	0.002	0.007	0.003	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
As (diss) [mg/L]	0.0008	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0002	< 0.0002	< 0.0002
Ba (diss) [mg/L]	0.0397	0.0412	0.0410	0.0413	0.0403	0.0424	0.0414	0.0415	0.0413	0.0407
Be (diss) [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
B (diss) [mg/L]	0.006	0.006	0.006	0.006	0.006	0.005	0.005	0.005	0.004	0.005
Bi (diss) [mg/L]	0.00001	< 0.00001	< 0.00001	0.00007	0.00001	0.00002	0.00001	0.00002	< 0.00001	< 0.00001

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Analysis	11: HAP2DPT07&8_[1]	12: HAP2DPT07&8_[2]	13: HAP2DPT07&8_[3]	14: HAP2DPT07&8_[4]	15: HAP2DPT07&8_[5]	16: HAP3DPT01_[1]	17: HAP3DPT01_[2]	18: HAP3DPT01_[3]	19: HAP3DPT01_[4]	20: HAP3DPT01_[5]
Ca (diss) [mg/L]	31.6	32.7	31.9	31.0	31.6	30.6	30.8	31.0	30.8	30.9
Cd (diss) [mg/L]	0.000010	0.000003	0.000003	0.000005	0.000007	0.000015	0.000013	0.000039	0.000031	0.000057
Co (diss) [mg/L]	0.0970	0.227	0.332	0.441	0.552	0.000643	0.000626	0.000627	0.000656	0.000659
Cr (diss) [mg/L]	< 0.00008	< 0.00008	< 0.00008	0.00011	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008	< 0.00008
Cu (diss) [mg/L]	0.0027	0.0013	0.0010	0.0011	0.0005	< 0.0002	0.0040	< 0.0002	< 0.0002	< 0.0002
Fe (diss) [mg/L]	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
K (diss) [mg/L]	0.693	0.702	0.713	0.710	0.729	0.752	0.753	0.770	0.757	0.747
Li (diss) [mg/L]	0.0021	0.0021	0.0019	0.0019	0.0019	0.0149	0.0306	0.0430	0.0558	0.0705
Mg (diss) [mg/L]	6.29	6.24	6.16	6.04	6.14	6.06	5.91	6.26	6.04	5.97
Mn (diss) [mg/L]	0.0844	0.0863	0.0851	0.0858	0.0868	0.0852	0.0851	0.0865	0.0854	0.0856
Mo (diss) [mg/L]	0.0109	0.00017	0.00010	0.00011	0.00010	0.0330	0.0501	0.0886	0.103	0.165
Na (diss) [mg/L]	8.02	7.86	7.87	7.72	8.05	7.84	7.86	8.01	7.95	7.89
Ni (diss) [mg/L]	0.0004	0.0004	0.0004	0.0004	0.0003	0.0003	0.0013	0.0004	0.0003	0.0004
Pb (diss) [mg/L]	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009
Sb (diss) [mg/L]	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009
Se (diss) [mg/L]	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004
Sn (diss) [mg/L]	< 0.00006	< 0.00006	< 0.00006	< 0.00006	< 0.00006	< 0.00006	< 0.00006	< 0.00006	< 0.00006	< 0.00006
Sr (diss) [mg/L]	0.0764	0.0773	0.0753	0.0734	0.0746	0.0738	0.0739	0.0747	0.0734	0.0740
Ti (diss) [mg/L]	< 0.00005	0.00008	0.00008	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.00007	< 0.00005	0.00008
Tl (diss) [mg/L]	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005
U (diss) [mg/L]	0.000043	0.000024	0.000012	0.000012	0.000011	0.000035	0.000010	0.000032	0.000010	0.000030
V (diss) [mg/L]	0.00002	< 0.00001	0.00001	0.00002	0.00001	0.00002	0.00001	0.00002	< 0.00001	0.00001
W (diss) [mg/L]	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Y (diss) [mg/L]	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Zn (diss) [mg/L]	0.012	0.006	0.005	0.005	0.004	0.002	< 0.002	< 0.002	< 0.002	< 0.002

Analysis	21: BAP1DPT0543&44_[1]	22: BAP1DPT0545&46_[2]	23: BAP1DPT0547&43_[3]	24: BAP1DPT0549&50_[4]	25: BAP1DPT0551&52_[5]	26: BAP1DT05_[6]
Sample Date & Time	22-Jul-12	29-Jul-12	29-Jul-12	30-Jul-12	30-Jul-12	03-Aug-21

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Project : Hammond MNA
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Analysis	21: BAP1DPT0543& 44_[1]	22: BAP1DPT0545& 46_[2]	23: BAP1DPT0547& 43_[3]	24: BAP1DPT0549& 50_[4]	25: BAP1DPT0551& 52_[5]	26: BAP1DT05_[6]
Temp Upon Receipt [°C]	13.0	13.0	13.0	13.0	13.0	13.0
Ag (diss) [mg/L]	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Al (diss) [mg/L]	0.001	< 0.001	< 0.001	0.001	0.001	0.002
As (diss) [mg/L]	0.0111	0.0218	0.0433	0.0659	0.0861	0.106
Ba (diss) [mg/L]	0.140	0.140	0.143	0.139	0.142	0.143
Be (diss) [mg/L]	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
B (diss) [mg/L]	0.008	0.008	0.008	0.007	0.007	0.007
Bi (diss) [mg/L]	0.00015	0.00011	0.00015	0.00008	0.00010	0.00011
Ca (diss) [mg/L]	47.3	48.0	46.6	48.0	46.4	45.9
Cd (diss) [mg/L]	0.000050	0.000080	0.000175	0.000248	0.000446	0.000679
Co (diss) [mg/L]	0.0102	0.0194	0.0384	0.0586	0.0761	0.0950
Cr (diss) [mg/L]	0.00032	0.00024	0.00029	0.00027	0.00026	0.00022
Cu (diss) [mg/L]	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0006
Fe (diss) [mg/L]	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
K (diss) [mg/L]	1.79	1.77	1.80	1.77	1.77	1.78
Li (diss) [mg/L]	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Mg (diss) [mg/L]	21.7	21.5	22.0	21.6	21.3	21.5
Mn (diss) [mg/L]	0.00035	0.00020	0.00019	0.00023	0.00026	0.00018
Mo (diss) [mg/L]	0.113	0.276	0.566	0.860	1.39	2.18
Na (diss) [mg/L]	3.50	3.50	3.71	3.86	4.03	4.59
Ni (diss) [mg/L]	< 0.0001	< 0.0001	0.0001	0.0001	< 0.0001	0.0002
Pb (diss) [mg/L]	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009
Sb (diss) [mg/L]	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009
Se (diss) [mg/L]	0.00040	0.00043	0.00043	0.00037	0.00044	0.00039
Sn (diss) [mg/L]	< 0.00006	< 0.00006	< 0.00006	< 0.00006	< 0.00006	< 0.00006
Sr (diss) [mg/L]	0.0546	0.0545	0.0528	0.0546	0.0534	0.0534
Ti (diss) [mg/L]	0.00006	0.00010	0.00021	0.00023	0.00036	0.00055
Tl (diss) [mg/L]	0.000157	0.000166	0.000154	0.000161	0.000164	0.000167
U (diss) [mg/L]	0.000670	0.000678	0.000662	0.000614	0.000643	0.000640
V (diss) [mg/L]	0.00060	0.00058	0.00059	0.00060	0.00058	0.00056
W (diss) [mg/L]	0.00005	0.00008	0.00010	0.00013	0.00020	0.00030

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Project : Hammond MNA
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Analysis	21: BAP1DPT0543&44_[1]	22: BAP1DPT0545&46_[2]	23: BAP1DPT0547&43_[3]	24: BAP1DPT0549&50_[4]	25: BAP1DPT0551&52_[5]	26: BAP1DT05_[6]
Y (diss) [mg/L]	0.00008	0.00008	0.00009	0.00009	0.00009	0.00009
Zn (diss) [mg/L]	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002

Catharine Arnold

Catharine Arnold, B.Sc., C.Chem
Project Specialist,
Environment, Health & Safety

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Project : Hammond MNA

14-September-2021

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Date Rec. : 03 September 2021
LR Report: **CA12171-SEP21**
Reference: P.O# 800003210A

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: HAP1DPT02_1a	6: HAP1DPT02_2a	7: HAP1DPT04XRF_3/5a	8: HAP1DPT04XRF_4/6a	9: HAP2DPT08_7a
Sample Date & Time					31-Aug-21	31-Aug-21	31-Aug-21	31-Aug-21	31-Aug-21
Temp Upon Receipt [°C]	---	---	---	---	11.0	11.0	11.0	11.0	11.0
Ag (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:43	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Al (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:43	0.003	0.002	0.003	0.003	0.002
As (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:43	< 0.0002	< 0.0002	0.0007	0.0007	< 0.0002
Ba (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:43	0.0421	0.0420	0.0403	0.0405	0.00396
Be (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:43	< 0.000007	< 0.000007	0.000008	0.000016	0.000007
B (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:43	0.165	0.148	0.106	0.113	0.293
Bi (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:43	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Ca (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:43	124	122	110	112	40.0
Cd (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:43	0.000003	0.000003	< 0.000003	< 0.000003	0.00176
Co (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:43	0.000053	0.000053	0.000084	0.000095	0.0571
Cr (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:43	0.00055	0.00049	0.00059	0.00045	0.00048
Cu (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:48	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0002
Fe (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:48	< 0.007	< 0.007	0.008	0.008	< 0.007
K (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:48	1.91	1.88	2.38	2.36	2.16
Li (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:48	0.0012	0.0013	0.0043	0.0046	0.0078
Mg (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:48	6.74	6.69	5.94	5.77	8.23
Mn (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:48	0.00316	0.00232	0.0182	0.0196	0.997
Mo (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:48	0.00725	0.00752	0.00658	0.00656	0.00011
Na (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:48	46.4	47.1	54.7	54.6	7.41
Ni (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:48	0.0003	0.0003	0.0009	0.0010	0.0667
Pb (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:48	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009
Sb (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:48	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009
Se (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:48	0.00010	0.00010	0.00097	0.00084	0.00709
Sn (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:48	< 0.00006	< 0.00006	0.00081	0.00080	0.00006
Sr (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:48	0.771	0.755	0.573	0.568	0.0992
Ti (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:48	0.00013	0.00007	0.00015	0.00015	0.00011
Tl (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:48	< 0.000005	< 0.000005	0.000012	0.000013	0.000008
U (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:48	0.000540	0.000567	0.000739	0.000738	0.000015
V (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:48	0.00007	0.00007	0.00030	0.00029	0.00004
W (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:48	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Y (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:48	0.00029	0.00026	0.00080	0.00079	0.00062
Zn (diss) [mg/L]	10-Sep-21	15:00	14-Sep-21	11:48	< 0.002	0.003	< 0.002	< 0.002	0.049

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Project : Hammond MNA

LR Report : **CA12171-SEP21**

Analysis	10: HAP2DPT08_8a	11: HAP3DPT02_9a	12: HAP3DPT02_10a	13: BAP1DPT02_11a	14: BAP1DPT02_12a
Sample Date & Time	31-Aug-21	31-Aug-21	31-Aug-21	31-Aug-21	31-Aug-21
Temp Upon Receipt [°C]	11.0	11.0	11.0	11.0	11.0
Ag (diss) [mg/L]	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Al (diss) [mg/L]	0.001	0.001	0.002	0.005	0.005
As (diss) [mg/L]	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Ba (diss) [mg/L]	0.00396	0.0270	0.0276	0.0373	0.0382
Be (diss) [mg/L]	0.000009	< 0.000007	< 0.000007	0.000009	0.000009
B (diss) [mg/L]	0.324	0.227	0.230	0.108	0.110
Bi (diss) [mg/L]	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Ca (diss) [mg/L]	40.0	66.7	69.0	42.3	42.2
Cd (diss) [mg/L]	0.00200	< 0.000003	< 0.000003	0.000011	0.000014
Co (diss) [mg/L]	0.0605	0.000027	0.000032	0.000142	0.000164
Cr (diss) [mg/L]	0.00039	0.00098	0.00088	0.00125	0.00108
Cu (diss) [mg/L]	0.0003	0.0004	< 0.0002	< 0.0002	< 0.0002
Fe (diss) [mg/L]	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
K (diss) [mg/L]	2.22	1.86	2.03	1.58	1.59
Li (diss) [mg/L]	0.0083	0.0057	0.0065	0.0005	0.0005
Mg (diss) [mg/L]	8.59	5.48	5.91	13.6	13.7
Mn (diss) [mg/L]	1.02	0.00050	0.00042	0.0137	0.0131
Mo (diss) [mg/L]	0.00022	0.0112	0.0139	0.00026	0.00029
Na (diss) [mg/L]	7.57	5.22	5.13	3.97	4.07
Ni (diss) [mg/L]	0.0714	0.0002	0.0002	0.0014	0.0013
Pb (diss) [mg/L]	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009
Sb (diss) [mg/L]	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009
Se (diss) [mg/L]	0.00767	0.00074	0.00073	0.00041	0.00048
Sn (diss) [mg/L]	0.00006	< 0.00006	< 0.00006	< 0.00006	< 0.00006
Sr (diss) [mg/L]	0.103	0.427	0.454	0.0861	0.0866
Ti (diss) [mg/L]	0.00006	0.00012	0.00013	0.00018	0.00019
Tl (diss) [mg/L]	0.000006	0.000007	< 0.000005	0.000021	0.000030
U (diss) [mg/L]	0.000016	0.000472	0.000485	0.000081	0.000089
V (diss) [mg/L]	0.00002	0.00028	0.00029	0.00006	0.00007
W (diss) [mg/L]	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Y (diss) [mg/L]	0.00071	0.00007	0.00008	0.00143	0.00142
Zn (diss) [mg/L]	0.056	< 0.002	< 0.002	< 0.002	< 0.002

Catharine Arnold

CHARTERED CHEMIST CATHARINE ARNOLD

Catharine Arnold, B.Sc., C.Chem
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0002640169

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

Project : Hammond MNA

22-September-2021

SiREM Laboratory
Attn : Kela Ashworth

130 Stone Rd. W
Guelph, ON
N1G 3Z2, Canada

Phone: 519-822-2265
Fax:519-822-3151

Date Rec. : 16 September 2021
LR Report: **CA15375-SEP21**
Reference: P.O# 800003210A

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: HAP1DPT02_1b	6: HAP1DPT02_2b	7: HAP1DPT04XRF_3b	8: HAP1DPT04XRF_4b	9: HAP1DPT04XRF_5b
Sample Date & Time					15-Sep-21	15-Sep-21	15-Sep-21	15-Sep-21	15-Sep-21
Temp Upon Receipt [°C]	---	---	---	---	9.0	9.0	9.0	9.0	9.0
Ag (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Al (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	0.002	0.002	0.006	0.004	0.003
As (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	< 0.0002	< 0.0002	0.0031	0.0030	0.0012
Ba (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	0.0382	0.0399	0.0462	0.0433	0.0496
Be (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	< 0.000007	0.000009	0.000034	0.000025	0.000022
B (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	0.651	0.602	0.281	0.312	0.281
Bi (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	0.00002	0.00001	0.00001	0.00001	0.00002
Ca (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	89.2	89.4	74.2	80.1	83.1
Cd (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	0.000013	< 0.000003	0.000004	0.000006	0.000009
Co (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	0.000077	0.000074	0.000122	0.000165	0.000617
Cr (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	0.00174	0.00214	0.00108	0.00095	0.00053
Cu (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	< 0.0002	< 0.0002	0.0005	0.0005	0.0005
Fe (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	< 0.007	< 0.007	0.016	0.016	0.010
K (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	3.44	3.42	4.56	4.46	2.89
Li (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	0.0005	0.0007	0.0048	0.0040	0.0015
Mg (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	9.55	8.93	5.41	5.76	6.11
Mn (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	0.00296	0.00213	0.0339	0.0324	0.231
Mo (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	0.00956	0.00967	0.0124	0.0113	0.00896
Na (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	38.6	36.9	58.6	63.7	61.3
Ni (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	0.0005	0.0005	0.0016	0.0015	0.0011
Pb (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	< 0.00009	< 0.00009	< 0.00009	< 0.00009	< 0.00009
Sb (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009
Se (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	0.00020	0.00022	0.00134	0.00115	0.00070
Sn (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	0.00013	0.00012	0.00121	0.00118	0.00135
Sr (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	0.727	0.720	0.392	0.413	0.441
Ti (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	< 0.00005	0.00022	0.00021	0.00023	0.00017
Tl (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	< 0.000005	< 0.000005	0.000016	0.000015	0.000013
U (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	0.000173	0.000190	0.00285	0.00240	0.00104
V (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	0.00013	0.00010	0.00065	0.00075	0.00066
W (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	< 0.00002	< 0.00002	0.00004	0.00004	< 0.00002
Y (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	0.00013	0.00009	0.00046	0.00047	0.00043
Zn (diss) [mg/L]	21-Sep-21	15:10	22-Sep-21	14:19	< 0.002	0.003	0.002	0.003	0.002

OnLine LIMS

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SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

Project : Hammond MNA

LR Report : **CA15375-SEP21**

Analysis	10: HAP1DPT04XRF_6b	11: HAP2DPT08_7b	12: HAP2DPT08_8b	13: HAP2DPT02_9b	14: HAP2DPT02_10b	15: BAP1DPT02_11b	16: BAP1DPT02_12b
Sample Date & Time	15-Sep-21	15-Sep-21	15-Sep-21	15-Sep-21	15-Sep-21	15-Sep-21	15-Sep-21
Temp Upon Receipt [°C]	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Ag (diss) [mg/L]	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Al (diss) [mg/L]	0.002	0.007	0.014	0.007	0.003	0.005	0.003
As (diss) [mg/L]	0.0012	0.0016	0.0028	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Ba (diss) [mg/L]	0.0430	0.0280	0.0306	0.0291	0.0302	0.0112	0.0113
Be (diss) [mg/L]	0.000018	0.000039	0.000068	< 0.000007	< 0.000007	0.000099	0.000086
B (diss) [mg/L]	0.309	0.872	0.836	0.285	0.290	0.498	0.547
Bi (diss) [mg/L]	0.00001	0.00001	< 0.00001	0.00001	0.00001	0.00002	< 0.00001
Ca (diss) [mg/L]	69.6	48.4	51.6	63.9	67.5	11.8	12.5
Cd (diss) [mg/L]	0.000016	0.00420	0.0120	0.000007	0.000005	0.000041	0.000035
Co (diss) [mg/L]	0.000911	0.114	0.167	0.000085	0.000076	0.000005	0.000012
Cr (diss) [mg/L]	0.00051	0.00045	0.00049	0.00215	0.00246	0.00136	0.00150
Cu (diss) [mg/L]	0.0006	0.0009	0.0028	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Fe (diss) [mg/L]	0.009	< 0.007	< 0.007	0.010	< 0.007	< 0.007	< 0.007
K (diss) [mg/L]	2.53	5.54	5.93	3.90	3.98	1.24	1.37
Li (diss) [mg/L]	0.0008	0.0172	0.0243	0.0077	0.0077	0.0005	0.0005
Mg (diss) [mg/L]	5.64	12.5	13.7	7.25	7.80	3.28	3.49
Mn (diss) [mg/L]	0.381	3.60	5.05	0.00059	0.00051	0.0120	0.0126
Mo (diss) [mg/L]	0.00414	0.00017	0.00047	0.0534	0.0542	0.00005	0.00010
Na (diss) [mg/L]	60.3	10.4	10.1	5.57	5.65	4.85	4.90
Ni (diss) [mg/L]	0.0015	0.117	0.151	0.0003	0.0003	0.0014	0.0016
Pb (diss) [mg/L]	< 0.00009	0.00011	0.00058	< 0.00009	< 0.00009	< 0.00009	< 0.00009
Sb (diss) [mg/L]	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009
Se (diss) [mg/L]	0.00050	0.0148	0.0159	0.00047	0.00066	0.00050	0.00043
Sn (diss) [mg/L]	0.00125	0.00014	0.00014	0.00011	0.00012	< 0.00006	< 0.00006
Sr (diss) [mg/L]	0.366	0.147	0.152	0.539	0.572	0.0297	0.0306
Ti (diss) [mg/L]	0.00017	0.00011	0.00007	0.00030	0.00010	0.00011	0.00010
Tl (diss) [mg/L]	0.000009	0.000014	0.000020	0.000006	0.000008	0.000020	0.000016
U (diss) [mg/L]	0.000268	0.000018	0.000027	0.00143	0.00171	0.000011	0.000025
V (diss) [mg/L]	0.00045	0.00007	0.00005	0.00041	0.00044	0.00008	0.00008
W (diss) [mg/L]	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002
Y (diss) [mg/L]	0.00047	0.00100	0.00157	0.00016	0.00012	0.00048	0.00034
Zn (diss) [mg/L]	0.004	0.087	0.127	< 0.002	< 0.002	0.008	0.004

Catharine Arnold

Catharine Arnold, B.Sc., C.Chem
Project Specialist,
Environment, Health & Safety

OnLine LIMS

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APPENDIX C

Laboratory Analytical and Field Sampling Reports

LABORATORY ANALYTICAL RESULTS

August 2021

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

September 14, 2021

Joju Abraham
Georgia Power-CCR
2480 Maner Road
Atlanta, GA 30339

RE: Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory between August 13, 2021 and August 20, 2021. 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,

Nicole D'Oleo

Nicole D'Oleo
nicole.d'oleo@pacelabs.com
(704)875-9092
Project Manager

Enclosures

cc: Christine Hug, Geosyntec Consultants, Inc.
Kristen Jurinko
Thomas Kessler, Geosyntec
Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Ms. Lauren Petty, Southern Company
Nardos Tilahun, GeoSyntec
Dawit Yifru, Geosyntec Consultants, Inc.

REPORT OF LABORATORY ANALYSIS

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

CERTIFICATIONS

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

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
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
Virginia/VELAP Certification #: 460221

Pace Analytical Services Asheville
2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
Virginia/VELAP Certification #: 460222

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

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

SAMPLE SUMMARY

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92555514001	**HGWA-1**	Water	08/11/21 17:00	08/13/21 14:55
92555514002	**HGWA-43D**	Water	08/11/21 17:03	08/13/21 14:55
92555514003	**HGWA-2**	Water	08/12/21 15:35	08/13/21 14:55
92555514004	**HGWA-3**	Water	08/12/21 10:17	08/13/21 14:55
92555514005	**HGWA-45D**	Water	08/13/21 12:07	08/16/21 13:25
92555514006	**HGWA-122**	Water	08/13/21 10:22	08/16/21 13:25
92555514007	**HGWA-44D**	Water	08/13/21 11:25	08/16/21 13:25
92555938001	**HGWC-121A**	Water	08/16/21 16:10	08/17/21 11:25
92555938002	**HGWC-120**	Water	08/16/21 12:15	08/17/21 11:25
92555938003	**HGWC-124**	Water	08/16/21 10:09	08/17/21 11:25
92555938004	**MW-46D**	Water	08/16/21 14:36	08/17/21 11:25
92555938005	**MW-39**	Water	08/18/21 09:10	08/19/21 12:40
92555938006	**MW-32**	Water	08/18/21 11:45	08/19/21 12:40
92555938007	**MW-41**	Water	08/18/21 13:20	08/19/21 12:40
92555938008	**HGWC-126**	Water	08/19/21 09:45	08/20/21 12:15
92555938009	**HGWC-125**	Water	08/19/21 11:14	08/20/21 12:15
92555938010	**DUP-3**	Water	08/19/21 00:00	08/20/21 12:15
92555938011	**EB-3**	Water	08/19/21 12:05	08/20/21 12:15
92555938012	**FB-3**	Water	08/19/21 12:00	08/20/21 12:15

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

SAMPLE ANALYTE COUNT

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Lab ID	Sample ID	Method	Analysts	Analytes Reported
92555514001	**HGWA-1**	EPA 6010D	KH	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2540C-2011	ALW	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92555514002	**HGWA-43D**	EPA 6010D	KH	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2540C-2011	ALW	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92555514003	**HGWA-2**	EPA 6010D	KH	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2540C-2011	ALW	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92555514004	**HGWA-3**	EPA 6010D	KH	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2540C-2011	ALW	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92555514005	**HGWA-45D**	EPA 6010D	KH	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2540C-2011	ALW	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92555514006	**HGWA-122**	EPA 6010D	KH	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2540C-2011	ALW	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92555514007	**HGWA-44D**	EPA 6010D	KH	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2540C-2011	ALW	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92555938001	**HGWC-121A**	EPA 6010D	DRB	1
		EPA 6020B	CW1	13

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

SAMPLE ANALYTE COUNT

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Lab ID	Sample ID	Method	Analysts	Analytes Reported
		EPA 7470A	VB	1
		SM 2540C-2011	ALW	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92555938002	**HGWC-120**	EPA 6010D	DRB	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2540C-2011	ALW	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92555938003	**HGWC-124**	EPA 6010D	DRB	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2540C-2011	ALW	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92555938004	**MW-46D**	EPA 6010D	DRB	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2540C-2011	ALW	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92555938005	**MW-39**	EPA 6010D	KH	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2540C-2011	ALW	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92555938006	**MW-32**	EPA 6010D	KH	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2540C-2011	ALW	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92555938007	**MW-41**	EPA 6010D	KH	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2540C-2011	ALW	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92555938008	**HGWC-126**	EPA 6010D	DRB	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2540C-2011	ALW	1

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Lab ID	Sample ID	Method	Analysts	Analytes Reported
		EPA 300.0 Rev 2.1 1993	CDC	3
92555938009	**HGWC-125**	EPA 6010D	DRB	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2540C-2011	ALW	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92555938010	**DUP-3**	EPA 6010D	DRB	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2540C-2011	ALW	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92555938011	**EB-3**	EPA 6010D	DRB	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2540C-2011	ALW	1
		EPA 300.0 Rev 2.1 1993	CDC	3
92555938012	**FB-3**	EPA 6010D	DRB	1
		EPA 6020B	CW1	13
		EPA 7470A	VB	1
		SM 2540C-2011	ALW	1
		EPA 300.0 Rev 2.1 1993	CDC	3

PASI-A = Pace Analytical Services - Asheville
PASI-C = Pace Analytical Services - Charlotte
PASI-GA = Pace Analytical Services - Peachtree Corners, GA

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

SUMMARY OF DETECTION

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92555514001	**HGWA-1**					
	Performed by	CUSTOMER			08/16/21 11:17	
	pH	6.98	Std. Units		08/16/21 11:17	
EPA 6010D	Calcium	113	mg/L	1.0	08/18/21 18:00	
EPA 6020B	Barium	0.030	mg/L	0.0050	08/19/21 19:05	
EPA 6020B	Boron	0.020J	mg/L	0.040	08/19/21 19:05	
EPA 6020B	Lithium	0.00078J	mg/L	0.030	08/19/21 19:05	
SM 2540C-2011	Total Dissolved Solids	366	mg/L	10.0	08/18/21 08:29	
EPA 300.0 Rev 2.1 1993	Chloride	9.6	mg/L	1.0	08/20/21 06:28	
EPA 300.0 Rev 2.1 1993	Fluoride	0.058J	mg/L	0.10	08/20/21 06:28	
EPA 300.0 Rev 2.1 1993	Sulfate	48.9	mg/L	1.0	08/20/21 06:28	
92555514002	**HGWA-43D**					
	Performed by	CUSTOMER			08/16/21 11:18	
	pH	7.40	Std. Units		08/16/21 11:18	
EPA 6010D	Calcium	61.0	mg/L	1.0	08/18/21 18:04	
EPA 6020B	Arsenic	0.0015J	mg/L	0.0050	08/19/21 19:10	
EPA 6020B	Barium	0.28	mg/L	0.0050	08/19/21 19:10	
EPA 6020B	Boron	0.042	mg/L	0.040	08/19/21 19:10	
EPA 6020B	Lithium	0.0024J	mg/L	0.030	08/19/21 19:10	
EPA 6020B	Molybdenum	0.0034J	mg/L	0.010	08/19/21 19:10	
SM 2540C-2011	Total Dissolved Solids	277	mg/L	10.0	08/18/21 08:29	
EPA 300.0 Rev 2.1 1993	Chloride	3.5	mg/L	1.0	08/20/21 07:13	
EPA 300.0 Rev 2.1 1993	Fluoride	0.15	mg/L	0.10	08/20/21 07:13	
EPA 300.0 Rev 2.1 1993	Sulfate	30.5	mg/L	1.0	08/20/21 07:13	
92555514003	**HGWA-2**					
	Performed by	CUSTOMER			08/16/21 11:18	
	pH	5.05	Std. Units		08/16/21 11:18	
EPA 6010D	Calcium	21.9	mg/L	1.0	08/18/21 18:09	
EPA 6020B	Barium	0.12	mg/L	0.0050	08/19/21 19:16	
EPA 6020B	Beryllium	0.00014J	mg/L	0.00050	08/19/21 19:16	
EPA 6020B	Boron	0.044	mg/L	0.040	08/19/21 19:16	
EPA 6020B	Cadmium	0.00014J	mg/L	0.00050	08/19/21 19:16	
EPA 6020B	Cobalt	0.022	mg/L	0.0050	08/19/21 19:16	
EPA 6020B	Lithium	0.0012J	mg/L	0.030	08/19/21 19:16	
SM 2540C-2011	Total Dissolved Solids	118	mg/L	10.0	08/19/21 15:09	
EPA 300.0 Rev 2.1 1993	Chloride	5.2	mg/L	1.0	08/20/21 08:28	
EPA 300.0 Rev 2.1 1993	Sulfate	47.4	mg/L	1.0	08/20/21 08:28	
92555514004	**HGWA-3**					
	Performed by	CUSTOMER			08/16/21 11:18	
	pH	7.31	Std. Units		08/16/21 11:18	
EPA 6010D	Calcium	84.0	mg/L	1.0	08/18/21 18:14	
EPA 6020B	Barium	0.11	mg/L	0.0050	08/19/21 19:22	
EPA 6020B	Lithium	0.0028J	mg/L	0.030	08/19/21 19:22	
SM 2540C-2011	Total Dissolved Solids	265	mg/L	10.0	08/19/21 15:09	

REPORT OF LABORATORY ANALYSIS

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

SUMMARY OF DETECTION

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92555514004	**HGWA-3**					
EPA 300.0 Rev 2.1 1993	Chloride	4.8	mg/L	1.0	08/20/21 08:43	
EPA 300.0 Rev 2.1 1993	Sulfate	38.6	mg/L	1.0	08/20/21 08:43	
92555514005	**HGWA-45D**					
	Performed by	CUSTOMER			08/16/21 17:38	
	pH	7.42	Std. Units		08/16/21 17:38	
EPA 6010D	Calcium	53.0	mg/L	1.0	08/18/21 18:19	
EPA 6020B	Arsenic	0.0012J	mg/L	0.0050	08/19/21 19:28	
EPA 6020B	Barium	0.51	mg/L	0.0050	08/19/21 19:28	
EPA 6020B	Boron	0.15	mg/L	0.040	08/19/21 19:28	
EPA 6020B	Lithium	0.0044J	mg/L	0.030	08/19/21 19:28	
SM 2540C-2011	Total Dissolved Solids	272	mg/L	10.0	08/19/21 15:11	
EPA 300.0 Rev 2.1 1993	Chloride	3.3	mg/L	1.0	08/20/21 21:01	
EPA 300.0 Rev 2.1 1993	Fluoride	0.20	mg/L	0.10	08/20/21 21:01	
EPA 300.0 Rev 2.1 1993	Sulfate	8.1	mg/L	1.0	08/20/21 21:01	
92555514006	**HGWA-122**					
	Performed by	CUSTOMER			08/16/21 17:38	
	pH	6.56	Std. Units		08/16/21 17:38	
EPA 6010D	Calcium	62.9	mg/L	1.0	08/18/21 18:24	
EPA 6020B	Barium	0.033	mg/L	0.0050	08/19/21 19:33	
EPA 6020B	Boron	0.19	mg/L	0.040	08/19/21 19:33	
EPA 6020B	Molybdenum	0.0022J	mg/L	0.010	08/19/21 19:33	
SM 2540C-2011	Total Dissolved Solids	201	mg/L	10.0	08/19/21 15:11	
EPA 300.0 Rev 2.1 1993	Chloride	2.6	mg/L	1.0	08/20/21 21:16	
EPA 300.0 Rev 2.1 1993	Fluoride	0.065J	mg/L	0.10	08/20/21 21:16	
EPA 300.0 Rev 2.1 1993	Sulfate	42.1	mg/L	1.0	08/20/21 21:16	
92555514007	**HGWA-44D**					
	Performed by	CUSTOMER			08/16/21 17:39	
	pH	7.77	Std. Units		08/16/21 17:39	
EPA 6010D	Calcium	28.9	mg/L	1.0	08/18/21 18:29	
EPA 6020B	Barium	0.22	mg/L	0.0050	08/19/21 19:39	
EPA 6020B	Boron	0.31	mg/L	0.040	08/19/21 19:39	
EPA 6020B	Chromium	0.0016J	mg/L	0.0050	08/19/21 19:39	
EPA 6020B	Lithium	0.032	mg/L	0.030	08/19/21 19:39	
EPA 6020B	Molybdenum	0.0051J	mg/L	0.010	08/19/21 19:39	
SM 2540C-2011	Total Dissolved Solids	436	mg/L	20.0	08/19/21 15:11	
EPA 300.0 Rev 2.1 1993	Chloride	39.9	mg/L	1.0	08/20/21 22:01	
EPA 300.0 Rev 2.1 1993	Fluoride	0.87	mg/L	0.10	08/20/21 22:01	
EPA 300.0 Rev 2.1 1993	Sulfate	56.1	mg/L	1.0	08/20/21 22:01	
92555938001	**HGWC-121A**					
	Performed by	CUSTOMER			08/17/21 16:31	
	pH	6.74	Std. Units		08/17/21 16:31	
EPA 6010D	Calcium	162	mg/L	1.0	08/19/21 17:35	M1

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92555938001	**HGWC-121A**					
EPA 6020B	Arsenic	0.0014J	mg/L	0.0050	08/20/21 18:20	
EPA 6020B	Barium	0.060	mg/L	0.0050	08/20/21 18:20	
EPA 6020B	Boron	2.0	mg/L	0.040	08/20/21 18:20	
EPA 6020B	Lithium	0.0075J	mg/L	0.030	08/20/21 18:20	
SM 2540C-2011	Total Dissolved Solids	626	mg/L	20.0	08/20/21 16:39	
EPA 300.0 Rev 2.1 1993	Chloride	18.0	mg/L	1.0	08/23/21 00:32	
EPA 300.0 Rev 2.1 1993	Fluoride	0.15	mg/L	0.10	08/23/21 00:32	
EPA 300.0 Rev 2.1 1993	Sulfate	158	mg/L	4.0	08/23/21 12:59	
92555938002	**HGWC-120**					
	Performed by	CUSTOMER			08/17/21 16:31	
	pH	6.92	Std. Units		08/17/21 16:31	
EPA 6010D	Calcium	171	mg/L	1.0	08/19/21 17:54	
EPA 6020B	Arsenic	0.0015J	mg/L	0.0050	08/20/21 18:26	
EPA 6020B	Barium	0.052	mg/L	0.0050	08/20/21 18:26	
EPA 6020B	Boron	1.1	mg/L	0.040	08/20/21 18:26	
EPA 6020B	Cobalt	0.0037J	mg/L	0.0050	08/20/21 18:26	
EPA 6020B	Lithium	0.025J	mg/L	0.030	08/20/21 18:26	
EPA 6020B	Molybdenum	0.035	mg/L	0.010	08/20/21 18:26	
SM 2540C-2011	Total Dissolved Solids	632	mg/L	20.0	08/20/21 16:39	
EPA 300.0 Rev 2.1 1993	Chloride	2.4	mg/L	1.0	08/23/21 00:47	
EPA 300.0 Rev 2.1 1993	Fluoride	0.39	mg/L	0.10	08/23/21 00:47	
EPA 300.0 Rev 2.1 1993	Sulfate	211	mg/L	5.0	08/23/21 13:14	M1
92555938003	**HGWC-124**					
	Performed by	CUSTOMER			08/17/21 16:32	
	pH	7.09	Std. Units		08/17/21 16:32	
EPA 6010D	Calcium	106	mg/L	1.0	08/19/21 17:59	
EPA 6020B	Barium	0.069	mg/L	0.0050	08/20/21 18:32	
EPA 6020B	Boron	0.44	mg/L	0.040	08/20/21 18:32	
EPA 6020B	Lithium	0.0011J	mg/L	0.030	08/20/21 18:32	
EPA 6020B	Molybdenum	0.00091J	mg/L	0.010	08/20/21 18:32	
SM 2540C-2011	Total Dissolved Solids	352	mg/L	10.0	08/20/21 16:40	
EPA 300.0 Rev 2.1 1993	Chloride	2.6	mg/L	1.0	08/23/21 01:31	
EPA 300.0 Rev 2.1 1993	Sulfate	74.0	mg/L	1.0	08/23/21 01:31	
92555938004	**MW-46D**					
	Performed by	CUSTOMER			08/17/21 16:32	
	pH	7.65	Std. Units		08/17/21 16:32	
EPA 6010D	Calcium	45.8	mg/L	1.0	08/19/21 18:04	
EPA 6020B	Arsenic	0.0032J	mg/L	0.0050	08/20/21 18:38	
EPA 6020B	Barium	0.026	mg/L	0.0050	08/20/21 18:38	
EPA 6020B	Boron	0.87	mg/L	0.040	08/20/21 18:38	
EPA 6020B	Lithium	0.0062J	mg/L	0.030	08/20/21 18:38	
EPA 6020B	Molybdenum	0.0012J	mg/L	0.010	08/20/21 18:38	
SM 2540C-2011	Total Dissolved Solids	516	mg/L	20.0	08/20/21 16:40	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92555938004	**MW-46D**					
EPA 300.0 Rev 2.1 1993	Chloride	3.7	mg/L	1.0	08/23/21 01:46	
EPA 300.0 Rev 2.1 1993	Fluoride	1.0	mg/L	0.10	08/23/21 01:46	
EPA 300.0 Rev 2.1 1993	Sulfate	144	mg/L	3.0	08/23/21 13:59	
92555938005	**MW-39**					
	Performed by	CUSTOMER			08/19/21 17:01	
	pH	6.90	Std. Units		08/19/21 17:01	
EPA 6010D	Calcium	171	mg/L	1.0	08/20/21 18:46	
EPA 6020B	Barium	0.060	mg/L	0.0050	08/27/21 16:23	
EPA 6020B	Boron	1.2	mg/L	0.040	08/30/21 17:25	
EPA 6020B	Cobalt	0.0025J	mg/L	0.0050	08/27/21 16:23	
EPA 6020B	Lithium	0.032	mg/L	0.030	08/30/21 17:25	
EPA 6020B	Molybdenum	0.063	mg/L	0.010	08/27/21 16:23	
SM 2540C-2011	Total Dissolved Solids	628	mg/L	20.0	08/25/21 19:26	
EPA 300.0 Rev 2.1 1993	Chloride	2.3	mg/L	1.0	08/26/21 04:21	
EPA 300.0 Rev 2.1 1993	Fluoride	0.25	mg/L	0.10	08/26/21 04:21	
EPA 300.0 Rev 2.1 1993	Sulfate	173	mg/L	5.0	08/28/21 16:19	
92555938006	**MW-32**					
	Performed by	CUSTOMER			08/19/21 17:01	
	pH	6.89	Std. Units		08/19/21 17:01	
EPA 6010D	Calcium	155	mg/L	1.0	08/20/21 18:51	
EPA 6020B	Barium	0.054	mg/L	0.0050	08/27/21 16:29	
EPA 6020B	Boron	1.2	mg/L	0.040	08/30/21 17:31	
EPA 6020B	Cobalt	0.0036J	mg/L	0.0050	08/27/21 16:29	
EPA 6020B	Lithium	0.031	mg/L	0.030	08/30/21 17:31	
EPA 6020B	Molybdenum	0.061	mg/L	0.010	08/27/21 16:29	
SM 2540C-2011	Total Dissolved Solids	554	mg/L	20.0	08/25/21 19:26	
EPA 300.0 Rev 2.1 1993	Chloride	2.2	mg/L	1.0	08/26/21 04:36	
EPA 300.0 Rev 2.1 1993	Fluoride	0.24	mg/L	0.10	08/26/21 04:36	
EPA 300.0 Rev 2.1 1993	Sulfate	162	mg/L	4.0	08/28/21 16:36	
92555938007	**MW-41**					
	Performed by	CUSTOMER			08/19/21 17:01	
	pH	6.93	Std. Units		08/19/21 17:01	
EPA 6010D	Calcium	175	mg/L	1.0	08/20/21 19:05	
EPA 6020B	Barium	0.064	mg/L	0.0050	08/27/21 17:48	
EPA 6020B	Boron	1.1	mg/L	0.040	08/30/21 17:37	
EPA 6020B	Cobalt	0.00064J	mg/L	0.0050	08/27/21 17:48	
EPA 6020B	Lithium	0.029J	mg/L	0.030	08/30/21 17:37	
EPA 6020B	Molybdenum	0.042	mg/L	0.010	08/27/21 17:48	
SM 2540C-2011	Total Dissolved Solids	602	mg/L	20.0	08/25/21 19:26	
EPA 300.0 Rev 2.1 1993	Chloride	2.8	mg/L	1.0	08/26/21 04:52	
EPA 300.0 Rev 2.1 1993	Fluoride	0.20	mg/L	0.10	08/26/21 04:52	
EPA 300.0 Rev 2.1 1993	Sulfate	180	mg/L	5.0	08/28/21 16:54	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92555938008	**HGWC-126**					
	Performed by	CUSTOMER			08/20/21 15:31	
	pH	7.32	Std. Units		08/20/21 15:31	
EPA 6010D	Calcium	139	mg/L	1.0	08/26/21 12:52	M1
EPA 6020B	Barium	0.27	mg/L	0.0050	08/31/21 14:26	
EPA 6020B	Boron	0.011J	mg/L	0.040	08/31/21 14:26	
EPA 6020B	Lithium	0.0032J	mg/L	0.030	08/31/21 14:26	
SM 2540C-2011	Total Dissolved Solids	488	mg/L	20.0	08/26/21 18:47	
EPA 300.0 Rev 2.1 1993	Chloride	7.8	mg/L	1.0	08/27/21 12:41	
EPA 300.0 Rev 2.1 1993	Fluoride	0.43	mg/L	0.10	08/27/21 12:41	
EPA 300.0 Rev 2.1 1993	Sulfate	64.4	mg/L	1.0	08/27/21 12:41	
92555938009	**HGWC-125**					
	Performed by	CUSTOMER			08/20/21 15:31	
	pH	7.24	Std. Units		08/20/21 15:31	
EPA 6010D	Calcium	196	mg/L	1.0	08/26/21 13:11	
EPA 6020B	Barium	0.044	mg/L	0.0050	08/31/21 14:49	
EPA 6020B	Boron	1.5	mg/L	0.040	08/31/21 14:49	
EPA 6020B	Cobalt	0.0054	mg/L	0.0050	08/31/21 14:49	
EPA 6020B	Lithium	0.0074J	mg/L	0.030	08/31/21 14:49	
EPA 6020B	Molybdenum	0.021	mg/L	0.010	08/31/21 14:49	
SM 2540C-2011	Total Dissolved Solids	732	mg/L	20.0	08/26/21 18:46	
EPA 300.0 Rev 2.1 1993	Chloride	4.5	mg/L	1.0	08/27/21 12:57	
EPA 300.0 Rev 2.1 1993	Fluoride	0.17	mg/L	0.10	08/27/21 12:57	
EPA 300.0 Rev 2.1 1993	Sulfate	264	mg/L	6.0	08/27/21 21:06	M1
92555938010	**DUP-3**					
EPA 6010D	Calcium	186	mg/L	1.0	08/26/21 13:16	
EPA 6020B	Barium	0.043	mg/L	0.0050	08/31/21 14:54	
EPA 6020B	Boron	1.5	mg/L	0.040	08/31/21 14:54	
EPA 6020B	Cobalt	0.0054	mg/L	0.0050	08/31/21 14:54	
EPA 6020B	Lithium	0.0077J	mg/L	0.030	08/31/21 14:54	
EPA 6020B	Molybdenum	0.020	mg/L	0.010	08/31/21 14:54	
EPA 7470A	Mercury	0.00015J	mg/L	0.00020	08/27/21 14:32	B
SM 2540C-2011	Total Dissolved Solids	700	mg/L	20.0	08/26/21 18:47	
EPA 300.0 Rev 2.1 1993	Chloride	4.6	mg/L	1.0	08/27/21 14:14	
EPA 300.0 Rev 2.1 1993	Fluoride	0.18	mg/L	0.10	08/27/21 14:14	
EPA 300.0 Rev 2.1 1993	Sulfate	265	mg/L	6.0	08/27/21 21:52	
92555938011	**EB-3**					
EPA 7470A	Mercury	0.00020	mg/L	0.00020	08/27/21 14:35	B
92555938012	**FB-3**					
EPA 7470A	Mercury	0.00011J	mg/L	0.00020	08/27/21 14:37	B

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Sample: HGWA-1 **Lab ID: 92555514001** Collected: 08/11/21 17:00 Received: 08/13/21 14:55 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
Performed by	**CUSTOMER**				1		08/16/21 11:17		
pH	**6.98**	Std. Units			1		08/16/21 11:17		
6010D ATL ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA								
Calcium	**113**	mg/L	1.0	0.12	1	08/18/21 09:54	08/18/21 18:00	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA								
Antimony	ND	mg/L	0.0030	0.00078	1	08/18/21 09:57	08/19/21 19:05	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.0011	1	08/18/21 09:57	08/19/21 19:05	7440-38-2	
Barium	**0.030**	mg/L	0.0050	0.00067	1	08/18/21 09:57	08/19/21 19:05	7440-39-3	
Beryllium	ND	mg/L	0.00050	0.000054	1	08/18/21 09:57	08/19/21 19:05	7440-41-7	
Boron	**0.020J**	mg/L	0.040	0.0086	1	08/18/21 09:57	08/19/21 19:05	7440-42-8	
Cadmium	ND	mg/L	0.00050	0.00011	1	08/18/21 09:57	08/19/21 19:05	7440-43-9	
Chromium	ND	mg/L	0.0050	0.0011	1	08/18/21 09:57	08/19/21 19:05	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00039	1	08/18/21 09:57	08/19/21 19:05	7440-48-4	
Lead	ND	mg/L	0.0010	0.00089	1	08/18/21 09:57	08/19/21 19:05	7439-92-1	
Lithium	**0.00078J**	mg/L	0.030	0.00073	1	08/18/21 09:57	08/19/21 19:05	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00074	1	08/18/21 09:57	08/19/21 19:05	7439-98-7	
Selenium	ND	mg/L	0.0050	0.0014	1	08/18/21 09:57	08/19/21 19:05	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00018	1	08/18/21 09:57	08/19/21 19:05	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA								
Mercury	ND	mg/L	0.00020	0.000078	1	08/25/21 08:10	08/25/21 12:50	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Peachtree Corners, GA								
Total Dissolved Solids	**366**	mg/L	10.0	10.0	1		08/18/21 08:29		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**9.6**	mg/L	1.0	0.60	1		08/20/21 06:28	16887-00-6	
Fluoride	**0.058J**	mg/L	0.10	0.050	1		08/20/21 06:28	16984-48-8	
Sulfate	**48.9**	mg/L	1.0	0.50	1		08/20/21 06:28	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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110 Technology Parkway
Peachtree Corners, GA 30092
(770)734-4200

ANALYTICAL RESULTS

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Sample: HGWA-43D **Lab ID: 92555514002** Collected: 08/11/21 17:03 Received: 08/13/21 14:55 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
Performed by	**CUSTOMER**				1		08/16/21 11:18		
pH	**7.40**	Std. Units			1		08/16/21 11:18		
6010D ATL ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA								
Calcium	**61.0**	mg/L	1.0	0.12	1	08/18/21 09:54	08/18/21 18:04	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA								
Antimony	ND	mg/L	0.0030	0.00078	1	08/18/21 09:57	08/19/21 19:10	7440-36-0	
Arsenic	**0.0015J**	mg/L	0.0050	0.0011	1	08/18/21 09:57	08/19/21 19:10	7440-38-2	
Barium	**0.28**	mg/L	0.0050	0.00067	1	08/18/21 09:57	08/19/21 19:10	7440-39-3	
Beryllium	ND	mg/L	0.00050	0.000054	1	08/18/21 09:57	08/19/21 19:10	7440-41-7	
Boron	**0.042**	mg/L	0.040	0.0086	1	08/18/21 09:57	08/19/21 19:10	7440-42-8	
Cadmium	ND	mg/L	0.00050	0.00011	1	08/18/21 09:57	08/19/21 19:10	7440-43-9	
Chromium	ND	mg/L	0.0050	0.0011	1	08/18/21 09:57	08/19/21 19:10	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00039	1	08/18/21 09:57	08/19/21 19:10	7440-48-4	
Lead	ND	mg/L	0.0010	0.00089	1	08/18/21 09:57	08/19/21 19:10	7439-92-1	
Lithium	**0.0024J**	mg/L	0.030	0.00073	1	08/18/21 09:57	08/19/21 19:10	7439-93-2	
Molybdenum	**0.0034J**	mg/L	0.010	0.00074	1	08/18/21 09:57	08/19/21 19:10	7439-98-7	
Selenium	ND	mg/L	0.0050	0.0014	1	08/18/21 09:57	08/19/21 19:10	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00018	1	08/18/21 09:57	08/19/21 19:10	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA								
Mercury	ND	mg/L	0.00020	0.000078	1	08/25/21 08:10	08/25/21 12:53	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Peachtree Corners, GA								
Total Dissolved Solids	**277**	mg/L	10.0	10.0	1		08/18/21 08:29		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**3.5**	mg/L	1.0	0.60	1		08/20/21 07:13	16887-00-6	
Fluoride	**0.15**	mg/L	0.10	0.050	1		08/20/21 07:13	16984-48-8	
Sulfate	**30.5**	mg/L	1.0	0.50	1		08/20/21 07:13	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Sample: HGWA-2 **Lab ID: 92555514003** Collected: 08/12/21 15:35 Received: 08/13/21 14:55 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
Performed by	**CUSTOMER**				1		08/16/21 11:18		
pH	**5.05**	Std. Units			1		08/16/21 11:18		
6010D ATL ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA								
Calcium	**21.9**	mg/L	1.0	0.12	1	08/18/21 09:54	08/18/21 18:09	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA								
Antimony	ND	mg/L	0.0030	0.00078	1	08/18/21 09:57	08/19/21 19:16	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.0011	1	08/18/21 09:57	08/19/21 19:16	7440-38-2	
Barium	**0.12**	mg/L	0.0050	0.00067	1	08/18/21 09:57	08/19/21 19:16	7440-39-3	
Beryllium	**0.00014J**	mg/L	0.00050	0.000054	1	08/18/21 09:57	08/19/21 19:16	7440-41-7	
Boron	**0.044**	mg/L	0.040	0.0086	1	08/18/21 09:57	08/19/21 19:16	7440-42-8	
Cadmium	**0.00014J**	mg/L	0.00050	0.00011	1	08/18/21 09:57	08/19/21 19:16	7440-43-9	
Chromium	ND	mg/L	0.0050	0.0011	1	08/18/21 09:57	08/19/21 19:16	7440-47-3	
Cobalt	**0.022**	mg/L	0.0050	0.00039	1	08/18/21 09:57	08/19/21 19:16	7440-48-4	
Lead	ND	mg/L	0.0010	0.00089	1	08/18/21 09:57	08/19/21 19:16	7439-92-1	
Lithium	**0.0012J**	mg/L	0.030	0.00073	1	08/18/21 09:57	08/19/21 19:16	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00074	1	08/18/21 09:57	08/19/21 19:16	7439-98-7	
Selenium	ND	mg/L	0.0050	0.0014	1	08/18/21 09:57	08/19/21 19:16	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00018	1	08/18/21 09:57	08/19/21 19:16	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA								
Mercury	ND	mg/L	0.00020	0.000078	1	08/25/21 08:10	08/25/21 12:56	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Peachtree Corners, GA								
Total Dissolved Solids	**118**	mg/L	10.0	10.0	1		08/19/21 15:09		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**5.2**	mg/L	1.0	0.60	1		08/20/21 08:28	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		08/20/21 08:28	16984-48-8	
Sulfate	**47.4**	mg/L	1.0	0.50	1		08/20/21 08:28	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(770)734-4200

ANALYTICAL RESULTS

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Sample: HGWA-3 **Lab ID: 92555514004** Collected: 08/12/21 10:17 Received: 08/13/21 14:55 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
Performed by	**CUSTOMER**				1		08/16/21 11:18		
pH	**7.31**	Std. Units			1		08/16/21 11:18		
6010D ATL ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA								
Calcium	**84.0**	mg/L	1.0	0.12	1	08/18/21 09:54	08/18/21 18:14	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA								
Antimony	ND	mg/L	0.0030	0.00078	1	08/18/21 09:57	08/19/21 19:22	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.0011	1	08/18/21 09:57	08/19/21 19:22	7440-38-2	
Barium	**0.11**	mg/L	0.0050	0.00067	1	08/18/21 09:57	08/19/21 19:22	7440-39-3	
Beryllium	ND	mg/L	0.00050	0.000054	1	08/18/21 09:57	08/19/21 19:22	7440-41-7	
Boron	ND	mg/L	0.040	0.0086	1	08/18/21 09:57	08/19/21 19:22	7440-42-8	
Cadmium	ND	mg/L	0.00050	0.00011	1	08/18/21 09:57	08/19/21 19:22	7440-43-9	
Chromium	ND	mg/L	0.0050	0.0011	1	08/18/21 09:57	08/19/21 19:22	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00039	1	08/18/21 09:57	08/19/21 19:22	7440-48-4	
Lead	ND	mg/L	0.0010	0.00089	1	08/18/21 09:57	08/19/21 19:22	7439-92-1	
Lithium	**0.0028J**	mg/L	0.030	0.00073	1	08/18/21 09:57	08/19/21 19:22	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00074	1	08/18/21 09:57	08/19/21 19:22	7439-98-7	
Selenium	ND	mg/L	0.0050	0.0014	1	08/18/21 09:57	08/19/21 19:22	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00018	1	08/18/21 09:57	08/19/21 19:22	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA								
Mercury	ND	mg/L	0.00020	0.000078	1	08/25/21 08:10	08/25/21 12:58	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Peachtree Corners, GA								
Total Dissolved Solids	**265**	mg/L	10.0	10.0	1		08/19/21 15:09		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**4.8**	mg/L	1.0	0.60	1		08/20/21 08:43	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		08/20/21 08:43	16984-48-8	
Sulfate	**38.6**	mg/L	1.0	0.50	1		08/20/21 08:43	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Sample: HGWA-45D **Lab ID: 92555514005** Collected: 08/13/21 12:07 Received: 08/16/21 13:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
Performed by	**CUSTOMER**				1		08/16/21 17:38		
pH	**7.42**	Std. Units			1		08/16/21 17:38		
6010D ATL ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA								
Calcium	**53.0**	mg/L	1.0	0.12	1	08/18/21 09:54	08/18/21 18:19	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA								
Antimony	ND	mg/L	0.0030	0.00078	1	08/18/21 09:57	08/19/21 19:28	7440-36-0	
Arsenic	**0.0012J**	mg/L	0.0050	0.0011	1	08/18/21 09:57	08/19/21 19:28	7440-38-2	
Barium	**0.51**	mg/L	0.0050	0.00067	1	08/18/21 09:57	08/19/21 19:28	7440-39-3	
Beryllium	ND	mg/L	0.00050	0.000054	1	08/18/21 09:57	08/19/21 19:28	7440-41-7	
Boron	**0.15**	mg/L	0.040	0.0086	1	08/18/21 09:57	08/19/21 19:28	7440-42-8	
Cadmium	ND	mg/L	0.00050	0.00011	1	08/18/21 09:57	08/19/21 19:28	7440-43-9	
Chromium	ND	mg/L	0.0050	0.0011	1	08/18/21 09:57	08/19/21 19:28	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00039	1	08/18/21 09:57	08/19/21 19:28	7440-48-4	
Lead	ND	mg/L	0.0010	0.00089	1	08/18/21 09:57	08/19/21 19:28	7439-92-1	
Lithium	**0.0044J**	mg/L	0.030	0.00073	1	08/18/21 09:57	08/19/21 19:28	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00074	1	08/18/21 09:57	08/19/21 19:28	7439-98-7	
Selenium	ND	mg/L	0.0050	0.0014	1	08/18/21 09:57	08/19/21 19:28	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00018	1	08/18/21 09:57	08/19/21 19:28	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA								
Mercury	ND	mg/L	0.00020	0.000078	1	08/25/21 08:10	08/25/21 13:01	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Peachtree Corners, GA								
Total Dissolved Solids	**272**	mg/L	10.0	10.0	1		08/19/21 15:11		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**3.3**	mg/L	1.0	0.60	1		08/20/21 21:01	16887-00-6	
Fluoride	**0.20**	mg/L	0.10	0.050	1		08/20/21 21:01	16984-48-8	
Sulfate	**8.1**	mg/L	1.0	0.50	1		08/20/21 21:01	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
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ANALYTICAL RESULTS

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Sample: HGWA-122 **Lab ID: 92555514006** Collected: 08/13/21 10:22 Received: 08/16/21 13:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
Performed by	**CUSTOMER**				1		08/16/21 17:38		
pH	**6.56**	Std. Units			1		08/16/21 17:38		
6010D ATL ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA								
Calcium	**62.9**	mg/L	1.0	0.12	1	08/18/21 09:54	08/18/21 18:24	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA								
Antimony	ND	mg/L	0.0030	0.00078	1	08/18/21 09:57	08/19/21 19:33	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.0011	1	08/18/21 09:57	08/19/21 19:33	7440-38-2	
Barium	**0.033**	mg/L	0.0050	0.00067	1	08/18/21 09:57	08/19/21 19:33	7440-39-3	
Beryllium	ND	mg/L	0.00050	0.000054	1	08/18/21 09:57	08/19/21 19:33	7440-41-7	
Boron	**0.19**	mg/L	0.040	0.0086	1	08/18/21 09:57	08/19/21 19:33	7440-42-8	
Cadmium	ND	mg/L	0.00050	0.00011	1	08/18/21 09:57	08/19/21 19:33	7440-43-9	
Chromium	ND	mg/L	0.0050	0.0011	1	08/18/21 09:57	08/19/21 19:33	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00039	1	08/18/21 09:57	08/19/21 19:33	7440-48-4	
Lead	ND	mg/L	0.0010	0.00089	1	08/18/21 09:57	08/19/21 19:33	7439-92-1	
Lithium	ND	mg/L	0.030	0.00073	1	08/18/21 09:57	08/19/21 19:33	7439-93-2	
Molybdenum	**0.0022J**	mg/L	0.010	0.00074	1	08/18/21 09:57	08/19/21 19:33	7439-98-7	
Selenium	ND	mg/L	0.0050	0.0014	1	08/18/21 09:57	08/19/21 19:33	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00018	1	08/18/21 09:57	08/19/21 19:33	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA								
Mercury	ND	mg/L	0.00020	0.000078	1	08/25/21 08:10	08/25/21 13:04	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Peachtree Corners, GA								
Total Dissolved Solids	**201**	mg/L	10.0	10.0	1		08/19/21 15:11		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**2.6**	mg/L	1.0	0.60	1		08/20/21 21:16	16887-00-6	
Fluoride	**0.065J**	mg/L	0.10	0.050	1		08/20/21 21:16	16984-48-8	
Sulfate	**42.1**	mg/L	1.0	0.50	1		08/20/21 21:16	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Sample: HGWA-44D **Lab ID: 92555514007** Collected: 08/13/21 11:25 Received: 08/16/21 13:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
Performed by	**CUSTOMER**				1		08/16/21 17:39		
pH	**7.77**	Std. Units			1		08/16/21 17:39		
6010D ATL ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA								
Calcium	**28.9**	mg/L	1.0	0.12	1	08/18/21 09:54	08/18/21 18:29	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA								
Antimony	ND	mg/L	0.0030	0.00078	1	08/18/21 09:57	08/19/21 19:39	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.0011	1	08/18/21 09:57	08/19/21 19:39	7440-38-2	
Barium	**0.22**	mg/L	0.0050	0.00067	1	08/18/21 09:57	08/19/21 19:39	7440-39-3	
Beryllium	ND	mg/L	0.00050	0.000054	1	08/18/21 09:57	08/19/21 19:39	7440-41-7	
Boron	**0.31**	mg/L	0.040	0.0086	1	08/18/21 09:57	08/19/21 19:39	7440-42-8	
Cadmium	ND	mg/L	0.00050	0.00011	1	08/18/21 09:57	08/19/21 19:39	7440-43-9	
Chromium	**0.0016J**	mg/L	0.0050	0.0011	1	08/18/21 09:57	08/19/21 19:39	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00039	1	08/18/21 09:57	08/19/21 19:39	7440-48-4	
Lead	ND	mg/L	0.0010	0.00089	1	08/18/21 09:57	08/19/21 19:39	7439-92-1	
Lithium	**0.032**	mg/L	0.030	0.00073	1	08/18/21 09:57	08/19/21 19:39	7439-93-2	
Molybdenum	**0.0051J**	mg/L	0.010	0.00074	1	08/18/21 09:57	08/19/21 19:39	7439-98-7	
Selenium	ND	mg/L	0.0050	0.0014	1	08/18/21 09:57	08/19/21 19:39	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00018	1	08/18/21 09:57	08/19/21 19:39	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA								
Mercury	ND	mg/L	0.00020	0.000078	1	08/25/21 08:10	08/25/21 13:07	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Peachtree Corners, GA								
Total Dissolved Solids	**436**	mg/L	20.0	20.0	1		08/19/21 15:11		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**39.9**	mg/L	1.0	0.60	1		08/20/21 22:01	16887-00-6	
Fluoride	**0.87**	mg/L	0.10	0.050	1		08/20/21 22:01	16984-48-8	
Sulfate	**56.1**	mg/L	1.0	0.50	1		08/20/21 22:01	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Sample: HGWC-121A **Lab ID: 92555938001** Collected: 08/16/21 16:10 Received: 08/17/21 11:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
Performed by	**CUSTOMER**				1		08/17/21 16:31		
pH	**6.74**	Std. Units			1		08/17/21 16:31		
6010D ATL ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA								
Calcium	**162**	mg/L	1.0	0.12	1	08/19/21 10:05	08/19/21 17:35	7440-70-2	M1
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA								
Antimony	ND	mg/L	0.0030	0.00078	1	08/19/21 10:05	08/20/21 18:20	7440-36-0	
Arsenic	**0.0014J**	mg/L	0.0050	0.0011	1	08/19/21 10:05	08/20/21 18:20	7440-38-2	
Barium	**0.060**	mg/L	0.0050	0.00067	1	08/19/21 10:05	08/20/21 18:20	7440-39-3	
Beryllium	ND	mg/L	0.00050	0.000054	1	08/19/21 10:05	08/20/21 18:20	7440-41-7	
Boron	**2.0**	mg/L	0.040	0.0086	1	08/19/21 10:05	08/20/21 18:20	7440-42-8	
Cadmium	ND	mg/L	0.00050	0.00011	1	08/19/21 10:05	08/20/21 18:20	7440-43-9	
Chromium	ND	mg/L	0.0050	0.0011	1	08/19/21 10:05	08/20/21 18:20	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00039	1	08/19/21 10:05	08/20/21 18:20	7440-48-4	
Lead	ND	mg/L	0.0010	0.00089	1	08/19/21 10:05	08/20/21 18:20	7439-92-1	
Lithium	**0.0075J**	mg/L	0.030	0.00073	1	08/19/21 10:05	08/20/21 18:20	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00074	1	08/19/21 10:05	08/20/21 18:20	7439-98-7	
Selenium	ND	mg/L	0.0050	0.0014	1	08/19/21 10:05	08/20/21 18:20	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00018	1	08/19/21 10:05	08/20/21 18:20	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA								
Mercury	ND	mg/L	0.00020	0.000078	1	08/25/21 08:10	08/25/21 13:09	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Peachtree Corners, GA								
Total Dissolved Solids	**626**	mg/L	20.0	20.0	1		08/20/21 16:39		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**18.0**	mg/L	1.0	0.60	1		08/23/21 00:32	16887-00-6	
Fluoride	**0.15**	mg/L	0.10	0.050	1		08/23/21 00:32	16984-48-8	
Sulfate	**158**	mg/L	4.0	2.0	4		08/23/21 12:59	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Sample: HGWC-120 **Lab ID: 92555938002** Collected: 08/16/21 12:15 Received: 08/17/21 11:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
Performed by	**CUSTOMER**				1		08/17/21 16:31		
pH	**6.92**	Std. Units			1		08/17/21 16:31		
6010D ATL ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA								
Calcium	**171**	mg/L	1.0	0.12	1	08/19/21 10:05	08/19/21 17:54	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA								
Antimony	ND	mg/L	0.0030	0.00078	1	08/19/21 10:05	08/20/21 18:26	7440-36-0	
Arsenic	**0.0015J**	mg/L	0.0050	0.0011	1	08/19/21 10:05	08/20/21 18:26	7440-38-2	
Barium	**0.052**	mg/L	0.0050	0.00067	1	08/19/21 10:05	08/20/21 18:26	7440-39-3	
Beryllium	ND	mg/L	0.00050	0.000054	1	08/19/21 10:05	08/20/21 18:26	7440-41-7	
Boron	**1.1**	mg/L	0.040	0.0086	1	08/19/21 10:05	08/20/21 18:26	7440-42-8	
Cadmium	ND	mg/L	0.00050	0.00011	1	08/19/21 10:05	08/20/21 18:26	7440-43-9	
Chromium	ND	mg/L	0.0050	0.0011	1	08/19/21 10:05	08/20/21 18:26	7440-47-3	
Cobalt	**0.0037J**	mg/L	0.0050	0.00039	1	08/19/21 10:05	08/20/21 18:26	7440-48-4	
Lead	ND	mg/L	0.0010	0.00089	1	08/19/21 10:05	08/20/21 18:26	7439-92-1	
Lithium	**0.025J**	mg/L	0.030	0.00073	1	08/19/21 10:05	08/20/21 18:26	7439-93-2	
Molybdenum	**0.035**	mg/L	0.010	0.00074	1	08/19/21 10:05	08/20/21 18:26	7439-98-7	
Selenium	ND	mg/L	0.0050	0.0014	1	08/19/21 10:05	08/20/21 18:26	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00018	1	08/19/21 10:05	08/20/21 18:26	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA								
Mercury	ND	mg/L	0.00020	0.000078	1	08/25/21 08:10	08/25/21 13:12	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Peachtree Corners, GA								
Total Dissolved Solids	**632**	mg/L	20.0	20.0	1		08/20/21 16:39		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**2.4**	mg/L	1.0	0.60	1		08/23/21 00:47	16887-00-6	
Fluoride	**0.39**	mg/L	0.10	0.050	1		08/23/21 00:47	16984-48-8	
Sulfate	**211**	mg/L	5.0	2.5	5		08/23/21 13:14	14808-79-8	M1

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Sample: HGWC-124 **Lab ID: 92555938003** Collected: 08/16/21 10:09 Received: 08/17/21 11:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
Performed by	**CUSTOMER**				1		08/17/21 16:32		
pH	**7.09**	Std. Units			1		08/17/21 16:32		
6010D ATL ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA								
Calcium	**106**	mg/L	1.0	0.12	1	08/19/21 10:05	08/19/21 17:59	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA								
Antimony	ND	mg/L	0.0030	0.00078	1	08/19/21 10:05	08/20/21 18:32	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.0011	1	08/19/21 10:05	08/20/21 18:32	7440-38-2	
Barium	**0.069**	mg/L	0.0050	0.00067	1	08/19/21 10:05	08/20/21 18:32	7440-39-3	
Beryllium	ND	mg/L	0.00050	0.000054	1	08/19/21 10:05	08/20/21 18:32	7440-41-7	
Boron	**0.44**	mg/L	0.040	0.0086	1	08/19/21 10:05	08/20/21 18:32	7440-42-8	
Cadmium	ND	mg/L	0.00050	0.00011	1	08/19/21 10:05	08/20/21 18:32	7440-43-9	
Chromium	ND	mg/L	0.0050	0.0011	1	08/19/21 10:05	08/20/21 18:32	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00039	1	08/19/21 10:05	08/20/21 18:32	7440-48-4	
Lead	ND	mg/L	0.0010	0.00089	1	08/19/21 10:05	08/20/21 18:32	7439-92-1	
Lithium	**0.0011J**	mg/L	0.030	0.00073	1	08/19/21 10:05	08/20/21 18:32	7439-93-2	
Molybdenum	**0.00091J**	mg/L	0.010	0.00074	1	08/19/21 10:05	08/20/21 18:32	7439-98-7	
Selenium	ND	mg/L	0.0050	0.0014	1	08/19/21 10:05	08/20/21 18:32	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00018	1	08/19/21 10:05	08/20/21 18:32	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA								
Mercury	ND	mg/L	0.00020	0.000078	1	08/25/21 08:10	08/25/21 13:21	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Peachtree Corners, GA								
Total Dissolved Solids	**352**	mg/L	10.0	10.0	1		08/20/21 16:40		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**2.6**	mg/L	1.0	0.60	1		08/23/21 01:31	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		08/23/21 01:31	16984-48-8	
Sulfate	**74.0**	mg/L	1.0	0.50	1		08/23/21 01:31	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Sample: MW-46D **Lab ID: 92555938004** Collected: 08/16/21 14:36 Received: 08/17/21 11:25 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
Performed by	**CUSTOMER**				1		08/17/21 16:32		
pH	**7.65**	Std. Units			1		08/17/21 16:32		
6010D ATL ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA								
Calcium	**45.8**	mg/L	1.0	0.12	1	08/19/21 10:05	08/19/21 18:04	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA								
Antimony	ND	mg/L	0.0030	0.00078	1	08/19/21 10:05	08/20/21 18:38	7440-36-0	
Arsenic	**0.0032J**	mg/L	0.0050	0.0011	1	08/19/21 10:05	08/20/21 18:38	7440-38-2	
Barium	**0.026**	mg/L	0.0050	0.00067	1	08/19/21 10:05	08/20/21 18:38	7440-39-3	
Beryllium	ND	mg/L	0.00050	0.000054	1	08/19/21 10:05	08/20/21 18:38	7440-41-7	
Boron	**0.87**	mg/L	0.040	0.0086	1	08/19/21 10:05	08/20/21 18:38	7440-42-8	
Cadmium	ND	mg/L	0.00050	0.00011	1	08/19/21 10:05	08/20/21 18:38	7440-43-9	
Chromium	ND	mg/L	0.0050	0.0011	1	08/19/21 10:05	08/20/21 18:38	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00039	1	08/19/21 10:05	08/20/21 18:38	7440-48-4	
Lead	ND	mg/L	0.0010	0.00089	1	08/19/21 10:05	08/20/21 18:38	7439-92-1	
Lithium	**0.0062J**	mg/L	0.030	0.00073	1	08/19/21 10:05	08/20/21 18:38	7439-93-2	
Molybdenum	**0.0012J**	mg/L	0.010	0.00074	1	08/19/21 10:05	08/20/21 18:38	7439-98-7	
Selenium	ND	mg/L	0.0050	0.0014	1	08/19/21 10:05	08/20/21 18:38	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00018	1	08/19/21 10:05	08/20/21 18:38	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA								
Mercury	ND	mg/L	0.00020	0.000078	1	08/25/21 08:10	08/25/21 13:23	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Peachtree Corners, GA								
Total Dissolved Solids	**516**	mg/L	20.0	20.0	1		08/20/21 16:40		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**3.7**	mg/L	1.0	0.60	1		08/23/21 01:46	16887-00-6	
Fluoride	**1.0**	mg/L	0.10	0.050	1		08/23/21 01:46	16984-48-8	
Sulfate	**144**	mg/L	3.0	1.5	3		08/23/21 13:59	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Sample: MW-39 **Lab ID: 92555938005** Collected: 08/18/21 09:10 Received: 08/19/21 12:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
Performed by	**CUSTOMER**				1		08/19/21 17:01		
pH	**6.90**	Std. Units			1		08/19/21 17:01		
6010D ATL ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA								
Calcium	**171**	mg/L	1.0	0.12	1	08/20/21 11:15	08/20/21 18:46	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA								
Antimony	ND	mg/L	0.0030	0.00078	1	08/20/21 11:15	08/27/21 16:23	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.0011	1	08/20/21 11:15	08/27/21 16:23	7440-38-2	
Barium	**0.060**	mg/L	0.0050	0.00067	1	08/20/21 11:15	08/27/21 16:23	7440-39-3	
Beryllium	ND	mg/L	0.00050	0.000054	1	08/20/21 11:15	08/30/21 17:25	7440-41-7	
Boron	**1.2**	mg/L	0.040	0.0086	1	08/20/21 11:15	08/30/21 17:25	7440-42-8	
Cadmium	ND	mg/L	0.00050	0.00011	1	08/20/21 11:15	08/27/21 16:23	7440-43-9	
Chromium	ND	mg/L	0.0050	0.0011	1	08/20/21 11:15	08/27/21 16:23	7440-47-3	
Cobalt	**0.0025J**	mg/L	0.0050	0.00039	1	08/20/21 11:15	08/27/21 16:23	7440-48-4	
Lead	ND	mg/L	0.0010	0.00089	1	08/20/21 11:15	08/27/21 16:23	7439-92-1	
Lithium	**0.032**	mg/L	0.030	0.00073	1	08/20/21 11:15	08/30/21 17:25	7439-93-2	
Molybdenum	**0.063**	mg/L	0.010	0.00074	1	08/20/21 11:15	08/27/21 16:23	7439-98-7	
Selenium	ND	mg/L	0.0050	0.0014	1	08/20/21 11:15	08/27/21 16:23	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00018	1	08/20/21 11:15	08/27/21 16:23	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA								
Mercury	ND	mg/L	0.00020	0.000078	1	08/25/21 08:10	08/25/21 13:26	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Peachtree Corners, GA								
Total Dissolved Solids	**628**	mg/L	20.0	20.0	1		08/25/21 19:26		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**2.3**	mg/L	1.0	0.60	1		08/26/21 04:21	16887-00-6	
Fluoride	**0.25**	mg/L	0.10	0.050	1		08/26/21 04:21	16984-48-8	
Sulfate	**173**	mg/L	5.0	2.5	5		08/28/21 16:19	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Sample: MW-32 **Lab ID: 92555938006** Collected: 08/18/21 11:45 Received: 08/19/21 12:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
Performed by	**CUSTOMER**				1		08/19/21 17:01		
pH	**6.89**	Std. Units			1		08/19/21 17:01		
6010D ATL ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA								
Calcium	**155**	mg/L	1.0	0.12	1	08/20/21 11:15	08/20/21 18:51	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA								
Antimony	ND	mg/L	0.0030	0.00078	1	08/20/21 11:15	08/27/21 16:29	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.0011	1	08/20/21 11:15	08/27/21 16:29	7440-38-2	
Barium	**0.054**	mg/L	0.0050	0.00067	1	08/20/21 11:15	08/27/21 16:29	7440-39-3	
Beryllium	ND	mg/L	0.00050	0.000054	1	08/20/21 11:15	08/30/21 17:31	7440-41-7	
Boron	**1.2**	mg/L	0.040	0.0086	1	08/20/21 11:15	08/30/21 17:31	7440-42-8	
Cadmium	ND	mg/L	0.00050	0.00011	1	08/20/21 11:15	08/27/21 16:29	7440-43-9	
Chromium	ND	mg/L	0.0050	0.0011	1	08/20/21 11:15	08/27/21 16:29	7440-47-3	
Cobalt	**0.0036J**	mg/L	0.0050	0.00039	1	08/20/21 11:15	08/27/21 16:29	7440-48-4	
Lead	ND	mg/L	0.0010	0.00089	1	08/20/21 11:15	08/27/21 16:29	7439-92-1	
Lithium	**0.031**	mg/L	0.030	0.00073	1	08/20/21 11:15	08/30/21 17:31	7439-93-2	
Molybdenum	**0.061**	mg/L	0.010	0.00074	1	08/20/21 11:15	08/27/21 16:29	7439-98-7	
Selenium	ND	mg/L	0.0050	0.0014	1	08/20/21 11:15	08/27/21 16:29	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00018	1	08/20/21 11:15	08/27/21 16:29	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA								
Mercury	ND	mg/L	0.00020	0.000078	1	08/25/21 08:10	08/25/21 13:29	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Peachtree Corners, GA								
Total Dissolved Solids	**554**	mg/L	20.0	20.0	1		08/25/21 19:26		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**2.2**	mg/L	1.0	0.60	1		08/26/21 04:36	16887-00-6	
Fluoride	**0.24**	mg/L	0.10	0.050	1		08/26/21 04:36	16984-48-8	
Sulfate	**162**	mg/L	4.0	2.0	4		08/28/21 16:36	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Sample: MW-41 **Lab ID: 92555938007** Collected: 08/18/21 13:20 Received: 08/19/21 12:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
Performed by	**CUSTOMER**				1		08/19/21 17:01		
pH	**6.93**	Std. Units			1		08/19/21 17:01		
6010D ATL ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA								
Calcium	**175**	mg/L	1.0	0.12	1	08/20/21 11:15	08/20/21 19:05	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA								
Antimony	ND	mg/L	0.0030	0.00078	1	08/20/21 11:15	08/27/21 17:48	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.0011	1	08/20/21 11:15	08/27/21 17:48	7440-38-2	
Barium	**0.064**	mg/L	0.0050	0.00067	1	08/20/21 11:15	08/27/21 17:48	7440-39-3	
Beryllium	ND	mg/L	0.00050	0.000054	1	08/20/21 11:15	08/30/21 17:37	7440-41-7	
Boron	**1.1**	mg/L	0.040	0.0086	1	08/20/21 11:15	08/30/21 17:37	7440-42-8	
Cadmium	ND	mg/L	0.00050	0.00011	1	08/20/21 11:15	08/27/21 17:48	7440-43-9	
Chromium	ND	mg/L	0.0050	0.0011	1	08/20/21 11:15	08/27/21 17:48	7440-47-3	
Cobalt	**0.00064J**	mg/L	0.0050	0.00039	1	08/20/21 11:15	08/27/21 17:48	7440-48-4	
Lead	ND	mg/L	0.0010	0.00089	1	08/20/21 11:15	08/27/21 17:48	7439-92-1	
Lithium	**0.029J**	mg/L	0.030	0.00073	1	08/20/21 11:15	08/30/21 17:37	7439-93-2	
Molybdenum	**0.042**	mg/L	0.010	0.00074	1	08/20/21 11:15	08/27/21 17:48	7439-98-7	
Selenium	ND	mg/L	0.0050	0.0014	1	08/20/21 11:15	08/27/21 17:48	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00018	1	08/20/21 11:15	08/27/21 17:48	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA								
Mercury	ND	mg/L	0.00020	0.000078	1	08/25/21 08:10	08/25/21 13:32	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Peachtree Corners, GA								
Total Dissolved Solids	**602**	mg/L	20.0	20.0	1		08/25/21 19:26		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**2.8**	mg/L	1.0	0.60	1		08/26/21 04:52	16887-00-6	
Fluoride	**0.20**	mg/L	0.10	0.050	1		08/26/21 04:52	16984-48-8	
Sulfate	**180**	mg/L	5.0	2.5	5		08/28/21 16:54	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Sample: HGWC-126 **Lab ID: 92555938008** Collected: 08/19/21 09:45 Received: 08/20/21 12:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
Performed by	**CUSTOMER**				1		08/20/21 15:31		
pH	**7.32**	Std. Units			1		08/20/21 15:31		
6010D ATL ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA								
Calcium	**139**	mg/L	1.0	0.12	1	08/26/21 09:58	08/26/21 12:52	7440-70-2	M1
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA								
Antimony	ND	mg/L	0.0030	0.00078	1	08/26/21 09:56	08/31/21 14:26	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.0011	1	08/26/21 09:56	08/31/21 14:26	7440-38-2	
Barium	**0.27**	mg/L	0.0050	0.00067	1	08/26/21 09:56	08/31/21 14:26	7440-39-3	
Beryllium	ND	mg/L	0.00050	0.000054	1	08/26/21 09:56	08/31/21 14:26	7440-41-7	
Boron	**0.011J**	mg/L	0.040	0.0086	1	08/26/21 09:56	08/31/21 14:26	7440-42-8	
Cadmium	ND	mg/L	0.00050	0.00011	1	08/26/21 09:56	08/31/21 14:26	7440-43-9	
Chromium	ND	mg/L	0.0050	0.0011	1	08/26/21 09:56	08/31/21 14:26	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00039	1	08/26/21 09:56	08/31/21 14:26	7440-48-4	
Lead	ND	mg/L	0.0010	0.00089	1	08/26/21 09:56	08/31/21 14:26	7439-92-1	
Lithium	**0.0032J**	mg/L	0.030	0.00073	1	08/26/21 09:56	08/31/21 14:26	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00074	1	08/26/21 09:56	08/31/21 14:26	7439-98-7	
Selenium	ND	mg/L	0.0050	0.0014	1	08/26/21 09:56	08/31/21 14:26	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00018	1	08/26/21 09:56	08/31/21 14:26	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA								
Mercury	ND	mg/L	0.00020	0.000078	1	08/25/21 08:10	08/25/21 13:35	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Peachtree Corners, GA								
Total Dissolved Solids	**488**	mg/L	20.0	20.0	1		08/26/21 18:47		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**7.8**	mg/L	1.0	0.60	1		08/27/21 12:41	16887-00-6	
Fluoride	**0.43**	mg/L	0.10	0.050	1		08/27/21 12:41	16984-48-8	
Sulfate	**64.4**	mg/L	1.0	0.50	1		08/27/21 12:41	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Sample: HGWC-125 **Lab ID: 92555938009** Collected: 08/19/21 11:14 Received: 08/20/21 12:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method: Pace Analytical Services - Charlotte								
Performed by	**CUSTOMER**				1		08/20/21 15:31		
pH	**7.24**	Std. Units			1		08/20/21 15:31		
6010D ATL ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA								
Calcium	**196**	mg/L	1.0	0.12	1	08/26/21 09:58	08/26/21 13:11	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA								
Antimony	ND	mg/L	0.0030	0.00078	1	08/26/21 09:56	08/31/21 14:49	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.0011	1	08/26/21 09:56	08/31/21 14:49	7440-38-2	
Barium	**0.044**	mg/L	0.0050	0.00067	1	08/26/21 09:56	08/31/21 14:49	7440-39-3	
Beryllium	ND	mg/L	0.00050	0.000054	1	08/26/21 09:56	08/31/21 14:49	7440-41-7	
Boron	**1.5**	mg/L	0.040	0.0086	1	08/26/21 09:56	08/31/21 14:49	7440-42-8	
Cadmium	ND	mg/L	0.00050	0.00011	1	08/26/21 09:56	08/31/21 14:49	7440-43-9	
Chromium	ND	mg/L	0.0050	0.0011	1	08/26/21 09:56	08/31/21 14:49	7440-47-3	
Cobalt	**0.0054**	mg/L	0.0050	0.00039	1	08/26/21 09:56	08/31/21 14:49	7440-48-4	
Lead	ND	mg/L	0.0010	0.00089	1	08/26/21 09:56	08/31/21 14:49	7439-92-1	
Lithium	**0.0074J**	mg/L	0.030	0.00073	1	08/26/21 09:56	08/31/21 14:49	7439-93-2	
Molybdenum	**0.021**	mg/L	0.010	0.00074	1	08/26/21 09:56	08/31/21 14:49	7439-98-7	
Selenium	ND	mg/L	0.0050	0.0014	1	08/26/21 09:56	08/31/21 14:49	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00018	1	08/26/21 09:56	08/31/21 14:49	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA								
Mercury	ND	mg/L	0.00020	0.000078	1	08/25/21 08:10	08/25/21 13:37	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Peachtree Corners, GA								
Total Dissolved Solids	**732**	mg/L	20.0	20.0	1		08/26/21 18:46		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**4.5**	mg/L	1.0	0.60	1		08/27/21 12:57	16887-00-6	
Fluoride	**0.17**	mg/L	0.10	0.050	1		08/27/21 12:57	16984-48-8	
Sulfate	**264**	mg/L	6.0	3.0	6		08/27/21 21:06	14808-79-8	M1

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Sample: DUP-3 **Lab ID: 92555938010** Collected: 08/19/21 00:00 Received: 08/20/21 12:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D ATL ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA								
Calcium	**186**	mg/L	1.0	0.12	1	08/26/21 09:58	08/26/21 13:16	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA								
Antimony	ND	mg/L	0.0030	0.00078	1	08/26/21 09:56	08/31/21 14:54	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.0011	1	08/26/21 09:56	08/31/21 14:54	7440-38-2	
Barium	**0.043**	mg/L	0.0050	0.00067	1	08/26/21 09:56	08/31/21 14:54	7440-39-3	
Beryllium	ND	mg/L	0.00050	0.000054	1	08/26/21 09:56	08/31/21 14:54	7440-41-7	
Boron	**1.5**	mg/L	0.040	0.0086	1	08/26/21 09:56	08/31/21 14:54	7440-42-8	
Cadmium	ND	mg/L	0.00050	0.00011	1	08/26/21 09:56	08/31/21 14:54	7440-43-9	
Chromium	ND	mg/L	0.0050	0.0011	1	08/26/21 09:56	08/31/21 14:54	7440-47-3	
Cobalt	**0.0054**	mg/L	0.0050	0.00039	1	08/26/21 09:56	08/31/21 14:54	7440-48-4	
Lead	ND	mg/L	0.0010	0.00089	1	08/26/21 09:56	08/31/21 14:54	7439-92-1	
Lithium	**0.0077J**	mg/L	0.030	0.00073	1	08/26/21 09:56	08/31/21 14:54	7439-93-2	
Molybdenum	**0.020**	mg/L	0.010	0.00074	1	08/26/21 09:56	08/31/21 14:54	7439-98-7	
Selenium	ND	mg/L	0.0050	0.0014	1	08/26/21 09:56	08/31/21 14:54	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00018	1	08/26/21 09:56	08/31/21 14:54	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA								
Mercury	**0.00015J**	mg/L	0.00020	0.000078	1	08/26/21 15:30	08/27/21 14:32	7439-97-6	B
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Peachtree Corners, GA								
Total Dissolved Solids	**700**	mg/L	20.0	20.0	1		08/26/21 18:47		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	**4.6**	mg/L	1.0	0.60	1		08/27/21 14:14	16887-00-6	
Fluoride	**0.18**	mg/L	0.10	0.050	1		08/27/21 14:14	16984-48-8	
Sulfate	**265**	mg/L	6.0	3.0	6		08/27/21 21:52	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Sample: EB-3 **Lab ID: 92555938011** Collected: 08/19/21 12:05 Received: 08/20/21 12:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D ATL ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA								
Calcium	ND	mg/L	1.0	0.12	1	08/26/21 09:58	08/26/21 13:21	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA								
Antimony	ND	mg/L	0.0030	0.00078	1	08/26/21 09:56	08/31/21 15:00	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.0011	1	08/26/21 09:56	08/31/21 15:00	7440-38-2	
Barium	ND	mg/L	0.0050	0.00067	1	08/26/21 09:56	08/31/21 15:00	7440-39-3	
Beryllium	ND	mg/L	0.00050	0.000054	1	08/26/21 09:56	08/31/21 15:00	7440-41-7	
Boron	ND	mg/L	0.040	0.0086	1	08/26/21 09:56	08/31/21 15:00	7440-42-8	
Cadmium	ND	mg/L	0.00050	0.00011	1	08/26/21 09:56	08/31/21 15:00	7440-43-9	
Chromium	ND	mg/L	0.0050	0.0011	1	08/26/21 09:56	08/31/21 15:00	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00039	1	08/26/21 09:56	08/31/21 15:00	7440-48-4	
Lead	ND	mg/L	0.0010	0.00089	1	08/26/21 09:56	08/31/21 15:00	7439-92-1	
Lithium	ND	mg/L	0.030	0.00073	1	08/26/21 09:56	08/31/21 15:00	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00074	1	08/26/21 09:56	08/31/21 15:00	7439-98-7	
Selenium	ND	mg/L	0.0050	0.0014	1	08/26/21 09:56	08/31/21 15:00	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00018	1	08/26/21 09:56	08/31/21 15:00	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA								
Mercury	**0.00020**	mg/L	0.00020	0.000078	1	08/26/21 15:30	08/27/21 14:35	7439-97-6	B
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Peachtree Corners, GA								
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		08/26/21 18:47		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	ND	mg/L	1.0	0.60	1		08/27/21 14:29	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		08/27/21 14:29	16984-48-8	
Sulfate	ND	mg/L	1.0	0.50	1		08/27/21 14:29	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Sample: FB-3 **Lab ID: 92555938012** Collected: 08/19/21 12:00 Received: 08/20/21 12:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010D ATL ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA								
Calcium	ND	mg/L	1.0	0.12	1	08/26/21 09:58	08/26/21 13:35	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA								
Antimony	ND	mg/L	0.0030	0.00078	1	08/26/21 09:56	08/31/21 15:06	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.0011	1	08/26/21 09:56	08/31/21 15:06	7440-38-2	
Barium	ND	mg/L	0.0050	0.00067	1	08/26/21 09:56	08/31/21 15:06	7440-39-3	
Beryllium	ND	mg/L	0.00050	0.000054	1	08/26/21 09:56	08/31/21 15:06	7440-41-7	
Boron	ND	mg/L	0.040	0.0086	1	08/26/21 09:56	08/31/21 15:06	7440-42-8	
Cadmium	ND	mg/L	0.00050	0.00011	1	08/26/21 09:56	08/31/21 15:06	7440-43-9	
Chromium	ND	mg/L	0.0050	0.0011	1	08/26/21 09:56	08/31/21 15:06	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00039	1	08/26/21 09:56	08/31/21 15:06	7440-48-4	
Lead	ND	mg/L	0.0010	0.00089	1	08/26/21 09:56	08/31/21 15:06	7439-92-1	
Lithium	ND	mg/L	0.030	0.00073	1	08/26/21 09:56	08/31/21 15:06	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00074	1	08/26/21 09:56	08/31/21 15:06	7439-98-7	
Selenium	ND	mg/L	0.0050	0.0014	1	08/26/21 09:56	08/31/21 15:06	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00018	1	08/26/21 09:56	08/31/21 15:06	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A Pace Analytical Services - Peachtree Corners, GA								
Mercury	**0.00011J**	mg/L	0.00020	0.000078	1	08/26/21 15:30	08/27/21 14:37	7439-97-6	B
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Peachtree Corners, GA								
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		08/26/21 18:47		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville								
Chloride	ND	mg/L	1.0	0.60	1		08/27/21 14:45	16887-00-6	
Fluoride	ND	mg/L	0.10	0.050	1		08/27/21 14:45	16984-48-8	
Sulfate	ND	mg/L	1.0	0.50	1		08/27/21 14:45	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

QC Batch: 641193
QC Batch Method: EPA 3010A
Analysis Method: EPA 6010D
Analysis Description: 6010D ATL
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92555514001, 92555514002, 92555514003, 92555514004, 92555514005, 92555514006, 92555514007

METHOD BLANK: 3365273 Matrix: Water
Associated Lab Samples: 92555514001, 92555514002, 92555514003, 92555514004, 92555514005, 92555514006, 92555514007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium	mg/L	ND	1.0	0.12	08/18/21 16:31	

LABORATORY CONTROL SAMPLE: 3365274

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	1	1.1	105	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3365275 3365276

Parameter	Units	92555504001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	mg/L	5.4	1	1	6.6	6.4	113	103	75-125	2	20	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

QC Batch: 641498
QC Batch Method: EPA 3010A
Analysis Method: EPA 6010D
Analysis Description: 6010D ATL
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92555938001, 92555938002, 92555938003, 92555938004

METHOD BLANK: 3367016 Matrix: Water
Associated Lab Samples: 92555938001, 92555938002, 92555938003, 92555938004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium	mg/L	ND	1.0	0.12	08/19/21 16:38	

LABORATORY CONTROL SAMPLE: 3367017

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	1	1.1	108	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3367018 3367019

Parameter	Units	92555938001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	mg/L	162	1	1	156	157	-579	-524	75-125	0	20	M1

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

QC Batch: 641912
QC Batch Method: EPA 3010A
Analysis Method: EPA 6010D
Analysis Description: 6010D ATL
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92555938005, 92555938006, 92555938007

METHOD BLANK: 3368995 Matrix: Water
Associated Lab Samples: 92555938005, 92555938006, 92555938007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium	mg/L	ND	1.0	0.12	08/20/21 17:38	

LABORATORY CONTROL SAMPLE: 3368996

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	1	1.0	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3368997 3368998

Parameter	Units	92555504006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	mg/L	281	1	1	282	275	124	-592	75-125	3	20	M1

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REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

QC Batch: 643161 — Analysis Method: EPA 6010D
QC Batch Method: EPA 3010A — Analysis Description: 6010D ATL
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92555938008, 92555938009, 92555938010, 92555938011, 92555938012

METHOD BLANK: 3374851 — Matrix: Water
Associated Lab Samples: 92555938008, 92555938009, 92555938010, 92555938011, 92555938012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Calcium	mg/L	ND	1.0	0.12	08/26/21 12:37	

LABORATORY CONTROL SAMPLE: 3374852

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	1	1.0	105	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3374853 3374854

Parameter	Units	92555938008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	mg/L	139	1	1	137	134	-232	-508	75-125	2	20	M1

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

QC Batch: 641199
QC Batch Method: EPA 3005A
Analysis Method: EPA 6020B
Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92555514001, 92555514002, 92555514003, 92555514004, 92555514005, 92555514006, 92555514007

METHOD BLANK: 3365292 Matrix: Water
Associated Lab Samples: 92555514001, 92555514002, 92555514003, 92555514004, 92555514005, 92555514006, 92555514007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	08/19/21 17:50	
Arsenic	mg/L	ND	0.0050	0.0011	08/19/21 17:50	
Barium	mg/L	ND	0.0050	0.00067	08/19/21 17:50	
Beryllium	mg/L	ND	0.00050	0.000054	08/19/21 17:50	
Boron	mg/L	ND	0.040	0.0086	08/19/21 17:50	
Cadmium	mg/L	ND	0.00050	0.00011	08/19/21 17:50	
Chromium	mg/L	ND	0.0050	0.0011	08/19/21 17:50	
Cobalt	mg/L	ND	0.0050	0.00039	08/19/21 17:50	
Lead	mg/L	ND	0.0010	0.00089	08/19/21 17:50	
Lithium	mg/L	ND	0.030	0.00073	08/19/21 17:50	
Molybdenum	mg/L	ND	0.010	0.00074	08/19/21 17:50	
Selenium	mg/L	ND	0.0050	0.0014	08/19/21 17:50	
Thallium	mg/L	ND	0.0010	0.00018	08/19/21 17:50	

LABORATORY CONTROL SAMPLE: 3365293

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.098	98	80-120	
Arsenic	mg/L	0.1	0.096	96	80-120	
Barium	mg/L	0.1	0.096	96	80-120	
Beryllium	mg/L	0.1	0.094	94	80-120	
Boron	mg/L	1	0.95	95	80-120	
Cadmium	mg/L	0.1	0.099	99	80-120	
Chromium	mg/L	0.1	0.10	101	80-120	
Cobalt	mg/L	0.1	0.10	100	80-120	
Lead	mg/L	0.1	0.098	98	80-120	
Lithium	mg/L	0.1	0.094	94	80-120	
Molybdenum	mg/L	0.1	0.099	99	80-120	
Selenium	mg/L	0.1	0.096	96	80-120	
Thallium	mg/L	0.1	0.10	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3365294 3365295

Parameter	Units	92555504001 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	0.099	0.097	98	97	75-125	2	20	
Arsenic	mg/L	ND	0.1	0.1	0.098	0.098	98	98	75-125	0	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3365294 3365295

Parameter	Units	92555504001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	mg/L	0.034	0.1	0.1	0.13	0.13	99	98	75-125	1	20	
Beryllium	mg/L	0.00021J	0.1	0.1	0.10	0.10	102	100	75-125	2	20	
Boron	mg/L	0.014J	1	1	1.0	1.0	102	101	75-125	1	20	
Cadmium	mg/L	ND	0.1	0.1	0.10	0.098	100	98	75-125	1	20	
Chromium	mg/L	ND	0.1	0.1	0.11	0.11	110	107	75-125	2	20	
Cobalt	mg/L	0.00070J	0.1	0.1	0.11	0.11	110	106	75-125	4	20	
Lead	mg/L	ND	0.1	0.1	0.096	0.095	96	94	75-125	2	20	
Lithium	mg/L	0.0013J	0.1	0.1	0.11	0.11	106	104	75-125	1	20	
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.097	100	97	75-125	3	20	
Selenium	mg/L	ND	0.1	0.1	0.093	0.094	93	94	75-125	1	20	
Thallium	mg/L	ND	0.1	0.1	0.097	0.098	97	98	75-125	1	20	

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QUALITY CONTROL DATA

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

QC Batch: 641502
QC Batch Method: EPA 3005A
Analysis Method: EPA 6020B
Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92555938001, 92555938002, 92555938003, 92555938004

METHOD BLANK: 3367021 Matrix: Water
Associated Lab Samples: 92555938001, 92555938002, 92555938003, 92555938004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	0.00081J	0.0030	0.00078	08/20/21 18:08	
Arsenic	mg/L	ND	0.0050	0.0011	08/20/21 18:08	
Barium	mg/L	ND	0.0050	0.00067	08/20/21 18:08	
Beryllium	mg/L	ND	0.00050	0.000054	08/20/21 18:08	
Boron	mg/L	ND	0.040	0.0086	08/20/21 18:08	
Cadmium	mg/L	ND	0.00050	0.00011	08/20/21 18:08	
Chromium	mg/L	ND	0.0050	0.0011	08/20/21 18:08	
Cobalt	mg/L	ND	0.0050	0.00039	08/20/21 18:08	
Lead	mg/L	ND	0.0010	0.00089	08/20/21 18:08	
Lithium	mg/L	ND	0.030	0.00073	08/20/21 18:08	
Molybdenum	mg/L	ND	0.010	0.00074	08/20/21 18:08	
Selenium	mg/L	ND	0.0050	0.0014	08/20/21 18:08	
Thallium	mg/L	ND	0.0010	0.00018	08/20/21 18:08	

LABORATORY CONTROL SAMPLE: 3367022

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	102	80-120	
Arsenic	mg/L	0.1	0.095	95	80-120	
Barium	mg/L	0.1	0.097	97	80-120	
Beryllium	mg/L	0.1	0.097	97	80-120	
Boron	mg/L	1	0.98	98	80-120	
Cadmium	mg/L	0.1	0.097	97	80-120	
Chromium	mg/L	0.1	0.099	99	80-120	
Cobalt	mg/L	0.1	0.097	97	80-120	
Lead	mg/L	0.1	0.097	97	80-120	
Lithium	mg/L	0.1	0.10	100	80-120	
Molybdenum	mg/L	0.1	0.099	99	80-120	
Selenium	mg/L	0.1	0.093	93	80-120	
Thallium	mg/L	0.1	0.096	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3367023 3367024

Parameter	Units	92555948001 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	100	104	75-125	3	20	
Arsenic	mg/L	ND	0.1	0.1	0.098	0.098	98	97	75-125	1	20	

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REPORT OF LABORATORY ANALYSIS

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Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL DATA

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3367023 3367024

Parameter	Units	92555948001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	mg/L	0.13	0.1	0.1	0.23	0.24	104	107	75-125	1	20	
Beryllium	mg/L	ND	0.1	0.1	0.097	0.097	97	97	75-125	0	20	
Boron	mg/L	0.013J	1	1	1.0	1.0	99	100	75-125	1	20	
Cadmium	mg/L	ND	0.1	0.1	0.099	0.097	99	97	75-125	2	20	
Chromium	mg/L	ND	0.1	0.1	0.10	0.10	103	103	75-125	0	20	
Cobalt	mg/L	ND	0.1	0.1	0.099	0.099	99	99	75-125	1	20	
Lead	mg/L	ND	0.1	0.1	0.094	0.095	94	95	75-125	1	20	
Lithium	mg/L	ND	0.1	0.1	0.10	0.10	103	102	75-125	1	20	
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	99	103	75-125	3	20	
Selenium	mg/L	ND	0.1	0.1	0.097	0.098	97	97	75-125	1	20	
Thallium	mg/L	0.00019J	0.1	0.1	0.097	0.097	96	97	75-125	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

QC Batch: 641913
QC Batch Method: EPA 3005A
Analysis Method: EPA 6020B
Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92555938005, 92555938006, 92555938007

METHOD BLANK: 3368999 Matrix: Water
Associated Lab Samples: 92555938005, 92555938006, 92555938007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	08/27/21 14:27	
Arsenic	mg/L	ND	0.0050	0.0011	08/27/21 14:27	
Barium	mg/L	ND	0.0050	0.00067	08/27/21 14:27	
Beryllium	mg/L	ND	0.00050	0.000054	08/27/21 14:27	
Boron	mg/L	ND	0.040	0.0086	08/27/21 14:27	
Cadmium	mg/L	ND	0.00050	0.00011	08/27/21 14:27	
Chromium	mg/L	ND	0.0050	0.0011	08/27/21 14:27	
Cobalt	mg/L	ND	0.0050	0.00039	08/27/21 14:27	
Lead	mg/L	ND	0.0010	0.00089	08/27/21 14:27	
Lithium	mg/L	ND	0.030	0.00073	08/27/21 14:27	
Molybdenum	mg/L	ND	0.010	0.00074	08/27/21 14:27	
Selenium	mg/L	ND	0.0050	0.0014	08/27/21 14:27	
Thallium	mg/L	ND	0.0010	0.00018	08/27/21 14:27	

LABORATORY CONTROL SAMPLE: 3369000

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	101	80-120	
Arsenic	mg/L	0.1	0.10	100	80-120	
Barium	mg/L	0.1	0.098	98	80-120	
Beryllium	mg/L	0.1	0.097	97	80-120	
Boron	mg/L	1	0.95	95	80-120	
Cadmium	mg/L	0.1	0.10	100	80-120	
Chromium	mg/L	0.1	0.098	98	80-120	
Cobalt	mg/L	0.1	0.097	97	80-120	
Lead	mg/L	0.1	0.10	101	80-120	
Lithium	mg/L	0.1	0.096	96	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 SPIKE DUPLICATE: 3369001 3369002

Parameter	Units	92555504007 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	103	101	75-125	2	20	
Arsenic	mg/L	0.0035J	0.1	0.1	0.11	0.11	108	106	75-125	2	20	

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REPORT OF LABORATORY ANALYSIS

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Peachtree Corners, GA 30092
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QUALITY CONTROL DATA

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3369001 3369002

Parameter	Units	92555504007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	mg/L	0.018	0.1	0.1	0.11	0.11	96	94	75-125	1	20	
Beryllium	mg/L	0.00039J	0.1	0.1	0.085	0.084	85	84	75-125	1	20	
Boron	mg/L	8.6	1	1	9.1	9.3	51	71	75-125	2	20	M1
Cadmium	mg/L	0.00013J	0.1	0.1	0.098	0.095	98	95	75-125	3	20	
Chromium	mg/L	ND	0.1	0.1	0.098	0.094	98	94	75-125	4	20	
Cobalt	mg/L	0.033	0.1	0.1	0.13	0.12	95	90	75-125	4	20	
Lead	mg/L	0.0015	0.1	0.1	0.097	0.095	96	93	75-125	3	20	
Lithium	mg/L	ND	0.1	0.1	0.087	0.085	87	85	75-125	2	20	
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.098	103	98	75-125	5	20	
Selenium	mg/L	0.0077	0.1	0.1	0.12	0.12	112	110	75-125	1	20	
Thallium	mg/L	0.00027J	0.1	0.1	0.095	0.092	95	92	75-125	4	20	

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QUALITY CONTROL DATA

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

QC Batch: 643162
QC Batch Method: EPA 3005A
Analysis Method: EPA 6020B
Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92555938008, 92555938009, 92555938010, 92555938011, 92555938012

METHOD BLANK: 3374855 Matrix: Water
Associated Lab Samples: 92555938008, 92555938009, 92555938010, 92555938011, 92555938012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	08/31/21 14:14	
Arsenic	mg/L	ND	0.0050	0.0011	08/31/21 14:14	
Barium	mg/L	ND	0.0050	0.00067	08/31/21 14:14	
Beryllium	mg/L	ND	0.00050	0.000054	08/31/21 14:14	
Boron	mg/L	ND	0.040	0.0086	08/31/21 14:14	
Cadmium	mg/L	ND	0.00050	0.00011	08/31/21 14:14	
Chromium	mg/L	ND	0.0050	0.0011	08/31/21 14:14	
Cobalt	mg/L	ND	0.0050	0.00039	08/31/21 14:14	
Lead	mg/L	ND	0.0010	0.00089	08/31/21 14:14	
Lithium	mg/L	ND	0.030	0.00073	08/31/21 14:14	
Molybdenum	mg/L	ND	0.010	0.00074	08/31/21 14:14	
Selenium	mg/L	ND	0.0050	0.0014	08/31/21 14:14	
Thallium	mg/L	ND	0.0010	0.00018	08/31/21 14:14	

LABORATORY CONTROL SAMPLE: 3374856

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.097	97	80-120	
Arsenic	mg/L	0.1	0.099	99	80-120	
Barium	mg/L	0.1	0.095	95	80-120	
Beryllium	mg/L	0.1	0.096	96	80-120	
Boron	mg/L	1	0.96	96	80-120	
Cadmium	mg/L	0.1	0.10	100	80-120	
Chromium	mg/L	0.1	0.10	102	80-120	
Cobalt	mg/L	0.1	0.10	101	80-120	
Lead	mg/L	0.1	0.097	97	80-120	
Lithium	mg/L	0.1	0.10	101	80-120	
Molybdenum	mg/L	0.1	0.097	97	80-120	
Selenium	mg/L	0.1	0.099	99	80-120	
Thallium	mg/L	0.1	0.094	94	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3374857 3374858

Parameter	Units	92555938008 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	0.098	100	98	75-125	2	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.098	100	98	75-125	2	20	

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REPORT OF LABORATORY ANALYSIS

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(770)734-4200

QUALITY CONTROL DATA

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3374857 3374858

Parameter	Units	92555938008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Barium	mg/L	0.27	0.1	0.1	0.36	0.35	89	86	75-125	1	20	
Beryllium	mg/L	ND	0.1	0.1	0.090	0.093	90	93	75-125	3	20	
Boron	mg/L	0.011J	1	1	0.90	0.92	89	91	75-125	2	20	
Cadmium	mg/L	ND	0.1	0.1	0.099	0.099	99	99	75-125	0	20	
Chromium	mg/L	ND	0.1	0.1	0.10	0.11	101	105	75-125	4	20	
Cobalt	mg/L	ND	0.1	0.1	0.10	0.10	100	101	75-125	1	20	
Lead	mg/L	ND	0.1	0.1	0.096	0.095	96	95	75-125	1	20	
Lithium	mg/L	0.0032J	0.1	0.1	0.096	0.099	93	96	75-125	3	20	
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	101	103	75-125	2	20	
Selenium	mg/L	ND	0.1	0.1	0.099	0.098	98	97	75-125	1	20	
Thallium	mg/L	ND	0.1	0.1	0.095	0.095	95	95	75-125	0	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

QC Batch: 642527
QC Batch Method: EPA 7470A
Analysis Method: EPA 7470A
Analysis Description: 7470 Mercury
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92555514001, 92555514002, 92555514003, 92555514004, 92555514005, 92555514006, 92555514007, 92555938001, 92555938002, 92555938003, 92555938004, 92555938005, 92555938006, 92555938007, 92555938008, 92555938009

METHOD BLANK: 3371936 Matrix: Water
Associated Lab Samples: 92555514001, 92555514002, 92555514003, 92555514004, 92555514005, 92555514006, 92555514007, 92555938001, 92555938002, 92555938003, 92555938004, 92555938005, 92555938006, 92555938007, 92555938008, 92555938009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00020	0.000078	08/25/21 12:16	

LABORATORY CONTROL SAMPLE: 3371937

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0023	92	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3371938 3371939

Parameter	Units	92554551028 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	ND	0.0025	0.0025	0.0018	0.0023	71	89	75-125	23	20	M1,R1

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QUALITY CONTROL DATA

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

QC Batch: 643221
QC Batch Method: EPA 7470A
Analysis Method: EPA 7470A
Analysis Description: 7470 Mercury
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92555938010, 92555938011, 92555938012

METHOD BLANK: 3375102 Matrix: Water
Associated Lab Samples: 92555938010, 92555938011, 92555938012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	0.00010J	0.00020	0.000078	08/27/21 13:14	

LABORATORY CONTROL SAMPLE: 3375103

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0021	84	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3375104 3375105

Parameter	Units	92555501001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	0.000081J	0.0025	0.0025	0.0021	0.0022	81	85	75-125	4	20	

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QUALITY CONTROL DATA

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

QC Batch: 640931
QC Batch Method: SM 2540C-2011
Analysis Method: SM 2540C-2011
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92555514001, 92555514002

METHOD BLANK: 3363778 Matrix: Water
Associated Lab Samples: 92555514001, 92555514002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10.0	08/18/21 08:29	

LABORATORY CONTROL SAMPLE: 3363779

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	388	97	90-111	

SAMPLE DUPLICATE: 3363780

Parameter	Units	92555514001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	366	378	3	10	

SAMPLE DUPLICATE: 3363781

Parameter	Units	92555501001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	212	217	2	10	

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QUALITY CONTROL DATA

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

QC Batch: 641466
QC Batch Method: SM 2540C-2011
Analysis Method: SM 2540C-2011
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92555514003, 92555514004, 92555514005, 92555514006, 92555514007

METHOD BLANK: 3366949 Matrix: Water
Associated Lab Samples: 92555514003, 92555514004, 92555514005, 92555514006, 92555514007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10.0	08/19/21 15:09	

LABORATORY CONTROL SAMPLE: 3366950

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	401	100	90-111	

SAMPLE DUPLICATE: 3366951

Parameter	Units	92555514003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	118	131	10	10	

SAMPLE DUPLICATE: 3366952

Parameter	Units	92555514005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	272	268	1	10	

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QUALITY CONTROL DATA

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

QC Batch: 642065
QC Batch Method: SM 2540C-2011
Analysis Method: SM 2540C-2011
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92555938001, 92555938002, 92555938003, 92555938004

METHOD BLANK: 3369958 Matrix: Water
Associated Lab Samples: 92555938001, 92555938002, 92555938003, 92555938004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10.0	08/20/21 16:39	

LABORATORY CONTROL SAMPLE: 3369959

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	394	98	90-111	

SAMPLE DUPLICATE: 3369960

Parameter	Units	92555938001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	626	678	8	10	

SAMPLE DUPLICATE: 3369961

Parameter	Units	92555948005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	298	314	5	10	

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QUALITY CONTROL DATA

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

QC Batch: 642673
QC Batch Method: SM 2540C-2011
Analysis Method: SM 2540C-2011
Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92555938005, 92555938006, 92555938007

METHOD BLANK: 3372850 Matrix: Water
Associated Lab Samples: 92555938005, 92555938006, 92555938007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10.0	08/25/21 19:25	

LABORATORY CONTROL SAMPLE: 3372851

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	392	98	90-111	

SAMPLE DUPLICATE: 3372852

Parameter	Units	92555504010 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2390	2610	9	10	

SAMPLE DUPLICATE: 3372853

Parameter	Units	92555948008 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	666	696	4	10	

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QUALITY CONTROL DATA

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

QC Batch: 643140 — Analysis Method: SM 2540C-2011
QC Batch Method: SM 2540C-2011 — Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92555938008, 92555938009, 92555938010, 92555938011, 92555938012

METHOD BLANK: 3374769 — Matrix: Water
Associated Lab Samples: 92555938008, 92555938009, 92555938010, 92555938011, 92555938012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	10.0	08/26/21 18:46	

LABORATORY CONTROL SAMPLE: 3374770

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	409	102	90-111	

SAMPLE DUPLICATE: 3374771

Parameter	Units	92555504015 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	816	876	7	10	

SAMPLE DUPLICATE: 3374772

Parameter	Units	92555938012 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	ND	ND		10	

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QUALITY CONTROL DATA

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

QC Batch: 641753
QC Batch Method: 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: 92555514001

METHOD BLANK: 3368331 Matrix: Water
Associated Lab Samples: 92555514001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	08/19/21 22:58	
Fluoride	mg/L	ND	0.10	0.050	08/19/21 22:58	
Sulfate	mg/L	ND	1.0	0.50	08/19/21 22:58	

LABORATORY CONTROL SAMPLE: 3368332

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	50.2	100	90-110	
Fluoride	mg/L	2.5	2.5	102	90-110	
Sulfate	mg/L	50	50.5	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3368333 3368334

Parameter	Units	92554551025 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	3.4	50	50	56.6	56.8	106	107	90-110	0	10	
Fluoride	mg/L	ND	2.5	2.5	2.5	2.5	99	100	90-110	2	10	
Sulfate	mg/L	6.9	50	50	59.8	60.3	106	107	90-110	1	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3368335 3368336

Parameter	Units	92555501002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	2.2	50	50	50.0	54.8	95	105	90-110	9	10	
Fluoride	mg/L	0.064J	2.5	2.5	2.4	2.6	92	102	90-110	10	10	
Sulfate	mg/L	4.3	50	50	51.7	56.7	95	105	90-110	9	10	

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QUALITY CONTROL DATA

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

QC Batch: 641754
QC Batch Method: 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: 92555514002, 92555514003, 92555514004

METHOD BLANK: 3368337 Matrix: Water
Associated Lab Samples: 92555514002, 92555514003, 92555514004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	08/20/21 06:43	
Fluoride	mg/L	ND	0.10	0.050	08/20/21 06:43	
Sulfate	mg/L	ND	1.0	0.50	08/20/21 06:43	

LABORATORY CONTROL SAMPLE: 3368338

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	47.9	96	90-110	
Fluoride	mg/L	2.5	2.4	97	90-110	
Sulfate	mg/L	50	47.3	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3368339 3368340

Parameter	Units	92555514002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	3.5	50	50	53.7	54.7	100	102	90-110	2	10	
Fluoride	mg/L	0.15	2.5	2.5	2.6	2.6	98	99	90-110	1	10	
Sulfate	mg/L	30.5	50	50	81.4	81.9	102	103	90-110	1	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3368341 3368342

Parameter	Units	92555652002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	2.3	50	50	52.0	56.1	99	108	90-110	8	10	
Fluoride	mg/L	ND	2.5	2.5	2.4	2.7	96	105	90-110	9	10	
Sulfate	mg/L	8.3	50	50	58.0	62.4	99	108	90-110	7	10	

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QUALITY CONTROL DATA

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

QC Batch: 641887
QC Batch Method: 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: 92555514005, 92555514006, 92555514007

METHOD BLANK: 3368749 Matrix: Water
Associated Lab Samples: 92555514005, 92555514006, 92555514007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	08/20/21 15:20	
Fluoride	mg/L	ND	0.10	0.050	08/20/21 15:20	
Sulfate	mg/L	ND	1.0	0.50	08/20/21 15:20	

LABORATORY CONTROL SAMPLE: 3368750

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	51.5	103	90-110	
Fluoride	mg/L	2.5	2.5	99	90-110	
Sulfate	mg/L	50	51.4	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3368751 3368752

Parameter	Units	92556598001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	13.8	50	50	63.6	64.6	100	102	90-110	2	10	
Fluoride	mg/L	ND	2.5	2.5	2.7	2.7	107	108	90-110	1	10	
Sulfate	mg/L	2.1	50	50	52.0	52.9	100	102	90-110	2	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3368753 3368754

Parameter	Units	92555514006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	2.6	50	50	53.3	54.0	101	103	90-110	1	10	
Fluoride	mg/L	0.065J	2.5	2.5	2.6	2.6	102	103	90-110	1	10	
Sulfate	mg/L	42.1	50	50	90.9	91.6	98	99	90-110	1	10	

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QUALITY CONTROL DATA

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

QC Batch: 642138
QC Batch Method: 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: 92555938001, 92555938002, 92555938003, 92555938004

METHOD BLANK: 3370171 Matrix: Water
Associated Lab Samples: 92555938001, 92555938002, 92555938003, 92555938004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	08/22/21 20:47	
Fluoride	mg/L	ND	0.10	0.050	08/22/21 20:47	
Sulfate	mg/L	ND	1.0	0.50	08/22/21 20:47	

LABORATORY CONTROL SAMPLE: 3370172

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	49.1	98	90-110	
Fluoride	mg/L	2.5	2.4	98	90-110	
Sulfate	mg/L	50	48.8	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3370173 3370174

Parameter	Units	92555535001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	14.0	50	50	65.0	66.6	102	105	90-110	2	10	
Fluoride	mg/L	0.19	2.5	2.5	2.7	2.8	102	104	90-110	2	10	
Sulfate	mg/L	35.2	50	50	84.4	85.9	98	101	90-110	2	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3370177 3370178

Parameter	Units	92555938002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	2.4	50	50	54.7	55.6	104	106	90-110	2	10	
Fluoride	mg/L	0.39	2.5	2.5	3.0	3.0	104	106	90-110	2	10	
Sulfate	mg/L	211	50	50	255	257	88	92	90-110	1	10	M1

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QUALITY CONTROL DATA

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

QC Batch: 642990
QC Batch Method: 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: 92555938005, 92555938006, 92555938007

METHOD BLANK: 3374032 Matrix: Water
Associated Lab Samples: 92555938005, 92555938006, 92555938007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	08/26/21 00:53	
Fluoride	mg/L	ND	0.10	0.050	08/26/21 00:53	
Sulfate	mg/L	ND	1.0	0.50	08/26/21 00:53	

LABORATORY CONTROL SAMPLE: 3374033

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	48.8	98	90-110	
Fluoride	mg/L	2.5	2.5	100	90-110	
Sulfate	mg/L	50	48.4	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3374034 3374035

Parameter	Units	92557349005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	248	50	50	144	155	-207	-187	90-110	7	10	M1
Fluoride	mg/L	8.9	2.5	2.5	5.4	5.7	-139	-128	90-110	5	10	M1
Sulfate	mg/L	1040	50	50	1040	1090	-16	89	90-110	5	10	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3374036 3374037

Parameter	Units	92555945011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	14.3	50	50	65.1	67.7	101	107	90-110	4	10	
Fluoride	mg/L	0.12	2.5	2.5	2.4	2.5	91	97	90-110	6	10	
Sulfate	mg/L	219	50	50	321	254	204	68	90-110	24	10	M1,R1

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QUALITY CONTROL DATA

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

QC Batch: 643306
QC Batch Method: 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: 92555938008, 92555938009, 92555938010, 92555938011, 92555938012

METHOD BLANK: 3375691 Matrix: Water
Associated Lab Samples: 92555938008, 92555938009, 92555938010, 92555938011, 92555938012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.60	08/27/21 07:35	
Fluoride	mg/L	ND	0.10	0.050	08/27/21 07:35	
Sulfate	mg/L	ND	1.0	0.50	08/27/21 07:35	

LABORATORY CONTROL SAMPLE: 3375692

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	47.1	94	90-110	
Fluoride	mg/L	2.5	2.4	95	90-110	
Sulfate	mg/L	50	47.6	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3375693 3375694

Parameter	Units	92555504012 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	118	50	50	160	160	84	85	90-110	0	10	M1
Fluoride	mg/L	ND	2.5	2.5	2.3	2.4	92	94	90-110	2	10	
Sulfate	mg/L	412	50	50	453	454	84	85	90-110	0	10	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3375695 3375696

Parameter	Units	92555938009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	4.5	50	50	52.3	52.6	96	96	90-110	1	10	
Fluoride	mg/L	0.17	2.5	2.5	2.5	2.6	95	96	90-110	1	10	
Sulfate	mg/L	264	50	50	305	306	82	83	90-110	0	10	M1

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

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.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
R1	RPD value was outside control limits.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92555514001	**HGWA-1**				
92555514002	**HGWA-43D**				
92555514003	**HGWA-2**				
92555514004	**HGWA-3**				
92555514005	**HGWA-45D**				
92555514006	**HGWA-122**				
92555514007	**HGWA-44D**				
92555938001	**HGWC-121A**				
92555938002	**HGWC-120**				
92555938003	**HGWC-124**				
92555938004	**MW-46D**				
92555938005	**MW-39**				
92555938006	**MW-32**				
92555938007	**MW-41**				
92555938008	**HGWC-126**				
92555938009	**HGWC-125**				
92555514001	**HGWA-1**	EPA 3010A	641193	EPA 6010D	641263
92555514002	**HGWA-43D**	EPA 3010A	641193	EPA 6010D	641263
92555514003	**HGWA-2**	EPA 3010A	641193	EPA 6010D	641263
92555514004	**HGWA-3**	EPA 3010A	641193	EPA 6010D	641263
92555514005	**HGWA-45D**	EPA 3010A	641193	EPA 6010D	641263
92555514006	**HGWA-122**	EPA 3010A	641193	EPA 6010D	641263
92555514007	**HGWA-44D**	EPA 3010A	641193	EPA 6010D	641263
92555938001	**HGWC-121A**	EPA 3010A	641498	EPA 6010D	641630
92555938002	**HGWC-120**	EPA 3010A	641498	EPA 6010D	641630
92555938003	**HGWC-124**	EPA 3010A	641498	EPA 6010D	641630
92555938004	**MW-46D**	EPA 3010A	641498	EPA 6010D	641630
92555938005	**MW-39**	EPA 3010A	641912	EPA 6010D	641995
92555938006	**MW-32**	EPA 3010A	641912	EPA 6010D	641995
92555938007	**MW-41**	EPA 3010A	641912	EPA 6010D	641995
92555938008	**HGWC-126**	EPA 3010A	643161	EPA 6010D	643227
92555938009	**HGWC-125**	EPA 3010A	643161	EPA 6010D	643227
92555938010	**DUP-3**	EPA 3010A	643161	EPA 6010D	643227
92555938011	**EB-3**	EPA 3010A	643161	EPA 6010D	643227
92555938012	**FB-3**	EPA 3010A	643161	EPA 6010D	643227
92555514001	**HGWA-1**	EPA 3005A	641199	EPA 6020B	641271
92555514002	**HGWA-43D**	EPA 3005A	641199	EPA 6020B	641271
92555514003	**HGWA-2**	EPA 3005A	641199	EPA 6020B	641271
92555514004	**HGWA-3**	EPA 3005A	641199	EPA 6020B	641271
92555514005	**HGWA-45D**	EPA 3005A	641199	EPA 6020B	641271
92555514006	**HGWA-122**	EPA 3005A	641199	EPA 6020B	641271
92555514007	**HGWA-44D**	EPA 3005A	641199	EPA 6020B	641271
92555938001	**HGWC-121A**	EPA 3005A	641502	EPA 6020B	641654
92555938002	**HGWC-120**	EPA 3005A	641502	EPA 6020B	641654
92555938003	**HGWC-124**	EPA 3005A	641502	EPA 6020B	641654
92555938004	**MW-46D**	EPA 3005A	641502	EPA 6020B	641654

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92555938005	**MW-39**	EPA 3005A	641913	EPA 6020B	642062
92555938006	**MW-32**	EPA 3005A	641913	EPA 6020B	642062
92555938007	**MW-41**	EPA 3005A	641913	EPA 6020B	642062
92555938008	**HGWC-126**	EPA 3005A	643162	EPA 6020B	643244
92555938009	**HGWC-125**	EPA 3005A	643162	EPA 6020B	643244
92555938010	**DUP-3**	EPA 3005A	643162	EPA 6020B	643244
92555938011	**EB-3**	EPA 3005A	643162	EPA 6020B	643244
92555938012	**FB-3**	EPA 3005A	643162	EPA 6020B	643244
92555514001	**HGWA-1**	EPA 7470A	642527	EPA 7470A	642786
92555514002	**HGWA-43D**	EPA 7470A	642527	EPA 7470A	642786
92555514003	**HGWA-2**	EPA 7470A	642527	EPA 7470A	642786
92555514004	**HGWA-3**	EPA 7470A	642527	EPA 7470A	642786
92555514005	**HGWA-45D**	EPA 7470A	642527	EPA 7470A	642786
92555514006	**HGWA-122**	EPA 7470A	642527	EPA 7470A	642786
92555514007	**HGWA-44D**	EPA 7470A	642527	EPA 7470A	642786
92555938001	**HGWC-121A**	EPA 7470A	642527	EPA 7470A	642786
92555938002	**HGWC-120**	EPA 7470A	642527	EPA 7470A	642786
92555938003	**HGWC-124**	EPA 7470A	642527	EPA 7470A	642786
92555938004	**MW-46D**	EPA 7470A	642527	EPA 7470A	642786
92555938005	**MW-39**	EPA 7470A	642527	EPA 7470A	642786
92555938006	**MW-32**	EPA 7470A	642527	EPA 7470A	642786
92555938007	**MW-41**	EPA 7470A	642527	EPA 7470A	642786
92555938008	**HGWC-126**	EPA 7470A	642527	EPA 7470A	642786
92555938009	**HGWC-125**	EPA 7470A	642527	EPA 7470A	642786
92555938010	**DUP-3**	EPA 7470A	643221	EPA 7470A	643598
92555938011	**EB-3**	EPA 7470A	643221	EPA 7470A	643598
92555938012	**FB-3**	EPA 7470A	643221	EPA 7470A	643598
92555514001	**HGWA-1**	SM 2540C-2011	640931		
92555514002	**HGWA-43D**	SM 2540C-2011	640931		
92555514003	**HGWA-2**	SM 2540C-2011	641466		
92555514004	**HGWA-3**	SM 2540C-2011	641466		
92555514005	**HGWA-45D**	SM 2540C-2011	641466		
92555514006	**HGWA-122**	SM 2540C-2011	641466		
92555514007	**HGWA-44D**	SM 2540C-2011	641466		
92555938001	**HGWC-121A**	SM 2540C-2011	642065		
92555938002	**HGWC-120**	SM 2540C-2011	642065		
92555938003	**HGWC-124**	SM 2540C-2011	642065		
92555938004	**MW-46D**	SM 2540C-2011	642065		
92555938005	**MW-39**	SM 2540C-2011	642673		
92555938006	**MW-32**	SM 2540C-2011	642673		
92555938007	**MW-41**	SM 2540C-2011	642673		
92555938008	**HGWC-126**	SM 2540C-2011	643140		
92555938009	**HGWC-125**	SM 2540C-2011	643140		
92555938010	**DUP-3**	SM 2540C-2011	643140		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HAMMOND ASH POND #3
Pace Project No.: 92555514

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92555938011	**EB-3**	SM 2540C-2011	643140		
92555938012	**FB-3**	SM 2540C-2011	643140		
92555514001	**HGWA-1**	EPA 300.0 Rev 2.1 1993	641753		
92555514002	**HGWA-43D**	EPA 300.0 Rev 2.1 1993	641754		
92555514003	**HGWA-2**	EPA 300.0 Rev 2.1 1993	641754		
92555514004	**HGWA-3**	EPA 300.0 Rev 2.1 1993	641754		
92555514005	**HGWA-45D**	EPA 300.0 Rev 2.1 1993	641887		
92555514006	**HGWA-122**	EPA 300.0 Rev 2.1 1993	641887		
92555514007	**HGWA-44D**	EPA 300.0 Rev 2.1 1993	641887		
92555938001	**HGWC-121A**	EPA 300.0 Rev 2.1 1993	642138		
92555938002	**HGWC-120**	EPA 300.0 Rev 2.1 1993	642138		
92555938003	**HGWC-124**	EPA 300.0 Rev 2.1 1993	642138		
92555938004	**MW-46D**	EPA 300.0 Rev 2.1 1993	642138		
92555938005	**MW-39**	EPA 300.0 Rev 2.1 1993	642990		
92555938006	**MW-32**	EPA 300.0 Rev 2.1 1993	642990		
92555938007	**MW-41**	EPA 300.0 Rev 2.1 1993	642990		
92555938008	**HGWC-126**	EPA 300.0 Rev 2.1 1993	643306		
92555938009	**HGWC-125**	EPA 300.0 Rev 2.1 1993	643306		
92555938010	**DUP-3**	EPA 300.0 Rev 2.1 1993	643306		
92555938011	**EB-3**	EPA 300.0 Rev 2.1 1993	643306		
92555938012	**FB-3**	EPA 300.0 Rev 2.1 1993	643306		

Pace Analytical	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: October 28, 2020 Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.07	Issuing Authority: Pace Carolinas Quality Office

Laboratory receiving samples:

Asheville ☐ Eden ☐ Greenwood ☐ Huntersville ☐ Raleigh ☐ Mechanicsville ☐ Atlanta ☐ Kernersville ☐

Sample Condition Upon Receipt

Client Name: GA Power

Project #: WO# : 92555514

92555514

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

Custody Seal Present? ☐ Yes ☐ No **Seals Intact?** ☐ Yes ☐ No

Date/Initials Person Examining Contents: 3/13/21 KRW

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

Biological Tissue Frozen? ☐ Yes ☐ No ☐ N/A

Thermometer: ☐ IR Gun ID: THR083

Type of Ice: ☐ Wet ☐ Blue ☐ None

Cooler Temp: 1.3 **Correction Factor:** Add/Subtract (°C) +0

Cooler Temp Corrected (°C): 1.3

Temp should be above freezing to 6°C

☐ Samples out of temp criteria. Samples on ice, cooling process has begun

USDA Regulated Soil (☐ N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

				Comments/Discrepancy:
Chain of Custody Present?	☐ Yes	☐ No	☐ N/A	1.
Samples Arrived within Hold Time?	☐ Yes	☐ No	☐ N/A	2.
Short Hold Time Analysis (<72 hr.)?	☐ Yes	☐ No	☐ N/A	3.
Rush Turn Around Time Requested?	☐ Yes	☐ No	☐ N/A	4.
Sufficient Volume?	☐ Yes	☐ No	☐ N/A	5.
Correct Containers Used?	☐ Yes	☐ No	☐ N/A	6.
-Pace Containers Used?	☐ Yes	☐ No	☐ N/A	
Containers Intact?	☐ Yes	☐ No	☐ N/A	7.
Dissolved analysis: Samples Field Filtered?	☐ Yes	☐ No	☐ N/A	8.
Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: W	☐ Yes	☐ No	☐ N/A	9.
Headspace in VOA Vials (>5-6mm)?	☐ Yes	☐ No	☐ N/A	10.
Trip Blank Present?	☐ Yes	☐ No	☐ N/A	11.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☐ N/A	

COMMENTS/SAMPLE DISCREPANCY

Field Data Required? ☐ Yes ☐ No

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted: _____ Date/Time: _____

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

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

***Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.**

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (wate) DOC, LLHg

****Bottom half of box is to list number of bottles**

Project **WO# : 92555514**

PM: NMG Due Date: 08/27/21

CLIENT: GA-GA Power

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)	BP1N	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1		1	1			1																		2				
2		1	1			1																		2				
3		1	1			1																		2				
4		1	1			1																		2				
5																												
6																												
7																												
8																												
9																												
10																												
11																												
12																												

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

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

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A Required Client Information	Section B Required Project Information	Section C Invoice Information
Company: GA Power	Report To: SCS Contacts	Attention: Southern Co.
Address: Atlanta, GA	Copy To: Geosyntec Contacts	Company Name:
		Address:
Email To: SCS Contacts	Purchase Order No.:	Pace Quote Reference:
Phone: Fax:	Project Name: Plant Hammond Ash Pond #1 & #2	Pace Project Manager: Kevin Herring
Requested Due Date/TAT: 10 Day	Project Number:	Pace Profile #: 10839

REGULATORY AGENCY: NPDES, GROUND WATER, DRINKING WATER, UST, RCRA, OTHER DCR

Site Location STATE: GA

Section D Required Client Information

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE DATE	COLLECTED COMPOSITE TIME	COLLECTED COMPOSITE DATE	COLLECTED COMPOSITE TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Y/N	Analysis Test: Chloride/Fluoride/Sulfate	APP. III & IV Metals 6010/6020/7470	TDS	RAD 226/228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	HGWA-1	WT	G	8/11/21	17:00			19	5	2		3							x	x	x	x		pH = 6.98
2	HGWA-43D	WT	G	8/11/21	17:03			19	5	2		3							x	x	x	x		pH = 7.40
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								TJ 8/11/2021
12																								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Please note dry wells, strike thorough any wells not sampled, and note when the last sample for the event has been taken.	Thomas Kassler / Geo	8/13/21	1445	Connor Cain	8/13/21	1445	
	Connor Cain / Geo	8/13/21	1455	Ryan Williams / Pace	8/13/21	1455	
	Ryan Williams / Pace	8/13/21	1650	[signature] Pace	8/13/21	1650	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Thomas Kassler, Connor Cain

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 8/11/2021

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

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A Required Client Information:

Company:	GA Power
Address:	Atlanta, GA
Email To:	SCS Contacts
Phone:	Fax:
Requested Due Date/TAT:	10 Day

Section B Required Project Information:

Report To:	SCS Contacts
Copy To:	Geosyntec Contacts
Purchase Order No.:	
Project Name:	Plant Hammond Ash Pond ~~#1 & #2~~ 3B
Project Number:	

Section C Invoice Information:

Attention:	Southern Co.
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Kevin Herring
Pace Profile #:	10839

REGULATORY AGENCY

NPDES GROUND WATER DRINKING WATER
UST RCRA ✔ OTHER CCR

Site Location STATE: GA

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END DATE	COLLECTED COMPOSITE END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Requested Analysis Filtered (Y/N) Y/N	Analysis Test	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	HGWA-2	WT	G	8/12/21	15:35			21	5	2		3							Chloride/Fluoride/Sulfate; APP. III & IV Metals 6010/6020/7470; TDS; RAD 226/228		pH = 5.05
2	HGWA-3	WT	G	8/12/21	10:17			21	5	2		3							Chloride/Fluoride/Sulfate; APP. III & IV Metals 6010/6020/7470; TDS; RAD 226/228		pH = 7.31
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					TJ 8/12/2021
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Please note dry wells, strike thorough any wells not sampled, and note when the last sample for the event has been taken.	Thomas Hressler / Geo	8/13/21	1445	Connor Cain / Geo	8/13/21	1445	
	Connor Cain / Geo	8/13/21	1455	Ryan Williams / Pace	8/13/21	1456	
	Ryan Williams / Pace	8/13/21	1650	[illegible] / Pace	8/13/21	1650	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Connor Cain, Ashley Ramsey

SIGNATURE of SAMPLER: CC AR DATE Signed (MM/DD/YY): 8/12/2021

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

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: October 28, 2020 Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.07	Issuing Authority: Pace Carolinas Quality Office

Laboratory receiving samples:
Asheville ☐ Eden ☐ Greenwood ☐ Huntersville ☐ Raleigh ☐ Mechanicsville ☐ Atlanta ☑ Kernersville ☐

Sample Condition Upon Receipt

Client Name: GA Power

Project #: **WO# : 92555514**

PM: NMG Due Date: 08/27/21
CLIENT: GA-GA Power

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

Custody Seal Present? ☐ Yes ☑ No Seals Intact? ☐ Yes ☐ No

Date/Initials Person Examining Contents: 8/16/21 KBW

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

Biological Tissue Frozen? ☐ Yes ☑ No ☐ N/A

Thermometer: ☑ IR Gun ID: THR230 Type of Ice: ☑ Wet ☐ Blue ☐ None

Cooler Temp: 4.3/54 Correction Factor: Add/Subtract (°C) +0.1

Temp should be above freezing to 6°C
☐ Samples out of temp criteria. Samples on ice, cooling process has begun

Cooler Temp Corrected (°C): 4.4/55

USDA Regulated Soil (☐ N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☑ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☑ No

				Comments/Discrepancy:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	2.
Short Hold Time Analysis (<72 hr.)?	☐ Yes	☑ No	☐ N/A	3.
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	4.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	5.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	6.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	7.
Dissolved analysis: Samples Field Filtered?	☐ Yes	☐ No	☑ N/A	8.
Sample Labels Match COC?	☑ Yes	☐ No	☐ N/A	9.
-Includes Date/Time/ID/Analysis Matrix: W				
Headspace in VOA Vials (>5-6mm)?	☐ Yes	☐ No	☑ N/A	10.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	11.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	

COMMENTS/SAMPLE DISCREPANCY

Field Data Required? ☐ Yes ☐ No

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted: _____ Date/Time: _____

Project Manager SCURF Review: _____ Date: _____

Project Manager SRF Review: _____ Date: _____

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottles

Project # **WO# : 92555514**

PM: NMG **Due Date: 08/27/21**

CLIENT: GA-GA Power

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)	BP1N	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1		1	1			1																			2				
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pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

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

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A Required Client Information:

Company: GA Power
Address: Atlanta, GA
Email To: SCS Contacts
Phone: Fax:
Requested Due Date/TAT: 10 Day

Section B Required Project Information:

Report To: SCS Contacts
Copy To: Geosyntec Contacts
Purchase Order No.:
Project Name: Plant Hammond Ash Pond #3
Project Number:

Section C Invoice Information:

Attention: Southern Co.
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager: Kevin Herring
Pace Profile #: 10839

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☑ OTHER CCR

Site Location STATE: GA

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Valid Matrix Codes: DRINKING WATER DW; WATER WT; WASTEWATER WW; PRODUCT P; SOIL/SOLID SL; OIL OL; WIPE WP; AIR AR; OTHER OT; TISSUE TS

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE DATE	COLLECTED COMPOSITE TIME	COLLECTED COMPOSITE DATE	COLLECTED COMPOSITE TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Chloride/Fluoride/Sulfate	APP. III & IV Metals 6010/6020/7471	TDS	RAD 226/228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	HGWA-45D	WT	G	8/13/21	12:07			22	5	2		3							X	X	X	X		pH = 7.42
2	HGWA-122	WT	G	8/13/21	10:22			22	5	2		3							X	X	X	X		pH = 6.56
3	HGWA-44D	WT	G	8/13/21	11:26			20	5	2		3							X	X	X	X		pH = 7.77
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

TJ
8/13/2021

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Please note dry wells, strike through any wells not sampled, and note when the last sample for the event has been taken.	Connor Cain / GEO	8/16/21	1325	Ryan Williams / Pace	8/16/21	1325	
	Ryan Williams / Pace	8/16/21	1538		8/16/21	1538	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Connor Cain, Ryan Williams
SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY): 8/13/2021

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

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: October 28, 2020 Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.07	Issuing Authority: Pace Carolinas Quality Office

Laboratory receiving samples:

Asheville ☐ Eden ☐ Greenwood ☐ Huntersville ☐ Raleigh ☐ Mechanicsville ☐ Atlanta ☑ Kernersville ☐

Sample Condition Upon Receipt

Client Name: GA Power

Project #: **WO# : 92555514**

PM: NMG **Due Date: 08/27/21**

CLIENT: GA-GA Power

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

Custody Seal Present? ☐ Yes ☑ ~~No~~ Seals Intact? ☐ Yes ☐ No

Date/Initials Person Examining Contents: 3/17/21 KAW

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

Biological Tissue Frozen? ☐ Yes ☐ No ☐ N/A

Thermometer: ☑ ~~IR Gun~~ ID: THR230 Type of Ice: ☑ Wet ☐ Blue ☐ None

Cooler Temp: 4.8 Correction Factor: Add/Subtract (°C) +0.1

Temp should be above freezing to 6°C

☐ Samples out of temp criteria. Samples on ice, cooling process has begun

Cooler Temp Corrected (°C): 4.9

USDA Regulated Soil (☑ ~~N/A~~, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☑ ~~No~~

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☑ ~~No~~

				Comments/Discrepancy:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	2.
Short Hold Time Analysis (<72 hr.)?	☐ Yes	☑ ~~No~~	☐ N/A	3.
Rush Turn Around Time Requested?	☐ Yes	☑ ~~No~~	☐ N/A	4. 10 Day
Sufficient Volume?	☑ ~~Yes~~	☐ No	☐ N/A	5.
Correct Containers Used?	☑ ~~Yes~~	☐ No	☐ N/A	6.
-Pace Containers Used?	☑ ~~Yes~~	☐ No	☐ N/A	
Containers Intact?	☑ ~~Yes~~	☐ No	☐ N/A	7.
Dissolved analysis: Samples Field Filtered?	☐ Yes	☐ No	☑ ~~N/A~~	8.
Sample Labels Match COC?	☑ ~~Yes~~	☐ No	☐ N/A	9.
-Includes Date/Time/ID/Analysis Matrix: W				
Headspace in VOA Vials (>5-6mm)?	☐ Yes	☐ No	☑ ~~N/A~~	10.
Trip Blank Present?	☐ Yes	☐ No	☑ ~~N/A~~	11.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ ~~N/A~~	

COMMENTS/SAMPLE DISCREPANCY

Field Data Required? ☐ Yes ☐ No

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted: Date/Time

Project Manager SCURF Review: Date:

Project Manager SRF Review: Date:

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Exceptions: VOA, Coliform, TOC, O1 and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottles

Project #

WO#: 92555938

PM: NMG Due Date: 08/31/21

CLIENT: GA-GA Power

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1		—	—			—																		2	BP 1N			
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pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

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

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A Required Client Information

Company:	GA Power
Address:	Atlanta, GA
Email To:	SCS Contacts
Phone:	Fax:
Requested Due Date/TAT:	10 Day

Section B Required Project Information

Report To:	SCS Contacts
Copy To:	Geosyntec Contacts
Purchase Order No.:	
Project Name:	Hammond AP-3
Project Number:	

Section C Invoice Information

Attention:	Southern Co.
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Kevin Herring
Pace Profile #:	10839

REGULATORY AGENCY

NPDES GROUND WATER DRINKING WATER
UST RCRA ✓ OTHER CCR

Site Location STATE: GA

Section D Required Client Information

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE DATE	COLLECTED COMPOSITE TIME	COLLECTED COMPOSITE DATE	COLLECTED COMPOSITE TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Chloride, Fluoride, Sulfate	APP. III & IV metals 6010/6020/747	TDS	RAD 226/228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	HGWC-121A	WT	G	8/16/21	16:10				21	5	2		3						X	X	X	X		pH = 6.74
2	HGWC-120	WT	G	8/16/21	12:15				21	5	2		3						X	X	X	X		pH = 6.92
3	HGWC-124	WT	G	8/15/21	10:09				19	5	2		3						X	X	X	X		pH = 7.09
4	MW-46D	WT	G	8/16/21	14:35				20	5	2		3						X	X	X	X		pH = 7.65
5																								
6																								
7																								
8																								
9																								TJ 8/16/2021
10																								
11																								
12																								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Please note dry wells, strike through any wells not sampled, and note when the last sample for the event has been taken.	Shannon Kessler / Geo	8/16/21					
	Connor Cain / Geo	8/16/21	1500	Shannon Kessler / Geo	8/16/21	1500	
	Shannon Kessler / Geo	8/17/21	1125	Ryan Williams / Pace	8/17/21	1125	
	Ryan Williams / Pace	8/17/21	1500	[signature] / PACE	8/17/21	1500	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Connor Cain

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 8/16/2021

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

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: October 28, 2020 Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.07	Issuing Authority: Pace Carolinas Quality Office

Laboratory receiving samples:
Asheville ☐ Eden ☐ Greenwood ☐ Huntersville ☐ Raleigh ☐ Mechanicsville ☐ Atlanta ☐ Kernersville ☐

Sample Condition Upon Receipt

Client Name: GA Power

Project #:

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

Custody Seal Present? ☐ Yes ☑ No Seals Intact? ☐ Yes ☐ No

Date/Initials Person Examining Contents: 5/19/21 JH

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

Biological Tissue Frozen? ☐ Yes ☐ No ☐ N/A

Thermometer: ☑ IR Gun ID: 083 ☑ Wet ☐ Blue ☐ None

Type of Ice:

Cooler Temp: 1.8 Correction Factor: Add/Subtract (°C) 0.0

Temp should be above freezing to 6°C
☐ Samples out of temp criteria. Samples on ice, cooling process has begun

Cooler Temp Corrected (°C): 1.8

USDA Regulated Soil (☐ N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

				Comments/Discrepancy:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	2.
Short Hold Time Analysis (<72 hr.)?	☐ Yes	☑ No	☐ N/A	3.
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	4.
Suffic ent Volume?	☑ Yes	☐ No	☐ N/A	5.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	6.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	7.
Dissolved analysis: Samples Field Filtered?	☐ Yes	☐ No	☑ N/A	8
Sample Labels Match COC?	☑ Yes	☐ No	☐ N/A	9.
-Includes Date/Time/ID/Analysis Matrix:	WW			
Headspace in VOA Vials (>5-6mm)?	☐ Yes	☐ No	☑ N/A	10.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	11.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	

COMMENTS/SAMPLE DISCREPANCY

Field Data Required? ☐ Yes ☐ No

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted: _____ Date/Time: _____

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

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

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottles

Project #

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
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pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

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

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A Required Client Information:	Section B Required Project Information	Section C Invoice Information
Company: GA Power	Report To: SCS Contacts	Attention: Southern Co.
Address: Atlanta, GA	Copy To: Geosyntec Contacts	Company Name:
		Address:
Email To: SCS Contacts	Purchase Order No.:	Pace Quote Reference:
Phone: Fax:	Project Name: Hammond AP-3	Pace Project Manager: Kevin Herring
Requested Due Date/TAT: 10 Day	Project Number:	Pace Profile #: 10639

REGULATORY AGENCY

NPDES GROUND WATER DRINKING WATER
UST RCRA ✓ OTHER CCR

Site Location STATE: GA

Section D Required Client Information

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END DATE	COLLECTED COMPOSITE END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Chloride, Fluoride, Sulfate	APP, III & IV metals 6010/6020/747	TDS	RAD 226/228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
										Requested Analysis Filtered (Y/N)														
1	MW-39	WT	G	8/18/21	9:10			19	5	2		3							X	X	X	X		pH = 6.90
2	MW-32	WT	G	8/18/21	11:45			27	5	2		3							X	X	X	X		pH = 6.89
3	MW-41	WT	G	8/18/21	13:20			21	5	2		3							X	X	X	X		pH = 6.93
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

TJ
8/18/2021

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Please note dry wells, strike through any wells not sampled, and note when the last sample for the event has been taken.	Ashley Ramsey / Geo	8/18/21	1600	Thomas Chandler / Geo	8/18/21	1800	
	Thomas Chandler / Geo	8/19/21	1240	Ryan Williams / Pace	8/19/21	1240	
	Ryan Williams / Pace	8/19/21	1600		8/19/21	1600	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Ashley Ramsey

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 8/18/21

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

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: October 28, 2020
		Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.07	Issuing Authority: Pace Carolinas Quality Office

Laboratory receiving samples:

Asheville ☐ Eden ☐ Greenwood ☐ Huntersville ☐ Raleigh ☐ Mechanicsville ☐ Atlanta ☑ Kernersville ☐

Sample Condition Upon Receipt

Client Name: CA Power

Project #:

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

Custody Seal Present? ☐ Yes ☑ No Seals Intact? ☐ Yes ☑ No

Date/Initials Person Examining Contents: MT 8/2021

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

Biological Tissue Frozen? ☐ Yes ☑ No ☐ N/A

Thermometer: ☐ IR Gun ID: 083 Type of Ice: ☑ Wet ☐ Blue ☐ None

Cooler Temp: 4.4 Correction Factor: Add/Subtract (°C) +0

Temp should be above freezing to 6°C ☐ Samples out of temp criteria. Samples on ice, cooling process has begun

Cooler Temp Corrected (°C): 4.4

USDA Regulated Soil (☐ N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☑ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☑ No

				Comments/Discrepancy:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	2
Short Hold Time Analysis (<72 hr.)?	☐ Yes	☑ No	☐ N/A	3
Rush Turn Around Time Requested?	☐ Yes	☐ No	☑ N/A	4
Sufficient Volume?	☐ Yes	☑ No	☐ N/A	5
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	6
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	7
Dissolved analysis. Samples Field Filtered?	☐ Yes	☑ No	☐ N/A	8
Sample Labels Match COC?	☑ Yes	☐ No	☐ N/A	9
-Includes Date/Time/ID/Analysis Matrix: WT				*
Headspace in VOA Vials (>5-6mm)?	☐ Yes	☐ No	☑ N/A	10
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	11
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	

COMMENTS/SAMPLE DISCREPANCY

Field Data Required? ☐ Yes ☐ No

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted _____ Date/Time _____

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

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

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottles

Project #

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A - lab)	SP2T-250 mL Sterile Plastic (N/A - lab)	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1		1	1			1																		BP1N				
2		1	1			1																						
3		1	1			1																						
4		1	1			1																						
5		1	1			1																						
6																												
7																												
8																												
9																												
10																												
11																												
12																												

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

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

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: GA Power	Report To: SCS Contacts	Attention: Southern Co.
Address: Atlanta GA	Copy To: Geosyntec Contacts	Company Name:
		Address:
Email To: SCS Contacts	Purchase Order No.:	Pace Quote Reference:
Phone: Fax:	Project Name: Hammond AP-3	Pace Project Manager: Kevin Herring
Requested Due Date/TAT: 10 Day	Project Number	Pace Profile #: 10839

REGULATORY AGENCY: NPDES, GROUND WATER, DRINKING WATER, UST, RCRA, OTHER CCR

Site Location STATE: GA

Section D Required Client Information

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE DATE	COLLECTED COMPOSITE TIME	COLLECTED COMPOSITE DATE	COLLECTED COMPOSITE TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Chloride, Fluoride, Sulfate	APP. III & IV metals 6010/6020/747	TDS	RAD 226/228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	HGWC-126	WT	G	8/18/21	9:45				20	5	2		3						X	X	X	X		pH = 7.32
2	HGWC-125	WT	G	8/19/21	11:14				20	5	2		3						X	X	X	X		pH = 7.24
3	DUP-3	WT	G	8/19/202	0:00				20	5	2		3						X	X	X	X		N/A
4	EB-3	WT	G	8/19/21	12:05				20	5	2		3						X	X	X	X		N/A
5	FB-3	WT	G	8/19/21	12:00				20	5	2		3						X	X	X	X		N/A
6																								Last sample
7																								
8																								
9																								TJ
10																								8/19/2021
11																								
12																								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Thomas Hessler / Geo	8/20	1215	Ryan Williams / Pace	8/20/21	1216				
	Ryan Williams / Pace	8/20/21	1530	[illegible]	8/20/21	1530	4.4	Y	N	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Thomas Hessler

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 8/19/2021

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

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

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

September 29, 2021

Joju Abraham
Georgia Power-CCR
2480 Maner Road
Atlanta, GA 30339

RE: Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory between August 13, 2021 and August 20, 2021. 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,

Nicole D'Oleo

Nicole D'Oleo
nicole.d'oleo@pacelabs.com
(704)875-9092
Project Manager

Enclosures

cc: Christine Hug, Geosyntec Consultants, Inc.
Kristen Jurinko
Thomas Kessler, Geosyntec
Whitney Law, Geosyntec Consultants
Noelia Muskus, Geosyntec Consultants
Ms. Lauren Petty, Southern Company
Nardos Tilahun, GeoSyntec
Dawit Yifru, Geosyntec Consultants, Inc.

REPORT OF LABORATORY ANALYSIS

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

CERTIFICATIONS

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

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

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

SAMPLE SUMMARY

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92555510001	**HGWA-1**	Water	08/11/21 17:00	08/13/21 14:55
92555510002	**HGWA-43D**	Water	08/11/21 17:03	08/13/21 14:55
92555510003	**HGWA-2**	Water	08/12/21 15:35	08/13/21 14:55
92555510004	**HGWA-3**	Water	08/12/21 10:17	08/13/21 14:55
92555510005	**HGWA-45D**	Water	08/13/21 12:07	08/16/21 13:25
92555510006	**HGWA-122**	Water	08/13/21 10:22	08/16/21 13:25
92555510007	**HGWA-44D**	Water	08/13/21 11:25	08/16/21 13:25
92555924001	**HGWC-121A**	Water	08/16/21 16:10	08/17/21 11:25
92555924002	**HGWC-120**	Water	08/16/21 12:15	08/17/21 11:25
92555924003	**HGWC-124**	Water	08/16/21 10:09	08/17/21 11:25
92555924004	**MW-46D**	Water	08/16/21 14:36	08/17/21 11:25
92555924005	**MW-39**	Water	08/18/21 09:10	08/19/21 12:40
92555924006	**MW-32**	Water	08/18/21 11:45	08/19/21 12:40
92555924007	**MW-41**	Water	08/18/21 13:20	08/19/21 12:40
92555924008	**HGWC-126**	Water	08/19/21 09:45	08/20/21 12:15
92555924009	**HGWC-125**	Water	08/19/21 11:14	08/20/21 12:15
92555924010	**DUP-3**	Water	08/19/21 00:00	08/20/21 12:15
92555924011	**EB-3**	Water	08/19/21 12:05	08/20/21 12:15
92555924012	**FB-3**	Water	08/19/21 12:00	08/20/21 12:15

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

SAMPLE ANALYTE COUNT

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92555510001	**HGWA-1**	EPA 9315	CLA	1	PASI-PA
		EPA 9320	JC2	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92555510002	**HGWA-43D**	EPA 9315	CLA	1	PASI-PA
		EPA 9320	JC2	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92555510003	**HGWA-2**	EPA 9315	CLA	1	PASI-PA
		EPA 9320	JC2	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92555510004	**HGWA-3**	EPA 9315	CLA	1	PASI-PA
		EPA 9320	JC2	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92555510005	**HGWA-45D**	EPA 9315	CLA	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92555510006	**HGWA-122**	EPA 9315	CLA	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92555510007	**HGWA-44D**	EPA 9315	CLA	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92555924001	**HGWC-121A**	EPA 9315	CLA	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92555924002	**HGWC-120**	EPA 9315	CLA	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92555924003	**HGWC-124**	EPA 9315	CLA	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92555924004	**MW-46D**	EPA 9315	CLA	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
92555924005	**MW-39**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JC2	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
92555924006	**MW-32**	EPA 9315	LAL	1	PASI-PA

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

SAMPLE ANALYTE COUNT

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 9320	JC2	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
92555924007	**MW-41**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JC2	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
92555924008	**HGWC-126**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JC2	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
92555924009	**HGWC-125**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JC2	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
92555924010	**DUP-3**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JC2	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
92555924011	**EB-3**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JC2	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
92555924012	**FB-3**	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JC2	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

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

SUMMARY OF DETECTION

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92555510001	**HGWA-1**					
EPA 9315	Radium-226	0.115 ± 0.118 (0.222) C:88% T:NA	pCi/L		09/17/21 07:27	
EPA 9320	Radium-228	-0.0659 ± 0.329 (0.785) C:71% T:87%	pCi/L		09/03/21 14:23	
Total Radium Calculation	Total Radium	0.115 ± 0.447 (1.01)	pCi/L		09/17/21 16:27	
92555510002	**HGWA-43D**					
EPA 9315	Radium-226	0.101 ± 0.153 (0.337) C:82% T:NA	pCi/L		09/16/21 08:31	
EPA 9320	Radium-228	0.293 ± 0.366 (0.775) C:71% T:87%	pCi/L		09/03/21 14:23	
Total Radium Calculation	Total Radium	0.394 ± 0.519 (1.11)	pCi/L		09/17/21 16:27	
92555510003	**HGWA-2**					
EPA 9315	Radium-226	0.283 ± 0.170 (0.239) C:80% T:NA	pCi/L		09/17/21 07:27	
EPA 9320	Radium-228	0.463 ± 0.383 (0.759) C:80% T:81%	pCi/L		09/03/21 14:23	
Total Radium Calculation	Total Radium	0.746 ± 0.553 (0.998)	pCi/L		09/17/21 16:27	
92555510004	**HGWA-3**					
EPA 9315	Radium-226	0.179 ± 0.153 (0.265) C:79% T:NA	pCi/L		09/16/21 08:31	
EPA 9320	Radium-228	0.319 ± 0.393 (0.831) C:75% T:82%	pCi/L		09/03/21 14:23	
Total Radium Calculation	Total Radium	0.498 ± 0.546 (1.10)	pCi/L		09/17/21 16:27	

REPORT OF LABORATORY ANALYSIS

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

SUMMARY OF DETECTION

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92555510005	**HGWA-45D**					
EPA 9315	Radium-226	0.319 ± 0.198 (0.285) C:73% T:NA	pCi/L		09/16/21 08:30	
EPA 9320	Radium-228	0.878 ± 0.486 (0.892) C:67% T:85%	pCi/L		09/03/21 11:26	
Total Radium Calculation	Total Radium	1.20 ± 0.684 (1.18)	pCi/L		09/17/21 16:27	
92555510006	**HGWA-122**					
EPA 9315	Radium-226	0.0404 ± 0.101 (0.245) C:84% T:NA	pCi/L		09/16/21 08:30	
EPA 9320	Radium-228	0.874 ± 0.487 (0.889) C:66% T:82%	pCi/L		09/03/21 11:26	
Total Radium Calculation	Total Radium	0.914 ± 0.588 (1.13)	pCi/L		09/17/21 16:27	
92555510007	**HGWA-44D**					
EPA 9315	Radium-226	0.188 ± 0.150 (0.238) C:74% T:NA	pCi/L		09/16/21 08:30	
EPA 9320	Radium-228	0.771 ± 0.451 (0.843) C:67% T:89%	pCi/L		09/03/21 11:26	
Total Radium Calculation	Total Radium	0.959 ± 0.601 (1.08)	pCi/L		09/17/21 16:27	
92555924001	**HGWC-121A**					
EPA 9315	Radium-226	0.0928 ± 0.122 (0.252) C:79% T:NA	pCi/L		09/16/21 14:23	
EPA 9320	Radium-228	0.0996 ± 0.364 (0.825) C:61% T:91%	pCi/L		09/07/21 14:31	
Total Radium Calculation	Total Radium	0.192 ± 0.486 (1.08)	pCi/L		09/17/21 16:29	

REPORT OF LABORATORY ANALYSIS

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

SUMMARY OF DETECTION

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92555924002	**HGWC-120**					
EPA 9315	Radium-226	0.153 ± 0.139 (0.246) C:77% T:NA	pCi/L		09/16/21 14:23	
EPA 9320	Radium-228	1.10 ± 0.503 (0.836) C:61% T:91%	pCi/L		09/07/21 14:31	
Total Radium Calculation	Total Radium	1.25 ± 0.642 (1.08)	pCi/L		09/17/21 16:29	
92555924003	**HGWC-124**					
EPA 9315	Radium-226	0.240 ± 0.174 (0.300) C:87% T:NA	pCi/L		09/16/21 14:24	
EPA 9320	Radium-228	0.494 ± 0.402 (0.797) C:67% T:82%	pCi/L		09/07/21 14:31	
Total Radium Calculation	Total Radium	0.734 ± 0.576 (1.10)	pCi/L		09/17/21 16:29	
92555924004	**MW-46D**					
EPA 9315	Radium-226	0.128 ± 0.134 (0.262) C:91% T:NA	pCi/L		09/16/21 14:24	
EPA 9320	Radium-228	0.497 ± 0.348 (0.657) C:66% T:88%	pCi/L		09/07/21 14:31	
Total Radium Calculation	Total Radium	0.625 ± 0.482 (0.919)	pCi/L		09/17/21 16:29	
92555924005	**MW-39**					
EPA 9315	Radium-226	0.185 ± 0.137 (0.222) C:93% T:NA	pCi/L		09/20/21 07:38	
EPA 9320	Radium-228	0.434 ± 0.375 (0.752) C:68% T:90%	pCi/L		09/16/21 14:11	
Total Radium Calculation	Total Radium	0.619 ± 0.512 (0.974)	pCi/L		09/21/21 16:13	

REPORT OF LABORATORY ANALYSIS

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

SUMMARY OF DETECTION

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92555924006	**MW-32**					
EPA 9315	Radium-226	0.409 ± 0.186 (0.218) C:94% T:NA	pCi/L		09/20/21 07:39	
EPA 9320	Radium-228	0.735 ± 0.395 (0.682) C:68% T:86%	pCi/L		09/16/21 14:11	
Total Radium Calculation	Total Radium	1.14 ± 0.581 (0.900)	pCi/L		09/21/21 16:13	
92555924007	**MW-41**					
EPA 9315	Radium-226	0.240 ± 0.156 (0.256) C:99% T:NA	pCi/L		09/20/21 07:39	
EPA 9320	Radium-228	0.940 ± 0.459 (0.778) C:67% T:86%	pCi/L		09/16/21 14:11	
Total Radium Calculation	Total Radium	1.18 ± 0.615 (1.03)	pCi/L		09/21/21 16:13	
92555924008	**HGWC-126**					
EPA 9315	Radium-226	0.709 ± 0.251 (0.244) C:94% T:NA	pCi/L		09/20/21 07:39	
EPA 9320	Radium-228	0.404 ± 0.369 (0.749) C:73% T:87%	pCi/L		09/16/21 14:11	
Total Radium Calculation	Total Radium	1.11 ± 0.620 (0.993)	pCi/L		09/21/21 16:13	
92555924009	**HGWC-125**					
EPA 9315	Radium-226	0.192 ± 0.138 (0.226) C:94% T:NA	pCi/L		09/20/21 07:39	
EPA 9320	Radium-228	0.529 ± 0.409 (0.809) C:69% T:92%	pCi/L		09/16/21 14:11	
Total Radium Calculation	Total Radium	0.721 ± 0.547 (1.04)	pCi/L		09/21/21 16:13	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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SUMMARY OF DETECTION

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92555924010	**DUP-3**					
EPA 9315	Radium-226	0.224 ± 0.172 (0.312) C:96% T:NA	pCi/L		09/20/21 07:39	
EPA 9320	Radium-228	0.591 ± 0.407 (0.777) C:73% T:81%	pCi/L		09/16/21 14:11	
Total Radium Calculation	Total Radium	0.815 ± 0.579 (1.09)	pCi/L		09/21/21 16:13	
92555924011	**EB-3**					
EPA 9315	Radium-226	0.119 ± 0.130 (0.261) C:98% T:NA	pCi/L		09/20/21 07:39	
EPA 9320	Radium-228	0.310 ± 0.426 (0.913) C:66% T:86%	pCi/L		09/16/21 14:11	
Total Radium Calculation	Total Radium	0.429 ± 0.556 (1.17)	pCi/L		09/21/21 16:29	
92555924012	**FB-3**					
EPA 9315	Radium-226	0.170 ± 0.138 (0.242) C:97% T:NA	pCi/L		09/20/21 07:39	
EPA 9320	Radium-228	0.218 ± 0.373 (0.814) C:70% T:79%	pCi/L		09/16/21 14:11	
Total Radium Calculation	Total Radium	0.388 ± 0.511 (1.06)	pCi/L		09/21/21 16:29	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

Sample: HGWA-1 **Lab ID: 92555510001** Collected: 08/11/21 17:00 Received: 08/13/21 14:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	**0.115 ± 0.118 (0.222) C:88% T:NA**	pCi/L	09/17/21 07:27	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**-0.0659 ± 0.329 (0.785) C:71% T:87%**	pCi/L	09/03/21 14:23	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.115 ± 0.447 (1.01)**	pCi/L	09/17/21 16:27	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

Sample: HGWA-43D **Lab ID: 92555510002** Collected: 08/11/21 17:03 Received: 08/13/21 14:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	**0.101 ± 0.153 (0.337) C:82% T:NA**	pCi/L	09/16/21 08:31	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**0.293 ± 0.366 (0.775) C:71% T:87%**	pCi/L	09/03/21 14:23	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.394 ± 0.519 (1.11)**	pCi/L	09/17/21 16:27	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

Sample: HGWA-2 **Lab ID: 92555510003** Collected: 08/12/21 15:35 Received: 08/13/21 14:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	**0.283 ± 0.170 (0.239) C:80% T:NA**	pCi/L	09/17/21 07:27	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**0.463 ± 0.383 (0.759) C:80% T:81%**	pCi/L	09/03/21 14:23	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.746 ± 0.553 (0.998)**	pCi/L	09/17/21 16:27	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

Sample: HGWA-3 **Lab ID: 92555510004** Collected: 08/12/21 10:17 Received: 08/13/21 14:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	**0.179 ± 0.153 (0.265) C:79% T:NA**	pCi/L	09/16/21 08:31	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**0.319 ± 0.393 (0.831) C:75% T:82%**	pCi/L	09/03/21 14:23	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.498 ± 0.546 (1.10)**	pCi/L	09/17/21 16:27	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

Sample: HGWA-45D **Lab ID: 92555510005** Collected: 08/13/21 12:07 Received: 08/16/21 13:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	**0.319 ± 0.198 (0.285) C:73% T:NA**	pCi/L	09/16/21 08:30	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**0.878 ± 0.486 (0.892) C:67% T:85%**	pCi/L	09/03/21 11:26	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**1.20 ± 0.684 (1.18)**	pCi/L	09/17/21 16:27	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

Sample: HGWA-122 **Lab ID: 92555510006** Collected: 08/13/21 10:22 Received: 08/16/21 13:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	**0.0404 ± 0.101 (0.245) C:84% T:NA**	pCi/L	09/16/21 08:30	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**0.874 ± 0.487 (0.889) C:66% T:82%**	pCi/L	09/03/21 11:26	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.914 ± 0.588 (1.13)**	pCi/L	09/17/21 16:27	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

Sample: HGWA-44D **Lab ID: 92555510007** Collected: 08/13/21 11:25 Received: 08/16/21 13:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	**0.188 ± 0.150 (0.238) C:74% T:NA**	pCi/L	09/16/21 08:30	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**0.771 ± 0.451 (0.843) C:67% T:89%**	pCi/L	09/03/21 11:26	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.959 ± 0.601 (1.08)**	pCi/L	09/17/21 16:27	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

Sample: HGWC-121A **Lab ID: 92555924001** Collected: 08/16/21 16:10 Received: 08/17/21 11:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	**0.0928 ± 0.122 (0.252) C:79% T:NA**	pCi/L	09/16/21 14:23	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**0.0996 ± 0.364 (0.825) C:61% T:91%**	pCi/L	09/07/21 14:31	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.192 ± 0.486 (1.08)**	pCi/L	09/17/21 16:29	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

Sample: HGWC-120 **Lab ID: 92555924002** Collected: 08/16/21 12:15 Received: 08/17/21 11:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	**0.153 ± 0.139 (0.246) C:77% T:NA**	pCi/L	09/16/21 14:23	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**1.10 ± 0.503 (0.836) C:61% T:91%**	pCi/L	09/07/21 14:31	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**1.25 ± 0.642 (1.08)**	pCi/L	09/17/21 16:29	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

Sample: HGWC-124 **Lab ID: 92555924003** Collected: 08/16/21 10:09 Received: 08/17/21 11:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	**0.240 ± 0.174 (0.300) C:87% T:NA**	pCi/L	09/16/21 14:24	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**0.494 ± 0.402 (0.797) C:67% T:82%**	pCi/L	09/07/21 14:31	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.734 ± 0.576 (1.10)**	pCi/L	09/17/21 16:29	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

Sample: MW-46D **Lab ID: 92555924004** Collected: 08/16/21 14:36 Received: 08/17/21 11:25 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	**0.128 ± 0.134 (0.262) C:91% T:NA**	pCi/L	09/16/21 14:24	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**0.497 ± 0.348 (0.657) C:66% T:88%**	pCi/L	09/07/21 14:31	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.625 ± 0.482 (0.919)**	pCi/L	09/17/21 16:29	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

Sample: MW-39 **Lab ID: 92555924005** Collected: 08/18/21 09:10 Received: 08/19/21 12:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	**0.185 ± 0.137 (0.222) C:93% T:NA**	pCi/L	09/20/21 07:38	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**0.434 ± 0.375 (0.752) C:68% T:90%**	pCi/L	09/16/21 14:11	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.619 ± 0.512 (0.974)**	pCi/L	09/21/21 16:13	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

Sample: MW-32 **Lab ID: 92555924006** Collected: 08/18/21 11:45 Received: 08/19/21 12:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	**0.409 ± 0.186 (0.218) C:94% T:NA**	pCi/L	09/20/21 07:39	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**0.735 ± 0.395 (0.682) C:68% T:86%**	pCi/L	09/16/21 14:11	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**1.14 ± 0.581 (0.900)**	pCi/L	09/21/21 16:13	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

Sample: MW-41 **Lab ID: 92555924007** Collected: 08/18/21 13:20 Received: 08/19/21 12:40 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	**0.240 ± 0.156 (0.256) C:99% T:NA**	pCi/L	09/20/21 07:39	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**0.940 ± 0.459 (0.778) C:67% T:86%**	pCi/L	09/16/21 14:11	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**1.18 ± 0.615 (1.03)**	pCi/L	09/21/21 16:13	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

Sample: HGWC-126 **Lab ID: 92555924008** Collected: 08/19/21 09:45 Received: 08/20/21 12:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	**0.709 ± 0.251 (0.244) C:94% T:NA**	pCi/L	09/20/21 07:39	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**0.404 ± 0.369 (0.749) C:73% T:87%**	pCi/L	09/16/21 14:11	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**1.11 ± 0.620 (0.993)**	pCi/L	09/21/21 16:13	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

Sample: HGWC-125 **Lab ID: 92555924009** Collected: 08/19/21 11:14 Received: 08/20/21 12:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	**0.192 ± 0.138 (0.226) C:94% T:NA**	pCi/L	09/20/21 07:39	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**0.529 ± 0.409 (0.809) C:69% T:92%**	pCi/L	09/16/21 14:11	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.721 ± 0.547 (1.04)**	pCi/L	09/21/21 16:13	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

Sample: DUP-3 **Lab ID: 92555924010** Collected: 08/19/21 00:00 Received: 08/20/21 12:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	**0.224 ± 0.172 (0.312) C:96% T:NA**	pCi/L	09/20/21 07:39	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**0.591 ± 0.407 (0.777) C:73% T:81%**	pCi/L	09/16/21 14:11	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.815 ± 0.579 (1.09)**	pCi/L	09/21/21 16:13	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

Sample: EB-3 **Lab ID: 92555924011** Collected: 08/19/21 12:05 Received: 08/20/21 12:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	**0.119 ± 0.130 (0.261) C:98% T:NA**	pCi/L	09/20/21 07:39	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**0.310 ± 0.426 (0.913) C:66% T:86%**	pCi/L	09/16/21 14:11	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.429 ± 0.556 (1.17)**	pCi/L	09/21/21 16:29	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

Sample: FB-3 **Lab ID: 92555924012** Collected: 08/19/21 12:00 Received: 08/20/21 12:15 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 9315	**0.170 ± 0.138 (0.242) C:97% T:NA**	pCi/L	09/20/21 07:39	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 9320	**0.218 ± 0.373 (0.814) C:70% T:79%**	pCi/L	09/16/21 14:11	15262-20-1	
	Pace Analytical Services - Greensburg					
Total Radium	Total Radium Calculation	**0.388 ± 0.511 (1.06)**	pCi/L	09/21/21 16:29	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

QC Batch: 463298
QC Batch Method: EPA 9320
Analysis Method: EPA 9320
Analysis Description: 9320 Radium 228
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 92555510005, 92555510006, 92555510007

METHOD BLANK: 2236861 Matrix: Water
Associated Lab Samples: 92555510005, 92555510006, 92555510007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.204 ± 0.329 (0.713) C:63% T:88%	pCi/L	09/03/21 11:28	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

QC Batch: 463428
QC Batch Method: EPA 9315
Analysis Method: EPA 9315
Analysis Description: 9315 Total Radium
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 92555924001, 92555924002, 92555924003, 92555924004

METHOD BLANK: 2237365
Matrix: Water
Associated Lab Samples: 92555924001, 92555924002, 92555924003, 92555924004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.109 ± 0.124 (0.437) C:58% T:NA	pCi/L	09/16/21 14:23	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

QC Batch: 463426 Analysis Method: EPA 9315
QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 92555510001, 92555510002, 92555510003, 92555510004, 92555510005, 92555510006, 92555510007

METHOD BLANK: 2237360 Matrix: Water
Associated Lab Samples: 92555510001, 92555510002, 92555510003, 92555510004, 92555510005, 92555510006, 92555510007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.250 ± 0.184 (0.307) C:77% T:NA	pCi/L	09/16/21 08:31	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

QC Batch: 463380
QC Batch Method: EPA 9315
Analysis Method: EPA 9315
Analysis Description: 9315 Total Radium
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 92555924005, 92555924006, 92555924007, 92555924008, 92555924009, 92555924010, 92555924011, 92555924012

METHOD BLANK: 2237271 Matrix: Water
Associated Lab Samples: 92555924005, 92555924006, 92555924007, 92555924008, 92555924009, 92555924010, 92555924011, 92555924012

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.141 ± 0.135 (0.261) C:99% T:NA	pCi/L	09/20/21 07:37	

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

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL - RADIOCHEMISTRY

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

QC Batch: 461961
QC Batch Method: EPA 9320
Analysis Method: EPA 9320
Analysis Description: 9320 Radium 228
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 92555510001, 92555510002, 92555510003, 92555510004

METHOD BLANK: 2230398 Matrix: Water
Associated Lab Samples: 92555510001, 92555510002, 92555510003, 92555510004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.353 ± 0.350 (0.718) C:73% T:86%	pCi/L	09/03/21 14:24	

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REPORT OF LABORATORY ANALYSIS

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(770)734-4200

QUALITY CONTROL - RADIOCHEMISTRY

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

QC Batch: 463379
QC Batch Method: EPA 9320
Analysis Method: EPA 9320
Analysis Description: 9320 Radium 228
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 92555924005, 92555924006, 92555924007, 92555924008, 92555924009, 92555924010, 92555924011, 92555924012

METHOD BLANK: 2237270 Matrix: Water
Associated Lab Samples: 92555924005, 92555924006, 92555924007, 92555924008, 92555924009, 92555924010, 92555924011, 92555924012

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.257 ± 0.278 (0.577) C:77% T:86%	pCi/L	09/16/21 11:10	

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

REPORT OF LABORATORY ANALYSIS

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Peachtree Corners, GA 30092
(770)734-4200

QUALITY CONTROL - RADIOCHEMISTRY

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

QC Batch: 461962
QC Batch Method: EPA 9320
Analysis Method: EPA 9320
Analysis Description: 9320 Radium 228
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 92555924001, 92555924002, 92555924003, 92555924004

METHOD BLANK: 2230399
Matrix: Water
Associated Lab Samples: 92555924001, 92555924002, 92555924003, 92555924004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.385 ± 0.334 (0.668) C:68% T:94%	pCi/L	09/07/21 11:39	

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

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

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.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

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.

Pace Analytical Services, LLC
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(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92555510001	**HGWA-1**	EPA 9315	463426		
92555510002	**HGWA-43D**	EPA 9315	463426		
92555510003	**HGWA-2**	EPA 9315	463426		
92555510004	**HGWA-3**	EPA 9315	463426		
92555510005	**HGWA-45D**	EPA 9315	463426		
92555510006	**HGWA-122**	EPA 9315	463426		
92555510007	**HGWA-44D**	EPA 9315	463426		
92555924001	**HGWC-121A**	EPA 9315	463428		
92555924002	**HGWC-120**	EPA 9315	463428		
92555924003	**HGWC-124**	EPA 9315	463428		
92555924004	**MW-46D**	EPA 9315	463428		
92555924005	**MW-39**	EPA 9315	463380		
92555924006	**MW-32**	EPA 9315	463380		
92555924007	**MW-41**	EPA 9315	463380		
92555924008	**HGWC-126**	EPA 9315	463380		
92555924009	**HGWC-125**	EPA 9315	463380		
92555924010	**DUP-3**	EPA 9315	463380		
92555924011	**EB-3**	EPA 9315	463380		
92555924012	**FB-3**	EPA 9315	463380		
92555510001	**HGWA-1**	EPA 9320	461961		
92555510002	**HGWA-43D**	EPA 9320	461961		
92555510003	**HGWA-2**	EPA 9320	461961		
92555510004	**HGWA-3**	EPA 9320	461961		
92555510005	**HGWA-45D**	EPA 9320	463298		
92555510006	**HGWA-122**	EPA 9320	463298		
92555510007	**HGWA-44D**	EPA 9320	463298		
92555924001	**HGWC-121A**	EPA 9320	461962		
92555924002	**HGWC-120**	EPA 9320	461962		
92555924003	**HGWC-124**	EPA 9320	461962		
92555924004	**MW-46D**	EPA 9320	461962		
92555924005	**MW-39**	EPA 9320	463379		
92555924006	**MW-32**	EPA 9320	463379		
92555924007	**MW-41**	EPA 9320	463379		
92555924008	**HGWC-126**	EPA 9320	463379		
92555924009	**HGWC-125**	EPA 9320	463379		
92555924010	**DUP-3**	EPA 9320	463379		
92555924011	**EB-3**	EPA 9320	463379		
92555924012	**FB-3**	EPA 9320	463379		
92555510001	**HGWA-1**	Total Radium Calculation	464617		
92555510002	**HGWA-43D**	Total Radium Calculation	464617		
92555510003	**HGWA-2**	Total Radium Calculation	464617		
92555510004	**HGWA-3**	Total Radium Calculation	464617		
92555510005	**HGWA-45D**	Total Radium Calculation	464617		
92555510006	**HGWA-122**	Total Radium Calculation	464617		
92555510007	**HGWA-44D**	Total Radium Calculation	464617		

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(770)734-4200

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HAMMOND ASH POND #3 RADS
Pace Project No.: 92555510

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92555924001	**HGWC-121A**	Total Radium Calculation	464618		
92555924002	**HGWC-120**	Total Radium Calculation	464618		
92555924003	**HGWC-124**	Total Radium Calculation	464618		
92555924004	**MW-46D**	Total Radium Calculation	464618		
92555924005	**MW-39**	Total Radium Calculation	464961		
92555924006	**MW-32**	Total Radium Calculation	464961		
92555924007	**MW-41**	Total Radium Calculation	464961		
92555924008	**HGWC-126**	Total Radium Calculation	464961		
92555924009	**HGWC-125**	Total Radium Calculation	464961		
92555924010	**DUP-3**	Total Radium Calculation	464961		
92555924011	**EB-3**	Total Radium Calculation	464972		
92555924012	**FB-3**	Total Radium Calculation	464972		

Pace Analytical	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: October 28, 2020 Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.07	Issuing Authority: Pace Carolinas Quality Office

Laboratory receiving samples:
Asheville ☐ Eden ☐ Greenwood ☐ Huntersville ☐ Raleigh ☐ Mechanicsville ☐ Atlanta ☐ Kernersville ☐

Sample Condition Upon Receipt

Client Name: GA Power

Project #: WO# : 92555510

92555510

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

Custody Seal Present? ☐ Yes ☐ No **Seals Intact?** ☐ Yes ☐ No

Date/Initials Person Examining Contents: 2/13/21 KRW

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

Biological Tissue Frozen? ☐ Yes ☐ No ☐ N/A

Thermometer: ☐ IR Gun ID: THR083 Type of Ice: ☐ Wet ☐ Blue ☐ None

Cooler Temp: 1.3 **Correction Factor:** Add/Subtract (°C) ±0

Temp should be above freezing to 6°C
☐ Samples out of temp criteria. Samples on ice, cooling process has begun

Cooler Temp Corrected (°C): 1.3

USDA Regulated Soil (☐ N/A, water sample)
Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

				Comments/Discrepancy:
Chain of Custody Present?	☐ Yes	☐ No	☐ N/A	1.
Samples Arrived within Hold Time?	☐ Yes	☐ No	☐ N/A	2.
Short Hold Time Analysis (<72 hr.)?	☐ Yes	☐ No	☐ N/A	3.
Rush Turn Around Time Requested?	☐ Yes	☐ No	☐ N/A	4.
Sufficient Volume?	☐ Yes	☐ No	☐ N/A	5.
Correct Containers Used?	☐ Yes	☐ No	☐ N/A	6.
-Pace Containers Used?	☐ Yes	☐ No	☐ N/A	
Containers Intact?	☐ Yes	☐ No	☐ N/A	7.
Dissolved analysis: Samples Field Filtered?	☐ Yes	☐ No	☐ N/A	8.
Sample Labels Match COC?	☐ Yes	☐ No	☐ N/A	9.
-Includes Date/Time/ID/Analysis Matrix: W				
Headspace in VOA Vials (>5-6mm)?	☐ Yes	☐ No	☐ N/A	10.
Trip Blank Present?	☐ Yes	☐ No	☐ N/A	11.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☐ N/A	

COMMENTS/SAMPLE DISCREPANCY

Field Data Required? ☐ Yes ☐ No

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted: Date/Time:

Project Manager SCURF Review: **Date:**

Project Manager SRF Review: **Date:**

***Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.**

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

****Bottom half of box is to list number of bottles**

Project #

WO# : 92555510

PM: NMG Due Date: 09/03/21

CLIENT: GA-GA Power

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)	BP1N	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1		1	1			1																			1			
2		1	1			1																			1			
3		1	1			1																			1			
4		1	1			1																			1			
5																												
6																												
7																												
8																												
9																												
10																												
11																												
12																												

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

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

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A Required Client Information

Company: GA Power
Address: Atlanta, GA
Email To: SCS Contacts
Phone: Fax:
Requested Due Date/TAT: 10 Day

Section B Required Project Information

Report To: SCS Contacts
Copy To: Geosyntec Contacts
Purchase Order No.:
Project Name: Plant Hammond Ash Pond ~~#1 #2~~ #3
Project Number:

Section C Invoice Information

Attention: Southern Co
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager: Kevin Herring
Pace Profile #: 10839

REGULATORY AGENCY: NPDES / GROUND WATER / DRINKING WATER / UST / RCRA / OTHER CCR

Site Location STATE: GA

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / , -) Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END DATE	COLLECTED COMPOSITE END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Chloride/Fluoride/Sulfate	APP. III & IV Metals 6010/6020/7470	TDS	RAD 226/228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	HGWA-1	WT	G	8/11/21	17:00			19	5	2		3							X	X	X	X		pH = 6.98
2	HGWA-43D	WT	G	8/11/21	17:03			19	5	2		3							X	X	X	X		pH = 7.40
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

TJ 8/11/2021

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Please note dry wells, strike through any wells not sampled, and note when the last sample for the event has been taken.	Thomas Kessler / Geo	8/13/21	1445	Connor Cain	8/13/21	1445	
	Connor Cain / Geo	8/13/21	1455	Ryan Williams / Pace	8/13/21	1455	
	Ryan Williams / Pace	8/13/21	1650	[illegible] / Pace	8/13/21	1650	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Thomas Kessler, Connor Cain

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 8/11/2021

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

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: GA Power	Report To: SCS Contacts	Attention: Southern Co.
Address: Atlanta, GA	Copy To: Geosyntec Contacts	Company Name:
		Address:
Email To: SCS Contacts	Purchase Order No.:	Pace Quote Reference:
Phone: Fax:	Project Name: Plant Hammond Ash Pond #1 & #2 3(b)	Pace Project Manager: Kevin Herring
Requested Due Date/TAT: 10 Day	Project Number:	Pace Profile #: 10839

REGULATORY AGENCY: NPDES | GROUND WATER | DRINKING WATER | UST | RCRA ✓ | OTHER CCR

Site Location STATE: GA

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes: MATRIX / CODE — DRINKING WATER DW; WATER WT; WASTE WATER WW; PRODUCT P; SOIL/SOLID SL; OIL OL; WIPE WP; AIR AR; OTHER OT; TISSUE TS

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE DATE	COLLECTED COMPOSITE TIME	COLLECTED COMPOSITE DATE	COLLECTED COMPOSITE TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Chloride/Fluoride/Sulfate	APP, III & IV Metals 6010/6020/7470	TDS	RAD 226/228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	HGWA-2	WT	G	8/12/21	15:35			21	5	2		3							X	X	X	X		pH = 5.05
2	HGWA-3	WT	G	8/12/21	10:17			21	5	2		3							X	X	X	X		pH = 7.31
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								TJ 8/12/2021
11																								
12																								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Please note dry wells, strike thorough any wells not sampled, and note when the last sample for the event has been taken.	Thomas Kessler/Geo	8/13/21	1445	Connor Cain / Geo	8/13/21	1445	
	Connor Cain / Geo	8/13/21	1455	Ryan Williams / Pace	8/13/21	1456	
	Ryan Williams / Pace	8/13/21	1650	[signature] / Pace	8/13/21	1650	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Connor Cain, Ashley Ramsey

SIGNATURE of SAMPLER: [signature] AR

DATE Signed (MM/DD/YY): 8/12/2021

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

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: October 28, 2020 Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.07	Issuing Authority: Pace Carolinas Quality Office

Laboratory receiving samples:
Asheville ☐ Eden ☐ Greenwood ☐ Huntersville ☐ Raleigh ☐ Mechanicsville ☐ Atlanta ☐ Kernersville ☐

Sample Condition Upon Receipt

Client Name: GA Power

Project #:

WO# : 92555510

PM: NMG Due Date: 09/03/21
CLIENT: GA-GA Power

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

Custody Seal Present? ☐ Yes ☑ No Seals Intact? ☐ Yes ☐ No

Date/Initials Person Examining Contents: 8/16/21 KRW

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

Biological Tissue Frozen? ☐ Yes ☑ No ☐ N/A

Thermometer: ☑ IR Gun ID: THR230 Type of Ice: ☑ Wet ☐ Blue ☐ None

Cooler Temp: 4.3/5.4 Correction Factor: Add/Subtract (°C) +0.1

Temp should be above freezing to 6°C
☐ Samples out of temp criteria. Samples on ice, cooling process has begun

Cooler Temp Corrected (°C): 4.4/5.5

USDA Regulated Soil (☑ N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☑ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☑ No

				Comments/Discrepancy:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	2.
Short Hold Time Analysis (<72 hr.)?	☐ Yes	☑ No	☐ N/A	3.
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	4.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	5.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	6.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	7.
Dissolved analysis: Samples Field Filtered?	☐ Yes	☐ No	☑ N/A	8.
Sample Labels Match COC?	☑ Yes	☐ No	☐ N/A	9.
-Includes Date/Time/ID/Analysis Matrix: W				
Headspace in VOA Vials (>5-6mm)?	☐ Yes	☐ No	☑ N/A	10.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	11.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	

COMMENTS/SAMPLE DISCREPANCY

Field Data Required? ☐ Yes ☐ No

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted: _____ Date/Time: _____

Project Manager SCURF Review: _____ Date: _____

Project Manager SRF Review: _____ Date: _____

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottles

Project # **WO# : 92555510**

PM: NMG Due Date: 09/03/21

CLIENT: GA-GA Power

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SPST-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)	BP1U	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
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pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

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

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	GA Power	Report To:	SCS Contacts	Attention:	Southern Co.
Address:	Atlanta, GA	Copy To:	Geosyntec Contacts	Company Name:	
				Address:	
Email To:	SCS Contacts	Purchase Order No.:		Pace Quote Reference:	
Phone:	Fax:	Project Name:	Plant Hammond Ash Pond #3	Pace Project Manager:	Kevin Herring
Requested Due Date/TAT:	10 Day	Project Number:		Pace Profile #:	10839

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☑ OTHER CCR

Site Location STATE: GA

Section D Required Client Information

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTEWATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE DATE	COLLECTED COMPOSITE TIME	COLLECTED COMPOSITE DATE	COLLECTED COMPOSITE TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Chloride/Fluoride/Sulfate	APP. III & IV Metals 6010/6020/747	TDS	RAD 226/228											Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	HGWA-45D	WT	G	8/13/21	12:07			22	5	2		3							X	X	X	X										pH = 7.42
2	HGWA-122	WT	G	8/13/21	10:22			22	5	2		3							X	X	X	X										pH = 6.56
3	HGWA-44D	WT	G	8/13/21	11:26			20	5	2		3							X	X	X	X										pH = 7.77
4																																
5																																
6																																
7																																
8																																TJ
9																																8/13/2021
10																																
11																																
12																																

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Please note dry wells, strike through any wells not sampled, and note when the last sample for the event has been taken.	Connor Cain / GEO	8/16/21	1325	Ryan Williams / Pace	8/16/21	1325	
	Ryan Williams / Pace	8/16/21	1638	[signature] / Pace	8/16/21	1530	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Connor Cain, Ryan Williams

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 8/13/2021

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

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: October 28, 2020 Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.07	Issuing Authority: Pace Carolinas Quality Office

Laboratory receiving samples:
Asheville ☐ Eden ☐ Greenwood ☐ Huntersville ☐ Raleigh ☐ Mechanicsville ☐ Atlanta ☑ Kernersville ☐

Sample Condition Upon Receipt

Client Name: GA Power

Project #: **WO# : 92555510**

PM: NMG **Due Date: 09/03/21**

CLIENT: GA-GA Power

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

Custody Seal Present? ☐ Yes ☑ ~~No~~ Seals Intact? ☐ Yes ☐ No

Date/Initials Person Examining Contents: 3/17/21 KRW

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

Biological Tissue Frozen? ☐ Yes ☐ No ☐ N/A

Thermometer: ☑ ~~IR Gun~~ ID: THK230 Type of Ice: ☑ Wet ☐ Blue ☐ None

Cooler Temp: 4.8 Correction Factor: Add/Subtract (°C) +0.1

Cooler Temp Corrected (°C): 4.9

Temp should be above freezing to 6°C
☐ Samples out of temp criteria. Samples on ice, cooling process has begun

USDA Regulated Soil (☑ ~~N/A~~, water sample)
Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☑ ~~No~~

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☑ No

				Comments/Discrepancy:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Samples Arrived within Hold Time?	☑ ~~Yes~~	☐ No	☐ N/A	2.
Short Hold Time Analysis (<72 hr.)?	☐ Yes	☑ ~~No~~	☐ N/A	3.
Rush Turn Around Time Requested?	☐ Yes	☑ ~~No~~	☐ N/A	4. 10 Day
Sufficient Volume?	☑ ~~Yes~~	☐ No	☐ N/A	5.
Correct Containers Used?	☑ ~~Yes~~	☐ No	☐ N/A	6.
-Pace Containers Used?	☑ ~~Yes~~	☐ No	☐ N/A	
Containers Intact?	☑ ~~Yes~~	☐ No	☐ N/A	7.
Dissolved analysis: Samples Field Filtered?	☐ Yes	☐ No	☑ ~~N/A~~	8.
Sample Labels Match COC?	☑ ~~Yes~~	☐ No	☐ N/A	9.
-Includes Date/Time/ID/Analysis Matrix: W				
Headspace in VOA Vials (>5-6mm)?	☐ Yes	☐ No	☑ ~~N/A~~	10.
Trip Blank Present?	☐ Yes	☐ No	☑ ~~N/A~~	11.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ ~~N/A~~	

COMMENTS/SAMPLE DISCREPANCY

Field Data Required? ☐ Yes ☐ No

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted: _____ Date/Time _____

Project Manager SCURF Review: _____ Date: _____

Project Manager SRF Review: _____ Date: _____

Pace Analytical	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: October 28, 2020 Page 2 of 2
	Document No.: F-CAR-CS-033-Rev.07	Issuing Authority:

WO# : 92555924

PM: NMG **Due Date: 09/08/21**

CLIENT: GA-GA Power

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples. Project #

Exceptions: VOA, Coliform, TOC, O I and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottles

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
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pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

Note: Whenever there is a discrepancy affecting North Carolina compl ance samples, a copy of this form will be sent to the North Carolina DEHNR Cert f cat on Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers.

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A Required Client Information	Section B Required Project Information	Section C Invoice Information
Company: GA Power	Report To: SCS Contacts	Attention: Southern Co.
Address: Atlanta, GA	Copy To: Geosyntec Contacts	Company Name:
		Address:
Email To: SCS Contacts	Purchase Order No.:	Pace Quote Reference:
Phone: Fax:	Project Name: Hammond AP-3	Pace Project Manager: Kevin Herring
Requested Due Date/TAT: 10 Day	Project Number:	Pace Profile #: 10839

REGULATORY AGENCY: NPDES, GROUND WATER, DRINKING WATER, UST, RCRA, ✓ OTHER CCR

Site Location STATE: GA

Section D Required Client Information

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE DATE	COLLECTED COMPOSITE TIME	COLLECTED COMPOSITE DATE	COLLECTED COMPOSITE TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Chloride, Fluoride, Sulfate	APP. III & IV metals 6010/6020/747	TDS	RAD 226/228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	HGWC-121A	WT	G	8/16/21	16:10			21	5	2		3							x	x	x	x		pH = 6.74
2	HGWC-120	WT	G	8/16/21	12:15			21	5	2		3							x	x	x	x		pH = 6.92
3	HGWC-124	WT	G	8/16/21	10:09			19	5	2		3							x	x	x	x		pH = 7.09
4	MW-46D	WT	G	8/16/21	14:35			20	5	2		3							x	x	x	x		pH = 7.65
5																								
6																								
7																								
8																								TJ
9																								8/16/2021
10																								
11																								
12																								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Please note dry wells, strike through any wells not sampled, and note when the last sample for the event has been taken.	Thomas Hressler / Geo	8/16/21				
	Connor Cain / Geo	8/16/21	1500	Thomas Hressler / Geo	8/16/21	1500
	Thomas Hressler / Geo	8/17/21	1125	Ryan Williams / Pace	8/17/21	1125
	Ryan Williams / Pace	8/17/21	1500	[signature] / PACE	8/17/21	1500

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Connor Cain

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 8/16/2021

SAMPLE CONDITIONS: Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: October 28, 2020 Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.07	Issuing Authority: Pace Carolinas Quality Office

Laboratory receiving samples:
Asheville ☐ Eden ☐ Greenwood ☐ Huntersville ☐ Raleigh ☐ Mechanicsville ☐ Atlanta ☐ Kernersville ☐

Sample Condition Upon Receipt

Client Name: GA Power

Project #:

WO#: 92555510

PM: NMG Due Date: 09/03/21

CLIENT: GA-GA Power

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

Custody Seal Present? ☐ Yes ☑ No Seals Intact? ☐ Yes ☐ No

Date/Initials Person Examining Contents: 8/19/21

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

Biological Tissue Frozen? ☐ Yes ☐ No ☐ N/A

Thermometer: ☑ IR Gun ID: 083 ☑ Wet ☐ Blue ☐ None

Type of Ice:

Cooler Temp: 1.8 Correction Factor: Add/Subtract (°C) 0.0

Temp should be above freezing to 6°C
☐ Samples out of temp criteria. Samples on ice, cooling process has begun

Cooler Temp Corrected (°C): 1.8

USDA Regulated Soil (☐ N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

				Comments/Discrepancy:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	2.
Short Hold Time Analysis (<72 hr.)?	☐ Yes	☑ No	☐ N/A	3.
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	4.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	5.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	6.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	7.
Dissolved analysis: Samples Field Filtered?	☐ Yes	☐ No	☑ N/A	8.
Sample Labels Match COC?	☑ Yes	☐ No	☐ N/A	9.
-Includes Date/Time/ID/Analysis Matrix:	WW			
Headspace in VOA Vials (>5-6mm)?	☐ Yes	☐ No	☑ N/A	10.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	11.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	

COMMENTS/SAMPLE DISCREPANCY

Field Data Required? ☐ Yes ☐ No

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted: Date/Time:

Project Manager SCURF Review: **Date:**

Project Manager SRF Review: **Date:**

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottles

Project # **WO# : 92555510**

PM: NMG Due Date: 09/03/21

CLIENT: GA-GA Power

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
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pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

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.

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CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A Required Client Information:

Company:	GA Power
Address:	Atlanta, GA
Email To:	SCS Contacts
Phone:	Fax:
Requested Due Date/TAT:	10 Day

Section B Required Project Information

Report To:	SCS Contacts
Copy To:	Geosyntec Contacts
Purchase Order No.:	
Project Name:	Hammond AP-3
Project Number:	

Section C Invoice Information:

Attention:	Southern Co.
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Kevin Herring
Pace Profile #:	10839

REGULATORY AGENCY

NPDES GROUND WATER DRINKING WATER
UST RCRA ✓ OTHER CCR

Site Location STATE: GA

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (use valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE DATE	COLLECTED COMPOSITE TIME	COLLECTED COMPOSITE DATE	COLLECTED COMPOSITE TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Chloride, Fluoride, Sulfate	APP. III & IV metals 6010/6020/747	TDS	RAD 226/228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-39	WT	G	8/18/21	9:10			19	5	2		3							x	x	x	x		pH = 6.90
2	MW-32	WT	G	8/18/21	11:45			27	5	2		3							x	x	x	x		pH = 6.89
3	MW-41	WT	G	8/18/21	13:20			21	5	2		3							x	x	x	x		pH = 6.93
4																								
5																								
6																								
7																								
8																								TJ
9																								8/18/2021
10																								
11																								
12																								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Please note dry wells, strike thorough any wells not sampled, and note when the last sample for the event has been taken.	Ashley Ramsey / Geo	8/18/21	1600	Mamie Kessler / Geo	8/18/21	1600	
	Mamie Kessler / Geo	8/19/21	1240	Ryan Williams / Pace	8/19/21	1240	
	Ryan Williams / Pace	8/19/21	1600	Client of Lab	8/19/21	1600	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Ashley Ramsey

SIGNATURE of SAMPLER: AR

DATE Signed (MM/DD/YY): 8/18/21

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

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: October 28, 2020 Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.07	Issuing Authority: Pace Carolinas Quality Office

Laboratory receiving samples:
Asheville ☐ Eden ☐ Greenwood ☐ Huntersville ☐ Raleigh ☐ Mechanicsville ☐ Atlanta ☑ Kernersville ☐

Sample Condition Upon Receipt

Client Name: GA Power

Project #:

WO# : 92555510

PM: NMG Due Date: 09/03/21

CLIENT: GA-GA Power

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

Custody Seal Present? ☐ Yes ☑ No Seals Intact? ☐ Yes ☑ No

Date/Initials Person Examining Contents: MT 8/20/21

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

Biological Tissue Frozen? ☐ Yes ☑ No ☐ N/A

Thermometer: ☐ IR Gun ID: 083 Type of Ice: ☑ Wet ☐ Blue ☐ None

Cooler Temp: 4.4 Correction Factor: Add/Subtract (°C) +0

Temp should be above freezing to 6°C
☐ Samples out of temp criteria. Samples on ice, cooling process has begun

Cooler Temp Corrected (°C): 4.4

USDA Regulated Soil (☐ N/A, water sample)
Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☑ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

				Comments/Discrepancy:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	2
Short Hold Time Analysis (<72 hr.)?	☐ Yes	☑ No	☐ N/A	3
Rush Turn Around Time Requested?	☐ Yes	☐ No	☑ N/A	4
Sufficient Volume?	☐ Yes	☑ No	☐ N/A	5
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	6
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	7
Dissolved analysis. Samples Field Filtered?	☐ Yes	☑ No	☐ N/A	8
Sample Labels Match COC?	☑ Yes	☐ No	☐ N/A	9
-Includes Date/Time/ID/Analysis Matrix: WT				*
Headspace in VOA Vials (>5-6mm)?	☐ Yes	☐ No	☑ N/A	10
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	11
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	

COMMENTS/SAMPLE DISCREPANCY

Field Data Required? ☐ Yes ☐ No

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted _____ Date/Time _____

Project Manager SCURF Review: _____ Date: _____

Project Manager SRF Review: _____ Date: _____

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottles

Project # **WO#: 92555510**

PM: NMG **Due Date: 09/03/21**

CLIENT: GA-GA Power

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A - lab)	SP2T-250 mL Sterile Plastic (N/A - lab)	BP1N	BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1		1	1			1																		2				
2		1	1			1																		2				
3		1	1			1																		2				
4		1	1			1																		2				
5		1	1			1																		2				
6																													
7																													
8																													
9																													
10																													
11																													
12																													

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

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

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A Required Client Information		Section B Required Project Information		Section C Invoice Information	
Company:	GA Power	Report To:	SCS Contacts	Attention:	Southern Co.
Address:	Atlanta, GA	Copy To:	Geosyntec Contacts	Company Name:	
				Address:	
Email To:	SCS Contacts	Purchase Order No.:		Pace Quote Reference:	
Phone:	Fax:	Project Name:	Hammond AP-3	Pace Project Manager:	Kevin Herring
Requested Due Date/TAT:	10 Day	Project Number		Pace Profile #:	10839

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☑ OTHER CCR

Site Location STATE: GA

Requested Analysis Filtered (Y/N)

ITEM #	Section D Required Client Information — SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	Valid Matrix Codes (MATRIX / CODE): DRINKING WATER DW; WATER WT; WASTE WATER WW; PRODUCT P; SOIL/SOLID SL; OIL OL; WIPE WP; AIR AR; OTHER OT; TISSUE TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE DATE	COLLECTED COMPOSITE TIME	COLLECTED COMPOSITE DATE	COLLECTED COMPOSITE TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Chloride, Fluoride, Sulfate	APP. III & IV metals 6010/6020/747	TDS	RAD 226/228	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	HGWC-126		WT	G	8/19/21	9:45			20	5	2		3						X	X	X	X				pH = 7.32
2	HGWC-125		WT	G	8/19/21	11:14			20	5	2		3						X	X	X	X				pH = 7.24
3	DUP-3		WT	G	8/19/202	0:00			20	5	2		3						X	X	X	X				N/A
4	EB-3		WT	G	8/19/21	12:05			20	5	2		3						X	X	X	X				N/A
5	FB-3		WT	G	8/19/21	12:00			20	5	2		3						X	X	X	X				N/A
6																										Last sample
7																										
8																										
9																										TJ
10																										8/19/2021
11																										
12																										

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Thomas Kressler / Geo	8/20	1215	Ryan Williams / Pace	8/20/21	1216				
	Ryan Williams / Pace	8/20/21	1330	[illegible]	8/20/21	1330	4.4	Y	N	Y

SAMPLER NAME AND SIGNATURE			Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Thomas Kressler					
SIGNATURE of SAMPLER:		DATE Signed (MM/DD/YY): 8/19/2021				

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Quality Control Sample Performance Assessment

Pace Analytical™ www.pacelabs.com

Test: Ra-228
Analyst: JC2
Date: 9/1/2021
Worklist: 62391
Matrix: WT

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Method Blank Assessment	
MB Sample ID	2230398
MB concentration:	0.353
M/B 2 Sigma CSU:	0.350
MB MDC:	0.718
MB Numerical Performance Indicator:	1.97
MB Status vs Numerical Indicator:	Pass
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCSD (Y or N)?	Y
	LCS62391	LCSD62391
Count Date:	9/3/2021	9/3/2021
Spike I.D.:	21-029	21-029
Decay Corrected Spike Concentration (pCi/mL):	38.363	38.363
Volume Used (mL):	0.10	0.10
Aliquot Volume (L, g, F):	0.809	0.805
Target Conc. (pCi/L, g, F):	4.742	4.764
Uncertainty (Calculated):	0.232	0.233
Result (pCi/L, g, F):	3.364	3.328
LCS/LCSD 2 Sigma CSU (pCi/L, g, F):	0.857	0.867
Numerical Performance Indicator:	-3.04	-3.14
Percent Recovery:	70.96%	69.85%
Status vs Numerical Indicator:	N/A	N/A
Status vs Recovery:	Pass	Pass
Upper % Recovery Limits:	135%	135%
Lower % Recovery Limits:	60%	60%

Duplicate Sample Assessment		
Sample I.D.:	LCS62391	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Duplicate Sample I.D.	LCSD62391	
Sample Result (pCi/L, g, F):	3.364	
Sample Result 2 Sigma CSU (pCi/L, g, F):	0.857	
Sample Duplicate Result (pCi/L, g, F):	3.328	
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	0.867	
Are sample and/or duplicate results below RL?	NO	
Duplicate Numerical Performance Indicator:	0.059	
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	1.58%	
Duplicate Status vs Numerical Indicator:	Pass	
Duplicate Status vs RPD:	Pass	
% RPD Limit:	36%	

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):		
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:		

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:		
% RPD Limit:		

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

9/7/21

Quality Control Sample Performance Assessment

Pace Analytical™ www.pacelabs.com

Test:	Ra-228
Analyst:	VAL
Date:	9/1/2021
Worklist:	62397
Matrix:	WT

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Method Blank Assessment	
MB Sample ID	2230406
MB concentration:	0.204
M/B 2 Sigma CSU:	0.329
MB MDC:	0.713
MB Numerical Performance Indicator:	1.22
MB Status vs Numerical Indicator:	Pass
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCSD (Y or N)?	Y
	LCS62397	LCSD62397
Count Date:	9/3/2021	9/3/2021
Spike I.D.:	21-029	21-029
Decay Corrected Spike Concentration (pCi/mL):	38.364	38.364
Volume Used (mL):	0.10	0.10
Aliquot Volume (L, g, F):	0.807	0.808
Target Conc. (pCi/L, g, F):	4.756	4.749
Uncertainty (Calculated):	0.233	0.233
Result (pCi/L, g, F):	5.599	7.050
LCS/LCSD 2 Sigma CSU (pCi/L, g, F):	1.216	1.488
Numerical Performance Indicator:	1.34	2.99
Percent Recovery:	117.73%	148.47%
Status vs Numerical Indicator:	N/A	Warning
Status vs Recovery:	Pass	Fail High**
Upper % Recovery Limits:	135%	135%
Lower % Recovery Limits:	60%	60%

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):		
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:		

Duplicate Sample Assessment		
Sample I.D.:	LCS62397	Enter Duplicate sample IDs if other than LCS/LCSD in the space below.
Duplicate Sample I.D.	LCSD62397	
Sample Result (pCi/L, g, F):	5.599	
Sample Result 2 Sigma CSU (pCi/L, g, F):	1.216	
Sample Duplicate Result (pCi/L, g, F):	7.050	
Sample Duplicate Result 2 Sigma CSU (pCi/L, g, F):	1.488	
Are sample and/or duplicate results below RL?	NO	
Duplicate Numerical Performance Indicator:	-1.480	
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	23.10%	
Duplicate Status vs Numerical Indicator:	Pass	
Duplicate Status vs RPD:	Pass	
% RPD Limit:	36%	

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:		
% RPD Limit:		

Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

**If all sample results are below MDC, the batch is acceptable, otherwise this batch must be reprepped due to LCSD failure.

LCSD NI < 3.0 JJT 9-7-21

9/7/21

Quality Control Sample Performance Assessment

Pace Analytical™
www.pacelabs.com

Test:	Ra-226
Analyst:	CLA
Date:	1/0/1900
Worklist:	62605
Matrix:	DW

Analyst Must Manually Enter All Fields Highlighted in Yellow.

Method Blank Assessment	
MB Sample ID	2237360
MB concentration:	0.250
M/B Counting Uncertainty:	0.180
MB MDC:	0.307
MB Numerical Performance Indicator:	2.72
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	LCSD (Y or N)?	Y
	LCS62605	LCSD62605
Count Date:	9/15/2021	9/15/2021
Spike I.D.:	19-033	19-033
Decay Corrected Spike Concentration (pCi/mL):	24.034	24.034
Volume Used (mL):	0.10	0.10
Aliquot Volume (L, g, F):	0.503	0.505
Target Conc. (pCi/L, g, F):	4.775	4.759
Uncertainty (Calculated):	0.057	0.057
Result (pCi/L, g, F):	4.197	3.605
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.681	0.612
Numerical Performance Indicator:	-1.66	-3.68
Percent Recovery:	87.89%	75.74%
Status vs Numerical Indicator:	N/A	N/A
Status vs Recovery:	Pass	Pass
Upper % Recovery Limits:	125%	125%
Lower % Recovery Limits:	75%	75%

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):		
Sample Result:		
Sample Result Counting Uncertainty (pCi/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:		
MS/MSD Lower % Recovery Limits:		

Duplicate Sample Assessment		
Sample I.D.:	LCS62605	92555928001
Duplicate Sample I.D.	LCSD62605	92555928001DUP
Sample Result (pCi/L, g, F):	4.197	0.048
Sample Result Counting Uncertainty (pCi/L, g, F):	0.681	0.100
Sample Duplicate Result (pCi/L, g, F):	3.605	0.160
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.612	0.106
Are sample and/or duplicate results below RL?	NO	See Below ##
Duplicate Numerical Performance Indicator:	1.269	-1.509
(Based on the LCS/LCSD Percent Recoveries) Duplicate RPD:	14.86%	108.01%
Duplicate Status vs Numerical Indicator:	N/A	N/A
Duplicate Status vs RPD:	Pass	Fail***
% RPD Limit:	25%	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 (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:

***Batch must be re-prepped due to unacceptable precision.

September 2021

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

September 21, 2021

Kelley Sharpe
ARCADIS - Atlanta
2839 Paces Ferry Rd
STE 900
Atlanta, GA 30339

RE: Project: Plant Hammond-CCR Ash Pond-Revised Report
Pace Project No.: 92560961

Dear Kelley Sharpe:

Enclosed are the analytical results for sample(s) received by the laboratory on September 14, 2021. 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 - Peachtree Corners, GA

Rev. 1 - Boron was missing from the original data reported. Final report was revised, no other changes were made to this report.

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

Sincerely,

Maiya Parks
maiya.parks@pacelabs.com
(770)734-4200
Project Manager

Enclosures

cc: Ben Hodges, Georgia Power
Warren Johnson, ARCADIS - Atlanta
Allison Keefer, Southern Company

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

CERTIFICATIONS

Project: Plant Hammond-CCR Ash Pond-Revised Report
Pace Project No.: 92560961

Pace Analytical Services Asheville
2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
Virginia/VELAP Certification #: 460222

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

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SAMPLE SUMMARY

Project: Plant Hammond-CCR Ash Pond-Revised Report
Pace Project No.: 92560961

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92560961001	**H-SCC NBR**	Water	09/13/21 14:55	09/14/21 08:19
92560961002	**H-SCC E41**	Water	09/13/21 14:40	09/14/21 08:19
92560961003	**H-SCC**	Water	09/13/21 12:45	09/14/21 08:19

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SAMPLE ANALYTE COUNT

Project: Plant Hammond-CCR Ash Pond-Revised Report
Pace Project No.: 92560961

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92560961001	**H-SCC NBR**	EPA 6010D	DRB	4	PASI-GA
		EPA 6020B	CW1	2	PASI-GA
		SM 2540C-2011	ALW	1	PASI-GA
		SM 2320B-2011	ECH	3	PASI-A
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
92560961002	**H-SCC E41**	EPA 6010D	DRB	4	PASI-GA
		EPA 6020B	CW1	2	PASI-GA
		SM 2540C-2011	ALW	1	PASI-GA
		SM 2320B-2011	ECH	3	PASI-A
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A
92560961003	**H-SCC**	EPA 6010D	DRB	4	PASI-GA
		EPA 6020B	CW1	2	PASI-GA
		SM 2540C-2011	ALW	1	PASI-GA
		SM 2320B-2011	ECH	3	PASI-A
		EPA 300.0 Rev 2.1 1993	CDC	3	PASI-A

PASI-A = Pace Analytical Services - Asheville
PASI-GA = Pace Analytical Services - Peachtree Corners, GA

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ANALYTICAL RESULTS

Project: Plant Hammond-CCR Ash Pond-Revised Report
Pace Project No.: 92560961

Sample: H-SCC NBR **Lab ID: 92560961001** Collected: 09/13/21 14:55 Received: 09/14/21 08:19 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010D ATL ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA							
Potassium	**0.92**	mg/L	0.20	1	09/16/21 10:54	09/20/21 15:14	7440-09-7	
Sodium	**1.8**	mg/L	1.0	1	09/16/21 10:54	09/20/21 15:14	7440-23-5	
Calcium	**27.8**	mg/L	1.0	1	09/16/21 10:54	09/20/21 15:14	7440-70-2	M1
Magnesium	**5.6**	mg/L	0.050	1	09/16/21 10:54	09/20/21 15:14	7439-95-4	M1
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA							
Boron	**0.081**	mg/L	0.040	1	09/16/21 11:40	09/17/21 15:51	7440-42-8	
Molybdenum	ND	mg/L	0.010	1	09/16/21 11:40	09/17/21 15:51	7439-98-7	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Peachtree Corners, GA							
Total Dissolved Solids	**123**	mg/L	10.0	1		09/17/21 17:35		
2320B Alkalinity	Analytical Method: SM 2320B-2011 Pace Analytical Services - Asheville							
Alkalinity,Bicarbonate (CaCO3)	**94.5**	mg/L	5.0	1		09/16/21 17:58		
Alkalinity,Carbonate (CaCO3)	ND	mg/L	5.0	1		09/16/21 17:58		
Alkalinity, Total as CaCO3	**94.5**	mg/L	5.0	1		09/16/21 17:58		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville							
Chloride	**1.5**	mg/L	1.0	1		09/15/21 13:32	16887-00-6	
Fluoride	ND	mg/L	0.10	1		09/15/21 13:32	16984-48-8	
Sulfate	**9.7**	mg/L	1.0	1		09/15/21 13:32	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: Plant Hammond-CCR Ash Pond-Revised Report
Pace Project No.: 92560961

Sample: H-SCC E41 **Lab ID: 92560961002** Collected: 09/13/21 14:40 Received: 09/14/21 08:19 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010D ATL ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA							
Potassium	**1.3**	mg/L	0.20	1	09/16/21 10:54	09/20/21 15:33	7440-09-7	
Sodium	**2.5**	mg/L	1.0	1	09/16/21 10:54	09/20/21 15:33	7440-23-5	
Calcium	**38.8**	mg/L	1.0	1	09/16/21 10:54	09/20/21 15:33	7440-70-2	
Magnesium	**6.8**	mg/L	0.050	1	09/16/21 10:54	09/20/21 15:33	7439-95-4	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA							
Boron	**0.15**	mg/L	0.040	1	09/16/21 11:40	09/17/21 15:57	7440-42-8	
Molybdenum	ND	mg/L	0.010	1	09/16/21 11:40	09/17/21 15:57	7439-98-7	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Peachtree Corners, GA							
Total Dissolved Solids	**173**	mg/L	10.0	1		09/17/21 17:35		
2320B Alkalinity	Analytical Method: SM 2320B-2011 Pace Analytical Services - Asheville							
Alkalinity,Bicarbonate (CaCO3)	**117**	mg/L	5.0	1		09/16/21 18:06		
Alkalinity,Carbonate (CaCO3)	ND	mg/L	5.0	1		09/16/21 18:06		
Alkalinity, Total as CaCO3	**117**	mg/L	5.0	1		09/16/21 18:06		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville							
Chloride	**1.7**	mg/L	1.0	1		09/15/21 13:47	16887-00-6	
Fluoride	ND	mg/L	0.10	1		09/15/21 13:47	16984-48-8	
Sulfate	**19.5**	mg/L	1.0	1		09/15/21 13:47	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: Plant Hammond-CCR Ash Pond-Revised Report
Pace Project No.: 92560961

Sample: H-SCC **Lab ID: 92560961003** Collected: 09/13/21 12:45 Received: 09/14/21 08:19 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010D ATL ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3010A Pace Analytical Services - Peachtree Corners, GA							
Potassium	**1.7**	mg/L	0.20	1	09/16/21 10:54	09/20/21 15:38	7440-09-7	
Sodium	**4.7**	mg/L	1.0	1	09/16/21 10:54	09/20/21 15:38	7440-23-5	
Calcium	**25.9**	mg/L	1.0	1	09/16/21 10:54	09/20/21 15:38	7440-70-2	
Magnesium	**4.9**	mg/L	0.050	1	09/16/21 10:54	09/20/21 15:38	7439-95-4	
6020 MET ICPMS	Analytical Method: EPA 6020B Preparation Method: EPA 3005A Pace Analytical Services - Peachtree Corners, GA							
Boron	**0.082**	mg/L	0.040	1	09/16/21 11:40	09/17/21 16:21	7440-42-8	
Molybdenum	ND	mg/L	0.010	1	09/16/21 11:40	09/17/21 16:21	7439-98-7	
2540C Total Dissolved Solids	Analytical Method: SM 2540C-2011 Pace Analytical Services - Peachtree Corners, GA							
Total Dissolved Solids	**118**	mg/L	10.0	1		09/17/21 17:35		
2320B Alkalinity	Analytical Method: SM 2320B-2011 Pace Analytical Services - Asheville							
Alkalinity,Bicarbonate (CaCO3)	**85.2**	mg/L	5.0	1		09/16/21 18:14		
Alkalinity,Carbonate (CaCO3)	ND	mg/L	5.0	1		09/16/21 18:14		
Alkalinity, Total as CaCO3	**85.2**	mg/L	5.0	1		09/16/21 18:14		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0 Rev 2.1 1993 Pace Analytical Services - Asheville							
Chloride	**3.0**	mg/L	1.0	1		09/15/21 14:02	16887-00-6	
Fluoride	ND	mg/L	0.10	1		09/15/21 14:02	16984-48-8	
Sulfate	**11.4**	mg/L	1.0	1		09/15/21 14:02	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
110 Technology Parkway
Peachtree Corners, GA 30092
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QUALITY CONTROL DATA

Project: Plant Hammond-CCR Ash Pond-Revised Report
Pace Project No.: 92560961

QC Batch: 647652
QC Batch Method: EPA 3010A
Analysis Method: EPA 6010D
Analysis Description: 6010D ATL
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92560961001, 92560961002, 92560961003

METHOD BLANK: 3396836 Matrix: Water
Associated Lab Samples: 92560961001, 92560961002, 92560961003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Calcium	mg/L	ND	1.0	09/20/21 15:05	
Magnesium	mg/L	ND	0.050	09/20/21 15:05	
Potassium	mg/L	ND	0.20	09/20/21 15:05	
Sodium	mg/L	ND	1.0	09/20/21 15:05	

LABORATORY CONTROL SAMPLE: 3396837

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Calcium	mg/L	1	1.0	105	80-120	
Magnesium	mg/L	1	1.1	109	80-120	
Potassium	mg/L	1	1.1	105	80-120	
Sodium	mg/L	1	1.1	110	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3396838 3396839

Parameter	Units	92560961001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Calcium	mg/L	27.8	1	1	29.9	30.1	207	230	75-125	1	20	M1
Magnesium	mg/L	5.6	1	1	6.8	6.9	122	126	75-125	1	20	M1
Potassium	mg/L	0.92	1	1	1.9	2.0	102	103	75-125	1	20	
Sodium	mg/L	1.8	1	1	2.9	3.0	111	111	75-125	0	20	

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REPORT OF LABORATORY ANALYSIS

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(770)734-4200

QUALITY CONTROL DATA

Project: Plant Hammond-CCR Ash Pond-Revised Report
Pace Project No.: 92560961

QC Batch: 647663
QC Batch Method: EPA 3005A
Analysis Method: EPA 6020B
Analysis Description: 6020 MET
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92560961001, 92560961002, 92560961003

METHOD BLANK: 3396946 Matrix: Water
Associated Lab Samples: 92560961001, 92560961002, 92560961003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Boron	mg/L	ND	0.040	09/17/21 15:39	
Molybdenum	mg/L	ND	0.010	09/17/21 15:39	

LABORATORY CONTROL SAMPLE: 3396947

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	mg/L	1	1.0	104	80-120	
Molybdenum	mg/L	0.1	0.099	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3396948 3396949

Parameter	Units	92560961002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	mg/L	0.15	1	1	1.1	1.1	95	94	75-125	1	20	
Molybdenum	mg/L	ND	0.1	0.1	0.095	0.094	94	93	75-125	2	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Hammond-CCR Ash Pond-Revised Report
Pace Project No.: 92560961

QC Batch: 647940 | Analysis Method: SM 2540C-2011
QC Batch Method: SM 2540C-2011 | Analysis Description: 2540C Total Dissolved Solids
Laboratory: Pace Analytical Services - Peachtree Corners, GA
Associated Lab Samples: 92560961001, 92560961002, 92560961003

METHOD BLANK: 3398525 Matrix: Water
Associated Lab Samples: 92560961001, 92560961002, 92560961003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	10.0	09/17/21 17:32	

LABORATORY CONTROL SAMPLE: 3398526

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	400	100	90-111	

SAMPLE DUPLICATE: 3400012

Parameter	Units	92560858001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	62.0	52.0	18	10	D6

SAMPLE DUPLICATE: 3400013

Parameter	Units	92560961003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	118	122	3	10	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Hammond-CCR Ash Pond-Revised Report
Pace Project No.: 92560961

QC Batch: 647623
QC Batch Method: SM 2320B-2011
Analysis Method: SM 2320B-2011
Analysis Description: 2320B Alkalinity
Laboratory: Pace Analytical Services - Asheville
Associated Lab Samples: 92560961001, 92560961002, 92560961003

METHOD BLANK: 3396696 Matrix: Water
Associated Lab Samples: 92560961001, 92560961002, 92560961003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	5.0	09/16/21 15:56	
Alkalinity,Bicarbonate (CaCO3)	mg/L	ND	5.0	09/16/21 15:56	
Alkalinity,Carbonate (CaCO3)	mg/L	ND	5.0	09/16/21 15:56	

LABORATORY CONTROL SAMPLE: 3396697

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	50	52.0	104	80-120	

LABORATORY CONTROL SAMPLE: 3396698

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	50	50.4	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3396699 3396700

Parameter	Units	92558254017 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	112	50	50	165	166	106	108	80-120	1	25	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3396701 3396702

Parameter	Units	92560963002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	125	50	50	174	177	97	103	80-120	2	25	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Hammond-CCR Ash Pond-Revised Report
Pace Project No.: 92560961

QC Batch: 647236
QC Batch Method: 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: 92560961001, 92560961002, 92560961003

METHOD BLANK: 3394945 Matrix: Water
Associated Lab Samples: 92560961001, 92560961002, 92560961003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	09/15/21 12:17	
Fluoride	mg/L	ND	0.10	09/15/21 12:17	
Sulfate	mg/L	ND	1.0	09/15/21 12:17	

LABORATORY CONTROL SAMPLE: 3394946

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	50	49.3	99	90-110	
Fluoride	mg/L	2.5	2.4	97	90-110	
Sulfate	mg/L	50	49.2	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3394947 3394948

Parameter	Units	92560964004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	3.2	50	50	54.7	55.8	103	105	90-110	2	10	
Fluoride	mg/L	ND	2.5	2.5	2.5	2.6	98	101	90-110	2	10	
Sulfate	mg/L	10.0	50	50	61.5	62.8	103	106	90-110	2	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3394949 3394950

Parameter	Units	92560774020 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	2.4	50	50	54.5	55.3	104	106	90-110	1	10	
Fluoride	mg/L	0.22	2.5	2.5	2.2	2.3	79	81	90-110	3	10	M1
Sulfate	mg/L	123	50	50	175	169	104	92	90-110	3	10	

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

REPORT OF LABORATORY ANALYSIS

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(770)734-4200

QUALIFIERS

Project: Plant Hammond-CCR Ash Pond-Revised Report
Pace Project No.: 92560961

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.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

D6	The precision between the sample and sample duplicate exceeded laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond-CCR Ash Pond-Revised Report
Pace Project No.: 92560961

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92560961001	**H-SCC NBR**	EPA 3010A	647652	EPA 6010D	647717
92560961002	**H-SCC E41**	EPA 3010A	647652	EPA 6010D	647717
92560961003	**H-SCC**	EPA 3010A	647652	EPA 6010D	647717
92560961001	**H-SCC NBR**	EPA 3005A	647663	EPA 6020B	647976
92560961002	**H-SCC E41**	EPA 3005A	647663	EPA 6020B	647976
92560961003	**H-SCC**	EPA 3005A	647663	EPA 6020B	647976
92560961001	**H-SCC NBR**	SM 2540C-2011	647940		
92560961002	**H-SCC E41**	SM 2540C-2011	647940		
92560961003	**H-SCC**	SM 2540C-2011	647940		
92560961001	**H-SCC NBR**	SM 2320B-2011	647623		
92560961002	**H-SCC E41**	SM 2320B-2011	647623		
92560961003	**H-SCC**	SM 2320B-2011	647623		
92560961001	**H-SCC NBR**	EPA 300.0 Rev 2.1 1993	647236		
92560961002	**H-SCC E41**	EPA 300.0 Rev 2.1 1993	647236		
92560961003	**H-SCC**	EPA 300.0 Rev 2.1 1993	647236		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request D

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields m

WO# : 92560961

92560961

Section A – Required Client Information:		Section B – Required Project Information:		Section C – Invoice Information:	
Company:	ARCADIS - Atlanta	Report To:	Kristen Jurinko, Allison Keefer, Ben Hodges	Attention:	Kristen Jurinko
Address:	2839 Paces Ferry Rd	Copy To:	Warren Johnson	Company Name:	GPC
	Atlanta, GA 30339			Address:	
Email:	warren.johnson@arcadis.com	Purchase Order #:	SCS10382775	Pace Quote:	
Phone:	678.485.5298 Fax.	Project Name:	Plant Hammond	Pace Project Manager:	Mayia.Parks@pacelabs.com,
Requested Due Date:	5 day TAT	Project #:		Pace Profile #:	2239

Regulatory Agency
State / Location
GA

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

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	CCR App III[1]	Major Ions[2]	Molybdenum	Residual Chlorine (Y/N)
1	H-SCC NBR	WT	G	9/13/2021	1455														X	X	X	
2	H-SCC E41	WT	G	9/13/2021	1440														X	X	X	
3	H-SCC	WT	G	9/13/2021	1245														X	X	X	
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
CCR App III[1] - Boron, Calcium, Chloride, Floride, Sulfate, TDS		9-14-21	0819		9/14/21	0819	2.9	Y	N	Y
Major Ions - Mg, Na, K, total alkalinity, bicarbonate alkalinity										

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER:

DATE Signed: 9-14-21

Pace Analytical	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: October 28, 2020 Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.07	Issuing Authority: Pace Carolinas Quality Office

Laboratory receiving samples:
Asheville ☐ Eden ☐ Greenwood ☐ Huntersville ☐ Raleigh ☐ Mechanicsville ☐ Atlanta ☑ Kernersville ☐

Sample Condition Upon Receipt

Client Name: Arcadis

Project #: WO#: 92560961

PM: MP Due Date: 09/21/21
CLIENT: GA-ArcadAtl

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

Custody Seal Present? ☐ Yes ☑ No **Seals Intact?** ☐ Yes ☑ No

Date/Initials Person Examining Contents: MT 9/14/21

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

Biological Tissue Frozen? ☐ Yes ☑ No ☐ N/A

Thermometer: ☐ IR Gun ID: 230

Type of Ice: ☑ Wet ☐ Blue ☐ None

Cooler Temp: 2.8 **Correction Factor:** Add/Subtract (°C) +0.1

Cooler Temp Corrected (°C): 2.9

Temp should be above freezing to 6°C
☐ Samples out of temp criteria. Samples on ice, cooling process has begun

USDA Regulated Soil (☐ N/A, water sample)
Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☑ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☑ No

				Comments/Discrepancy:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	2.
Short Hold Time Analysis (<72 hr.)?	☐ Yes	☑ No	☐ N/A	3.
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	4.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	5.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	6.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	7.
Dissolved analysis: Samples Field Filtered?	☐ Yes	☑ No	☐ N/A	8.
Sample Labels Match COC?	☑ Yes	☐ No	☐ N/A	9.
-Includes Date/Time/ID/Analysis Matrix: MT				
Headspace in VOA Vials (>5-6mm)?	☐ Yes	☐ No	☑ N/A	10.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	11.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	

COMMENTS/SAMPLE DISCREPANCY

Field Data Required? ☐ Yes ☐ No

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted: _____ Date/Time: _____

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

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

***Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.**

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

****Bottom half of box is to list number of bottles**

Project # **WO# : 92560961**

PM: MP Due Date: 09/21/21

CLIENT: GA-ArcadAtl

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
1			2		1																								
2			2		1																								
3			2		1																								
4																													
5																													
6																													
7																													
8																													
9																													
10																													
11																													
12																													

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

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.

VALIDATION REPORTS

Geosyntec consultants

180A Market Place Boulevard
Knoxville, TN 37922
PH 865.330.0037
www.geosyntec.com

Memorandum

Date:	December 2, 2021
To:	Whitney Law
From:	Kristoffer Henderson
CC:	J. Caprio
Subject:	**Stage 2A Data Validation - Level II Data Deliverables – Pace Analytical Services, LLC Project Numbers 92555510 and 92555514**

SITE: Plant Hammond AP-3

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of sixteen aqueous samples, one field duplicate, one equipment blank and one field blank, collected 11-19 August 2021, as part of the Plant Hammond AP on-site sampling event.

The samples were analyzed at Pace Analytical Services Atlanta, Peachtree Corners, Georgia, for the following analytical tests:

- Calcium by United States Environmental Protection Agency (US EPA) Methods 3010A/6010D
- Metals by US EPA Methods 3005A/6020B
- Mercury by US EPA Method 7470A
- Total Dissolved Solids (TDS) by Standard Method 2540C

The samples were analyzed at Pace Analytical Services Asheville, North Carolina, for the following analytical test:

- Anions (Chloride, Fluoride and Sulfate) by US EPA Method 300.0

The samples were analyzed at Pace Analytical Services, LLC, Greensburg, Pennsylvania, for the following analytical tests:

- Radium-226 by US EPA Method 9315
- Radium-228 by US 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. 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, November 2020 (EPA 542-R-20-006); 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
92555510001	HGWA-1
92555510002	HGWA-43D
92555510003	HGWA-2
92555510004	HGWA-3
92555510005	HGWA-45D
92555510006	HGWA-122
92555510007	HGWA-44D
92555924001	HGWC-121A
92555924002	HGWC-120
92555924003	HGWC-124
92555924004	MW-46D
92555924005	MW-39
92555924006	MW-32
92555924007	MW-41
92555924008	HGWC-126
92555924009	HGWC-125
92555924010	DUP-3
92555924011	EB-3
92555924012	FB-3

Laboratory ID	Client ID
92555514001	HGWA-1
92555514002	HGWA-43D
92555514003	HGWA-2
92555514004	HGWA-3
92555514005	HGWA-45D
92555514006	HGWA-122
92555514007	HGWA-44D
92555938001	HGWC-121A
92555938002	HGWC-120
92555938003	HGWC-124
92555938004	MW-46D
92555938005	MW-39
92555938006	MW-32
92555938007	MW-41
92555938008	HGWC-126
92555938009	HGWC-125
92555938010	DUP-3
92555938011	EB-3
92555938012	FB-3

The samples were received within 0-6 degrees Celsius (ºC). No sample preservation issues were noted by the laboratory.

The field pH data included in the laboratory report were not validated.

1.0 METALS

The samples were analyzed for metals by US EPA methods 3010A/6010D and US EPA methods 3005A/6020B. (Mercury was evaluated separately in Section 2.0, below).

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

1.1 Overall Assessment

The metals data reported in this data set 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 data set 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 641193, 641498, 641912, 643161, 641199, 641502, 641913 and 643162). Metals were not detected in the method blanks above the method detection limits (MDLs), with the following exception.

Antimony was detected in the method blank in batch 641502 at an estimated concentration greater than the MDL and less than the reporting limit (RL). Since antimony was not detected in the associated samples, 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). Two sample set specific MS/MSD pairs were reported for calcium using samples HGWC-121A and HGWC-126. The recovery and RPD results were within the laboratory specified acceptance criteria with the following exception.

Since the calcium concentrations in samples HGWC-121A and HGWC-126 were greater than four times the spiked concentration, no qualifications were applied to the data based on the MS/MSD recovery results.

Batch MS/MSD pairs were also reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data based on the MS/MSD recovery results.

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). Eight 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-3. 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-3. Metals were not detected in the field blank above the MDLs.

1.8 Field Duplicate

One field duplicate sample was collected with the sample set, DUP-3. Acceptable precision [relative percent difference (RPD) $\leq$ 20% or the difference between the concentrations < RL] was demonstrated between the field duplicate and the original sample, HGWC-125.

1.9 Sensitivity

The samples were reported to the MDLs. No elevated non-detect results were 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 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.

2.0 MERCURY

The samples were analyzed for mercury by US EPA method 7470A.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

✓ Overall Assessment
✓ Holding Time
⊗ Method Blank
✓ Matrix Spike/Matrix Spike Duplicate
✓ Laboratory Control Sample
✓ Equipment Blank
✓ Field Blank
✓ Field Duplicate
✓ Sensitivity
✓ Electronic Data Deliverables Review

2.1 Overall Assessment

The mercury data reported in this data set 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 data set 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). Two method blanks were reported (batches 642527 and 643221). Mercury was not detected in the method blanks above the MDL, with the following exception.

Mercury was detected in the method blank in batch 643221 at an estimated concentration greater than the MDL and less than the RL. Therefore, the estimated mercury concentrations in the associated samples were U qualified as not detected at the RL and the mercury concentration in EB-3 was J+ qualified as estimated with high bias, based on professional and technical judgment.

Sample	Analyte	Laboratory Result (mg/L)	Laboratory Flag	Laboratory Result (mg/L)	Validation Qualifier*	Reason Code**
DUP-3	Mercury	0.00015	J B	0.0002	U	3
EB-3	Mercury	0.00020	B	0.0002	J+	3
FB-3	Mercury	0.00011	J B	0.0002	U	3

mg/L-milligrams per liter
J-estimated concentration greater than the MDL and less than the RL
B-laboratory flag indicating analyte was detected in the 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

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). 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.

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). Two LCSs were reported. The recovery results were within the laboratory specified acceptance criteria.

2.6 Equipment Blank

One equipment blank was collected with the sample set, EB-01.

Mercury (0.00020 mg/L) was detected in the equipment blank at a concentration greater than the RL. Since mercury was not detected in the associated samples, no qualifications were applied to the data.

2.7 Field Blank

One field blank was collected with the sample set, FB-3.

Mercury was detected in the field blank at an estimated concentration greater than the MDL and less than the RL. Since the mercury concentration in the field blank was U qualified due to method blank contamination and based on professional and technical judgment, no additional qualifications were applied to the data.

2.8 Field Duplicate

One field duplicate sample was collected with the sample set, DUP-3. Acceptable precision (RPD $\leq$ 20% or the difference between the concentrations < RL) was demonstrated between the field duplicate and the original sample, HGWC-125.

2.9 Sensitivity

The samples were reported to the MDL. No elevated non-detect results were 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 samples were analyzed for TDS by Standard method 2540C and anions by US EPA method 300.0.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate

- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

3.1 Overall Assessment

The wet chemistry data reported in this data set 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 data set is 100%.

3.2 Holding Times

The holding time for the TDS analysis of a water sample is 7 days from sample collection to analysis. The holding time for the anions (chloride, fluoride, and sulfate) 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). Five method blanks were reported for TDS (batches 640931, 641466, 642065, 642673 and 643140) and six method blanks were reported for the anions (batches 641753, 641754, 641887, 642138, 642990 and 643306). The wet chemistry parameters were not detected in the method blanks above the MDLs.

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). Four sample set specific MS/MSD pairs were reported for the anions using samples HGWA-43D, HGWA-122, HGWC-120 and HGWC-125. The recovery and RPD results were within the laboratory specified acceptance criteria, with the following exceptions.

The MS recovery of sulfate in the MS/MSD pair using sample HGWC-120 was low and outside of the laboratory specified acceptance criteria. Since the sulfate concentration in sample HGWC-120 was greater than four times the spiked concentration, no qualifications were applied to the data.

The recoveries of sulfate in the MS/MSD pair using sample HGWC-125 were low and outside the laboratory specified acceptance criteria. Since the sulfate concentration in sample HGWC-125 was greater than four times the spiked concentration, no qualifications were applied to the data.

Batch 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.

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. The recovery results were within the laboratory specified acceptance criteria.

3.6 Laboratory Duplicate

Five sample set specific laboratory duplicates were reported for TDS using samples HGWA-1, HGWA-2, HGWA-45D, HGWC-121A and FB-3. The RPD results were within the laboratory specified acceptance criteria.

Batch laboratory duplicates were also reported for TDS. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

3.7 Equipment Blank

One equipment blank was collected with the sample set, EB-3. The wet chemistry parameters were not detected in the equipment blank above the MDL.

3.8 Field Blank

One field blank was collected with the sample set, FB-3. The wet chemistry parameters were not detected in the field blank above the MDL.

3.9 Field Duplicate

One field duplicate sample was collected with the sample set, DUP-3. Acceptable precision (RPD $\leq$ 20% or the difference between the concentrations < RL) was demonstrated between the field duplicate and the original sample, HGWC-125.

3.10 Sensitivity

The samples were reported to the MDLs. No elevated non-detect results were 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 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.

4.0 RADIOCHEMISTRY

The samples were analyzed for radium-226 by US EPA method 9315, radium-228 by US EPA method 9320 and total radium by calculation.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Tracers and Carriers
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

4.1 Overall Assessment

The radium-226 and radium-228 data reported in this data set 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 data set 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-226 data (batches 463428, 463426 and 463380). Four method blanks were reported for the radium-228 data (batches 463298, 461961, 463379 and 461962). Radium-226 and radium-228 were not detected in the method blanks above the minimum detectable concentrations (MDCs).

4.4 Matrix Spike/Matrix Spike Duplicate

MS/MSD pairs were not reported with the data.

4.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). 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) [1 sigma (1σ)] results were within the laboratory specified acceptance criteria, with the following exception.

The LCSD recovery of radium-228 in the LCS/LCSD pair in batch 463298 was high and outside of the laboratory specified acceptance criteria. Since radium-228 was not detected in the associated sample, no qualifications were applied to the data.

4.6 Laboratory Duplicate

Three batch laboratory duplicates were 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 set, EB-3. Radium-226 and Radium-228 were not detected in the equipment blank above the MDCs.

4.9 Field Blank

One field blank was collected with the sample set, FB-3. 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 set, DUP-3. Acceptable precision (RER (1σ) < 3) was demonstrated between the field duplicate and the original sample, HGWC-125.

4.11 Sensitivity

The samples were reported to the MDCs. No elevated non-detect results were 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.

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* * * * *

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 or RPD recovery outside limits (LCS/LCSD)
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
14	Lab flag removed or modified: no validation qualification required

LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample duplicate
RPD - Relative percent difference

FIELD SAMPLING REPORTS

August 2021

Low-Flow Test Report:

Test Date / Time: 8/11/2021 1:57:08 PM
Project: GP-Plant Hammond
Operator Name: Connor Cain

Location Name: HGWA-1 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen:22.50 ft** **Total Depth: 32.50 ft** **Initial Depth to Water: 18.88 ft**	**Pump Type: Bladder** **Tubing Type: Polyethylene** **Pump Intake From TOC: 27.50 ft** **Estimated Total Volume Pumped: 36.75 Liter** **Flow Cell Volume: 90 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: 0.52 ft**	**Instrument Used: Aqua TROLL 400** **Serial Number: 728541**

Test Notes:
Five bottles: Full app. III & IV.

Weather Conditions:
Sunny, 96 Degrees.

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 0.5	+/- 5 %	+/- 0.2	+/- 5	+/- 10	+/- 0.3	
8/11/2021 1:57 PM	00:00	7.00 pH	21.04 °C	667.52 µS/cm	0.64 mg/L	3.23 NTU	33.4 mV	19.28 ft	200.00 ml/min
8/11/2021 2:02 PM	05:00	6.99 pH	19.20 °C	683.41 µS/cm	0.40 mg/L	1.41 NTU	33.7 mV	19.33 ft	200.00 ml/min
8/11/2021 2:07 PM	10:00	6.99 pH	19.15 °C	659.32 µS/cm	0.45 mg/L	2.60 NTU	33.5 mV	19.38 ft	200.00 ml/min
8/11/2021 2:12 PM	15:00	6.99 pH	19.02 °C	656.40 µS/cm	0.40 mg/L	0.75 NTU	32.2 mV	19.39 ft	200.00 ml/min
8/11/2021 2:15 PM	18:12	6.99 pH	19.03 °C	661.45 µS/cm	0.35 mg/L	0.36 NTU	34.6 mV	19.40 ft	200.00 ml/min
8/11/2021 2:20 PM	23:12	6.98 pH	18.94 °C	660.06 µS/cm	0.28 mg/L	0.55 NTU	35.7 mV	19.40 ft	200.00 ml/min
8/11/2021 2:25 PM	28:12	6.98 pH	19.06 °C	660.13 µS/cm	0.28 mg/L	0.19 NTU	35.4 mV	19.40 ft	200.00 ml/min
8/11/2021 2:30 PM	33:12	6.99 pH	18.90 °C	665.62 µS/cm	0.38 mg/L	1.14 NTU	35.4 mV	19.40 ft	200.00 ml/min
8/11/2021 2:35 PM	38:12	6.99 pH	18.79 °C	661.37 µS/cm	0.33 mg/L	0.28 NTU	35.6 mV	19.40 ft	200.00 ml/min
8/11/2021 2:40 PM	43:12	6.98 pH	18.75 °C	662.88 µS/cm	0.26 mg/L	--	37.0 mV	19.40 ft	200.00 ml/min
8/11/2021 2:45 PM	48:12	6.98 pH	18.75 °C	663.83 µS/cm	0.25 mg/L	--	36.8 mV	19.40 ft	200.00 ml/min
8/11/2021 2:50 PM	53:12	6.98 pH	18.74 °C	655.03 µS/cm	0.36 mg/L	--	34.6 mV	19.40 ft	200.00 ml/min
8/11/2021 2:55 PM	58:12	6.98 pH	18.80 °C	664.96 µS/cm	0.32 mg/L	--	34.7 mV	19.40 ft	200.00 ml/min

8/11/2021 3:00 PM	01:03:12	6.98 pH	18.73 °C	667.63 µS/cm	0.27 mg/L	--	34.7 mV	19.40 ft	200.00 ml/min
8/11/2021 3:05 PM	01:08:12	6.98 pH	18.79 °C	667.13 µS/cm	0.26 mg/L	--	34.5 mV	19.40 ft	200.00 ml/min
8/11/2021 3:10 PM	01:13:12	6.98 pH	18.92 °C	666.06 µS/cm	0.30 mg/L	--	32.6 mV	19.40 ft	200.00 ml/min
8/11/2021 3:15 PM	01:18:12	6.98 pH	18.99 °C	665.79 µS/cm	0.24 mg/L	--	30.5 mV	19.40 ft	200.00 ml/min
8/11/2021 3:20 PM	01:23:12	6.97 pH	18.97 °C	665.66 µS/cm	0.34 mg/L	--	30.7 mV	19.40 ft	200.00 ml/min
8/11/2021 3:25 PM	01:28:12	6.98 pH	18.84 °C	666.38 µS/cm	0.25 mg/L	--	30.9 mV	19.40 ft	200.00 ml/min
8/11/2021 3:30 PM	01:33:12	6.98 pH	18.79 °C	665.01 µS/cm	0.19 mg/L	--	29.8 mV	19.40 ft	200.00 ml/min
8/11/2021 3:35 PM	01:38:12	6.98 pH	18.74 °C	664.47 µS/cm	0.22 mg/L	--	30.0 mV	19.40 ft	200.00 ml/min
8/11/2021 3:40 PM	01:43:12	6.98 pH	18.69 °C	664.99 µS/cm	0.24 mg/L	--	28.6 mV	19.40 ft	200.00 ml/min
8/11/2021 3:45 PM	01:48:12	6.97 pH	18.75 °C	662.12 µS/cm	0.21 mg/L	--	29.5 mV	19.40 ft	200.00 ml/min
8/11/2021 3:50 PM	01:53:12	6.98 pH	18.78 °C	663.73 µS/cm	0.28 mg/L	--	28.4 mV	19.40 ft	200.00 ml/min
8/11/2021 3:55 PM	01:58:12	6.98 pH	18.70 °C	665.36 µS/cm	0.21 mg/L	--	27.3 mV	19.40 ft	200.00 ml/min
8/11/2021 4:00 PM	02:03:12	6.98 pH	18.70 °C	664.22 µS/cm	0.20 mg/L	--	28.1 mV	19.40 ft	200.00 ml/min
8/11/2021 4:05 PM	02:08:12	6.98 pH	18.70 °C	663.86 µS/cm	0.33 mg/L	--	29.3 mV	19.40 ft	200.00 ml/min
8/11/2021 4:10 PM	02:13:12	6.97 pH	18.75 °C	662.73 µS/cm	0.24 mg/L	--	29.7 mV	19.40 ft	200.00 ml/min
8/11/2021 4:15 PM	02:18:12	6.98 pH	18.93 °C	663.37 µS/cm	0.20 mg/L	--	30.1 mV	19.40 ft	200.00 ml/min
8/11/2021 4:20 PM	02:23:12	6.98 pH	18.97 °C	663.89 µS/cm	0.20 mg/L	--	28.0 mV	19.40 ft	200.00 ml/min
8/11/2021 4:25 PM	02:28:12	6.98 pH	18.85 °C	661.80 µS/cm	0.31 mg/L	--	30.1 mV	19.40 ft	200.00 ml/min
8/11/2021 4:30 PM	02:33:12	6.97 pH	18.84 °C	663.72 µS/cm	0.28 mg/L	--	30.4 mV	19.40 ft	200.00 ml/min
8/11/2021 4:35 PM	02:38:12	6.97 pH	18.71 °C	662.50 µS/cm	0.22 mg/L	--	29.4 mV	19.40 ft	200.00 ml/min
8/11/2021 4:40 PM	02:43:12	6.98 pH	18.74 °C	660.97 µS/cm	0.32 mg/L	--	29.4 mV	19.40 ft	200.00 ml/min
8/11/2021 4:45 PM	02:48:12	6.98 pH	18.73 °C	636.44 µS/cm	0.23 mg/L	0.36 NTU	29.7 mV	19.40 ft	200.00 ml/min
8/11/2021 4:50 PM	02:53:12	6.98 pH	18.73 °C	663.99 µS/cm	0.37 mg/L	0.38 NTU	30.5 mV	19.40 ft	200.00 ml/min
8/11/2021 4:55 PM	02:58:12	6.98 pH	18.65 °C	661.28 µS/cm	0.36 mg/L	0.37 NTU	28.5 mV	19.40 ft	200.00 ml/min

Samples

Sample ID:	Description:
HGWA-1	Grab sample.

Low-Flow Test Report:

Test Date / Time: 8/12/2021 2:21:33 PM
Project: GP-Plant Hammond
Operator Name: Ashley Ramsey

Location Name: HGWA-2 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 17.95 ft** **Total Depth: 27.95 ft** **Initial Depth to Water: 10.67 ft**	**Pump Type: Bladder** **Tubing Type: Polyethylene** **Pump Intake From TOC: 22.95 ft** **Estimated Total Volume Pumped: 14 Liter** **Flow Cell Volume: 90 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: 0.05 ft**	**Instrument Used: Aqua TROLL 400** **Serial Number: 728623**

Test Notes:
Five bottle: Full app. III & IV.

Weather Conditions:
Sunny, 91 Degrees.

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 0.5	+/- 5 %	+/- 0.2	+/- 5	+/- 10	+/- 0.3	
8/12/2021 2:21 PM	00:00	5.15 pH	23.08 °C	203.81 µS/cm	0.77 mg/L	34.00 NTU	130.2 mV	10.67 ft	200.00 ml/min
8/12/2021 2:26 PM	05:00	5.08 pH	21.50 °C	202.92 µS/cm	0.26 mg/L	49.60 NTU	130.2 mV	10.72 ft	200.00 ml/min
8/12/2021 2:31 PM	10:00	5.08 pH	21.42 °C	203.27 µS/cm	0.19 mg/L	29.60 NTU	155.5 mV	10.72 ft	200.00 ml/min
8/12/2021 2:36 PM	15:00	5.10 pH	21.73 °C	204.60 µS/cm	0.26 mg/L	22.80 NTU	127.2 mV	10.72 ft	200.00 ml/min
8/12/2021 2:41 PM	20:00	5.09 pH	21.78 °C	204.30 µS/cm	0.25 mg/L	16.80 NTU	156.0 mV	10.72 ft	200.00 ml/min
8/12/2021 2:46 PM	25:00	5.08 pH	21.69 °C	203.45 µS/cm	0.23 mg/L	16.10 NTU	127.1 mV	10.72 ft	200.00 ml/min
8/12/2021 2:51 PM	30:00	5.06 pH	21.60 °C	202.80 µS/cm	0.18 mg/L	15.50 NTU	156.8 mV	10.72 ft	200.00 ml/min
8/12/2021 2:56 PM	35:00	5.05 pH	21.81 °C	202.03 µS/cm	0.15 mg/L	11.70 NTU	127.1 mV	10.72 ft	200.00 ml/min
8/12/2021 3:01 PM	40:00	5.05 pH	21.65 °C	202.15 µS/cm	0.14 mg/L	9.76 NTU	126.0 mV	10.72 ft	200.00 ml/min
8/12/2021 3:06 PM	45:00	5.05 pH	21.82 °C	201.32 µS/cm	0.13 mg/L	9.92 NTU	125.4 mV	10.72 ft	200.00 ml/min
8/12/2021 3:11 PM	50:00	5.05 pH	21.82 °C	202.01 µS/cm	0.14 mg/L	7.58 NTU	125.2 mV	10.72 ft	200.00 ml/min
8/12/2021 3:16 PM	55:00	5.04 pH	21.33 °C	202.45 µS/cm	0.12 mg/L	6.44 NTU	124.8 mV	10.72 ft	200.00 ml/min
8/12/2021 3:21 PM	01:00:00	5.04 pH	21.24 °C	203.65 µS/cm	0.12 mg/L	6.07 NTU	124.7 mV	10.72 ft	200.00 ml/min

8/12/2021 3:26 PM	01:05:00	5.05 pH	21.37 °C	202.40 µS/cm	0.11 mg/L	5.42 NTU	158.0 mV	10.72 ft	200.00 ml/min
8/12/2021 3:31 PM	01:10:00	5.05 pH	21.04 °C	203.48 µS/cm	0.11 mg/L	4.12 NTU	124.4 mV	10.72 ft	200.00 ml/min

Samples

Sample ID:	Description:
HGWA-2	Grab sample.

Low-Flow Test Report:

Test Date / Time: 8/12/2021 8:42:53 AM
Project: GP-Plant Hammond
Operator Name: Connor Cain

Location Name: HGWA-3 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 34.87 ft Initial** **Total Depth: 44.87 ft** **Depth to Water: 10.51 ft**	**Pump Type: Bladder** **Tubing Type: Polyethylene** **Pump Intake From TOC: 39.87 ft** **Estimated Total Volume Pumped: 19 Liter** **Flow Cell Volume: 90 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: 0.02 ft**	**Instrument Used: Aqua TROLL 400** **Serial Number: 728541**

Test Notes:
Five bottles: Full app. III & IV.

Weather Conditions:
Sunny, 75 Degrees.

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 0.5	+/- 5 %	+/- 0.2	+/- 5	+/- 10	+/- 0.3	
8/12/2021 8:42 AM	00:00	7.28 pH	20.30 °C	460.79 µS/cm	2.04 mg/L	74.50 NTU	-65.2 mV	10.51 ft	200.00 ml/min
8/12/2021 8:47 AM	05:00	7.28 pH	19.16 °C	461.91 µS/cm	2.42 mg/L	10.15 NTU	-80.8 mV	10.51 ft	200.00 ml/min
8/12/2021 8:52 AM	10:00	7.27 pH	19.20 °C	464.76 µS/cm	2.64 mg/L	6.23 NTU	-85.6 mV	10.52 ft	200.00 ml/min
8/12/2021 8:57 AM	15:00	7.29 pH	19.26 °C	465.02 µS/cm	1.36 mg/L	5.51 NTU	-81.9 mV	10.52 ft	200.00 ml/min
8/12/2021 9:02 AM	20:00	7.29 pH	19.15 °C	462.89 µS/cm	2.28 mg/L	3.51 NTU	-98.1 mV	10.52 ft	200.00 ml/min
8/12/2021 9:07 AM	25:00	7.30 pH	19.15 °C	464.17 µS/cm	1.25 mg/L	2.55 NTU	-87.8 mV	10.52 ft	200.00 ml/min
8/12/2021 9:12 AM	30:00	7.30 pH	19.23 °C	462.67 µS/cm	1.71 mg/L	2.10 NTU	-83.8 mV	10.52 ft	200.00 ml/min
8/12/2021 9:17 AM	35:00	7.29 pH	19.30 °C	463.45 µS/cm	1.56 mg/L	1.32 NTU	-86.3 mV	10.52 ft	200.00 ml/min
8/12/2021 9:22 AM	40:00	7.30 pH	19.42 °C	451.88 µS/cm	1.79 mg/L	1.21 NTU	-87.3 mV	10.53 ft	200.00 ml/min
8/12/2021 9:27 AM	45:00	7.30 pH	19.43 °C	462.08 µS/cm	3.14 mg/L	1.28 NTU	-97.4 mV	10.53 ft	200.00 ml/min
8/12/2021 9:32 AM	50:00	7.31 pH	19.39 °C	463.60 µS/cm	1.34 mg/L	1.02 NTU	-85.6 mV	10.53 ft	200.00 ml/min
8/12/2021 9:37 AM	55:00	7.31 pH	19.42 °C	463.46 µS/cm	1.30 mg/L	2.16 NTU	-86.2 mV	10.53 ft	200.00 ml/min
8/12/2021 9:42 AM	01:00:00	7.29 pH	19.34 °C	464.62 µS/cm	1.08 mg/L	1.99 NTU	-79.5 mV	10.53 ft	200.00 ml/min

8/12/2021 9:47 AM	01:05:00	7.31 pH	19.37 °C	455.63 µS/cm	1.00 mg/L	1.53 NTU	-81.6 mV	10.53 ft	200.00 ml/min
8/12/2021 9:52 AM	01:10:00	7.31 pH	19.42 °C	462.54 µS/cm	1.40 mg/L	1.14 NTU	-97.2 mV	10.53 ft	200.00 ml/min
8/12/2021 9:57 AM	01:15:00	7.31 pH	19.28 °C	463.04 µS/cm	1.73 mg/L	0.99 NTU	-85.2 mV	10.53 ft	200.00 ml/min
8/12/2021 10:02 AM	01:20:00	7.31 pH	19.55 °C	463.83 µS/cm	1.41 mg/L	0.71 NTU	-95.5 mV	10.53 ft	200.00 ml/min
8/12/2021 10:07 AM	01:25:00	7.30 pH	19.58 °C	464.34 µS/cm	1.44 mg/L	0.58 NTU	-83.4 mV	10.53 ft	200.00 ml/min
8/12/2021 10:12 AM	01:30:00	7.31 pH	19.69 °C	457.58 µS/cm	1.28 mg/L	0.61 NTU	-85.1 mV	10.53 ft	200.00 ml/min

Samples

Sample ID:	Description:
HGWA-3	Grab sample.

Low-Flow Test Report:

Test Date / Time: 8/11/2021 2:08:01 PM
Project: GP-Plant Hammond
Operator Name: Thomas Kessler

Location Name: HGWA-43D **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 51.26 ft** **Total Depth: 61.25 ft** **Initial Depth to Water: 18.65 ft**	**Pump Type: Bladder** **Tubing Type: Polyethylene** **Pump Intake From TOC: 56.25 ft** **Estimated Total Volume Pumped: 34 liter** **Flow Cell Volume: 90 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: 3.03 ft**	**Instrument Used: Aqua TROLL 400** **Serial Number: 728634**

Test Notes:
Five bottles: Full app. III & IV.

Weather Conditions:
Sunny, 90 Degrees.

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 0.5	+/- 5 %	+/- 0.2	+/- 5	+/- 10	+/- 0.3	
8/11/2021 2:08 PM	00:00	8.30 pH	37.12 °C	0.11 µS/cm	6.81 mg/L	3.16 NTU	82.9 mV	20.00 ft	200.00 ml/min
8/11/2021 2:13 PM	05:00	7.50 pH	20.20 °C	528.39 µS/cm	0.58 mg/L	4.21 NTU	-95.1 mV	20.20 ft	200.00 ml/min
8/11/2021 2:18 PM	10:00	7.49 pH	19.63 °C	521.25 µS/cm	0.36 mg/L	3.80 NTU	-91.7 mV	20.65 ft	200.00 ml/min
8/11/2021 2:23 PM	15:00	7.49 pH	19.49 °C	516.37 µS/cm	0.27 mg/L	--	-94.4 mV	--	200.00 ml/min
8/11/2021 2:28 PM	20:00	7.49 pH	19.40 °C	509.58 µS/cm	0.18 mg/L	--	-94.2 mV	--	200.00 ml/min
8/11/2021 2:33 PM	25:00	7.48 pH	19.45 °C	503.82 µS/cm	0.15 mg/L	--	-111.7 mV	--	200.00 ml/min
8/11/2021 2:38 PM	30:00	7.48 pH	19.36 °C	502.21 µS/cm	0.14 mg/L	--	-112.0 mV	--	200.00 ml/min
8/11/2021 2:43 PM	35:00	7.47 pH	19.47 °C	502.19 µS/cm	0.13 mg/L	--	-111.8 mV	--	200.00 ml/min
8/11/2021 2:48 PM	40:00	7.46 pH	19.40 °C	496.56 µS/cm	0.12 mg/L	--	-110.4 mV	--	200.00 ml/min
8/11/2021 2:53 PM	45:00	7.46 pH	19.44 °C	499.36 µS/cm	0.12 mg/L	--	-109.0 mV	--	200.00 ml/min
8/11/2021 2:58 PM	50:00	7.45 pH	19.34 °C	490.56 µS/cm	0.12 mg/L	--	-89.6 mV	--	200.00 ml/min
8/11/2021 3:03 PM	55:00	7.45 pH	19.41 °C	491.20 µS/cm	0.12 mg/L	--	-88.4 mV	--	200.00 ml/min
8/11/2021 3:08 PM	01:00:00	7.44 pH	19.54 °C	488.13 µS/cm	0.12 mg/L	--	-102.9 mV	--	200.00 ml/min

8/11/2021 3:13 PM	01:05:00	7.43 pH	19.70 °C	485.51 µS/cm	0.12 mg/L	--	-85.5 mV	--	200.00 ml/min
8/11/2021 3:18 PM	01:10:00	7.43 pH	19.69 °C	481.07 µS/cm	0.12 mg/L	--	-83.4 mV	--	200.00 ml/min
8/11/2021 3:23 PM	01:15:00	7.42 pH	19.57 °C	479.55 µS/cm	0.12 mg/L	--	-81.7 mV	--	200.00 ml/min
8/11/2021 3:28 PM	01:20:00	7.42 pH	19.56 °C	486.53 µS/cm	0.12 mg/L	--	-95.2 mV	--	200.00 ml/min
8/11/2021 3:33 PM	01:25:00	7.42 pH	19.49 °C	480.24 µS/cm	0.13 mg/L	--	-78.9 mV	--	200.00 ml/min
8/11/2021 3:38 PM	01:30:00	7.42 pH	19.51 °C	475.62 µS/cm	0.12 mg/L	--	-94.9 mV	--	200.00 ml/min
8/11/2021 3:43 PM	01:35:00	7.42 pH	19.50 °C	480.10 µS/cm	0.12 mg/L	--	-93.0 mV	--	200.00 ml/min
8/11/2021 3:48 PM	01:40:00	7.42 pH	19.58 °C	483.92 µS/cm	0.12 mg/L	--	-92.3 mV	--	200.00 ml/min
8/11/2021 3:53 PM	01:45:00	7.42 pH	19.61 °C	477.83 µS/cm	0.12 mg/L	--	-92.7 mV	--	200.00 ml/min
8/11/2021 3:58 PM	01:50:00	7.41 pH	19.54 °C	476.06 µS/cm	0.12 mg/L	--	-74.3 mV	--	200.00 ml/min
8/11/2021 4:03 PM	01:55:00	7.41 pH	19.65 °C	479.74 µS/cm	0.12 mg/L	--	-90.4 mV	--	200.00 ml/min
8/11/2021 4:08 PM	02:00:00	7.41 pH	19.70 °C	475.89 µS/cm	0.12 mg/L	--	-74.2 mV	--	200.00 ml/min
8/11/2021 4:13 PM	02:05:00	7.41 pH	19.76 °C	476.21 µS/cm	0.12 mg/L	--	-89.0 mV	--	200.00 ml/min
8/11/2021 4:18 PM	02:10:00	7.41 pH	19.75 °C	479.29 µS/cm	0.12 mg/L	--	-88.6 mV	--	200.00 ml/min
8/11/2021 4:23 PM	02:15:00	7.41 pH	19.70 °C	480.88 µS/cm	0.12 mg/L	--	-71.7 mV	--	200.00 ml/min
8/11/2021 4:28 PM	02:20:00	7.41 pH	19.54 °C	476.43 µS/cm	0.12 mg/L	--	-86.2 mV	--	200.00 ml/min
8/11/2021 4:33 PM	02:25:00	7.41 pH	19.49 °C	472.66 µS/cm	0.12 mg/L	--	-85.6 mV	--	200.00 ml/min
8/11/2021 4:38 PM	02:30:00	7.41 pH	19.45 °C	478.48 µS/cm	0.13 mg/L	--	-86.5 mV	--	200.00 ml/min
8/11/2021 4:43 PM	02:35:00	7.41 pH	19.35 °C	475.82 µS/cm	0.12 mg/L	--	-69.5 mV	--	200.00 ml/min
8/11/2021 4:48 PM	02:40:00	7.41 pH	19.39 °C	473.79 µS/cm	0.12 mg/L	2.27 NTU	-68.5 mV	21.68 ft	200.00 ml/min
8/11/2021 4:53 PM	02:45:00	7.41 pH	19.36 °C	476.17 µS/cm	0.12 mg/L	1.68 NTU	-67.8 mV	21.68 ft	200.00 ml/min
8/11/2021 4:58 PM	02:50:00	7.40 pH	19.40 °C	469.00 µS/cm	0.12 mg/L	0.68 NTU	-82.5 mV	21.68 ft	200.00 ml/min

Samples

Sample ID:	Description:
HGWA-43D	Grab Sample.

Low-Flow Test Report:

Test Date / Time: 8/13/2021 9:25:02 AM
Project: GP-Plant Hammond
Operator Name: Thomas Kessler

Location Name: HGWA-44D **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 103 ft** **Total Depth: 113.28 ft** **Initial Depth to Water: 18.25 ft**	**Pump Type: Bladder** **Tubing Type: Polyethylene** **Pump Intake From TOC: 108.28 ft** **Estimated Total Volume Pumped: 23 liter** **Flow Cell Volume: 90 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: 3.1 ft**	**Instrument Used: Aqua TROLL 400** **Serial Number: 728634**

Test Notes:
Five bottles: Full app. III and IV.

Weather Conditions:
Sunny, 85 Degrees.

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 0.5	+/- 5 %	+/- 0.2	+/- 5	+/- 10	+/- 0.3	
8/13/2021 9:25 AM	00:00	7.61 pH	24.10 °C	1,163.3 µS/cm	2.99 mg/L	50.70 NTU	98.2 mV	18.55 ft	200.00 ml/min
8/13/2021 9:30 AM	05:00	7.63 pH	19.76 °C	1,113.6 µS/cm	1.57 mg/L	69.60 NTU	39.4 mV	18.55 ft	200.00 ml/min
8/13/2021 9:35 AM	10:00	7.69 pH	19.26 °C	1,112.3 µS/cm	0.65 mg/L	65.80 NTU	-32.9 mV	18.55 ft	200.00 ml/min
8/13/2021 9:40 AM	15:00	7.69 pH	19.24 °C	1,109.5 µS/cm	0.43 mg/L	58.60 NTU	-62.0 mV	19.75 ft	200.00 ml/min
8/13/2021 9:45 AM	20:00	7.68 pH	19.74 °C	1,071.7 µS/cm	0.36 mg/L	46.30 NTU	-20.2 mV	19.85 ft	200.00 ml/min
8/13/2021 9:50 AM	25:00	7.67 pH	19.85 °C	1,053.8 µS/cm	0.31 mg/L	25.00 NTU	-14.5 mV	20.15 ft	200.00 ml/min
8/13/2021 9:55 AM	30:00	7.67 pH	19.76 °C	1,050.8 µS/cm	0.28 mg/L	18.40 NTU	3.1 mV	20.26 ft	200.00 ml/min
8/13/2021 10:00 AM	35:00	7.67 pH	19.64 °C	1,046.8 µS/cm	0.26 mg/L	12.40 NTU	14.2 mV	20.38 ft	200.00 ml/min
8/13/2021 10:05 AM	40:00	7.67 pH	19.70 °C	1,033.5 µS/cm	0.25 mg/L	11.20 NTU	24.6 mV	20.43 ft	200.00 ml/min
8/13/2021 10:10 AM	45:00	7.67 pH	19.69 °C	1,039.2 µS/cm	0.24 mg/L	8.47 NTU	27.3 mV	20.55 ft	200.00 ml/min
8/13/2021 10:15 AM	50:00	7.68 pH	19.67 °C	1,027.9 µS/cm	0.23 mg/L	8.93 NTU	28.6 mV	20.67 ft	200.00 ml/min
8/13/2021 10:20 AM	55:00	7.68 pH	19.69 °C	1,020.1 µS/cm	0.22 mg/L	14.06 NTU	28.7 mV	20.67 ft	200.00 ml/min
8/13/2021 10:25 AM	01:00:00	7.69 pH	19.63 °C	1,033.7 µS/cm	0.21 mg/L	11.74 NTU	29.4 mV	20.70 ft	200.00 ml/min

8/13/2021 10:30 AM	01:05:00	7.70 pH	19.62 °C	992.87 µS/cm	0.20 mg/L	8.71 NTU	30.0 mV	20.70 ft	200.00 ml/min
8/13/2021 10:35 AM	01:10:00	7.72 pH	19.60 °C	939.74 µS/cm	0.19 mg/L	6.36 NTU	30.4 mV	20.88 ft	200.00 ml/min
8/13/2021 10:37 AM	01:12:03	7.72 pH	19.49 °C	895.36 µS/cm	0.18 mg/L	6.36 NTU	32.2 mV	20.88 ft	200.00 ml/min
8/13/2021 10:42 AM	01:17:03	7.73 pH	19.45 °C	890.88 µS/cm	0.17 mg/L	4.39 NTU	30.6 mV	20.90 ft	200.00 ml/min
8/13/2021 10:47 AM	01:22:03	7.74 pH	19.50 °C	844.55 µS/cm	0.16 mg/L	4.13 NTU	30.9 mV	21.00 ft	200.00 ml/min
8/13/2021 10:52 AM	01:27:03	7.75 pH	19.40 °C	838.90 µS/cm	0.15 mg/L	3.85 NTU	30.6 mV	21.05 ft	200.00 ml/min
8/13/2021 10:57 AM	01:32:03	7.76 pH	19.49 °C	804.21 µS/cm	0.14 mg/L	3.05 NTU	30.5 mV	21.15 ft	200.00 ml/min
8/13/2021 11:02 AM	01:37:03	7.77 pH	19.86 °C	781.29 µS/cm	0.13 mg/L	2.95 NTU	30.6 mV	21.25 ft	200.00 ml/min
8/13/2021 11:07 AM	01:42:03	7.77 pH	20.03 °C	769.60 µS/cm	0.12 mg/L	5.36 NTU	30.7 mV	21.30 ft	200.00 ml/min
8/13/2021 11:12 AM	01:47:03	7.77 pH	20.14 °C	775.38 µS/cm	0.11 mg/L	5.44 NTU	30.8 mV	21.30 ft	200.00 ml/min
8/13/2021 11:17 AM	01:52:03	7.77 pH	20.35 °C	761.59 µS/cm	0.11 mg/L	4.83 NTU	30.8 mV	21.35 ft	200.00 ml/min

Samples

Sample ID:	Description:
HGWA-44D	Grab sample.

Low-Flow Test Report:

Test Date / Time: 8/13/2021 11:32:20 AM
Project: GP-Plant Hammond
Operator Name: Connor Cain

Location Name: HGWA-45D **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 52.87 ft** **Total Depth: 62.87 ft** **Initial Depth to Water: 12.35 ft**	**Pump Type: Bladder** **Tubing Type: Polyethylene** **Pump Intake From TOC: 57.87 ft** **Estimated Total Volume Pumped: 7 Liter** **Flow Cell Volume: 90 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: 0.61 ft**	**Instrument Used: Aqua TROLL 400** **Serial Number: 728541**

Test Notes:
Five bottles: Full app. III and IV.

Weather Conditions:
Sunny, 88 Degrees.

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 0.5	+/- 5 %	+/- 0.2	+/- 5	+/- 10	+/- 0.3	
8/13/2021 11:32 AM	00:00	7.56 pH	26.15 °C	516.02 µS/cm	2.01 mg/L	2.08 NTU	-111.5 mV	12.55 ft	200.00 ml/min
8/13/2021 11:37 AM	05:00	7.50 pH	22.02 °C	507.81 µS/cm	0.61 mg/L	1.09 NTU	-124.0 mV	12.86 ft	200.00 ml/min
8/13/2021 11:42 AM	10:00	7.48 pH	21.76 °C	508.21 µS/cm	0.40 mg/L	0.60 NTU	-139.5 mV	12.96 ft	200.00 ml/min
8/13/2021 11:47 AM	15:00	7.45 pH	21.64 °C	507.15 µS/cm	0.44 mg/L	0.52 NTU	-141.8 mV	12.96 ft	200.00 ml/min
8/13/2021 11:52 AM	20:00	7.43 pH	21.64 °C	503.97 µS/cm	0.44 mg/L	0.44 NTU	-146.1 mV	12.96 ft	200.00 ml/min
8/13/2021 11:57 AM	25:00	7.43 pH	21.91 °C	503.84 µS/cm	0.57 mg/L	0.40 NTU	-153.2 mV	12.96 ft	200.00 ml/min
8/13/2021 12:02 PM	30:00	7.42 pH	21.93 °C	502.46 µS/cm	0.38 mg/L	0.45 NTU	-157.8 mV	12.96 ft	200.00 ml/min

Samples

Sample ID:	Description:
HGWA-45D	Grab sample.

Low-Flow Test Report:

Test Date / Time: 8/16/2021 11:40:29 AM
Project: GP-Plant Hammond
Operator Name: Connor Cain

Location Name: HGWC-120 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 57.55 ft** **Total Depth: 67.55 ft** **Initial Depth to Water: 40.7 ft**	**Pump Type: Bladder** **Tubing Type: Polyethylene** **Pump Intake From TOC: 62.55 ft** **Estimated Total Volume Pumped: 7 Liter** **Flow Cell Volume: 90 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: 0.05 ft**	**Instrument Used: Aqua TROLL 400** **Serial Number: 728541**

Test Notes:
Five bottles: Full app. III and IV.

Weather Conditions:
Partly cloudy, 78 Degrees.

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 0.5	+/- 5 %	+/- 0.2	+/- 5	+/- 10	+/- 0.3	
8/16/2021 11:40 AM	00:00	7.06 pH	22.89 °C	951.92 µS/cm	2.11 mg/L	0.60 NTU	-125.1 mV	40.75 ft	200.00 ml/min
8/16/2021 11:45 AM	05:00	6.96 pH	20.88 °C	997.81 µS/cm	1.20 mg/L	0.43 NTU	-74.4 mV	40.75 ft	200.00 ml/min
8/16/2021 11:50 AM	10:00	6.94 pH	20.71 °C	985.49 µS/cm	1.22 mg/L	0.27 NTU	-60.2 mV	40.75 ft	200.00 ml/min
8/16/2021 11:55 AM	15:00	6.93 pH	20.89 °C	986.96 µS/cm	0.86 mg/L	0.25 NTU	-51.9 mV	40.75 ft	200.00 ml/min
8/16/2021 12:00 PM	20:00	6.93 pH	21.01 °C	984.91 µS/cm	0.97 mg/L	0.11 NTU	-45.7 mV	40.75 ft	200.00 ml/min
8/16/2021 12:05 PM	25:00	6.92 pH	20.88 °C	987.72 µS/cm	0.91 mg/L	0.32 NTU	-56.8 mV	40.75 ft	200.00 ml/min
8/16/2021 12:10 PM	30:00	6.92 pH	21.06 °C	1,000.8 µS/cm	0.96 mg/L	0.20 NTU	-39.4 mV	40.75 ft	200.00 ml/min

Samples

Sample ID:	Description:
HGWC-120	Grab sample.

Low-Flow Test Report:

Test Date / Time: 8/16/2021 3:35:04 PM
Project: GP-Plant Hammond
Operator Name: Connor Cain

Location Name: HGWC-121A **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 28.16 ft** **Total Depth: 38.16 ft** **Initial Depth to Water: 18.09 ft**	**Pump Type: Bladder** **Tubing Type: Polyethylene** **Pump Intake From TOC: 33.16 ft** **Estimated Total Volume Pumped: 7 Liters** **Flow Cell Volume: 90 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: 0.11 ft**	**Instrument Used: Aqua TROLL 400** **Serial Number: 728541**

Test Notes:
Five bottles: Full app. III and IV.

Weather Conditions:
Cloudy, 86 Degrees.

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 0.5	+/- 5 %	+/- 0.2	+/- 5	+/- 10	+/- 0.3	
8/16/2021 3:35 PM	00:00	6.87 pH	23.07 °C	906.65 µS/cm	4.05 mg/L	4.90 NTU	53.9 mV	18.14 ft	200.00 ml/min
8/16/2021 3:40 PM	05:00	6.76 pH	21.28 °C	997.61 µS/cm	1.53 mg/L	4.82 NTU	52.2 mV	18.17 ft	200.00 ml/min
8/16/2021 3:45 PM	10:00	6.75 pH	21.04 °C	1,019.0 µS/cm	1.73 mg/L	3.81 NTU	61.0 mV	18.18 ft	200.00 ml/min
8/16/2021 3:50 PM	15:00	6.75 pH	21.01 °C	1,022.6 µS/cm	1.38 mg/L	3.63 NTU	49.3 mV	18.18 ft	200.00 ml/min
8/16/2021 3:55 PM	20:00	6.74 pH	20.97 °C	1,025.8 µS/cm	1.07 mg/L	3.72 NTU	51.8 mV	18.18 ft	200.00 ml/min
8/16/2021 4:00 PM	25:00	6.73 pH	20.84 °C	1,029.2 µS/cm	1.03 mg/L	3.09 NTU	55.3 mV	18.20 ft	200.00 ml/min
8/16/2021 4:05 PM	30:00	6.74 pH	21.05 °C	1,042.8 µS/cm	1.00 mg/L	2.69 NTU	56.7 mV	18.20 ft	200.00 ml/min

Samples

Sample ID:	Description:
HGWC-121A	Grab sample.

Low-Flow Test Report:

Test Date / Time: 8/13/2021 9:32:04 AM
Project: GP-Plant Hammond
Operator Name: Connor Cain

Location Name: HGWA-122 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 18.39 ft** **Total Depth: 28.52 ft** **Initial Depth to Water: 13.39 ft**	**Pump Type: Bladder** **Tubing Type: Poly** **Pump Intake From TOC: 35.15 ft** **Estimated Total Volume Pumped: 10 Liter** **Flow Cell Volume: 90 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: 0 ft**	**Instrument Used: Aqua TROLL 400** **Serial Number: 728541**

Test Notes:
Five bottles: Full app. III and IV.

Weather Conditions:
Sunny, 80 Degrees.

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 0.5	+/- 5 %	+/- 0.2	+/- 5	+/- 10	+/- 0.3	
8/13/2021 9:32 AM	00:00	6.52 pH	22.18 °C	335.65 µS/cm	2.85 mg/L	4.53 NTU	125.5 mV	13.39 ft	200.00 ml/min
8/13/2021 9:37 AM	05:00	6.53 pH	21.51 °C	345.87 µS/cm	2.59 mg/L	4.30 NTU	105.7 mV	13.39 ft	200.00 ml/min
8/13/2021 9:42 AM	10:00	6.54 pH	21.48 °C	351.81 µS/cm	2.50 mg/L	1.78 NTU	139.8 mV	13.39 ft	200.00 ml/min
8/13/2021 9:47 AM	15:00	6.54 pH	21.49 °C	353.71 µS/cm	2.45 mg/L	1.03 NTU	141.2 mV	13.39 ft	200.00 ml/min
8/13/2021 9:52 AM	20:00	6.55 pH	21.46 °C	354.88 µS/cm	2.75 mg/L	0.66 NTU	140.4 mV	13.39 ft	200.00 ml/min
8/13/2021 9:57 AM	25:00	6.55 pH	21.53 °C	356.05 µS/cm	3.82 mg/L	0.83 NTU	139.7 mV	13.39 ft	200.00 ml/min
8/13/2021 10:02 AM	30:00	6.55 pH	21.53 °C	358.65 µS/cm	3.66 mg/L	0.57 NTU	139.7 mV	13.39 ft	200.00 ml/min
8/13/2021 10:07 AM	35:00	6.56 pH	21.46 °C	358.02 µS/cm	2.16 mg/L	0.56 NTU	101.8 mV	13.39 ft	200.00 ml/min
8/13/2021 10:12 AM	40:00	6.57 pH	21.69 °C	361.28 µS/cm	2.11 mg/L	0.34 NTU	137.6 mV	13.39 ft	200.00 ml/min
8/13/2021 10:17 AM	45:00	6.56 pH	21.73 °C	361.57 µS/cm	2.01 mg/L	0.27 NTU	141.0 mV	13.39 ft	200.00 ml/min

Samples

Sample ID:	Description:
HGWA-122	Grab sample.

Low-Flow Test Report:

Test Date / Time: 8/16/2021 9:14:15 AM
Project: GP-Plant Hammond
Operator Name: Connor Cain

Location Name: Device Location
Initial Depth to Water: 15.59 ft

Location Name: HGWC-124 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 25.52 ft** **Total Depth: 35.52 ft** **Initial Depth to Water: 15.59 ft**	**Pump Type: Bladder** **Tubing Type: Polyethylene** **Pump Intake From TOC: 30.52 ft** **Estimated Total Volume Pumped: 11 Liter** **Flow Cell Volume: 90 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: 0.31 ft**	**Instrument Used: Aqua TROLL 400** **Serial Number: 728541**

Test Notes:
Five bottles: Full app. III and IV.

Weather Conditions:
Cloudy, 76 Degrees.

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 0.5	+/- 5 %	+/- 0.2	+/- 5	+/- 10	+/- 0.3	
8/16/2021 9:14 AM	00:00	7.18 pH	20.84 °C	577.02 µS/cm	1.33 mg/L	14.80 NTU	-19.9 mV	15.90 ft	200.00 ml/min
8/16/2021 9:19 AM	05:00	7.17 pH	19.32 °C	575.70 µS/cm	0.20 mg/L	9.23 NTU	-22.4 mV	15.90 ft	200.00 ml/min
8/16/2021 9:24 AM	10:00	7.18 pH	19.20 °C	577.89 µS/cm	3.34 mg/L	7.57 NTU	-14.1 mV	15.89 ft	200.00 ml/min
8/16/2021 9:29 AM	15:00	7.17 pH	19.14 °C	579.05 µS/cm	0.78 mg/L	4.77 NTU	4.6 mV	15.90 ft	200.00 ml/min
8/16/2021 9:34 AM	20:00	7.15 pH	19.15 °C	581.43 µS/cm	2.34 mg/L	3.40 NTU	-14.7 mV	15.90 ft	200.00 ml/min
8/16/2021 9:39 AM	25:00	7.14 pH	19.16 °C	580.98 µS/cm	2.45 mg/L	2.76 NTU	-2.2 mV	15.90 ft	200.00 ml/min
8/16/2021 9:44 AM	30:00	7.13 pH	19.19 °C	582.88 µS/cm	1.01 mg/L	2.06 NTU	-13.9 mV	15.90 ft	200.00 ml/min
8/16/2021 9:49 AM	35:00	7.12 pH	19.25 °C	582.07 µS/cm	0.85 mg/L	1.55 NTU	2.3 mV	15.90 ft	200.00 ml/min
8/16/2021 9:54 AM	40:00	7.10 pH	19.26 °C	582.56 µS/cm	0.16 mg/L	1.57 NTU	5.3 mV	15.90 ft	200.00 ml/min
8/16/2021 9:59 AM	45:00	7.09 pH	19.29 °C	584.19 µS/cm	0.17 mg/L	1.25 NTU	-1.8 mV	15.90 ft	200.00 ml/min
8/16/2021 10:04 AM	50:00	7.09 pH	19.36 °C	581.98 µS/cm	0.16 mg/L	1.17 NTU	9.7 mV	15.90 ft	200.00 ml/min

Samples

Sample ID:	Description:
HGWC-124	Grab sample.

Low-Flow Test Report:

Test Date / Time: 8/19/2021 10:39:46 AM
Project: GP-Plant Hammond
Operator Name: Thomas Kessler

Location Name: HGWC-125 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 53.19 ft** **Total Depth: 63.19 Initial** **Depth to Water: 41.6 ft**	**Pump Type: Bladder** **Tubing Type: Poly** **Pump Intake From TOC: 58.19 ft** **Estimated Total Volume Pumped: 6 Liter** **Flow Cell Volume: 90 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: 0 ft**	**Instrument Used: Aqua TROLL 400** **Serial Number: 728634**

Test Notes:
Five bottles: Full App. III and IV.

Weather Conditions:
Sunny, 80 Degrees.

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 0.5	+/- 5 %	+/- 0.2	+/- 5	+/- 10	+/- 0.3	
8/19/2021 10:39 AM	00:00	7.47 pH	24.86 °C	861.61 µS/cm	3.65 mg/L	2.53 NTU	84.8 mV	41.60 ft	200.00 ml/min
8/19/2021 10:44 AM	05:00	7.54 pH	20.56 °C	993.97 µS/cm	1.27 mg/L	1.73 NTU	51.5 mV	41.60 ft	200.00 ml/min
8/19/2021 10:49 AM	10:00	7.37 pH	20.29 °C	1,015.0 µS/cm	0.73 mg/L	1.40 NTU	40.6 mV	41.60 ft	200.00 ml/min
8/19/2021 10:54 AM	15:00	7.32 pH	20.32 °C	1,030.1 µS/cm	0.45 mg/L	1.24 NTU	37.6 mV	41.60 ft	200.00 ml/min
8/19/2021 10:59 AM	20:00	7.29 pH	20.09 °C	1,032.1 µS/cm	0.33 mg/L	1.39 NTU	33.0 mV	41.60 ft	200.00 ml/min
8/19/2021 11:04 AM	25:00	7.28 pH	19.98 °C	1,033.9 µS/cm	0.29 mg/L	1.32 NTU	33.1 mV	41.60 ft	200.00 ml/min
8/19/2021 11:09 AM	30:00	7.24 pH	19.87 °C	1,031.0 µS/cm	0.26 mg/L	1.11 NTU	31.2 mV	41.60 ft	200.00 ml/min

Samples

Sample ID:	Description:
HGWC-125	Grab sample.
DUP-3	Grab sample.

Low-Flow Test Report:

Test Date / Time: 8/19/2021 9:10:56 AM
Project: GP-Plant Hammond
Operator Name: Thomas Kessler

Location Name: HGWC-126 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 58.52 ft** **Total Depth: 68.52 ft** **Initial Depth to Water: 40.37 ft**	**Pump Type: Bladder** **Tubing Type: Polyethylene** **Pump Intake From TOC: 63.52 ft** **Estimated Total Volume Pumped: 6 Liter** **Flow Cell Volume: 90 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: 1.28 ft**	**Instrument Used: Aqua TROLL 400** **Serial Number: 728634**

Test Notes:
Five bottles: full App. III and IV.

Weather Conditions:
Sunny, 80 Degrees.

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 0.5	+/- 5 %	+/- 0.2	+/- 5	+/- 10	+/- 0.3	
8/19/2021 9:10 AM	00:00	7.37 pH	24.08 °C	695.49 µS/cm	3.49 mg/L	3.08 NTU	-87.9 mV	40.37 ft	200.00 ml/min
8/19/2021 9:15 AM	05:00	7.30 pH	20.48 °C	839.13 µS/cm	0.89 mg/L	4.30 NTU	-68.5 mV	40.80 ft	200.00 ml/min
8/19/2021 9:20 AM	10:00	7.30 pH	19.89 °C	846.05 µS/cm	0.59 mg/L	3.82 NTU	-87.6 mV	41.20 ft	200.00 ml/min
8/19/2021 9:25 AM	15:00	7.30 pH	19.94 °C	846.27 µS/cm	0.50 mg/L	2.69 NTU	-59.6 mV	41.38 ft	200.00 ml/min
8/19/2021 9:30 AM	20:00	7.30 pH	19.88 °C	851.15 µS/cm	0.37 mg/L	2.50 NTU	-58.5 mV	41.50 ft	200.00 ml/min
8/19/2021 9:35 AM	25:00	7.30 pH	19.85 °C	853.59 µS/cm	0.29 mg/L	3.13 NTU	-58.1 mV	41.65 ft	200.00 ml/min
8/19/2021 9:40 AM	30:00	7.32 pH	20.09 °C	852.35 µS/cm	0.26 mg/L	3.67 NTU	-57.3 mV	41.65 ft	200.00 ml/min

Samples

Sample ID:	Description:
HGWC-126	Grab sample.

Low-Flow Test Report:

Test Date / Time: 8/18/2021 10:11:11 AM
Project: GP-Plant Hammond
Operator Name: Ashley Ramsey

Location Name: MW-32 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 26.55 ft** **Total Depth: 36.55 ft** **Initial Depth to Water: 18.85 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene** **Pump Intake From TOC: 31.55 ft** **Estimated Total Volume Pumped: 18 Liter** **Flow Cell Volume: 90 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: 0 ft**	**Instrument Used: Aqua TROLL 400** **Serial Number: 728623**

Test Notes:
Five bottles: Full app. III & IV.

Weather Conditions:
Sunny, 91 Degrees.

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 0.5	+/- 5 %	+/- 0.2	+/- 5	+/- 10	+/- 0.3	
8/18/2021 10:11 AM	00:00	7.08 pH	27.55 °C	613.02 µS/cm	3.31 mg/L	48.90 NTU	66.5 mV	18.85 ft	200.00 ml/min
8/18/2021 10:16 AM	05:00	6.98 pH	23.63 °C	747.81 µS/cm	0.89 mg/L	26.70 NTU	68.6 mV	18.85 ft	200.00 ml/min
8/18/2021 10:21 AM	10:00	6.96 pH	23.49 °C	776.80 µS/cm	0.69 mg/L	20.40 NTU	62.3 mV	18.85 ft	200.00 ml/min
8/18/2021 10:26 AM	15:00	6.96 pH	23.46 °C	799.86 µS/cm	0.53 mg/L	19.70 NTU	49.8 mV	18.85 ft	200.00 ml/min
8/18/2021 10:31 AM	20:00	6.94 pH	23.93 °C	810.47 µS/cm	0.44 mg/L	17.70 NTU	45.2 mV	18.85 ft	200.00 ml/min
8/18/2021 10:36 AM	25:00	6.95 pH	23.75 °C	805.58 µS/cm	0.38 mg/L	17.00 NTU	40.9 mV	18.85 ft	200.00 ml/min
8/18/2021 10:41 AM	30:00	6.93 pH	24.06 °C	820.62 µS/cm	0.38 mg/L	14.40 NTU	39.6 mV	18.85 ft	200.00 ml/min
8/18/2021 10:46 AM	35:00	6.93 pH	25.37 °C	821.85 µS/cm	0.46 mg/L	16.00 NTU	43.9 mV	18.85 ft	200.00 ml/min
8/18/2021 10:51 AM	40:00	6.93 pH	25.86 °C	824.89 µS/cm	0.48 mg/L	12.60 NTU	40.0 mV	18.85 ft	200.00 ml/min
8/18/2021 10:56 AM	45:00	6.93 pH	25.14 °C	826.65 µS/cm	0.47 mg/L	13.20 NTU	40.6 mV	18.85 ft	200.00 ml/min
8/18/2021 11:01 AM	50:00	6.92 pH	26.20 °C	841.23 µS/cm	0.49 mg/L	13.60 NTU	41.6 mV	18.85 ft	200.00 ml/min
8/18/2021 11:06 AM	55:00	6.91 pH	26.69 °C	839.75 µS/cm	0.46 mg/L	11.20 NTU	49.2 mV	18.85 ft	200.00 ml/min
8/18/2021 11:11 AM	01:00:00	6.91 pH	26.79 °C	845.78 µS/cm	0.48 mg/L	14.67 NTU	44.6 mV	18.85 ft	200.00 ml/min

8/18/2021 11:16 AM	01:05:00	6.90 pH	26.94 °C	847.38 µS/cm	0.46 mg/L	12.51 NTU	45.3 mV	18.85 ft	200.00 ml/min
8/18/2021 11:21 AM	01:10:00	6.90 pH	26.60 °C	851.44 µS/cm	0.44 mg/L	9.57 NTU	54.9 mV	18.85 ft	200.00 ml/min
8/18/2021 11:26 AM	01:15:00	6.90 pH	26.56 °C	859.82 µS/cm	0.43 mg/L	9.04 NTU	48.7 mV	18.85 ft	200.00 ml/min
8/18/2021 11:31 AM	01:20:00	6.90 pH	26.48 °C	865.99 µS/cm	0.41 mg/L	6.29 NTU	58.7 mV	18.85 ft	200.00 ml/min
8/18/2021 11:36 AM	01:25:00	6.90 pH	26.63 °C	866.13 µS/cm	0.40 mg/L	4.63 NTU	50.7 mV	18.85 ft	200.00 ml/min
8/18/2021 11:41 AM	01:30:00	6.89 pH	26.87 °C	871.99 µS/cm	0.41 mg/L	4.75 NTU	60.6 mV	18.85 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-32	Grab Sample

Low-Flow Test Report:

Test Date / Time: 8/18/2021 8:36:14 AM
Project: GP-Plant Hammond
Operator Name: Ashley Ramsey

Location Name: MW-39 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 13 ft** **Total Depth: 23 ft** **Initial Depth to Water: 13.91 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene** **Pump Intake From TOC: 18 ft** **Estimated Total Volume Pumped: 6 Liter** **Flow Cell Volume: 90 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: 0.03 ft**	**Instrument Used: Aqua TROLL 400** **Serial Number: 728623**

Test Notes:
Five bottles; Full app. III & IV.

Weather Conditions:
Sunny, 91 Degrees.

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 0.5	+/- 5 %	+/- 0.2	+/- 5	+/- 10	+/- 0.3	
8/18/2021 8:36 AM	00:00	6.90 pH	19.47 °C	949.02 µS/cm	0.78 mg/L	2.45 NTU	42.7 mV	13.91 ft	200.00 ml/min
8/18/2021 8:41 AM	05:00	6.91 pH	19.06 °C	961.10 µS/cm	0.40 mg/L	3.28 NTU	35.1 mV	13.94 ft	200.00 ml/min
8/18/2021 8:46 AM	10:00	6.91 pH	18.99 °C	958.12 µS/cm	0.26 mg/L	2.27 NTU	34.6 mV	13.94 ft	200.00 ml/min
8/18/2021 8:51 AM	15:00	6.91 pH	18.90 °C	960.33 µS/cm	0.23 mg/L	3.90 NTU	33.9 mV	13.94 ft	200.00 ml/min
8/18/2021 8:56 AM	20:00	6.90 pH	19.06 °C	957.31 µS/cm	0.21 mg/L	3.56 NTU	33.9 mV	13.94 ft	200.00 ml/min
8/18/2021 9:01 AM	25:00	6.90 pH	19.18 °C	955.26 µS/cm	0.19 mg/L	2.92 NTU	33.9 mV	13.94 ft	200.00 ml/min
8/18/2021 9:06 AM	30:00	6.90 pH	19.24 °C	955.18 µS/cm	0.18 mg/L	1.92 NTU	33.3 mV	13.94 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-39	Grab sample.

Low-Flow Test Report:

Test Date / Time: 8/18/2021 12:45:30 PM
Project: GP-Plant Hammond
Operator Name: Ashley Ramsey

Location Name: MW-41 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 14.38 ft** **Total Depth: 24.38 ft** **Initial Depth to Water: 10.53 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene** **Pump Intake From TOC: 19.38 ft** **Estimated Total Volume Pumped: 6 Liter** **Flow Cell Volume: 90 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: 0.1 ft**	**Instrument Used: Aqua TROLL 400** **Serial Number: 728623**

Test Notes:
Five bottles: Full app. III & IV.

Weather Conditions:
Sunny, 91 Degrees.

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 0.5	+/- 5 %	+/- 0.2	+/- 5	+/- 10	+/- 0.3	
8/18/2021 12:45 PM	00:00	6.96 pH	28.65 °C	897.48 µS/cm	1.30 mg/L	1.32 NTU	-56.8 mV	10.53 ft	200.00 ml/min
8/18/2021 12:50 PM	05:00	6.93 pH	21.86 °C	994.33 µS/cm	0.31 mg/L	0.34 NTU	-48.5 mV	10.63 ft	200.00 ml/min
8/18/2021 12:55 PM	10:00	6.94 pH	21.29 °C	974.91 µS/cm	0.22 mg/L	1.73 NTU	-49.6 mV	10.63 ft	200.00 ml/min
8/18/2021 1:00 PM	15:00	6.94 pH	21.46 °C	965.54 µS/cm	0.18 mg/L	2.12 NTU	-29.6 mV	10.63 ft	200.00 ml/min
8/18/2021 1:05 PM	20:00	6.93 pH	21.38 °C	965.44 µS/cm	0.17 mg/L	2.01 NTU	-25.6 mV	10.63 ft	200.00 ml/min
8/18/2021 1:10 PM	25:00	6.93 pH	21.05 °C	959.20 µS/cm	0.16 mg/L	1.79 NTU	-20.4 mV	10.63 ft	200.00 ml/min
8/18/2021 1:15 PM	30:00	6.93 pH	21.11 °C	955.04 µS/cm	0.15 mg/L	1.87 NTU	-19.4 mV	10.63 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-41	Grab sample

Low-Flow Test Report:

Test Date / Time: 8/16/2021 1:56:28 PM
Project: GP-Plant Hammond
Operator Name: Connor Cain

Location Name: MW-46D **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 92.05 ft** **Total Depth: 102.05 ft** **Initial Depth to Water: 40.59 ft**	**Pump Type: Bladder** **Tubing Type: Polyethylene** **Pump Intake From TOC: 97.05 ft** **Estimated Total Volume Pumped: 7 Liter** **Flow Cell Volume: 90 ml** **Final Flow Rate: 200 ml/min** **Final Draw Down: 2.04 ft**	**Instrument Used: Aqua TROLL 400** **Serial Number: 728541**

Test Notes:
Five bottles: Full app. III and IV.

Weather Conditions:
Partly cloudy, 85 Degrees.

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 0.5	+/- 5 %	+/- 0.2	+/- 5	+/- 10	+/- 0.3	
8/16/2021 1:56 PM	00:00	7.62 pH	23.25 °C	940.73 µS/cm	1.23 mg/L	1.04 NTU	-167.3 mV	41.07 ft	200.00 ml/min
8/16/2021 2:01 PM	05:00	7.65 pH	20.70 °C	989.77 µS/cm	0.49 mg/L	1.43 NTU	-207.2 mV	41.92 ft	200.00 ml/min
8/16/2021 2:06 PM	10:00	7.65 pH	20.57 °C	993.93 µS/cm	0.39 mg/L	0.69 NTU	-217.4 mV	42.39 ft	200.00 ml/min
8/16/2021 2:11 PM	15:00	7.66 pH	20.80 °C	989.78 µS/cm	0.25 mg/L	0.55 NTU	-222.7 mV	42.52 ft	200.00 ml/min
8/16/2021 2:16 PM	20:00	7.65 pH	20.84 °C	995.32 µS/cm	0.23 mg/L	1.02 NTU	-238.2 mV	42.63 ft	200.00 ml/min
8/16/2021 2:21 PM	25:00	7.66 pH	20.53 °C	986.84 µS/cm	0.21 mg/L	0.77 NTU	-244.5 mV	42.63 ft	200.00 ml/min
8/16/2021 2:26 PM	30:00	7.65 pH	20.47 °C	989.57 µS/cm	0.20 mg/L	1.12 NTU	-257.2 mV	42.63 ft	200.00 ml/min

Samples

Sample ID:	Description:
MW-46D	Grab sample.

CALIBRATION REPORTS

August 2021

Geosyntec consultants

EQUIPMENT CALIBRATION LOG

Field Technician: C. CAIN

Date: 8/11/21

Time (start): 1255

Time (finish): 1322

smarTroll SN: 728541

Turbidity Meter Type: LaMote 2020we

SN: 2953

Weather Conditions: Sunny 96°F

Facility and Unit: Plant Hammond

Project No.: GW6581

Calibration log

	Standard Lot # / Date of Expiration	Temp of Standard (°C)	Value of Standard	Initial Reading	Post-Cal Reading	Acceptable Range	Pass?	Comments
Specific Conductance (µS/cm)	20440203 2/22	30.72	4490	4371	4490	+/- 5 %	Yes No	
pH (4)			4.00	4.01	4.0	+/- 0.1 SU	Yes No	
Mid-Day pH (4) check			4.00			+/- 0.1 SU	Yes No	
pH (7)	19450117 2/22	30.85	7.00	6.97	7.0	+/- 0.1 SU	Yes No	
Mid-Day pH (7) check			7.00			+/- 0.1 SU	Yes No	
pH (10)	21010067 2/22	30.43	10.00	9.92	10.0	+/- 0.1 SU	Yes No	
Mid-Day pH (10) check			10.00			+/- 0.1 SU	Yes No	
ORP (mV)	19460167 2/22	29.73	228	219.7	228	+/- 20mV	Yes No	
DO (%) (1pt, 100% water saturated air cal)			100	102.06	100	+/- 6 % saturation	Yes No	
Turbidity 0 NTU			0	0.11	0.08	+/- 0.5 NTU	Yes No	
Turbidity 1 NTU			1.00	0.75	1.00	+/- 0.5 NTU	Yes No	
Turbidity 10 NTU			10.00	11.67	10.00	+/- 0.5 NTU	Yes No	

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EQUIPMENT CALIBRATION LOG

Field Technician: Thomas Kessler | Date: 8/11/2021 | Time (start): 1252 | Time (finish): 1210

smarTroll SN: 728634 | Turbidity Meter Type: LaMote 2020we | SN: S573-1515

Weather Conditions: Sunny | Facility and Unit: Plant Hammond | Project No.: GW6581

Calibration log

	Standard Lot # / Date of Expiration	Temp of Standard (°C)	Value of Standard	Initial Reading	Post-Cal Reading	Acceptable Range	Pass?	Comments
Specific Conductance (µS/cm)	2044020 2/22	33.29	4490	4 373.6	4490	+/- 5 %	Yes No	
pH (4)			4.00	4.08	4.00	+/- 0.1 SU	Yes No	
Mid-Day pH (4) check	" "	/	4.00	4.05	/	+/- 0.1 SU	Yes No	
pH (7)	21660188 6/22	31.37	7.00	7.01	7.00	+/- 0.1 SU	Yes No	
Mid-Day pH (7) check	" "	/	7.00	6.98	/	+/- 0.1 SU	Yes No	
pH (10)	21660189 6/22	30.34	10.00	9.98	10.00	+/- 0.1 SU	Yes No	
Mid-Day pH (10) check	" "	/	10.00	9.92	/	+/- 0.1 SU	Yes No	
ORP (mV)	19466467 2/22	29.88	228	229.2	228	+/- 20mV	Yes No	
DO (%) (1pt, 100% water saturated air cal)			100	107.43	100	+/- 6 % saturation	Yes No	
Turbidity 0 NTU			0	0.00	0.00	+/- 0.5 NTU	Yes No	
Turbidity 1 NTU			1.00	1.57	1.11	+/- 0.5 NTU	Yes No	
Turbidity 10 NTU			10.00	7.29	9.64	+/- 0.5 NTU	Yes No	

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EQUIPMENT CALIBRATION LOG

Field Technician: C. CAIN

Date: 8/12/21

Time (start): 0720

Time (finish): 0751

smarTroll SN: 728541

Turbidity Meter Type: LaMote 2020we

SN: 2953

Weather Conditions: Cloudy, 75°F

Facility and Unit: Plant Hammond

Project No.: GW6581

Calibration log

	Standard Lot # / Date of Expiration	Temp of Standard (°C)	Value of Standard	Initial Reading	Post-Cal Reading	Acceptable Range	Pass?	Comments
Specific Conductance (µS/cm)	20440203 02/22	23.79	4490	4511.8	4490	+/- 5 %	Yes / No	
pH (4)			4.00	3.98	4.0	+/- 0.1 SU	Yes / No	
Mid-Day pH (4) check	20440203 2/22	29.16	4.00	4.03	4.0	+/- 0.1 SU	Yes / No	
pH (7)	19450117 2/22	25.45	7.00	6.95	7.0	+/- 0.1 SU	Yes / No	
Mid-Day pH (7) check	19450117 2/22	28.69	7.00	7.0	7.0	+/- 0.1 SU	Yes / No	
pH (10)	21010067 2/22	25.36	10.00	10.02	10	+/- 0.1 SU	Yes / No	
Mid-Day pH (10) check	21010067 2/22	28.25	10.00	10.0	10.0	+/- 0.1 SU	Yes / No	
ORP (mV)	19460167 2/22	25.57	228	229.4	228	+/- 20mV	Yes / No	
DO (%) (1pt, 100% water saturated air cal)			100	99.16	100	+/- 6 % saturation	Yes / No	
Turbidity 0 NTU			0	0.08	0.08	+/- 0.5 NTU	Yes / No	
Turbidity 1 NTU			1.00	0.73	1.0	+/- 0.5 NTU	Yes / No	
Turbidity 10 NTU			10.00	12.56	10.0	+/- 0.5 NTU	Yes / No	

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EQUIPMENT CALIBRATION LOG

Field Technician: A. Ramsey

Date: 8/12/21

Time (start): 0720

Time (finish): 0745

smarTroll SN: 728623

Turbidity Meter Type: LaMote 2020we

SN: 1859-0412

Weather Conditions: Sunny, 91

Facility and Unit: Plant Hammond

Project No.: GW6581

Calibration log

	Standard Lot # / Date of Expiration	Temp of Standard (°C)	Value of Standard	Initial Reading	Post-Cal Reading	Acceptable Range	Pass?	Comments
Specific Conductance (µS/cm)	2044023 2/22	23.48	4490	4421.8	4490.0	+/- 5 %	Yes / No	
pH (4)			4.00	3.97	4.00	+/- 0.1 SU	Yes / No	
Mid-Day pH (4) check		31.76	4.00	3.97		+/- 0.1 SU	Yes / No	
pH (7)	21080188 6/22	23.70	7.00	6.97	7.00	+/- 0.1 SU	Yes / No	
Mid-Day pH (7) check		31.52	7.00	7.02		+/- 0.1 SU	Yes / No	
pH (10)	21080189 6/22	23.54	10.00	9.99	10.00	+/- 0.1 SU	Yes / No	
Mid-Day pH (10) check		30.89	10.00	9.98		+/- 0.1 SU	Yes / No	
ORP (mV)	1946961 2/22	23.43	228	234.7	228.0	+/- 20mV	Yes / No	
DO (%) (1pt, 100% water saturated air cal)			100	100.60	100.00	+/- 6 % saturation	Yes / No	
Turbidity 0 NTU			0	0.85	0.00	+/- 0.5 NTU	Yes / No	
Turbidity 1 NTU			1.00	2.32	1.00	+/- 0.5 NTU	Yes / No	
Turbidity 10 NTU			10.00	7.62	10.00	+/- 0.5 NTU	Yes / No	

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EQUIPMENT CALIBRATION LOG

Field Technician: C.CAIN

Date: 8/13/21

Time (start): 0725

Time (finish): 0750

smarTroll SN: 728541

Turbidity Meter Type: LaMote 2020we

SN: 2953

Weather Conditions: Sunny 75°F

Facility and Unit: Plant Hammond

Project No.: GW6581

Calibration log

	Standard Lot # / Date of Expiration	Temp of Standard (°C)	Value of Standard	Initial Reading	Post-Cal Reading	Acceptable Range	Pass?	Comments
Specific Conductance (µS/cm)	20440203 2/22	25.48	4490	4461	4490	+/- 5 %	Yes / No	
pH (4)			4.00	3.97	4.0	+/- 0.1 SU	Yes / No	
Mid-Day pH (4) check		37.31	4.00	4.37	4.0	+/- 0.1 SU	Yes / No	
pH (7)	19450117 2/22	26.33	7.00	6.96	7.0	+/- 0.1 SU	Yes / No	
Mid-Day pH (7) check		34.48	7.00	7.13	7.0	+/- 0.1 SU	Yes / No	
pH (10)	21010067 2/22	25.97	10.00	9.97	10.0	+/- 0.1 SU	Yes / No	
Mid-Day pH (10) check		33.61	10.00	9.80	10.0	+/- 0.1 SU	Yes / No	
ORP (mV)	19460167 2/22	26.15	228	225.6	228	+/- 20mV	Yes / No	
DO (%) (1pt, 100% water saturated air cal)			100	100.25	100	+/- 6 % saturation	Yes / No	
Turbidity 0 NTU			0	0.06	0.05	+/- 0.5 NTU	Yes / No	
Turbidity 1 NTU			1.00	0.74	1.0	+/- 0.5 NTU	Yes / No	
Turbidity 10 NTU			10.00	12.2	10.0	+/- 0.5 NTU	Yes / No	

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EQUIPMENT CALIBRATION LOG

Field Technician: Thomas Kressler | Date: 8/13/21 | Time (start): 0715 | Time (finish): 0755

smarTroll SN: 725634 | Turbidity Meter Type: LaMote 2020we | SN: 5573-1515

Weather Conditions: Sunny 80° | Facility and Unit: Plant Hammond | Project No.: GW6581

Calibration log

	Standard Lot # / Date of Expiration	Temp of Standard (°C)	Value of Standard	Initial Reading	Post-Cal Reading	Acceptable Range	Pass?	Comments
Specific Conductance (µS/cm)	20140203	25.93	4490	4475.8	4490	+/- 5 %	(Yes) No	
pH (4)	7/22		4.00	4.04	4.00	+/- 0.1 SU	Yes No	
Mid-Day pH (4) check	" "		4.00	4.01		+/- 0.1 SU	Yes No	
pH (7)	21680188 6/22	26.09	7.00	7.02	7.00	+/- 0.1 SU	(Yes) No	
Mid-Day pH (7) check	" "		7.00	6.99		+/- 0.1 SU	Yes No	
pH (10)	21080169 6/22	25.95	10.00	9.99	10.00	+/- 0.1 SU	(Yes) No	
Mid-Day pH (10) check	" "		10.00	10.05		+/- 0.1 SU	Yes No	
ORP (mV)	19160167 7/21	25.81	228	225.5	228	+/- 20mV	(Yes) No	
DO (%) (1pt, 100% water saturated air cal)			100	96.43	100	+/- 6 % saturation	(Yes) No	
Turbidity 0 NTU			0	0.62	0.00	+/- 0.5 NTU	Yes No	
Turbidity 1 NTU			1.00	0.96	1.00	+/- 0.5 NTU	Yes No	
Turbidity 10 NTU			10.00	10.16	9.98	+/- 0.5 NTU	Yes No	

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EQUIPMENT CALIBRATION LOG

Field Technician: C.CAIN | Date: 8/16/21 | Time (start): 0745 | Time (finish): 0810

smarTroll SN: 728541 | Turbidity Meter Type: LaMote 2020we | SN: 2953

Weather Conditions: Cloudy 75°F | Facility and Unit: Plant Hammond | Project No.: GW6581

Calibration log

	Standard Lot # / Date of Expiration	Temp of Standard (°C)	Value of Standard	Initial Reading	Post-Cal Reading	Acceptable Range	Pass?	Comments
Specific Conductance (µS/cm)	20440203 2/22	24.83	4490	4465.0	4490	+/- 5 %	Yes / No	
pH (4)			4.00	3.66	4.0	+/- 0.1 SU	Yes / No	
Mid-Day pH (4) check	20440203 2/22	37.56	4.00	4.32	4.0	+/- 0.1 SU	Yes / No	
pH (7)	19450117 2/22	25.56	7.00	6.85	7.0	+/- 0.1 SU	Yes / No	
Mid-Day pH (7) check	19450117	37.21	7.00	7.05	7.0	+/- 0.1 SU	Yes / No	
pH (10)	21010067 2/22	25.69	10.00	10.13	10.0	+/- 0.1 SU	Yes / No	
Mid-Day pH (10) check	21010067	36.87	10.00	9.78	10.0	+/- 0.1 SU	Yes / No	
ORP (mV)	19460167 2/22	25.54	228	227.5	228	+/- 20mV	Yes / No	
DO (%) (1pt, 100% water saturated air cal)			100	100.29	100.0	+/- 6 % saturation	Yes / No	
Turbidity 0 NTU			0	0.08	0.08	+/- 0.5 NTU	Yes / No	
Turbidity 1 NTU			1.00	0.86	1.00	+/- 0.5 NTU	Yes / No	
Turbidity 10 NTU			10.00	11.85	10.0	+/- 0.5 NTU	Yes / No	

Geosyntec consultants

EQUIPMENT CALIBRATION LOG

Field Technician: A. Ransley

Date: 8/18/21

Time (start): 0730

Time (finish): 0755

smarTroll SN: 728623

Turbidity Meter Type: LaMote 2020we

SN: 1859-0412

Weather Conditions: sunny, 91

Facility and Unit: Plant Hammond

Project No.: GW6581

Calibration log

	Standard Lot # / Date of Expiration	Temp of Standard (°C)	Value of Standard	Initial Reading	Post-Cal Reading	Acceptable Range	Pass?	Comments
Specific Conductance (µS/cm)	20440203 2/22	21.28	4490	4521.3	4490.0	+/- 5 %	(Yes) No	
pH (4)			4.00	4.02	4.00	+/- 0.1 SU	(Yes) No	
Mid-Day pH (4) check	" "		4.00	4.00	—	+/- 0.1 SU	Yes No	
pH (7)	21080188 6/22	21.75	7.00	7.00	7.00	+/- 0.1 SU	(Yes) No	
Mid-Day pH (7) check	" "		7.00	7.02	—	+/- 0.1 SU	Yes No	
pH (10)	21080189 6/22	21.32	10.00	10.01	10.00	+/- 0.1 SU	(Yes) No	
Mid-Day pH (10) check	" "		10.00	10.09	—	+/- 0.1 SU	Yes No	
ORP (mV)	19460167 2/22	21.91	228	229.2	228.0	+/- 20mV	(Yes) No	
DO (%) (1pt, 100% water saturated air cal)			100	101.24	100.00	+/- 6 % saturation	(Yes) No	
Turbidity 0 NTU			0	0.80	0.00	+/- 0.5 NTU	(Yes) No	
Turbidity 1 NTU			1.00	0.65	1.00	+/- 0.5 NTU	(Yes) No	
Turbidity 10 NTU			10.00	10.95	10.00	+/- 0.5 NTU	(Yes) No	

Geosyntec consultants

EQUIPMENT CALIBRATION LOG

Field Technician: Thomas Kussler | Date: 8/19 | Time (start): 0720 | Time (finish): 0815

smarTroll SN: 726634 | Turbidity Meter Type: LaMote 2020we | SN: 5773-1515

Weather Conditions: Sunny | Facility and Unit: Plant Hammond | Project No.: GW6581

Calibration log

	Standard Lot # / Date of Expiration	Temp of Standard (°C)	Value of Standard	Initial Reading	Post-Cal Reading	Acceptable Range	Pass?	Comments
Specific Conductance (µS/cm)	2047089 02122	[illegible]	4490	4576.1	4490	+/- 5 %	(Yes) No	
pH (4)		24.95	4.00	~~6.94~~ 4.02	[illegible]	+/- 0.1 SU	(Yes) No	pH = 4.00
Mid-Day pH (4) check	" "	"	4.00	4.01		+/- 0.1 SU	Yes No	
pH (7)	21660188 6122	26.00	7.00	6.95	7.00	+/- 0.1 SU	(Yes) No	
Mid-Day pH (7) check	" "		7.00	6.99		+/- 0.1 SU	Yes No	
pH (10)	21050169 06122	26.50	10.00	9.92	10.00	+/- 0.1 SU	(Yes) No	
Mid-Day pH (10) check	"		10.00	9.97		+/- 0.1 SU	Yes No	
ORP (mV)	19160167 2122	26.36	228	218.9	228	+/- 20mV	(Yes) No	
DO (%) (1pt, 100% water saturated air cal)			100	84.39	100	+/- 6 % saturation	(Yes) No	
Turbidity 0 NTU			0	1.23	0.00	+/- 0.5 NTU	(Yes) No	
Turbidity 1 NTU			1.00	0.94	1.00	+/- 0.5 NTU	(Yes) No	
Turbidity 10 NTU			10.00	9.89	9.95	+/- 0.5 NTU	(Yes) No	

APPENDIX D

Statistical Analysis Report

GROUNDWATER STATS CONSULTING

February 28, 2022

Southern Company Services
Attn: Ms. Kristen Jurinko
241 Ralph McGill Blvd. NE, Bin 10160
Atlanta, Georgia 30308

Re: Plant Hammond Ash Pond 3 (AP-3)
August 2021 Statistical Analysis

Dear Ms. Jurinko,

Groundwater Stats Consulting, formerly the statistical consulting division of Sanitas Technologies, is pleased to provide the August 2021 Semi-Annual Groundwater Detection and Assessment Monitoring Statistical analysis of groundwater data for Georgia Power Company's Plant Hammond AP-3. The analysis complies with the federal rule for the Disposal of Coal Combustion Residuals from Electric Utilities (CCR Rule, 2015), the Georgia Environmental Protection Division (EPD) 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 the Coal Combustion Residuals (CCR) program in 2016, and at least 8 background samples have been collected at each of the groundwater monitoring wells, except for those discussed below. The monitoring well network, as provided by Southern Company Services, consists of the following:

- **Upgradient well:** HGWA-1, HGWA-2, HGWA-3, HGWA-43D, HGWA-44D, HGWA-45D, and HGWA-122
- **Downgradient wells:** HGWC-120, HGWC-121A, HGWC-124, HGWC-125, and HGWC-126

Upgradient wells HGWA-1, HGWA-2, and HGWA-3, are shared among Plant Hammond units AP-1, AP-2, and AP-3. Since AP-3 is a Phase II unit, the sampling schedule has historically differed from AP-1 and AP-2 Phase I units due to scan events. Therefore, data

included in this analysis from upgradient wells HGWA-1, HGWA-2, and HGWA-3 are consistent with the historical sample events performed for AP-3.

New upgradient wells HGWA-43D, HGWA-44D, and HGWA-45D were first sampled in September 2020 and all available data are included in construction of interwell prediction limits. As requested by Southern Company Services, upgradient wells with 2 or more samples will be incorporated into the statistical analyses. Sampling began at new downgradient wells HGWC-125 and HGWC-126 in May 2020 and also have at least 8 rounds of background sampling; therefore, they are statistically analyzed in this report with prediction limits and confidence intervals.

Additionally, sampling at the following delineation wells and piezometer listed below began in 2020:

- **Delineation wells:** MW-32, MW-41, and MW-46D
- **Piezometer:** MW-39

Confidence intervals are constructed for the Appendix IV constituents at delineation wells when a minimum of 4 samples is available. Delineation wells MW-32 and MW-41 and piezometer MW-39 have at least 4 samples for a subset of constituents which are evaluated using confidence intervals. Well MW-46D currently has sufficient samples for fluoride and molybdenum only. Therefore, confidence intervals are included for these constituents at this delineation well.

Data were sent electronically to Groundwater Stats Consulting, and the statistical analysis was reviewed by Kristina Rayner, Groundwater Statistician and Founder of Groundwater Stats Consulting.

The CCR program consists of the following constituents listed below. The terms "constituent" and "parameter" are interchangeable.

- **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

When no detections are present in downgradient wells for a given constituent, statistical analyses are not required. A summary of downgradient and delineation Appendix IV well/constituent pairs containing 100% non-detects follows this letter. These

well/constituent pairs were included in the time series and box plots, but no formal statistics were required.

For all constituents, a substitution of the most recent reporting limit is used for non-detect data. In the case of lithium, historical reporting limits vary among the wells. Therefore, the reporting limit of 0.03 mg/L was substituted across all wells, which is the most recent reporting limit provided by the laboratory.

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).

Data at all wells were evaluated during the background screening described below 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. Power curves were provided with the screening and demonstrated 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.

Statistical Methods – Appendix III Parameters

Appendix III parameters are evaluated using interwell prediction limits combined with a 1-of-2 resample plan for the following constituents: boron, calcium, chloride, fluoride, pH, sulfate, and TDS.

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 non-detects, 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% non-detects (USEPA Unified Guidance, 2009, Chapter 6).
- When data contain <15% non-detects in background, simple substitution of one-half the reporting limit is utilized in the statistical analysis. The reporting limit utilized for non-detects is the most recent practical quantification limit (PQL) as reported by the laboratory.
- When data contain between 15-50% non-detects, the Kaplan-Meier non-detect 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% non-detects.

Note that values shown on data pages reflect raw data and any non-detects that have been substituted with one-half of the reporting limit (for data sets containing <15% non-detects as described above) are shown as the original reporting limit.

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, an earlier portion of data may require deselection 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. When this step is required a summary of any adjusted records will be provided. No records were adjusted at this time.

Summary of Background Screening Conducted in March 2019

Outlier Analysis

Time series plots were 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. Those findings were submitted with the screening report.

While this was not the case during the background screening, when the most recent value is identified as an outlier, values are not flagged in the database 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 existed in the data sets and appeared on the graphs as possible low outliers relative to the laboratory's Practical Quantitation Limit. However, these values were observed trace values (i.e. measurements reported between the Method Detection Limit and the Practical Quantitation Limit) by the laboratory and, therefore, were not flagged as outliers.

Of the outliers identified by Tukey's method, only one outlier was flagged for TDS in upgradient well HGWA-112. All other values are similar to remaining measurements within a given well or neighboring wells or were reported non-detects. The outlier summary follows this report (Figure C).

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.

Seasonality

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.

Trend Test Evaluation

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 showed one statistically significant decreasing trend for the Appendix III parameters. However, the trend noted was relatively low in magnitude when compared to average concentrations, and the background time period is short; therefore, no adjustments were made to the data sets.

Appendix III – Determination of Spatial Variation

The Analysis of Variance (ANOVA) is typically used to statistically evaluate differences in average concentrations among upgradient wells, which assists in identifying the most appropriate statistical approach. However, interwell methods are currently implemented in accordance with the Georgia EPD regulations and are used to evaluate compliance samples in downgradient wells.

Statistical Evaluation of Appendix III Parameters – August 2021

All Appendix III parameters were analyzed using interwell prediction limits. Background (upgradient) well data were re-assessed for potential outliers during this analysis. Values in background which have been flagged as outliers may be seen in a lighter font and as a disconnected symbol on the graphs. No new values were flagged and a summary of previously flagged outliers follows this report (Figure C).

Interwell Prediction Limits

Interwell prediction limits, combined with a 1-of-2 resample plan, were constructed for each Appendix III parameter using all historical upgradient well data through August 2021 (Figure D). Interwell prediction limits use all available upgradient well data to establish a background limit for an individual constituent. The August 2021 sample from each downgradient well 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 the resample confirms the initial exceedance, a statistically significant increase (SSI) 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 further action is necessary. If no resample is collected,

the initial exceedance is automatically confirmed. For Appendix III parameters, several prediction limit exceedances were identified. A summary table of the interwell prediction limits follows this letter. Exceedances were identified for the following well/constituent pairs:

- Boron: HGWC-120, HGWC-121A, HGWC-124, and HGWC-125
- Calcium: HGWC-120, HGWC-121A, HGWC-125, and HGWC-126
- Sulfate: HGWC-120, HGWC-121A, and HGWC-125
- TDS: HGWC-125

Trend Test Evaluation – Appendix III

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 well data 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. When trends are present in upgradient wells it is an indication of natural variability in groundwater quality 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: HGWA-2 (upgradient)
- Calcium: HGWA-3 (upgradient)
- Sulfate: HGWA-2 (upgradient)

Decreasing trends:

- Boron: HGWA-122 (upgradient), HGWC-121A, HGWC-124
- Sulfate: HGWA-122 (upgradient), HGWC-120, and HGWC-121A

Statistical Methods – Appendix IV Parameters

Appendix IV parameters are evaluated by statistically comparing the mean or median of each downgradient well/constituent pair against corresponding Groundwater Protection Standards (GWPS). The GWPS may be either regulatory (MCL or CCR rule-specified limits) or site-specific limits that are based on upgradient background groundwater quality. Site-specific background limits are determined using tolerance limits, and the comparison of downgradient means or medians to GWPS is performed using confidence intervals. The methods are described below.

Statistical Evaluation of Appendix IV Parameters – August 2021

For Appendix IV parameters, confidence intervals for each downgradient well/constituent pair were compared against corresponding Groundwater Protection Standards (GWPS). GWPS were developed as described below. Well/constituent pairs containing 100% non-detects do not require analyses. Data from all wells for Appendix IV parameters are reassessed for outliers during each analysis. No new values were flagged and a summary of previously flagged outliers follows this report (Figure C).

Interwell Upper Tolerance Limits

First, interwell upper tolerance limits were used to calculate site-specific background limits from all available pooled upgradient well data through August 2021 for Appendix IV constituents (Figure F). As mentioned above, a reporting limit of 0.03 mg/L was substituted across all wells for lithium. Parametric tolerance limits are used when data follow a normal or transformed-normal distribution. When data contained greater than 50% non-detects or did not follow a normal or transformed-normal distribution, non-parametric tolerance limits were used.

Groundwater Protection Standards

The background limits were then used when determining the groundwater protection standard (GWPS) under 40 CFR §257.95(h) and Georgia EPD Rule 391-3-4-.10(6)(a).

As described in 40 CFR §257.95(h) (1-3), the Federal GWPS is:

- The maximum contaminant level (MCL) established under §141.62 and §141.66 of this title
- Where an MCL has not been established for a constituent, CCR-rule specified levels have been specified for cobalt (0.006 mg/L), lead (0.015 mg/L), lithium (0.04 mg/L), and molybdenum (0.100 mg/L)
- The respective background level for a constituent when the background level is higher than the MCL or Federal CCR Rule identified GWPS

On July 30, 2018, USEPA revised the Federal CCR Rule updating GWPS for cobalt, lead, lithium, and molybdenum as described above in 40 CFR §257.95(h)(2). Georgia EPD has not incorporated the updated GWPS into the current Georgia EPD Rules for Solid Waste Management 391-3-4-.10(6)(a); therefore, for sites regulated under Georgia EPD Rules, the State 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 Georgia EPD Rule requirements and the Federal CCR requirements, Federal and State GWPS were established for statistical comparison of Appendix IV constituents at downgradient wells for the August 2021 sample event (Figures G and H).

Confidence Intervals

To complete the statistical comparison of downgradient well data to GWPS, confidence intervals were constructed for the Appendix IV constituents in each downgradient well with detections. Delineation wells were included in the confidence intervals when a minimum of 4 samples were available. As discussed earlier, confidence intervals are included only for fluoride and molybdenum at delineation well MW-46D. Note that a GWPS is established for each Appendix IV constituent. However, since there are 100% non-detects for beryllium, cadmium, and thallium in downgradient and delineation wells and piezometer MW-39, no confidence intervals were required for these constituents.

The Sanitas software was used to calculate both the tolerance limits and the confidence intervals. For Federal requirements, confidence intervals were compared to the GWPS prepared according to the CCR Rule (Figure I). For the State requirements, confidence intervals were compared to the GWPS established using the Georgia EPD Rules 391-3-4-.10(6)(a) (Figure J). Only when the entire confidence interval is above a GWPS is the downgradient well/constituent pair considered to exceed its respective standard. If there is an exceedance of the GWPS, a statistically significant level (SSL) exceedance is identified.

Summaries of both the Federal and State confidence intervals follow this letter and exceedances were identified for the following well/constituent pairs:

Federal:

- No exceedances

State:

- Molybdenum: HGWC-120, MW-32, MW-39, and MW-41

Trend Test Evaluation – Appendix IV

Data at wells with confidence interval exceedances are further evaluated using the Sen's Slope/Mann Kendall trend test to determine whether concentrations are statistically increasing, decreasing, or stable (Figure K). Upgradient wells are included in the trend

analyses when a minimum of 5 samples are available to identify whether similar patterns exist upgradient of the site for the same constituents. Note that closure measures have been implemented; therefore, the trend test was used to evaluate data from observations from October 2018 to the present. When trends are present in upgradient trends, it is an indication of natural variability in groundwater quality unrelated to practices at the site. A summary of the Appendix IV trend test results follows this letter. Statistically significant trends were identified for the following well/constituent pairs:

Increasing trends:

- Molybdenum: HGWC-120

Decreasing trends:

- None

Thank you for the opportunity to assist you in the statistical analysis of groundwater quality for Hammond AP-3. If you have any questions or comments, please feel free to contact us.

For Groundwater Stats Consulting,

Easton Rayner
Groundwater Analyst

Kristina Rayner
Senior Statistician

100% Non-Detects: Appendix IV Downgradient, Delineation, & Piezometers

Analysis Run 12/14/2021 3:30 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Antimony (mg/L)
HGWC-121A, HGWC-124, MW-39, MW-41

Arsenic (mg/L)
MW-32, MW-39, MW-41

Beryllium (mg/L)
HGWC-120, HGWC-121A, HGWC-124, HGWC-125, HGWC-126, MW-32, MW-39, MW-41, MW-46D

Cadmium (mg/L)
HGWC-120, HGWC-121A, HGWC-124, HGWC-125, HGWC-126, MW-32, MW-39, MW-41, MW-46D

Chromium (mg/L)
MW-39

Cobalt (mg/L)
HGWC-124, HGWC-126

Lead (mg/L)
MW-32, MW-39, MW-41

Mercury (mg/L)
HGWC-121A, HGWC-125, HGWC-126, MW-32, MW-39, MW-41, MW-46D

Molybdenum (mg/L)
HGWC-121A, HGWC-126

Selenium (mg/L)
HGWC-125, HGWC-126, MW-32, MW-39, MW-41, MW-46D

Thallium (mg/L)
HGWC-120, HGWC-121A, HGWC-124, HGWC-125, HGWC-126, MW-32, MW-39, MW-41, MW-46D

Interwell Prediction Limit Summary - Significant Results

Plant Hammond Client: Southern Company Data: Hammond AP-3 Printed 10/18/2021, 1:02 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Boron (mg/L)	**HGWC-120**	**0.39**	**n/a**	**8/16/2021**	**1.1**	**Yes**	**86**	**n/a**	**n/a**	**4.651**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Boron (mg/L)	**HGWC-121A**	**0.39**	**n/a**	**8/16/2021**	**2**	**Yes**	**86**	**n/a**	**n/a**	**4.651**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Boron (mg/L)	**HGWC-124**	**0.39**	**n/a**	**8/16/2021**	**0.44**	**Yes**	**86**	**n/a**	**n/a**	**4.651**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Boron (mg/L)	**HGWC-125**	**0.39**	**n/a**	**8/19/2021**	**1.5**	**Yes**	**86**	**n/a**	**n/a**	**4.651**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Calcium (mg/L)	**HGWC-120**	**138**	**n/a**	**8/16/2021**	**171**	**Yes**	**86**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Calcium (mg/L)	**HGWC-121A**	**138**	**n/a**	**8/16/2021**	**162**	**Yes**	**86**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Calcium (mg/L)	**HGWC-125**	**138**	**n/a**	**8/19/2021**	**196**	**Yes**	**86**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Calcium (mg/L)	**HGWC-126**	**138**	**n/a**	**8/19/2021**	**139**	**Yes**	**86**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**HGWC-120**	**88.2**	**n/a**	**8/16/2021**	**211**	**Yes**	**86**	**n/a**	**n/a**	**1.163**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**HGWC-121A**	**88.2**	**n/a**	**8/16/2021**	**158**	**Yes**	**86**	**n/a**	**n/a**	**1.163**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**HGWC-125**	**88.2**	**n/a**	**8/19/2021**	**264**	**Yes**	**86**	**n/a**	**n/a**	**1.163**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Total Dissolved Solids (mg/L)	**HGWC-125**	**632**	**n/a**	**8/19/2021**	**732**	**Yes**	**85**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.0002684**	**NP Inter (normality) 1 of 2**

Interwell Prediction Limit Summary - All Results

Plant Hammond Client: Southern Company Data: Hammond AP-3 Printed 10/18/2021, 1:02 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Boron (mg/L)	**HGWC-120**	**0.39**	**n/a**	**8/16/2021**	**1.1**	**Yes**	**86**	**n/a**	**n/a**	**4.651**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Boron (mg/L)	**HGWC-121A**	**0.39**	**n/a**	**8/16/2021**	**2**	**Yes**	**86**	**n/a**	**n/a**	**4.651**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Boron (mg/L)	**HGWC-124**	**0.39**	**n/a**	**8/16/2021**	**0.44**	**Yes**	**86**	**n/a**	**n/a**	**4.651**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Boron (mg/L)	**HGWC-125**	**0.39**	**n/a**	**8/19/2021**	**1.5**	**Yes**	**86**	**n/a**	**n/a**	**4.651**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Boron (mg/L)	HGWC-126	0.39	n/a	8/19/2021	0.011J	No	86	n/a	n/a	4.651	n/a	n/a	0.0002623	NP Inter (normality) 1 of 2
Calcium (mg/L)	**HGWC-120**	**138**	**n/a**	**8/16/2021**	**171**	**Yes**	**86**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Calcium (mg/L)	**HGWC-121A**	**138**	**n/a**	**8/16/2021**	**162**	**Yes**	**86**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Calcium (mg/L)	HGWC-124	138	n/a	8/16/2021	106	No	86	n/a	n/a	0	n/a	n/a	0.0002623	NP Inter (normality) 1 of 2
Calcium (mg/L)	**HGWC-125**	**138**	**n/a**	**8/19/2021**	**196**	**Yes**	**86**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Calcium (mg/L)	**HGWC-126**	**138**	**n/a**	**8/19/2021**	**139**	**Yes**	**86**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Chloride (mg/L)	HGWC-120	41.1	n/a	8/16/2021	2.4	No	86	n/a	n/a	0	n/a	n/a	0.0002623	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-121A	41.1	n/a	8/16/2021	18	No	86	n/a	n/a	0	n/a	n/a	0.0002623	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-124	41.1	n/a	8/16/2021	2.6	No	86	n/a	n/a	0	n/a	n/a	0.0002623	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-125	41.1	n/a	8/19/2021	4.5	No	86	n/a	n/a	0	n/a	n/a	0.0002623	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-126	41.1	n/a	8/19/2021	7.8	No	86	n/a	n/a	0	n/a	n/a	0.0002623	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-120	0.87	n/a	8/16/2021	0.39	No	100	n/a	n/a	26	n/a	n/a	0.0001934	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-121A	0.87	n/a	8/16/2021	0.15	No	100	n/a	n/a	26	n/a	n/a	0.0001934	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-124	0.87	n/a	8/16/2021	0.05ND	No	100	n/a	n/a	26	n/a	n/a	0.0001934	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-125	0.87	n/a	8/19/2021	0.17	No	100	n/a	n/a	26	n/a	n/a	0.0001934	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-126	0.87	n/a	8/19/2021	0.43	No	100	n/a	n/a	26	n/a	n/a	0.0001934	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-120	7.92	4.9	8/16/2021	6.92	No	99	n/a	n/a	0	n/a	n/a	0.0003956	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-121A	7.92	4.9	8/16/2021	6.74	No	99	n/a	n/a	0	n/a	n/a	0.0003956	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-124	7.92	4.9	8/16/2021	7.09	No	99	n/a	n/a	0	n/a	n/a	0.0003956	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-125	7.92	4.9	8/19/2021	7.24	No	99	n/a	n/a	0	n/a	n/a	0.0003956	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-126	7.92	4.9	8/19/2021	7.32	No	99	n/a	n/a	0	n/a	n/a	0.0003956	NP Inter (normality) 1 of 2
Sulfate (mg/L)	**HGWC-120**	**88.2**	**n/a**	**8/16/2021**	**211**	**Yes**	**86**	**n/a**	**n/a**	**1.163**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**HGWC-121A**	**88.2**	**n/a**	**8/16/2021**	**158**	**Yes**	**86**	**n/a**	**n/a**	**1.163**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	HGWC-124	88.2	n/a	8/16/2021	74	No	86	n/a	n/a	1.163	n/a	n/a	0.0002623	NP Inter (normality) 1 of 2
Sulfate (mg/L)	**HGWC-125**	**88.2**	**n/a**	**8/19/2021**	**264**	**Yes**	**86**	**n/a**	**n/a**	**1.163**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	HGWC-126	88.2	n/a	8/19/2021	64.4	No	86	n/a	n/a	1.163	n/a	n/a	0.0002623	NP Inter (normality) 1 of 2
Total Dissolved Solids (mg/L)	HGWC-120	632	n/a	8/16/2021	632	No	85	n/a	n/a	0	n/a	n/a	0.0002684	NP Inter (normality) 1 of 2
Total Dissolved Solids (mg/L)	HGWC-121A	632	n/a	8/16/2021	626	No	85	n/a	n/a	0	n/a	n/a	0.0002684	NP Inter (normality) 1 of 2
Total Dissolved Solids (mg/L)	HGWC-124	632	n/a	8/16/2021	352	No	85	n/a	n/a	0	n/a	n/a	0.0002684	NP Inter (normality) 1 of 2
Total Dissolved Solids (mg/L)	**HGWC-125**	**632**	**n/a**	**8/19/2021**	**732**	**Yes**	**85**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.0002684**	**NP Inter (normality) 1 of 2**
Total Dissolved Solids (mg/L)	HGWC-126	632	n/a	8/19/2021	488	No	85	n/a	n/a	0	n/a	n/a	0.0002684	NP Inter (normality) 1 of 2

Trend Test - Significant Results

Plant Hammond Client: Southern Company Data: Hammond AP-3 Printed 10/18/2021, 1:07 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Boron (mg/L)	**HGWA-122 (bg)**	**-0.02558**	**-60**	**-53**	**Yes**	**15**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Boron (mg/L)	**HGWA-2 (bg)**	**0.002396**	**83**	**63**	**Yes**	**17**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Boron (mg/L)	**HGWC-121A**	**-0.2431**	**-70**	**-53**	**Yes**	**15**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Boron (mg/L)	**HGWC-124**	**-0.02071**	**-55**	**-53**	**Yes**	**15**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Calcium (mg/L)	**HGWA-3 (bg)**	**2.813**	**71**	**68**	**Yes**	**18**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Sulfate (mg/L)	**HGWA-122 (bg)**	**-1.769**	**-61**	**-53**	**Yes**	**15**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Sulfate (mg/L)	**HGWA-2 (bg)**	**1.201**	**66**	**63**	**Yes**	**17**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Sulfate (mg/L)	**HGWC-120**	**-17.87**	**-77**	**-58**	**Yes**	**16**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Sulfate (mg/L)	**HGWC-121A**	**-27.04**	**-73**	**-53**	**Yes**	**15**	**0**	**n/a**	**n/a**	**0.01**	**NP**

Trend Test - All Results

Plant Hammond Client: Southern Company Data: Hammond AP-3 Printed 10/18/2021, 1:07 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Boron (mg/L)	HGWA-1 (bg)	0	-1	-68	No	18	0	n/a	n/a	0.01	NP
Boron (mg/L)	**HGWA-122 (bg)**	**-0.02558**	**-60**	**-53**	**Yes**	**15**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Boron (mg/L)	**HGWA-2 (bg)**	**0.002396**	**83**	**63**	**Yes**	**17**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Boron (mg/L)	HGWA-3 (bg)	0	-2	-68	No	18	16.67	n/a	n/a	0.01	NP
Boron (mg/L)	HGWA-43D (bg)	-0.02108	-9	-14	No	6	0	n/a	n/a	0.01	NP
Boron (mg/L)	HGWA-44D (bg)	0.2086	6	14	No	6	16.67	n/a	n/a	0.01	NP
Boron (mg/L)	HGWA-45D (bg)	0	1	14	No	6	0	n/a	n/a	0.01	NP
Boron (mg/L)	HGWC-120	-0.03782	-47	-58	No	16	0	n/a	n/a	0.01	NP
Boron (mg/L)	**HGWC-121A**	**-0.2431**	**-70**	**-53**	**Yes**	**15**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Boron (mg/L)	**HGWC-124**	**-0.02071**	**-55**	**-53**	**Yes**	**15**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Boron (mg/L)	HGWC-125	0	6	25	No	9	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWA-1 (bg)	3.476	57	68	No	18	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWA-122 (bg)	-2.405	-19	-53	No	15	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWA-2 (bg)	0.3671	20	63	No	17	0	n/a	n/a	0.01	NP
Calcium (mg/L)	**HGWA-3 (bg)**	**2.813**	**71**	**68**	**Yes**	**18**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Calcium (mg/L)	HGWA-43D (bg)	-2.444	-1	-14	No	6	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWA-44D (bg)	-5.272	-5	-14	No	6	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWA-45D (bg)	-2.522	-5	-14	No	6	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWC-120	2.944	31	58	No	16	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWC-121A	-5.695	-43	-53	No	15	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWC-125	31.47	13	25	No	9	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWC-126	13.94	23	25	No	9	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWA-1 (bg)	2.869	46	68	No	18	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	**HGWA-122 (bg)**	**-1.769**	**-61**	**-53**	**Yes**	**15**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Sulfate (mg/L)	**HGWA-2 (bg)**	**1.201**	**66**	**63**	**Yes**	**17**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Sulfate (mg/L)	HGWA-3 (bg)	1.327	60	68	No	18	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWA-43D (bg)	-12.17	-13	-14	No	6	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWA-44D (bg)	4.171	1	14	No	6	16.67	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWA-45D (bg)	1.043	1	14	No	6	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	**HGWC-120**	**-17.87**	**-77**	**-58**	**Yes**	**16**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Sulfate (mg/L)	**HGWC-121A**	**-27.04**	**-73**	**-53**	**Yes**	**15**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Sulfate (mg/L)	HGWC-125	-53.23	-20	-25	No	9	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWA-1 (bg)	5.962	23	68	No	18	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWA-122 (bg)	-12.03	-27	-48	No	14	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWA-2 (bg)	-2.657	-23	-63	No	17	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWA-3 (bg)	0	-2	-68	No	18	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWA-43D (bg)	-5.84	-3	-14	No	6	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWA-44D (bg)	83.43	9	14	No	6	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWA-45D (bg)	-5.309	-1	-14	No	6	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWC-125	-76.58	-6	-25	No	9	0	n/a	n/a	0.01	NP

Upper Tolerance Limits

Plant Hammond Client: Southern Company Data: Hammond AP-3 Printed 10/18/2021, 1:14 PM

Constituent	Well	Upper Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Antimony (mg/L)	n/a	0.003	n/a	n/a	n/a	85	84.71	n/a	0.01278	NP Inter(NDs)
Arsenic (mg/L)	n/a	0.005	n/a	n/a	n/a	83	71.08	n/a	0.01416	NP Inter(normal...
Barium (mg/L)	n/a	0.54	n/a	n/a	n/a	93	1.075	n/a	0.008478	NP Inter(normal...
Beryllium (mg/L)	n/a	0.0005	n/a	n/a	n/a	85	82.35	n/a	0.01278	NP Inter(NDs)
Cadmium (mg/L)	n/a	0.0005	n/a	n/a	n/a	83	89.16	n/a	0.01416	NP Inter(NDs)
Chromium (mg/L)	n/a	0.0079	n/a	n/a	n/a	87	75.86	n/a	0.01153	NP Inter(NDs)
Cobalt (mg/L)	n/a	0.038	n/a	n/a	n/a	93	77.42	n/a	0.008478	NP Inter(NDs)
Combined Radium 226 + 228 (pCi/L)	n/a	4.36	n/a	n/a	n/a	86	0	n/a	0.01214	NP Inter(normal...
Fluoride (mg/L)	n/a	0.87	n/a	n/a	n/a	100	26	n/a	0.005921	NP Inter(normal...
Lead (mg/L)	n/a	0.001	n/a	n/a	n/a	87	62.07	n/a	0.01153	NP Inter(normal...
Lithium (mg/L)	n/a	0.032	n/a	n/a	n/a	93	34.41	n/a	0.008478	NP Inter(normal...
Mercury (mg/L)	n/a	0.0002	n/a	n/a	n/a	65	92.31	n/a	0.03565	NP Inter(NDs)
Molybdenum (mg/L)	n/a	0.01	n/a	n/a	n/a	95	68.42	n/a	0.007651	NP Inter(normal...
Selenium (mg/L)	n/a	0.005	n/a	n/a	n/a	83	98.8	n/a	0.01416	NP Inter(NDs)
Thallium (mg/L)	n/a	0.001	n/a	n/a	n/a	83	98.8	n/a	0.01416	NP Inter(NDs)

PLANT HAMMOND AP-3 GWPS (Federal)				
Constituent Name	**MCL**	**CCR-Rule Specified**	**Background Limit**	**Federal 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		0.54	2
Beryllium, Total (mg/L)	0.004		0.0005	0.004
Cadmium, Total (mg/L)	0.005		0.0005	0.005
Chromium, Total (mg/L)	0.1		0.0079	0.1
Cobalt, Total (mg/L)	n/a	0.006	0.038	0.038
Combined Radium, Total (pCi/L)	5		4.36	5
Fluoride, Total (mg/L)	4		0.87	4
Lead, Total (mg/L)	n/a	0.015	0.001	0.015
Lithium, Total (mg/L)	n/a	0.04	0.032	0.04
Mercury, Total (mg/L)	0.002		0.0002	0.002
Molybdenum, Total (mg/L)	n/a	0.1	0.01	0.1
Selenium, Total (mg/L)	0.05		0.005	0.05
Thallium, Total (mg/L)	0.002		0.001	0.002

**Grey cell indidcates background is higher than MCL or CCR-Rule*

**MCL = Maximum Contaminant Level*

**CCR = Coal Combustion Residuals*

**GWPS = Groundwater Protection Statard*

PLANT HAMMOND AP-3 GWPS (State)				
Constituent Name	**MCL**	**CCR-Rule Specified**	**Background Limit**	**State 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		0.54	2
Beryllium, Total (mg/L)	0.004		0.0005	0.004
Cadmium, Total (mg/L)	0.005		0.0005	0.005
Chromium, Total (mg/L)	0.1		0.0079	0.1
Cobalt, Total (mg/L)	n/a	0.006	0.038	0.038
Combined Radium, Total (pCi/L)	5		4.36	5
Fluoride, Total (mg/L)	4		0.87	4
Lead, Total (mg/L)	n/a	0.015	0.001	0.001
Lithium, Total (mg/L)	n/a	0.04	0.032	0.032
Mercury, Total (mg/L)	0.002		0.0002	0.002
Molybdenum, Total (mg/L)	n/a	0.1	0.01	0.01
Selenium, Total (mg/L)	0.05		0.005	0.05
Thallium, Total (mg/L)	0.002		0.001	0.002

**Grey cell indidcates background is higher than MCL or CCR-Rule*

**MCL = Maximum Contaminant Level*

**CCR = Coal Combustion Residuals*

**GWPS = Groundwater Protection Statard*

Federal Confidence Interval Summary Table - All Results (No Significant)

Plant Hammond Client: Southern Company Data: Hammond AP-3 Printed 12/14/2021, 3:37 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Antimony (mg/L)	HGWC-120	0.003	0.0018	0.006	No	13	92.31	No	0.01	NP (NDs)
Antimony (mg/L)	HGWC-125	0.003	0.00047	0.006	No	9	77.78	No	0.002	NP (NDs)
Antimony (mg/L)	HGWC-126	0.003	0.0004	0.006	No	9	77.78	No	0.002	NP (NDs)
Antimony (mg/L)	MW-32	0.003	0.00035	0.006	No	4	75	No	0.0625	NP (NDs)
Arsenic (mg/L)	HGWC-120	0.005	0.001	0.01	No	11	63.64	No	0.006	NP (NDs)
Arsenic (mg/L)	HGWC-121A	0.005	0.0014	0.01	No	11	72.73	No	0.006	NP (NDs)
Arsenic (mg/L)	HGWC-124	0.005	0.005	0.01	No	11	90.91	No	0.006	NP (NDs)
Arsenic (mg/L)	HGWC-125	0.005	0.00081	0.01	No	8	75	No	0.004	NP (NDs)
Arsenic (mg/L)	HGWC-126	0.005	0.00071	0.01	No	8	75	No	0.004	NP (NDs)
Barium (mg/L)	HGWC-120	0.05172	0.04601	2	No	15	0	No	0.01	Param.
Barium (mg/L)	HGWC-121A	0.0824	0.06527	2	No	15	0	No	0.01	Param.
Barium (mg/L)	HGWC-124	0.07319	0.06712	2	No	15	0	No	0.01	Param.
Barium (mg/L)	HGWC-125	0.04698	0.04169	2	No	9	0	No	0.01	Param.
Barium (mg/L)	HGWC-126	0.2608	0.2237	2	No	9	0	No	0.01	Param.
Barium (mg/L)	MW-32	0.06217	0.05023	2	No	5	0	No	0.01	Param.
Barium (mg/L)	MW-39	0.06085	0.05715	2	No	4	0	No	0.01	Param.
Barium (mg/L)	MW-41	0.07551	0.05969	2	No	5	0	No	0.01	Param.
Chromium (mg/L)	HGWC-120	0.005	0.0015	0.1	No	15	80	No	0.01	NP (NDs)
Chromium (mg/L)	HGWC-121A	0.005	0.0005	0.1	No	15	93.33	No	0.01	NP (NDs)
Chromium (mg/L)	HGWC-124	0.005	0.00051	0.1	No	15	86.67	No	0.01	NP (NDs)
Chromium (mg/L)	HGWC-125	0.005	0.00052	0.1	No	9	66.67	No	0.002	NP (NDs)
Chromium (mg/L)	HGWC-126	0.005	0.00096	0.1	No	9	88.89	No	0.002	NP (NDs)
Chromium (mg/L)	MW-32	0.005	0.00058	0.1	No	5	80	No	0.031	NP (NDs)
Chromium (mg/L)	MW-41	0.005	0.0009	0.1	No	5	80	No	0.031	NP (NDs)
Cobalt (mg/L)	HGWC-120	0.003889	0.002898	0.038	No	15	0	No	0.01	Param.
Cobalt (mg/L)	HGWC-121A	0.005	0.0005	0.038	No	15	80	No	0.01	NP (NDs)
Cobalt (mg/L)	HGWC-125	0.01279	0.007031	0.038	No	9	0	No	0.01	Param.
Cobalt (mg/L)	MW-32	0.005359	0.002881	0.038	No	5	0	No	0.01	Param.
Cobalt (mg/L)	MW-39	0.002742	0.002308	0.038	No	4	0	No	0.01	Param.
Cobalt (mg/L)	MW-41	0.0012	0.00057	0.038	No	5	0	No	0.031	NP (normality)
Combined Radium 226 + 228 (pCi/L)	HGWC-120	1.138	0.614	5	No	14	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	HGWC-121A	1.221	0.4747	5	No	14	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	HGWC-124	0.9359	0.6159	5	No	14	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	HGWC-125	1.553	0.6976	5	No	8	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	HGWC-126	1.82	0.837	5	No	8	0	No	0.004	NP (normality)
Combined Radium 226 + 228 (pCi/L)	MW-32	2.155	-0.1841	5	No	4	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-41	2.085	-0.05149	5	No	4	0	No	0.01	Param.
Fluoride (mg/L)	HGWC-120	1.2	0.37	4	No	18	0	No	0.01	NP (normality)
Fluoride (mg/L)	HGWC-121A	0.23	0.14	4	No	16	0	No	0.01	NP (normality)
Fluoride (mg/L)	HGWC-124	0.15	0.05	4	No	16	37.5	No	0.01	NP (normality)
Fluoride (mg/L)	HGWC-125	0.1683	0.105	4	No	9	0	No	0.01	Param.
Fluoride (mg/L)	HGWC-126	0.4862	0.4294	4	No	9	0	sqrt(x)	0.01	Param.
Fluoride (mg/L)	MW-32	0.3747	0.2586	4	No	6	0	No	0.01	Param.
Fluoride (mg/L)	MW-39	0.3616	0.2464	4	No	5	0	No	0.01	Param.
Fluoride (mg/L)	MW-41	0.2754	0.1886	4	No	5	0	No	0.01	Param.
Fluoride (mg/L)	MW-46D	1.233	0.5472	4	No	4	0	No	0.01	Param.
Lead (mg/L)	HGWC-120	0.001	0.0002	0.015	No	15	80	No	0.01	NP (NDs)
Lead (mg/L)	HGWC-121A	0.001	0.00036	0.015	No	15	80	No	0.01	NP (NDs)
Lead (mg/L)	HGWC-124	0.001	0.000075	0.015	No	15	66.67	No	0.01	NP (NDs)
Lead (mg/L)	HGWC-125	0.001	0.000044	0.015	No	9	44.44	No	0.002	NP (normality)
Lead (mg/L)	HGWC-126	0.001	0.000042	0.015	No	9	66.67	No	0.002	NP (NDs)
Lithium (mg/L)	HGWC-120	0.03325	0.0277	0.04	No	15	0	x^5	0.01	Param.
Lithium (mg/L)	HGWC-121A	0.009124	0.007729	0.04	No	15	0	No	0.01	Param.
Lithium (mg/L)	HGWC-124	0.015	0.001	0.04	No	15	33.33	No	0.01	NP (normality)
Lithium (mg/L)	HGWC-125	0.005915	0.003691	0.04	No	9	0	sqrt(x)	0.01	Param.
Lithium (mg/L)	HGWC-126	0.004244	0.003133	0.04	No	9	0	No	0.01	Param.
Lithium (mg/L)	MW-32	0.03438	0.03002	0.04	No	5	0	No	0.01	Param.
Lithium (mg/L)	MW-39	0.03385	0.02872	0.04	No	5	20	x^4	0.01	Param.
Lithium (mg/L)	MW-41	0.03031	0.02649	0.04	No	5	0	No	0.01	Param.
Mercury (mg/L)	HGWC-120	0.0002	0.00007	0.002	No	11	81.82	No	0.006	NP (NDs)
Mercury (mg/L)	HGWC-124	0.0002	0.0002	0.002	No	11	90.91	No	0.006	NP (NDs)
Molybdenum (mg/L)	HGWC-120	0.03817	0.02554	0.1	No	15	0	No	0.01	Param.
Molybdenum (mg/L)	HGWC-124	0.005	0.00091	0.1	No	15	33.33	No	0.01	NP (normality)
Molybdenum (mg/L)	HGWC-125	0.00835	0.0005302	0.1	No	9	33.33	x^(1/3)	0.01	Param.
Molybdenum (mg/L)	MW-32	0.06369	0.05917	0.1	No	7	0	No	0.01	Param.
Molybdenum (mg/L)	MW-39	0.064	0.012	0.1	No	6	0	No	0.0155	NP (normality)
Molybdenum (mg/L)	MW-41	0.04715	0.03205	0.1	No	5	0	No	0.01	Param.
Molybdenum (mg/L)	MW-46D	0.03867	-0.01542	0.1	No	4	0	No	0.01	Param.

Federal Confidence Interval Summary Table - All Results (No Significant)

Plant Hammond Client: Southern Company Data: Hammond AP-3 Printed 12/14/2021, 3:37 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Selenium (mg/L)	HGWC-120	0.005	0.005	0.05	No	11	90.91	No	0.006	NP (NDs)
Selenium (mg/L)	HGWC-121A	0.005	0.005	0.05	No	11	90.91	No	0.006	NP (NDs)
Selenium (mg/L)	HGWC-124	0.005	0.005	0.05	No	11	90.91	No	0.006	NP (NDs)

State Confidence Interval Summary Table - Significant Results

Plant Hammond Client: Southern Company Data: Hammond AP-3 Printed 12/14/2021, 3:34 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Molybdenum (mg/L)	**HGWC-120**	**0.03817**	**0.02554**	**0.01**	**Yes**	**15**	**0**	**No**	**0.01**	**Param.**
Molybdenum (mg/L)	**MW-32**	**0.06369**	**0.05917**	**0.01**	**Yes**	**7**	**0**	**No**	**0.01**	**Param.**
Molybdenum (mg/L)	**MW-39**	**0.064**	**0.012**	**0.01**	**Yes**	**6**	**0**	**No**	**0.0155**	**NP (normality)**
Molybdenum (mg/L)	**MW-41**	**0.04715**	**0.03205**	**0.01**	**Yes**	**5**	**0**	**No**	**0.01**	**Param.**

State Confidence Interval Summary Table - All Results

Plant Hammond Client: Southern Company Data: Hammond AP-3 Printed 12/14/2021, 3:34 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Antimony (mg/L)	HGWC-120	0.003	0.0018	0.006	No	13	92.31	No	0.01	NP (NDs)
Antimony (mg/L)	HGWC-125	0.003	0.00047	0.006	No	9	77.78	No	0.002	NP (NDs)
Antimony (mg/L)	HGWC-126	0.003	0.0004	0.006	No	9	77.78	No	0.002	NP (NDs)
Antimony (mg/L)	MW-32	0.003	0.00035	0.006	No	4	75	No	0.0625	NP (NDs)
Arsenic (mg/L)	HGWC-120	0.005	0.001	0.01	No	11	63.64	No	0.006	NP (NDs)
Arsenic (mg/L)	HGWC-121A	0.005	0.0014	0.01	No	11	72.73	No	0.006	NP (NDs)
Arsenic (mg/L)	HGWC-124	0.005	0.005	0.01	No	11	90.91	No	0.006	NP (NDs)
Arsenic (mg/L)	HGWC-125	0.005	0.00081	0.01	No	8	75	No	0.004	NP (NDs)
Arsenic (mg/L)	HGWC-126	0.005	0.00071	0.01	No	8	75	No	0.004	NP (NDs)
Barium (mg/L)	HGWC-120	0.05172	0.04601	2	No	15	0	No	0.01	Param.
Barium (mg/L)	HGWC-121A	0.0824	0.06527	2	No	15	0	No	0.01	Param.
Barium (mg/L)	HGWC-124	0.07319	0.06712	2	No	15	0	No	0.01	Param.
Barium (mg/L)	HGWC-125	0.04698	0.04169	2	No	9	0	No	0.01	Param.
Barium (mg/L)	HGWC-126	0.2608	0.2237	2	No	9	0	No	0.01	Param.
Barium (mg/L)	MW-32	0.06217	0.05023	2	No	5	0	No	0.01	Param.
Barium (mg/L)	MW-39	0.06085	0.05715	2	No	4	0	No	0.01	Param.
Barium (mg/L)	MW-41	0.07551	0.05969	2	No	5	0	No	0.01	Param.
Chromium (mg/L)	HGWC-120	0.005	0.0015	0.1	No	15	80	No	0.01	NP (NDs)
Chromium (mg/L)	HGWC-121A	0.005	0.0005	0.1	No	15	93.33	No	0.01	NP (NDs)
Chromium (mg/L)	HGWC-124	0.005	0.00051	0.1	No	15	86.67	No	0.01	NP (NDs)
Chromium (mg/L)	HGWC-125	0.005	0.00052	0.1	No	9	66.67	No	0.002	NP (NDs)
Chromium (mg/L)	HGWC-126	0.005	0.00096	0.1	No	9	88.89	No	0.002	NP (NDs)
Chromium (mg/L)	MW-32	0.005	0.00058	0.1	No	5	80	No	0.031	NP (NDs)
Chromium (mg/L)	MW-41	0.005	0.0009	0.1	No	5	80	No	0.031	NP (NDs)
Cobalt (mg/L)	HGWC-120	0.003889	0.002898	0.038	No	15	0	No	0.01	Param.
Cobalt (mg/L)	HGWC-121A	0.005	0.0005	0.038	No	15	80	No	0.01	NP (NDs)
Cobalt (mg/L)	HGWC-125	0.01279	0.007031	0.038	No	9	0	No	0.01	Param.
Cobalt (mg/L)	MW-32	0.005359	0.002881	0.038	No	5	0	No	0.01	Param.
Cobalt (mg/L)	MW-39	0.002742	0.002308	0.038	No	4	0	No	0.01	Param.
Cobalt (mg/L)	MW-41	0.0012	0.00057	0.038	No	5	0	No	0.031	NP (normality)
Combined Radium 226 + 228 (pCi/L)	HGWC-120	1.138	0.614	5	No	14	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	HGWC-121A	1.221	0.4747	5	No	14	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	HGWC-124	0.9359	0.6159	5	No	14	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	HGWC-125	1.553	0.6976	5	No	8	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	HGWC-126	1.82	0.837	5	No	8	0	No	0.004	NP (normality)
Combined Radium 226 + 228 (pCi/L)	MW-32	2.155	-0.1841	5	No	4	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-41	2.085	-0.05149	5	No	4	0	No	0.01	Param.
Fluoride (mg/L)	HGWC-120	1.2	0.37	4	No	18	0	No	0.01	NP (normality)
Fluoride (mg/L)	HGWC-121A	0.23	0.14	4	No	16	0	No	0.01	NP (normality)
Fluoride (mg/L)	HGWC-124	0.15	0.05	4	No	16	37.5	No	0.01	NP (normality)
Fluoride (mg/L)	HGWC-125	0.1683	0.105	4	No	9	0	No	0.01	Param.
Fluoride (mg/L)	HGWC-126	0.4862	0.4294	4	No	9	0	sqrt(x)	0.01	Param.
Fluoride (mg/L)	MW-32	0.3747	0.2586	4	No	6	0	No	0.01	Param.
Fluoride (mg/L)	MW-39	0.3616	0.2464	4	No	5	0	No	0.01	Param.
Fluoride (mg/L)	MW-41	0.2754	0.1886	4	No	5	0	No	0.01	Param.
Fluoride (mg/L)	MW-46D	1.233	0.5472	4	No	4	0	No	0.01	Param.
Lead (mg/L)	HGWC-120	0.001	0.0002	0.001	No	15	80	No	0.01	NP (NDs)
Lead (mg/L)	HGWC-121A	0.001	0.00036	0.001	No	15	80	No	0.01	NP (NDs)
Lead (mg/L)	HGWC-124	0.001	0.000075	0.001	No	15	66.67	No	0.01	NP (NDs)
Lead (mg/L)	HGWC-125	0.001	0.000044	0.001	No	9	44.44	No	0.002	NP (normality)
Lead (mg/L)	HGWC-126	0.001	0.000042	0.001	No	9	66.67	No	0.002	NP (NDs)
Lithium (mg/L)	HGWC-120	0.03325	0.0277	0.032	No	15	0	x^5	0.01	Param.
Lithium (mg/L)	HGWC-121A	0.009124	0.007729	0.032	No	15	0	No	0.01	Param.
Lithium (mg/L)	HGWC-124	0.015	0.001	0.032	No	15	33.33	No	0.01	NP (normality)
Lithium (mg/L)	HGWC-125	0.005915	0.003691	0.032	No	9	0	sqrt(x)	0.01	Param.
Lithium (mg/L)	HGWC-126	0.004244	0.003133	0.032	No	9	0	No	0.01	Param.
Lithium (mg/L)	MW-32	0.03438	0.03002	0.032	No	5	0	No	0.01	Param.
Lithium (mg/L)	MW-39	0.03385	0.02872	0.032	No	5	20	x^4	0.01	Param.
Lithium (mg/L)	MW-41	0.03031	0.02649	0.032	No	5	0	No	0.01	Param.
Mercury (mg/L)	HGWC-120	0.0002	0.00007	0.002	No	11	81.82	No	0.006	NP (NDs)
Mercury (mg/L)	HGWC-124	0.0002	0.0002	0.002	No	11	90.91	No	0.006	NP (NDs)
Molybdenum (mg/L)	**HGWC-120**	**0.03817**	**0.02554**	**0.01**	**Yes**	**15**	**0**	**No**	**0.01**	**Param.**
Molybdenum (mg/L)	HGWC-124	0.005	0.00091	0.01	No	15	33.33	No	0.01	NP (normality)
Molybdenum (mg/L)	HGWC-125	0.00835	0.0005302	0.01	No	9	33.33	x^(1/3)	0.01	Param.
Molybdenum (mg/L)	**MW-32**	**0.06369**	**0.05917**	**0.01**	**Yes**	**7**	**0**	**No**	**0.01**	**Param.**
Molybdenum (mg/L)	**MW-39**	**0.064**	**0.012**	**0.01**	**Yes**	**6**	**0**	**No**	**0.0155**	**NP (normality)**
Molybdenum (mg/L)	**MW-41**	**0.04715**	**0.03205**	**0.01**	**Yes**	**5**	**0**	**No**	**0.01**	**Param.**
Molybdenum (mg/L)	MW-46D	0.03867	-0.01542	0.01	No	4	0	No	0.01	Param.

State Confidence Interval Summary Table - All Results

Plant Hammond Client: Southern Company Data: Hammond AP-3 Printed 12/14/2021, 3:34 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Selenium (mg/L)	HGWC-120	0.005	0.005	0.05	No	11	90.91	No	0.006	NP (NDs)
Selenium (mg/L)	HGWC-121A	0.005	0.005	0.05	No	11	90.91	No	0.006	NP (NDs)
Selenium (mg/L)	HGWC-124	0.005	0.005	0.05	No	11	90.91	No	0.006	NP (NDs)

Appendix IV Trend Tests - All Results (No Significant)

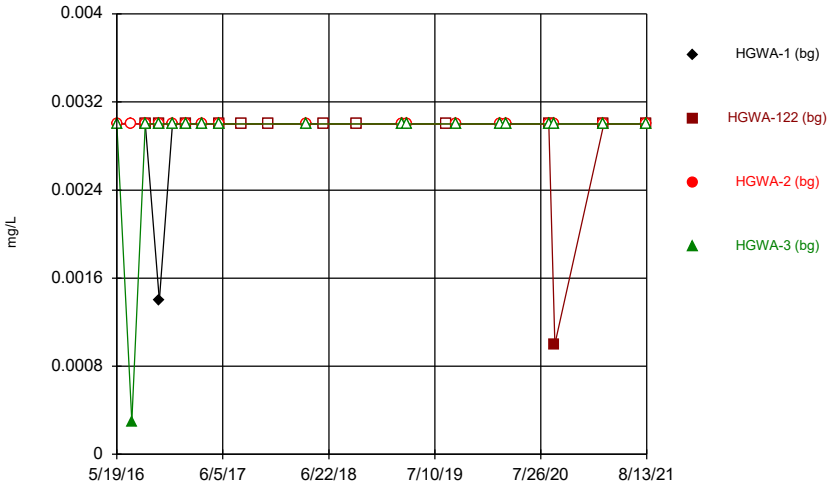
Plant Hammond Client: Southern Company Data: Hammond AP-3 Printed 1/31/2022, 1:11 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Molybdenum (mg/L)	HGWA-1 (bg)	0	0	34	No	11	100	n/a	n/a	0.01	NP
Molybdenum (mg/L)	HGWA-122 (bg)	-0.002326	-14	-21	No	8	12.5	n/a	n/a	0.01	NP
Molybdenum (mg/L)	HGWA-2 (bg)	0	0	30	No	10	100	n/a	n/a	0.01	NP
Molybdenum (mg/L)	HGWA-3 (bg)	0	0	34	No	11	100	n/a	n/a	0.01	NP
Molybdenum (mg/L)	HGWA-43D (bg)	-0.001527	-6	-14	No	6	0	n/a	n/a	0.01	NP
Molybdenum (mg/L)	HGWA-44D (bg)	0.001043	6	14	No	6	16.67	n/a	n/a	0.01	NP
Molybdenum (mg/L)	HGWA-45D (bg)	0.006769	7	14	No	6	16.67	n/a	n/a	0.01	NP
Molybdenum (mg/L)	HGWC-120	-0.0006924	-2	-21	No	8	0	n/a	n/a	0.01	NP
Molybdenum (mg/L)	MW-32	0.0006155	3	18	No	7	0	n/a	n/a	0.01	NP
Molybdenum (mg/L)	MW-39	0.001127	6	14	No	6	0	n/a	n/a	0.01	NP
Molybdenum (mg/L)	MW-41	0.006357	6	12	No	5	0	n/a	n/a	0.01	NP

FIGURE A.

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

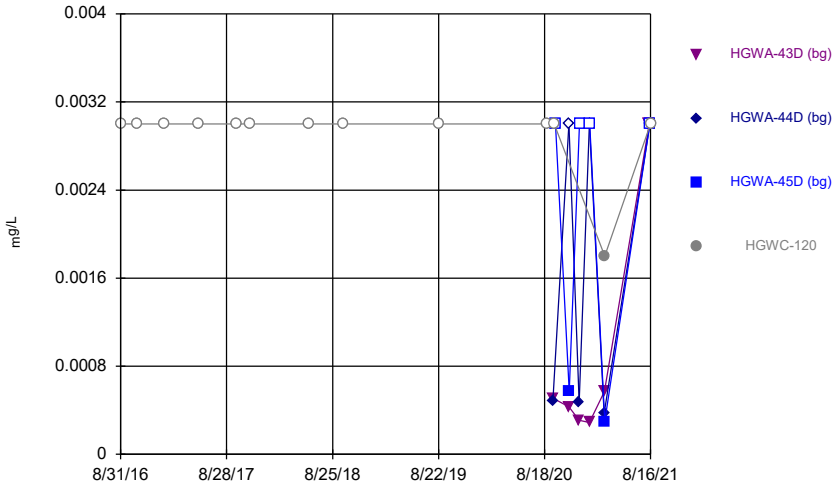
Time Series



Constituent: Antimony Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

Time Series



Constituent: Antimony Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
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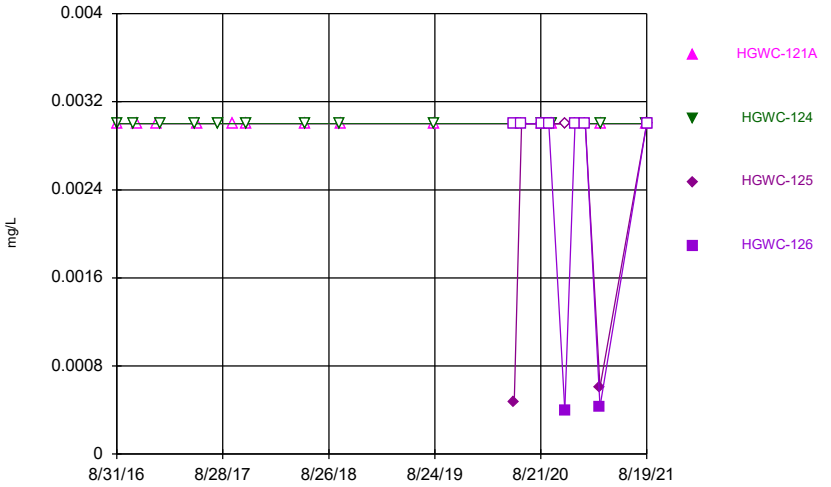
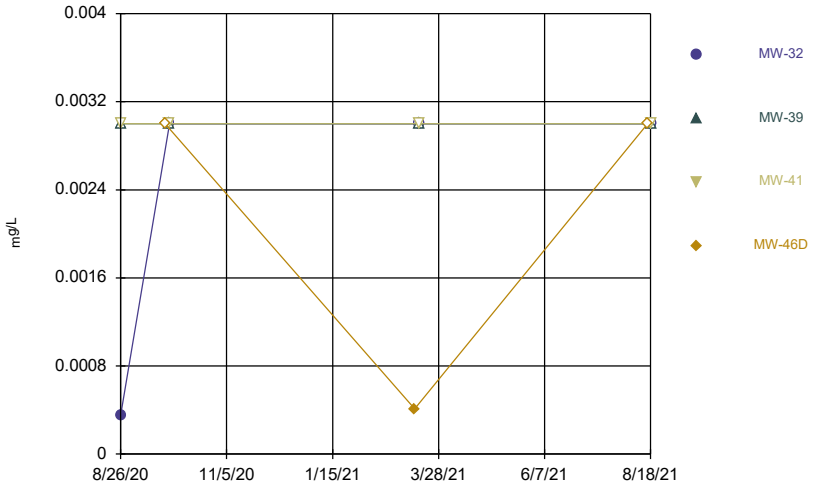
Time Series



Constituent: Antimony Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

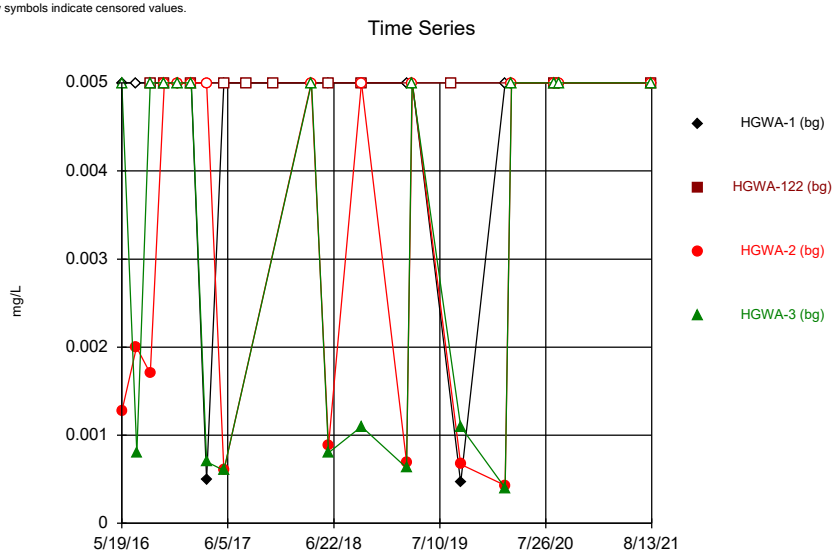
Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

Time Series



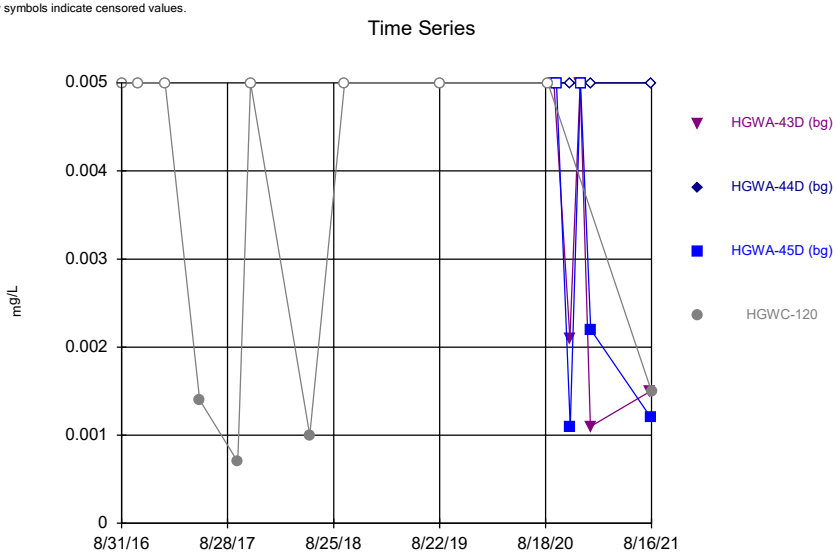
Constituent: Antimony Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.



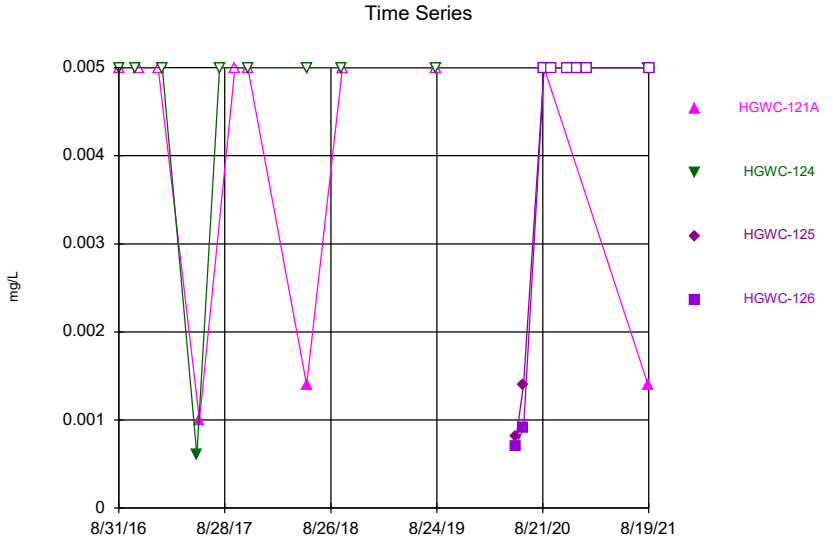
Constituent: Arsenic Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.



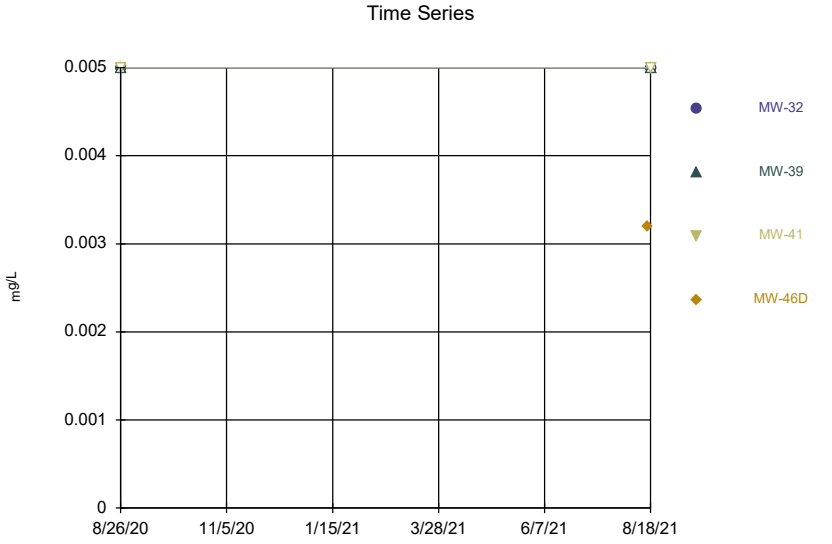
Constituent: Arsenic Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.



Constituent: Arsenic Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

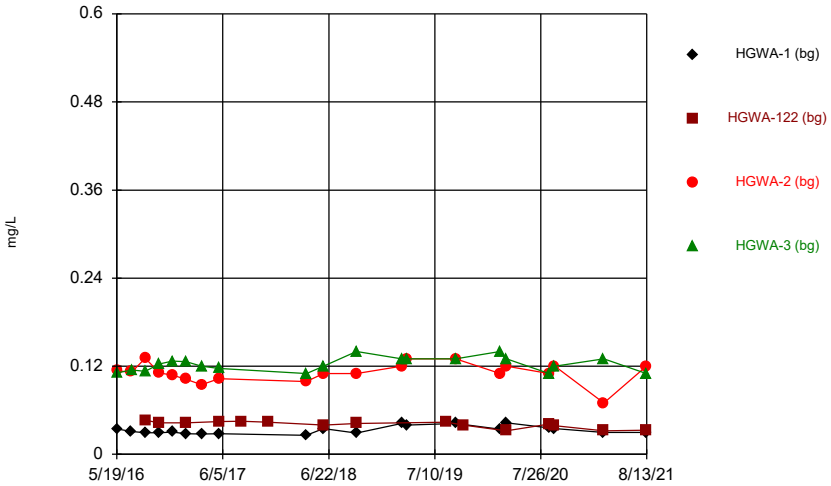
Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.



Constituent: Arsenic Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Time Series



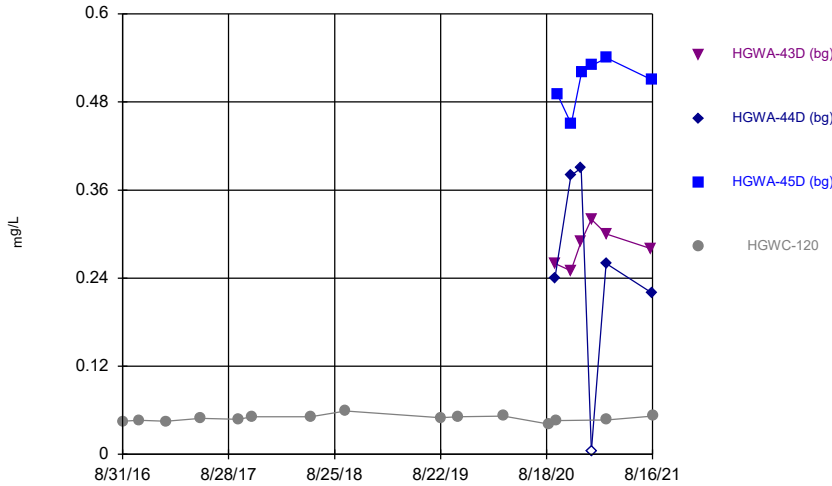
Constituent: Barium Analysis Run 10/14/2021 2:03 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Hollow symbols indicate censored values.

Time Series

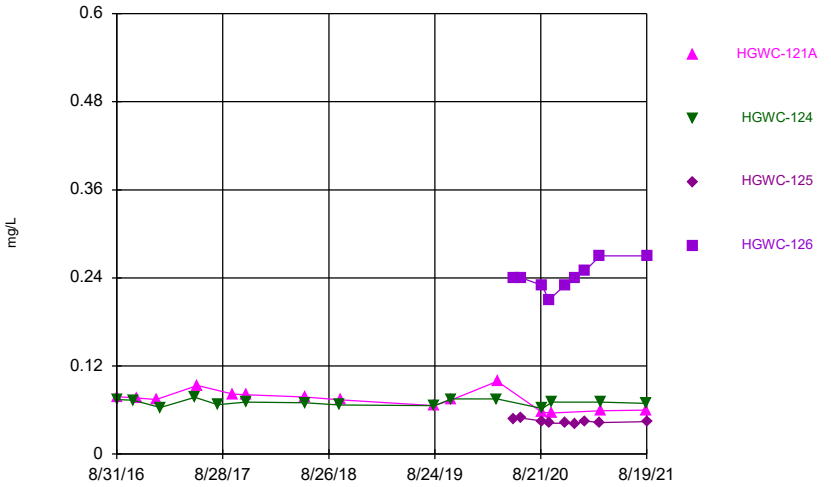


Constituent: Barium Analysis Run 10/14/2021 2:03 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Time Series

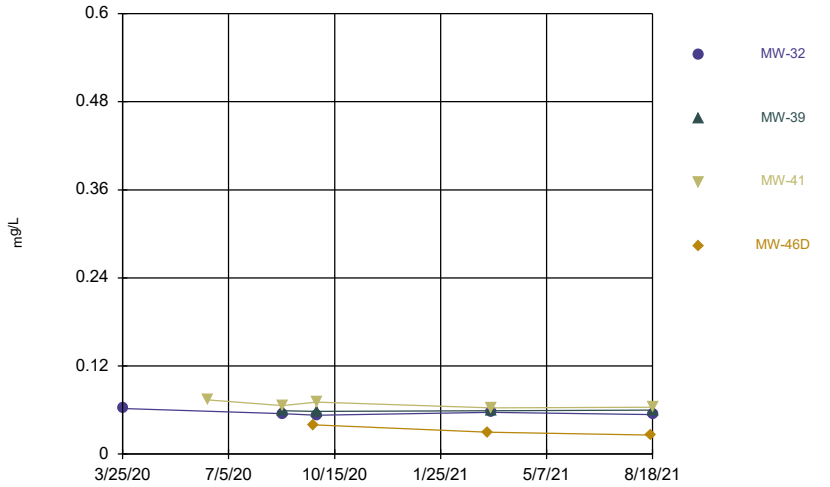


Constituent: Barium Analysis Run 10/14/2021 2:03 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Time Series

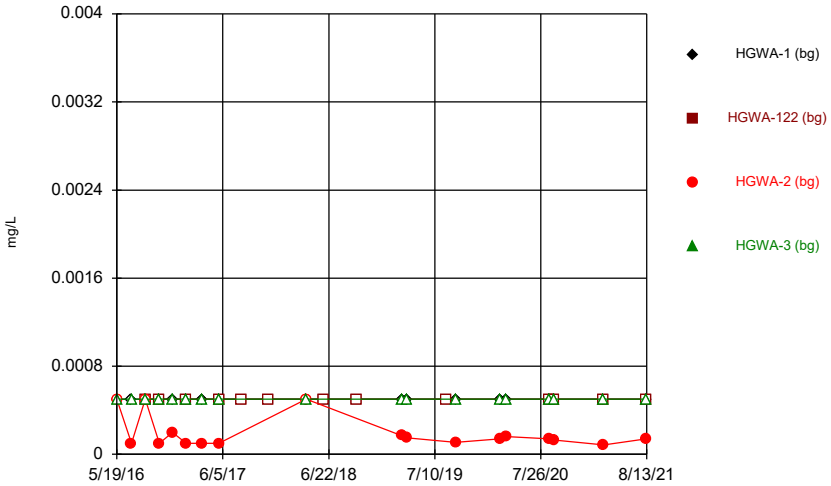


Constituent: Barium Analysis Run 10/14/2021 2:03 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

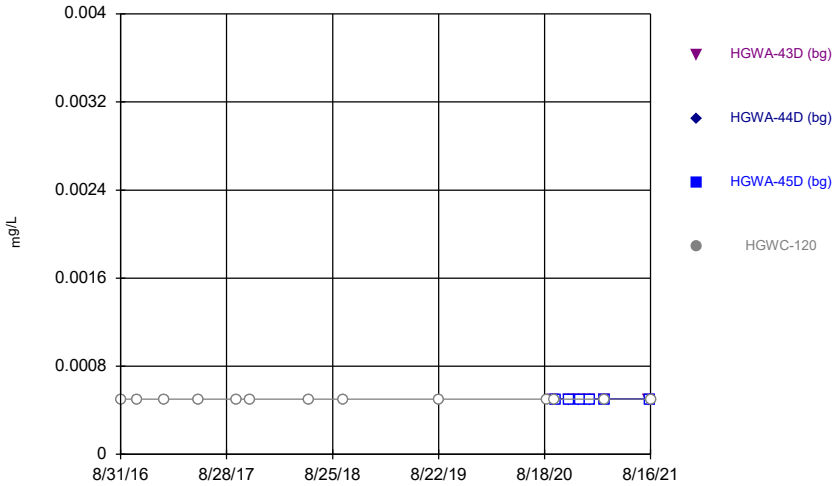
Time Series



Constituent: Beryllium Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

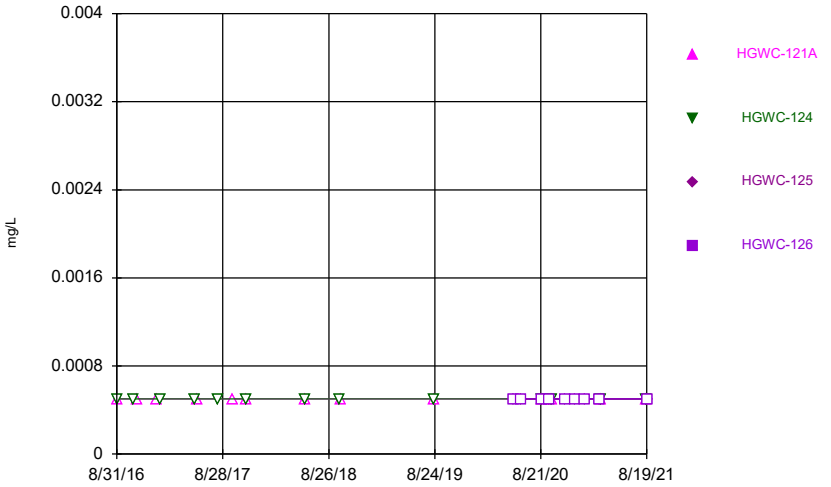
Time Series



Constituent: Beryllium Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

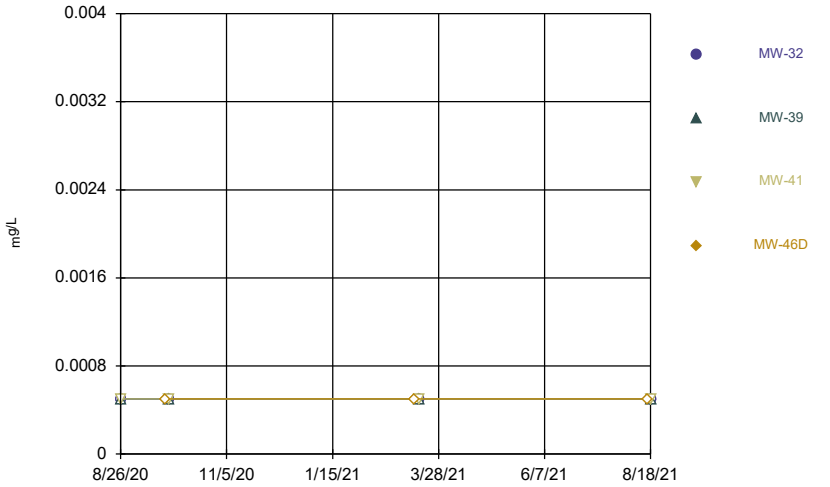
Time Series



Constituent: Beryllium Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

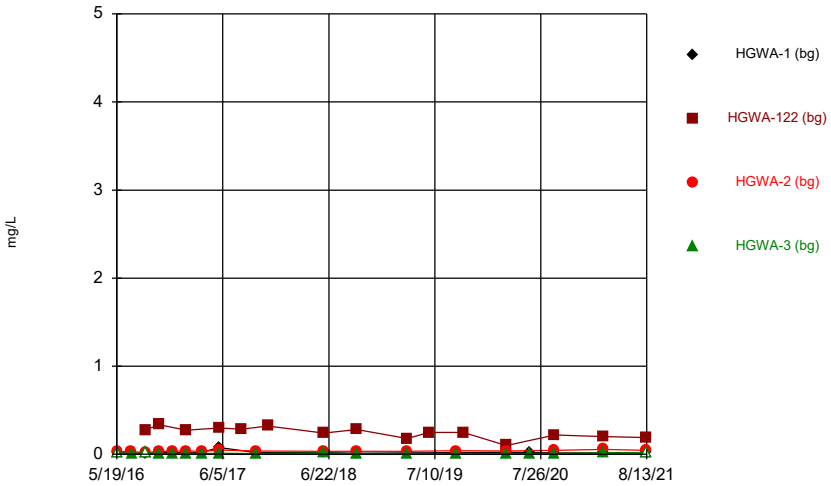
Time Series



Constituent: Beryllium Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

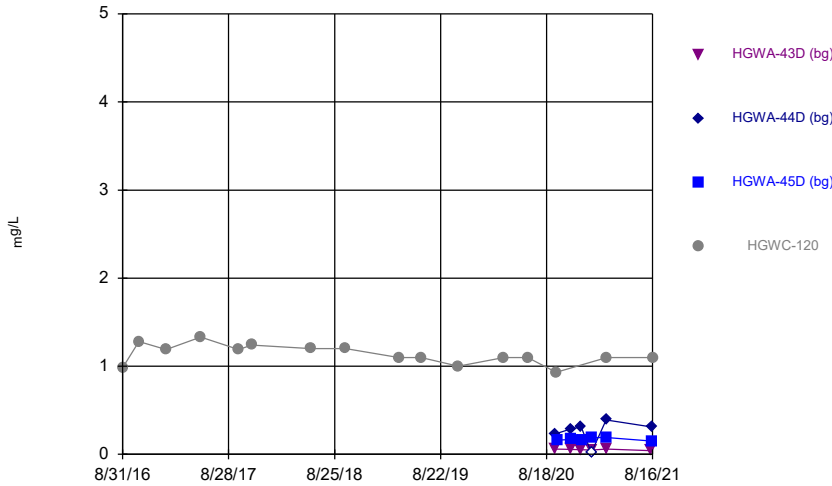
Time Series



Constituent: Boron Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

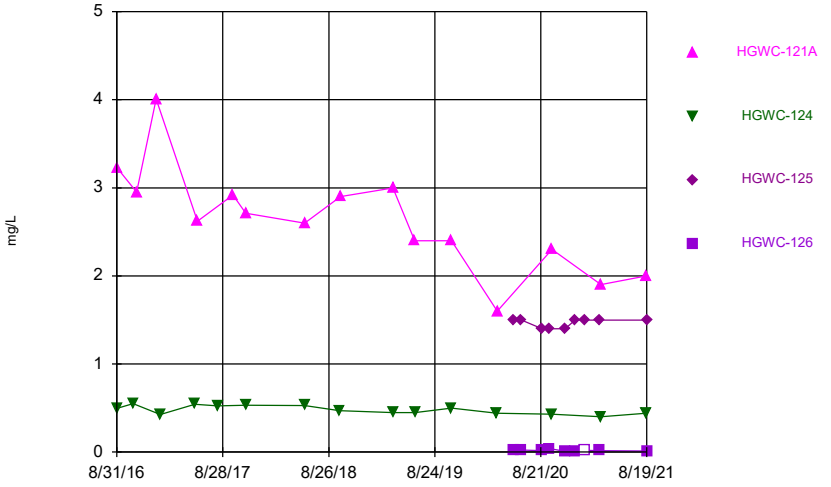
Time Series



Constituent: Boron Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

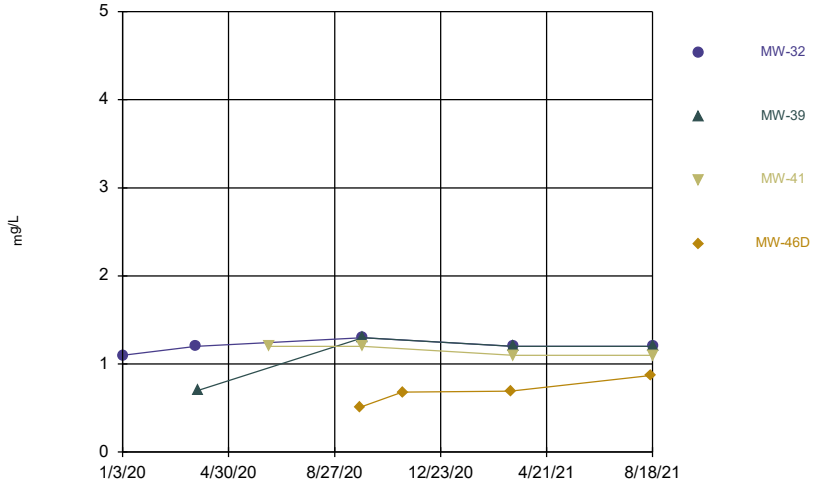
Time Series



Constituent: Boron Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

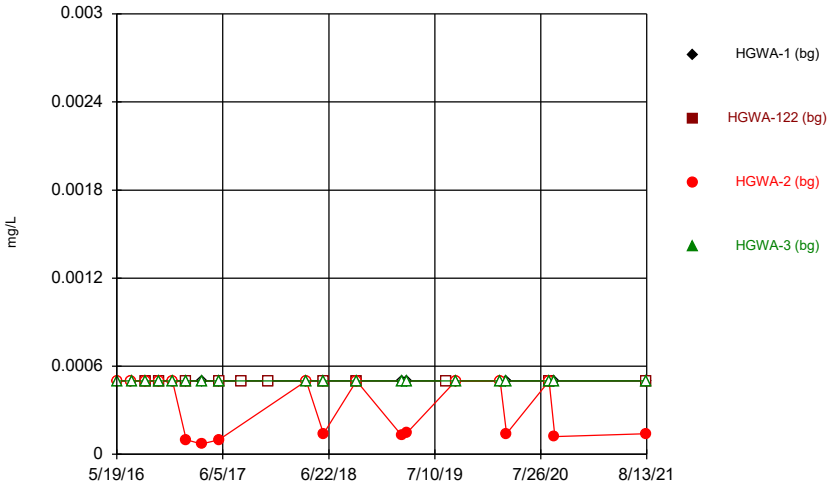
Time Series



Constituent: Boron Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

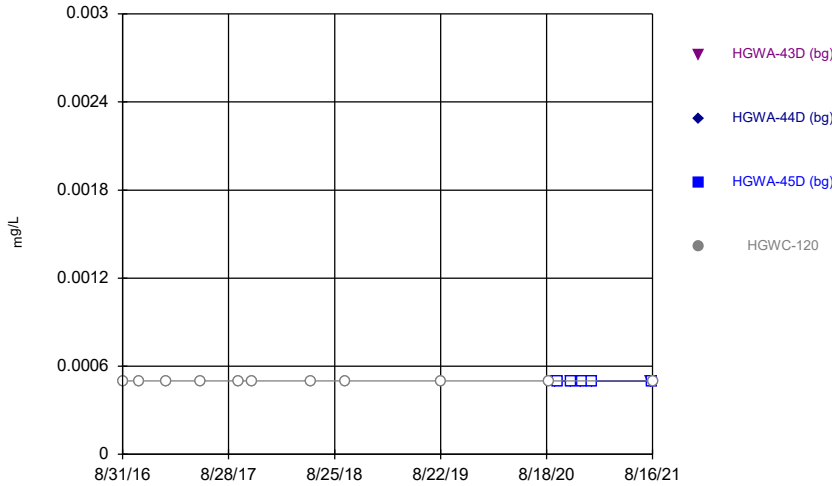
Time Series



Constituent: Cadmium Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

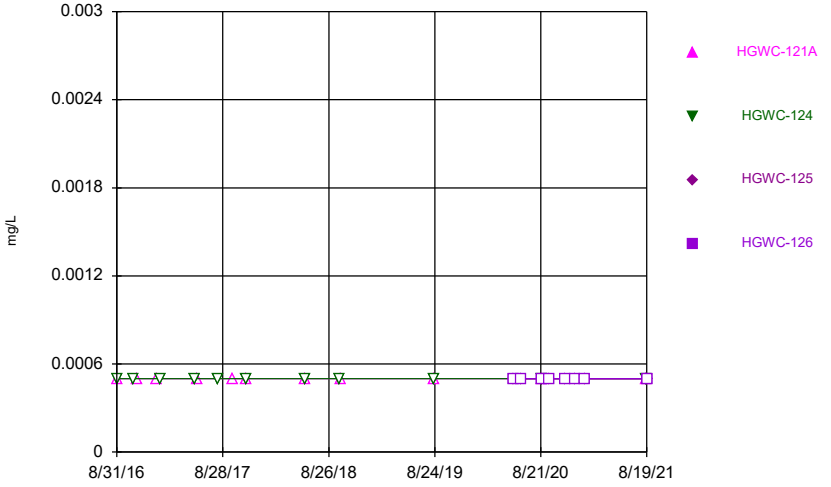
Time Series



Constituent: Cadmium Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

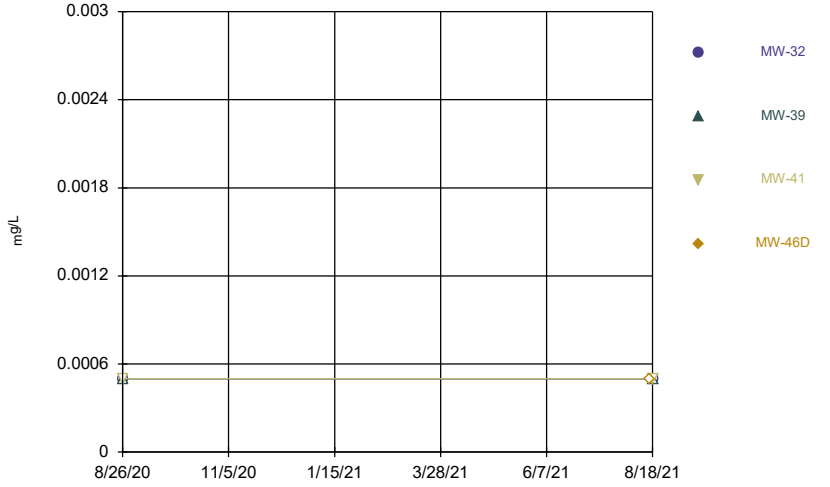
Time Series



Constituent: Cadmium Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

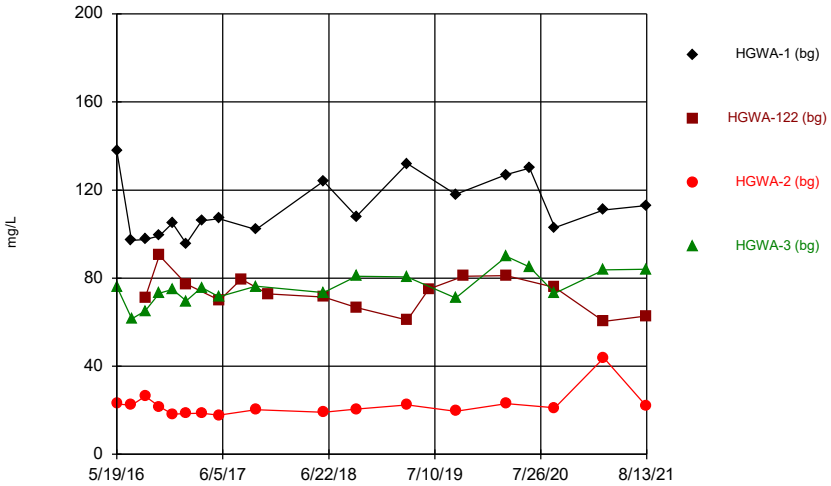
Time Series



Constituent: Cadmium Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Time Series

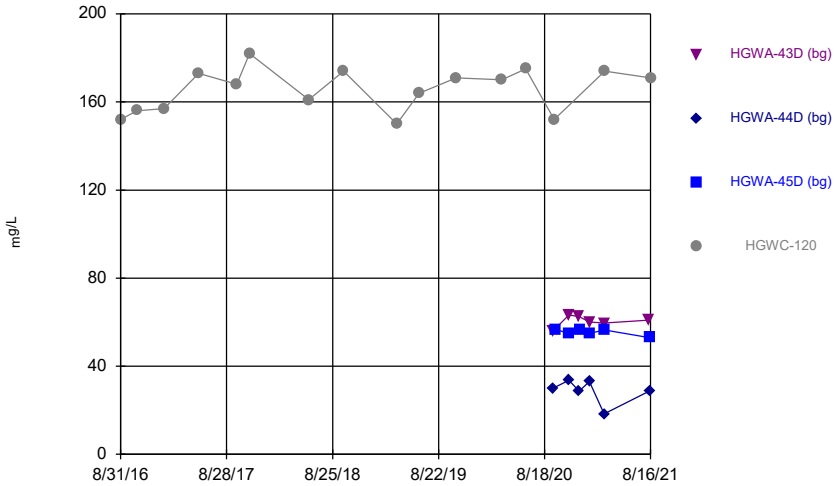


Constituent: Calcium Analysis Run 10/14/2021 2:03 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Time Series

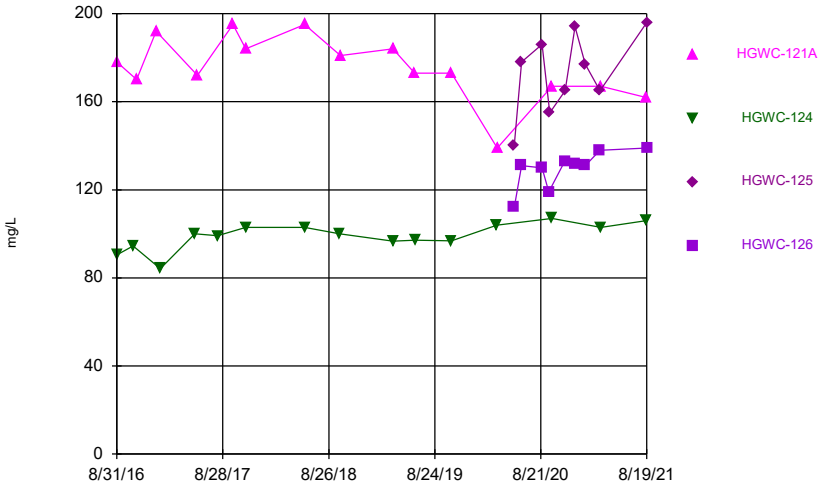


Constituent: Calcium Analysis Run 10/14/2021 2:03 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Time Series

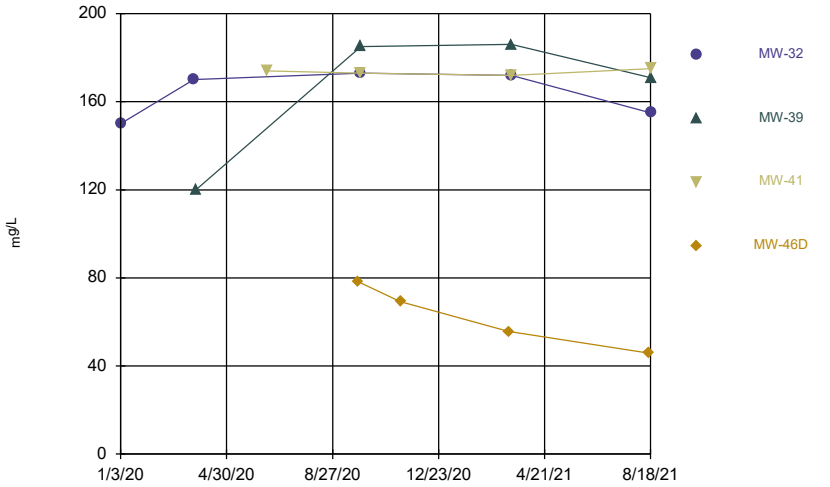


Constituent: Calcium Analysis Run 10/14/2021 2:03 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Time Series

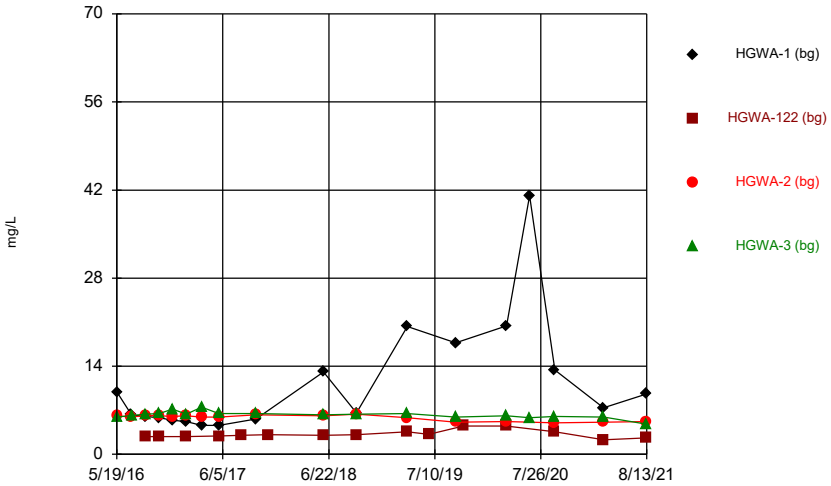


Constituent: Calcium Analysis Run 10/14/2021 2:03 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Time Series

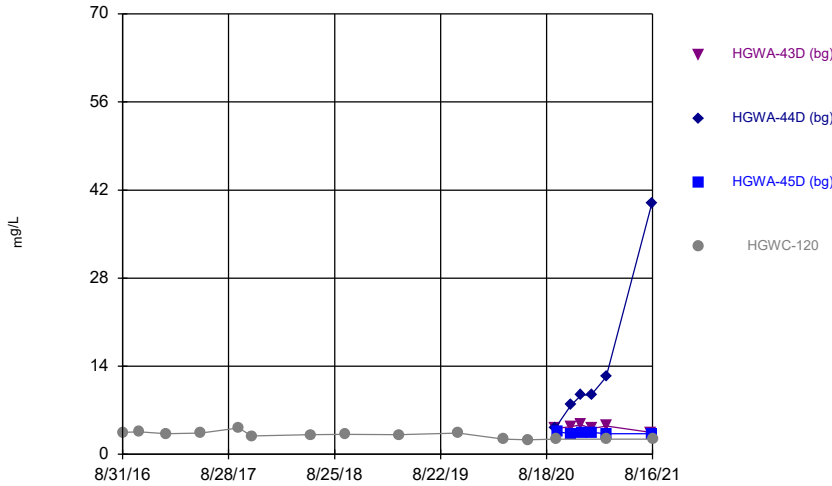


Constituent: Chloride Analysis Run 10/14/2021 2:03 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Time Series

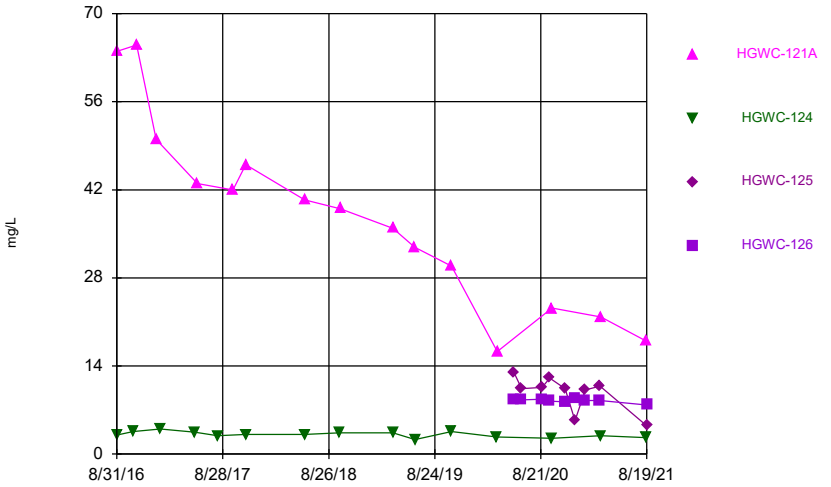


Constituent: Chloride Analysis Run 10/14/2021 2:03 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Time Series

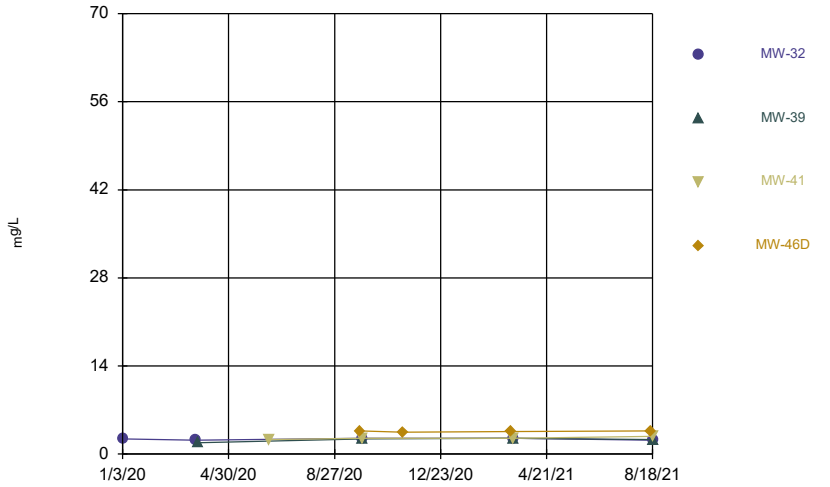


Constituent: Chloride Analysis Run 10/14/2021 2:03 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Time Series

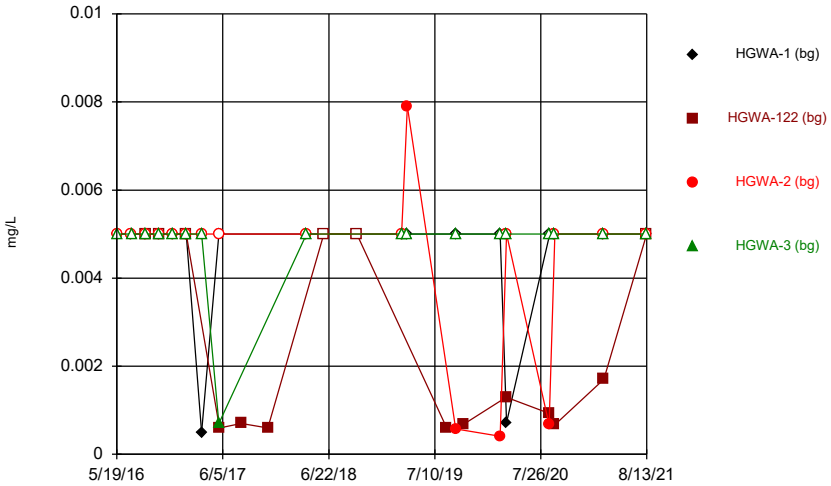


Constituent: Chloride Analysis Run 10/14/2021 2:03 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

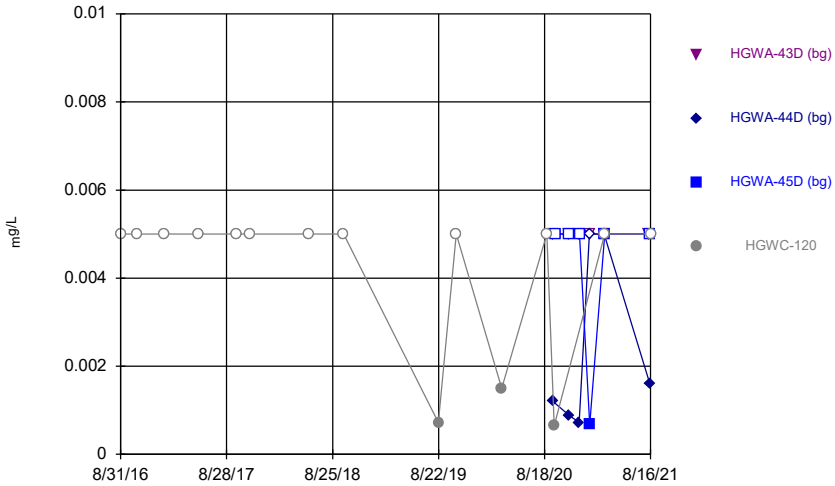
Time Series



Constituent: Chromium Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

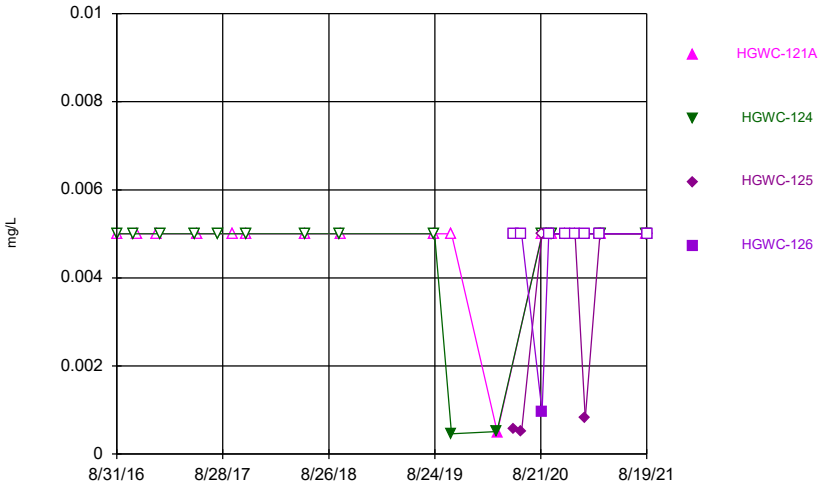
Time Series



Constituent: Chromium Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

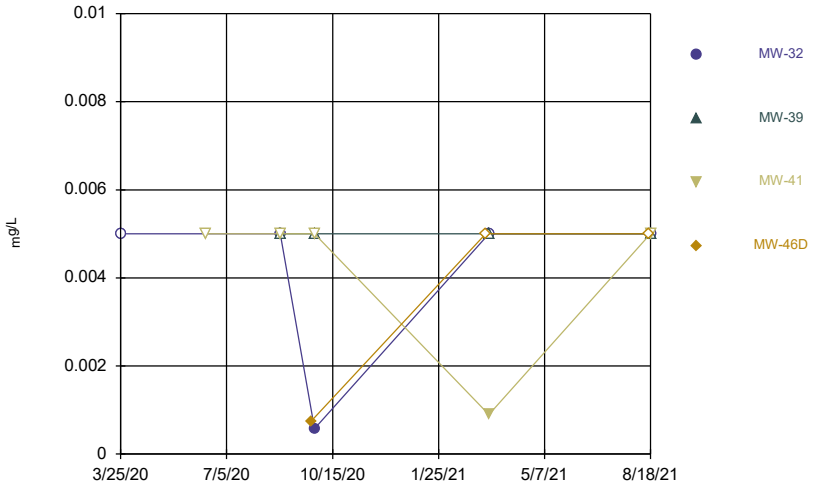
Time Series



Constituent: Chromium Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

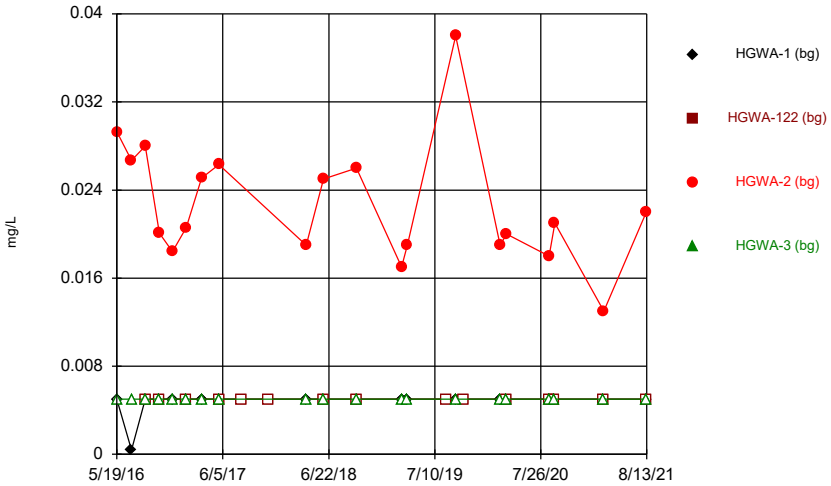
Time Series



Constituent: Chromium Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

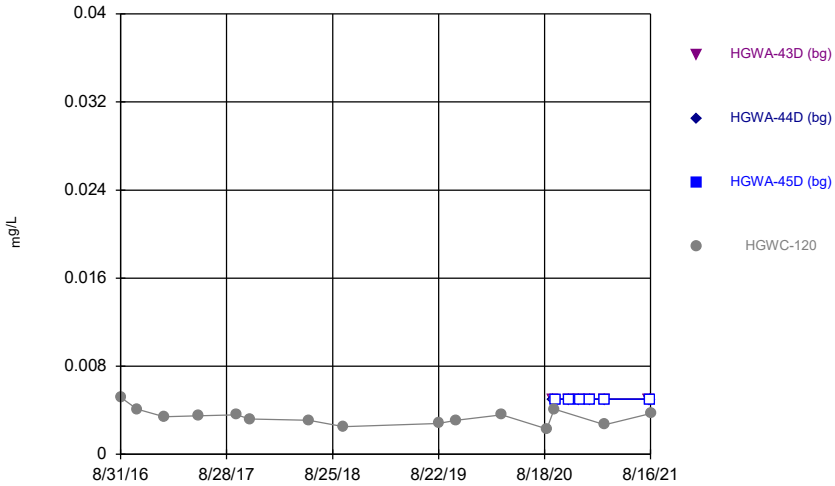
Time Series



Constituent: Cobalt Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

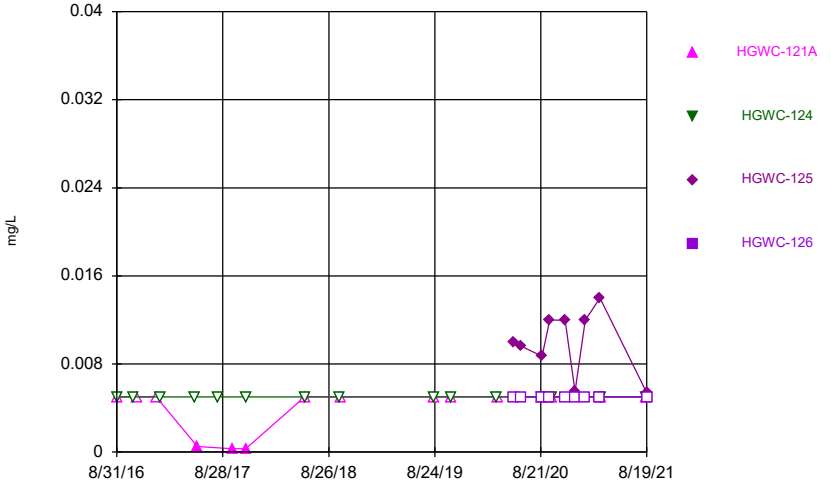
Time Series



Constituent: Cobalt Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

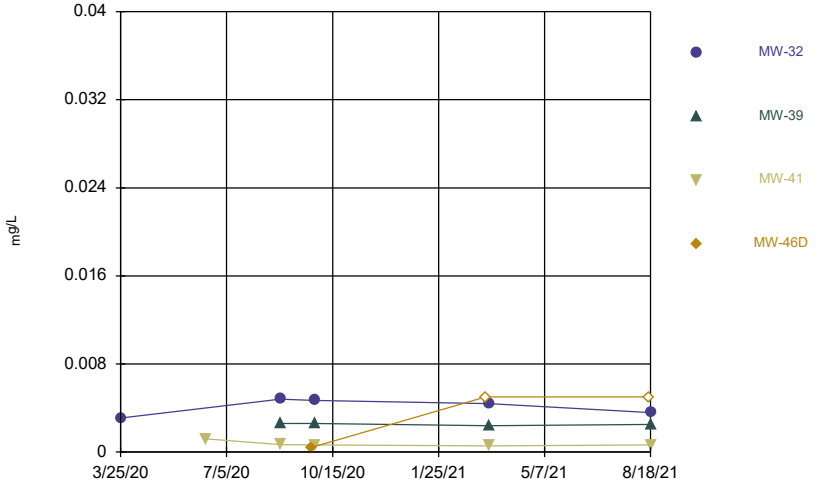
Time Series



Constituent: Cobalt Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

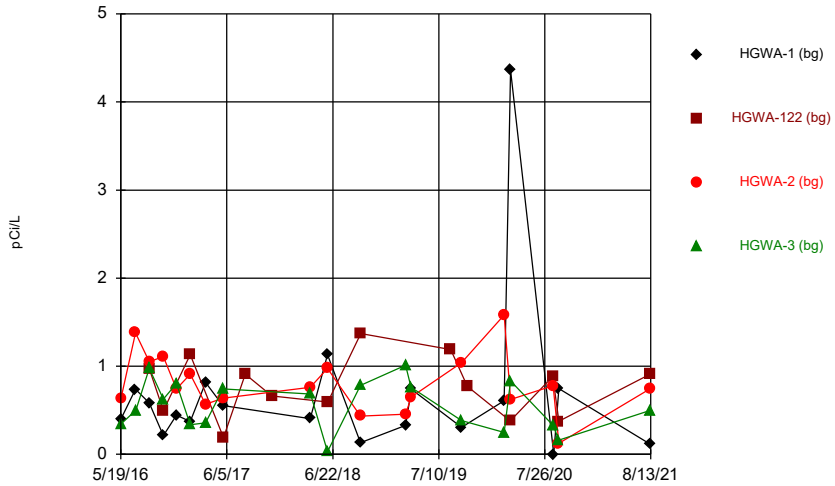
Time Series



Constituent: Cobalt Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

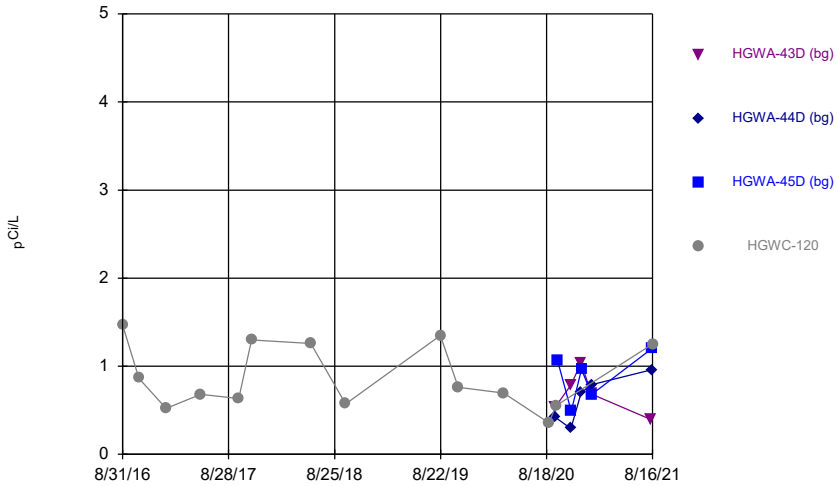
Time Series



Constituent: Combined Radium 226 + 228 Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

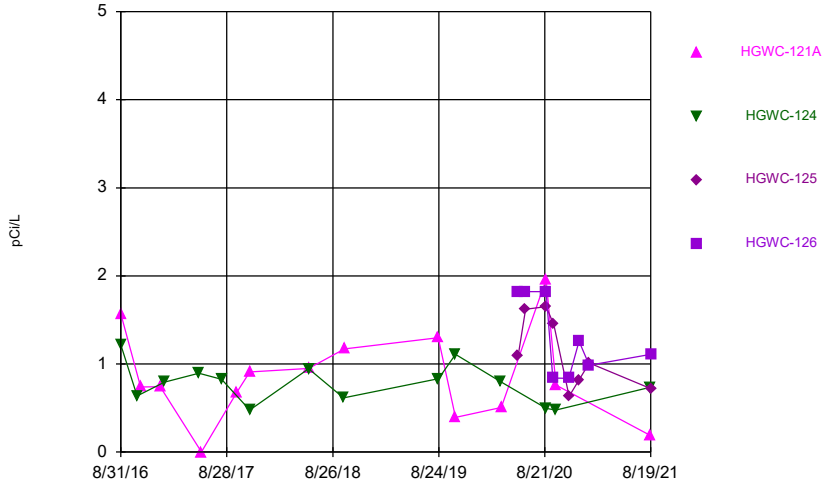
Time Series



Constituent: Combined Radium 226 + 228 Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

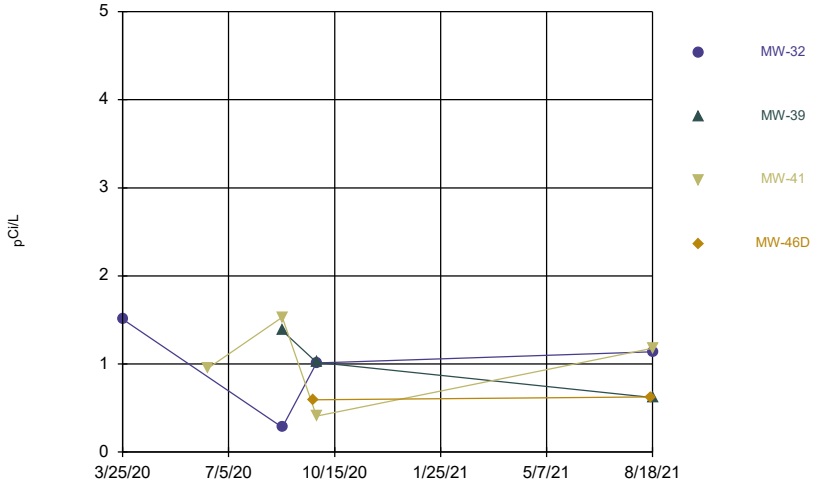
Time Series



Constituent: Combined Radium 226 + 228 Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

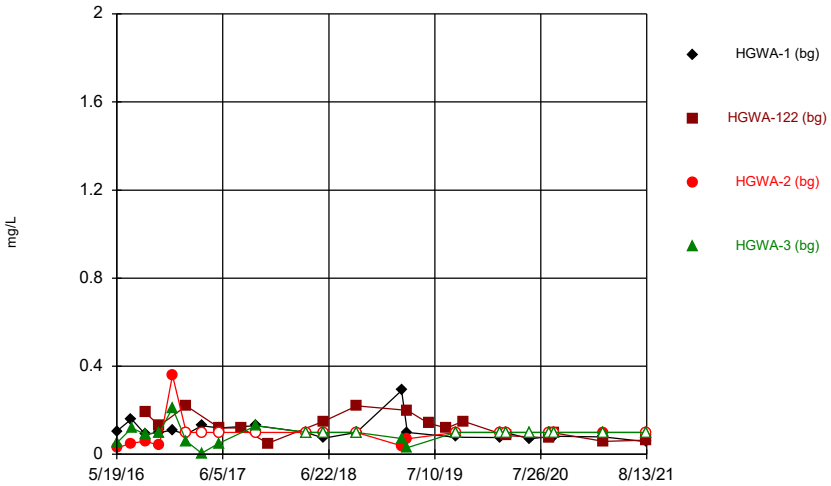
Time Series



Constituent: Combined Radium 226 + 228 Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

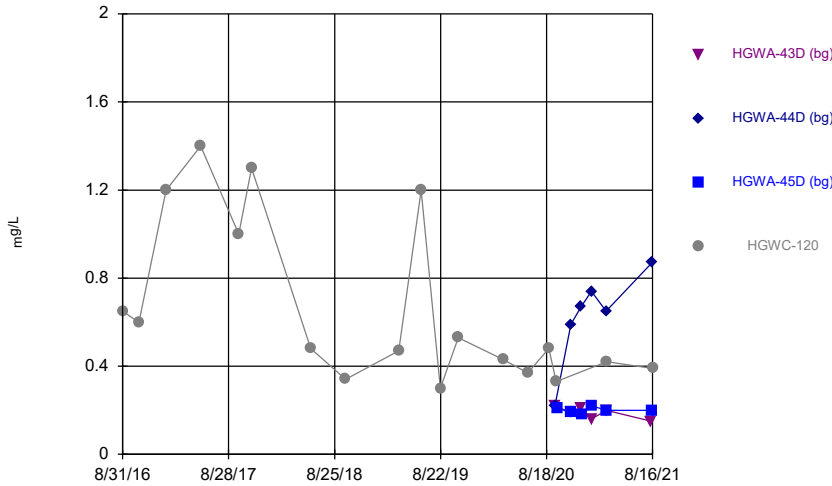
Time Series



Constituent: Fluoride Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

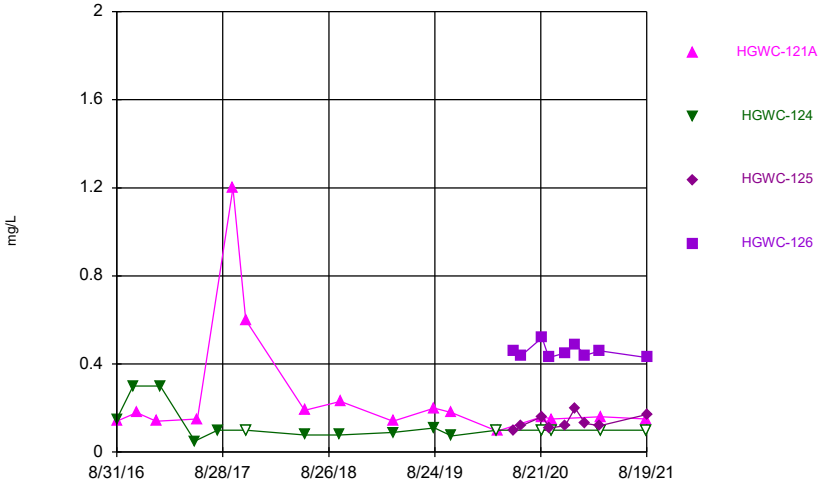
Time Series



Constituent: Fluoride Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

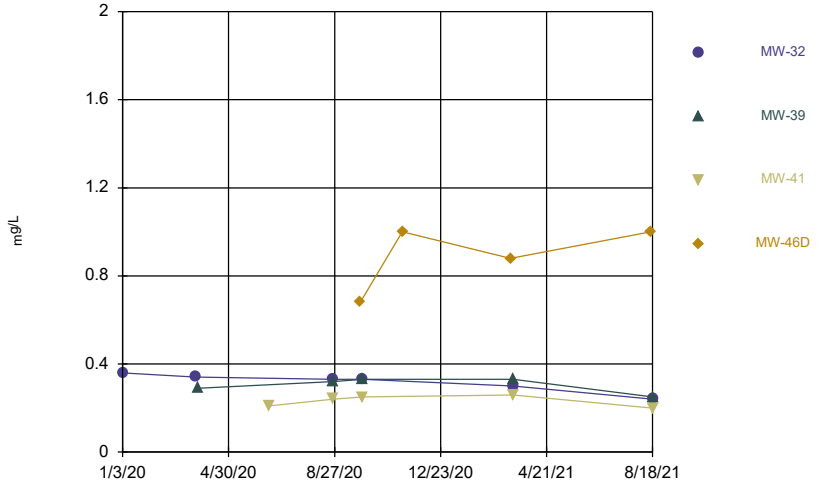
Time Series



Constituent: Fluoride Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

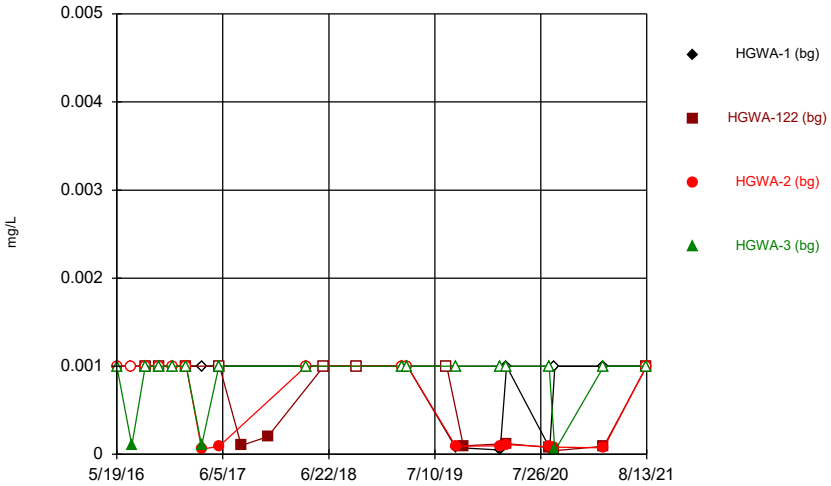
Time Series



Constituent: Fluoride Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

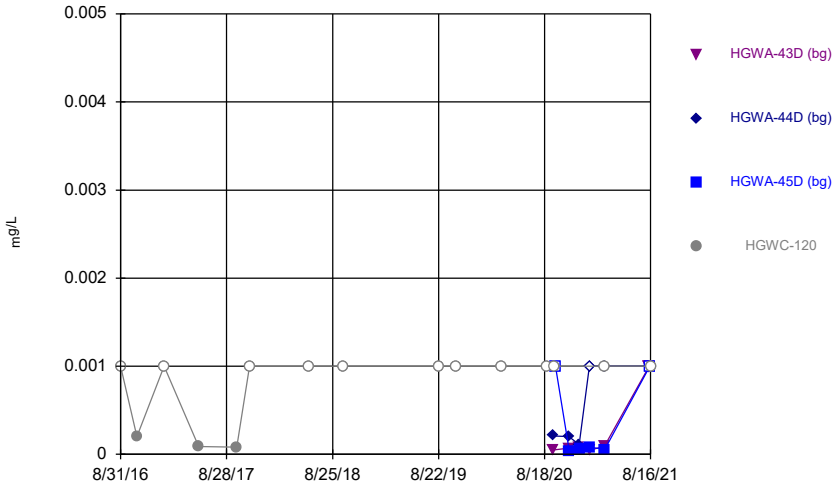
Time Series



Constituent: Lead Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

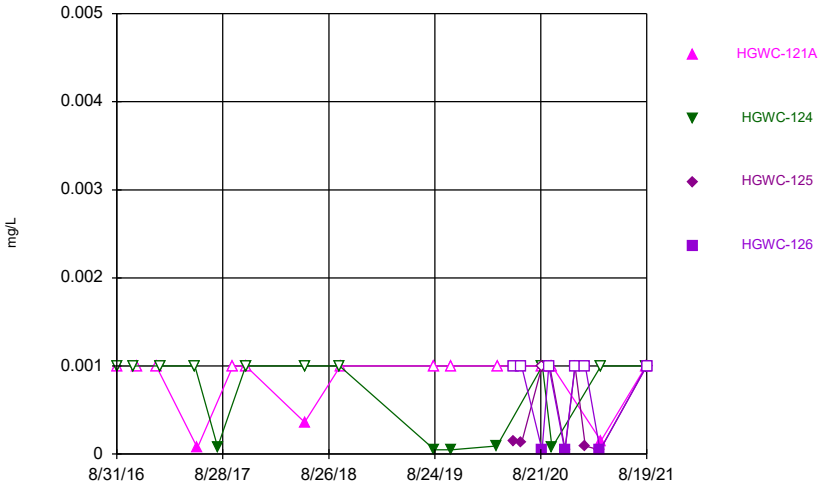
Time Series



Constituent: Lead Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

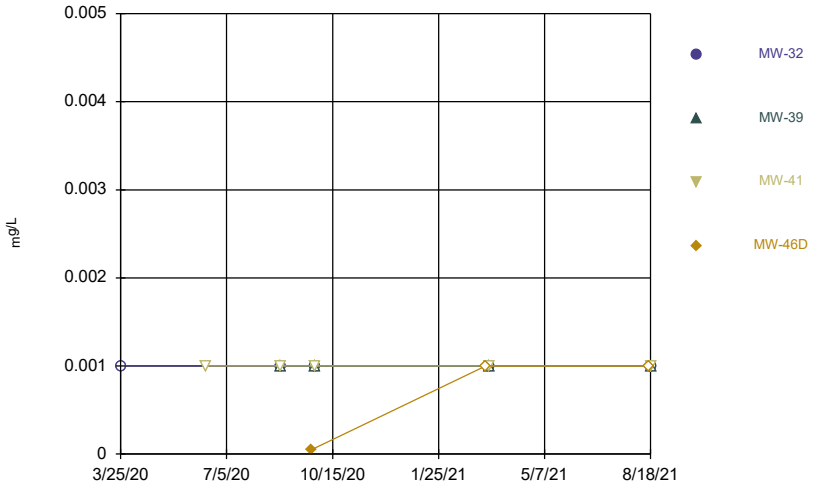
Time Series



Constituent: Lead Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

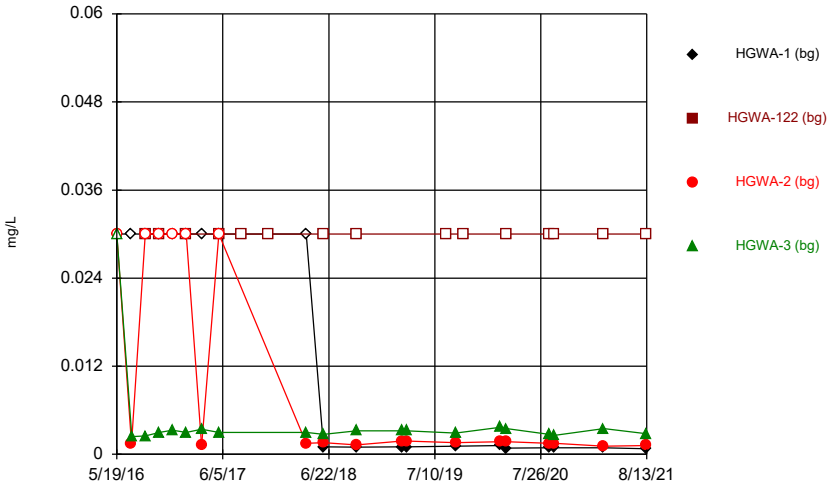
Time Series



Constituent: Lead Analysis Run 10/14/2021 2:03 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

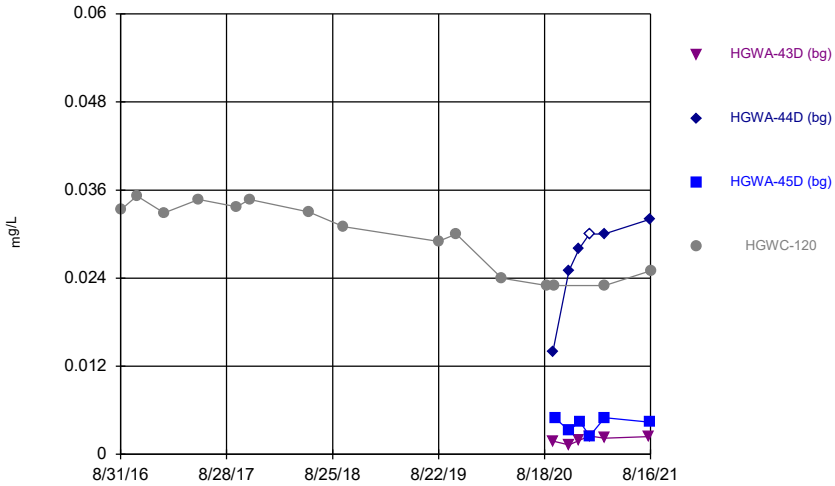
Time Series



Constituent: Lithium Analysis Run 10/14/2021 2:04 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

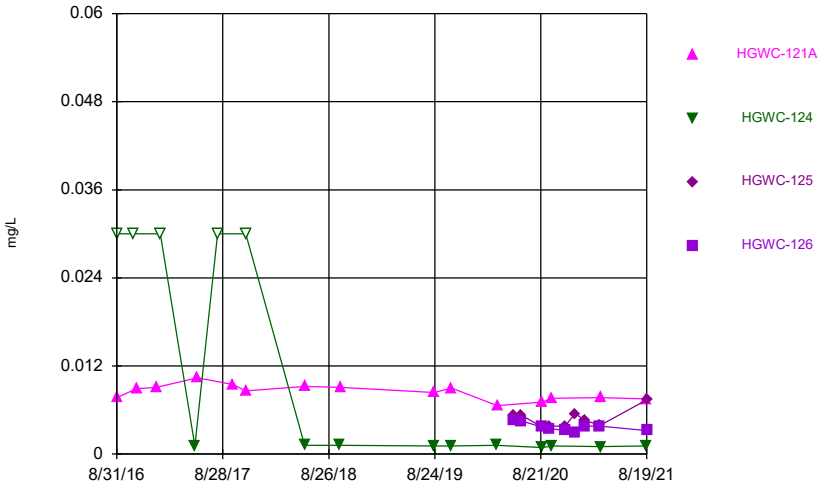
Time Series



Constituent: Lithium Analysis Run 10/14/2021 2:04 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

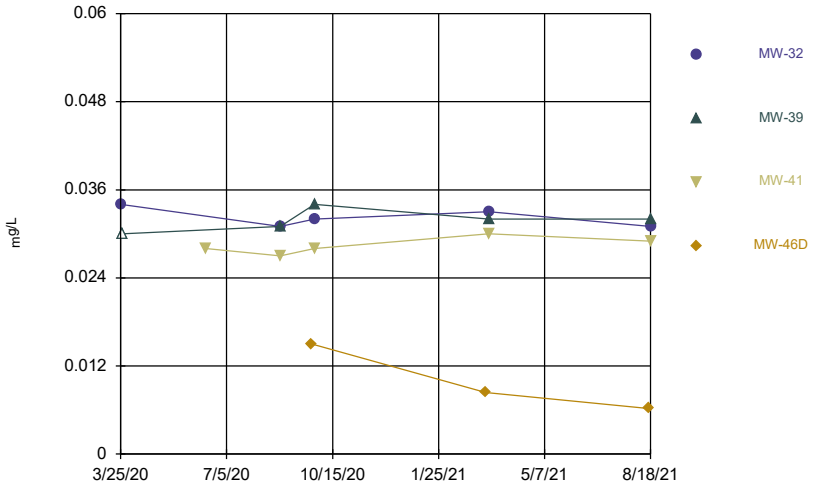
Time Series



Constituent: Lithium Analysis Run 10/14/2021 2:04 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

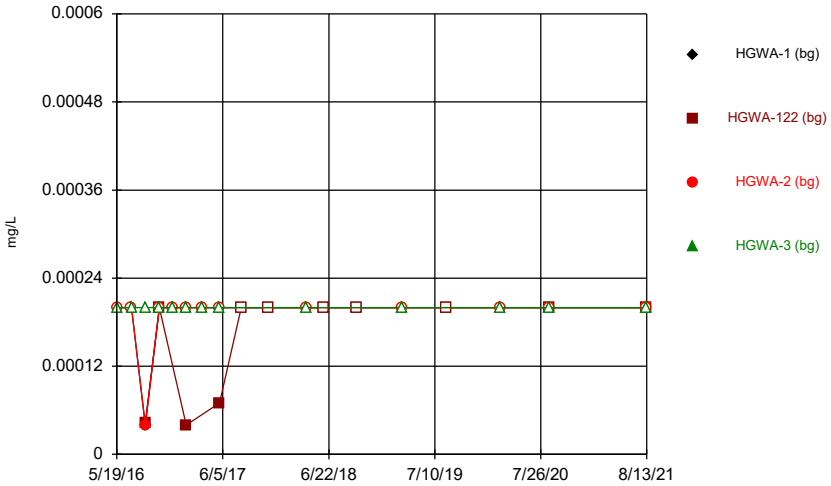
Time Series



Constituent: Lithium Analysis Run 10/14/2021 2:04 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

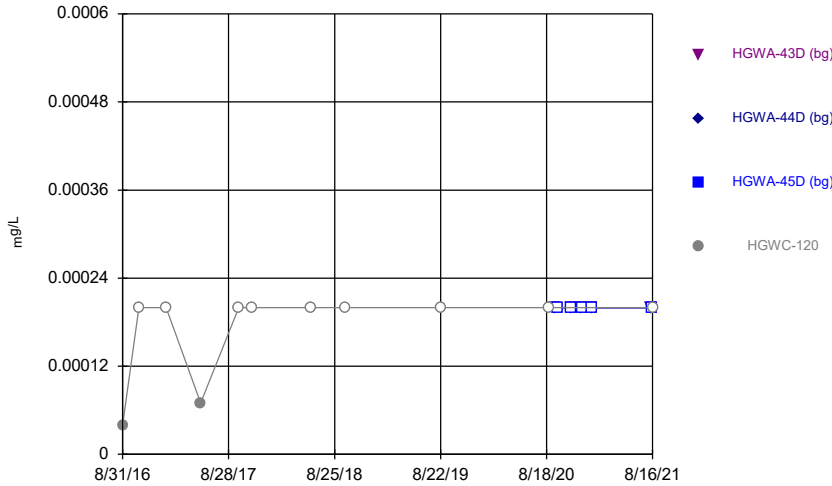
Time Series



Constituent: Mercury Analysis Run 10/14/2021 2:04 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

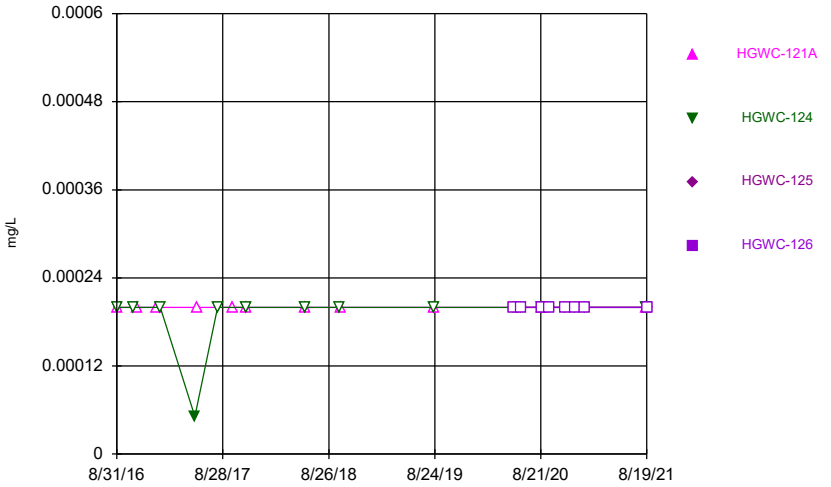
Time Series



Constituent: Mercury Analysis Run 10/14/2021 2:04 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

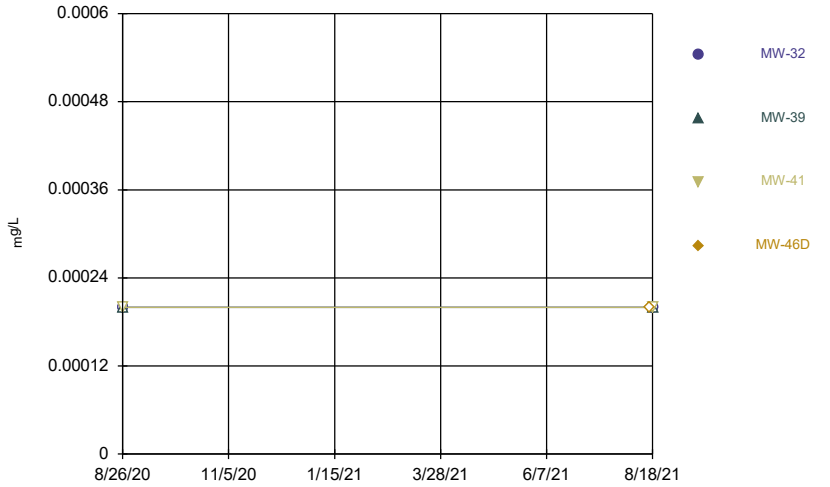
Time Series



Constituent: Mercury Analysis Run 10/14/2021 2:04 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

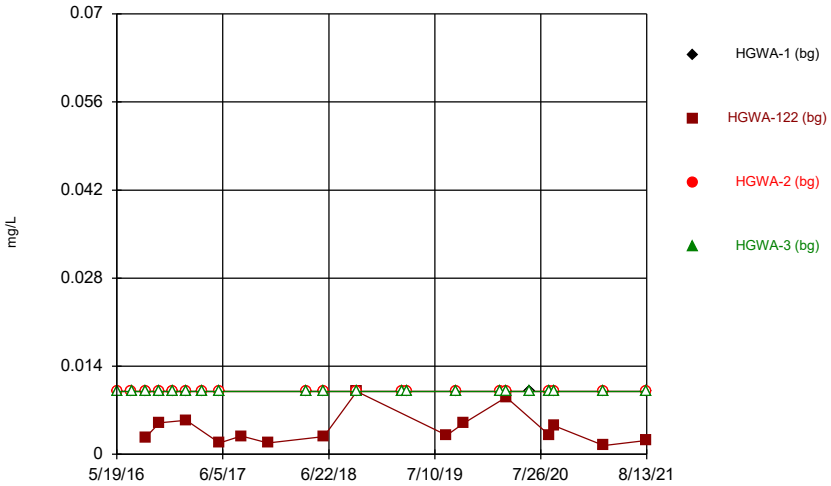
Time Series



Constituent: Mercury Analysis Run 10/14/2021 2:04 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

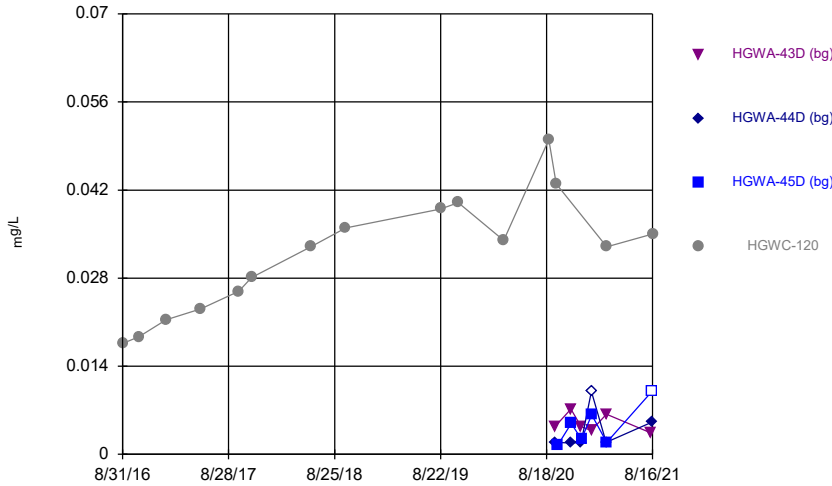
Time Series



Constituent: Molybdenum Analysis Run 10/14/2021 2:04 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

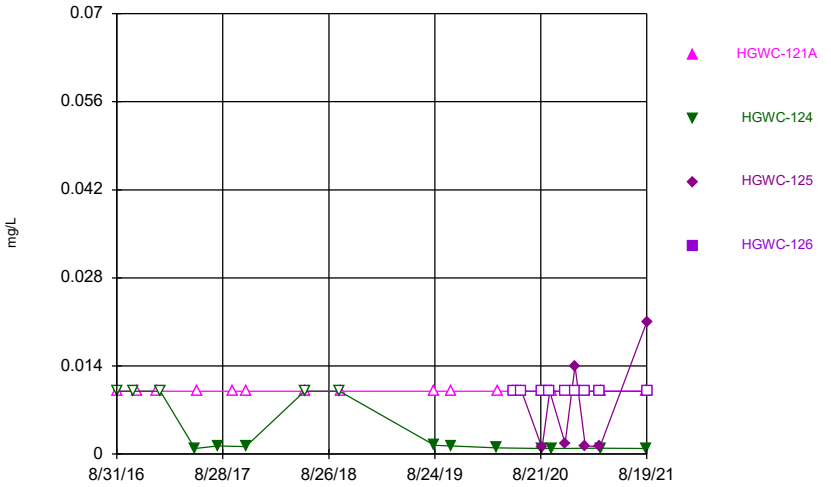
Time Series



Constituent: Molybdenum Analysis Run 10/14/2021 2:04 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

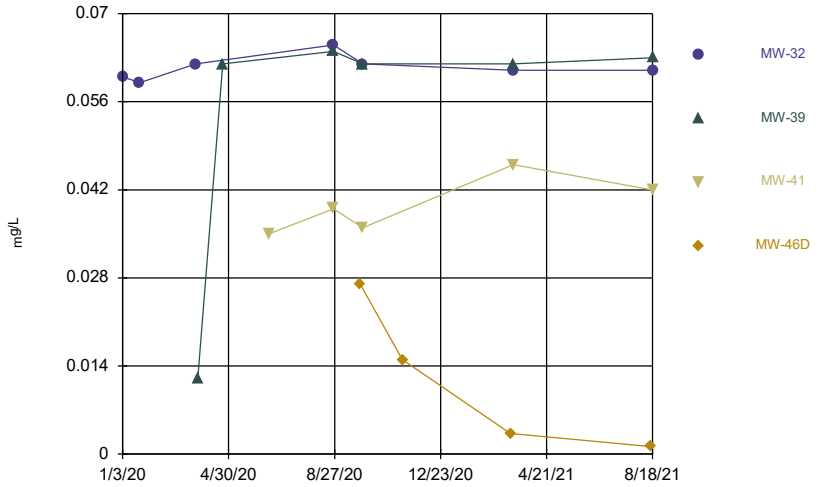
Time Series



Constituent: Molybdenum Analysis Run 10/14/2021 2:04 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

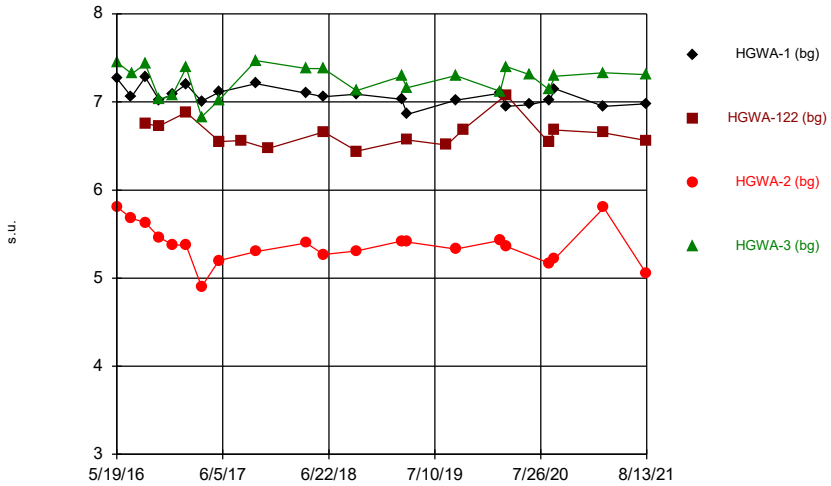
Time Series



Constituent: Molybdenum Analysis Run 10/14/2021 2:04 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Time Series

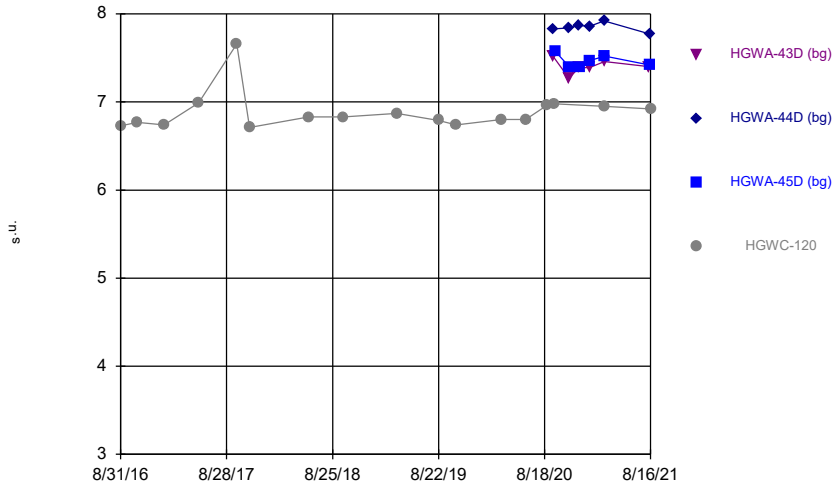


Constituent: pH Analysis Run 10/14/2021 2:04 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Time Series

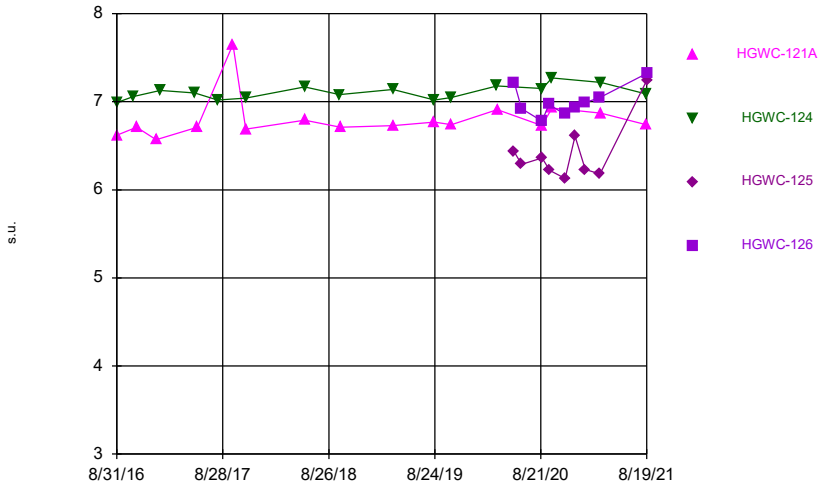


Constituent: pH Analysis Run 10/14/2021 2:04 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Time Series

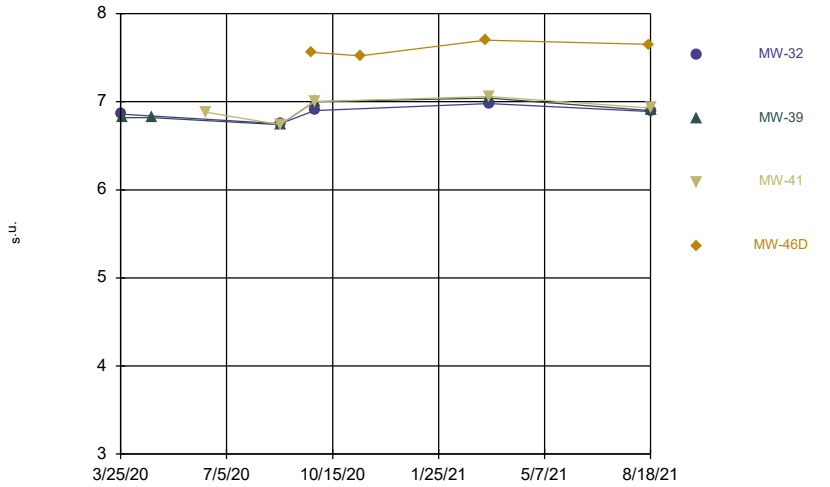


Constituent: pH Analysis Run 10/14/2021 2:04 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Time Series

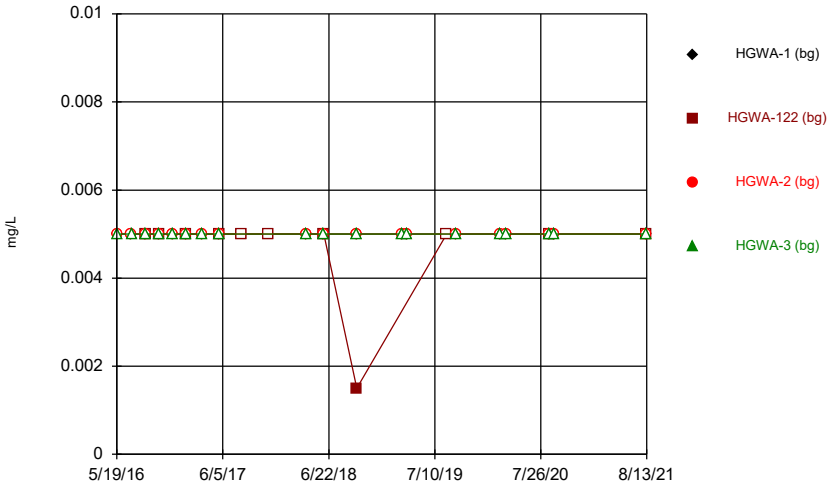


Constituent: pH Analysis Run 10/14/2021 2:04 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

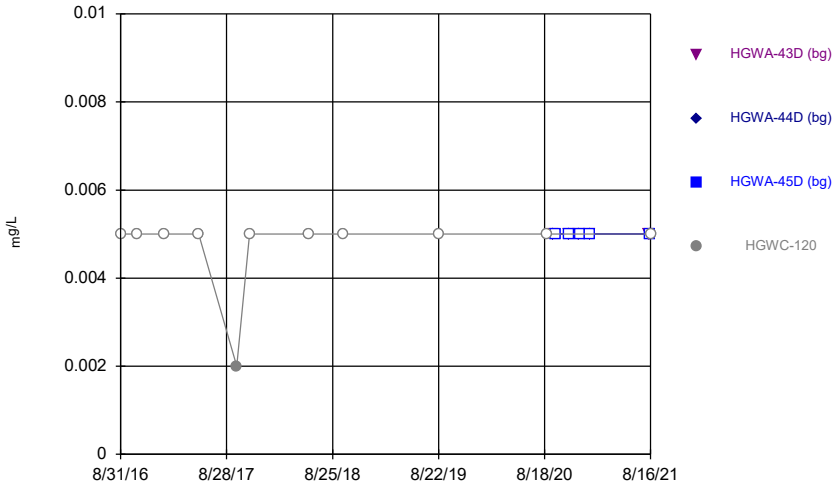
Time Series



Constituent: Selenium Analysis Run 10/14/2021 2:04 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

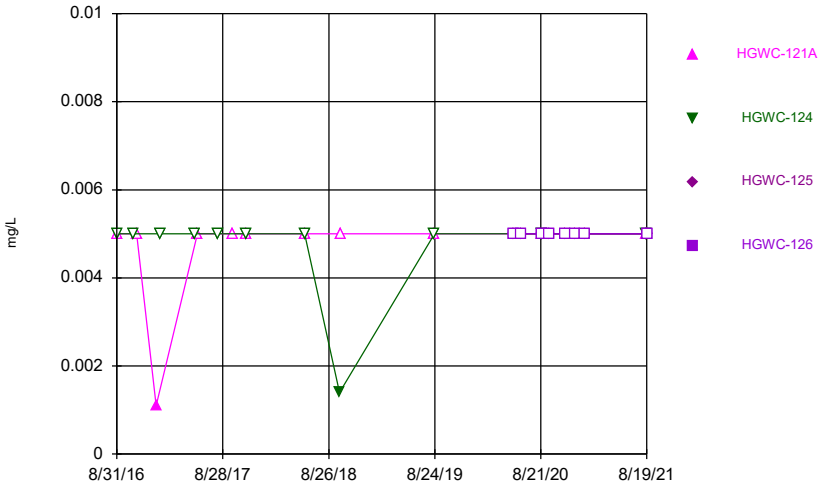
Time Series



Constituent: Selenium Analysis Run 10/14/2021 2:04 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

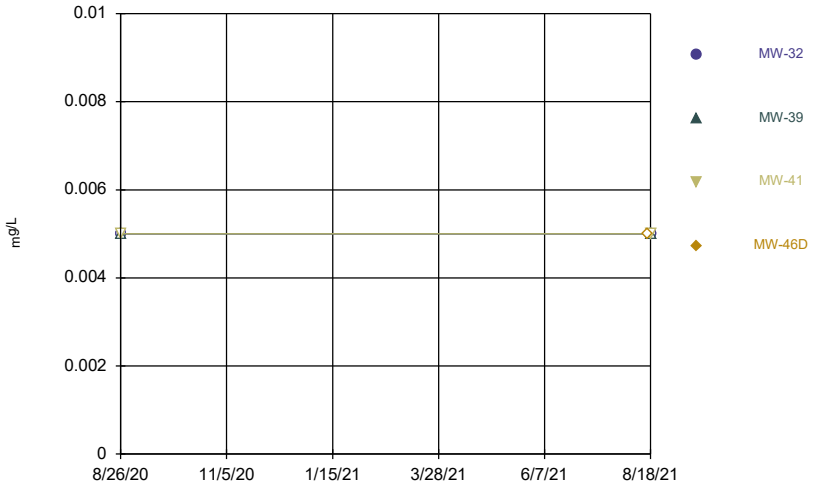
Time Series



Constituent: Selenium Analysis Run 10/14/2021 2:04 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

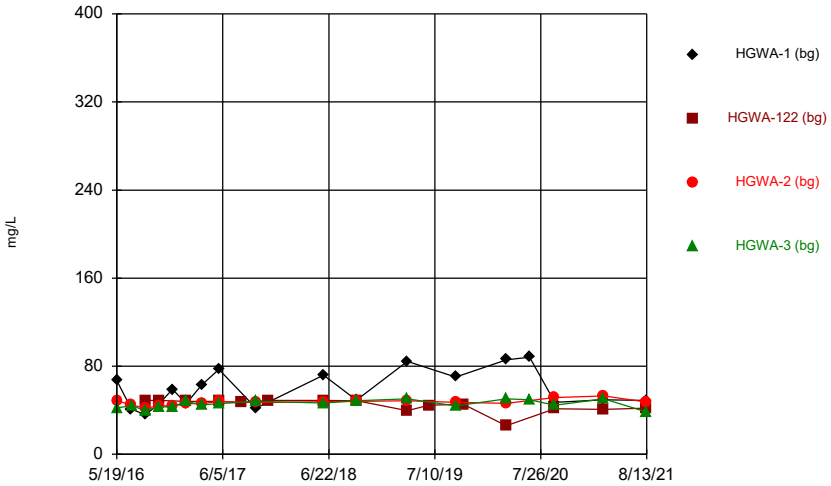
Time Series



Constituent: Selenium Analysis Run 10/14/2021 2:04 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Time Series



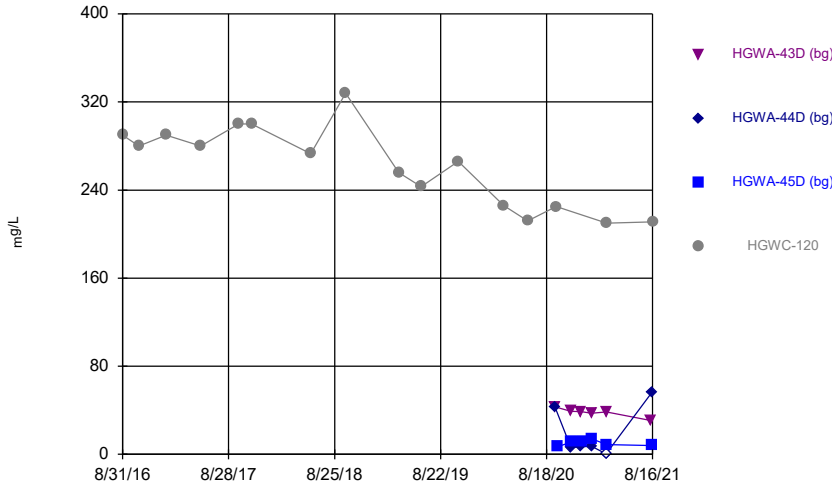
Constituent: Sulfate Analysis Run 10/14/2021 2:04 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Hollow symbols indicate censored values.

Time Series

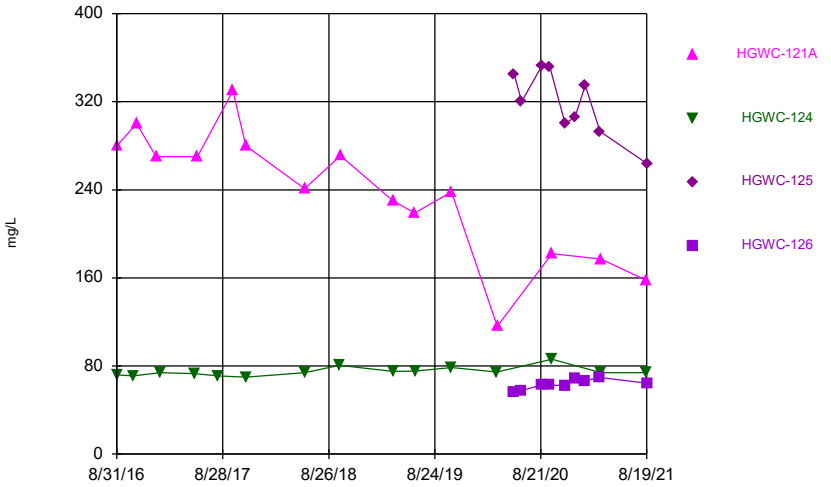


Constituent: Sulfate Analysis Run 10/14/2021 2:04 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Time Series

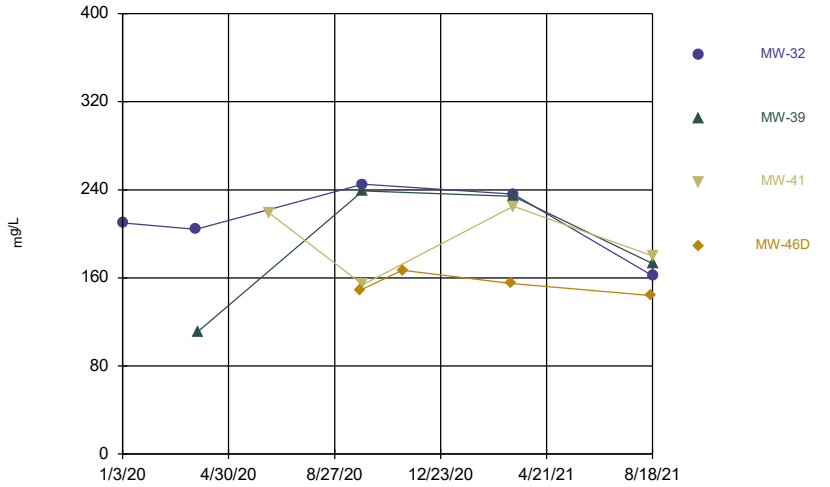


Constituent: Sulfate Analysis Run 10/14/2021 2:04 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Time Series

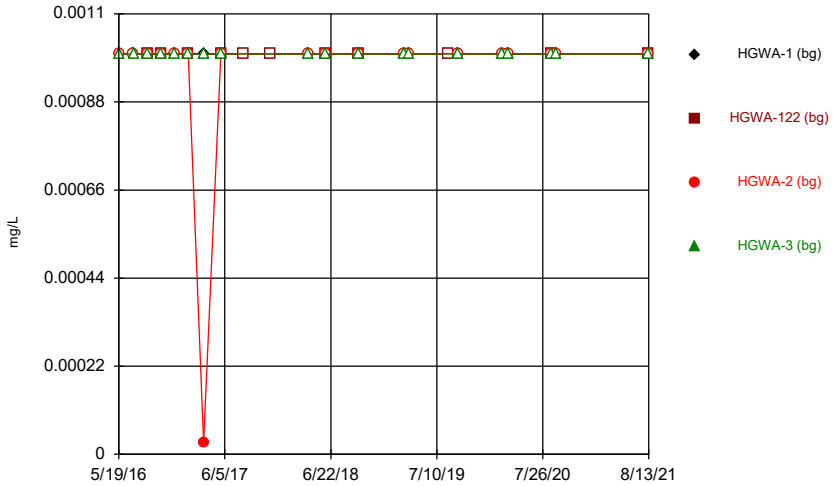


Constituent: Sulfate Analysis Run 10/14/2021 2:04 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

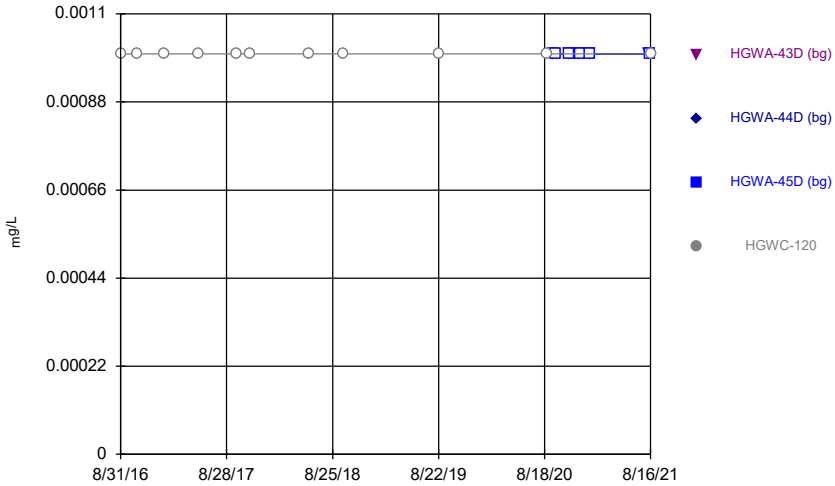
Time Series



Constituent: Thallium Analysis Run 10/14/2021 2:04 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

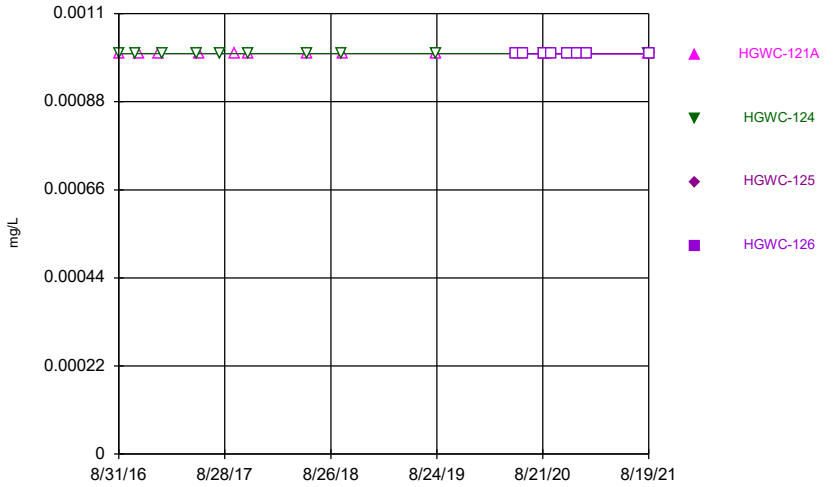
Time Series



Constituent: Thallium Analysis Run 10/14/2021 2:04 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

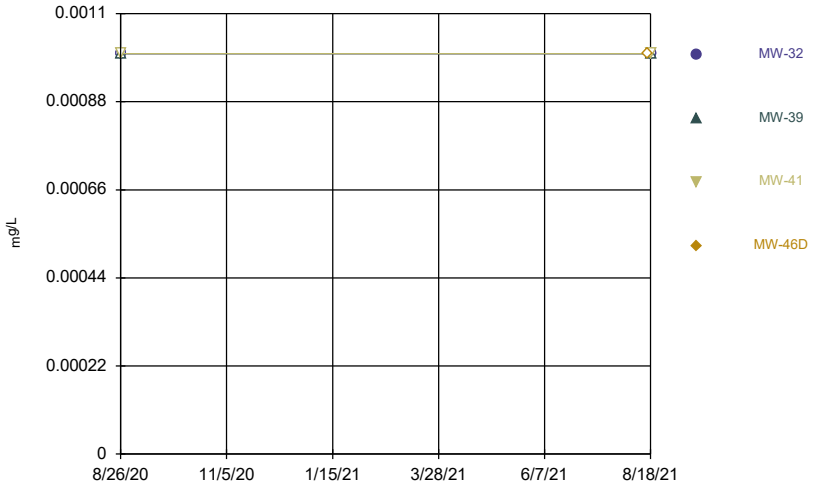
Time Series



Constituent: Thallium Analysis Run 10/14/2021 2:04 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

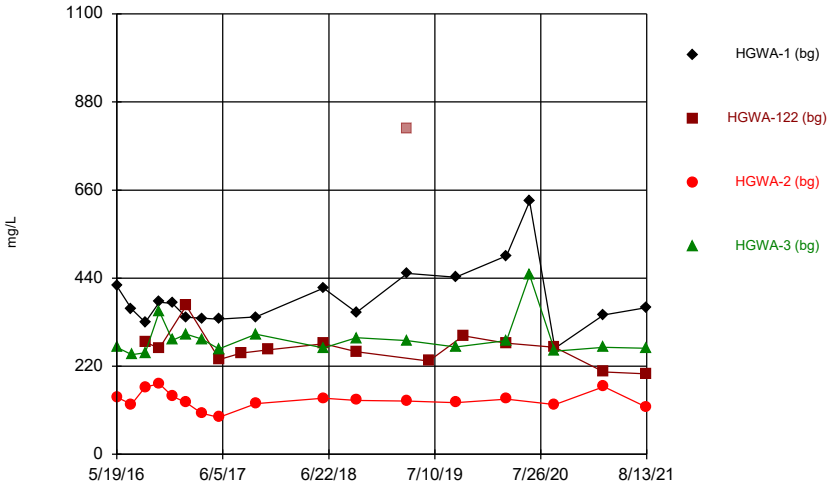
Time Series



Constituent: Thallium Analysis Run 10/14/2021 2:04 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Time Series

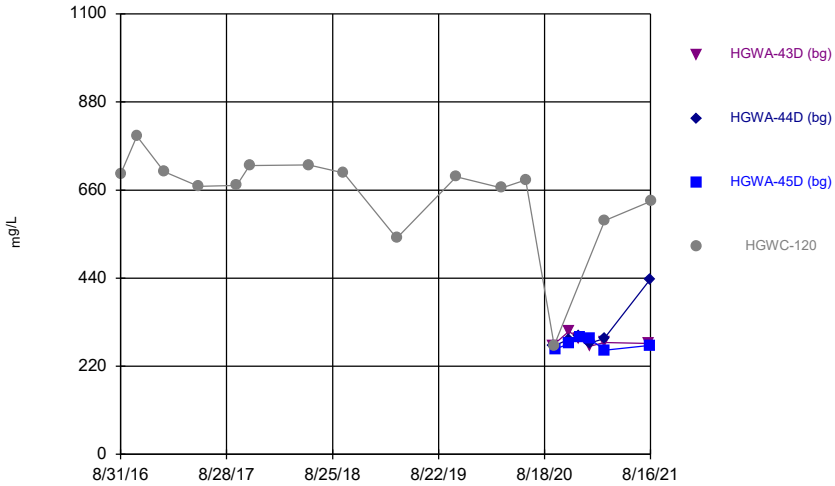


Constituent: Total Dissolved Solids Analysis Run 10/14/2021 2:04 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Time Series



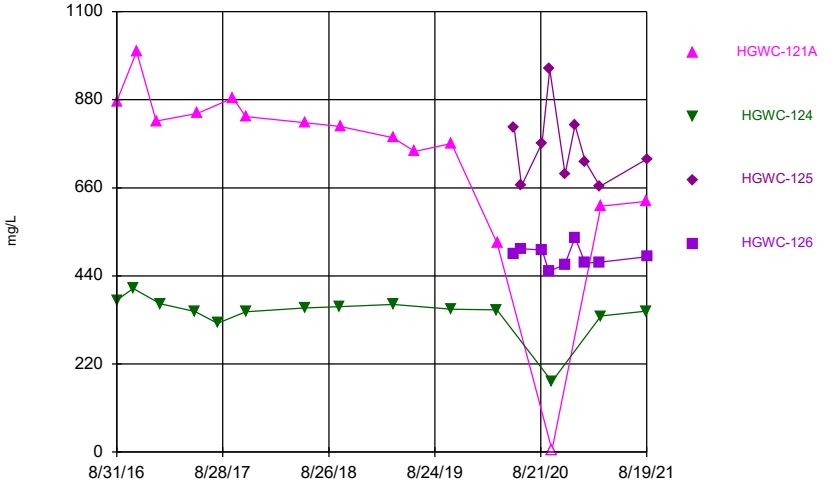
Constituent: Total Dissolved Solids Analysis Run 10/14/2021 2:04 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Hollow symbols indicate censored values.

Time Series

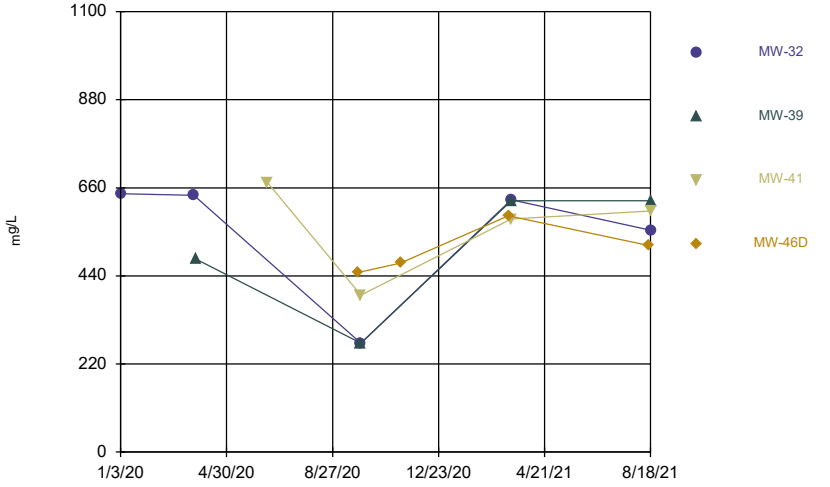


Constituent: Total Dissolved Solids Analysis Run 10/14/2021 2:04 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Time Series



Constituent: Total Dissolved Solids Analysis Run 10/14/2021 2:04 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Time Series

Constituent: Antimony (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-122 (bg)	HGWA-2 (bg)	HGWA-3 (bg)
5/19/2016	<0.003		<0.003	<0.003
7/11/2016	<0.003		<0.003	
7/12/2016				0.0003 (J)
8/30/2016	<0.003	<0.003	<0.003	<0.003
10/19/2016	0.0014 (J)		<0.003	<0.003
10/20/2016		<0.003		
12/6/2016	<0.003		<0.003	<0.003
1/24/2017	<0.003		<0.003	<0.003
1/25/2017		<0.003		
3/21/2017	<0.003		<0.003	<0.003
5/22/2017	<0.003		<0.003	<0.003
5/25/2017		<0.003		
8/11/2017		<0.003		
11/15/2017		<0.003		
4/2/2018	<0.003		<0.003	
4/3/2018				<0.003
6/5/2018		<0.003		
10/2/2018		<0.003		
3/12/2019	<0.003		<0.003	<0.003
4/1/2019				<0.003
4/2/2019	<0.003		<0.003	
8/22/2019		<0.003		
9/23/2019	<0.003		<0.003	<0.003
3/2/2020	<0.003		<0.003	<0.003
3/25/2020	<0.003		<0.003	<0.003
8/24/2020		<0.003		
8/25/2020			<0.003	<0.003
8/28/2020	<0.003			
9/15/2020	<0.003	0.001 (J)	<0.003	<0.003
3/10/2021	<0.003			
3/11/2021		<0.003	<0.003	<0.003
8/11/2021	<0.003			
8/12/2021			<0.003	<0.003
8/13/2021		<0.003		

Time Series

Constituent: Antimony (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-43D (bg)	HGWA-44D (bg)	HGWA-45D (bg)	HGWC-120
8/31/2016				<0.003
10/26/2016				<0.003
1/27/2017				<0.003
5/25/2017				<0.003
10/2/2017				<0.003
11/15/2017				<0.003
6/5/2018				<0.003
10/2/2018				<0.003
8/22/2019				<0.003
8/26/2020				<0.003
9/16/2020	0.00051 (J)	0.00049 (J)		
9/21/2020				<0.003
9/25/2020			<0.003	
11/10/2020	0.00043 (J)	<0.003		
11/11/2020			0.00057 (J)	
12/15/2020	0.00031 (J)	0.00047 (J)		
12/16/2020			<0.003	
1/19/2021	0.00029 (J)	<0.003		
1/20/2021			<0.003	
3/10/2021		0.00037 (J)		
3/11/2021	0.00057 (J)			
3/12/2021			0.0003 (J)	0.0018 (J)
8/11/2021	<0.003			
8/13/2021		<0.003	<0.003	
8/16/2021				<0.003

Time Series

Constituent: Antimony (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWC-121A	HGWC-124	HGWC-125	HGWC-126
8/31/2016	<0.003	<0.003		
10/26/2016		<0.003		
11/7/2016	<0.003			
1/13/2017	<0.003			
1/27/2017		<0.003		
5/25/2017		<0.003		
6/3/2017	<0.003			
8/11/2017		<0.003		
10/2/2017	<0.003			
11/15/2017	<0.003	<0.003		
6/5/2018	<0.003	<0.003		
10/2/2018		<0.003		
10/5/2018	<0.003			
8/22/2019	<0.003			
8/23/2019		<0.003		
5/22/2020			0.00047 (J)	<0.003
6/16/2020			<0.003	<0.003
8/25/2020			<0.003	<0.003
8/26/2020	<0.003			
8/27/2020		<0.003		
9/18/2020				<0.003
9/21/2020			<0.003	
9/28/2020	<0.003	<0.003		
11/11/2020				0.0004 (J)
11/12/2020			<0.003	
12/16/2020			<0.003	<0.003
1/20/2021			<0.003	<0.003
3/12/2021			0.00061 (J)	0.00043 (J)
3/15/2021	<0.003	<0.003		
8/16/2021	<0.003	<0.003		
8/19/2021			<0.003	<0.003

Time Series

Constituent: Antimony (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	MW-32	MW-39	MW-41	MW-46D
8/26/2020	0.00035 (J)	<0.003	<0.003	
9/25/2020				<0.003
9/28/2020	<0.003	<0.003	<0.003	
3/12/2021				0.00041 (J)
3/15/2021	<0.003	<0.003	<0.003	
8/16/2021				<0.003
8/18/2021	<0.003	<0.003	<0.003	

Time Series

Constituent: Arsenic (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-122 (bg)	HGWA-2 (bg)	HGWA-3 (bg)
5/19/2016	<0.005		0.00127 (J)	<0.005
7/11/2016	<0.005		0.002 (J)	
7/12/2016				0.0008 (J)
8/30/2016	<0.005	<0.005	0.0017 (J)	<0.005
10/19/2016	<0.005		<0.005	<0.005
10/20/2016		<0.005		
12/6/2016	<0.005		<0.005	<0.005
1/24/2017	<0.005		<0.005	<0.005
1/25/2017		<0.005		
3/21/2017	0.0005 (J)		<0.005	0.0007 (J)
5/22/2017	<0.005		0.0006 (J)	0.0006 (J)
5/25/2017		<0.005		
8/11/2017		<0.005		
11/15/2017		<0.005		
4/2/2018	<0.005		<0.005	
4/3/2018				<0.005
6/4/2018	<0.005		0.00088 (J)	0.0008 (J)
6/5/2018		<0.005		
10/1/2018	<0.005		<0.005	0.0011 (J)
10/2/2018		<0.005		
3/12/2019	<0.005		0.00069 (J)	0.00063 (J)
4/1/2019				<0.005
4/2/2019	<0.005		<0.005	
8/22/2019		<0.005		
9/23/2019	0.00046 (J)		0.00067 (J)	0.0011 (J)
3/2/2020	<0.005		0.00043 (J)	0.0004 (J)
3/25/2020	<0.005		<0.005	<0.005
8/24/2020		<0.005		
8/25/2020			<0.005	<0.005
8/28/2020	<0.005			
9/15/2020	<0.005		<0.005	<0.005
8/11/2021	<0.005			
8/12/2021			<0.005	<0.005
8/13/2021		<0.005		

Time Series

Constituent: Arsenic (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-43D (bg)	HGWA-44D (bg)	HGWA-45D (bg)	HGWC-120
8/31/2016				<0.005
10/26/2016				<0.005
1/27/2017				<0.005
5/25/2017				0.0014 (J)
10/2/2017				0.0007 (J)
11/15/2017				<0.005
6/5/2018				0.001 (J)
10/2/2018				<0.005
8/22/2019				<0.005
8/26/2020				<0.005
9/16/2020	<0.005	<0.005		
9/25/2020			<0.005	
11/10/2020	0.0021 (J)	<0.005		
11/11/2020			0.0011 (J)	
12/15/2020	<0.005	<0.005		
12/16/2020			<0.005	
1/19/2021	0.0011 (J)	<0.005		
1/20/2021			0.0022 (J)	
8/11/2021	0.0015 (J)			
8/13/2021		<0.005	0.0012 (J)	
8/16/2021				0.0015 (J)

Time Series

Constituent: Arsenic (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWC-121A	HGWC-124	HGWC-125	HGWC-126
8/31/2016	<0.005	<0.005		
10/26/2016		<0.005		
11/7/2016	<0.005			
1/13/2017	<0.005			
1/27/2017		<0.005		
5/25/2017		0.0006 (J)		
6/3/2017	0.001 (J)			
8/11/2017		<0.005		
10/2/2017	<0.005			
11/15/2017	<0.005	<0.005		
6/5/2018	0.0014 (J)	<0.005		
10/2/2018		<0.005		
10/5/2018	<0.005			
8/22/2019	<0.005			
8/23/2019		<0.005		
5/22/2020			0.00081 (J)	0.00071 (J)
6/16/2020			0.0014 (J)	0.00091 (J)
8/25/2020			<0.005	<0.005
8/26/2020	<0.005			
8/27/2020		<0.005		
9/18/2020				<0.005
9/21/2020			<0.005	
11/11/2020				<0.005
11/12/2020			<0.005	
12/16/2020			<0.005	<0.005
1/20/2021			<0.005	<0.005
8/16/2021	0.0014 (J)	<0.005		
8/19/2021			<0.005	<0.005

Time Series

Constituent: Arsenic (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	MW-32	MW-39	MW-41	MW-46D
8/26/2020	<0.005	<0.005	<0.005	
8/16/2021				0.0032 (J)
8/18/2021	<0.005	<0.005	<0.005	

Time Series

Constituent: Barium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-122 (bg)	HGWA-2 (bg)	HGWA-3 (bg)
5/19/2016	0.0346		0.114	0.111
7/11/2016	0.0311		0.112	
7/12/2016				0.115
8/30/2016	0.0293	0.0463	0.131	0.113
10/19/2016	0.0293		0.111	0.123
10/20/2016		0.0431		
12/6/2016	0.0304		0.108	0.127
1/24/2017	0.028		0.102	0.126
1/25/2017		0.0429		
3/21/2017	0.0275		0.095	0.12
5/22/2017	0.0281		0.103	0.117
5/25/2017		0.0447		
8/11/2017		0.0451		
11/15/2017		0.0439		
4/2/2018	0.026		0.099	
4/3/2018				0.11
6/4/2018	0.035		0.11	0.12
6/5/2018		0.04		
10/1/2018	0.029		0.11	0.14
10/2/2018		0.042		
3/12/2019	0.042		0.12	0.13
4/1/2019				0.13
4/2/2019	0.04		0.13	
8/22/2019		0.044		
9/23/2019	0.042		0.13	0.13
10/21/2019		0.04		
3/2/2020	0.034		0.11	0.14
3/24/2020		0.032		
3/25/2020	0.043		0.12	0.13
8/24/2020		0.041		
8/25/2020			0.11	0.11
8/28/2020	0.036			
9/15/2020	0.035	0.039	0.12	0.12
3/10/2021	0.03			
3/11/2021		0.032	0.07	0.13
8/11/2021	0.03			
8/12/2021			0.12	0.11
8/13/2021		0.033		

Time Series

Constituent: Barium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-43D (bg)	HGWA-44D (bg)	HGWA-45D (bg)	HGWC-120
8/31/2016				0.045
10/26/2016				0.0462
1/27/2017				0.0451
5/25/2017				0.0488
10/2/2017				0.0479
11/15/2017				0.051
6/5/2018				0.051
10/2/2018				0.059
8/22/2019				0.05
10/22/2019				0.051
3/25/2020				0.052
8/26/2020				0.041
9/16/2020	0.26	0.24		
9/21/2020				0.046
9/25/2020			0.49	
11/10/2020	0.25	0.38		
11/11/2020			0.45	
12/15/2020	0.29	0.39		
12/16/2020			0.52	
1/19/2021	0.32	<0.01		
1/20/2021			0.53	
3/10/2021		0.26		
3/11/2021	0.3			
3/12/2021			0.54	0.047
8/11/2021	0.28			
8/13/2021		0.22	0.51	
8/16/2021				0.052

Time Series

Constituent: Barium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWC-121A	HGWC-124	HGWC-125	HGWC-126
8/31/2016	0.0782	0.0744		
10/26/2016		0.0735		
11/7/2016	0.0764			
1/13/2017	0.0744			
1/27/2017		0.0632		
5/25/2017		0.0773		
6/3/2017	0.0933			
8/11/2017		0.0672		
10/2/2017	0.0815			
11/15/2017	0.0807	0.0707		
6/5/2018	0.078	0.07		
10/2/2018		0.067		
10/5/2018	0.074			
8/22/2019	0.066			
8/23/2019		0.066		
10/21/2019	0.074	0.075		
3/24/2020		0.075		
3/25/2020	0.099			
5/22/2020			0.048	0.24
6/16/2020			0.049	0.24
8/25/2020			0.045	0.23
8/26/2020	0.057			
8/27/2020		0.062		
9/18/2020				0.21
9/21/2020			0.042	
9/28/2020	0.056	0.071		
11/11/2020				0.23
11/12/2020			0.042	
12/16/2020			0.041	0.24
1/20/2021			0.045	0.25
3/12/2021			0.043	0.27
3/15/2021	0.059	0.071		
8/16/2021	0.06	0.069		
8/19/2021			0.044	0.27

Time Series

Constituent: Barium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	MW-32	MW-39	MW-41	MW-46D
3/25/2020	0.062			
6/15/2020			0.074	
8/26/2020	0.055	0.059	0.066	
9/25/2020				0.04
9/28/2020	0.053	0.058	0.071	
3/12/2021				0.03
3/15/2021	0.057	0.059	0.063	
8/16/2021				0.026
8/18/2021	0.054	0.06	0.064	

Time Series

Constituent: Beryllium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-122 (bg)	HGWA-2 (bg)	HGWA-3 (bg)
5/19/2016	<0.0005		<0.0005	<0.0005
7/11/2016	<0.0005		0.0001 (J)	
7/12/2016				<0.0005
8/30/2016	<0.0005	<0.0005	<0.0005	<0.0005
10/19/2016	<0.0005		0.0001 (J)	<0.0005
10/20/2016		<0.0005		
12/6/2016	<0.0005		0.0002 (J)	<0.0005
1/24/2017	<0.0005		0.0001 (J)	<0.0005
1/25/2017		<0.0005		
3/21/2017	<0.0005		0.0001 (J)	<0.0005
5/22/2017	<0.0005		0.0001 (J)	<0.0005
5/25/2017		<0.0005		
8/11/2017		<0.0005		
11/15/2017		<0.0005		
4/2/2018	<0.0005		<0.0005	
4/3/2018				<0.0005
6/5/2018		<0.0005		
10/2/2018		<0.0005		
3/12/2019	<0.0005		0.00017 (J)	<0.0005
4/1/2019				<0.0005
4/2/2019	<0.0005		0.00015 (J)	
8/22/2019		<0.0005		
9/23/2019	<0.0005		0.00011 (J)	<0.0005
3/2/2020	<0.0005		0.00014 (J)	<0.0005
3/25/2020	<0.0005		0.00016 (J)	<0.0005
8/24/2020		<0.0005		
8/25/2020			0.00014 (J)	<0.0005
8/28/2020	<0.0005			
9/15/2020	<0.0005	<0.0005	0.00013 (J)	<0.0005
3/10/2021	<0.0005			
3/11/2021		<0.0005	8.6E-05 (J)	<0.0005
8/11/2021	<0.0005			
8/12/2021			0.00014 (J)	<0.0005
8/13/2021		<0.0005		

Time Series

Constituent: Beryllium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-43D (bg)	HGWA-44D (bg)	HGWA-45D (bg)	HGWC-120
8/31/2016				<0.0005
10/26/2016				<0.0005
1/27/2017				<0.0005
5/25/2017				<0.0005
10/2/2017				<0.0005
11/15/2017				<0.0005
6/5/2018				<0.0005
10/2/2018				<0.0005
8/22/2019				<0.0005
8/26/2020				<0.0005
9/16/2020	<0.0005	<0.0005		
9/21/2020				<0.0005
9/25/2020			<0.0005	
11/10/2020	<0.0005	<0.0005		
11/11/2020			<0.0005	
12/15/2020	<0.0005	<0.0005		
12/16/2020			<0.0005	
1/19/2021	<0.0005	<0.0005		
1/20/2021			<0.0005	
3/10/2021		<0.0005		
3/11/2021	<0.0005			
3/12/2021			<0.0005	<0.0005
8/11/2021	<0.0005			
8/13/2021		<0.0005	<0.0005	
8/16/2021				<0.0005

Time Series

Constituent: Beryllium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWC-121A	HGWC-124	HGWC-125	HGWC-126
8/31/2016	<0.0005	<0.0005		
10/26/2016		<0.0005		
11/7/2016	<0.0005			
1/13/2017	<0.0005			
1/27/2017		<0.0005		
5/25/2017		<0.0005		
6/3/2017	<0.0005			
8/11/2017		<0.0005		
10/2/2017	<0.0005			
11/15/2017	<0.0005	<0.0005		
6/5/2018	<0.0005	<0.0005		
10/2/2018		<0.0005		
10/5/2018	<0.0005			
8/22/2019	<0.0005			
8/23/2019		<0.0005		
5/22/2020			<0.0005	<0.0005
6/16/2020			<0.0005	<0.0005
8/25/2020			<0.0005	<0.0005
8/26/2020	<0.0005			
8/27/2020		<0.0005		
9/18/2020				<0.0005
9/21/2020			<0.0005	
9/28/2020	<0.0005	<0.0005		
11/11/2020				<0.0005
11/12/2020			<0.0005	
12/16/2020			<0.0005	<0.0005
1/20/2021			<0.0005	<0.0005
3/12/2021			<0.0005	<0.0005
3/15/2021	<0.0005	<0.0005		
8/16/2021	<0.0005	<0.0005		
8/19/2021			<0.0005	<0.0005

Time Series

Constituent: Beryllium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	MW-32	MW-39	MW-41	MW-46D
8/26/2020	<0.0005	<0.0005	<0.0005	
9/25/2020				<0.0005
9/28/2020	<0.0005	<0.0005	<0.0005	
3/12/2021				<0.0005
3/15/2021	<0.0005	<0.0005	<0.0005	
8/16/2021				<0.0005
8/18/2021	<0.0005	<0.0005	<0.0005	

Time Series

Constituent: Boron (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-122 (bg)	HGWA-2 (bg)	HGWA-3 (bg)
5/19/2016	0.0214 (J)		0.0321 (J)	<0.04
7/11/2016	0.0142 (J)		0.0337 (J)	
7/12/2016				0.0074 (J)
8/30/2016	0.0074 (J)	0.277	0.0173 (J)	<0.04
10/19/2016	0.0224 (J)		0.0341 (J)	0.0085 (J)
10/20/2016		0.336		
12/6/2016	0.0211 (J)		0.0326 (J)	0.0085 (J)
1/24/2017	0.0165 (J)		0.0365 (J)	0.01 (J)
1/25/2017		0.274		
3/21/2017	0.0187 (J)		0.0349 (J)	0.0079 (J)
5/22/2017	0.0782		0.0475	0.0131 (J)
5/25/2017		0.298		
8/11/2017		0.285		
10/3/2017	0.0198 (J)		0.0386 (J)	0.0097 (J)
11/15/2017		0.322		
6/4/2018	0.02 (J)		0.036 (J)	0.017 (J)
6/5/2018		0.24		
10/1/2018	0.013 (J)		0.035 (J)	0.0061 (J)
10/2/2018		0.28		
4/1/2019				0.0066 (J)
4/2/2019	0.016 (J)	0.18	0.034 (J)	
6/18/2019		0.25		
9/23/2019	0.021 (J)		0.04 (J)	0.0081 (J)
10/21/2019		0.25		
3/24/2020		0.1		
3/25/2020	0.025 (J)		0.039 (J)	0.0096 (J)
6/16/2020	0.021 (J)			0.01 (J)
9/15/2020	0.017 (J)	0.22	0.044 (J)	0.0071 (J)
3/10/2021	0.015 (J)			
3/11/2021		0.2	0.056	0.015 (J)
8/11/2021	0.02 (J)			
8/12/2021			0.044	<0.04
8/13/2021		0.19		

Time Series

Constituent: Boron (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-43D (bg)	HGWA-44D (bg)	HGWA-45D (bg)	HGWC-120
8/31/2016				0.981
10/26/2016				1.28
1/27/2017				1.19
5/25/2017				1.33
10/2/2017				1.19
11/15/2017				1.24
6/5/2018				1.2
10/2/2018				1.2
4/2/2019				1.1
6/17/2019				1.1
10/22/2019				1
3/25/2020				1.1
6/15/2020				1.1
9/16/2020	0.061 (J)	0.23		
9/21/2020				0.93
9/25/2020			0.16	
11/10/2020	0.057 (J)	0.29		
11/11/2020			0.17	
12/15/2020	0.052 (J)	0.31		
12/16/2020			0.16	
1/19/2021	0.049 (J)	<0.04		
1/20/2021			0.19	
3/10/2021		0.39		
3/11/2021	0.06			
3/12/2021			0.19	1.1
8/11/2021	0.042			
8/13/2021		0.31	0.15	
8/16/2021				1.1

Time Series

Constituent: Boron (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWC-121A	HGWC-124	HGWC-125	HGWC-126
8/31/2016	3.23	0.494		
10/26/2016		0.55		
11/7/2016	2.95			
1/13/2017	4.01			
1/27/2017		0.428		
5/25/2017		0.544		
6/3/2017	2.62			
8/11/2017		0.524		
10/2/2017	2.92			
11/15/2017	2.71	0.531		
6/5/2018	2.6	0.53		
10/2/2018		0.47		
10/5/2018	2.9			
4/3/2019	3	0.45		
6/17/2019	2.4			
6/18/2019		0.45		
10/21/2019	2.4	0.5		
3/24/2020		0.44		
3/25/2020	1.6			
5/22/2020			1.5	0.026 (J)
6/16/2020			1.5	0.023 (J)
8/25/2020			1.4	0.016 (J)
9/18/2020				0.041 (J)
9/21/2020			1.4	
9/28/2020	2.3	0.43		
11/11/2020				0.009 (J)
11/12/2020			1.4	
12/16/2020			1.5	0.011 (J)
1/20/2021			1.5	<0.04
3/12/2021			1.5	0.016 (J)
3/15/2021	1.9	0.4		
8/16/2021	2	0.44		
8/19/2021			1.5	0.011 (J)

Time Series

Constituent: Boron (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	MW-32	MW-39	MW-41	MW-46D
1/3/2020	1.1			
3/25/2020	1.2			
3/27/2020		0.7		
6/15/2020			1.2	
9/25/2020				0.51
9/28/2020	1.3	1.3	1.2	
11/11/2020				0.68
3/12/2021				0.69
3/15/2021	1.2	1.2	1.1	
8/16/2021				0.87
8/18/2021	1.2	1.2	1.1	

Time Series

Constituent: Cadmium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-122 (bg)	HGWA-2 (bg)	HGWA-3 (bg)
5/19/2016	<0.0005		<0.0005	<0.0005
7/11/2016	<0.0005		<0.0005	
7/12/2016				<0.0005
8/30/2016	<0.0005	<0.0005	<0.0005	<0.0005
10/19/2016	<0.0005		<0.0005	<0.0005
10/20/2016		<0.0005		
12/6/2016	<0.0005		<0.0005	<0.0005
1/24/2017	<0.0005		0.0001 (J)	<0.0005
1/25/2017		<0.0005		
3/21/2017	<0.0005		7E-05 (J)	<0.0005
5/22/2017	<0.0005		0.0001 (J)	<0.0005
5/25/2017		<0.0005		
8/11/2017		<0.0005		
11/15/2017		<0.0005		
4/2/2018	<0.0005		<0.0005	
4/3/2018				<0.0005
6/4/2018	<0.0005		0.00014 (J)	<0.0005
6/5/2018		<0.0005		
10/1/2018	<0.0005		<0.0005	<0.0005
10/2/2018		<0.0005		
3/12/2019	<0.0005		0.00013 (J)	<0.0005
4/1/2019				<0.0005
4/2/2019	<0.0005		0.00015 (J)	
8/22/2019		<0.0005		
9/23/2019	<0.0005		<0.0005	<0.0005
3/2/2020	<0.0005		<0.0005	<0.0005
3/25/2020	<0.0005		0.00014 (J)	<0.0005
8/24/2020		<0.0005		
8/25/2020			<0.0005	<0.0005
8/28/2020	<0.0005			
9/15/2020	<0.0005		0.00012 (J)	<0.0005
8/11/2021	<0.0005			
8/12/2021			0.00014 (J)	<0.0005
8/13/2021		<0.0005		

Time Series

Constituent: Cadmium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-43D (bg)	HGWA-44D (bg)	HGWA-45D (bg)	HGWC-120
8/31/2016				<0.0005
10/26/2016				<0.0005
1/27/2017				<0.0005
5/25/2017				<0.0005
10/2/2017				<0.0005
11/15/2017				<0.0005
6/5/2018				<0.0005
10/2/2018				<0.0005
8/22/2019				<0.0005
8/26/2020				<0.0005
9/16/2020	<0.0005	<0.0005		
9/25/2020			<0.0005	
11/10/2020	<0.0005	<0.0005		
11/11/2020			<0.0005	
12/15/2020	<0.0005	<0.0005		
12/16/2020			<0.0005	
1/19/2021	<0.0005	<0.0005		
1/20/2021			<0.0005	
8/11/2021	<0.0005			
8/13/2021		<0.0005	<0.0005	
8/16/2021				<0.0005

Time Series

Constituent: Cadmium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWC-121A	HGWC-124	HGWC-125	HGWC-126
8/31/2016	<0.0005	<0.0005		
10/26/2016		<0.0005		
11/7/2016	<0.0005			
1/13/2017	<0.0005			
1/27/2017		<0.0005		
5/25/2017		<0.0005		
6/3/2017	<0.0005			
8/11/2017		<0.0005		
10/2/2017	<0.0005			
11/15/2017	<0.0005	<0.0005		
6/5/2018	<0.0005	<0.0005		
10/2/2018		<0.0005		
10/5/2018	<0.0005			
8/22/2019	<0.0005			
8/23/2019		<0.0005		
5/22/2020			<0.0005	<0.0005
6/16/2020			<0.0005	<0.0005
8/25/2020			<0.0005	<0.0005
8/26/2020	<0.0005			
8/27/2020		<0.0005		
9/18/2020				<0.0005
9/21/2020			<0.0005	
11/11/2020				<0.0005
11/12/2020			<0.0005	
12/16/2020			<0.0005	<0.0005
1/20/2021			<0.0005	<0.0005
8/16/2021	<0.0005	<0.0005		
8/19/2021			<0.0005	<0.0005

Time Series

Constituent: Cadmium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	MW-32	MW-39	MW-41	MW-46D
8/26/2020	<0.0005	<0.0005	<0.0005	
8/16/2021				<0.0005
8/18/2021	<0.0005	<0.0005	<0.0005	

Time Series

Constituent: Calcium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-122 (bg)	HGWA-2 (bg)	HGWA-3 (bg)
5/19/2016	138		22.9	76.2
7/11/2016	97.2		22.3	
7/12/2016				61.5
8/30/2016	97.5	71.3	26.4	65.1
10/19/2016	99.2		21.7	73.2
10/20/2016		90.3		
12/6/2016	105		18.2	74.9
1/24/2017	95.7		18.5	69.6
1/25/2017		77.3		
3/21/2017	106		18.6	75.7
5/22/2017	107		17.8	71.5
5/25/2017		69.9		
8/11/2017		79.5		
10/3/2017	102		20.2	76.3
11/15/2017		72.8		
6/4/2018	124		19.1	73.4
6/5/2018		71.4		
10/1/2018	108		20.5 (J)	80.9
10/2/2018		66.6		
4/1/2019				80.5
4/2/2019	132	60.9	22.5 (J)	
6/18/2019		75		
9/23/2019	118		19.5	71
10/21/2019		80.8		
3/24/2020		81.2		
3/25/2020	127		23	89.8
6/16/2020	130			85.1
9/15/2020	103	75.8	21.1	73.1
3/10/2021	111			
3/11/2021		60.4 (M1)	43.8	83.8
8/11/2021	113			
8/12/2021			21.9	84
8/13/2021		62.9		

Time Series

Constituent: Calcium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-43D (bg)	HGWA-44D (bg)	HGWA-45D (bg)	HGWC-120
8/31/2016				152
10/26/2016				156
1/27/2017				157
5/25/2017				173
10/2/2017				168
11/15/2017				182
6/5/2018				161
10/2/2018				174
4/2/2019				150
6/17/2019				164
10/22/2019				171
3/25/2020				170
6/15/2020				175
9/16/2020	56	30		
9/21/2020				152
9/25/2020			56.8	
11/10/2020	63.3	33.6		
11/11/2020			54.9	
12/15/2020	62.6	28.7		
12/16/2020			56.4	
1/19/2021	60.1	33		
1/20/2021			55	
3/10/2021		18.3		
3/11/2021	59.6			
3/12/2021			56.5	174
8/11/2021	61			
8/13/2021		28.9	53	
8/16/2021				171

Time Series

Constituent: Calcium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWC-121A	HGWC-124	HGWC-125	HGWC-126
8/31/2016	178	90.4		
10/26/2016		94.5		
11/7/2016	170			
1/13/2017	192			
1/27/2017		84.2		
5/25/2017		100		
6/3/2017	172			
8/11/2017		99.1		
10/2/2017	195			
11/15/2017	184	103		
6/5/2018	195	103		
10/2/2018		100		
10/5/2018	181			
4/3/2019	184	96.7		
6/17/2019	173			
6/18/2019		97.1		
10/21/2019	173	96.9		
3/24/2020		104		
3/25/2020	139			
5/22/2020			140	112
6/16/2020			178	131
8/25/2020			186	130
9/18/2020				119
9/21/2020			155	
9/28/2020	167	107		
11/11/2020				133
11/12/2020			165	
12/16/2020			194	132
1/20/2021			177 (M1)	131
3/12/2021			165	138
3/15/2021	167	103		
8/16/2021	162	106		
8/19/2021			196	139

Time Series

Constituent: Calcium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	MW-32	MW-39	MW-41	MW-46D
1/3/2020	150			
3/25/2020	170			
3/27/2020		120		
6/15/2020			174	
9/25/2020				78.3
9/28/2020	173	185	173	
11/11/2020				69.3
3/12/2021				55.7
3/15/2021	172	186	172	
8/16/2021				45.8
8/18/2021	155	171	175	

Time Series

Constituent: Chloride (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-122 (bg)	HGWA-2 (bg)	HGWA-3 (bg)
5/19/2016	9.94		6.14	5.93
7/11/2016	6.3		5.9	
7/12/2016				6.2
8/30/2016	6	2.8	6.2	6.4
10/19/2016	5.8		6.1	6.5
10/20/2016		2.8		
12/6/2016	5.4		6	7.2
1/24/2017	5.2		6.1	6.4
1/25/2017		2.8		
3/21/2017	4.6		5.9	7.5
5/22/2017	4.6		5.9	6.5
5/25/2017		2.9		
8/11/2017		3		
10/3/2017	5.6		6.3	6.5
11/15/2017		3.1		
6/4/2018	13.1		6.1	6.3
6/5/2018		3		
10/1/2018	6.6		6.4	6.4
10/2/2018		3.1		
4/1/2019				6.5
4/2/2019	20.3	3.6	5.8	
6/18/2019		3.2		
9/23/2019	17.7		5.1	5.9
10/21/2019		4.5		
3/24/2020		4.5		
3/25/2020	20.4		5.2	6.1
6/16/2020	41.1			5.8
9/15/2020	13.4	3.6	5	6
3/10/2021	7.4			
3/11/2021		2.3	5.1	5.9
8/11/2021	9.6			
8/12/2021			5.2	4.8
8/13/2021		2.6		

Time Series

Constituent: Chloride (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-43D (bg)	HGWA-44D (bg)	HGWA-45D (bg)	HGWC-120
8/31/2016				3.5
10/26/2016				3.6
1/27/2017				3.3
5/25/2017				3.4
10/2/2017				4.2
11/15/2017				2.9
6/5/2018				3.1
10/2/2018				3.2
4/2/2019				3.1
10/22/2019				3.4
3/25/2020				2.4
6/15/2020				2.3
9/16/2020	4.1	4.1		
9/21/2020				2.4
9/25/2020			3.6	
11/10/2020	4.4	7.8		
11/11/2020			3.3	
12/15/2020	4.7	9.4		
12/16/2020			3.4	
1/19/2021	4.1	9.5		
1/20/2021			3.5	
3/10/2021		12.3		
3/11/2021	4.5			
3/12/2021			3.3	2.4
8/11/2021	3.5			
8/13/2021		39.9	3.3	
8/16/2021				2.4

Time Series

Constituent: Chloride (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWC-121A	HGWC-124	HGWC-125	HGWC-126
8/31/2016	64	3		
10/26/2016		3.6		
11/7/2016	65			
1/13/2017	50			
1/27/2017		4		
5/25/2017		3.5		
6/3/2017	43			
8/11/2017		2.9		
10/2/2017	42			
11/15/2017	46	3.1		
6/5/2018	40.4	3.1		
10/2/2018		3.4		
10/5/2018	39			
4/3/2019	35.9	3.4		
6/17/2019	32.9			
6/18/2019		2.3 (J)		
10/21/2019	29.9	3.6		
3/24/2020		2.7		
3/25/2020	16.3			
5/22/2020			12.9	8.6
6/16/2020			10.4	8.6
8/25/2020			10.6	8.7
9/18/2020				8.4
9/21/2020			12.1	
9/28/2020	23.2	2.5		
11/11/2020				8.3
11/12/2020			10.4	
12/16/2020			5.3	8.9
1/20/2021			10.2	8.5
3/12/2021			10.8	8.5
3/15/2021	21.8	2.9		
8/16/2021	18	2.6		
8/19/2021			4.5	7.8

Time Series

Constituent: Chloride (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	MW-32	MW-39	MW-41	MW-46D
1/3/2020	2.4			
3/25/2020	2.2			
3/27/2020		1.8		
6/15/2020			2.3	
9/25/2020				3.7
9/28/2020	2.5	2.4	2.5	
11/11/2020				3.5
3/12/2021				3.6
3/15/2021	2.5	2.5	2.5	
8/16/2021				3.7
8/18/2021	2.2	2.3	2.8	

Time Series

Constituent: Chromium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-122 (bg)	HGWA-2 (bg)	HGWA-3 (bg)
5/19/2016	<0.005		<0.005	<0.005
7/11/2016	<0.005		<0.005	
7/12/2016				<0.005
8/30/2016	<0.005	<0.005	<0.005	<0.005
10/19/2016	<0.005		<0.005	<0.005
10/20/2016		<0.005		
12/6/2016	<0.005		<0.005	<0.005
1/24/2017	<0.005		<0.005	<0.005
1/25/2017		<0.005		
3/21/2017	0.0005 (J)		<0.005	<0.005
5/22/2017	<0.005		<0.005	0.0007 (J)
5/25/2017		0.0006 (J)		
8/11/2017		0.0007 (J)		
11/15/2017		0.0006 (J)		
4/2/2018	<0.005		<0.005	
4/3/2018				<0.005
6/5/2018		<0.005		
10/2/2018		<0.005		
3/12/2019	<0.005		<0.005	<0.005
4/1/2019				<0.005
4/2/2019	<0.005		0.0079 (J)	
8/22/2019		0.0006 (J)		
9/23/2019	<0.005		0.00058 (J)	<0.005
10/21/2019		0.00068 (J)		
3/2/2020	<0.005		0.00041 (J)	<0.005
3/24/2020		0.0013 (J)		
3/25/2020	0.00072 (J)		<0.005	<0.005
8/24/2020		0.00093 (J)		
8/25/2020			0.00067 (J)	<0.005
8/28/2020	<0.005			
9/15/2020	<0.005	0.00067 (J)	<0.005	<0.005
3/10/2021	<0.005			
3/11/2021		0.0017 (J)	<0.005	<0.005
8/11/2021	<0.005			
8/12/2021			<0.005	<0.005
8/13/2021		<0.005		

Time Series

Constituent: Chromium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-43D (bg)	HGWA-44D (bg)	HGWA-45D (bg)	HGWC-120
8/31/2016				<0.005
10/26/2016				<0.005
1/27/2017				<0.005
5/25/2017				<0.005
10/2/2017				<0.005
11/15/2017				<0.005
6/5/2018				<0.005
10/2/2018				<0.005
8/22/2019				0.00072 (J)
10/22/2019				<0.005
3/25/2020				0.0015 (J)
8/26/2020				<0.005
9/16/2020	<0.005	0.0012 (J)		
9/21/2020				0.00065 (J)
9/25/2020			<0.005	
11/10/2020	<0.005	0.00089 (J)		
11/11/2020			<0.005	
12/15/2020	<0.005	0.00072 (J)		
12/16/2020			<0.005	
1/19/2021	<0.005	<0.005		
1/20/2021			0.00067 (J)	
3/10/2021		<0.005		
3/11/2021	<0.005			
3/12/2021			<0.005	<0.005
8/11/2021	<0.005			
8/13/2021		0.0016 (J)	<0.005	
8/16/2021				<0.005

Time Series

Constituent: Chromium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWC-121A	HGWC-124	HGWC-125	HGWC-126
8/31/2016	<0.005	<0.005		
10/26/2016		<0.005		
11/7/2016	<0.005			
1/13/2017	<0.005			
1/27/2017		<0.005		
5/25/2017		<0.005		
6/3/2017	<0.005			
8/11/2017		<0.005		
10/2/2017	<0.005			
11/15/2017	<0.005	<0.005		
6/5/2018	<0.005	<0.005		
10/2/2018		<0.005		
10/5/2018	<0.005			
8/22/2019	<0.005			
8/23/2019		<0.005		
10/21/2019	<0.005	0.00046 (J)		
3/24/2020		0.00051 (J)		
3/25/2020	0.0005 (J)			
5/22/2020			0.00058 (J)	<0.005
6/16/2020			0.00052 (J)	<0.005
8/25/2020			<0.005	0.00096 (J)
8/26/2020	<0.005			
8/27/2020		<0.005		
9/18/2020				<0.005
9/21/2020			<0.005	
9/28/2020	<0.005	<0.005		
11/11/2020				<0.005
11/12/2020			<0.005	
12/16/2020			<0.005	<0.005
1/20/2021			0.00081 (J)	<0.005
3/12/2021			<0.005	<0.005
3/15/2021	<0.005	<0.005		
8/16/2021	<0.005	<0.005		
8/19/2021			<0.005	<0.005

Time Series

Constituent: Chromium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	MW-32	MW-39	MW-41	MW-46D
3/25/2020	<0.005			
6/15/2020			<0.005	
8/26/2020	<0.005	<0.005	<0.005	
9/25/2020				0.00075 (J)
9/28/2020	0.00058 (J)	<0.005	<0.005	
3/12/2021				<0.005
3/15/2021	<0.005	<0.005	0.0009 (J)	
8/16/2021				<0.005
8/18/2021	<0.005	<0.005	<0.005	

Time Series

Constituent: Cobalt (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-122 (bg)	HGWA-2 (bg)	HGWA-3 (bg)
5/19/2016	<0.005		0.0293	<0.005
7/11/2016	0.0004 (J)		0.0267	
7/12/2016				<0.005
8/30/2016	<0.005	<0.005	0.028	<0.005
10/19/2016	<0.005		0.0201	<0.005
10/20/2016		<0.005		
12/6/2016	<0.005		0.0184	<0.005
1/24/2017	<0.005		0.0206	<0.005
1/25/2017		<0.005		
3/21/2017	<0.005		0.0251	<0.005
5/22/2017	<0.005		0.0263	<0.005
5/25/2017		<0.005		
8/11/2017		<0.005		
11/15/2017		<0.005		
4/2/2018	<0.005		0.019	
4/3/2018				<0.005
6/4/2018	<0.005		0.025	<0.005
6/5/2018		<0.005		
10/1/2018	<0.005		0.026	<0.005
10/2/2018		<0.005		
3/12/2019	<0.005		0.017	<0.005
4/1/2019				<0.005
4/2/2019	<0.005		0.019	
8/22/2019		<0.005		
9/23/2019	<0.005		0.038	<0.005
10/21/2019		<0.005		
3/2/2020	<0.005		0.019	<0.005
3/24/2020		<0.005		
3/25/2020	<0.005		0.02	<0.005
8/24/2020		<0.005		
8/25/2020			0.018	<0.005
8/28/2020	<0.005			
9/15/2020	<0.005	<0.005	0.021	<0.005
3/10/2021	<0.005			
3/11/2021		<0.005	0.013	<0.005
8/11/2021	<0.005			
8/12/2021			0.022	<0.005
8/13/2021		<0.005		

Time Series

Constituent: Cobalt (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-43D (bg)	HGWA-44D (bg)	HGWA-45D (bg)	HGWC-120
8/31/2016				0.0052 (J)
10/26/2016				0.0041 (J)
1/27/2017				0.0034 (J)
5/25/2017				0.0035 (J)
10/2/2017				0.0036 (J)
11/15/2017				0.0032 (J)
6/5/2018				0.0031 (J)
10/2/2018				0.0025 (J)
8/22/2019				0.0028 (J)
10/22/2019				0.0031 (J)
3/25/2020				0.0036 (J)
8/26/2020				0.0023 (J)
9/16/2020	<0.005	<0.005		
9/21/2020				0.0041 (J)
9/25/2020			<0.005	
11/10/2020	<0.005	<0.005		
11/11/2020			<0.005	
12/15/2020	<0.005	<0.005		
12/16/2020			<0.005	
1/19/2021	<0.005	<0.005		
1/20/2021			<0.005	
3/10/2021		<0.005		
3/11/2021	<0.005			
3/12/2021			<0.005	0.0027 (J)
8/11/2021	<0.005			
8/13/2021		<0.005	<0.005	
8/16/2021				0.0037 (J)

Time Series

Constituent: Cobalt (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWC-121A	HGWC-124	HGWC-125	HGWC-126
8/31/2016	<0.005	<0.005		
10/26/2016		<0.005		
11/7/2016	<0.005			
1/13/2017	<0.005			
1/27/2017		<0.005		
5/25/2017		<0.005		
6/3/2017	0.0005 (J)			
8/11/2017		<0.005		
10/2/2017	0.0003 (J)			
11/15/2017	0.0003 (J)	<0.005		
6/5/2018	<0.005	<0.005		
10/2/2018		<0.005		
10/5/2018	<0.005			
8/22/2019	<0.005			
8/23/2019		<0.005		
10/21/2019	<0.005	<0.005		
3/24/2020		<0.005		
3/25/2020	<0.005			
5/22/2020			0.01	<0.005
6/16/2020			0.0096	<0.005
8/25/2020			0.0087	<0.005
8/26/2020	<0.005			
8/27/2020		<0.005		
9/18/2020				<0.005
9/21/2020			0.012	
9/28/2020	<0.005	<0.005		
11/11/2020				<0.005
11/12/2020			0.012	
12/16/2020			0.0055	<0.005
1/20/2021			0.012	<0.005
3/12/2021			0.014	<0.005
3/15/2021	<0.005	<0.005		
8/16/2021	<0.005	<0.005		
8/19/2021			0.0054	<0.005

Time Series

Constituent: Cobalt (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	MW-32	MW-39	MW-41	MW-46D
3/25/2020	0.0031 (J)			
6/15/2020			0.0012 (J)	
8/26/2020	0.0048 (J)	0.0026 (J)	0.00068 (J)	
9/25/2020				0.00041 (J)
9/28/2020	0.0047 (J)	0.0026 (J)	0.00066 (J)	
3/12/2021				<0.005
3/15/2021	0.0044 (J)	0.0024 (J)	0.00057 (J)	
8/16/2021				<0.005
8/18/2021	0.0036 (J)	0.0025 (J)	0.00064 (J)	

Time Series

Constituent: Combined Radium 226 + 228 (pCi/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-122 (bg)	HGWA-2 (bg)	HGWA-3 (bg)
5/19/2016	0.397 (U)		0.627 (U)	0.342 (U)
7/11/2016	0.738 (U)		1.38	
7/12/2016				0.499 (U)
8/30/2016	0.581 (U)	0.972 (U)	1.05 (U)	0.976 (U)
10/19/2016	0.213 (U)		1.11 (U)	0.626 (U)
10/20/2016		0.496 (U)		
12/6/2016	0.444 (U)		0.741 (U)	0.805 (U)
1/24/2017	0.373 (U)		0.908 (U)	0.336 (U)
1/25/2017		1.13 (U)		
3/21/2017	0.816 (U)		0.567 (U)	0.358 (U)
5/22/2017	0.554 (U)		0.638 (U)	0.744 (U)
5/25/2017		0.192 (U)		
8/11/2017		0.908 (U)		
11/15/2017		0.662 (U)		
4/2/2018	0.405 (U)		0.761 (U)	
4/3/2018				0.684 (U)
6/4/2018	1.13 (U)		0.975 (U)	0.0291 (U)
6/5/2018		0.593 (U)		
10/1/2018	0.132 (U)		0.434 (U)	0.781 (U)
10/2/2018		1.37		
3/12/2019	0.327 (U)		0.454 (U)	1.01 (U)
4/1/2019				0.76 (U)
4/2/2019	0.739 (U)		0.651 (U)	
8/22/2019		1.19 (U)		
9/30/2019	0.306 (U)		1.04 (U)	0.384 (U)
10/21/2019		0.772 (U)		
3/2/2020	0.61 (U)		1.58	0.249 (U)
3/24/2020		0.379 (U)		
3/25/2020	4.36		0.621 (U)	0.833 (U)
8/24/2020		0.883 (U)		
8/25/2020			0.778 (U)	0.33 (U)
8/28/2020	0 (U)			
9/15/2020	0.748 (U)	0.375 (U)	0.124 (U)	0.161 (U)
8/11/2021	0.115 (U)			
8/12/2021			0.746 (U)	0.498 (U)
8/13/2021		0.914 (U)		

Time Series

Constituent: Combined Radium 226 + 228 (pCi/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-43D (bg)	HGWA-44D (bg)	HGWA-45D (bg)	HGWC-120
8/31/2016				1.47
10/26/2016				0.864 (U)
1/27/2017				0.521 (U)
5/25/2017				0.681 (U)
10/2/2017				0.632 (U)
11/15/2017				1.3
6/5/2018				1.26 (U)
10/2/2018				0.572 (U)
8/22/2019				1.35
10/22/2019				0.76 (U)
3/25/2020				0.696 (U)
8/26/2020				0.357 (U)
9/16/2020	0.531 (U)	0.422 (U)		
9/21/2020				0.553 (U)
9/25/2020			1.07 (U)	
11/10/2020	0.788 (U)	0.293 (U)		
11/11/2020			0.49 (U)	
12/15/2020	1.04 (U)	0.7 (U)		
12/16/2020			0.963 (U)	
1/19/2021	0.685 (U)	0.79 (U)		
1/20/2021			0.682 (U)	
8/11/2021	0.394 (U)			
8/13/2021		0.959 (U)	1.2	
8/16/2021				1.25

Time Series

Constituent: Combined Radium 226 + 228 (pCi/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWC-121A	HGWC-124	HGWC-125	HGWC-126
8/31/2016	1.57	1.22		
10/26/2016		0.637 (U)		
11/7/2016	0.739 (U)			
1/13/2017	0.744 (U)			
1/27/2017		0.795 (U)		
5/25/2017		0.896 (U)		
6/3/2017	0 (U)			
8/11/2017		0.828 (U)		
10/2/2017	0.68 (U)			
11/15/2017	0.911 (U)	0.478 (U)		
6/5/2018	0.948 (U)	0.947 (U)		
10/2/2018		0.617 (U)		
10/5/2018	1.17 (U)			
8/22/2019	1.3			
8/23/2019		0.834		
10/21/2019	0.393 (U)	1.11 (U)		
3/24/2020		0.796 (U)		
3/25/2020	0.505 (U)			
5/22/2020			1.1 (U)	1.82
6/16/2020			1.62	1.82
8/25/2020			1.65	1.82
8/26/2020	1.96			
8/27/2020		0.494 (U)		
9/18/2020				0.841 (U)
9/21/2020			1.45	
9/28/2020	0.761 (U)	0.477 (U)		
11/11/2020				0.837 (U)
11/12/2020			0.633 (U)	
12/16/2020			0.818 (U)	1.26 (U)
1/20/2021			1.01 (U)	0.985 (U)
8/16/2021	0.192 (U)	0.734 (U)		
8/19/2021			0.721 (U)	1.11

Time Series

Constituent: Combined Radium 226 + 228 (pCi/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	MW-32	MW-39	MW-41	MW-46D
3/25/2020	1.51			
6/15/2020			0.948 (U)	
8/26/2020	0.281 (U)	1.38	1.53	
9/25/2020				0.594 (U)
9/28/2020	1.01 (U)	1.02 (U)	0.409 (U)	
8/16/2021				0.625 (U)
8/18/2021	1.14	0.619 (U)	1.18	

Time Series

Constituent: Fluoride (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-122 (bg)	HGWA-2 (bg)	HGWA-3 (bg)
5/19/2016	0.105 (J)		0.0303 (J)	0.0513 (J)
7/11/2016	0.16 (J)		0.05 (J)	
7/12/2016				0.12 (J)
8/30/2016	0.09 (J)	0.19 (J)	0.06 (J)	0.09 (J)
10/19/2016	0.1 (J)		0.04 (J)	0.1 (J)
10/20/2016		0.13 (J)		
12/6/2016	0.11 (J)		0.36	0.21 (J)
1/24/2017	0.09 (J)		<0.1	0.06 (J)
1/25/2017		0.22 (J)		
3/21/2017	0.13 (J)		<0.1	0.005 (J)
5/22/2017	0.12 (J)		<0.1	0.05 (J)
5/25/2017		0.12 (J)		
8/11/2017		0.12 (J)		
10/3/2017	0.13 (J)		<0.1	0.13 (J)
11/15/2017		0.05 (J)		
4/2/2018	<0.1		<0.1	
4/3/2018				<0.1
6/4/2018	0.074 (J)		<0.1	<0.1
6/5/2018		0.15 (J)		
10/1/2018	<0.1		<0.1	<0.1
10/2/2018		0.22 (J)		
3/12/2019	0.29 (J)		0.038 (J)	0.072 (J)
4/1/2019				0.029 (J)
4/2/2019	0.1 (J)	0.2 (J)	0.071 (J)	
6/18/2019		0.14 (J)		
8/22/2019		0.12 (J)		
9/23/2019	0.078 (J)		<0.1	<0.1
10/21/2019		0.15 (J)		
3/2/2020	0.076 (J)		<0.1	<0.1
3/24/2020		0.085 (J)		
3/25/2020	0.098 (J)		<0.1	<0.1
6/16/2020	0.071 (J)			<0.1
8/24/2020		0.075 (J)		
8/25/2020			<0.1	<0.1
8/28/2020	0.08 (J)			
9/15/2020	0.082 (J)	0.096 (J)	<0.1	<0.1
3/10/2021	0.079 (J)			
3/11/2021		0.059 (J)	0.1	<0.1
8/11/2021	0.058 (J)			
8/12/2021			<0.1	<0.1
8/13/2021		0.065 (J)		

Time Series

Constituent: Fluoride (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-43D (bg)	HGWA-44D (bg)	HGWA-45D (bg)	HGWC-120
8/31/2016				0.65
10/26/2016				0.6
1/27/2017				1.2
5/25/2017				1.4
10/2/2017				1
11/15/2017				1.3
6/5/2018				0.48
10/2/2018				0.34
4/2/2019				0.47
6/17/2019				1.2
8/22/2019				0.3 (J)
10/22/2019				0.53
3/25/2020				0.43
6/15/2020				0.37
8/26/2020				0.48
9/16/2020	0.22	0.22		
9/21/2020				0.33
9/25/2020			0.21	
11/10/2020	0.19	0.59		
11/11/2020			0.19	
12/15/2020	0.21	0.67		
12/16/2020			0.18	
1/19/2021	0.16	0.74		
1/20/2021			0.22	
3/10/2021		0.65		
3/11/2021	0.2			
3/12/2021			0.2	0.42
8/11/2021	0.15			
8/13/2021		0.87	0.2	
8/16/2021				0.39

Time Series

Constituent: Fluoride (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWC-121A	HGWC-124	HGWC-125	HGWC-126
8/31/2016	0.14 (J)	0.15 (J)		
10/26/2016		0.3		
11/7/2016	0.18 (J)			
1/13/2017	0.14 (J)			
1/27/2017		0.3		
5/25/2017		0.05 (J)		
6/3/2017	0.15 (J)			
8/11/2017		0.1 (J)		
10/2/2017	1.2			
11/15/2017	0.6	<0.1		
6/5/2018	0.19 (J)	0.078 (J)		
10/2/2018		0.078 (J)		
10/5/2018	0.23 (J)			
4/3/2019	0.14 (J)	0.089 (J)		
8/22/2019	0.2 (J)			
8/23/2019		0.11 (J)		
10/21/2019	0.18 (J)	0.073 (J)		
3/24/2020		<0.1		
3/25/2020	0.095 (J)			
5/22/2020			0.1 (J)	0.46
6/16/2020			0.12	0.44
8/25/2020			0.16	0.52
8/26/2020	0.16			
8/27/2020		<0.1		
9/18/2020				0.43
9/21/2020			0.11	
9/28/2020	0.15	<0.1		
11/11/2020				0.45
11/12/2020			0.12	
12/16/2020			0.2	0.49
1/20/2021			0.13	0.44
3/12/2021			0.12	0.46
3/15/2021	0.16	<0.1		
8/16/2021	0.15	<0.1		
8/19/2021			0.17	0.43

Time Series

Constituent: Fluoride (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	MW-32	MW-39	MW-41	MW-46D
1/3/2020	0.36			
3/25/2020	0.34			
3/27/2020		0.29		
6/15/2020			0.21	
8/26/2020	0.33	0.32	0.24	
9/25/2020				0.68
9/28/2020	0.33	0.33	0.25	
11/11/2020				1
3/12/2021				0.88
3/15/2021	0.3	0.33	0.26	
8/16/2021				1
8/18/2021	0.24	0.25	0.2	

Time Series

Constituent: Lead (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-122 (bg)	HGWA-2 (bg)	HGWA-3 (bg)
5/19/2016	<0.001		<0.001	<0.001
7/11/2016	<0.001		<0.001	
7/12/2016				0.0001 (J)
8/30/2016	<0.001	<0.001	<0.001	<0.001
10/19/2016	<0.001		<0.001	<0.001
10/20/2016		<0.001		
12/6/2016	<0.001		<0.001	<0.001
1/24/2017	<0.001		<0.001	<0.001
1/25/2017		<0.001		
3/21/2017	<0.001		6E-05 (J)	0.0001 (J)
5/22/2017	<0.001		9E-05 (J)	<0.001
5/25/2017		<0.001		
8/11/2017		0.0001 (J)		
11/15/2017		0.0002 (J)		
4/2/2018	<0.001		<0.001	
4/3/2018				<0.001
6/5/2018		<0.001		
10/2/2018		<0.001		
3/12/2019	<0.001		<0.001	<0.001
4/1/2019				<0.001
4/2/2019	<0.001		<0.001	
8/22/2019		<0.001		
9/23/2019	7.8E-05 (J)		9.2E-05 (J)	<0.001
10/21/2019		9.7E-05 (J)		
3/2/2020	4.8E-05 (J)		9.5E-05 (J)	<0.001
3/24/2020		0.00012 (J)		
3/25/2020	<0.001		0.00011 (J)	<0.001
8/24/2020		7.7E-05 (J)		
8/25/2020			8.5E-05 (J)	<0.001
8/28/2020	7E-05 (J)			
9/15/2020	<0.001	4.3E-05 (J)	8E-05 (J)	4.2E-05 (J)
3/10/2021	<0.001			
3/11/2021		9.3E-05 (J)	7.6E-05 (J)	<0.001
8/11/2021	<0.001			
8/12/2021			<0.001	<0.001
8/13/2021		<0.001		

Time Series

Constituent: Lead (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-43D (bg)	HGWA-44D (bg)	HGWA-45D (bg)	HGWC-120
8/31/2016				<0.001
10/26/2016				0.0002 (J)
1/27/2017				<0.001
5/25/2017				9E-05 (J)
10/2/2017				8E-05 (J)
11/15/2017				<0.001
6/5/2018				<0.001
10/2/2018				<0.001
8/22/2019				<0.001
10/22/2019				<0.001
3/25/2020				<0.001
8/26/2020				<0.001
9/16/2020	5E-05 (J)	0.00021 (J)		
9/21/2020				<0.001
9/25/2020			<0.001	
11/10/2020	6.9E-05 (J)	0.0002 (J)		
11/11/2020			4E-05 (J)	
12/15/2020	8.2E-05 (J)	0.00011 (J)		
12/16/2020			5.8E-05 (J)	
1/19/2021	4.4E-05 (J)	<0.001		
1/20/2021			8.2E-05 (J)	
3/10/2021		<0.001		
3/11/2021	9.4E-05 (J)			
3/12/2021			5.5E-05 (J)	<0.001
8/11/2021	<0.001			
8/13/2021		<0.001	<0.001	
8/16/2021				<0.001

Time Series

Constituent: Lead (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWC-121A	HGWC-124	HGWC-125	HGWC-126
8/31/2016	<0.001	<0.001		
10/26/2016		<0.001		
11/7/2016	<0.001			
1/13/2017	<0.001			
1/27/2017		<0.001		
5/25/2017		<0.001		
6/3/2017	7E-05 (J)			
8/11/2017		8E-05 (J)		
10/2/2017	<0.001			
11/15/2017	<0.001	<0.001		
6/5/2018	0.00036 (J)	<0.001		
10/2/2018		<0.001		
10/5/2018	<0.001			
8/22/2019	<0.001			
8/23/2019		4.9E-05 (J)		
10/21/2019	<0.001	4.9E-05 (J)		
3/24/2020		9.4E-05 (J)		
3/25/2020	<0.001			
5/22/2020			0.00014 (J)	<0.001
6/16/2020			0.00013 (J)	<0.001
8/25/2020			<0.001	4.5E-05 (J)
8/26/2020	<0.001			
8/27/2020		<0.001		
9/18/2020				<0.001
9/21/2020			<0.001	
9/28/2020	<0.001	7.5E-05 (J)		
11/11/2020				4.2E-05 (J)
11/12/2020			4.7E-05 (J)	
12/16/2020			<0.001	<0.001
1/20/2021			9.2E-05 (J)	<0.001
3/12/2021			4.4E-05 (J)	4.6E-05 (J)
3/15/2021	0.00015 (J)	<0.001		
8/16/2021	<0.001	<0.001		
8/19/2021			<0.001	<0.001

Time Series

Constituent: Lead (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	MW-32	MW-39	MW-41	MW-46D
3/25/2020	<0.001			
6/15/2020			<0.001	
8/26/2020	<0.001	<0.001	<0.001	
9/25/2020				4.8E-05 (J)
9/28/2020	<0.001	<0.001	<0.001	
3/12/2021				<0.001
3/15/2021	<0.001	<0.001	<0.001	
8/16/2021				<0.001
8/18/2021	<0.001	<0.001	<0.001	

Time Series

Constituent: Lithium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-122 (bg)	HGWA-2 (bg)	HGWA-3 (bg)
5/19/2016	<0.03		<0.03	<0.03
7/11/2016	<0.03		0.0014 (J)	
7/12/2016				0.0024 (J)
8/30/2016	<0.03	<0.03	<0.03	0.0025 (J)
10/19/2016	<0.03		<0.03	0.003 (J)
10/20/2016		<0.03		
12/6/2016	<0.03		<0.03	0.0033 (J)
1/24/2017	<0.03		<0.03	0.003 (J)
1/25/2017		<0.03		
3/21/2017	<0.03		0.0012 (J)	0.0034 (J)
5/22/2017	<0.03		<0.03	0.003 (J)
5/25/2017		<0.03		
8/11/2017		<0.03		
11/15/2017		<0.03		
4/2/2018	<0.03		0.0015 (J)	
4/3/2018				0.003 (J)
6/4/2018	0.001 (J)		0.0016 (J)	0.0027 (J)
6/5/2018		<0.03		
10/1/2018	0.00099 (J)		0.0013 (J)	0.0032 (J)
10/2/2018		<0.03		
3/12/2019	0.001 (J)		0.0018 (J)	0.0032 (J)
4/1/2019				0.0032 (J)
4/2/2019	0.001 (J)		0.0018 (J)	
8/22/2019		<0.03		
9/23/2019	0.0011 (J)		0.0016 (J)	0.0029 (J)
10/21/2019		<0.03		
3/2/2020	0.0012 (J)		0.0017 (J)	0.0037 (J)
3/24/2020		<0.03		
3/25/2020	0.00083 (J)		0.0017 (J)	0.0035 (J)
8/24/2020		<0.03		
8/25/2020			0.0015 (J)	0.0027 (J)
8/28/2020	0.00087 (J)			
9/15/2020	0.00087 (J)	<0.03	0.0015 (J)	0.0026 (J)
3/10/2021	0.0009 (J)			
3/11/2021		<0.03	0.0011 (J)	0.0035 (J)
8/11/2021	0.00078 (J)			
8/12/2021			0.0012 (J)	0.0028 (J)
8/13/2021		<0.03		

Time Series

Constituent: Lithium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-43D (bg)	HGWA-44D (bg)	HGWA-45D (bg)	HGWC-120
8/31/2016				0.0333 (J)
10/26/2016				0.0352 (J)
1/27/2017				0.0329 (J)
5/25/2017				0.0347 (J)
10/2/2017				0.0337 (J)
11/15/2017				0.0347 (J)
6/5/2018				0.033 (J)
10/2/2018				0.031 (J)
8/22/2019				0.029 (J)
10/22/2019				0.03 (J)
3/25/2020				0.024 (J)
8/26/2020				0.023 (J)
9/16/2020	0.0018 (J)	0.014 (J)		
9/21/2020				0.023 (J)
9/25/2020			0.0049 (J)	
11/10/2020	0.0013 (J)	0.025 (J)		
11/11/2020			0.0032 (J)	
12/15/2020	0.0019 (J)	0.028 (J)		
12/16/2020			0.0045 (J)	
1/19/2021	0.0025 (J)	<0.03		
1/20/2021			0.0025 (J)	
3/10/2021		0.03		
3/11/2021	0.0022 (J)			
3/12/2021			0.005 (J)	0.023 (J)
8/11/2021	0.0024 (J)			
8/13/2021		0.032	0.0044 (J)	
8/16/2021				0.025 (J)

Time Series

Constituent: Lithium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWC-121A	HGWC-124	HGWC-125	HGWC-126
8/31/2016	0.0077 (J)	<0.03		
10/26/2016		<0.03		
11/7/2016	0.0089 (J)			
1/13/2017	0.0091 (J)			
1/27/2017		<0.03		
5/25/2017		0.0011 (J)		
6/3/2017	0.0104 (J)			
8/11/2017		<0.03		
10/2/2017	0.0095 (J)			
11/15/2017	0.0086 (J)	<0.03		
6/5/2018	0.0092 (J)	0.0012 (J)		
10/2/2018		0.0012 (J)		
10/5/2018	0.0091 (J)			
8/22/2019	0.0084 (J)			
8/23/2019		0.0011 (J)		
10/21/2019	0.009 (J)	0.0011 (J)		
3/24/2020		0.0012 (J)		
3/25/2020	0.0066 (J)			
5/22/2020			0.0052 (J)	0.0046 (J)
6/16/2020			0.0053 (J)	0.0045 (J)
8/25/2020			0.0037 (J)	0.0037 (J)
8/26/2020	0.0071 (J)			
8/27/2020		0.00091 (J)		
9/18/2020				0.0035 (J)
9/21/2020			0.0038 (J)	
9/28/2020	0.0076 (J)	0.0011 (J)		
11/11/2020				0.0032 (J)
11/12/2020			0.0038 (J)	
12/16/2020			0.0055 (J)	0.0029 (J)
1/20/2021			0.0046 (J)	0.0038 (J)
3/12/2021			0.0039 (J)	0.0038 (J)
3/15/2021	0.0077 (J)	0.001 (J)		
8/16/2021	0.0075 (J)	0.0011 (J)		
8/19/2021			0.0074 (J)	0.0032 (J)

Time Series

Constituent: Lithium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	MW-32	MW-39	MW-41	MW-46D
3/25/2020	0.034			
3/27/2020		<0.03		
6/15/2020			0.028 (J)	
8/26/2020	0.031	0.031	0.027 (J)	
9/25/2020				0.015 (J)
9/28/2020	0.032	0.034	0.028 (J)	
3/12/2021				0.0084 (J)
3/15/2021	0.033	0.032	0.03 (J)	
8/16/2021				0.0062 (J)
8/18/2021	0.031	0.032	0.029 (J)	

Time Series

Constituent: Mercury (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-122 (bg)	HGWA-2 (bg)	HGWA-3 (bg)
5/19/2016	<0.0002		<0.0002	<0.0002
7/11/2016	<0.0002		<0.0002	
7/12/2016				<0.0002
8/30/2016	4E-05 (J)	4.3E-05 (J)	4E-05 (J)	<0.0002
10/19/2016	<0.0002		<0.0002	<0.0002
10/20/2016		<0.0002		
12/6/2016	<0.0002		<0.0002	<0.0002
1/24/2017	<0.0002		<0.0002	<0.0002
1/25/2017		4E-05 (J)		
3/21/2017	<0.0002		<0.0002	<0.0002
5/22/2017	<0.0002		<0.0002	<0.0002
5/25/2017		7E-05 (J)		
8/11/2017		<0.0002		
11/15/2017		<0.0002		
4/2/2018	<0.0002		<0.0002	
4/3/2018				<0.0002
6/5/2018		<0.0002		
10/2/2018		<0.0002		
3/12/2019	<0.0002		<0.0002	<0.0002
8/22/2019		<0.0002		
3/2/2020	<0.0002		<0.0002	<0.0002
8/24/2020		<0.0002		
8/25/2020			<0.0002	<0.0002
8/28/2020	<0.0002			
8/11/2021	<0.0002			
8/12/2021			<0.0002	<0.0002
8/13/2021		<0.0002		

Time Series

Constituent: Mercury (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-43D (bg)	HGWA-44D (bg)	HGWA-45D (bg)	HGWC-120
8/31/2016				4E-05 (J)
10/26/2016				<0.0002
1/27/2017				<0.0002
5/25/2017				7E-05 (J)
10/2/2017				<0.0002
11/15/2017				<0.0002
6/5/2018				<0.0002
10/2/2018				<0.0002
8/22/2019				<0.0002
8/26/2020				<0.0002
9/16/2020	<0.0002	<0.0002		
9/25/2020			<0.0002	
11/10/2020	<0.0002	<0.0002		
11/11/2020			<0.0002	
12/15/2020	<0.0002	<0.0002		
12/16/2020			<0.0002	
1/19/2021	<0.0002	<0.0002		
1/20/2021			<0.0002	
8/11/2021	<0.0002			
8/13/2021		<0.0002	<0.0002	
8/16/2021				<0.0002

Time Series

Constituent: Mercury (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWC-121A	HGWC-124	HGWC-125	HGWC-126
8/31/2016	<0.0002	<0.0002		
10/26/2016		<0.0002		
11/7/2016	<0.0002			
1/13/2017	<0.0002			
1/27/2017		<0.0002		
5/25/2017		5.1E-05 (J)		
6/3/2017	<0.0002			
8/11/2017		<0.0002		
10/2/2017	<0.0002			
11/15/2017	<0.0002	<0.0002		
6/5/2018	<0.0002	<0.0002		
10/2/2018		<0.0002		
10/5/2018	<0.0002			
8/22/2019	<0.0002			
8/23/2019		<0.0002		
5/22/2020			<0.0002	<0.0002
6/16/2020			<0.0002	<0.0002
8/25/2020			<0.0002	<0.0002
8/26/2020	<0.0002			
8/27/2020		<0.0002		
9/18/2020				<0.0002
9/21/2020			<0.0002	
11/11/2020				<0.0002
11/12/2020			<0.0002	
12/16/2020			<0.0002	<0.0002
1/20/2021			<0.0002	<0.0002
8/16/2021	<0.0002	<0.0002		
8/19/2021			<0.0002	<0.0002

Time Series

Constituent: Mercury (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	MW-32	MW-39	MW-41	MW-46D
8/26/2020	<0.0002	<0.0002	<0.0002	
8/16/2021				<0.0002
8/18/2021	<0.0002	<0.0002	<0.0002	

Time Series

Constituent: Molybdenum (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-122 (bg)	HGWA-2 (bg)	HGWA-3 (bg)
5/19/2016	<0.01		<0.01	<0.01
7/11/2016	<0.01		<0.01	
7/12/2016				<0.01
8/30/2016	<0.01	0.0026 (J)	<0.01	<0.01
10/19/2016	<0.01		<0.01	<0.01
10/20/2016		0.005 (J)		
12/6/2016	<0.01		<0.01	<0.01
1/24/2017	<0.01		<0.01	<0.01
1/25/2017		0.0054 (J)		
3/21/2017	<0.01		<0.01	<0.01
5/22/2017	<0.01		<0.01	<0.01
5/25/2017		0.0018 (J)		
8/11/2017		0.0029 (J)		
11/15/2017		0.0018 (J)		
4/2/2018	<0.01		<0.01	
4/3/2018				<0.01
6/4/2018	<0.01		<0.01	<0.01
6/5/2018		0.0028 (J)		
10/1/2018	<0.01		<0.01	<0.01
10/2/2018		<0.01		
3/12/2019	<0.01		<0.01	<0.01
4/1/2019				<0.01
4/2/2019	<0.01		<0.01	
8/22/2019		0.003 (J)		
9/23/2019	<0.01		<0.01	<0.01
10/21/2019		0.0049 (J)		
3/2/2020	<0.01		<0.01	<0.01
3/24/2020		0.0091 (J)		
3/25/2020	<0.01		<0.01	<0.01
6/16/2020	<0.01			<0.01
8/24/2020		0.0031 (J)		
8/25/2020			<0.01	<0.01
8/28/2020	<0.01			
9/15/2020	<0.01	0.0045 (J)	<0.01	<0.01
3/10/2021	<0.01			
3/11/2021		0.0014 (J)	<0.01	<0.01
8/11/2021	<0.01			
8/12/2021			<0.01	<0.01
8/13/2021		0.0022 (J)		

Time Series

Constituent: Molybdenum (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-43D (bg)	HGWA-44D (bg)	HGWA-45D (bg)	HGWC-120
8/31/2016				0.0176
10/26/2016				0.0187
1/27/2017				0.0214
5/25/2017				0.0231
10/2/2017				0.0259
11/15/2017				0.0281
6/5/2018				0.033
10/2/2018				0.036
8/22/2019				0.039
10/22/2019				0.04
3/25/2020				0.034
8/26/2020				0.05
9/16/2020	0.0044 (J)	0.0019 (J)		
9/21/2020				0.043
9/25/2020			0.0014 (J)	
11/10/2020	0.0072 (J)	0.0018 (J)		
11/11/2020			0.0049 (J)	
12/15/2020	0.0044 (J)	0.0019 (J)		
12/16/2020			0.0024 (J)	
1/19/2021	0.0038 (J)	<0.01		
1/20/2021			0.0063 (J)	
3/10/2021		0.0019 (J)		
3/11/2021	0.0064 (J)			
3/12/2021			0.0019 (J)	0.033
8/11/2021	0.0034 (J)			
8/13/2021		0.0051 (J)	<0.01	
8/16/2021				0.035

Time Series

Constituent: Molybdenum (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWC-121A	HGWC-124	HGWC-125	HGWC-126
8/31/2016	<0.01	<0.01		
10/26/2016		<0.01		
11/7/2016	<0.01			
1/13/2017	<0.01			
1/27/2017		<0.01		
5/25/2017		0.0009 (J)		
6/3/2017	<0.01			
8/11/2017		0.0013 (J)		
10/2/2017	<0.01			
11/15/2017	<0.01	0.0012 (J)		
6/5/2018	<0.01	<0.01		
10/2/2018		<0.01		
10/5/2018	<0.01			
8/22/2019	<0.01			
8/23/2019		0.0014 (J)		
10/21/2019	<0.01	0.0013 (J)		
3/24/2020		0.001 (J)		
3/25/2020	<0.01			
5/22/2020			<0.01	<0.01
6/16/2020			<0.01	<0.01
8/25/2020			0.00099 (J)	<0.01
8/26/2020	<0.01			
8/27/2020		0.00091 (J)		
9/18/2020				<0.01
9/21/2020			<0.01	
9/28/2020	<0.01	0.0009 (J)		
11/11/2020				<0.01
11/12/2020			0.0017 (J)	
12/16/2020			0.014	<0.01
1/20/2021			0.0013 (J)	<0.01
3/12/2021			0.0012 (J)	<0.01
3/15/2021	<0.01	0.00092 (J)		
8/16/2021	<0.01	0.00091 (J)		
8/19/2021			0.021	<0.01

Time Series

Constituent: Molybdenum (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	MW-32	MW-39	MW-41	MW-46D
1/3/2020	0.06			
1/22/2020	0.059			
3/25/2020	0.062			
3/27/2020		0.012		
4/24/2020		0.062		
6/15/2020			0.035	
8/26/2020	0.065	0.064	0.039	
9/25/2020				0.027
9/28/2020	0.062	0.062	0.036	
11/11/2020				0.015
3/12/2021				0.0033 (J)
3/15/2021	0.061	0.062	0.046	
8/16/2021				0.0012 (J)
8/18/2021	0.061	0.063	0.042	

Time Series

Constituent: pH (s.u.) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-122 (bg)	HGWA-2 (bg)	HGWA-3 (bg)
5/19/2016	7.27		5.81	7.45
7/11/2016	7.06		5.68	
7/12/2016				7.32
8/30/2016	7.28	6.75	5.63	7.43
10/19/2016	7.02		5.46	7.03
10/20/2016		6.73		
12/6/2016	7.09		5.38	7.08
1/24/2017	7.2		5.37	7.39
1/25/2017		6.88		
3/21/2017	7.01		4.9	6.83
5/22/2017	7.11		5.2	7.02
5/25/2017		6.55		
8/11/2017		6.56		
10/3/2017	7.21		5.3	7.47
11/15/2017		6.47		
4/2/2018	7.1		5.4	
4/3/2018				7.38
6/4/2018	7.06		5.27	7.38
6/5/2018		6.66		
10/1/2018	7.09		5.31	7.13
10/2/2018		6.44		
3/12/2019	7.03		5.42	7.29
4/1/2019				7.16
4/2/2019	6.86	6.57	5.41	
8/22/2019		6.51		
9/23/2019	7.02		5.33	7.3
10/21/2019		6.69		
3/2/2020	7.1		5.43	7.12
3/24/2020		7.08		
3/25/2020	6.95		5.36	7.4
6/16/2020	6.97			7.31
8/24/2020		6.54		
8/25/2020			5.17	7.14
8/28/2020	7.02			
9/15/2020	7.15	6.68	5.22	7.29
3/10/2021	6.95			
3/11/2021		6.65	5.8	7.33
8/11/2021	6.98			
8/12/2021			5.05	7.31
8/13/2021		6.56		

Time Series

Constituent: pH (s.u.) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-43D (bg)	HGWA-44D (bg)	HGWA-45D (bg)	HGWC-120
8/31/2016				6.73
10/27/2016				6.77
1/27/2017				6.74
5/25/2017				6.99
10/2/2017				7.66
11/15/2017				6.71
6/5/2018				6.83
10/2/2018				6.83
4/2/2019				6.87
8/22/2019				6.79
10/22/2019				6.74
3/25/2020				6.8
6/15/2020				6.8
8/26/2020				6.96
9/16/2020	7.52	7.83		
9/21/2020				6.98
9/25/2020			7.57	
11/10/2020	7.27	7.84		
11/11/2020			7.4	
12/15/2020	7.39	7.87		
12/16/2020			7.39	
1/19/2021	7.39	7.86		
1/20/2021			7.47	
3/10/2021		7.92		
3/11/2021	7.46			
3/12/2021			7.52	6.95
8/11/2021	7.4			
8/13/2021		7.77	7.42	
8/16/2021				6.92

Time Series

Constituent: pH (s.u.) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWC-121A	HGWC-124	HGWC-125	HGWC-126
8/31/2016	6.62	6.99		
10/27/2016		7.06		
11/7/2016	6.71			
1/13/2017	6.57			
1/27/2017		7.13		
5/25/2017		7.1		
6/3/2017	6.71			
8/11/2017		7.02		
10/2/2017	7.65			
11/15/2017	6.69	7.04		
6/5/2018	6.79	7.17		
10/2/2018		7.08		
10/5/2018	6.71			
4/3/2019	6.73	7.14		
8/22/2019	6.77			
8/23/2019		7.02		
10/21/2019	6.74	7.05		
3/24/2020		7.18		
3/25/2020	6.91			
5/22/2020			6.43	7.22
6/16/2020			6.29	6.92
8/25/2020			6.36	6.78
8/26/2020	6.73			
8/27/2020		7.15		
9/18/2020				6.97
9/21/2020			6.22	
9/28/2020	6.93	7.27		
11/11/2020				6.86
11/12/2020			6.13	
12/16/2020			6.61	6.93
1/20/2021			6.23	6.99
3/12/2021			6.18	7.05
3/15/2021	6.87	7.22		
8/16/2021	6.74	7.09		
8/19/2021			7.24	7.32

Time Series

Constituent: pH (s.u.) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	MW-32	MW-39	MW-41	MW-46D
3/25/2020	6.86			
3/27/2020		6.82		
4/24/2020		6.82		
6/15/2020			6.88	
8/26/2020	6.75	6.74	6.74	
9/25/2020				7.56
9/28/2020	6.9	7	7	
11/11/2020				7.52
3/12/2021				7.7
3/15/2021	6.98	7.04	7.06	
8/16/2021				7.65
8/18/2021	6.89	6.9	6.93	

Time Series

Constituent: Selenium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-122 (bg)	HGWA-2 (bg)	HGWA-3 (bg)
5/19/2016	<0.005		<0.005	<0.005
7/11/2016	<0.005		<0.005	
7/12/2016				<0.005
8/30/2016	<0.005	<0.005	<0.005	<0.005
10/19/2016	<0.005		<0.005	<0.005
10/20/2016		<0.005		
12/6/2016	<0.005		<0.005	<0.005
1/24/2017	<0.005		<0.005	<0.005
1/25/2017		<0.005		
3/21/2017	<0.005		<0.005	<0.005
5/22/2017	<0.005		<0.005	<0.005
5/25/2017		<0.005		
8/11/2017		<0.005		
11/15/2017		<0.005		
4/2/2018	<0.005		<0.005	
4/3/2018				<0.005
6/4/2018	<0.005		<0.005	<0.005
6/5/2018		<0.005		
10/1/2018	<0.005		<0.005	<0.005
10/2/2018		0.0015 (J)		
3/12/2019	<0.005		<0.005	<0.005
4/1/2019				<0.005
4/2/2019	<0.005		<0.005	
8/22/2019		<0.005		
9/23/2019	<0.005		<0.005	<0.005
3/2/2020	<0.005		<0.005	<0.005
3/25/2020	<0.005		<0.005	<0.005
8/24/2020		<0.005		
8/25/2020			<0.005	<0.005
8/28/2020	<0.005			
9/15/2020	<0.005		<0.005	<0.005
8/11/2021	<0.005			
8/12/2021			<0.005	<0.005
8/13/2021		<0.005		

Time Series

Constituent: Selenium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-43D (bg)	HGWA-44D (bg)	HGWA-45D (bg)	HGWC-120
8/31/2016				<0.005
10/26/2016				<0.005
1/27/2017				<0.005
5/25/2017				<0.005
10/2/2017				0.002 (J)
11/15/2017				<0.005
6/5/2018				<0.005
10/2/2018				<0.005
8/22/2019				<0.005
8/26/2020				<0.005
9/16/2020	<0.005	<0.005		
9/25/2020			<0.005	
11/10/2020	<0.005	<0.005		
11/11/2020			<0.005	
12/15/2020	<0.005	<0.005		
12/16/2020			<0.005	
1/19/2021	<0.005	<0.005		
1/20/2021			<0.005	
8/11/2021	<0.005			
8/13/2021		<0.005	<0.005	
8/16/2021				<0.005

Time Series

Constituent: Selenium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWC-121A	HGWC-124	HGWC-125	HGWC-126
8/31/2016	<0.005	<0.005		
10/26/2016		<0.005		
11/7/2016	<0.005			
1/13/2017	0.0011 (J)			
1/27/2017		<0.005		
5/25/2017		<0.005		
6/3/2017	<0.005			
8/11/2017		<0.005		
10/2/2017	<0.005			
11/15/2017	<0.005	<0.005		
6/5/2018	<0.005	<0.005		
10/2/2018		0.0014 (J)		
10/5/2018	<0.005			
8/22/2019	<0.005			
8/23/2019		<0.005		
5/22/2020			<0.005	<0.005
6/16/2020			<0.005	<0.005
8/25/2020			<0.005	<0.005
8/26/2020	<0.005			
8/27/2020		<0.005		
9/18/2020				<0.005
9/21/2020			<0.005	
11/11/2020				<0.005
11/12/2020			<0.005	
12/16/2020			<0.005	<0.005
1/20/2021			<0.005	<0.005
8/16/2021	<0.005	<0.005		
8/19/2021			<0.005	<0.005

Time Series

Constituent: Selenium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	MW-32	MW-39	MW-41	MW-46D
8/26/2020	<0.005	<0.005	<0.005	
8/16/2021				<0.005
8/18/2021	<0.005	<0.005	<0.005	

Time Series

Constituent: Sulfate (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-122 (bg)	HGWA-2 (bg)	HGWA-3 (bg)
5/19/2016	66.9		48.6	42.3
7/11/2016	41		45	
7/12/2016				44
8/30/2016	36	49	42	40
10/19/2016	46		44	43
10/20/2016		49		
12/6/2016	59		44	43
1/24/2017	46		46	48
1/25/2017		48		
3/21/2017	63		46	45
5/22/2017	77		48	46
5/25/2017		48		
8/11/2017		47		
10/3/2017	42		47	48
11/15/2017		49		
6/4/2018	71.8		47.8	46.6
6/5/2018		48.9		
10/1/2018	49.1		48.1	48.6
10/2/2018		48.6		
4/1/2019				50.4
4/2/2019	84.3	39.6	48.7	
6/18/2019		44.5		
9/23/2019	70.2		47.2	43.9
10/21/2019		45.6		
3/24/2020		25.9		
3/25/2020	85.9		46.3	50.5
6/16/2020	88.2			49.5
9/15/2020	47.3	41.4	51.5	44.7
3/10/2021	49.6			
3/11/2021		40.7	52.9	50.4
8/11/2021	48.9			
8/12/2021			47.4	38.6
8/13/2021		42.1		

Time Series

Constituent: Sulfate (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-43D (bg)	HGWA-44D (bg)	HGWA-45D (bg)	HGWC-120
8/31/2016				290
10/26/2016				280
1/27/2017				290
5/25/2017				280
10/2/2017				300
11/15/2017				300
6/5/2018				273
10/2/2018				328
4/2/2019				256
6/17/2019				243
10/22/2019				266
3/25/2020				226
6/15/2020				212
9/16/2020	43	43		
9/21/2020				225
9/25/2020			6.8	
11/10/2020	39	6.3		
11/11/2020			11.2	
12/15/2020	38.8	6.7		
12/16/2020			11.3	
1/19/2021	37.3	7.4		
1/20/2021			14.2	
3/10/2021		<1		
3/11/2021	38.6			
3/12/2021			8.7	210
8/11/2021	30.5			
8/13/2021		56.1	8.1	
8/16/2021				211

Time Series

Constituent: Sulfate (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWC-121A	HGWC-124	HGWC-125	HGWC-126
8/31/2016	280	72		
10/26/2016		71		
11/7/2016	300			
1/13/2017	270			
1/27/2017		74		
5/25/2017		73		
6/3/2017	270			
8/11/2017		71		
10/2/2017	330			
11/15/2017	280	70		
6/5/2018	241	74		
10/2/2018		80.7		
10/5/2018	271			
4/3/2019	230	75.2		
6/17/2019	219			
6/18/2019		75.3		
10/21/2019	238	78.5		
3/24/2020		74.6		
3/25/2020	116			
5/22/2020			345	56.1
6/16/2020			320	57.6
8/25/2020			353	62.8
9/18/2020				62.7
9/21/2020			352	
9/28/2020	182	86.2		
11/11/2020				62.3
11/12/2020			300	
12/16/2020			306	68.1
1/20/2021			335	66.6
3/12/2021			293	69.7
3/15/2021	177	74		
8/16/2021	158	74		
8/19/2021			264	64.4

Time Series

Constituent: Sulfate (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	MW-32	MW-39	MW-41	MW-46D
1/3/2020	210			
3/25/2020	204			
3/27/2020		111		
6/15/2020			219	
9/25/2020				149
9/28/2020	245	239	154	
11/11/2020				167
3/12/2021				155
3/15/2021	236	234	225	
8/16/2021				144
8/18/2021	162	173	180	

Time Series

Constituent: Thallium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-122 (bg)	HGWA-2 (bg)	HGWA-3 (bg)
5/19/2016	<0.001		<0.001	<0.001
7/11/2016	<0.001		<0.001	
7/12/2016				<0.001
8/30/2016	<0.001	<0.001	<0.001	<0.001
10/19/2016	<0.001		<0.001	<0.001
10/20/2016		<0.001		
12/6/2016	<0.001		<0.001	<0.001
1/24/2017	<0.001		<0.001	<0.001
1/25/2017		<0.001		
3/21/2017	<0.001		3E-05 (J)	<0.001
5/22/2017	<0.001		<0.001	<0.001
5/25/2017		<0.001		
8/11/2017		<0.001		
11/15/2017		<0.001		
4/2/2018	<0.001		<0.001	
4/3/2018				<0.001
6/4/2018	<0.001		<0.001	<0.001
6/5/2018		<0.001		
10/1/2018	<0.001		<0.001	<0.001
10/2/2018		<0.001		
3/12/2019	<0.001		<0.001	<0.001
4/1/2019				<0.001
4/2/2019	<0.001		<0.001	
8/22/2019		<0.001		
9/23/2019	<0.001		<0.001	<0.001
3/2/2020	<0.001		<0.001	<0.001
3/25/2020	<0.001		<0.001	<0.001
8/24/2020		<0.001		
8/25/2020			<0.001	<0.001
8/28/2020	<0.001			
9/15/2020	<0.001		<0.001	<0.001
8/11/2021	<0.001			
8/12/2021			<0.001	<0.001
8/13/2021		<0.001		

Time Series

Constituent: Thallium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-43D (bg)	HGWA-44D (bg)	HGWA-45D (bg)	HGWC-120
8/31/2016				<0.001
10/26/2016				<0.001
1/27/2017				<0.001
5/25/2017				<0.001
10/2/2017				<0.001
11/15/2017				<0.001
6/5/2018				<0.001
10/2/2018				<0.001
8/22/2019				<0.001
8/26/2020				<0.001
9/16/2020	<0.001	<0.001		
9/25/2020			<0.001	
11/10/2020	<0.001	<0.001		
11/11/2020			<0.001	
12/15/2020	<0.001	<0.001		
12/16/2020			<0.001	
1/19/2021	<0.001	<0.001		
1/20/2021			<0.001	
8/11/2021	<0.001			
8/13/2021		<0.001	<0.001	
8/16/2021				<0.001

Time Series

Constituent: Thallium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWC-121A	HGWC-124	HGWC-125	HGWC-126
8/31/2016	<0.001	<0.001		
10/26/2016		<0.001		
11/7/2016	<0.001			
1/13/2017	<0.001			
1/27/2017		<0.001		
5/25/2017		<0.001		
6/3/2017	<0.001			
8/11/2017		<0.001		
10/2/2017	<0.001			
11/15/2017	<0.001	<0.001		
6/5/2018	<0.001	<0.001		
10/2/2018		<0.001		
10/5/2018	<0.001			
8/22/2019	<0.001			
8/23/2019		<0.001		
5/22/2020			<0.001	<0.001
6/16/2020			<0.001	<0.001
8/25/2020			<0.001	<0.001
8/26/2020	<0.001			
8/27/2020		<0.001		
9/18/2020				<0.001
9/21/2020			<0.001	
11/11/2020				<0.001
11/12/2020			<0.001	
12/16/2020			<0.001	<0.001
1/20/2021			<0.001	<0.001
8/16/2021	<0.001	<0.001		
8/19/2021			<0.001	<0.001

Time Series

Constituent: Thallium (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	MW-32	MW-39	MW-41	MW-46D
8/26/2020	<0.001	<0.001	<0.001	
8/16/2021				<0.001
8/18/2021	<0.001	<0.001	<0.001	

Time Series

Constituent: Total Dissolved Solids (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-122 (bg)	HGWA-2 (bg)	HGWA-3 (bg)
5/19/2016	421		143	267
7/11/2016	363		125	
7/12/2016				249
8/30/2016	330	280	168	254
10/19/2016	380		176	357
10/20/2016		265		
12/6/2016	377		145	285
1/24/2017	342		129	300
1/25/2017		371		
3/21/2017	340		103	288
5/22/2017	338		92	263
5/25/2017		237		
8/11/2017		253		
10/3/2017	343		127	300
11/15/2017		261		
6/4/2018	415		140	266
6/5/2018		276		
10/1/2018	354		135	291
10/2/2018		256		
4/1/2019				284
4/2/2019	452	814 (o)	133	
6/18/2019		233		
9/23/2019	442		129	268
10/21/2019		296		
3/24/2020		278		
3/25/2020	496		138	284
6/16/2020	632			448
9/15/2020	265	267	124	258
3/10/2021	348			
3/11/2021		206	169	267
8/11/2021	366			
8/12/2021			118	265
8/13/2021		201		

Time Series

Constituent: Total Dissolved Solids (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-43D (bg)	HGWA-44D (bg)	HGWA-45D (bg)	HGWC-120
8/31/2016				700
10/26/2016				795
1/27/2017				706
5/25/2017				669
10/2/2017				672
11/15/2017				721
6/5/2018				723
10/2/2018				703
4/2/2019				540
10/22/2019				693
3/25/2020				665
6/15/2020				685
9/16/2020	272	270		
9/21/2020				272
9/25/2020			263	
11/10/2020	307	287		
11/11/2020			276	
12/15/2020	289	295		
12/16/2020			294	
1/19/2021	270	278		
1/20/2021			289	
3/10/2021		289		
3/11/2021	279			
3/12/2021			260	584
8/11/2021	277			
8/13/2021		436	272	
8/16/2021				632

Time Series

Constituent: Total Dissolved Solids (mg/L) Analysis Run 10/14/2021 2:07 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWC-121A	HGWC-124	HGWC-125	HGWC-126
8/31/2016	876	379		
10/26/2016		409		
11/7/2016	1000			
1/13/2017	827			
1/27/2017		370		
5/25/2017		351		
6/3/2017	846			
8/11/2017		322		
10/2/2017	884			
11/15/2017	838	350		
6/5/2018	823	360		
10/2/2018		363		
10/5/2018	813			
4/3/2019	785	369		
6/17/2019	751			
10/21/2019	771	357		
3/24/2020		355		
3/25/2020	521			
5/22/2020			809	496
6/16/2020			665	508
8/25/2020			772	505
9/18/2020				452
9/21/2020			956	
9/28/2020	<10	176		
11/11/2020				468
11/12/2020			694	
12/16/2020			816	536
1/20/2021			726	472
3/12/2021			664	474
3/15/2021	614	340		
8/16/2021	626	352		
8/19/2021			732	488

Time Series

Constituent: Total Dissolved Solids (mg/L) Analysis Run 10/14/2021 2:07 AM

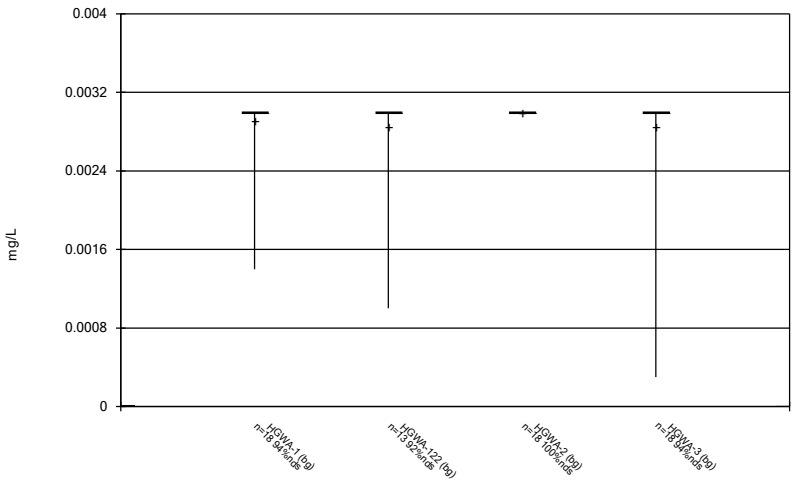
Plant Hammond Client: Southern Company Data: Hammond AP-3

	MW-32	MW-39	MW-41	MW-46D
1/3/2020	645			
3/25/2020	641			
3/27/2020		482		
6/15/2020			674	
9/25/2020				449
9/28/2020	272	272	392	
11/11/2020				472
3/12/2021				590
3/15/2021	630	628	582	
8/16/2021				516
8/18/2021	554	628	602	

FIGURE B.

Sanitas™ v.9.6.31 . UG

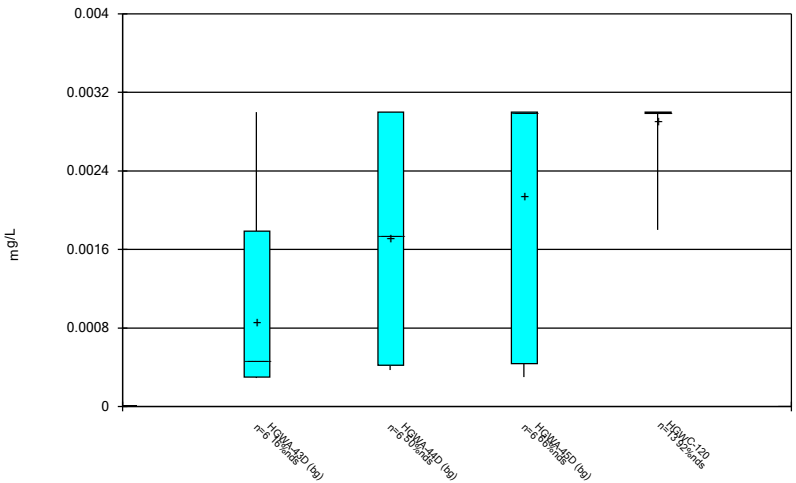
Box & Whiskers Plot



Constituent: Antimony Analysis Run 10/14/2021 2:18 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

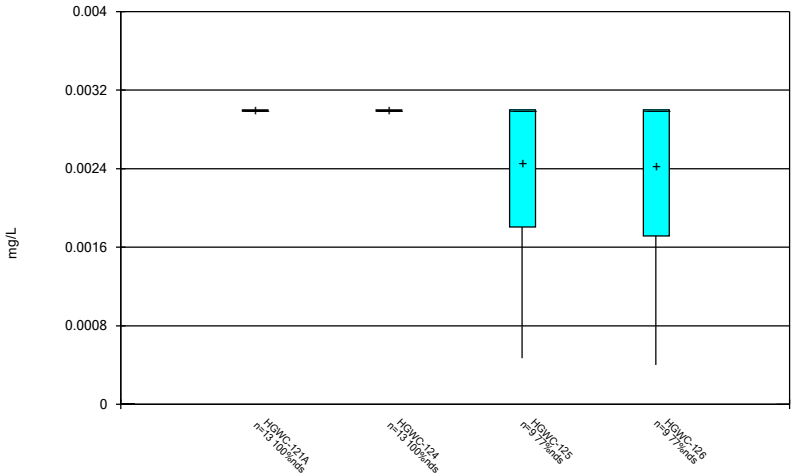
Box & Whiskers Plot



Constituent: Antimony Analysis Run 10/14/2021 2:18 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

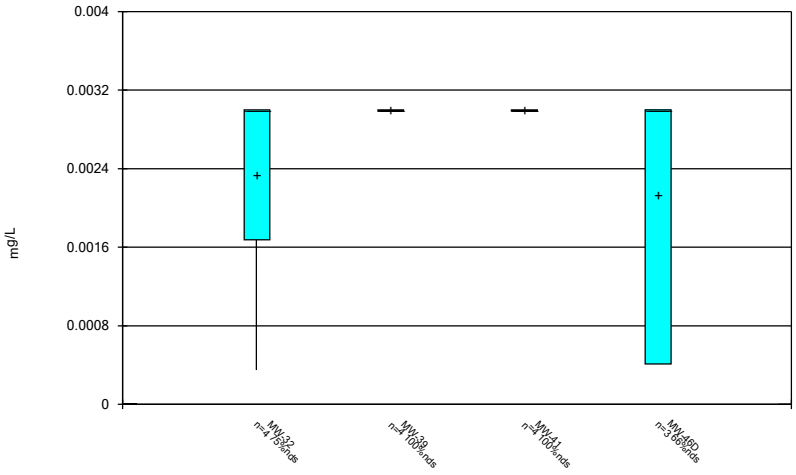
Box & Whiskers Plot



Constituent: Antimony Analysis Run 10/14/2021 2:18 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

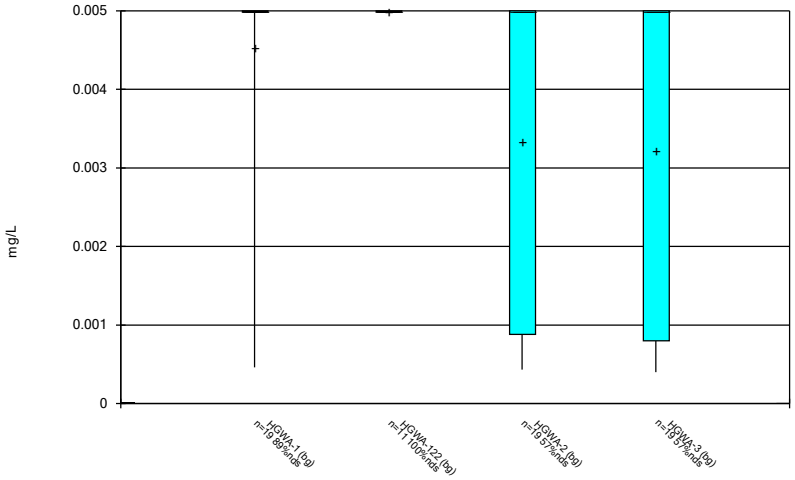
Box & Whiskers Plot



Constituent: Antimony Analysis Run 10/14/2021 2:18 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

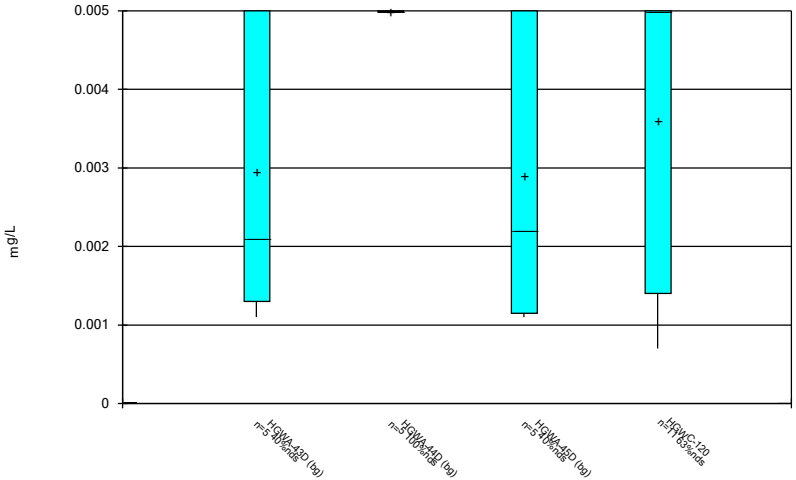


Constituent: Arsenic Analysis Run 10/14/2021 2:18 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

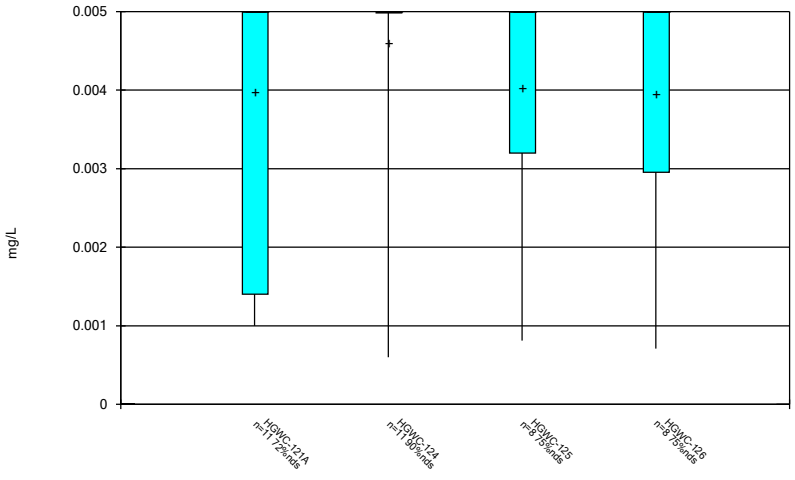


Constituent: Arsenic Analysis Run 10/14/2021 2:18 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

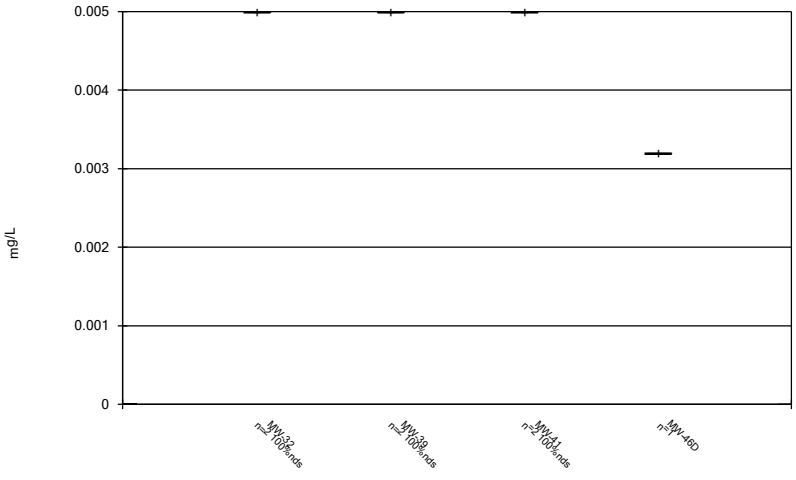


Constituent: Arsenic Analysis Run 10/14/2021 2:18 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

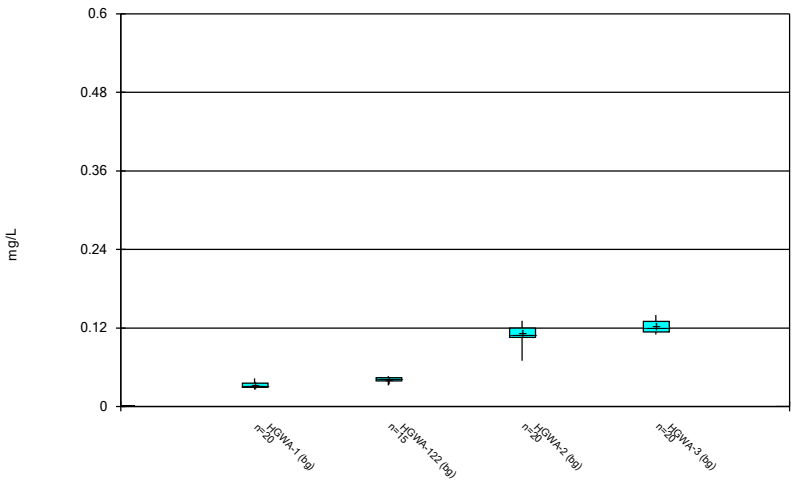


Constituent: Arsenic Analysis Run 10/14/2021 2:18 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

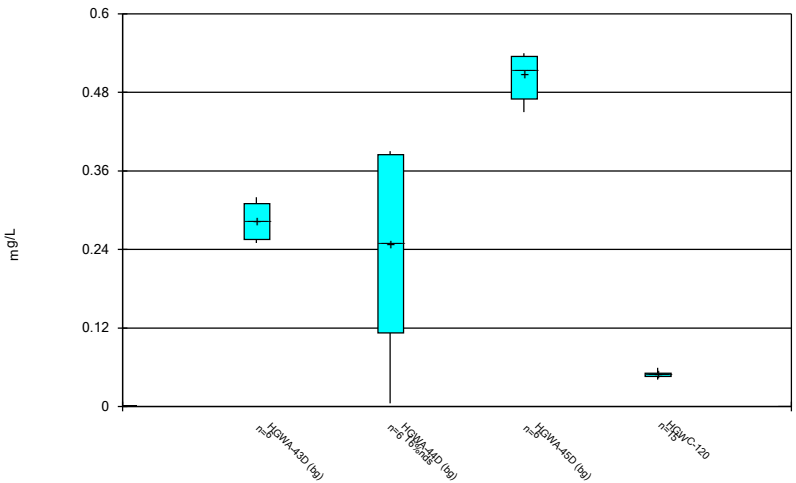


Constituent: Barium Analysis Run 10/14/2021 2:18 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

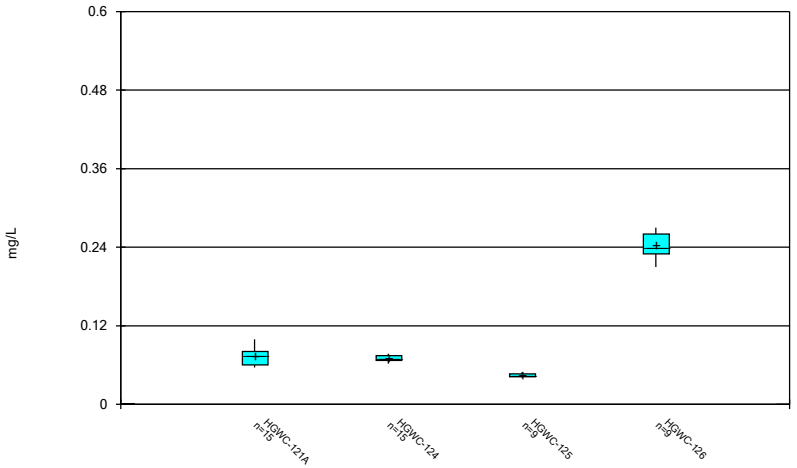


Constituent: Barium Analysis Run 10/14/2021 2:18 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

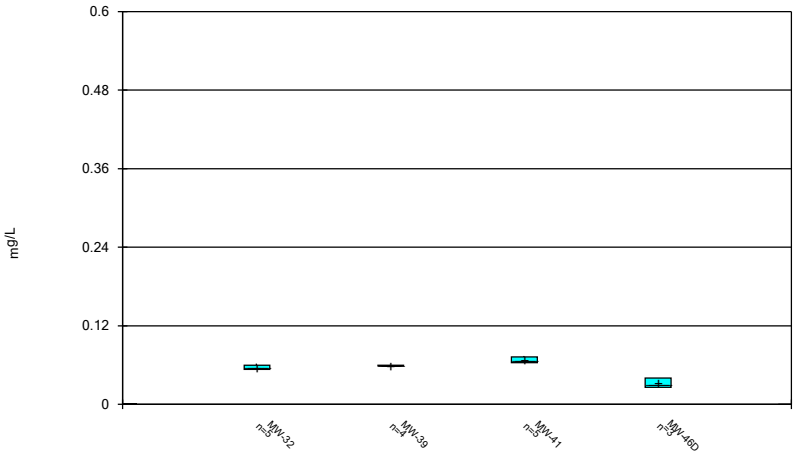


Constituent: Barium Analysis Run 10/14/2021 2:18 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

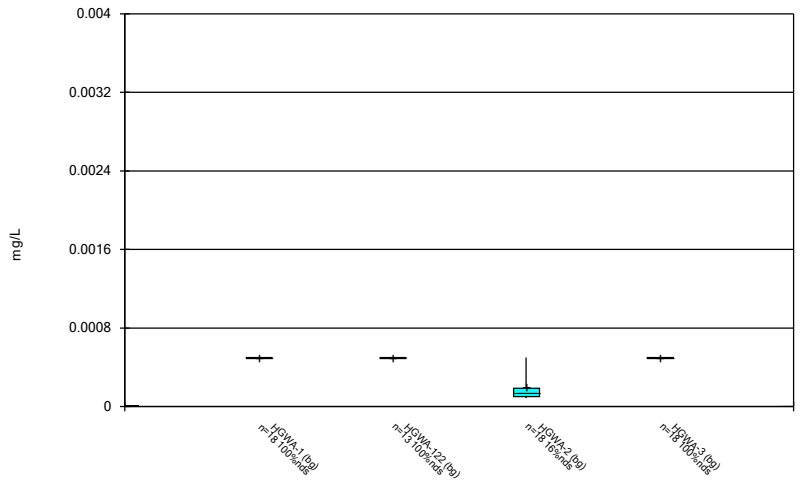


Constituent: Barium Analysis Run 10/14/2021 2:18 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

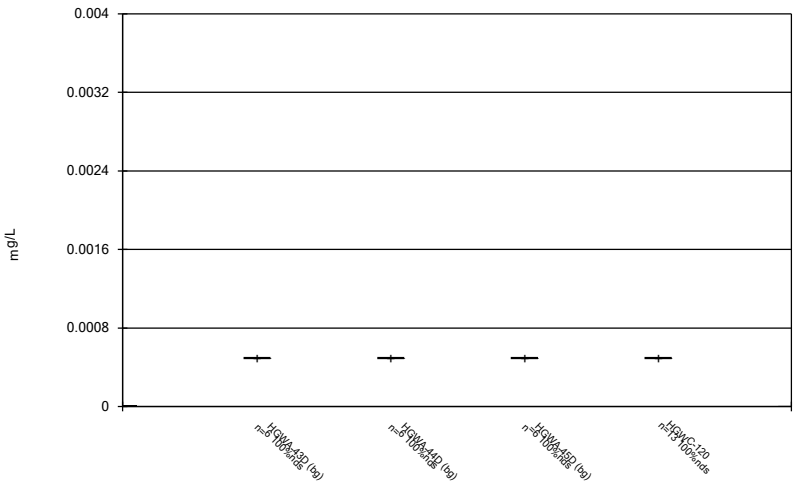


Constituent: Beryllium Analysis Run 10/14/2021 2:18 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

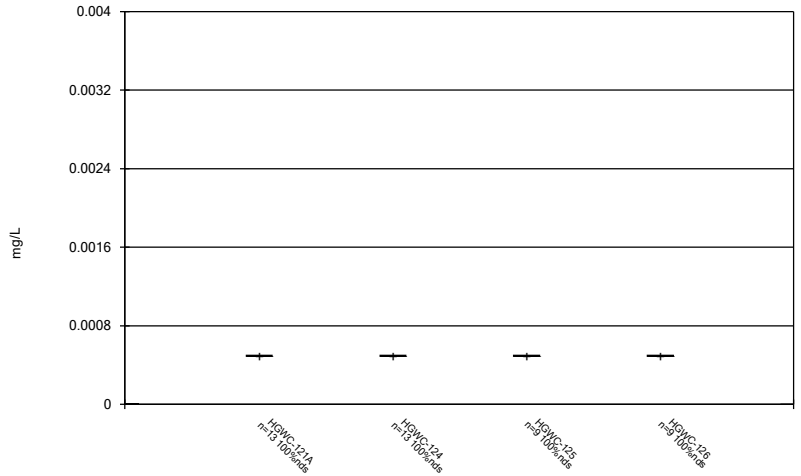


Constituent: Beryllium Analysis Run 10/14/2021 2:18 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

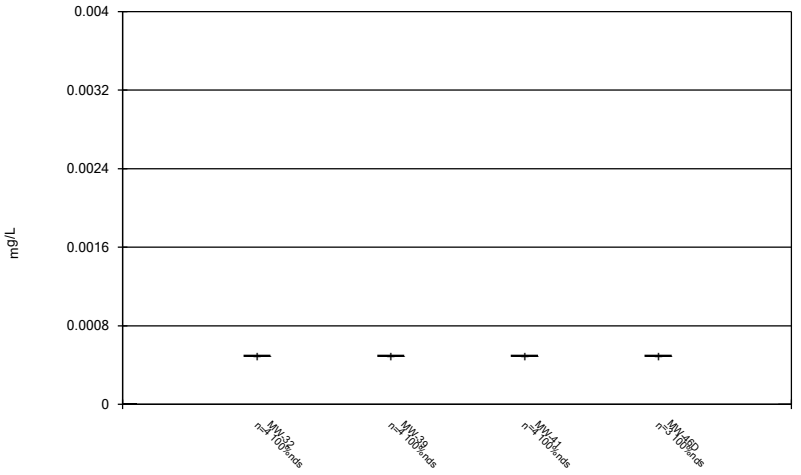


Constituent: Beryllium Analysis Run 10/14/2021 2:18 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

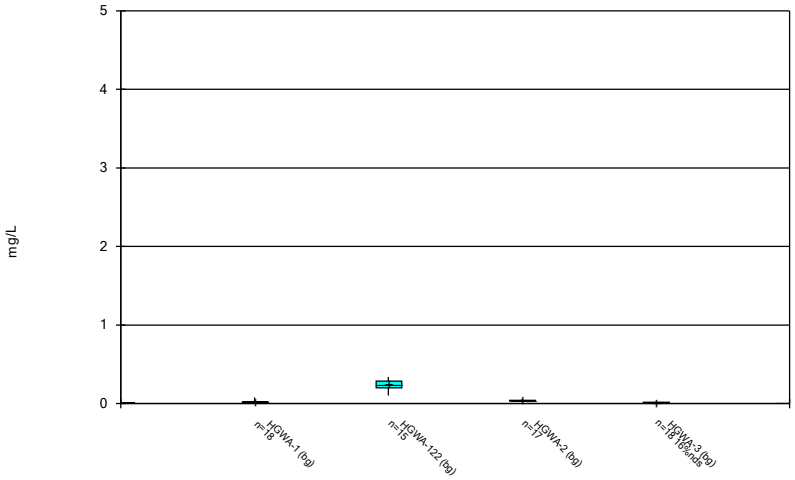


Constituent: Beryllium Analysis Run 10/14/2021 2:18 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

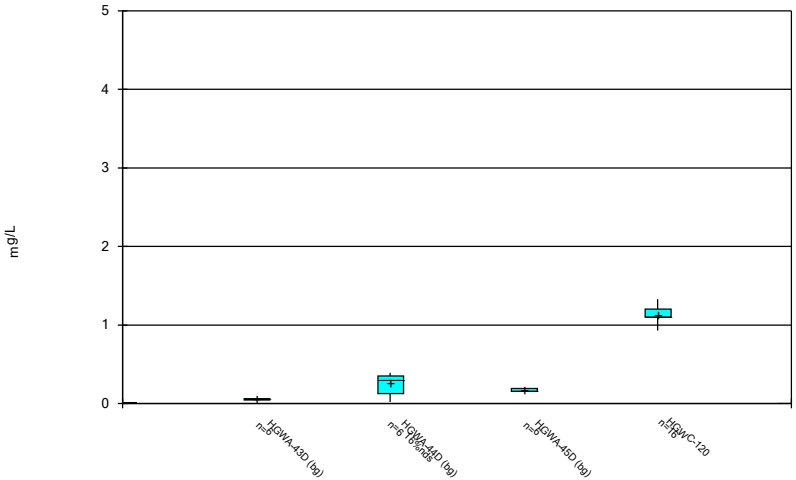


Constituent: Boron Analysis Run 10/14/2021 2:18 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

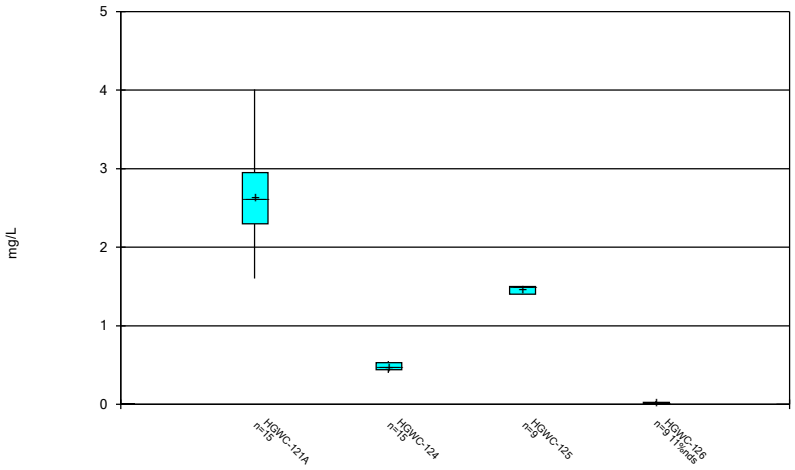


Constituent: Boron Analysis Run 10/14/2021 2:18 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

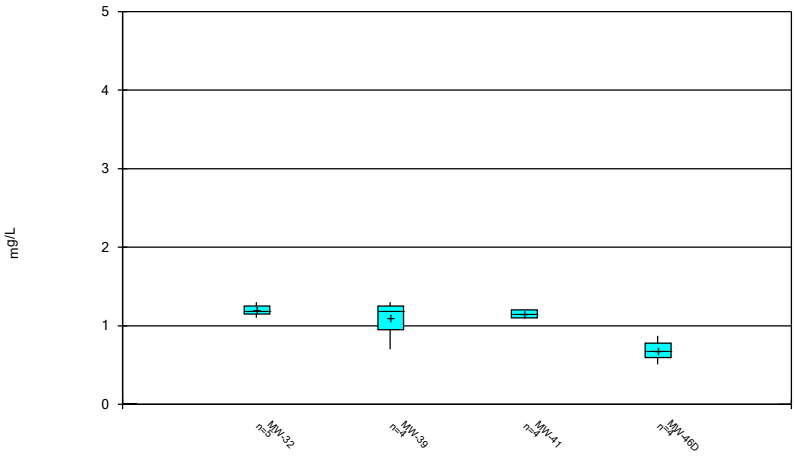


Constituent: Boron Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

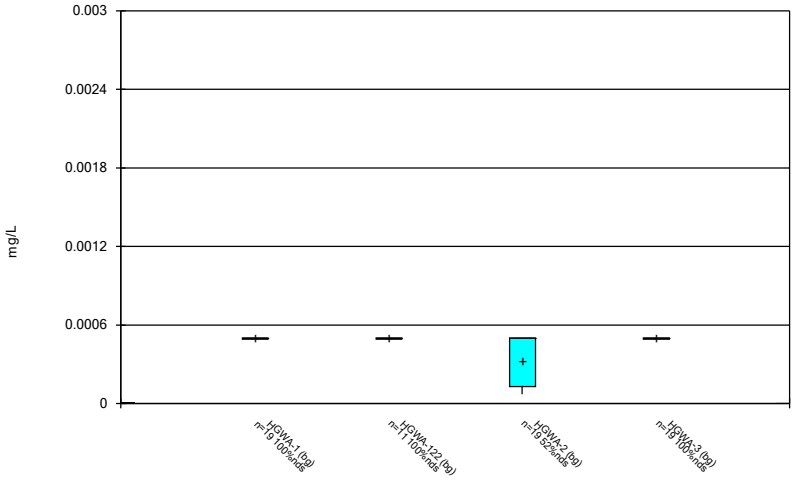


Constituent: Boron Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

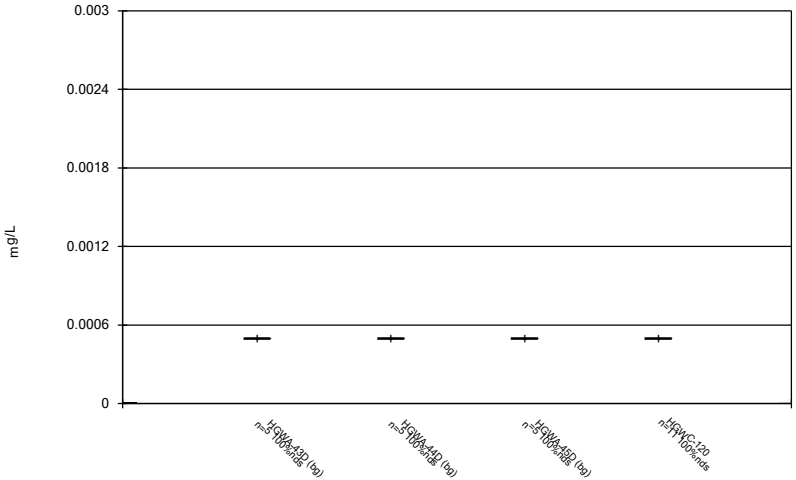
Box & Whiskers Plot



Constituent: Cadmium Analysis Run 10/14/2021 2:19 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

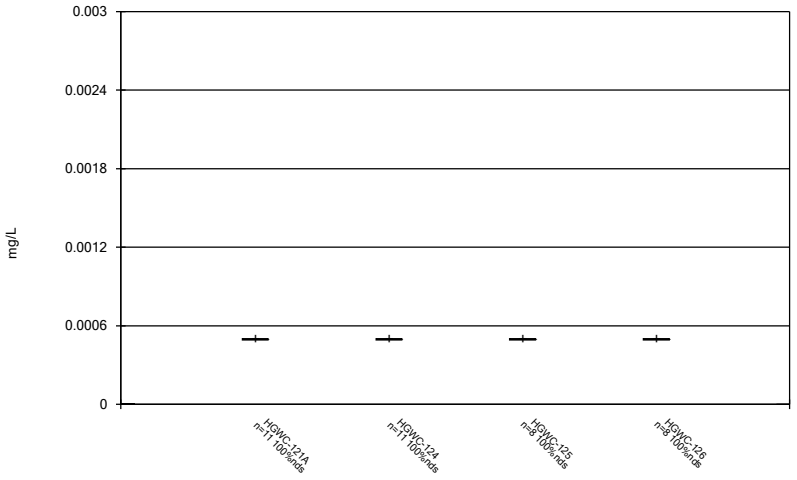
Box & Whiskers Plot



Constituent: Cadmium Analysis Run 10/14/2021 2:19 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

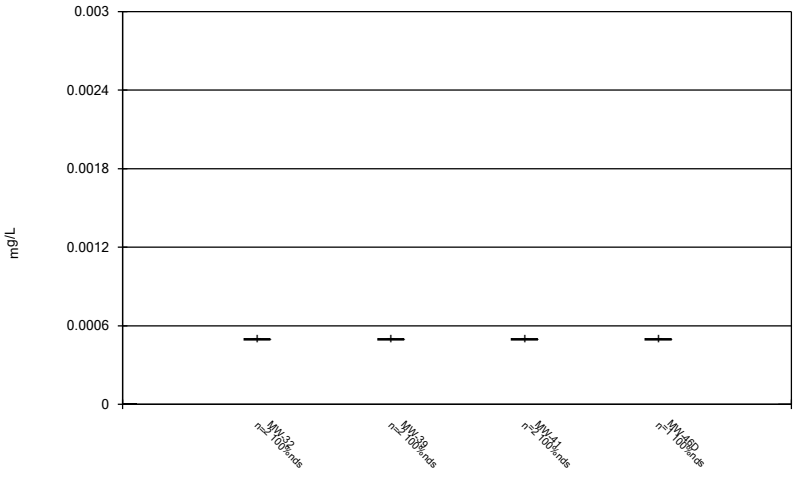
Box & Whiskers Plot



Constituent: Cadmium Analysis Run 10/14/2021 2:19 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

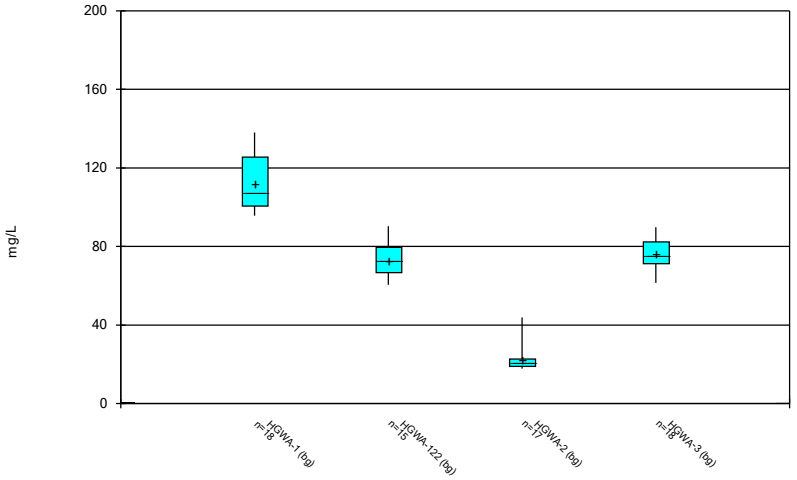
Box & Whiskers Plot



Constituent: Cadmium Analysis Run 10/14/2021 2:19 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

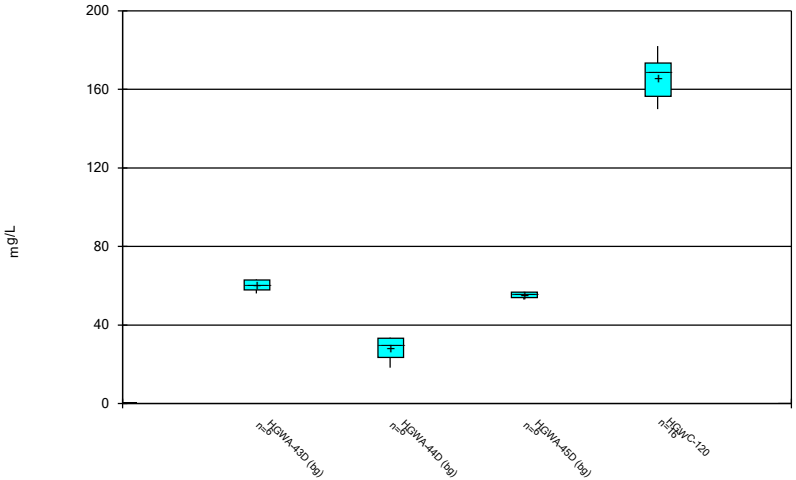
Box & Whiskers Plot



Constituent: Calcium Analysis Run 10/14/2021 2:19 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

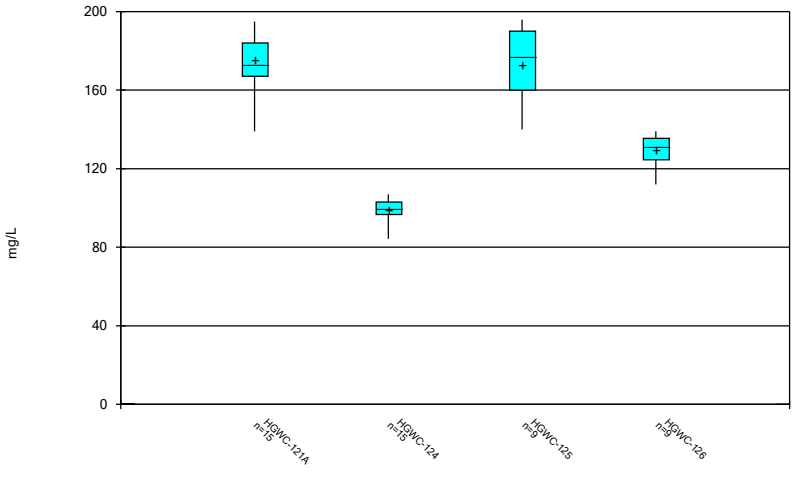
Box & Whiskers Plot



Constituent: Calcium Analysis Run 10/14/2021 2:19 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

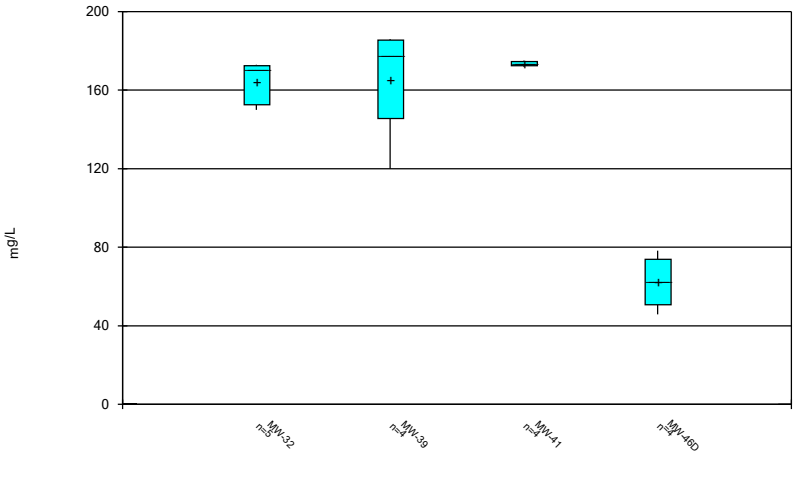
Box & Whiskers Plot



Constituent: Calcium Analysis Run 10/14/2021 2:19 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

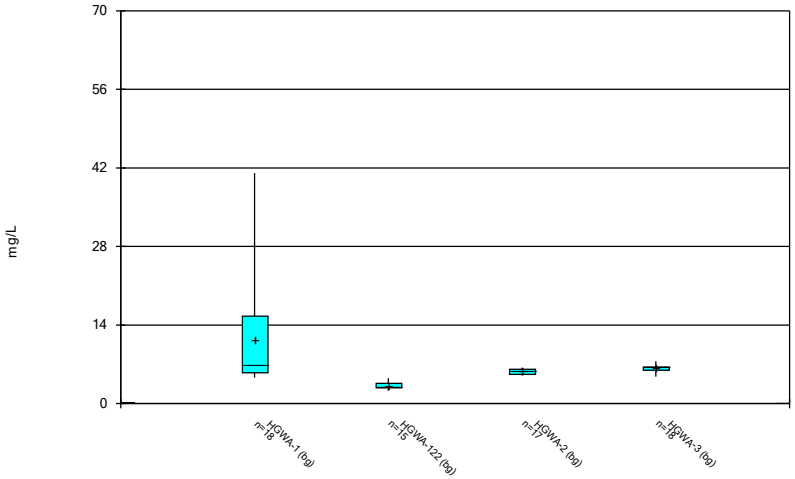
Box & Whiskers Plot



Constituent: Calcium Analysis Run 10/14/2021 2:19 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

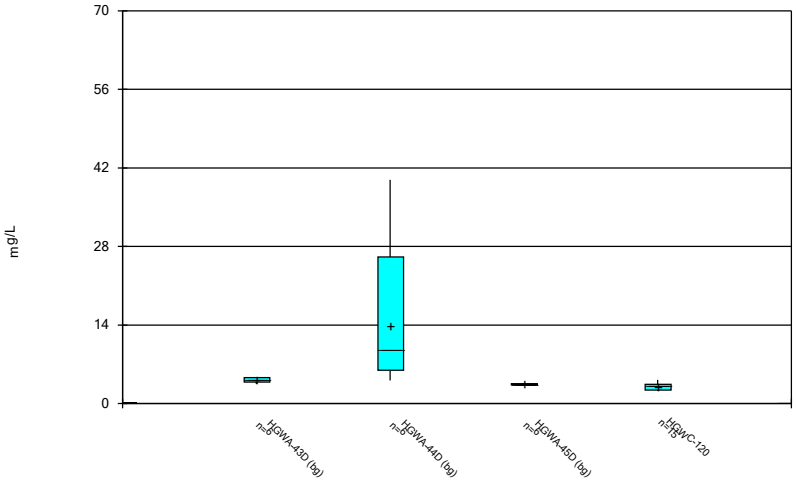
Box & Whiskers Plot



Constituent: Chloride Analysis Run 10/14/2021 2:19 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

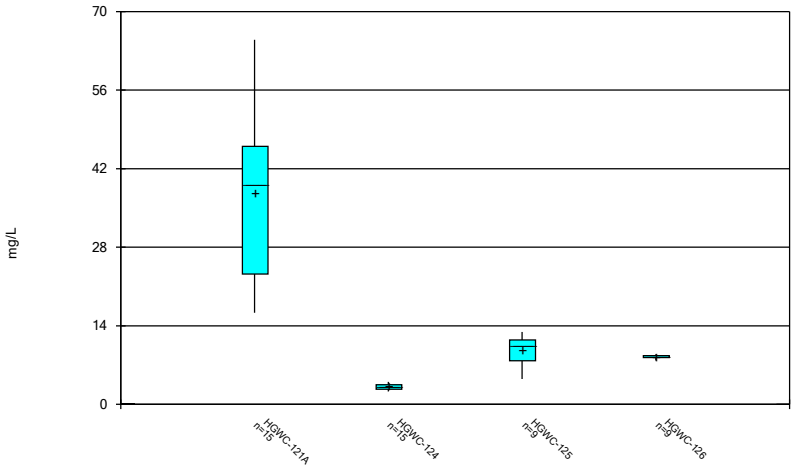
Box & Whiskers Plot



Constituent: Chloride Analysis Run 10/14/2021 2:19 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

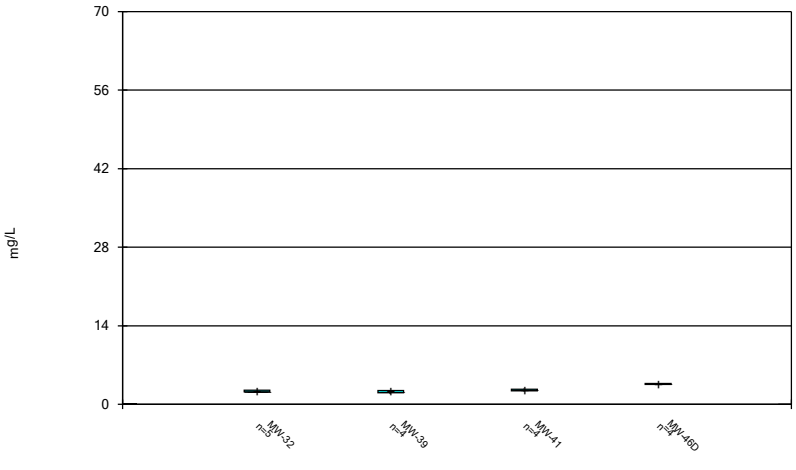
Box & Whiskers Plot



Constituent: Chloride Analysis Run 10/14/2021 2:19 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

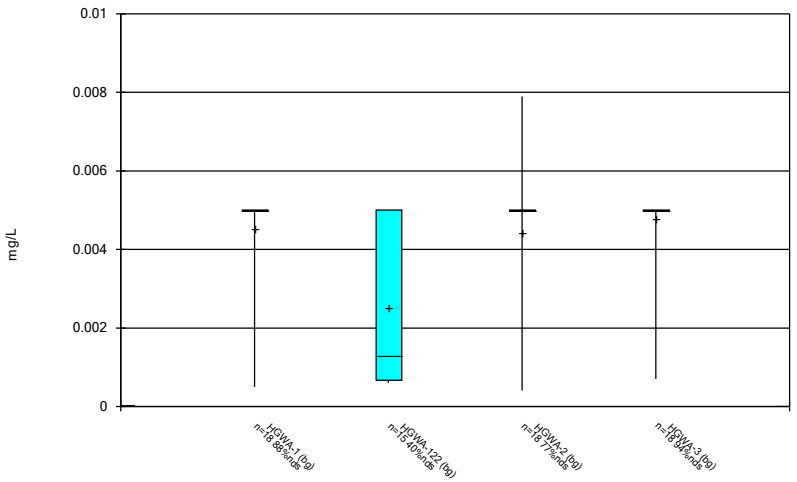
Box & Whiskers Plot



Constituent: Chloride Analysis Run 10/14/2021 2:19 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

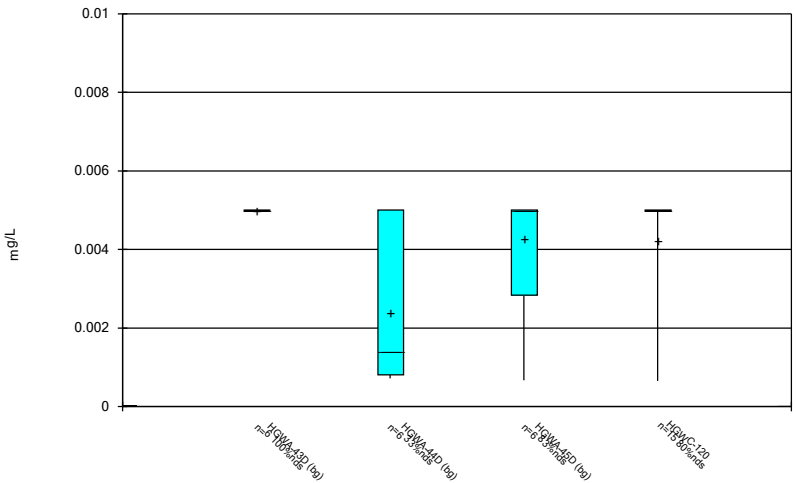


Constituent: Chromium Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

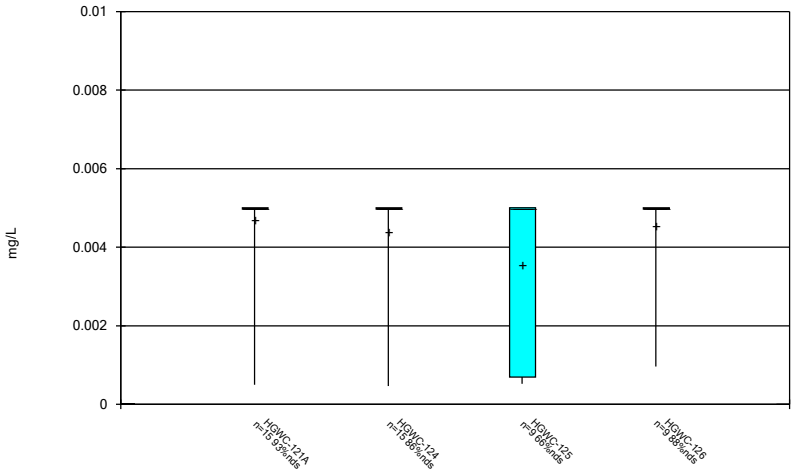


Constituent: Chromium Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

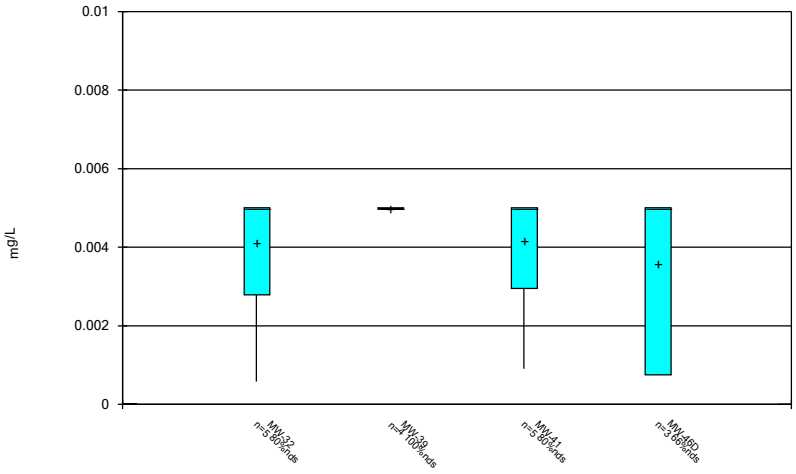


Constituent: Chromium Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

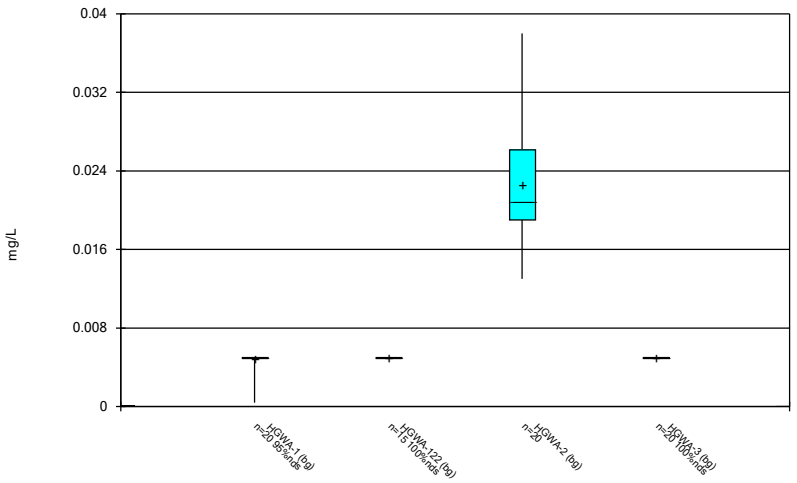


Constituent: Chromium Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

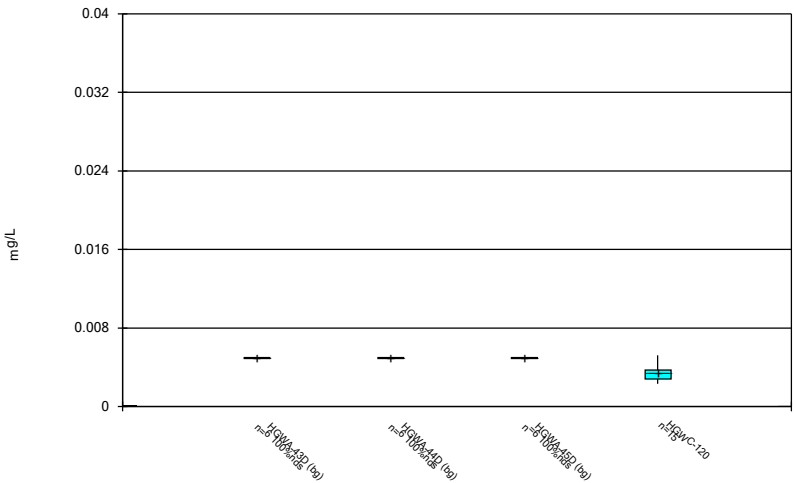


Constituent: Cobalt Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

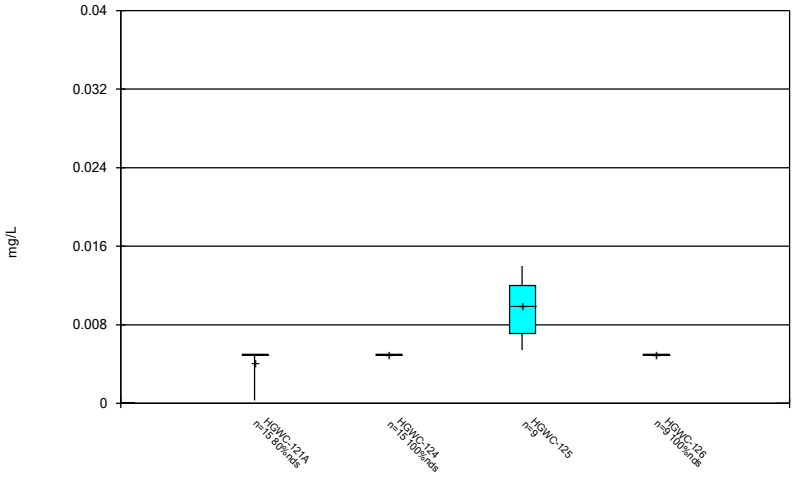


Constituent: Cobalt Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

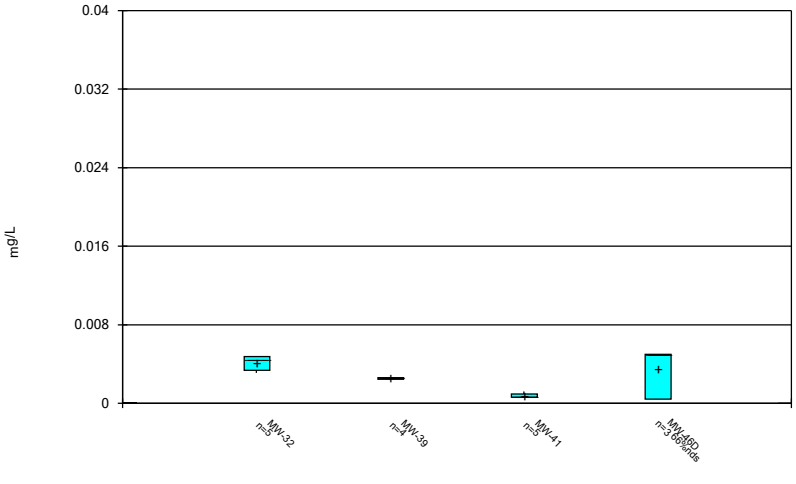


Constituent: Cobalt Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

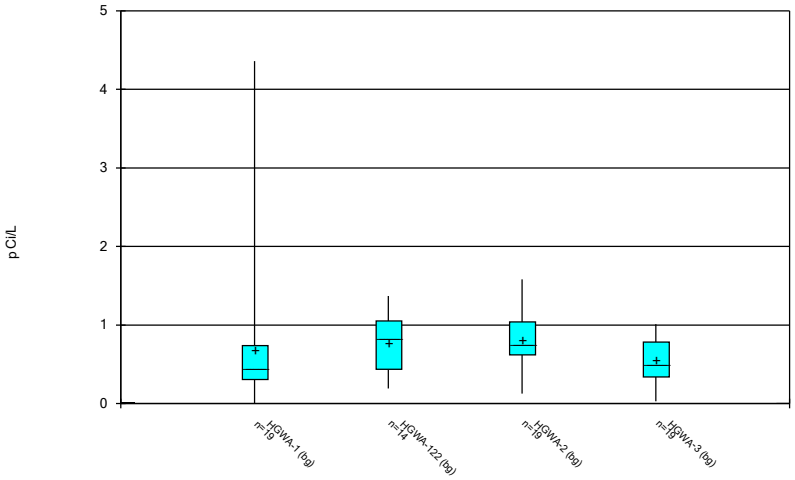


Constituent: Cobalt Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

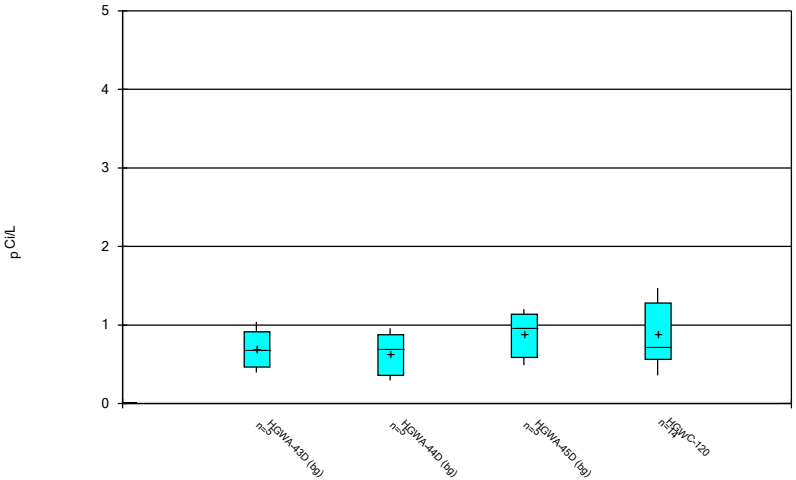
Box & Whiskers Plot



Constituent: Combined Radium 226 + 228 Analysis Run 10/14/2021 2:19 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

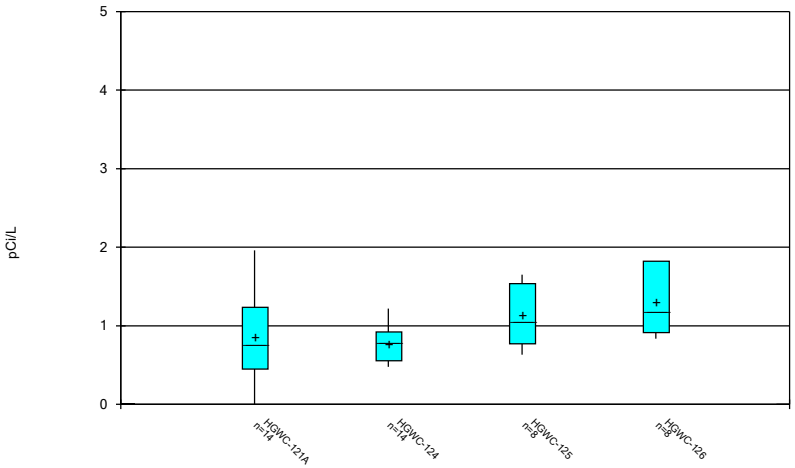
Box & Whiskers Plot



Constituent: Combined Radium 226 + 228 Analysis Run 10/14/2021 2:19 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

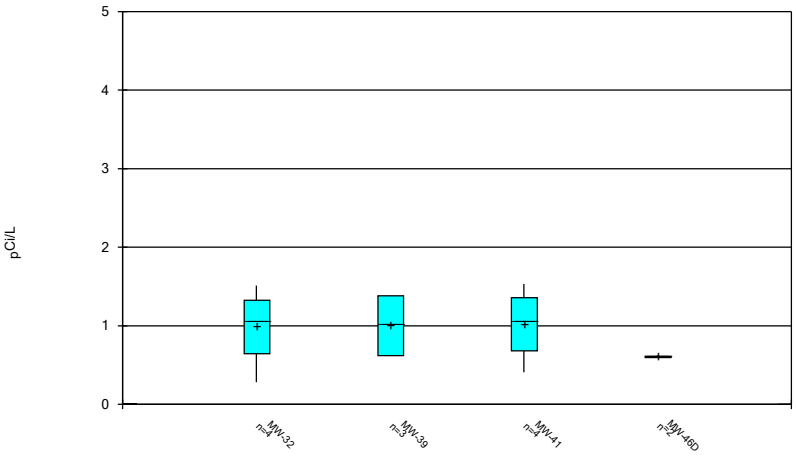
Box & Whiskers Plot



Constituent: Combined Radium 226 + 228 Analysis Run 10/14/2021 2:19 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

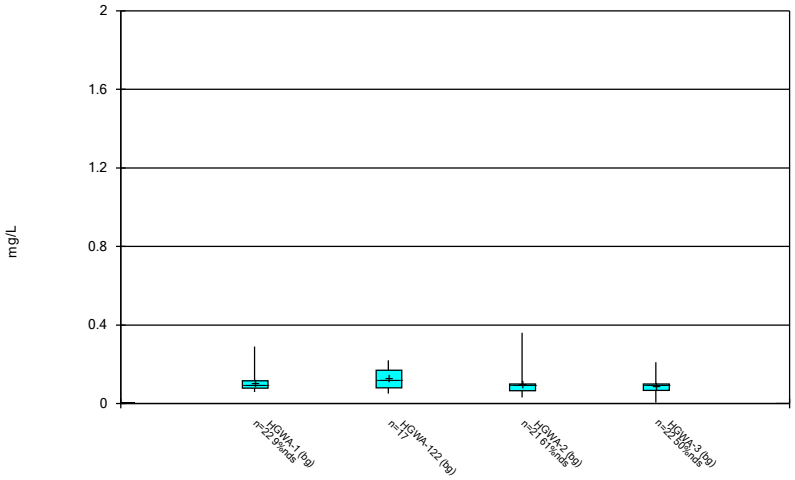
Box & Whiskers Plot



Constituent: Combined Radium 226 + 228 Analysis Run 10/14/2021 2:19 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

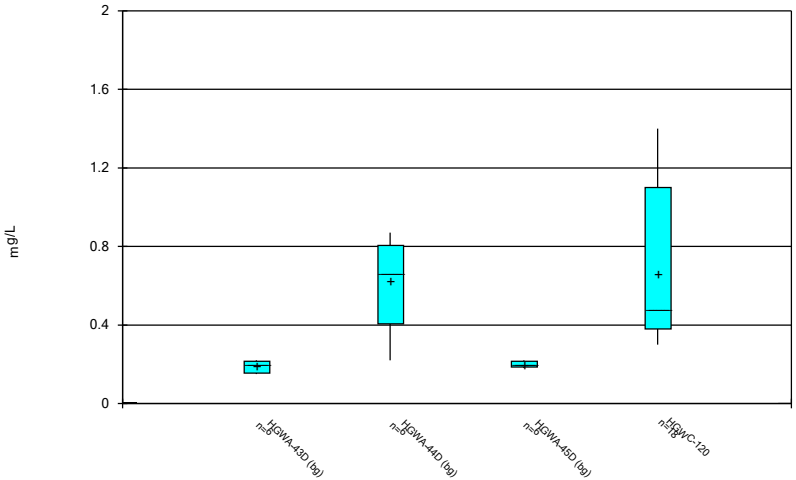


Constituent: Fluoride Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

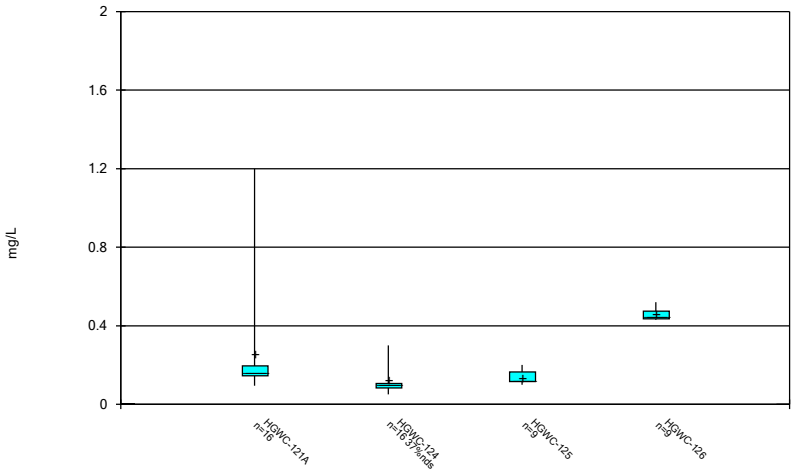


Constituent: Fluoride Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

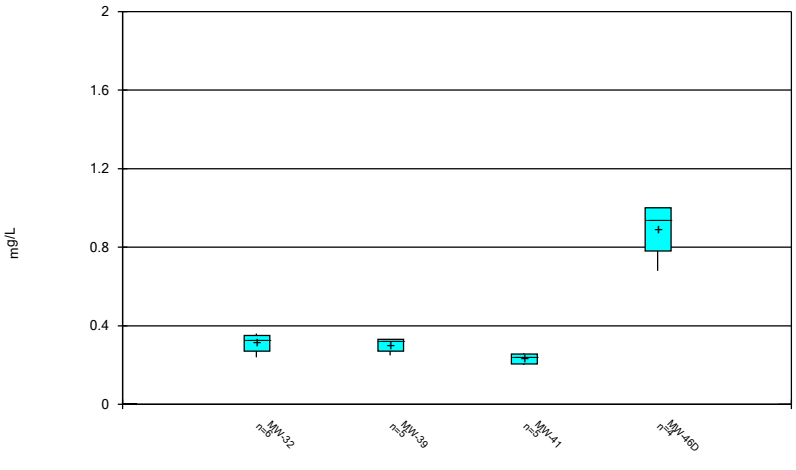


Constituent: Fluoride Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

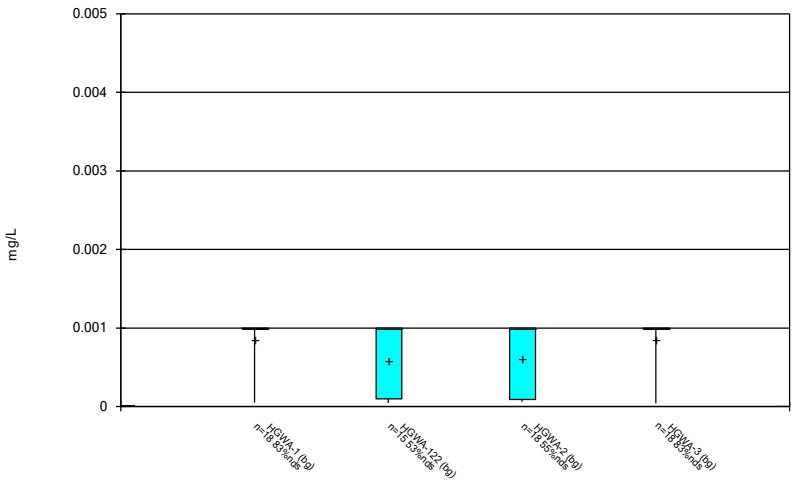


Constituent: Fluoride Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

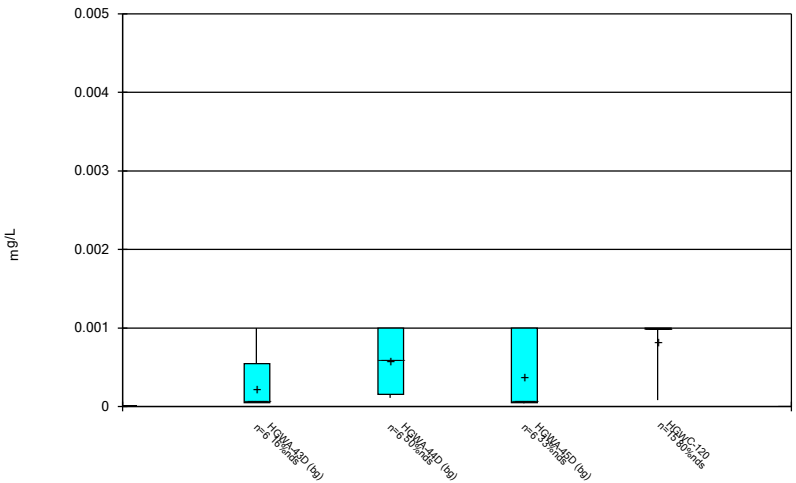


Constituent: Lead Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

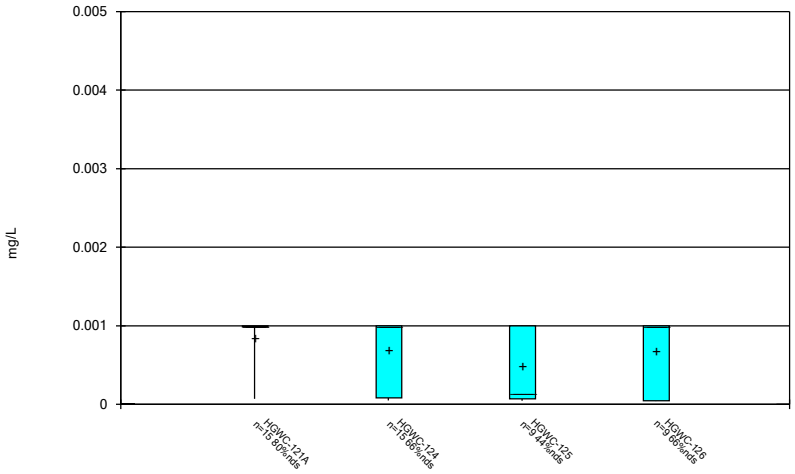


Constituent: Lead Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

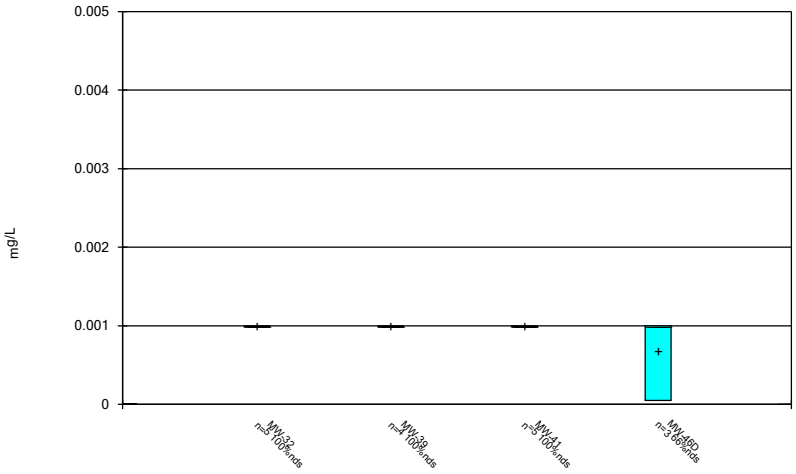


Constituent: Lead Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

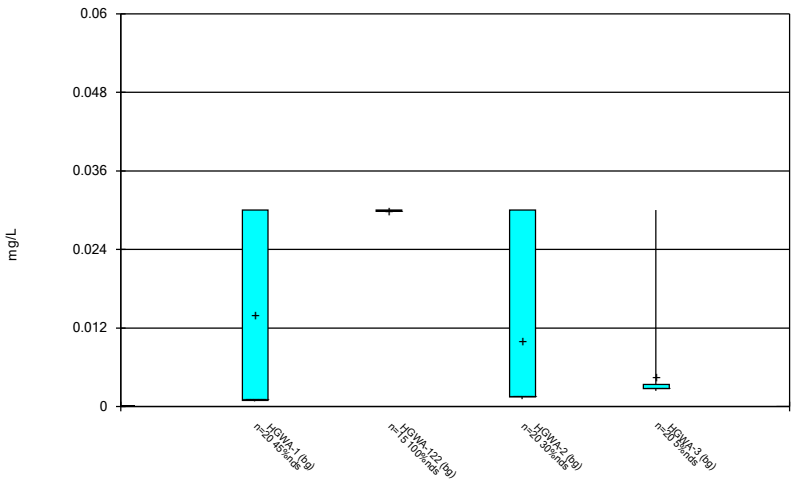


Constituent: Lead Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot



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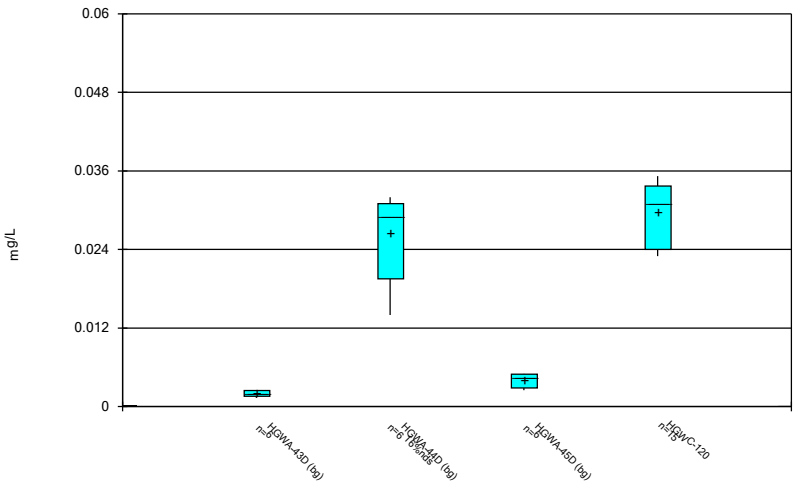
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot



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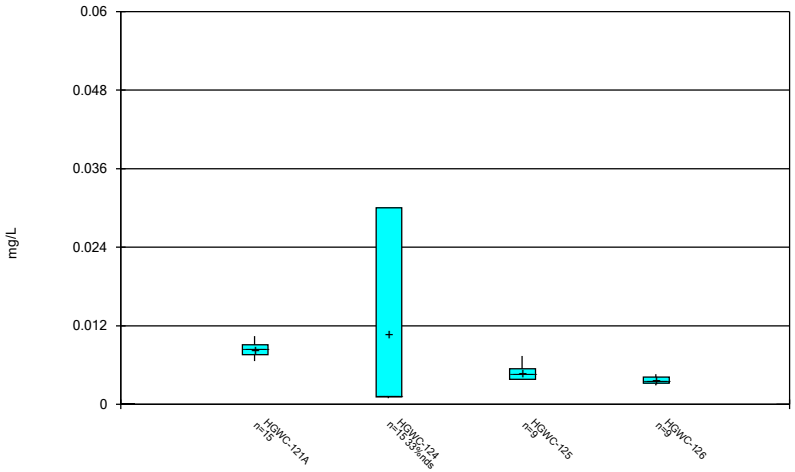
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot



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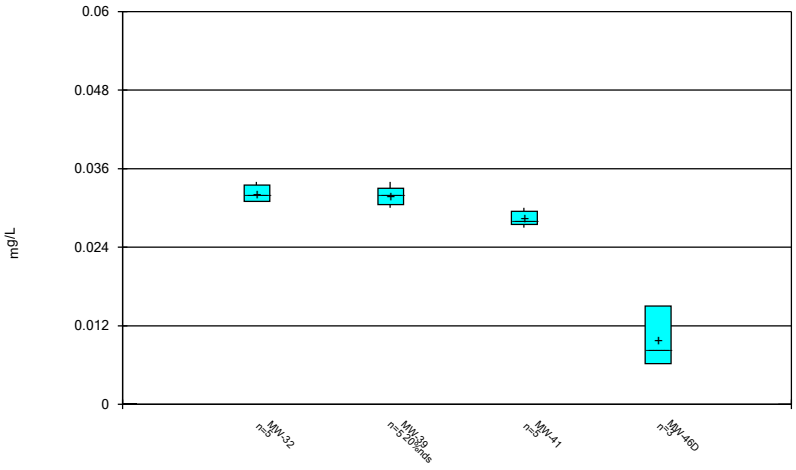
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot



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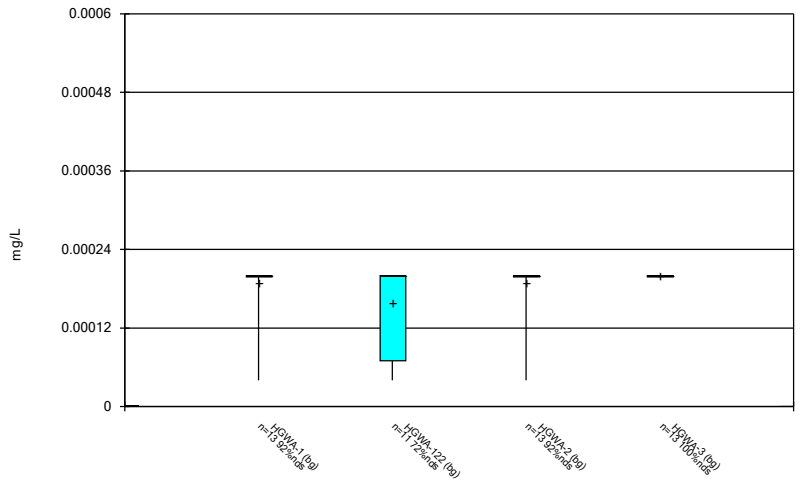
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot



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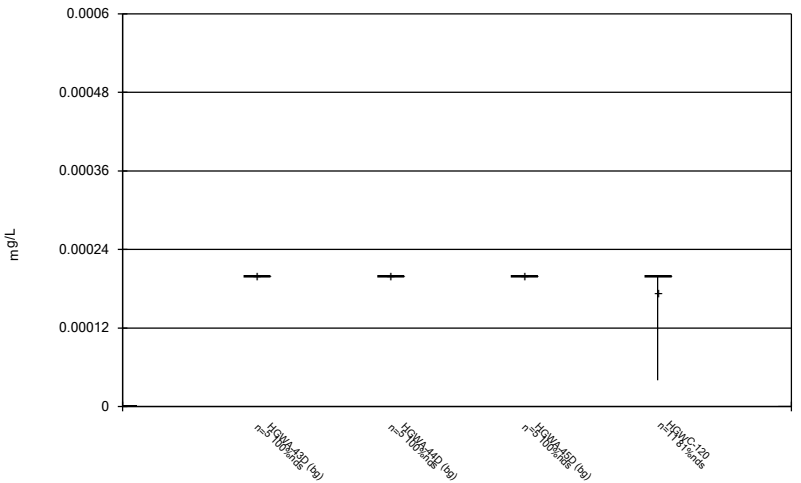
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

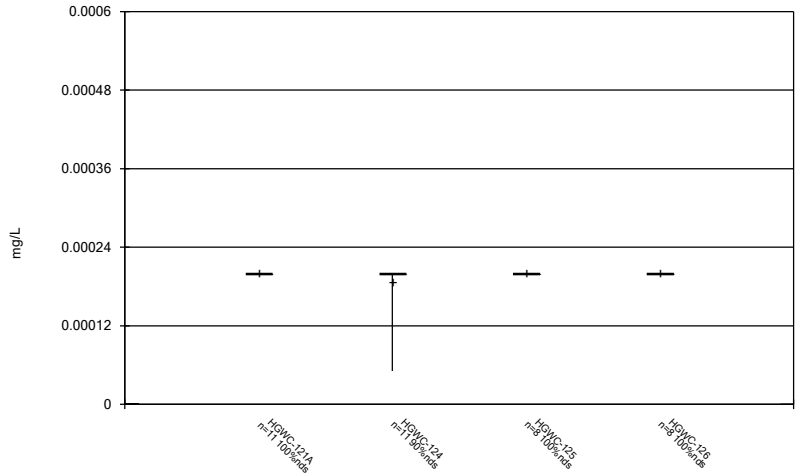


Constituent: Mercury Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

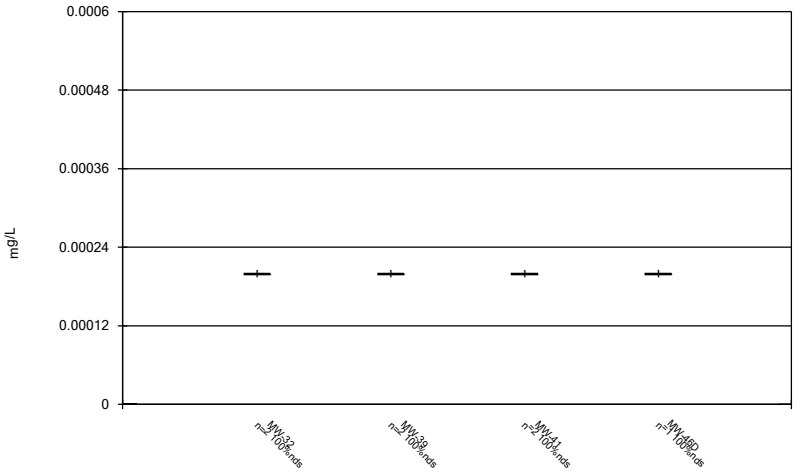


Constituent: Mercury Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

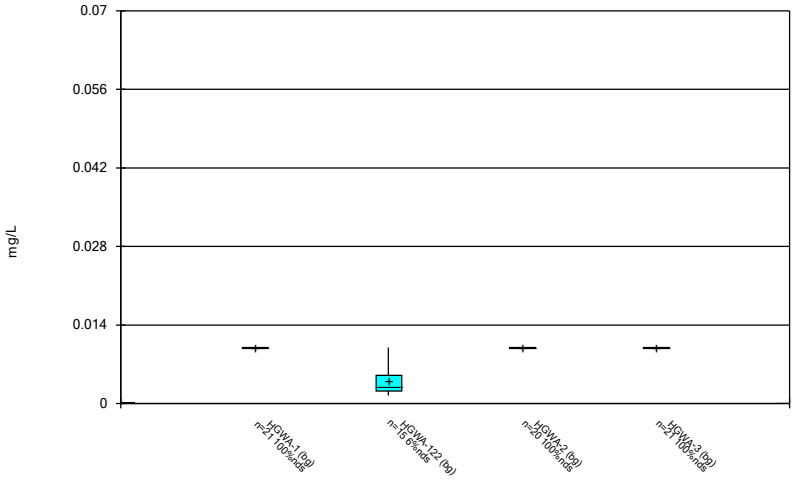


Constituent: Mercury Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

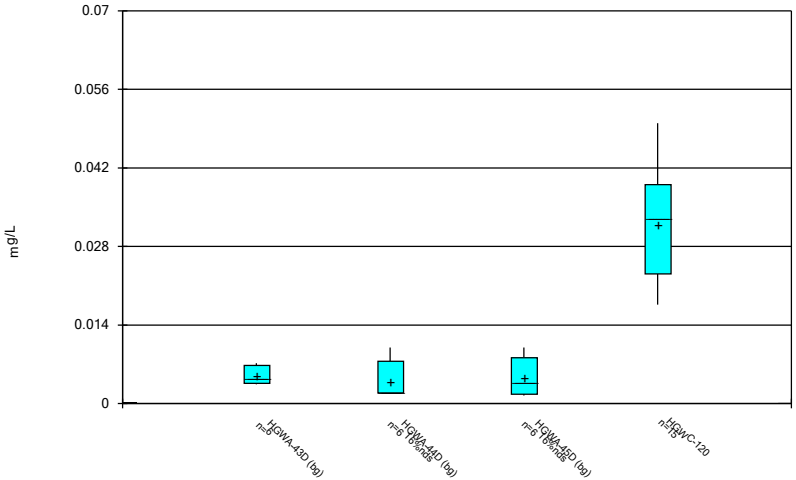
Box & Whiskers Plot



Constituent: Molybdenum Analysis Run 10/14/2021 2:19 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

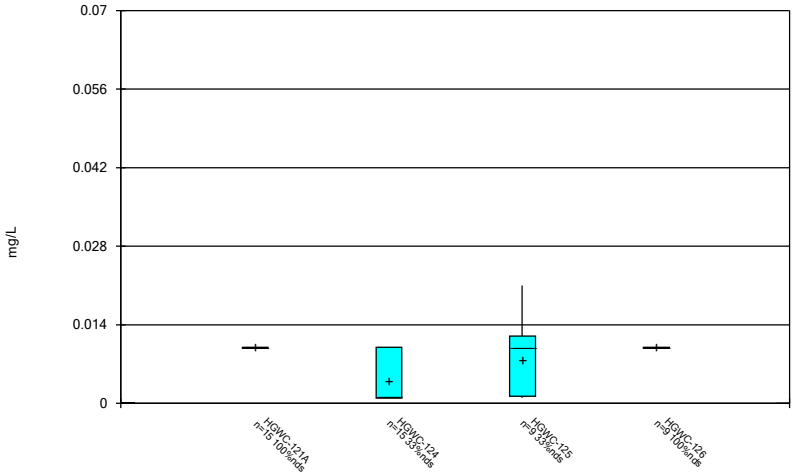
Box & Whiskers Plot



Constituent: Molybdenum Analysis Run 10/14/2021 2:19 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

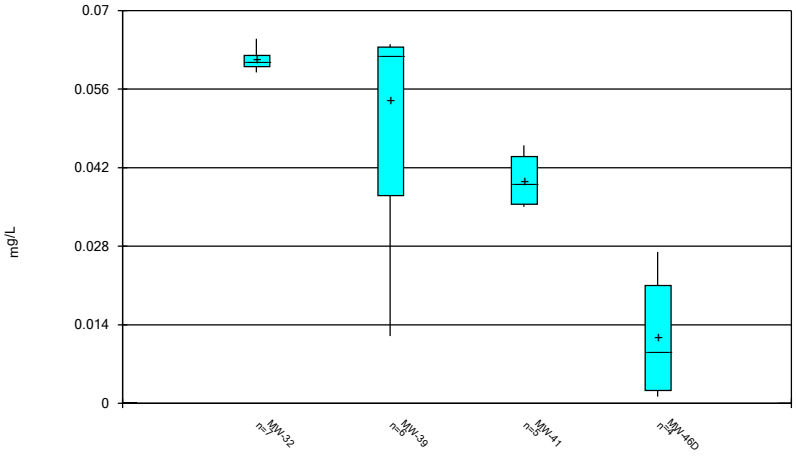
Box & Whiskers Plot



Constituent: Molybdenum Analysis Run 10/14/2021 2:19 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

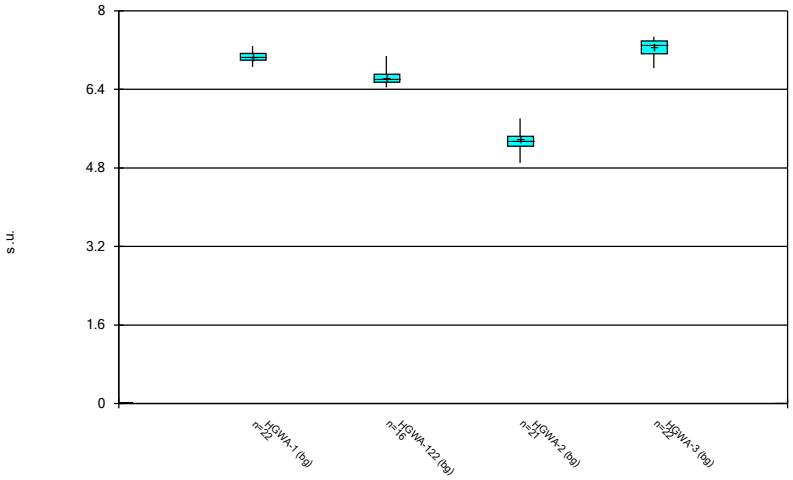
Box & Whiskers Plot



Constituent: Molybdenum Analysis Run 10/14/2021 2:19 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

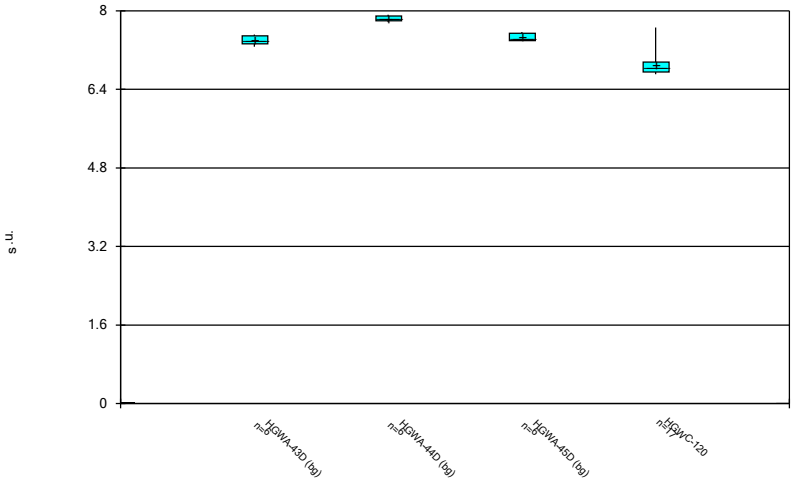


Constituent: pH Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

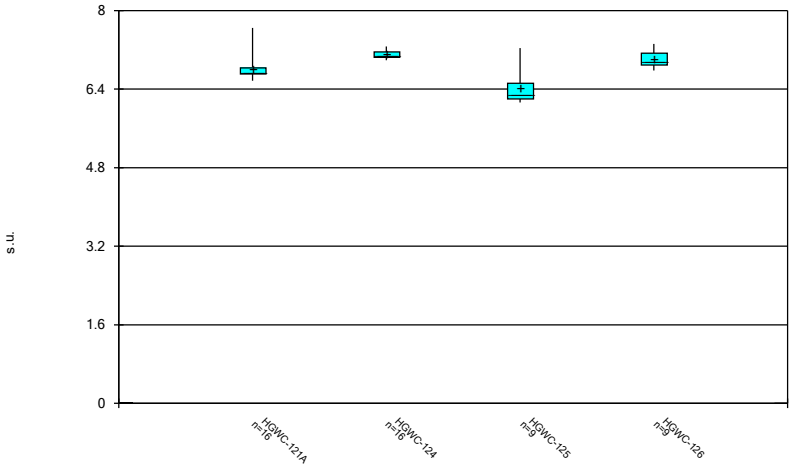


Constituent: pH Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

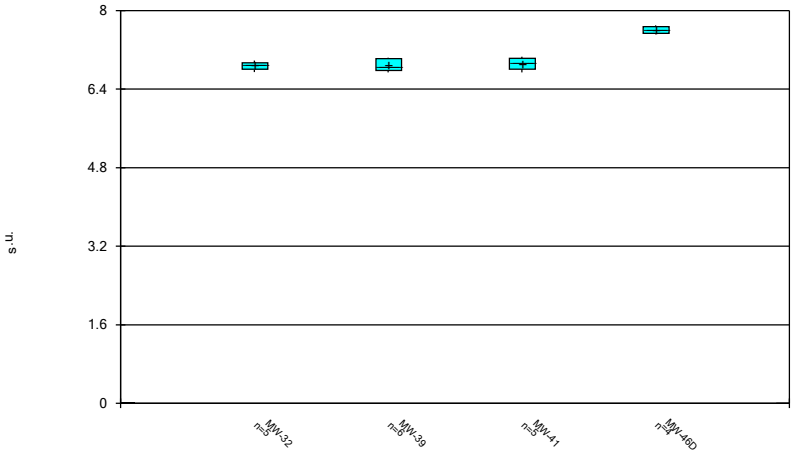


Constituent: pH Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

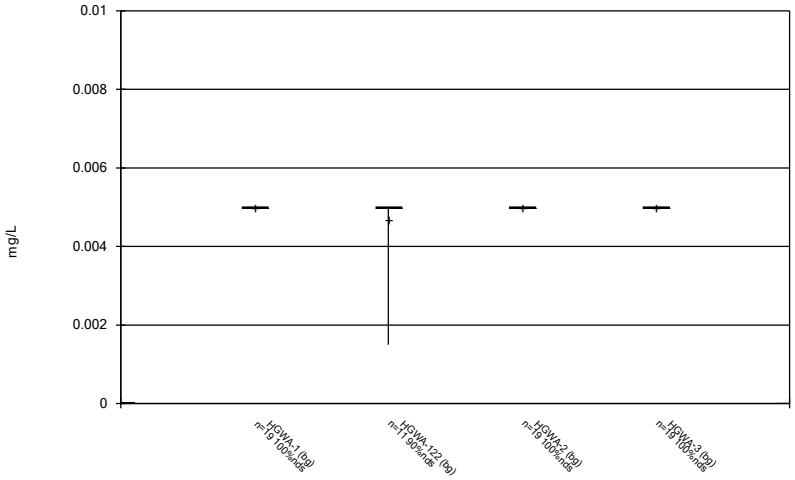


Constituent: pH Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

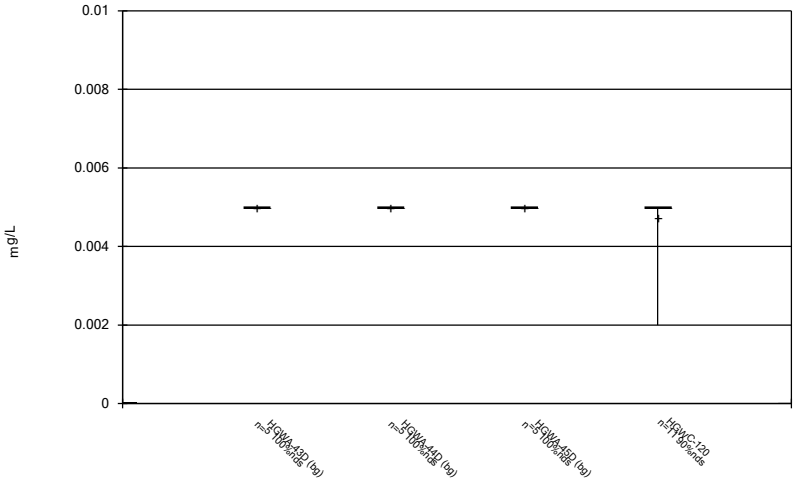


Constituent: Selenium Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

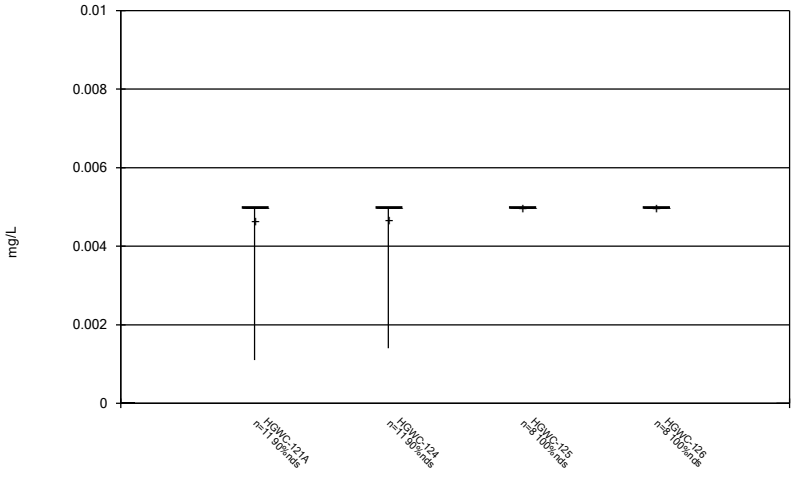


Constituent: Selenium Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot



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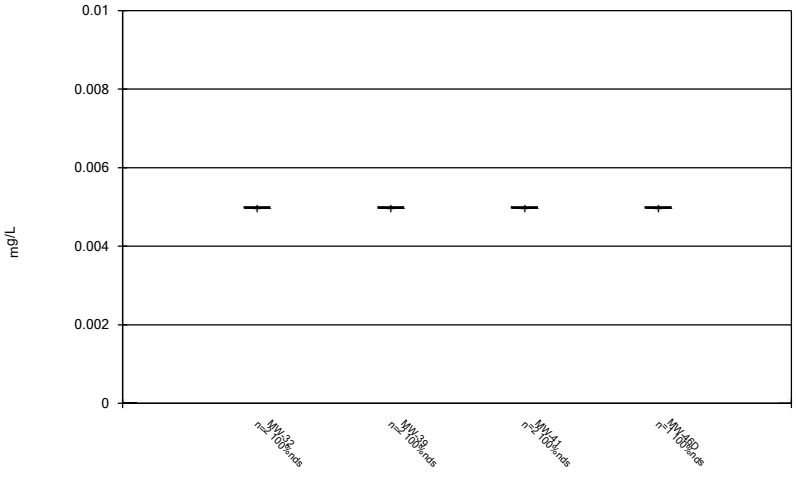
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

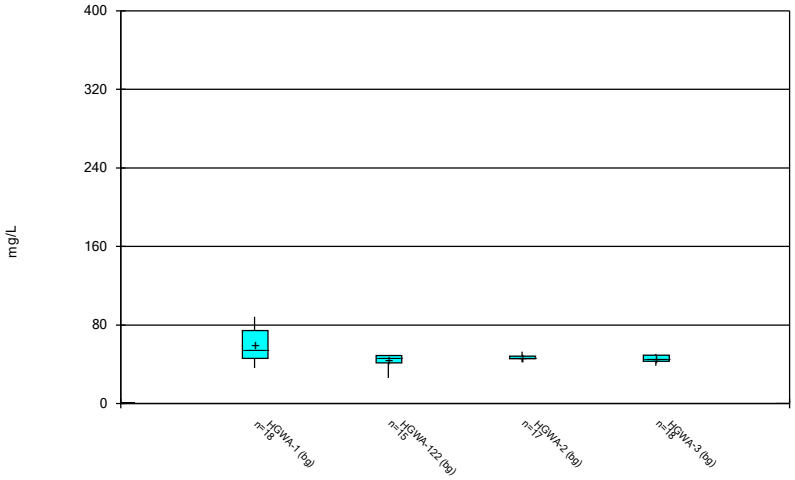


Constituent: Selenium Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

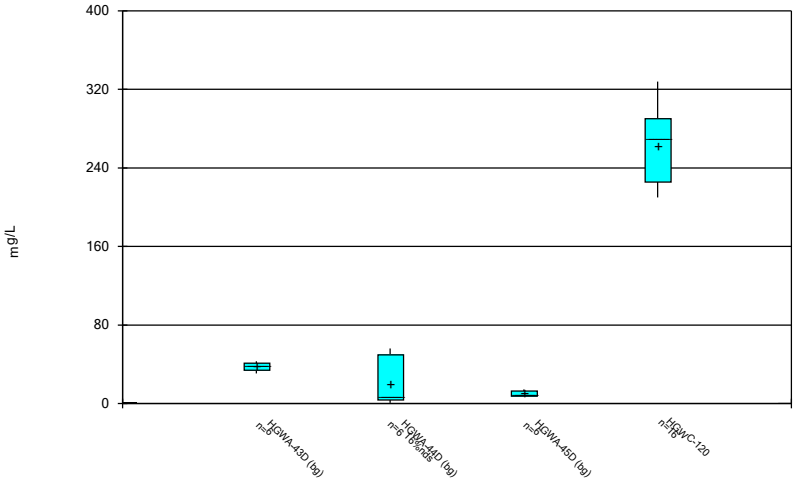


Constituent: Sulfate Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

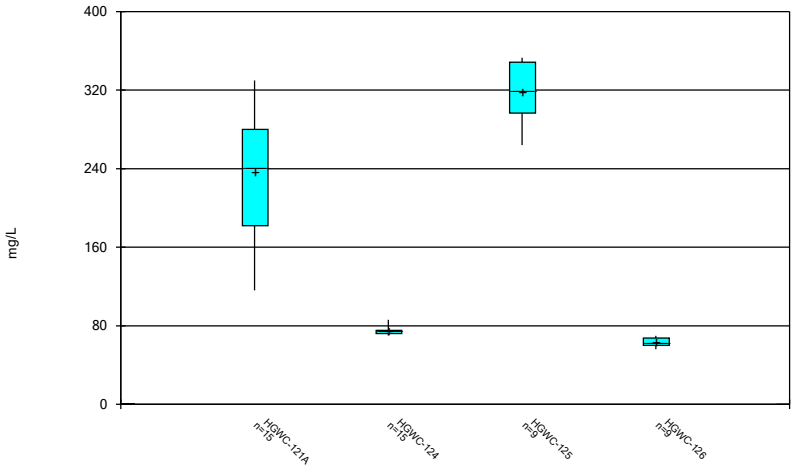


Constituent: Sulfate Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

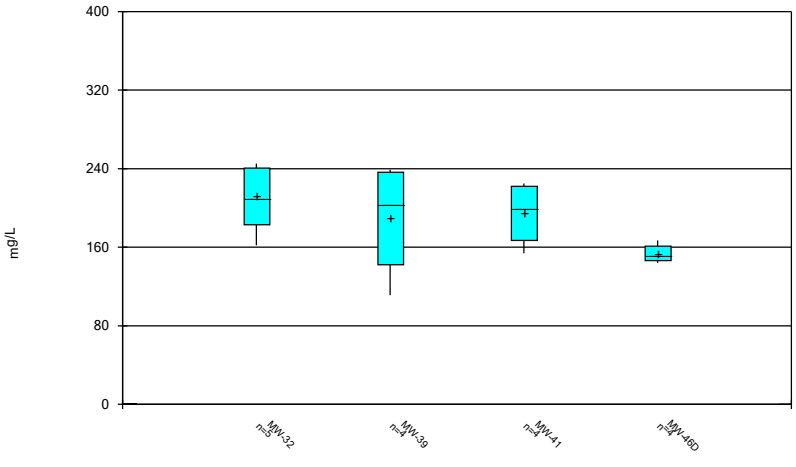


Constituent: Sulfate Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

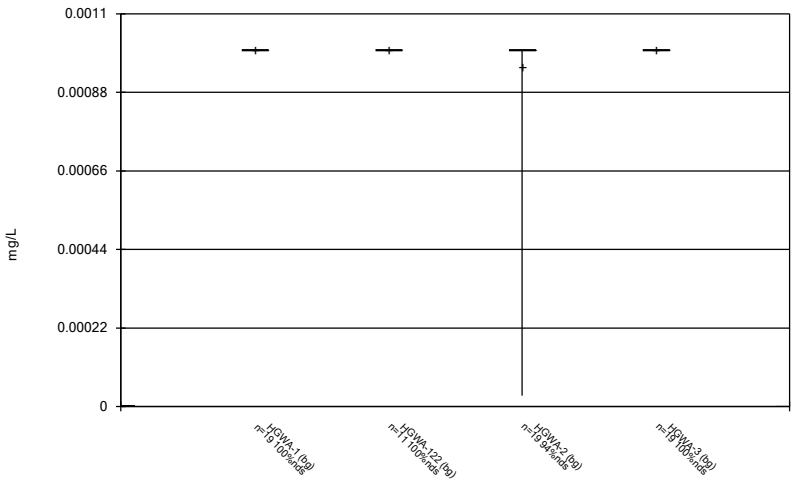


Constituent: Sulfate Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

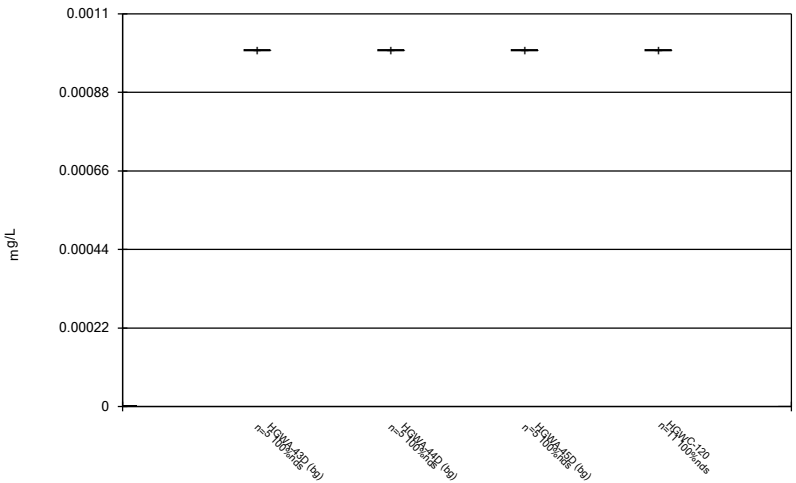


Constituent: Thallium Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

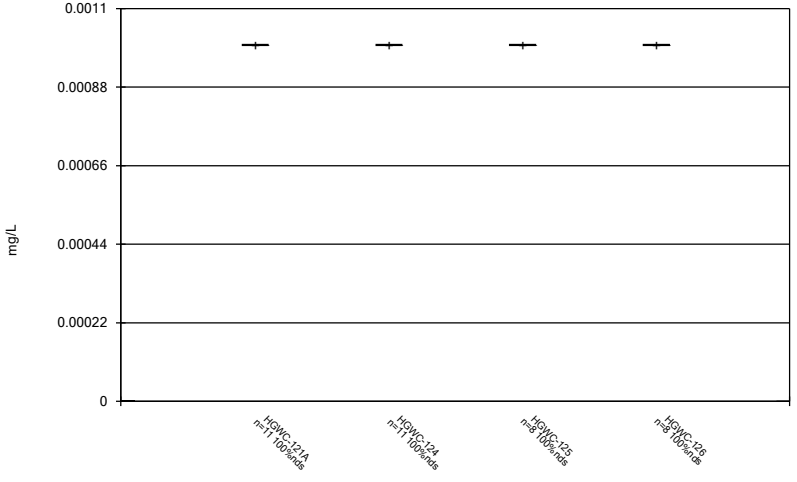


Constituent: Thallium Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

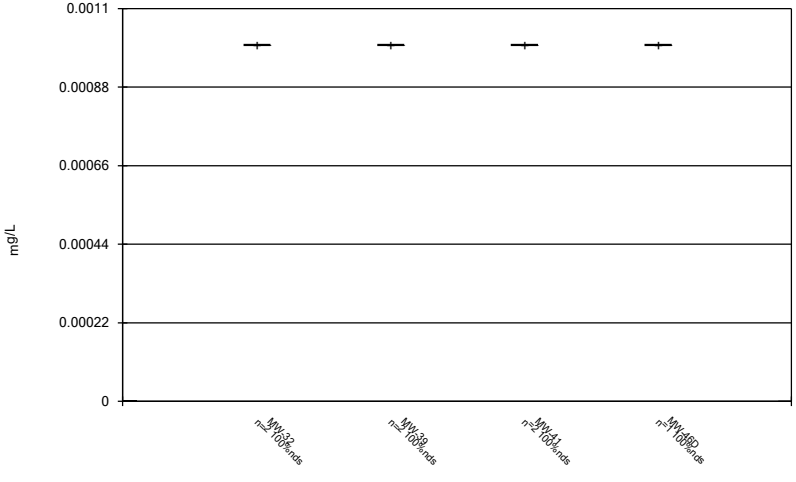


Constituent: Thallium Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot

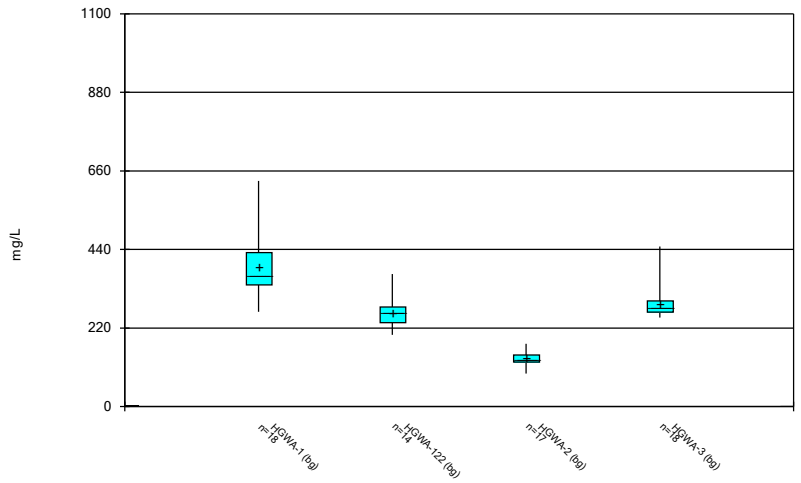


Constituent: Thallium Analysis Run 10/14/2021 2:19 AM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

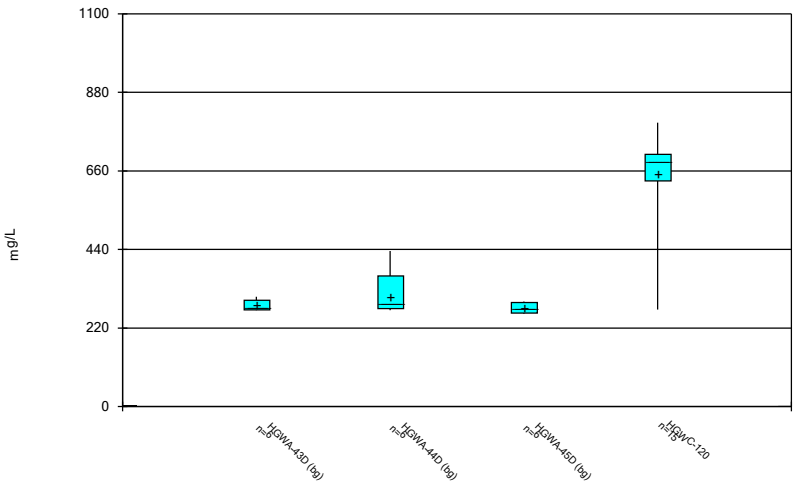
Box & Whiskers Plot



Constituent: Total Dissolved Solids Analysis Run 10/14/2021 2:19 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

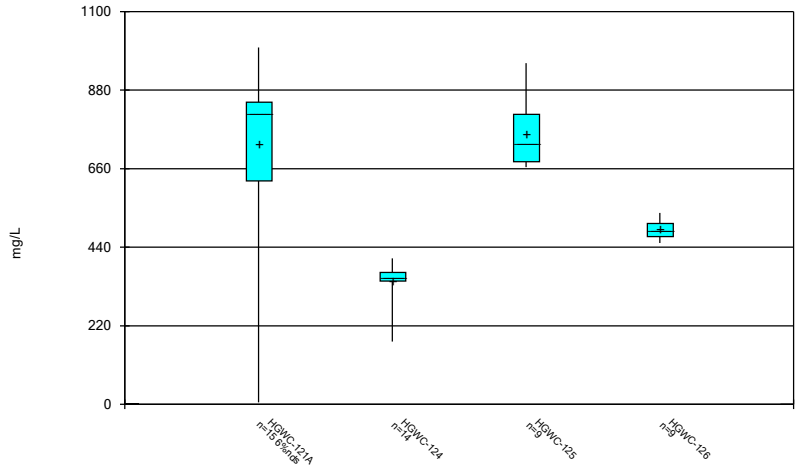
Box & Whiskers Plot



Constituent: Total Dissolved Solids Analysis Run 10/14/2021 2:19 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

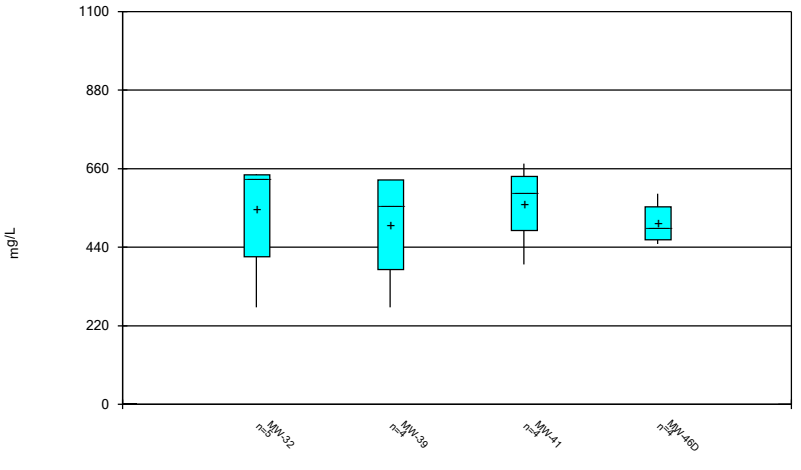
Box & Whiskers Plot



Constituent: Total Dissolved Solids Analysis Run 10/14/2021 2:19 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Box & Whiskers Plot



Constituent: Total Dissolved Solids Analysis Run 10/14/2021 2:19 AM
Plant Hammond Client: Southern Company Data: Hammond AP-3

FIGURE C.

Outlier Summary

Plant Hammond Client: Southern Company Data: Hammond AP-3 Printed 10/26/2021, 10:06 AM

	HGWA-122 (Total Dissolved Solids)
4/2/2019	814 (o)

FIGURE D.

Interwell Prediction Limit Summary - Significant Results

Plant Hammond Client: Southern Company Data: Hammond AP-3 Printed 10/18/2021, 1:02 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Boron (mg/L)	**HGWC-120**	**0.39**	**n/a**	**8/16/2021**	**1.1**	**Yes**	**86**	**n/a**	**n/a**	**4.651**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Boron (mg/L)	**HGWC-121A**	**0.39**	**n/a**	**8/16/2021**	**2**	**Yes**	**86**	**n/a**	**n/a**	**4.651**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Boron (mg/L)	**HGWC-124**	**0.39**	**n/a**	**8/16/2021**	**0.44**	**Yes**	**86**	**n/a**	**n/a**	**4.651**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Boron (mg/L)	**HGWC-125**	**0.39**	**n/a**	**8/19/2021**	**1.5**	**Yes**	**86**	**n/a**	**n/a**	**4.651**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Calcium (mg/L)	**HGWC-120**	**138**	**n/a**	**8/16/2021**	**171**	**Yes**	**86**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Calcium (mg/L)	**HGWC-121A**	**138**	**n/a**	**8/16/2021**	**162**	**Yes**	**86**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Calcium (mg/L)	**HGWC-125**	**138**	**n/a**	**8/19/2021**	**196**	**Yes**	**86**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Calcium (mg/L)	**HGWC-126**	**138**	**n/a**	**8/19/2021**	**139**	**Yes**	**86**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**HGWC-120**	**88.2**	**n/a**	**8/16/2021**	**211**	**Yes**	**86**	**n/a**	**n/a**	**1.163**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**HGWC-121A**	**88.2**	**n/a**	**8/16/2021**	**158**	**Yes**	**86**	**n/a**	**n/a**	**1.163**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**HGWC-125**	**88.2**	**n/a**	**8/19/2021**	**264**	**Yes**	**86**	**n/a**	**n/a**	**1.163**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Total Dissolved Solids (mg/L)	**HGWC-125**	**632**	**n/a**	**8/19/2021**	**732**	**Yes**	**85**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.0002684**	**NP Inter (normality) 1 of 2**

Interwell Prediction Limit Summary - All Results

Plant Hammond Client: Southern Company Data: Hammond AP-3 Printed 10/18/2021, 1:02 PM

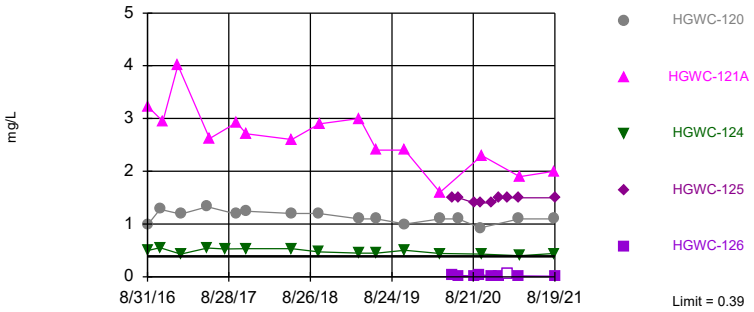
Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Boron (mg/L)	**HGWC-120**	**0.39**	**n/a**	**8/16/2021**	**1.1**	**Yes**	**86**	**n/a**	**n/a**	**4.651**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Boron (mg/L)	**HGWC-121A**	**0.39**	**n/a**	**8/16/2021**	**2**	**Yes**	**86**	**n/a**	**n/a**	**4.651**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Boron (mg/L)	**HGWC-124**	**0.39**	**n/a**	**8/16/2021**	**0.44**	**Yes**	**86**	**n/a**	**n/a**	**4.651**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Boron (mg/L)	**HGWC-125**	**0.39**	**n/a**	**8/19/2021**	**1.5**	**Yes**	**86**	**n/a**	**n/a**	**4.651**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Boron (mg/L)	HGWC-126	0.39	n/a	8/19/2021	0.011J	No	86	n/a	n/a	4.651	n/a	n/a	0.0002623	NP Inter (normality) 1 of 2
Calcium (mg/L)	**HGWC-120**	**138**	**n/a**	**8/16/2021**	**171**	**Yes**	**86**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Calcium (mg/L)	**HGWC-121A**	**138**	**n/a**	**8/16/2021**	**162**	**Yes**	**86**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Calcium (mg/L)	HGWC-124	138	n/a	8/16/2021	106	No	86	n/a	n/a	0	n/a	n/a	0.0002623	NP Inter (normality) 1 of 2
Calcium (mg/L)	**HGWC-125**	**138**	**n/a**	**8/19/2021**	**196**	**Yes**	**86**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Calcium (mg/L)	**HGWC-126**	**138**	**n/a**	**8/19/2021**	**139**	**Yes**	**86**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Chloride (mg/L)	HGWC-120	41.1	n/a	8/16/2021	2.4	No	86	n/a	n/a	0	n/a	n/a	0.0002623	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-121A	41.1	n/a	8/16/2021	18	No	86	n/a	n/a	0	n/a	n/a	0.0002623	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-124	41.1	n/a	8/16/2021	2.6	No	86	n/a	n/a	0	n/a	n/a	0.0002623	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-125	41.1	n/a	8/19/2021	4.5	No	86	n/a	n/a	0	n/a	n/a	0.0002623	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-126	41.1	n/a	8/19/2021	7.8	No	86	n/a	n/a	0	n/a	n/a	0.0002623	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-120	0.87	n/a	8/16/2021	0.39	No	100	n/a	n/a	26	n/a	n/a	0.0001934	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-121A	0.87	n/a	8/16/2021	0.15	No	100	n/a	n/a	26	n/a	n/a	0.0001934	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-124	0.87	n/a	8/16/2021	0.05ND	No	100	n/a	n/a	26	n/a	n/a	0.0001934	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-125	0.87	n/a	8/19/2021	0.17	No	100	n/a	n/a	26	n/a	n/a	0.0001934	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-126	0.87	n/a	8/19/2021	0.43	No	100	n/a	n/a	26	n/a	n/a	0.0001934	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-120	7.92	4.9	8/16/2021	6.92	No	99	n/a	n/a	0	n/a	n/a	0.0003956	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-121A	7.92	4.9	8/16/2021	6.74	No	99	n/a	n/a	0	n/a	n/a	0.0003956	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-124	7.92	4.9	8/16/2021	7.09	No	99	n/a	n/a	0	n/a	n/a	0.0003956	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-125	7.92	4.9	8/19/2021	7.24	No	99	n/a	n/a	0	n/a	n/a	0.0003956	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-126	7.92	4.9	8/19/2021	7.32	No	99	n/a	n/a	0	n/a	n/a	0.0003956	NP Inter (normality) 1 of 2
Sulfate (mg/L)	**HGWC-120**	**88.2**	**n/a**	**8/16/2021**	**211**	**Yes**	**86**	**n/a**	**n/a**	**1.163**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**HGWC-121A**	**88.2**	**n/a**	**8/16/2021**	**158**	**Yes**	**86**	**n/a**	**n/a**	**1.163**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	HGWC-124	88.2	n/a	8/16/2021	74	No	86	n/a	n/a	1.163	n/a	n/a	0.0002623	NP Inter (normality) 1 of 2
Sulfate (mg/L)	**HGWC-125**	**88.2**	**n/a**	**8/19/2021**	**264**	**Yes**	**86**	**n/a**	**n/a**	**1.163**	**n/a**	**n/a**	**0.0002623**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	HGWC-126	88.2	n/a	8/19/2021	64.4	No	86	n/a	n/a	1.163	n/a	n/a	0.0002623	NP Inter (normality) 1 of 2
Total Dissolved Solids (mg/L)	HGWC-120	632	n/a	8/16/2021	632	No	85	n/a	n/a	0	n/a	n/a	0.0002684	NP Inter (normality) 1 of 2
Total Dissolved Solids (mg/L)	HGWC-121A	632	n/a	8/16/2021	626	No	85	n/a	n/a	0	n/a	n/a	0.0002684	NP Inter (normality) 1 of 2
Total Dissolved Solids (mg/L)	HGWC-124	632	n/a	8/16/2021	352	No	85	n/a	n/a	0	n/a	n/a	0.0002684	NP Inter (normality) 1 of 2
Total Dissolved Solids (mg/L)	**HGWC-125**	**632**	**n/a**	**8/19/2021**	**732**	**Yes**	**85**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.0002684**	**NP Inter (normality) 1 of 2**
Total Dissolved Solids (mg/L)	HGWC-126	632	n/a	8/19/2021	488	No	85	n/a	n/a	0	n/a	n/a	0.0002684	NP Inter (normality) 1 of 2

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

Exceeds Limit: HGWC-120, HGWC-121A, HGWC-124, HGWC-125

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 86 background values. 4.651% NDs. Annual per-constituent alpha = 0.00262. Individual comparison alpha = 0.0002623 (1 of 2). Comparing 5 points to limit.

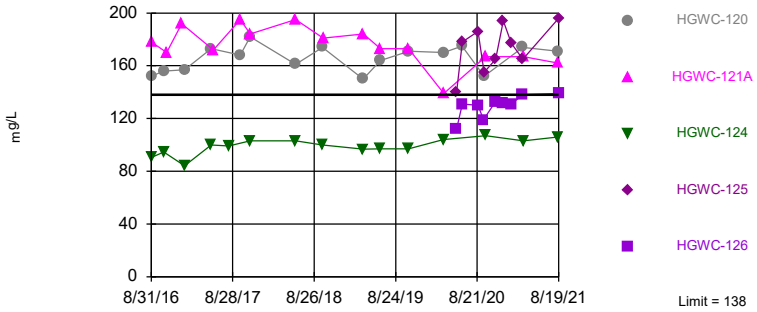
Constituent: Boron Analysis Run 10/18/2021 12:58 PM View: AIII
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Exceeds Limit: HGWC-120, HGWC-121A, HGWC-125, HGWC-126

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 86 background values. Annual per-constituent alpha = 0.00262. Individual comparison alpha = 0.0002623 (1 of 2). Comparing 5 points to limit.

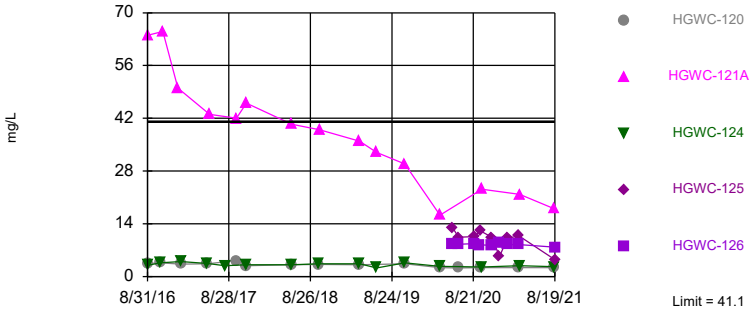
Constituent: Calcium Analysis Run 10/18/2021 12:58 PM View: AIII
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Within Limit

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 86 background values. Annual per-constituent alpha = 0.00262. Individual comparison alpha = 0.0002623 (1 of 2). Comparing 5 points to limit.

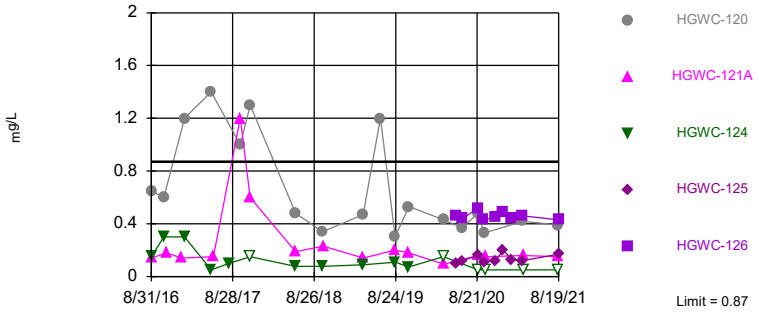
Constituent: Chloride Analysis Run 10/18/2021 12:58 PM View: AIII
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Chi Squared normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 100 background values. 26% NDs. Annual per-constituent alpha = 0.001932. Individual comparison alpha = 0.0001934 (1 of 2). Comparing 5 points to limit.

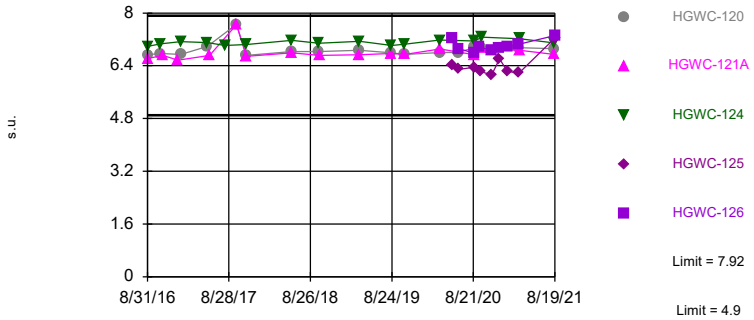
Constituent: Fluoride Analysis Run 10/18/2021 12:58 PM View: AIII
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Within Limits

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limits are highest and lowest of 99 background values. Annual per-constituent alpha = 0.003952. Individual comparison alpha = 0.0003956 (1 of 2). Comparing 5 points to limit.

Constituent: pH Analysis Run 10/18/2021 12:58 PM View: AIII

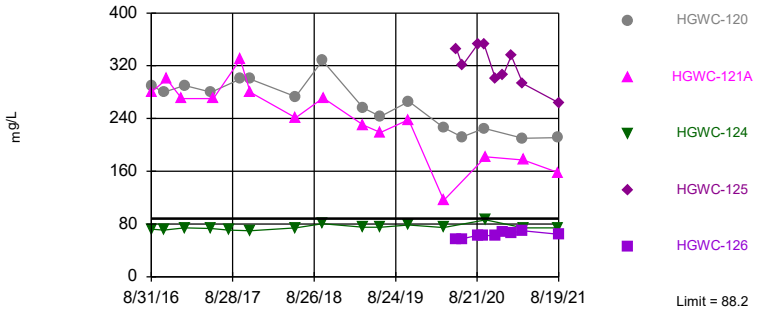
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Exceeds Limit: HGWC-120, HGWC-121A, HGWC-125

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 86 background values. 1.163% NDs. Annual per-constituent alpha = 0.00262. Individual comparison alpha = 0.0002623 (1 of 2). Comparing 5 points to limit.

Constituent: Sulfate Analysis Run 10/18/2021 12:58 PM View: AIII

Plant Hammond Client: Southern Company Data: Hammond AP-3

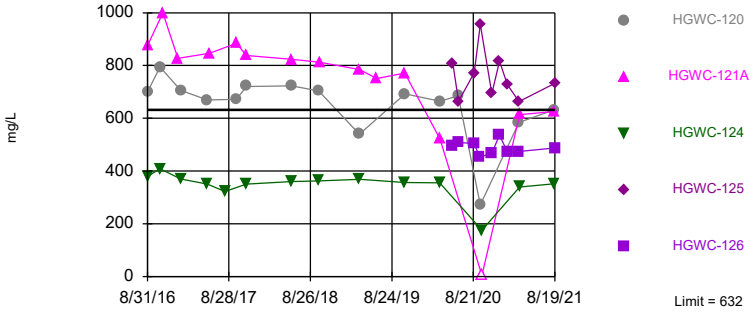
Sanitas™ v.9.6.31 . UG

Hollow symbols indicate censored values.

Exceeds Limit: HGWC-125

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 85 background values. Annual per-constituent alpha = 0.002681. Individual comparison alpha = 0.0002684 (1 of 2). Comparing 5 points to limit.

Constituent: Total Dissolved Solids Analysis Run 10/18/2021 12:58 PM View: AIII

Plant Hammond Client: Southern Company Data: Hammond AP-3

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 10/18/2021 1:02 PM View: AIII

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-3 (bg)	HGWA-2 (bg)	HGWA-122 (bg)	HGWC-121A	HGWC-120	HGWC-124	HGWC-126	HGWC-125
5/19/2016	0.0214 (J)	<0.1	0.0321 (J)						
7/11/2016	0.0142 (J)		0.0337 (J)						
7/12/2016		0.0074 (J)							
8/30/2016	0.0074 (J)	<0.1	0.0173 (J)	0.277					
8/31/2016					3.23	0.981	0.494		
10/19/2016	0.0224 (J)	0.0085 (J)	0.0341 (J)						
10/20/2016				0.336					
10/26/2016						1.28	0.55		
11/7/2016					2.95				
12/6/2016	0.0211 (J)	0.0085 (J)	0.0326 (J)						
1/13/2017					4.01				
1/24/2017	0.0165 (J)	0.01 (J)	0.0365 (J)						
1/25/2017				0.274					
1/27/2017						1.19	0.428		
3/21/2017	0.0187 (J)	0.0079 (J)	0.0349 (J)						
5/22/2017	0.0782	0.0131 (J)	0.0475						
5/25/2017				0.298		1.33	0.544		
6/3/2017					2.62				
8/11/2017				0.285			0.524		
10/2/2017					2.92	1.19			
10/3/2017	0.0198 (J)	0.0097 (J)	0.0386 (J)						
11/15/2017				0.322	2.71	1.24	0.531		
6/4/2018	0.02 (J)	0.017 (J)	0.036 (J)						
6/5/2018				0.24	2.6	1.2	0.53		
10/1/2018	0.013 (J)	0.0061 (J)	0.035 (J)						
10/2/2018				0.28		1.2	0.47		
10/5/2018					2.9				
4/1/2019		0.0066 (J)							
4/2/2019	0.016 (J)		0.034 (J)	0.18		1.1			
4/3/2019					3		0.45		
6/17/2019					2.4	1.1			
6/18/2019				0.25			0.45		
9/23/2019	0.021 (J)	0.0081 (J)	0.04 (J)						
10/21/2019				0.25	2.4		0.5		
10/22/2019						1			
3/24/2020				0.1			0.44		
3/25/2020	0.025 (J)	0.0096 (J)	0.039 (J)		1.6	1.1			
5/22/2020								0.026 (J)	1.5
6/15/2020						1.1			
6/16/2020	0.021 (J)	0.01 (J)						0.023 (J)	1.5
8/25/2020								0.016 (J)	1.4
9/15/2020	0.017 (J)	0.0071 (J)	0.044 (J)	0.22					
9/16/2020									
9/18/2020								0.041 (J)	
9/21/2020						0.93			1.4
9/25/2020									
9/28/2020					2.3		0.43		
11/10/2020									
11/11/2020								0.009 (J)	
11/12/2020									1.4
12/15/2020									
12/16/2020								0.011 (J)	1.5

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 10/18/2021 1:02 PM View: AIII

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-3 (bg)	HGWA-2 (bg)	HGWA-122 (bg)	HGWC-121A	HGWC-120	HGWC-124	HGWC-126	HGWC-125
1/19/2021									
1/20/2021								<0.1	1.5
3/10/2021	0.015 (J)								
3/11/2021		0.015 (J)	0.056	0.2					
3/12/2021						1.1		0.016 (J)	1.5
3/15/2021					1.9		0.4		
8/11/2021	0.02 (J)								
8/12/2021		<0.04	0.044						
8/13/2021				0.19					
8/16/2021					2	1.1	0.44		
8/19/2021								0.011 (J)	1.5

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 10/18/2021 1:02 PM View: AIII

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-44D (bg)	HGWA-43D (bg)	HGWA-45D (bg)
5/19/2016			
7/11/2016			
7/12/2016			
8/30/2016			
8/31/2016			
10/19/2016			
10/20/2016			
10/26/2016			
11/7/2016			
12/6/2016			
1/13/2017			
1/24/2017			
1/25/2017			
1/27/2017			
3/21/2017			
5/22/2017			
5/25/2017			
6/3/2017			
8/11/2017			
10/2/2017			
10/3/2017			
11/15/2017			
6/4/2018			
6/5/2018			
10/1/2018			
10/2/2018			
10/5/2018			
4/1/2019			
4/2/2019			
4/3/2019			
6/17/2019			
6/18/2019			
9/23/2019			
10/21/2019			
10/22/2019			
3/24/2020			
3/25/2020			
5/22/2020			
6/15/2020			
6/16/2020			
8/25/2020			
9/15/2020			
9/16/2020	0.23	0.061 (J)	
9/18/2020			
9/21/2020			
9/25/2020			0.16
9/28/2020			
11/10/2020	0.29	0.057 (J)	
11/11/2020			0.17
11/12/2020			
12/15/2020	0.31	0.052 (J)	
12/16/2020			0.16

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 10/18/2021 1:02 PM View: AIII

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-44D (bg)	HGWA-43D (bg)	HGWA-45D (bg)
1/19/2021	<0.1	0.049 (J)	
1/20/2021			0.19
3/10/2021	0.39		
3/11/2021		0.06	
3/12/2021			0.19
3/15/2021			
8/11/2021		0.042	
8/12/2021			
8/13/2021	0.31		0.15
8/16/2021			
8/19/2021			

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 10/18/2021 1:02 PM View: AIII

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-3 (bg)	HGWA-2 (bg)	HGWA-122 (bg)	HGWC-121A	HGWC-120	HGWC-124	HGWC-126	HGWC-125
5/19/2016	138	76.2	22.9						
7/11/2016	97.2		22.3						
7/12/2016		61.5							
8/30/2016	97.5	65.1	26.4	71.3					
8/31/2016					178	152	90.4		
10/19/2016	99.2	73.2	21.7						
10/20/2016				90.3					
10/26/2016						156	94.5		
11/7/2016					170				
12/6/2016	105	74.9	18.2						
1/13/2017					192				
1/24/2017	95.7	69.6	18.5						
1/25/2017				77.3					
1/27/2017						157	84.2		
3/21/2017	106	75.7	18.6						
5/22/2017	107	71.5	17.8						
5/25/2017				69.9		173	100		
6/3/2017					172				
8/11/2017				79.5			99.1		
10/2/2017					195	168			
10/3/2017	102	76.3	20.2						
11/15/2017				72.8	184	182	103		
6/4/2018	124	73.4	19.1						
6/5/2018				71.4	195	161	103		
10/1/2018	108	80.9	20.5 (J)						
10/2/2018				66.6		174	100		
10/5/2018					181				
4/1/2019		80.5							
4/2/2019	132		22.5 (J)	60.9		150			
4/3/2019					184		96.7		
6/17/2019					173	164			
6/18/2019				75			97.1		
9/23/2019	118	71	19.5						
10/21/2019				80.8	173		96.9		
10/22/2019						171			
3/24/2020				81.2			104		
3/25/2020	127	89.8	23		139	170			
5/22/2020								112	140
6/15/2020						175			
6/16/2020	130	85.1						131	178
8/25/2020								130	186
9/15/2020	103	73.1	21.1	75.8					
9/16/2020									
9/18/2020								119	
9/21/2020						152			155
9/25/2020									
9/28/2020					167		107		
11/10/2020									
11/11/2020								133	
11/12/2020									165
12/15/2020									
12/16/2020								132	194

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 10/18/2021 1:02 PM View: AIII

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-3 (bg)	HGWA-2 (bg)	HGWA-122 (bg)	HGWC-121A	HGWC-120	HGWC-124	HGWC-126	HGWC-125
1/19/2021									
1/20/2021								131	177 (M1)
3/10/2021	111								
3/11/2021		83.8	43.8	60.4 (M1)					
3/12/2021						174		138	165
3/15/2021					167		103		
8/11/2021	113								
8/12/2021		84	21.9						
8/13/2021				62.9					
8/16/2021					162	171	106		
8/19/2021								139	196

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 10/18/2021 1:02 PM View: AIII

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-44D (bg)	HGWA-43D (bg)	HGWA-45D (bg)
5/19/2016			
7/11/2016			
7/12/2016			
8/30/2016			
8/31/2016			
10/19/2016			
10/20/2016			
10/26/2016			
11/7/2016			
12/6/2016			
1/13/2017			
1/24/2017			
1/25/2017			
1/27/2017			
3/21/2017			
5/22/2017			
5/25/2017			
6/3/2017			
8/11/2017			
10/2/2017			
10/3/2017			
11/15/2017			
6/4/2018			
6/5/2018			
10/1/2018			
10/2/2018			
10/5/2018			
4/1/2019			
4/2/2019			
4/3/2019			
6/17/2019			
6/18/2019			
9/23/2019			
10/21/2019			
10/22/2019			
3/24/2020			
3/25/2020			
5/22/2020			
6/15/2020			
6/16/2020			
8/25/2020			
9/15/2020			
9/16/2020	30	56	
9/18/2020			
9/21/2020			
9/25/2020			56.8
9/28/2020			
11/10/2020	33.6	63.3	
11/11/2020			54.9
11/12/2020			
12/15/2020	28.7	62.6	
12/16/2020			56.4

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 10/18/2021 1:02 PM View: AIII

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-44D (bg)	HGWA-43D (bg)	HGWA-45D (bg)
1/19/2021	33	60.1	
1/20/2021			55
3/10/2021	18.3		
3/11/2021		59.6	
3/12/2021			56.5
3/15/2021			
8/11/2021		61	
8/12/2021			
8/13/2021	28.9		53
8/16/2021			
8/19/2021			

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 10/18/2021 1:02 PM View: AIII

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-2 (bg)	HGWA-3 (bg)	HGWA-122 (bg)	HGWC-120	HGWC-124	HGWC-121A	HGWC-125	HGWC-126
5/19/2016	9.94	6.14	5.93						
7/11/2016	6.3	5.9							
7/12/2016			6.2						
8/30/2016	6	6.2	6.4	2.8					
8/31/2016					3.5	3	64		
10/19/2016	5.8	6.1	6.5						
10/20/2016				2.8					
10/26/2016					3.6	3.6			
11/7/2016							65		
12/6/2016	5.4	6	7.2						
1/13/2017							50		
1/24/2017	5.2	6.1	6.4						
1/25/2017				2.8					
1/27/2017					3.3	4			
3/21/2017	4.6	5.9	7.5						
5/22/2017	4.6	5.9	6.5						
5/25/2017				2.9	3.4	3.5			
6/3/2017							43		
8/11/2017				3		2.9			
10/2/2017					4.2		42		
10/3/2017	5.6	6.3	6.5						
11/15/2017				3.1	2.9	3.1	46		
6/4/2018	13.1	6.1	6.3						
6/5/2018				3	3.1	3.1	40.4		
10/1/2018	6.6	6.4	6.4						
10/2/2018				3.1	3.2	3.4			
10/5/2018							39		
4/1/2019			6.5						
4/2/2019	20.3	5.8		3.6	3.1				
4/3/2019						3.4	35.9		
6/17/2019							32.9		
6/18/2019				3.2		2.3 (J)			
9/23/2019	17.7	5.1	5.9						
10/21/2019				4.5		3.6	29.9		
10/22/2019					3.4				
3/24/2020				4.5		2.7			
3/25/2020	20.4	5.2	6.1		2.4		16.3		
5/22/2020								12.9	8.6
6/15/2020					2.3				
6/16/2020	41.1		5.8					10.4	8.6
8/25/2020								10.6	8.7
9/15/2020	13.4	5	6	3.6					
9/16/2020									
9/18/2020									8.4
9/21/2020					2.4			12.1	
9/25/2020									
9/28/2020						2.5	23.2		
11/10/2020									
11/11/2020									8.3
11/12/2020								10.4	
12/15/2020									
12/16/2020								5.3	8.9

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 10/18/2021 1:02 PM View: AIII

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-2 (bg)	HGWA-3 (bg)	HGWA-122 (bg)	HGWC-120	HGWC-124	HGWC-121A	HGWC-125	HGWC-126
1/19/2021									
1/20/2021								10.2	8.5
3/10/2021	7.4								
3/11/2021		5.1	5.9	2.3					
3/12/2021					2.4			10.8	8.5
3/15/2021						2.9	21.8		
8/11/2021	9.6								
8/12/2021		5.2	4.8						
8/13/2021				2.6					
8/16/2021					2.4	2.6	18		
8/19/2021								4.5	7.8

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 10/18/2021 1:02 PM View: AIII

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-44D (bg)	HGWA-43D (bg)	HGWA-45D (bg)
5/19/2016			
7/11/2016			
7/12/2016			
8/30/2016			
8/31/2016			
10/19/2016			
10/20/2016			
10/26/2016			
11/7/2016			
12/6/2016			
1/13/2017			
1/24/2017			
1/25/2017			
1/27/2017			
3/21/2017			
5/22/2017			
5/25/2017			
6/3/2017			
8/11/2017			
10/2/2017			
10/3/2017			
11/15/2017			
6/4/2018			
6/5/2018			
10/1/2018			
10/2/2018			
10/5/2018			
4/1/2019			
4/2/2019			
4/3/2019			
6/17/2019			
6/18/2019			
9/23/2019			
10/21/2019			
10/22/2019			
3/24/2020			
3/25/2020			
5/22/2020			
6/15/2020			
6/16/2020			
8/25/2020			
9/15/2020			
9/16/2020	4.1	4.1	
9/18/2020			
9/21/2020			
9/25/2020			3.6
9/28/2020			
11/10/2020	7.8	4.4	
11/11/2020			3.3
11/12/2020			
12/15/2020	9.4	4.7	
12/16/2020			3.4

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 10/18/2021 1:02 PM View: AIII

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-44D (bg)	HGWA-43D (bg)	HGWA-45D (bg)
1/19/2021	9.5	4.1	
1/20/2021			3.5
3/10/2021	12.3		
3/11/2021		4.5	
3/12/2021			3.3
3/15/2021			
8/11/2021		3.5	
8/12/2021			
8/13/2021	39.9		3.3
8/16/2021			
8/19/2021			

Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 10/18/2021 1:02 PM View: AIII

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-2 (bg)	HGWA-3 (bg)	HGWA-122 (bg)	HGWC-120	HGWC-121A	HGWC-124	HGWC-125	HGWC-126
5/19/2016	0.105 (J)	0.0303 (J)	0.0513 (J)						
7/11/2016	0.16 (J)	0.05 (J)							
7/12/2016			0.12 (J)						
8/30/2016	0.09 (J)	0.06 (J)	0.09 (J)	0.19 (J)					
8/31/2016					0.65	0.14 (J)	0.15 (J)		
10/19/2016	0.1 (J)	0.04 (J)	0.1 (J)						
10/20/2016				0.13 (J)					
10/26/2016					0.6		0.3		
11/7/2016						0.18 (J)			
12/6/2016	0.11 (J)	0.36	0.21 (J)						
1/13/2017						0.14 (J)			
1/24/2017	0.09 (J)	<0.3	0.06 (J)						
1/25/2017				0.22 (J)					
1/27/2017					1.2		0.3		
3/21/2017	0.13 (J)	<0.3	0.005 (J)						
5/22/2017	0.12 (J)	<0.3	0.05 (J)						
5/25/2017				0.12 (J)	1.4		0.05 (J)		
6/3/2017						0.15 (J)			
8/11/2017				0.12 (J)			0.1 (J)		
10/2/2017					1	1.2			
10/3/2017	0.13 (J)	<0.3	0.13 (J)						
11/15/2017				0.05 (J)	1.3	0.6	<0.3		
4/2/2018	<0.3	<0.3							
4/3/2018			<0.3						
6/4/2018	0.074 (J)	<0.3	<0.3						
6/5/2018				0.15 (J)	0.48	0.19 (J)	0.078 (J)		
10/1/2018	<0.3	<0.3	<0.3						
10/2/2018				0.22 (J)	0.34		0.078 (J)		
10/5/2018						0.23 (J)			
3/12/2019	0.29 (J)	0.038 (J)	0.072 (J)						
4/1/2019			0.029 (J)						
4/2/2019	0.1 (J)	0.071 (J)		0.2 (J)	0.47				
4/3/2019						0.14 (J)	0.089 (J)		
6/17/2019					1.2				
6/18/2019				0.14 (J)					
8/22/2019				0.12 (J)	0.3 (J)	0.2 (J)			
8/23/2019							0.11 (J)		
9/23/2019	0.078 (J)	<0.3	<0.3						
10/21/2019				0.15 (J)		0.18 (J)	0.073 (J)		
10/22/2019					0.53				
3/2/2020	0.076 (J)	<0.3	<0.3						
3/24/2020				0.085 (J)			<0.3		
3/25/2020	0.098 (J)	<0.3	<0.3		0.43	0.095 (J)			
5/22/2020								0.1 (J)	0.46
6/15/2020					0.37				
6/16/2020	0.071 (J)		<0.1					0.12	0.44
8/24/2020				0.075 (J)					
8/25/2020		<0.1	<0.1					0.16	0.52
8/26/2020					0.48	0.16			
8/27/2020							<0.1		
8/28/2020	0.08 (J)								
9/15/2020	0.082 (J)	<0.1	<0.1	0.096 (J)					

Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 10/18/2021 1:02 PM View: AIII

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-2 (bg)	HGWA-3 (bg)	HGWA-122 (bg)	HGWC-120	HGWC-121A	HGWC-124	HGWC-125	HGWC-126
9/16/2020									
9/18/2020									0.43
9/21/2020					0.33			0.11	
9/25/2020									
9/28/2020						0.15	<0.1		
11/10/2020									
11/11/2020									0.45
11/12/2020								0.12	
12/15/2020									
12/16/2020								0.2	0.49
1/19/2021									
1/20/2021								0.13	0.44
3/10/2021	0.079 (J)								
3/11/2021		0.1	<0.1	0.059 (J)					
3/12/2021					0.42			0.12	0.46
3/15/2021						0.16	<0.1		
8/11/2021	0.058 (J)								
8/12/2021		<0.1	<0.1						
8/13/2021				0.065 (J)					
8/16/2021					0.39	0.15	<0.1		
8/19/2021								0.17	0.43

Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 10/18/2021 1:02 PM View: AIII

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-43D (bg)	HGWA-44D (bg)	HGWA-45D (bg)
5/19/2016			
7/11/2016			
7/12/2016			
8/30/2016			
8/31/2016			
10/19/2016			
10/20/2016			
10/26/2016			
11/7/2016			
12/6/2016			
1/13/2017			
1/24/2017			
1/25/2017			
1/27/2017			
3/21/2017			
5/22/2017			
5/25/2017			
6/3/2017			
8/11/2017			
10/2/2017			
10/3/2017			
11/15/2017			
4/2/2018			
4/3/2018			
6/4/2018			
6/5/2018			
10/1/2018			
10/2/2018			
10/5/2018			
3/12/2019			
4/1/2019			
4/2/2019			
4/3/2019			
6/17/2019			
6/18/2019			
8/22/2019			
8/23/2019			
9/23/2019			
10/21/2019			
10/22/2019			
3/2/2020			
3/24/2020			
3/25/2020			
5/22/2020			
6/15/2020			
6/16/2020			
8/24/2020			
8/25/2020			
8/26/2020			
8/27/2020			
8/28/2020			
9/15/2020			

Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 10/18/2021 1:02 PM View: AIII

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-43D (bg)	HGWA-44D (bg)	HGWA-45D (bg)
9/16/2020	0.22	0.22	
9/18/2020			
9/21/2020			
9/25/2020			0.21
9/28/2020			
11/10/2020	0.19	0.59	
11/11/2020			0.19
11/12/2020			
12/15/2020	0.21	0.67	
12/16/2020			0.18
1/19/2021	0.16	0.74	
1/20/2021			0.22
3/10/2021		0.65	
3/11/2021	0.2		
3/12/2021			0.2
3/15/2021			
8/11/2021	0.15		
8/12/2021			
8/13/2021		0.87	0.2
8/16/2021			
8/19/2021			

Prediction Limit

Constituent: pH (s.u.) Analysis Run 10/18/2021 1:02 PM View: AIII

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-2 (bg)	HGWA-3 (bg)	HGWA-122 (bg)	HGWC-120	HGWC-121A	HGWC-124	HGWC-125	HGWC-126
5/19/2016	7.27	5.81	7.45						
7/11/2016	7.06	5.68							
7/12/2016			7.32						
8/30/2016	7.28	5.63	7.43	6.75					
8/31/2016					6.73	6.62	6.99		
10/19/2016	7.02	5.46	7.03						
10/20/2016				6.73					
10/27/2016					6.77		7.06		
11/7/2016						6.71			
12/6/2016	7.09	5.38	7.08						
1/13/2017						6.57			
1/24/2017	7.2	5.37	7.39						
1/25/2017				6.88					
1/27/2017					6.74		7.13		
3/21/2017	7.01	4.9	6.83						
5/22/2017	7.11	5.2	7.02						
5/25/2017				6.55	6.99		7.1		
6/3/2017						6.71			
8/11/2017				6.56			7.02		
10/2/2017					7.66	7.65			
10/3/2017	7.21	5.3	7.47						
11/15/2017				6.47	6.71	6.69	7.04		
4/2/2018	7.1	5.4							
4/3/2018			7.38						
6/4/2018	7.06	5.27	7.38						
6/5/2018				6.66	6.83	6.79	7.17		
10/1/2018	7.09	5.31	7.13						
10/2/2018				6.44	6.83		7.08		
10/5/2018						6.71			
3/12/2019	7.03	5.42	7.29						
4/1/2019			7.16						
4/2/2019	6.86	5.41		6.57	6.87				
4/3/2019						6.73	7.14		
8/22/2019				6.51	6.79	6.77			
8/23/2019							7.02		
9/23/2019	7.02	5.33	7.3						
10/21/2019				6.69		6.74	7.05		
10/22/2019					6.74				
3/2/2020	7.1	5.43	7.12						
3/24/2020				7.08			7.18		
3/25/2020	6.95	5.36	7.4		6.8	6.91			
5/22/2020								6.43	7.22
6/15/2020					6.8				
6/16/2020	6.97		7.31					6.29	6.92
8/24/2020				6.54					
8/25/2020		5.17	7.14					6.36	6.78
8/26/2020					6.96	6.73			
8/27/2020							7.15		
8/28/2020	7.02								
9/15/2020	7.15	5.22	7.29	6.68					
9/16/2020									
9/18/2020									6.97

Prediction Limit

Constituent: pH (s.u.) Analysis Run 10/18/2021 1:02 PM View: AIII

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-2 (bg)	HGWA-3 (bg)	HGWA-122 (bg)	HGWC-120	HGWC-121A	HGWC-124	HGWC-125	HGWC-126
9/21/2020					6.98			6.22	
9/25/2020									
9/28/2020						6.93	7.27		
11/10/2020									
11/11/2020									6.86
11/12/2020								6.13	
12/15/2020									
12/16/2020								6.61	6.93
1/19/2021									
1/20/2021								6.23	6.99
3/10/2021	6.95								
3/11/2021		5.8	7.33	6.65					
3/12/2021					6.95			6.18	7.05
3/15/2021						6.87	7.22		
8/11/2021	6.98								
8/12/2021		5.05	7.31						
8/13/2021				6.56					
8/16/2021					6.92	6.74	7.09		
8/19/2021								7.24	7.32

Prediction Limit

Constituent: pH (s.u.) Analysis Run 10/18/2021 1:02 PM View: AIII

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-43D (bg)	HGWA-44D (bg)	HGWA-45D (bg)
5/19/2016			
7/11/2016			
7/12/2016			
8/30/2016			
8/31/2016			
10/19/2016			
10/20/2016			
10/27/2016			
11/7/2016			
12/6/2016			
1/13/2017			
1/24/2017			
1/25/2017			
1/27/2017			
3/21/2017			
5/22/2017			
5/25/2017			
6/3/2017			
8/11/2017			
10/2/2017			
10/3/2017			
11/15/2017			
4/2/2018			
4/3/2018			
6/4/2018			
6/5/2018			
10/1/2018			
10/2/2018			
10/5/2018			
3/12/2019			
4/1/2019			
4/2/2019			
4/3/2019			
8/22/2019			
8/23/2019			
9/23/2019			
10/21/2019			
10/22/2019			
3/2/2020			
3/24/2020			
3/25/2020			
5/22/2020			
6/15/2020			
6/16/2020			
8/24/2020			
8/25/2020			
8/26/2020			
8/27/2020			
8/28/2020			
9/15/2020			
9/16/2020	7.52	7.83	
9/18/2020			

Prediction Limit

Constituent: pH (s.u.) Analysis Run 10/18/2021 1:02 PM View: AIII

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-43D (bg)	HGWA-44D (bg)	HGWA-45D (bg)
9/21/2020			
9/25/2020			7.57
9/28/2020			
11/10/2020	7.27	7.84	
11/11/2020			7.4
11/12/2020			
12/15/2020	7.39	7.87	
12/16/2020			7.39
1/19/2021	7.39	7.86	
1/20/2021			7.47
3/10/2021		7.92	
3/11/2021	7.46		
3/12/2021			7.52
3/15/2021			
8/11/2021	7.4		
8/12/2021			
8/13/2021		7.77	7.42
8/16/2021			
8/19/2021			

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 10/18/2021 1:02 PM View: AIII

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-3 (bg)	HGWA-2 (bg)	HGWA-122 (bg)	HGWC-121A	HGWC-120	HGWC-124	HGWC-126	HGWC-125
5/19/2016	66.9	42.3	48.6						
7/11/2016	41		45						
7/12/2016		44							
8/30/2016	36	40	42	49					
8/31/2016					280	290	72		
10/19/2016	46	43	44						
10/20/2016				49					
10/26/2016						280	71		
11/7/2016					300				
12/6/2016	59	43	44						
1/13/2017					270				
1/24/2017	46	48	46						
1/25/2017				48					
1/27/2017						290	74		
3/21/2017	63	45	46						
5/22/2017	77	46	48						
5/25/2017				48		280	73		
6/3/2017					270				
8/11/2017				47			71		
10/2/2017					330	300			
10/3/2017	42	48	47						
11/15/2017				49	280	300	70		
6/4/2018	71.8	46.6	47.8						
6/5/2018				48.9	241	273	74		
10/1/2018	49.1	48.6	48.1						
10/2/2018				48.6		328	80.7		
10/5/2018					271				
4/1/2019		50.4							
4/2/2019	84.3		48.7	39.6		256			
4/3/2019					230		75.2		
6/17/2019					219	243			
6/18/2019				44.5			75.3		
9/23/2019	70.2	43.9	47.2						
10/21/2019				45.6	238		78.5		
10/22/2019						266			
3/24/2020				25.9			74.6		
3/25/2020	85.9	50.5	46.3		116	226			
5/22/2020								56.1	345
6/15/2020						212			
6/16/2020	88.2	49.5						57.6	320
8/25/2020								62.8	353
9/15/2020	47.3	44.7	51.5	41.4					
9/16/2020									
9/18/2020								62.7	
9/21/2020						225			352
9/25/2020									
9/28/2020					182		86.2		
11/10/2020									
11/11/2020								62.3	
11/12/2020									300
12/15/2020									
12/16/2020								68.1	306

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 10/18/2021 1:02 PM View: AIII

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-3 (bg)	HGWA-2 (bg)	HGWA-122 (bg)	HGWC-121A	HGWC-120	HGWC-124	HGWC-126	HGWC-125
1/19/2021									
1/20/2021								66.6	335
3/10/2021	49.6								
3/11/2021		50.4	52.9	40.7					
3/12/2021						210		69.7	293
3/15/2021					177		74		
8/11/2021	48.9								
8/12/2021		38.6	47.4						
8/13/2021				42.1					
8/16/2021					158	211	74		
8/19/2021								64.4	264

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 10/18/2021 1:02 PM View: AIII

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-44D (bg)	HGWA-43D (bg)	HGWA-45D (bg)
5/19/2016			
7/11/2016			
7/12/2016			
8/30/2016			
8/31/2016			
10/19/2016			
10/20/2016			
10/26/2016			
11/7/2016			
12/6/2016			
1/13/2017			
1/24/2017			
1/25/2017			
1/27/2017			
3/21/2017			
5/22/2017			
5/25/2017			
6/3/2017			
8/11/2017			
10/2/2017			
10/3/2017			
11/15/2017			
6/4/2018			
6/5/2018			
10/1/2018			
10/2/2018			
10/5/2018			
4/1/2019			
4/2/2019			
4/3/2019			
6/17/2019			
6/18/2019			
9/23/2019			
10/21/2019			
10/22/2019			
3/24/2020			
3/25/2020			
5/22/2020			
6/15/2020			
6/16/2020			
8/25/2020			
9/15/2020			
9/16/2020	43	43	
9/18/2020			
9/21/2020			
9/25/2020			6.8
9/28/2020			
11/10/2020	6.3	39	
11/11/2020			11.2
11/12/2020			
12/15/2020	6.7	38.8	
12/16/2020			11.3

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 10/18/2021 1:02 PM View: AIII

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-44D (bg)	HGWA-43D (bg)	HGWA-45D (bg)
1/19/2021	7.4	37.3	
1/20/2021			14.2
3/10/2021	<1		
3/11/2021		38.6	
3/12/2021			8.7
3/15/2021			
8/11/2021		30.5	
8/12/2021			
8/13/2021	56.1		8.1
8/16/2021			
8/19/2021			

Prediction Limit

Constituent: Total Dissolved Solids (mg/L) Analysis Run 10/18/2021 1:02 PM View: AIII

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-2 (bg)	HGWA-3 (bg)	HGWA-122 (bg)	HGWC-120	HGWC-124	HGWC-121A	HGWC-126	HGWC-125
5/19/2016	421	143	267						
7/11/2016	363	125							
7/12/2016			249						
8/30/2016	330	168	254	280					
8/31/2016					700	379	876		
10/19/2016	380	176	357						
10/20/2016				265					
10/26/2016					795	409			
11/7/2016							1000		
12/6/2016	377	145	285						
1/13/2017							827		
1/24/2017	342	129	300						
1/25/2017				371					
1/27/2017					706	370			
3/21/2017	340	103	288						
5/22/2017	338	92	263						
5/25/2017				237	669	351			
6/3/2017							846		
8/11/2017				253		322			
10/2/2017					672		884		
10/3/2017	343	127	300						
11/15/2017				261	721	350	838		
6/4/2018	415	140	266						
6/5/2018				276	723	360	823		
10/1/2018	354	135	291						
10/2/2018				256	703	363			
10/5/2018							813		
4/1/2019			284						
4/2/2019	452	133		814 (o)	540				
4/3/2019						369	785		
6/17/2019							751		
6/18/2019				233					
9/23/2019	442	129	268						
10/21/2019				296		357	771		
10/22/2019					693				
3/24/2020				278		355			
3/25/2020	496	138	284		665		521		
5/22/2020								496	809
6/15/2020					685				
6/16/2020	632		448					508	665
8/25/2020								505	772
9/15/2020	265	124	258	267					
9/16/2020									
9/18/2020								452	
9/21/2020					272				956
9/25/2020									
9/28/2020						176	<10		
11/10/2020									
11/11/2020								468	
11/12/2020									694
12/15/2020									
12/16/2020								536	816

Prediction Limit

Constituent: Total Dissolved Solids (mg/L) Analysis Run 10/18/2021 1:02 PM View: AIII

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-1 (bg)	HGWA-2 (bg)	HGWA-3 (bg)	HGWA-122 (bg)	HGWC-120	HGWC-124	HGWC-121A	HGWC-126	HGWC-125
1/19/2021									
1/20/2021								472	726
3/10/2021	348								
3/11/2021		169	267	206					
3/12/2021					584			474	664
3/15/2021						340	614		
8/11/2021	366								
8/12/2021		118	265						
8/13/2021				201					
8/16/2021					632	352	626		
8/19/2021								488	732

Prediction Limit

Constituent: Total Dissolved Solids (mg/L) Analysis Run 10/18/2021 1:02 PM View: AIII

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-44D (bg)	HGWA-43D (bg)	HGWA-45D (bg)
5/19/2016			
7/11/2016			
7/12/2016			
8/30/2016			
8/31/2016			
10/19/2016			
10/20/2016			
10/26/2016			
11/7/2016			
12/6/2016			
1/13/2017			
1/24/2017			
1/25/2017			
1/27/2017			
3/21/2017			
5/22/2017			
5/25/2017			
6/3/2017			
8/11/2017			
10/2/2017			
10/3/2017			
11/15/2017			
6/4/2018			
6/5/2018			
10/1/2018			
10/2/2018			
10/5/2018			
4/1/2019			
4/2/2019			
4/3/2019			
6/17/2019			
6/18/2019			
9/23/2019			
10/21/2019			
10/22/2019			
3/24/2020			
3/25/2020			
5/22/2020			
6/15/2020			
6/16/2020			
8/25/2020			
9/15/2020			
9/16/2020	270	272	
9/18/2020			
9/21/2020			
9/25/2020			263
9/28/2020			
11/10/2020	287	307	
11/11/2020			276
11/12/2020			
12/15/2020	295	289	
12/16/2020			294

Prediction Limit

Constituent: Total Dissolved Solids (mg/L) Analysis Run 10/18/2021 1:02 PM View: AIII

Plant Hammond Client: Southern Company Data: Hammond AP-3

	HGWA-44D (bg)	HGWA-43D (bg)	HGWA-45D (bg)
1/19/2021	278	270	
1/20/2021			289
3/10/2021	289		
3/11/2021		279	
3/12/2021			260
3/15/2021			
8/11/2021		277	
8/12/2021			
8/13/2021	436		272
8/16/2021			
8/19/2021			

FIGURE E.

Trend Test - Significant Results

Plant Hammond Client: Southern Company Data: Hammond AP-3 Printed 10/18/2021, 1:07 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Boron (mg/L)	**HGWA-122 (bg)**	**-0.02558**	**-60**	**-53**	**Yes**	**15**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Boron (mg/L)	**HGWA-2 (bg)**	**0.002396**	**83**	**63**	**Yes**	**17**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Boron (mg/L)	**HGWC-121A**	**-0.2431**	**-70**	**-53**	**Yes**	**15**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Boron (mg/L)	**HGWC-124**	**-0.02071**	**-55**	**-53**	**Yes**	**15**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Calcium (mg/L)	**HGWA-3 (bg)**	**2.813**	**71**	**68**	**Yes**	**18**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Sulfate (mg/L)	**HGWA-122 (bg)**	**-1.769**	**-61**	**-53**	**Yes**	**15**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Sulfate (mg/L)	**HGWA-2 (bg)**	**1.201**	**66**	**63**	**Yes**	**17**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Sulfate (mg/L)	**HGWC-120**	**-17.87**	**-77**	**-58**	**Yes**	**16**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Sulfate (mg/L)	**HGWC-121A**	**-27.04**	**-73**	**-53**	**Yes**	**15**	**0**	**n/a**	**n/a**	**0.01**	**NP**

Trend Test - All Results

Plant Hammond Client: Southern Company Data: Hammond AP-3 Printed 10/18/2021, 1:07 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Boron (mg/L)	HGWA-1 (bg)	0	-1	-68	No	18	0	n/a	n/a	0.01	NP
Boron (mg/L)	**HGWA-122 (bg)**	**-0.02558**	**-60**	**-53**	**Yes**	**15**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Boron (mg/L)	**HGWA-2 (bg)**	**0.002396**	**83**	**63**	**Yes**	**17**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Boron (mg/L)	HGWA-3 (bg)	0	-2	-68	No	18	16.67	n/a	n/a	0.01	NP
Boron (mg/L)	HGWA-43D (bg)	-0.02108	-9	-14	No	6	0	n/a	n/a	0.01	NP
Boron (mg/L)	HGWA-44D (bg)	0.2086	6	14	No	6	16.67	n/a	n/a	0.01	NP
Boron (mg/L)	HGWA-45D (bg)	0	1	14	No	6	0	n/a	n/a	0.01	NP
Boron (mg/L)	HGWC-120	-0.03782	-47	-58	No	16	0	n/a	n/a	0.01	NP
Boron (mg/L)	**HGWC-121A**	**-0.2431**	**-70**	**-53**	**Yes**	**15**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Boron (mg/L)	**HGWC-124**	**-0.02071**	**-55**	**-53**	**Yes**	**15**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Boron (mg/L)	HGWC-125	0	6	25	No	9	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWA-1 (bg)	3.476	57	68	No	18	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWA-122 (bg)	-2.405	-19	-53	No	15	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWA-2 (bg)	0.3671	20	63	No	17	0	n/a	n/a	0.01	NP
Calcium (mg/L)	**HGWA-3 (bg)**	**2.813**	**71**	**68**	**Yes**	**18**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Calcium (mg/L)	HGWA-43D (bg)	-2.444	-1	-14	No	6	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWA-44D (bg)	-5.272	-5	-14	No	6	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWA-45D (bg)	-2.522	-5	-14	No	6	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWC-120	2.944	31	58	No	16	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWC-121A	-5.695	-43	-53	No	15	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWC-125	31.47	13	25	No	9	0	n/a	n/a	0.01	NP
Calcium (mg/L)	HGWC-126	13.94	23	25	No	9	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWA-1 (bg)	2.869	46	68	No	18	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	**HGWA-122 (bg)**	**-1.769**	**-61**	**-53**	**Yes**	**15**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Sulfate (mg/L)	**HGWA-2 (bg)**	**1.201**	**66**	**63**	**Yes**	**17**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Sulfate (mg/L)	HGWA-3 (bg)	1.327	60	68	No	18	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWA-43D (bg)	-12.17	-13	-14	No	6	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWA-44D (bg)	4.171	1	14	No	6	16.67	n/a	n/a	0.01	NP
Sulfate (mg/L)	HGWA-45D (bg)	1.043	1	14	No	6	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	**HGWC-120**	**-17.87**	**-77**	**-58**	**Yes**	**16**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Sulfate (mg/L)	**HGWC-121A**	**-27.04**	**-73**	**-53**	**Yes**	**15**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Sulfate (mg/L)	HGWC-125	-53.23	-20	-25	No	9	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWA-1 (bg)	5.962	23	68	No	18	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWA-122 (bg)	-12.03	-27	-48	No	14	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWA-2 (bg)	-2.657	-23	-63	No	17	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWA-3 (bg)	0	-2	-68	No	18	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWA-43D (bg)	-5.84	-3	-14	No	6	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWA-44D (bg)	83.43	9	14	No	6	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWA-45D (bg)	-5.309	-1	-14	No	6	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	HGWC-125	-76.58	-6	-25	No	9	0	n/a	n/a	0.01	NP

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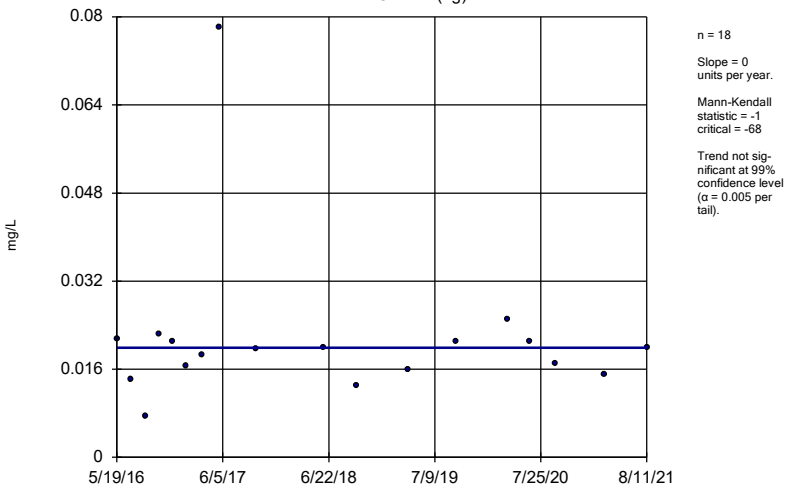
Sen's Slope Estimator

HGWA-1 (bg)



n = 18

Slope = 0 units per year.

Mann-Kendall statistic = -1 critical = -68

Trend not significant at 99% confidence level (α = 0.005 per tail).

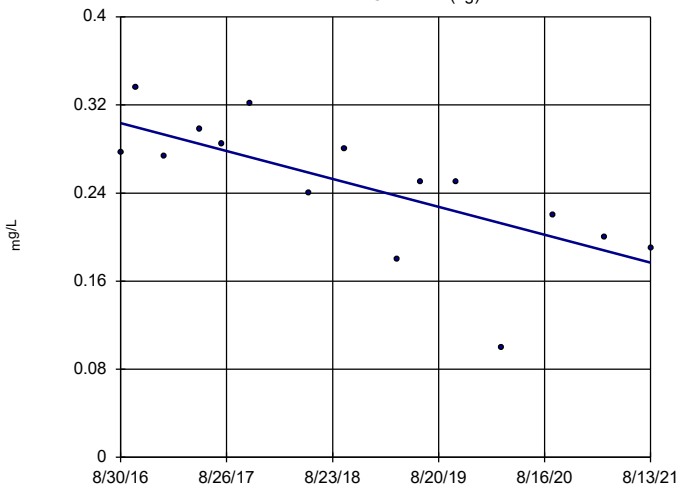
Constituent: Boron Analysis Run 10/18/2021 1:06 PM View: Trend

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWA-122 (bg)



n = 15

Slope = -0.02558 units per year.

Mann-Kendall statistic = -60 critical = -53

Decreasing trend significant at 99% confidence level (α = 0.005 per tail).

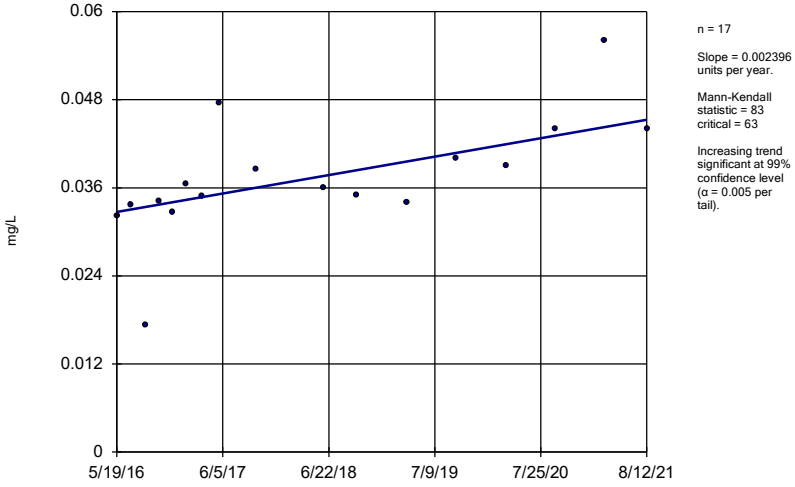
Constituent: Boron Analysis Run 10/18/2021 1:06 PM View: Trend

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWA-2 (bg)



n = 17

Slope = 0.002396 units per year.

Mann-Kendall statistic = 83 critical = 63

Increasing trend significant at 99% confidence level (α = 0.005 per tail).

Constituent: Boron Analysis Run 10/18/2021 1:06 PM View: Trend

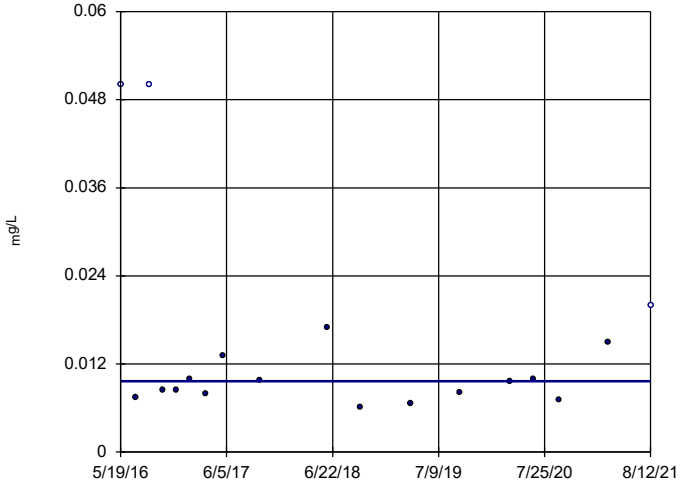
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWA-3 (bg)



n = 18

Slope = 0 units per year.

Mann-Kendall statistic = -2 critical = -68

Trend not significant at 99% confidence level (α = 0.005 per tail).

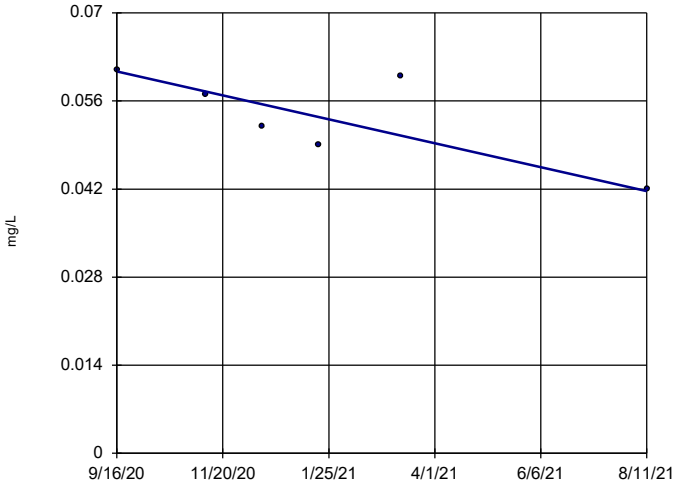
Constituent: Boron Analysis Run 10/18/2021 1:06 PM View: Trend

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWA-43D (bg)



n = 6

Slope = -0.02108 units per year.

Mann-Kendall statistic = -9
critical = -14

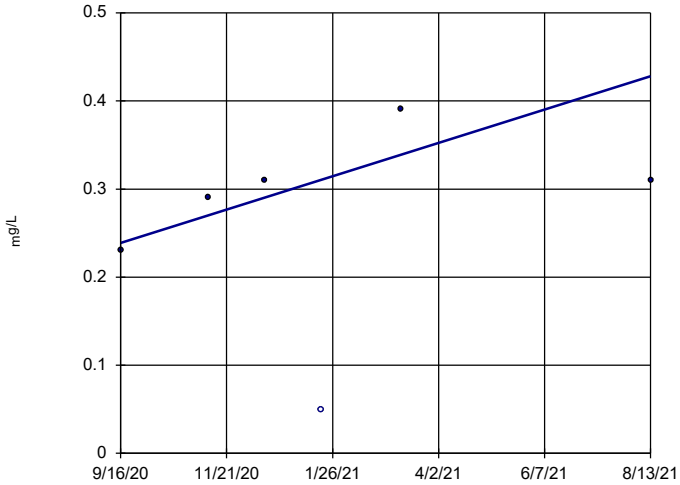
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Boron Analysis Run 10/18/2021 1:06 PM View: Trend
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWA-44D (bg)



n = 6

Slope = 0.2086 units per year.

Mann-Kendall statistic = 6
critical = 14

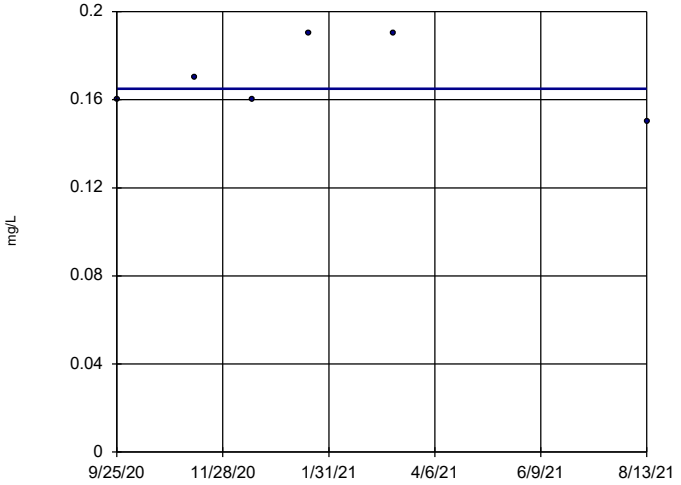
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Boron Analysis Run 10/18/2021 1:06 PM View: Trend
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWA-45D (bg)



n = 6

Slope = 0 units per year.

Mann-Kendall statistic = 1
critical = 14

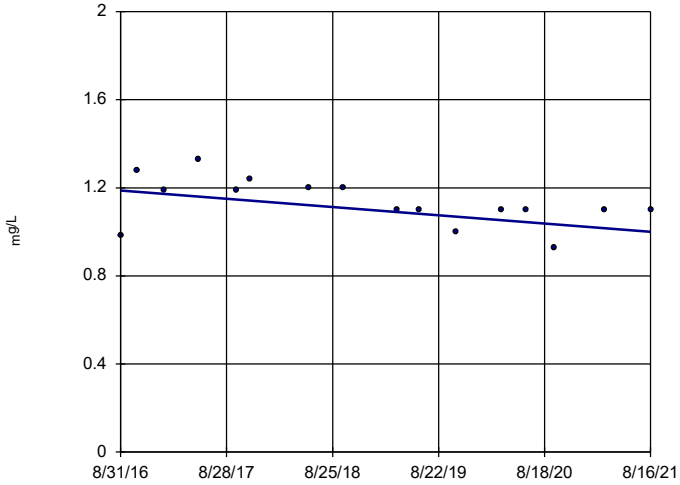
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Boron Analysis Run 10/18/2021 1:06 PM View: Trend
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWC-120



n = 16

Slope = -0.03782 units per year.

Mann-Kendall statistic = -47
critical = -58

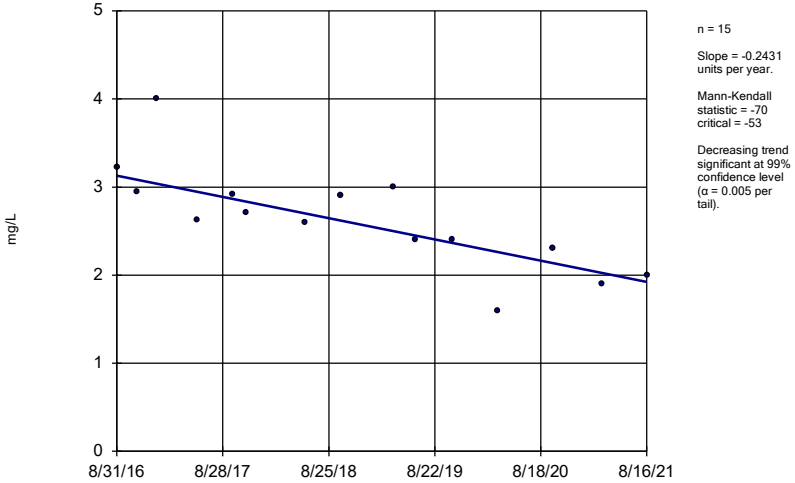
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Boron Analysis Run 10/18/2021 1:06 PM View: Trend
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWC-121A



n = 15

Slope = -0.2431 units per year.

Mann-Kendall statistic = -70 critical = -53

Decreasing trend significant at 99% confidence level (α = 0.005 per tail).

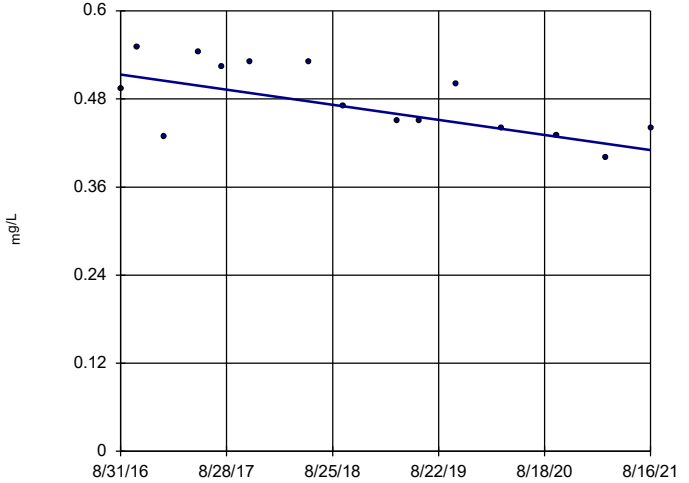
Constituent: Boron Analysis Run 10/18/2021 1:06 PM View: Trend

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWC-124



n = 15

Slope = -0.02071 units per year.

Mann-Kendall statistic = -55 critical = -53

Decreasing trend significant at 99% confidence level (α = 0.005 per tail).

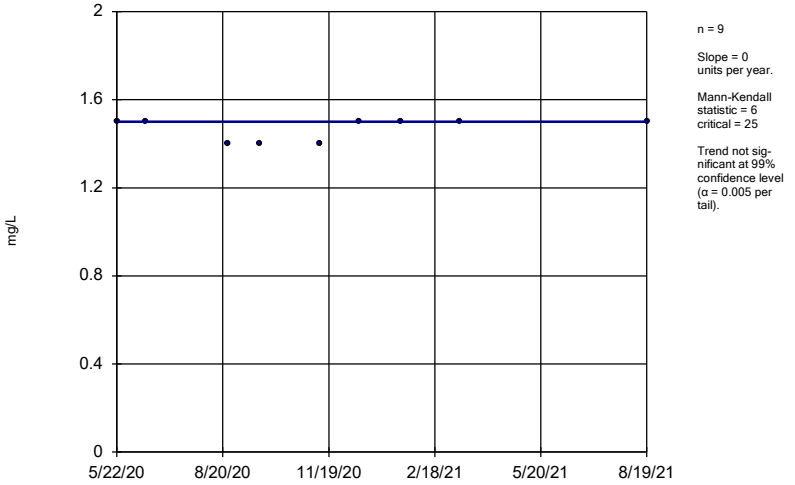
Constituent: Boron Analysis Run 10/18/2021 1:06 PM View: Trend

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWC-125



n = 9

Slope = 0 units per year.

Mann-Kendall statistic = 6 critical = 25

Trend not significant at 99% confidence level (α = 0.005 per tail).

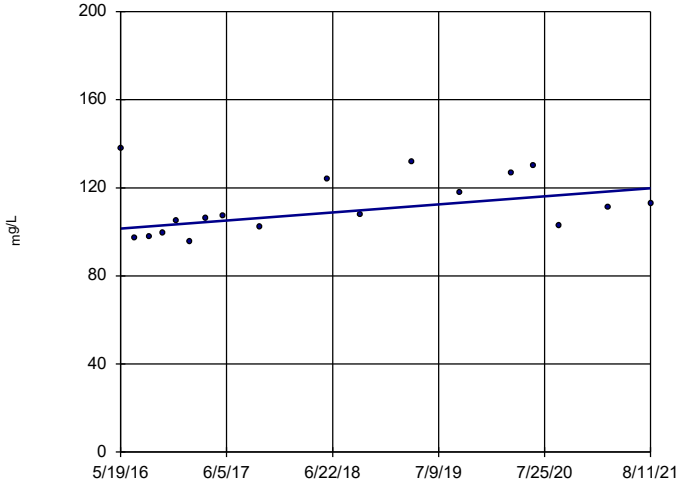
Constituent: Boron Analysis Run 10/18/2021 1:06 PM View: Trend

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWA-1 (bg)



n = 18

Slope = 3.476 units per year.

Mann-Kendall statistic = 57 critical = 68

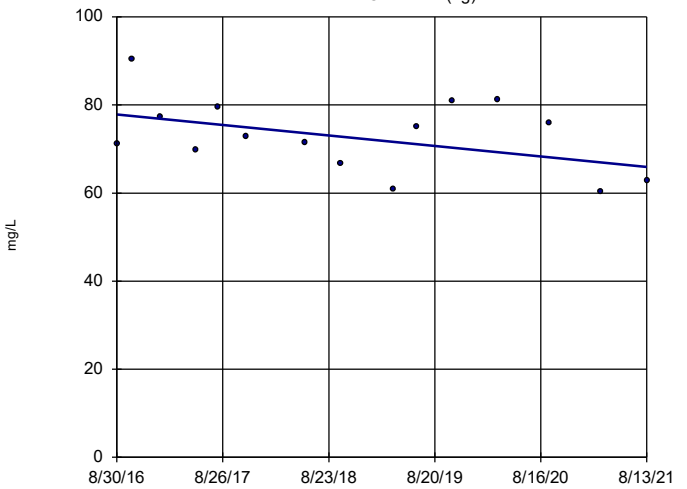
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Calcium Analysis Run 10/18/2021 1:06 PM View: Trend

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sen's Slope Estimator

HGWA-122 (bg)



n = 15

Slope = -2.405 units per year.

Mann-Kendall statistic = -19
critical = -53

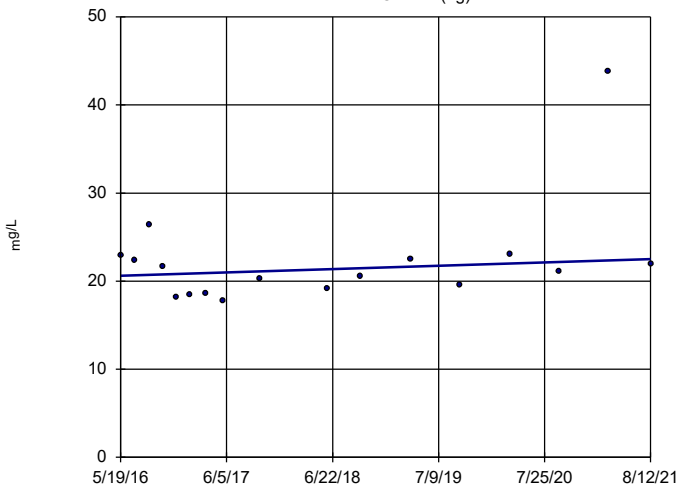
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Calcium Analysis Run 10/18/2021 1:06 PM View: Trend
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWA-2 (bg)



n = 17

Slope = 0.3671 units per year.

Mann-Kendall statistic = 20
critical = 63

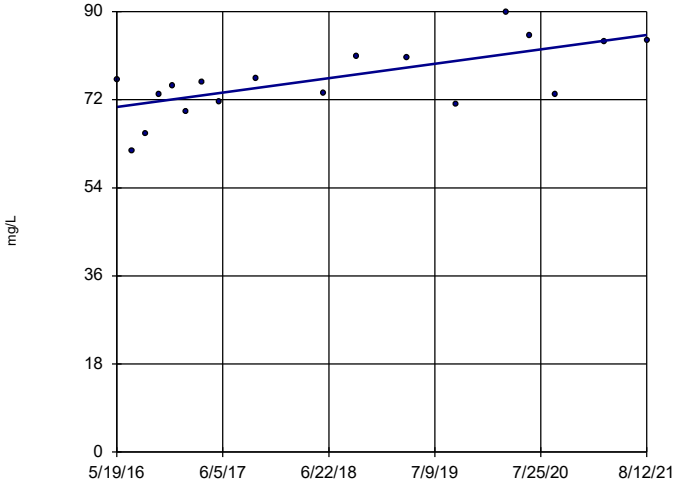
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Calcium Analysis Run 10/18/2021 1:06 PM View: Trend
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWA-3 (bg)



n = 18

Slope = 2.813 units per year.

Mann-Kendall statistic = 71
critical = 68

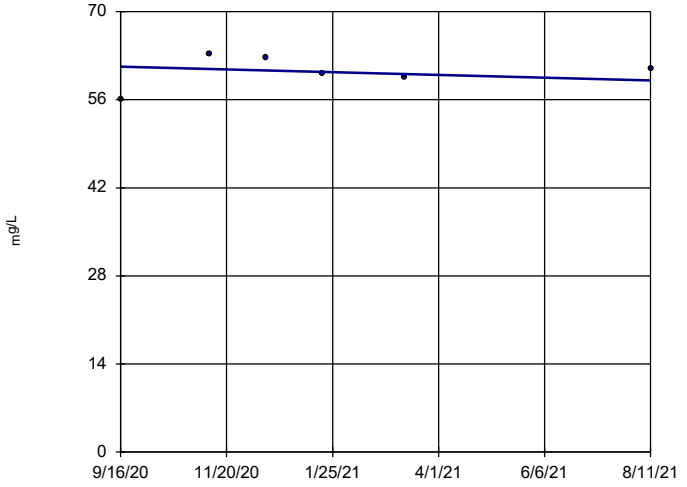
Increasing trend significant at 99% confidence level (α = 0.005 per tail).

Constituent: Calcium Analysis Run 10/18/2021 1:06 PM View: Trend
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWA-43D (bg)



n = 6

Slope = -2.444 units per year.

Mann-Kendall statistic = -1
critical = -14

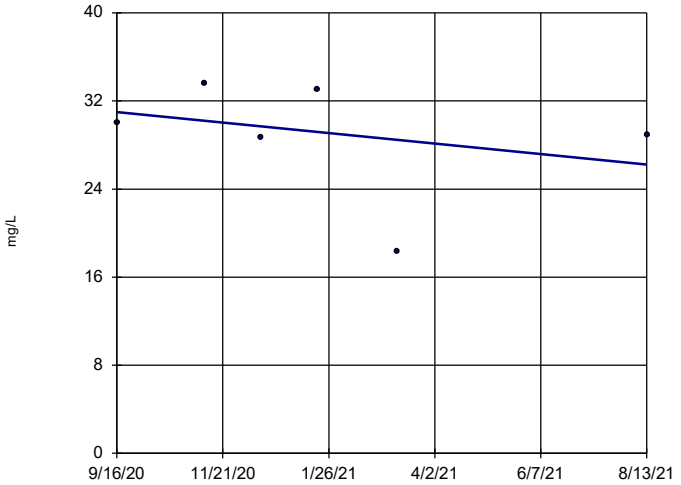
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Calcium Analysis Run 10/18/2021 1:06 PM View: Trend
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWA-44D (bg)



n = 6

Slope = -5.272 units per year.

Mann-Kendall statistic = -5
critical = -14

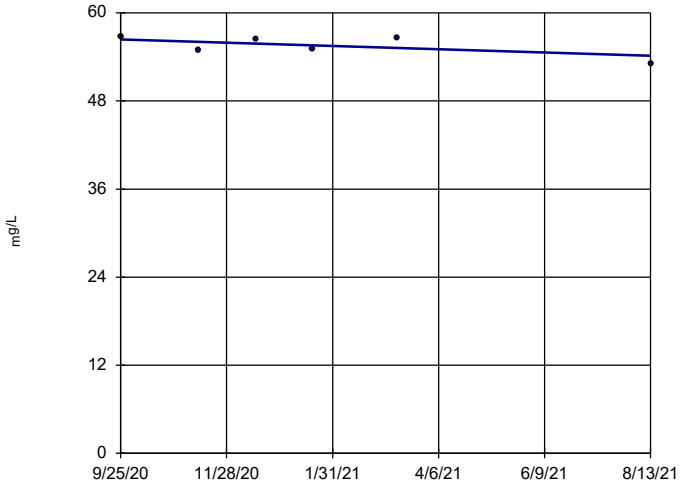
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Calcium Analysis Run 10/18/2021 1:06 PM View: Trend
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWA-45D (bg)



n = 6

Slope = -2.522 units per year.

Mann-Kendall statistic = -5
critical = -14

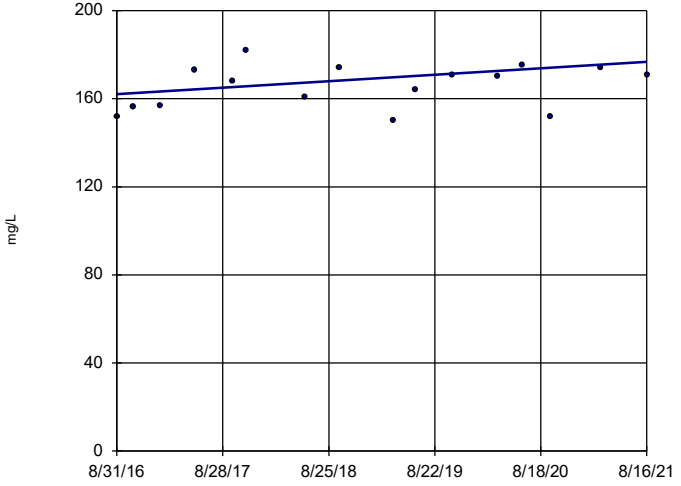
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Calcium Analysis Run 10/18/2021 1:06 PM View: Trend
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWC-120



n = 16

Slope = 2.944 units per year.

Mann-Kendall statistic = 31
critical = 58

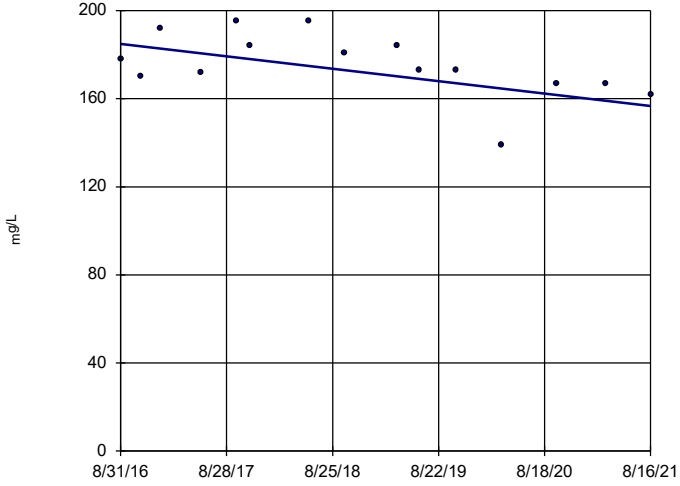
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Calcium Analysis Run 10/18/2021 1:06 PM View: Trend
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWC-121A



n = 15

Slope = -5.695 units per year.

Mann-Kendall statistic = -43
critical = -53

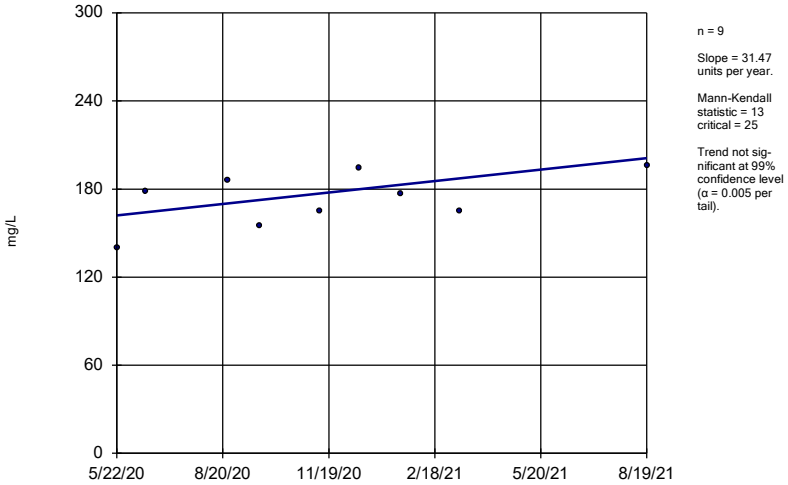
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Calcium Analysis Run 10/18/2021 1:06 PM View: Trend
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWC-125



n = 9

Slope = 31.47 units per year.

Mann-Kendall statistic = 13 critical = 25

Trend not significant at 99% confidence level (α = 0.005 per tail).

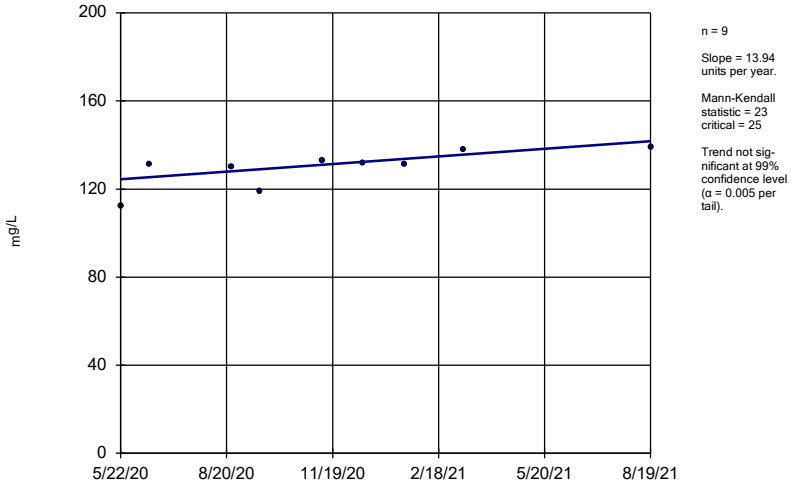
Constituent: Calcium Analysis Run 10/18/2021 1:06 PM View: Trend

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWC-126



n = 9

Slope = 13.94 units per year.

Mann-Kendall statistic = 23 critical = 25

Trend not significant at 99% confidence level (α = 0.005 per tail).

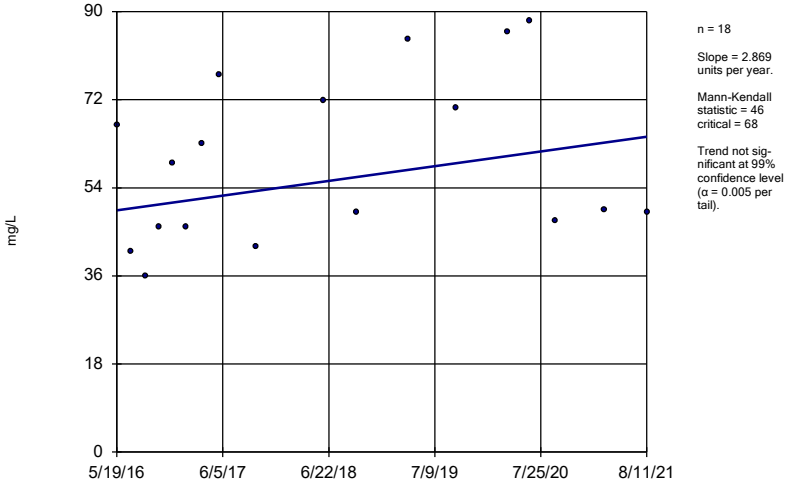
Constituent: Calcium Analysis Run 10/18/2021 1:06 PM View: Trend

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWA-1 (bg)



n = 18

Slope = 2.869 units per year.

Mann-Kendall statistic = 46 critical = 68

Trend not significant at 99% confidence level (α = 0.005 per tail).

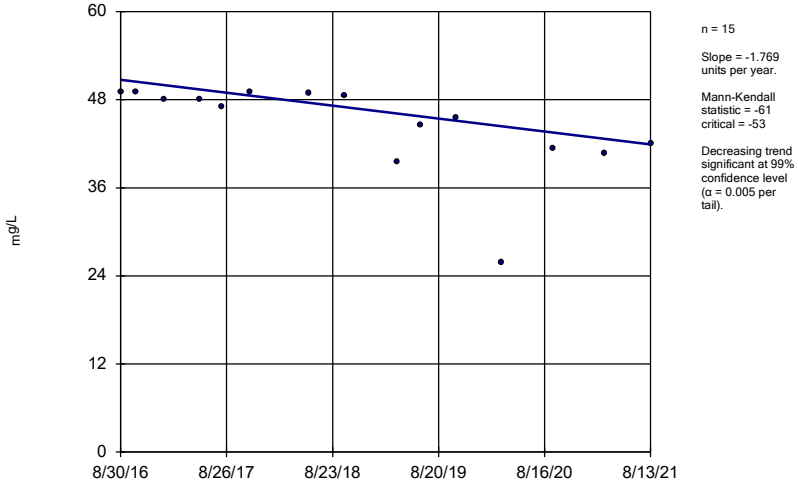
Constituent: Sulfate Analysis Run 10/18/2021 1:06 PM View: Trend

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWA-122 (bg)



n = 15

Slope = -1.769 units per year.

Mann-Kendall statistic = -61 critical = -53

Decreasing trend significant at 99% confidence level (α = 0.005 per tail).

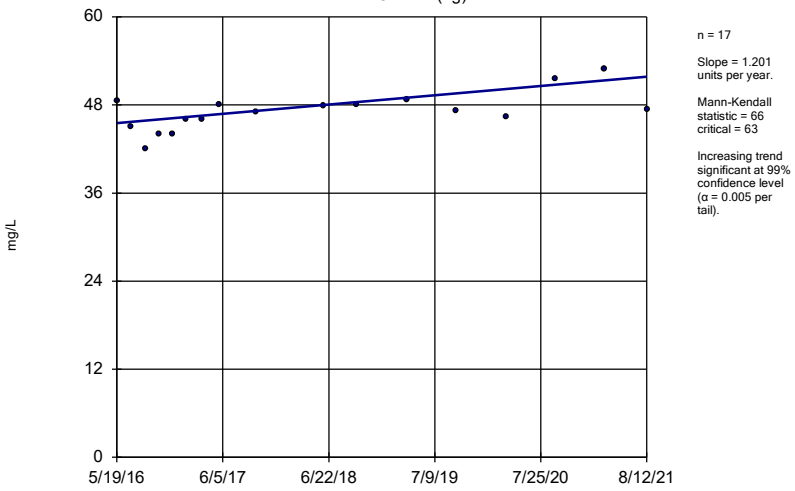
Constituent: Sulfate Analysis Run 10/18/2021 1:06 PM View: Trend

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWA-2 (bg)



n = 17

Slope = 1.201 units per year.

Mann-Kendall statistic = 66
critical = 63

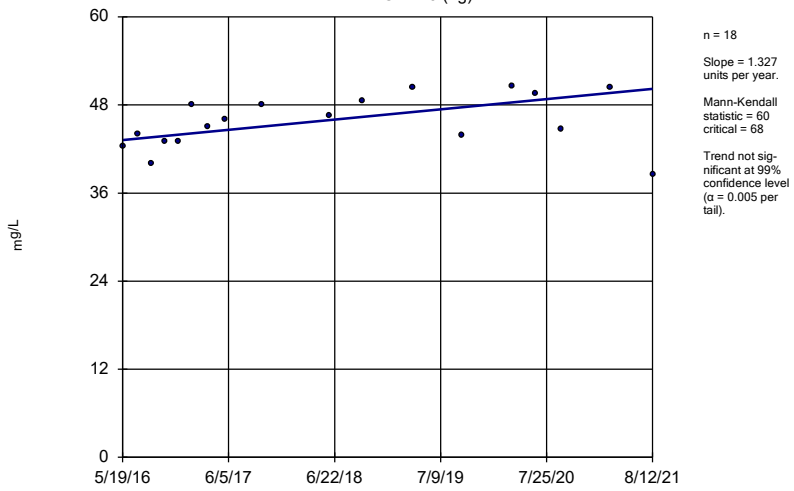
Increasing trend significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 10/18/2021 1:06 PM View: Trend
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWA-3 (bg)



n = 18

Slope = 1.327 units per year.

Mann-Kendall statistic = 60
critical = 68

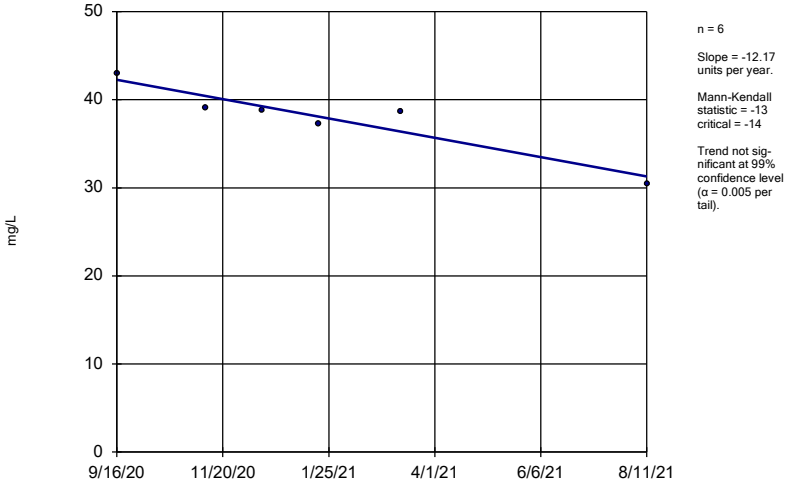
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 10/18/2021 1:06 PM View: Trend
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWA-43D (bg)



n = 6

Slope = -12.17 units per year.

Mann-Kendall statistic = -13
critical = -14

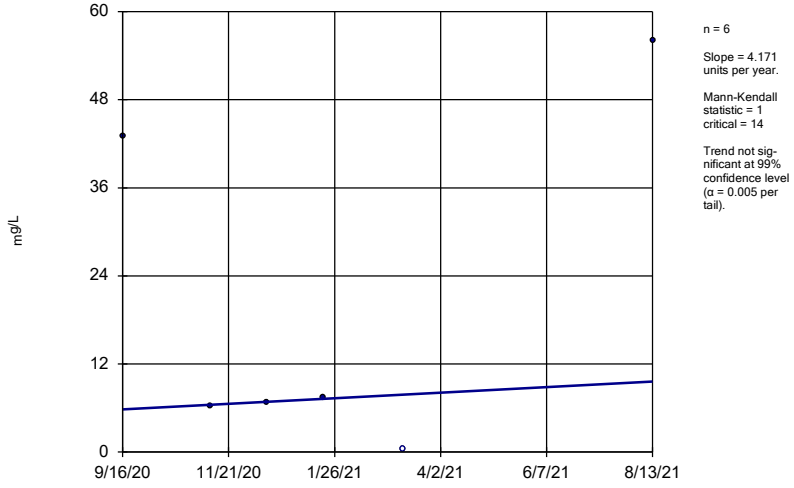
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 10/18/2021 1:06 PM View: Trend
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWA-44D (bg)



n = 6

Slope = 4.171 units per year.

Mann-Kendall statistic = 1
critical = 14

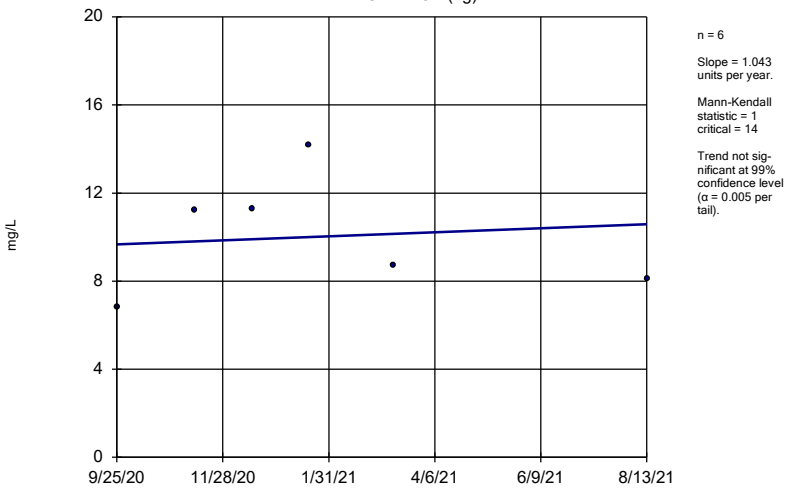
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 10/18/2021 1:06 PM View: Trend
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWA-45D (bg)



n = 6

Slope = 1.043 units per year.

Mann-Kendall statistic = 1 critical = 14

Trend not significant at 99% confidence level (α = 0.005 per tail).

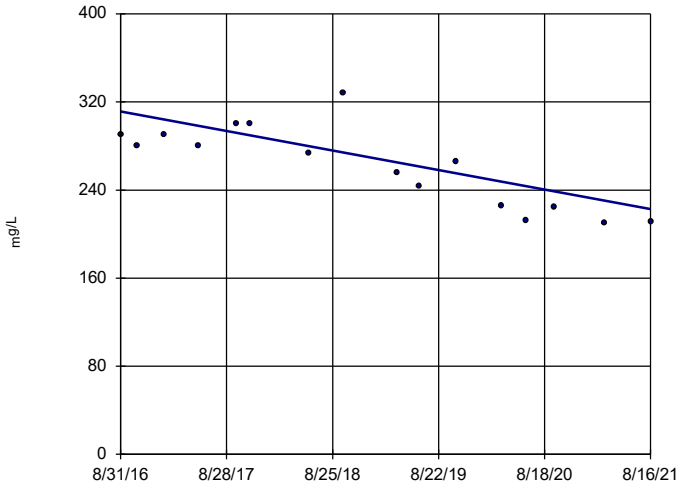
Constituent: Sulfate Analysis Run 10/18/2021 1:06 PM View: Trend

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWC-120



n = 16

Slope = -17.87 units per year.

Mann-Kendall statistic = -77 critical = -58

Decreasing trend significant at 99% confidence level (α = 0.005 per tail).

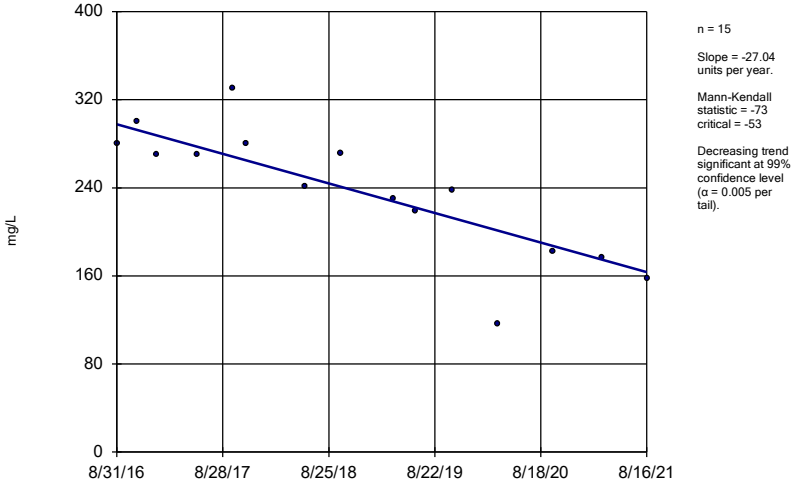
Constituent: Sulfate Analysis Run 10/18/2021 1:06 PM View: Trend

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWC-121A



n = 15

Slope = -27.04 units per year.

Mann-Kendall statistic = -73 critical = -53

Decreasing trend significant at 99% confidence level (α = 0.005 per tail).

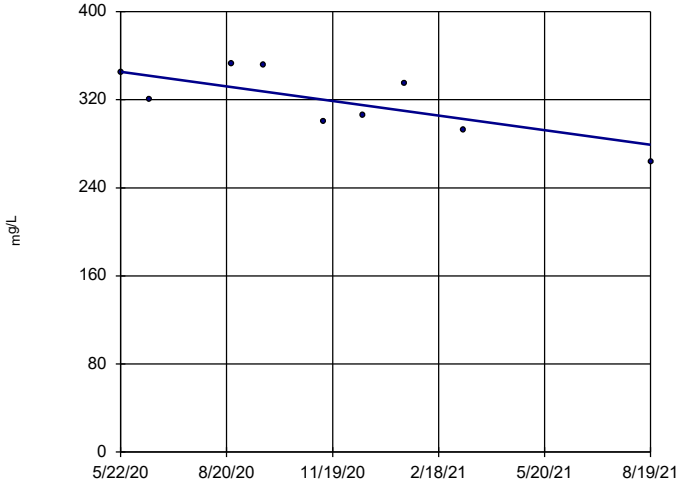
Constituent: Sulfate Analysis Run 10/18/2021 1:06 PM View: Trend

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWC-125



n = 9

Slope = -53.23 units per year.

Mann-Kendall statistic = -20 critical = -25

Trend not significant at 99% confidence level (α = 0.005 per tail).

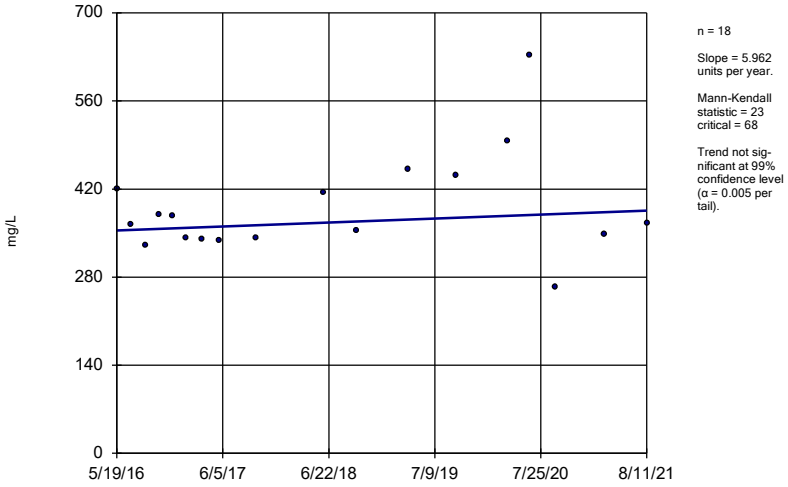
Constituent: Sulfate Analysis Run 10/18/2021 1:06 PM View: Trend

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWA-1 (bg)



n = 18

Slope = 5.962 units per year.

Mann-Kendall statistic = 23 critical = 68

Trend not significant at 99% confidence level (α = 0.005 per tail).

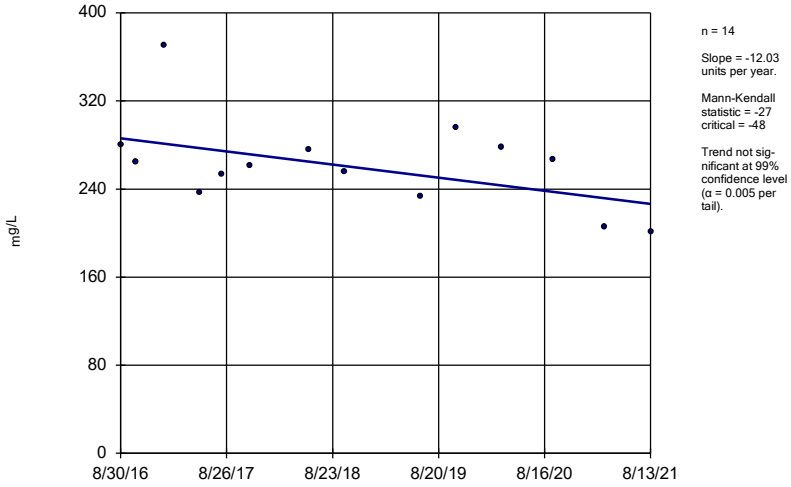
Constituent: Total Dissolved Solids Analysis Run 10/18/2021 1:06 PM View: Trend

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWA-122 (bg)



n = 14

Slope = -12.03 units per year.

Mann-Kendall statistic = -27 critical = -48

Trend not significant at 99% confidence level (α = 0.005 per tail).

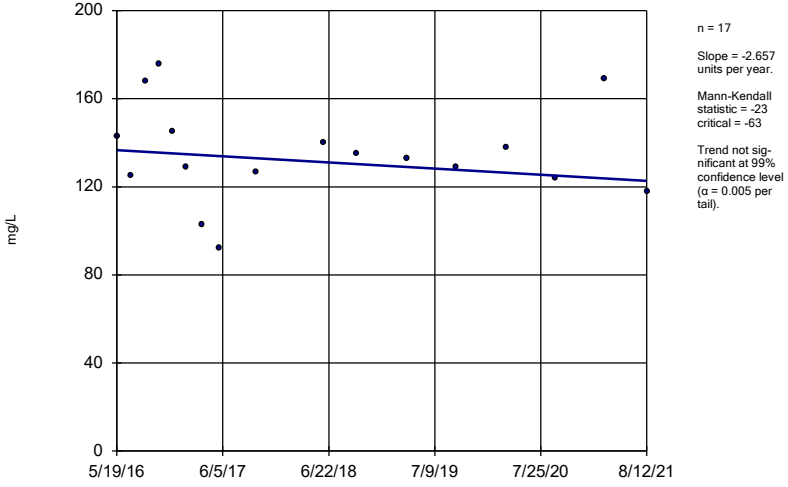
Constituent: Total Dissolved Solids Analysis Run 10/18/2021 1:06 PM View: Trend

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWA-2 (bg)



n = 17

Slope = -2.657 units per year.

Mann-Kendall statistic = -23 critical = -63

Trend not significant at 99% confidence level (α = 0.005 per tail).

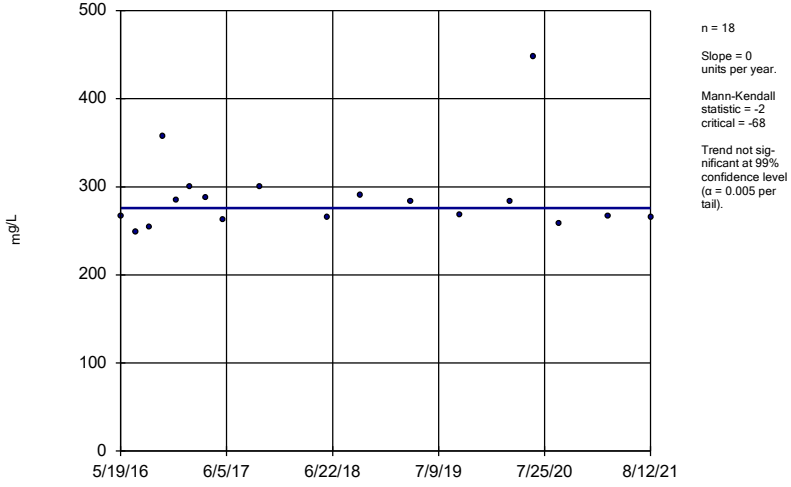
Constituent: Total Dissolved Solids Analysis Run 10/18/2021 1:06 PM View: Trend

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWA-3 (bg)



n = 18

Slope = 0 units per year.

Mann-Kendall statistic = -2 critical = -68

Trend not significant at 99% confidence level (α = 0.005 per tail).

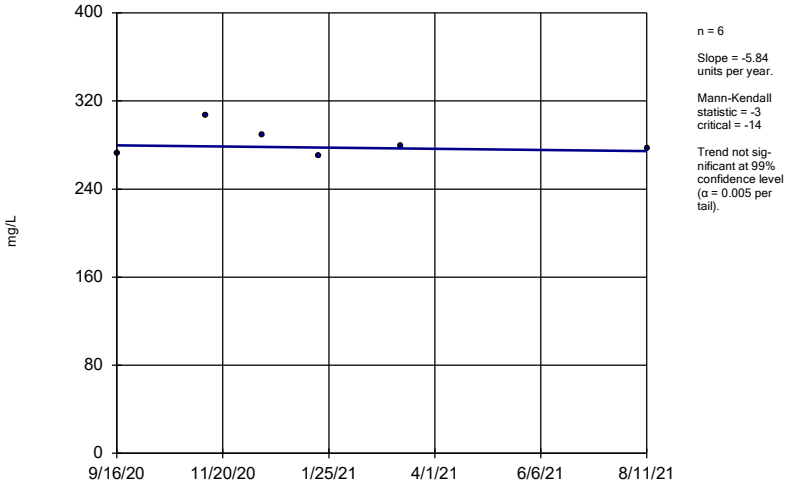
Constituent: Total Dissolved Solids Analysis Run 10/18/2021 1:06 PM View: Trend

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWA-43D (bg)



n = 6

Slope = -5.84 units per year.

Mann-Kendall statistic = -3
critical = -14

Trend not significant at 99% confidence level (α = 0.005 per tail).

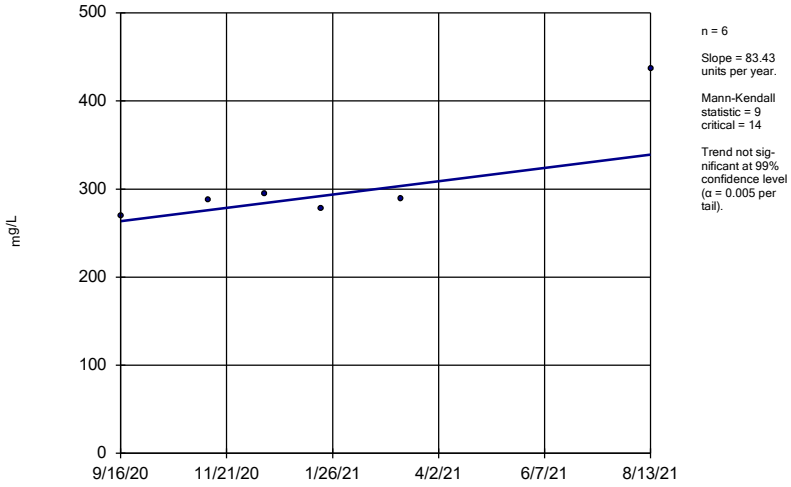
Constituent: Total Dissolved Solids Analysis Run 10/18/2021 1:06 PM View: Trend

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWA-44D (bg)



n = 6

Slope = 83.43 units per year.

Mann-Kendall statistic = 9
critical = 14

Trend not significant at 99% confidence level (α = 0.005 per tail).

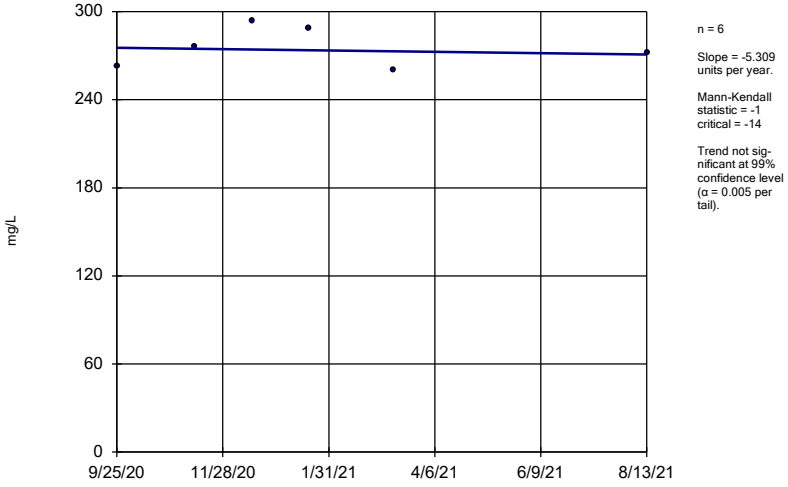
Constituent: Total Dissolved Solids Analysis Run 10/18/2021 1:06 PM View: Trend

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWA-45D (bg)



n = 6

Slope = -5.309 units per year.

Mann-Kendall statistic = -1
critical = -14

Trend not significant at 99% confidence level (α = 0.005 per tail).

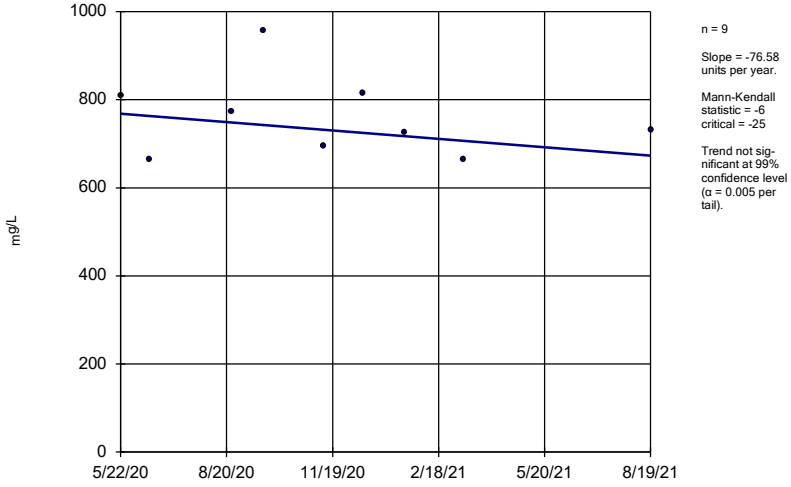
Constituent: Total Dissolved Solids Analysis Run 10/18/2021 1:06 PM View: Trend

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.31 . UG

Sen's Slope Estimator

HGWC-125



n = 9

Slope = -76.58 units per year.

Mann-Kendall statistic = -6
critical = -25

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Dissolved Solids Analysis Run 10/18/2021 1:06 PM View: Trend

Plant Hammond Client: Southern Company Data: Hammond AP-3

FIGURE F.

Upper Tolerance Limits

Plant Hammond Client: Southern Company Data: Hammond AP-3 Printed 10/18/2021, 1:14 PM

Constituent	Well	Upper Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Antimony (mg/L)	n/a	0.003	n/a	n/a	n/a	85	84.71	n/a	0.01278	NP Inter(NDs)
Arsenic (mg/L)	n/a	0.005	n/a	n/a	n/a	83	71.08	n/a	0.01416	NP Inter(normal...
Barium (mg/L)	n/a	0.54	n/a	n/a	n/a	93	1.075	n/a	0.008478	NP Inter(normal...
Beryllium (mg/L)	n/a	0.0005	n/a	n/a	n/a	85	82.35	n/a	0.01278	NP Inter(NDs)
Cadmium (mg/L)	n/a	0.0005	n/a	n/a	n/a	83	89.16	n/a	0.01416	NP Inter(NDs)
Chromium (mg/L)	n/a	0.0079	n/a	n/a	n/a	87	75.86	n/a	0.01153	NP Inter(NDs)
Cobalt (mg/L)	n/a	0.038	n/a	n/a	n/a	93	77.42	n/a	0.008478	NP Inter(NDs)
Combined Radium 226 + 228 (pCi/L)	n/a	4.36	n/a	n/a	n/a	86	0	n/a	0.01214	NP Inter(normal...
Fluoride (mg/L)	n/a	0.87	n/a	n/a	n/a	100	26	n/a	0.005921	NP Inter(normal...
Lead (mg/L)	n/a	0.001	n/a	n/a	n/a	87	62.07	n/a	0.01153	NP Inter(normal...
Lithium (mg/L)	n/a	0.032	n/a	n/a	n/a	93	34.41	n/a	0.008478	NP Inter(normal...
Mercury (mg/L)	n/a	0.0002	n/a	n/a	n/a	65	92.31	n/a	0.03565	NP Inter(NDs)
Molybdenum (mg/L)	n/a	0.01	n/a	n/a	n/a	95	68.42	n/a	0.007651	NP Inter(normal...
Selenium (mg/L)	n/a	0.005	n/a	n/a	n/a	83	98.8	n/a	0.01416	NP Inter(NDs)
Thallium (mg/L)	n/a	0.001	n/a	n/a	n/a	83	98.8	n/a	0.01416	NP Inter(NDs)

FIGURE G.

PLANT HAMMOND AP-3 GWPS (Federal)				
Constituent Name	**MCL**	**CCR-Rule Specified**	**Background Limit**	**Federal 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		0.54	2
Beryllium, Total (mg/L)	0.004		0.0005	0.004
Cadmium, Total (mg/L)	0.005		0.0005	0.005
Chromium, Total (mg/L)	0.1		0.0079	0.1
Cobalt, Total (mg/L)	n/a	0.006	0.038	0.038
Combined Radium, Total (pCi/L)	5		4.36	5
Fluoride, Total (mg/L)	4		0.87	4
Lead, Total (mg/L)	n/a	0.015	0.001	0.015
Lithium, Total (mg/L)	n/a	0.04	0.032	0.04
Mercury, Total (mg/L)	0.002		0.0002	0.002
Molybdenum, Total (mg/L)	n/a	0.1	0.01	0.1
Selenium, Total (mg/L)	0.05		0.005	0.05
Thallium, Total (mg/L)	0.002		0.001	0.002

**Grey cell indidcates background is higher than MCL or CCR-Rule*

**MCL = Maximum Contaminant Level*

**CCR = Coal Combustion Residuals*

**GWPS = Groundwater Protection Statard*

FIGURE H.

PLANT HAMMOND AP-3 GWPS (State)				
Constituent Name	**MCL**	**CCR-Rule Specified**	**Background Limit**	**State 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		0.54	2
Beryllium, Total (mg/L)	0.004		0.0005	0.004
Cadmium, Total (mg/L)	0.005		0.0005	0.005
Chromium, Total (mg/L)	0.1		0.0079	0.1
Cobalt, Total (mg/L)	n/a	0.006	0.038	0.038
Combined Radium, Total (pCi/L)	5		4.36	5
Fluoride, Total (mg/L)	4		0.87	4
Lead, Total (mg/L)	n/a	0.015	0.001	0.001
Lithium, Total (mg/L)	n/a	0.04	0.032	0.032
Mercury, Total (mg/L)	0.002		0.0002	0.002
Molybdenum, Total (mg/L)	n/a	0.1	0.01	0.01
Selenium, Total (mg/L)	0.05		0.005	0.05
Thallium, Total (mg/L)	0.002		0.001	0.002

**Grey cell indidcates background is higher than MCL or CCR-Rule*

**MCL = Maximum Contaminant Level*

**CCR = Coal Combustion Residuals*

**GWPS = Groundwater Protection Statard*

FIGURE I.

Federal Confidence Interval Summary Table - All Results (No Significant)

Plant Hammond Client: Southern Company Data: Hammond AP-3 Printed 12/14/2021, 3:37 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Antimony (mg/L)	HGWC-120	0.003	0.0018	0.006	No	13	92.31	No	0.01	NP (NDs)
Antimony (mg/L)	HGWC-125	0.003	0.00047	0.006	No	9	77.78	No	0.002	NP (NDs)
Antimony (mg/L)	HGWC-126	0.003	0.0004	0.006	No	9	77.78	No	0.002	NP (NDs)
Antimony (mg/L)	MW-32	0.003	0.00035	0.006	No	4	75	No	0.0625	NP (NDs)
Arsenic (mg/L)	HGWC-120	0.005	0.001	0.01	No	11	63.64	No	0.006	NP (NDs)
Arsenic (mg/L)	HGWC-121A	0.005	0.0014	0.01	No	11	72.73	No	0.006	NP (NDs)
Arsenic (mg/L)	HGWC-124	0.005	0.005	0.01	No	11	90.91	No	0.006	NP (NDs)
Arsenic (mg/L)	HGWC-125	0.005	0.00081	0.01	No	8	75	No	0.004	NP (NDs)
Arsenic (mg/L)	HGWC-126	0.005	0.00071	0.01	No	8	75	No	0.004	NP (NDs)
Barium (mg/L)	HGWC-120	0.05172	0.04601	2	No	15	0	No	0.01	Param.
Barium (mg/L)	HGWC-121A	0.0824	0.06527	2	No	15	0	No	0.01	Param.
Barium (mg/L)	HGWC-124	0.07319	0.06712	2	No	15	0	No	0.01	Param.
Barium (mg/L)	HGWC-125	0.04698	0.04169	2	No	9	0	No	0.01	Param.
Barium (mg/L)	HGWC-126	0.2608	0.2237	2	No	9	0	No	0.01	Param.
Barium (mg/L)	MW-32	0.06217	0.05023	2	No	5	0	No	0.01	Param.
Barium (mg/L)	MW-39	0.06085	0.05715	2	No	4	0	No	0.01	Param.
Barium (mg/L)	MW-41	0.07551	0.05969	2	No	5	0	No	0.01	Param.
Chromium (mg/L)	HGWC-120	0.005	0.0015	0.1	No	15	80	No	0.01	NP (NDs)
Chromium (mg/L)	HGWC-121A	0.005	0.0005	0.1	No	15	93.33	No	0.01	NP (NDs)
Chromium (mg/L)	HGWC-124	0.005	0.00051	0.1	No	15	86.67	No	0.01	NP (NDs)
Chromium (mg/L)	HGWC-125	0.005	0.00052	0.1	No	9	66.67	No	0.002	NP (NDs)
Chromium (mg/L)	HGWC-126	0.005	0.00096	0.1	No	9	88.89	No	0.002	NP (NDs)
Chromium (mg/L)	MW-32	0.005	0.00058	0.1	No	5	80	No	0.031	NP (NDs)
Chromium (mg/L)	MW-41	0.005	0.0009	0.1	No	5	80	No	0.031	NP (NDs)
Cobalt (mg/L)	HGWC-120	0.003889	0.002898	0.038	No	15	0	No	0.01	Param.
Cobalt (mg/L)	HGWC-121A	0.005	0.0005	0.038	No	15	80	No	0.01	NP (NDs)
Cobalt (mg/L)	HGWC-125	0.01279	0.007031	0.038	No	9	0	No	0.01	Param.
Cobalt (mg/L)	MW-32	0.005359	0.002881	0.038	No	5	0	No	0.01	Param.
Cobalt (mg/L)	MW-39	0.002742	0.002308	0.038	No	4	0	No	0.01	Param.
Cobalt (mg/L)	MW-41	0.0012	0.00057	0.038	No	5	0	No	0.031	NP (normality)
Combined Radium 226 + 228 (pCi/L)	HGWC-120	1.138	0.614	5	No	14	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	HGWC-121A	1.221	0.4747	5	No	14	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	HGWC-124	0.9359	0.6159	5	No	14	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	HGWC-125	1.553	0.6976	5	No	8	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	HGWC-126	1.82	0.837	5	No	8	0	No	0.004	NP (normality)
Combined Radium 226 + 228 (pCi/L)	MW-32	2.155	-0.1841	5	No	4	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-41	2.085	-0.05149	5	No	4	0	No	0.01	Param.
Fluoride (mg/L)	HGWC-120	1.2	0.37	4	No	18	0	No	0.01	NP (normality)
Fluoride (mg/L)	HGWC-121A	0.23	0.14	4	No	16	0	No	0.01	NP (normality)
Fluoride (mg/L)	HGWC-124	0.15	0.05	4	No	16	37.5	No	0.01	NP (normality)
Fluoride (mg/L)	HGWC-125	0.1683	0.105	4	No	9	0	No	0.01	Param.
Fluoride (mg/L)	HGWC-126	0.4862	0.4294	4	No	9	0	sqrt(x)	0.01	Param.
Fluoride (mg/L)	MW-32	0.3747	0.2586	4	No	6	0	No	0.01	Param.
Fluoride (mg/L)	MW-39	0.3616	0.2464	4	No	5	0	No	0.01	Param.
Fluoride (mg/L)	MW-41	0.2754	0.1886	4	No	5	0	No	0.01	Param.
Fluoride (mg/L)	MW-46D	1.233	0.5472	4	No	4	0	No	0.01	Param.
Lead (mg/L)	HGWC-120	0.001	0.0002	0.015	No	15	80	No	0.01	NP (NDs)
Lead (mg/L)	HGWC-121A	0.001	0.00036	0.015	No	15	80	No	0.01	NP (NDs)
Lead (mg/L)	HGWC-124	0.001	0.000075	0.015	No	15	66.67	No	0.01	NP (NDs)
Lead (mg/L)	HGWC-125	0.001	0.000044	0.015	No	9	44.44	No	0.002	NP (normality)
Lead (mg/L)	HGWC-126	0.001	0.000042	0.015	No	9	66.67	No	0.002	NP (NDs)
Lithium (mg/L)	HGWC-120	0.03325	0.0277	0.04	No	15	0	x^5	0.01	Param.
Lithium (mg/L)	HGWC-121A	0.009124	0.007729	0.04	No	15	0	No	0.01	Param.
Lithium (mg/L)	HGWC-124	0.015	0.001	0.04	No	15	33.33	No	0.01	NP (normality)
Lithium (mg/L)	HGWC-125	0.005915	0.003691	0.04	No	9	0	sqrt(x)	0.01	Param.
Lithium (mg/L)	HGWC-126	0.004244	0.003133	0.04	No	9	0	No	0.01	Param.
Lithium (mg/L)	MW-32	0.03438	0.03002	0.04	No	5	0	No	0.01	Param.
Lithium (mg/L)	MW-39	0.03385	0.02872	0.04	No	5	20	x^4	0.01	Param.
Lithium (mg/L)	MW-41	0.03031	0.02649	0.04	No	5	0	No	0.01	Param.
Mercury (mg/L)	HGWC-120	0.0002	0.00007	0.002	No	11	81.82	No	0.006	NP (NDs)
Mercury (mg/L)	HGWC-124	0.0002	0.0002	0.002	No	11	90.91	No	0.006	NP (NDs)
Molybdenum (mg/L)	HGWC-120	0.03817	0.02554	0.1	No	15	0	No	0.01	Param.
Molybdenum (mg/L)	HGWC-124	0.005	0.00091	0.1	No	15	33.33	No	0.01	NP (normality)
Molybdenum (mg/L)	HGWC-125	0.00835	0.0005302	0.1	No	9	33.33	x^(1/3)	0.01	Param.
Molybdenum (mg/L)	MW-32	0.06369	0.05917	0.1	No	7	0	No	0.01	Param.
Molybdenum (mg/L)	MW-39	0.064	0.012	0.1	No	6	0	No	0.0155	NP (normality)
Molybdenum (mg/L)	MW-41	0.04715	0.03205	0.1	No	5	0	No	0.01	Param.
Molybdenum (mg/L)	MW-46D	0.03867	-0.01542	0.1	No	4	0	No	0.01	Param.

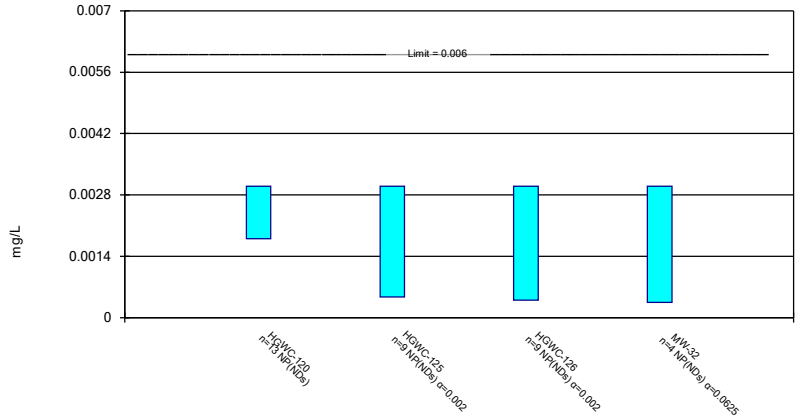
Federal Confidence Interval Summary Table - All Results (No Significant)

Plant Hammond Client: Southern Company Data: Hammond AP-3 Printed 12/14/2021, 3:37 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Selenium (mg/L)	HGWC-120	0.005	0.005	0.05	No	11	90.91	No	0.006	NP (NDs)
Selenium (mg/L)	HGWC-121A	0.005	0.005	0.05	No	11	90.91	No	0.006	NP (NDs)
Selenium (mg/L)	HGWC-124	0.005	0.005	0.05	No	11	90.91	No	0.006	NP (NDs)

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted.



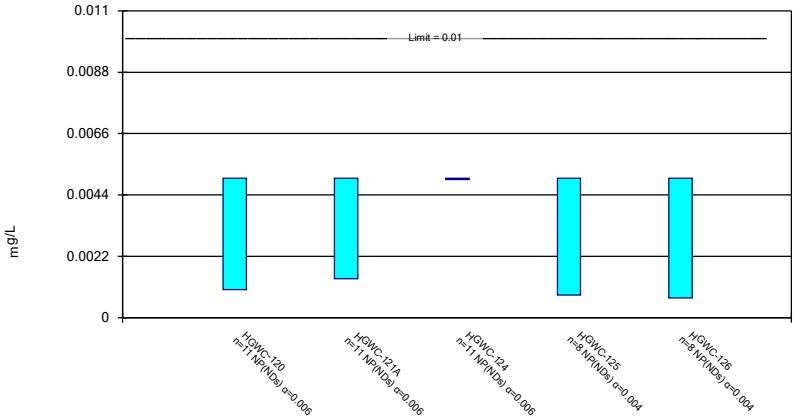
Constituent: Antimony Analysis Run 12/14/2021 3:36 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 Sanitas software utilized by Groundwater Stats Consulting. EPA

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



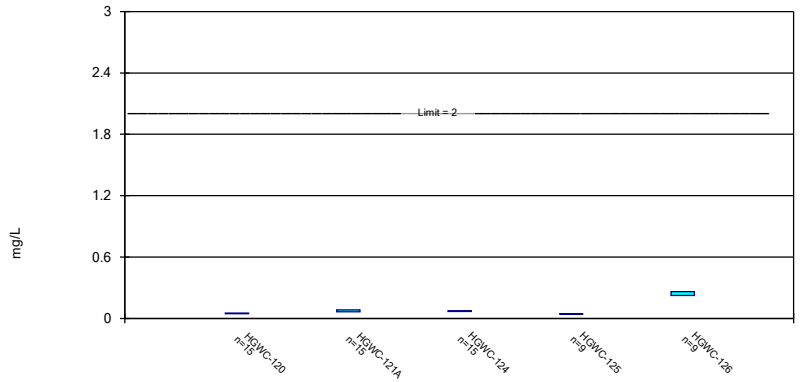
Constituent: Arsenic Analysis Run 12/14/2021 3:36 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 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.



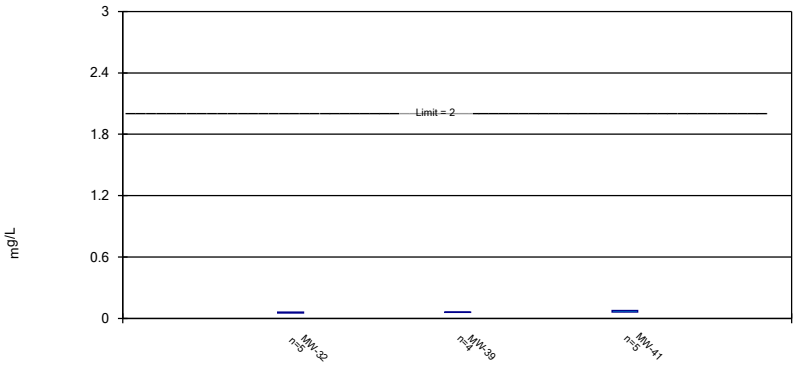
Constituent: Barium Analysis Run 12/14/2021 3:36 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 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.



Constituent: Barium Analysis Run 12/14/2021 3:36 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Non-Parametric Confidence Interval

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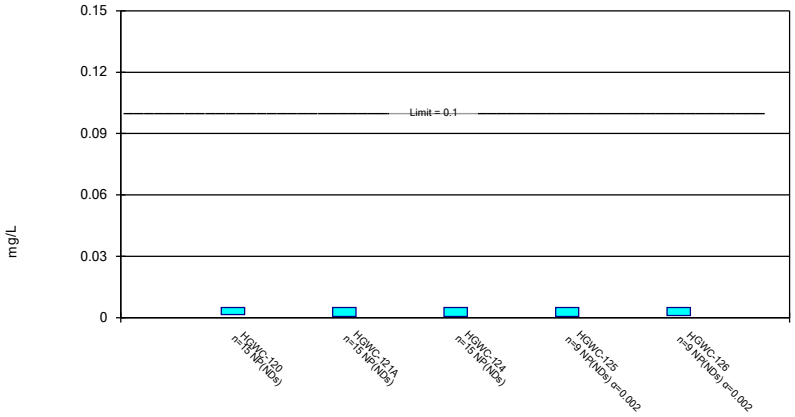


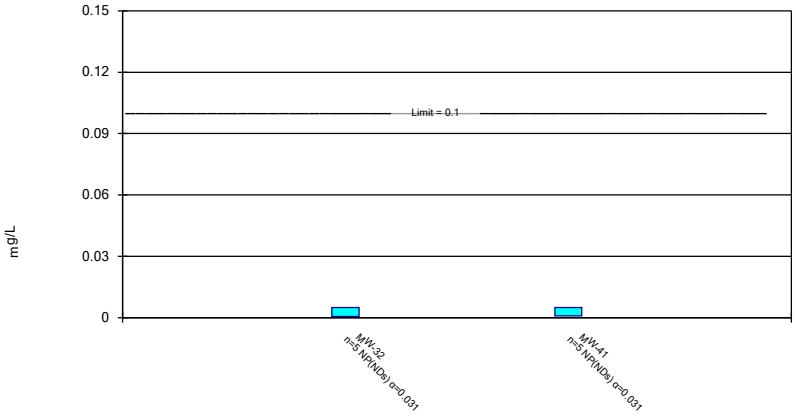
Constituent: Chromium Analysis Run 12/14/2021 3:36 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 Sanitas software utilized by Groundwater Stats Consulting. EPA

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



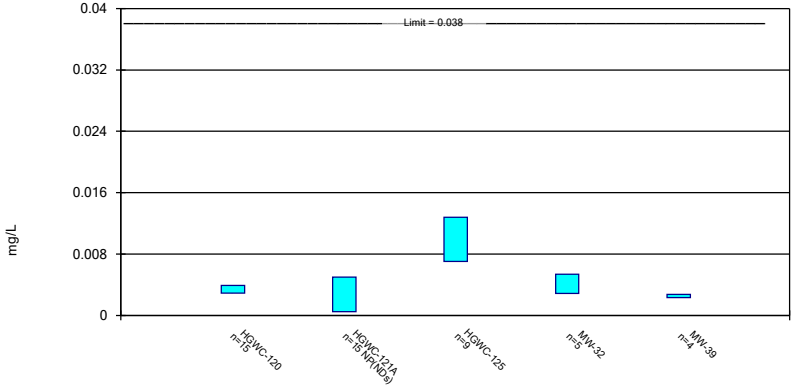
Constituent: Chromium Analysis Run 12/14/2021 3:36 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 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. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cobalt Analysis Run 12/14/2021 3:36 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 Sanitas software utilized by Groundwater Stats Consulting. EPA

Non-Parametric Confidence Interval

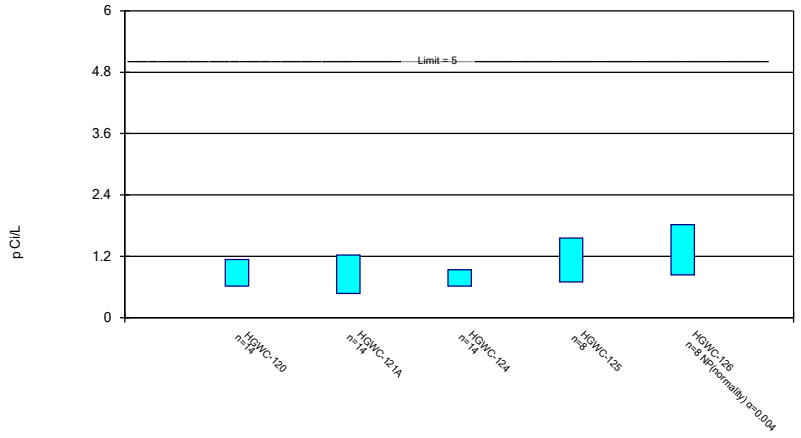
Compliance Limit is not exceeded.

Constituent: Cobalt Analysis Run 12/14/2021 3:36 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

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.



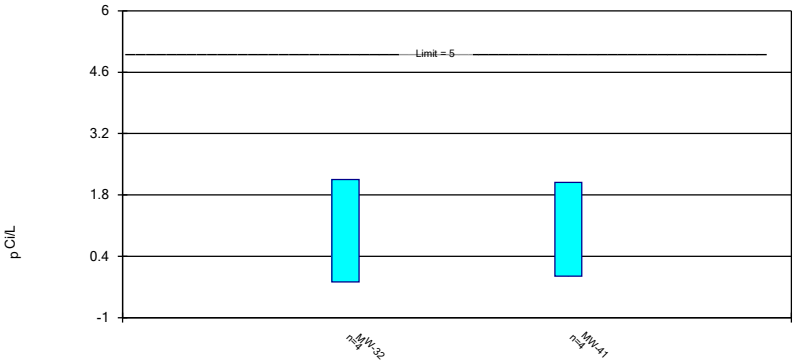
Constituent: Combined Radium 226 + 228 Analysis Run 12/14/2021 3:36 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 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.



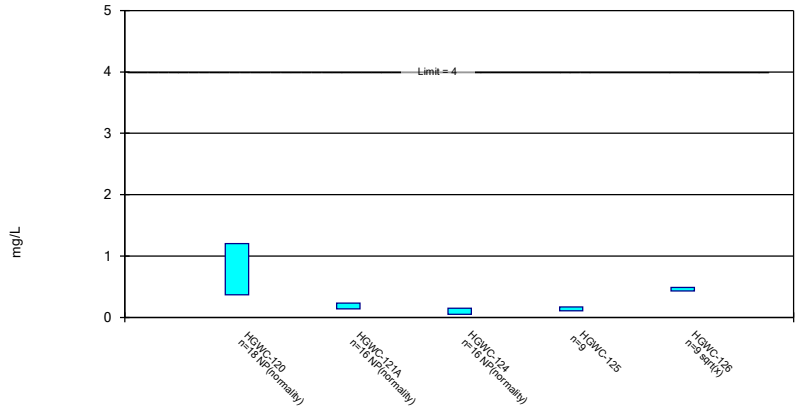
Constituent: Combined Radium 226 + 228 Analysis Run 12/14/2021 3:36 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 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. Normality Test: Shapiro Wilk, alpha based on n.



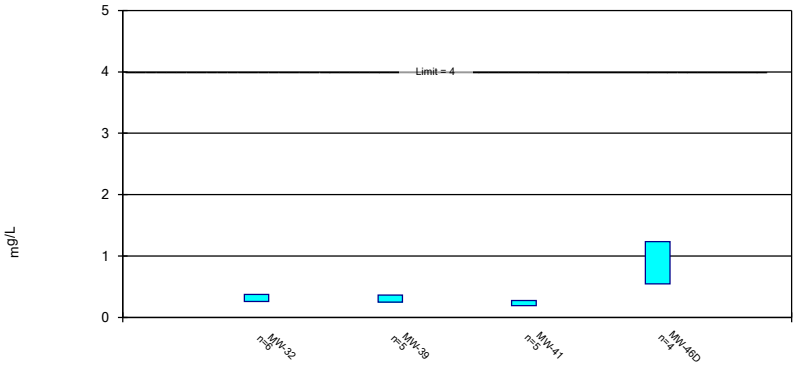
Constituent: Fluoride Analysis Run 12/14/2021 3:36 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 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.

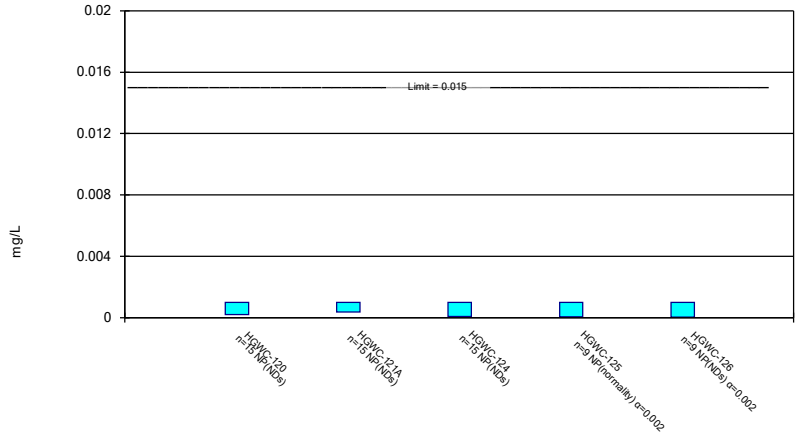


Constituent: Fluoride Analysis Run 12/14/2021 3:36 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted.



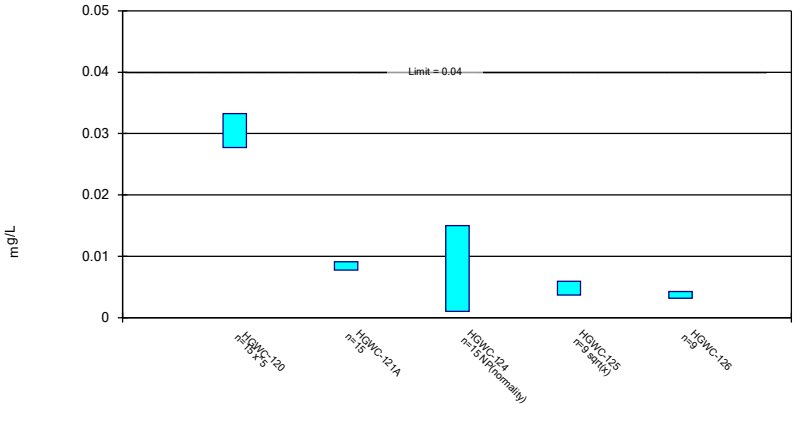
Constituent: Lead Analysis Run 12/14/2021 3:36 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 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. Normality Test: Shapiro Wilk, alpha based on n.



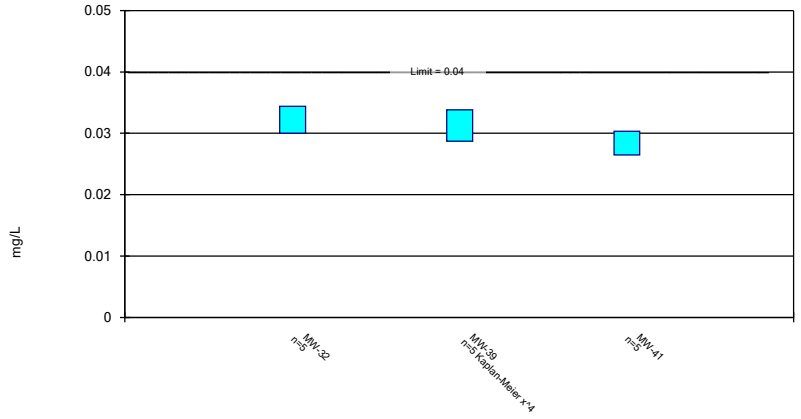
Constituent: Lithium Analysis Run 12/14/2021 3:36 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 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.



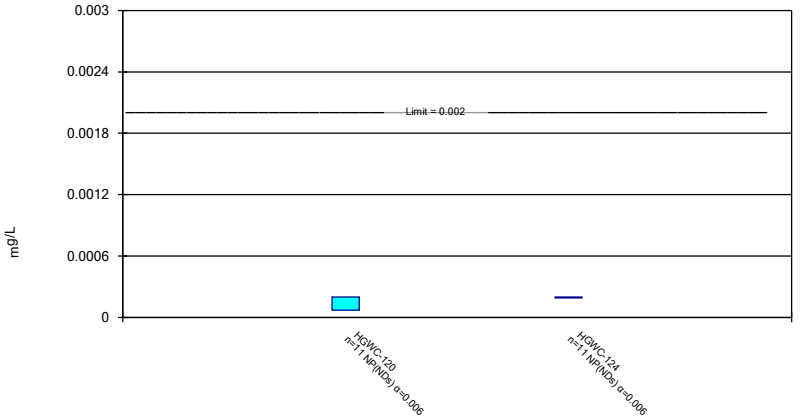
Constituent: Lithium Analysis Run 12/14/2021 3:36 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 Sanitas software utilized by Groundwater Stats Consulting. EPA

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

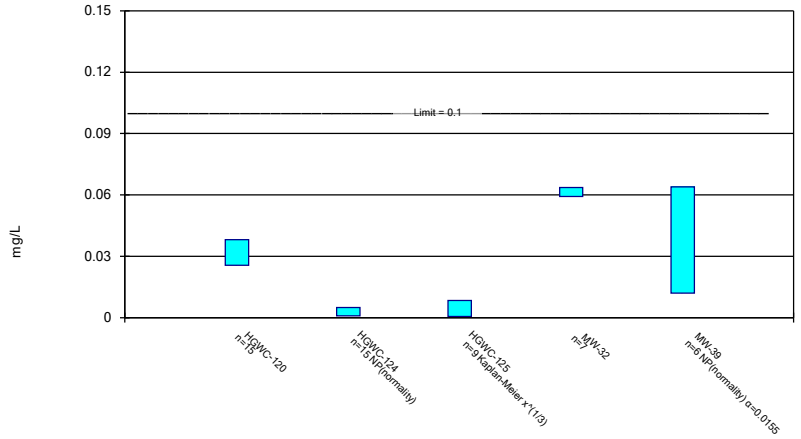


Constituent: Mercury Analysis Run 12/14/2021 3:36 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

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.



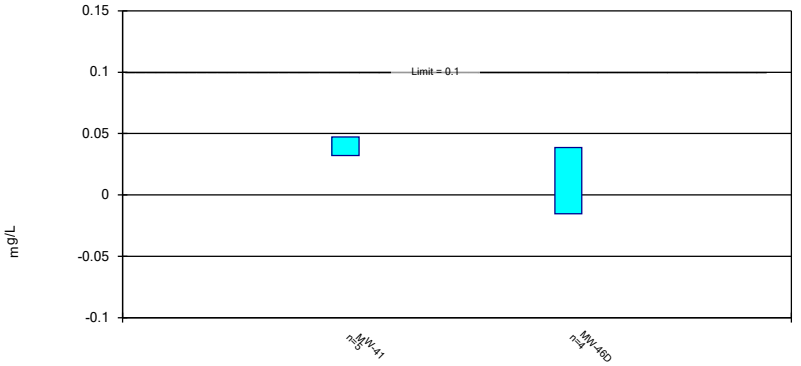
Constituent: Molybdenum Analysis Run 12/14/2021 3:36 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 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.



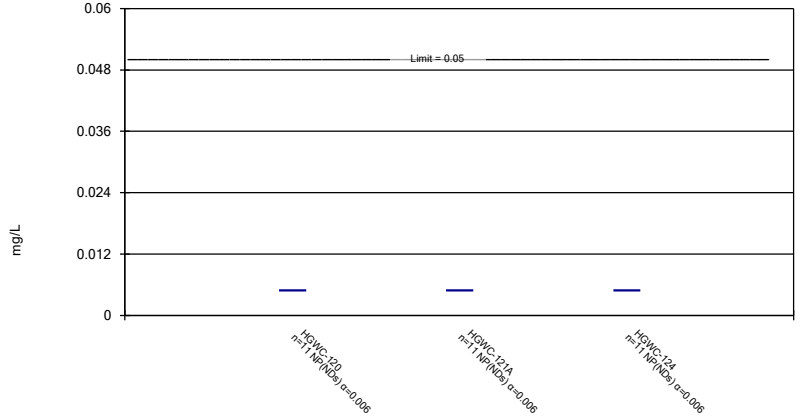
Constituent: Molybdenum Analysis Run 12/14/2021 3:36 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 Sanitas software utilized by Groundwater Stats Consulting. EPA

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



Constituent: Selenium Analysis Run 12/14/2021 3:36 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

FIGURE J.

State Confidence Interval Summary Table - Significant Results

Plant Hammond Client: Southern Company Data: Hammond AP-3 Printed 12/14/2021, 3:34 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Molybdenum (mg/L)	**HGWC-120**	**0.03817**	**0.02554**	**0.01**	**Yes**	**15**	**0**	**No**	**0.01**	**Param.**
Molybdenum (mg/L)	**MW-32**	**0.06369**	**0.05917**	**0.01**	**Yes**	**7**	**0**	**No**	**0.01**	**Param.**
Molybdenum (mg/L)	**MW-39**	**0.064**	**0.012**	**0.01**	**Yes**	**6**	**0**	**No**	**0.0155**	**NP (normality)**
Molybdenum (mg/L)	**MW-41**	**0.04715**	**0.03205**	**0.01**	**Yes**	**5**	**0**	**No**	**0.01**	**Param.**

State Confidence Interval Summary Table - All Results

Plant Hammond Client: Southern Company Data: Hammond AP-3 Printed 12/14/2021, 3:34 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Antimony (mg/L)	HGWC-120	0.003	0.0018	0.006	No	13	92.31	No	0.01	NP (NDs)
Antimony (mg/L)	HGWC-125	0.003	0.00047	0.006	No	9	77.78	No	0.002	NP (NDs)
Antimony (mg/L)	HGWC-126	0.003	0.0004	0.006	No	9	77.78	No	0.002	NP (NDs)
Antimony (mg/L)	MW-32	0.003	0.00035	0.006	No	4	75	No	0.0625	NP (NDs)
Arsenic (mg/L)	HGWC-120	0.005	0.001	0.01	No	11	63.64	No	0.006	NP (NDs)
Arsenic (mg/L)	HGWC-121A	0.005	0.0014	0.01	No	11	72.73	No	0.006	NP (NDs)
Arsenic (mg/L)	HGWC-124	0.005	0.005	0.01	No	11	90.91	No	0.006	NP (NDs)
Arsenic (mg/L)	HGWC-125	0.005	0.00081	0.01	No	8	75	No	0.004	NP (NDs)
Arsenic (mg/L)	HGWC-126	0.005	0.00071	0.01	No	8	75	No	0.004	NP (NDs)
Barium (mg/L)	HGWC-120	0.05172	0.04601	2	No	15	0	No	0.01	Param.
Barium (mg/L)	HGWC-121A	0.0824	0.06527	2	No	15	0	No	0.01	Param.
Barium (mg/L)	HGWC-124	0.07319	0.06712	2	No	15	0	No	0.01	Param.
Barium (mg/L)	HGWC-125	0.04698	0.04169	2	No	9	0	No	0.01	Param.
Barium (mg/L)	HGWC-126	0.2608	0.2237	2	No	9	0	No	0.01	Param.
Barium (mg/L)	MW-32	0.06217	0.05023	2	No	5	0	No	0.01	Param.
Barium (mg/L)	MW-39	0.06085	0.05715	2	No	4	0	No	0.01	Param.
Barium (mg/L)	MW-41	0.07551	0.05969	2	No	5	0	No	0.01	Param.
Chromium (mg/L)	HGWC-120	0.005	0.0015	0.1	No	15	80	No	0.01	NP (NDs)
Chromium (mg/L)	HGWC-121A	0.005	0.0005	0.1	No	15	93.33	No	0.01	NP (NDs)
Chromium (mg/L)	HGWC-124	0.005	0.00051	0.1	No	15	86.67	No	0.01	NP (NDs)
Chromium (mg/L)	HGWC-125	0.005	0.00052	0.1	No	9	66.67	No	0.002	NP (NDs)
Chromium (mg/L)	HGWC-126	0.005	0.00096	0.1	No	9	88.89	No	0.002	NP (NDs)
Chromium (mg/L)	MW-32	0.005	0.00058	0.1	No	5	80	No	0.031	NP (NDs)
Chromium (mg/L)	MW-41	0.005	0.0009	0.1	No	5	80	No	0.031	NP (NDs)
Cobalt (mg/L)	HGWC-120	0.003889	0.002898	0.038	No	15	0	No	0.01	Param.
Cobalt (mg/L)	HGWC-121A	0.005	0.0005	0.038	No	15	80	No	0.01	NP (NDs)
Cobalt (mg/L)	HGWC-125	0.01279	0.007031	0.038	No	9	0	No	0.01	Param.
Cobalt (mg/L)	MW-32	0.005359	0.002881	0.038	No	5	0	No	0.01	Param.
Cobalt (mg/L)	MW-39	0.002742	0.002308	0.038	No	4	0	No	0.01	Param.
Cobalt (mg/L)	MW-41	0.0012	0.00057	0.038	No	5	0	No	0.031	NP (normality)
Combined Radium 226 + 228 (pCi/L)	HGWC-120	1.138	0.614	5	No	14	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	HGWC-121A	1.221	0.4747	5	No	14	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	HGWC-124	0.9359	0.6159	5	No	14	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	HGWC-125	1.553	0.6976	5	No	8	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	HGWC-126	1.82	0.837	5	No	8	0	No	0.004	NP (normality)
Combined Radium 226 + 228 (pCi/L)	MW-32	2.155	-0.1841	5	No	4	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MW-41	2.085	-0.05149	5	No	4	0	No	0.01	Param.
Fluoride (mg/L)	HGWC-120	1.2	0.37	4	No	18	0	No	0.01	NP (normality)
Fluoride (mg/L)	HGWC-121A	0.23	0.14	4	No	16	0	No	0.01	NP (normality)
Fluoride (mg/L)	HGWC-124	0.15	0.05	4	No	16	37.5	No	0.01	NP (normality)
Fluoride (mg/L)	HGWC-125	0.1683	0.105	4	No	9	0	No	0.01	Param.
Fluoride (mg/L)	HGWC-126	0.4862	0.4294	4	No	9	0	sqrt(x)	0.01	Param.
Fluoride (mg/L)	MW-32	0.3747	0.2586	4	No	6	0	No	0.01	Param.
Fluoride (mg/L)	MW-39	0.3616	0.2464	4	No	5	0	No	0.01	Param.
Fluoride (mg/L)	MW-41	0.2754	0.1886	4	No	5	0	No	0.01	Param.
Fluoride (mg/L)	MW-46D	1.233	0.5472	4	No	4	0	No	0.01	Param.
Lead (mg/L)	HGWC-120	0.001	0.0002	0.001	No	15	80	No	0.01	NP (NDs)
Lead (mg/L)	HGWC-121A	0.001	0.00036	0.001	No	15	80	No	0.01	NP (NDs)
Lead (mg/L)	HGWC-124	0.001	0.000075	0.001	No	15	66.67	No	0.01	NP (NDs)
Lead (mg/L)	HGWC-125	0.001	0.000044	0.001	No	9	44.44	No	0.002	NP (normality)
Lead (mg/L)	HGWC-126	0.001	0.000042	0.001	No	9	66.67	No	0.002	NP (NDs)
Lithium (mg/L)	HGWC-120	0.03325	0.0277	0.032	No	15	0	x^5	0.01	Param.
Lithium (mg/L)	HGWC-121A	0.009124	0.007729	0.032	No	15	0	No	0.01	Param.
Lithium (mg/L)	HGWC-124	0.015	0.001	0.032	No	15	33.33	No	0.01	NP (normality)
Lithium (mg/L)	HGWC-125	0.005915	0.003691	0.032	No	9	0	sqrt(x)	0.01	Param.
Lithium (mg/L)	HGWC-126	0.004244	0.003133	0.032	No	9	0	No	0.01	Param.
Lithium (mg/L)	MW-32	0.03438	0.03002	0.032	No	5	0	No	0.01	Param.
Lithium (mg/L)	MW-39	0.03385	0.02872	0.032	No	5	20	x^4	0.01	Param.
Lithium (mg/L)	MW-41	0.03031	0.02649	0.032	No	5	0	No	0.01	Param.
Mercury (mg/L)	HGWC-120	0.0002	0.00007	0.002	No	11	81.82	No	0.006	NP (NDs)
Mercury (mg/L)	HGWC-124	0.0002	0.0002	0.002	No	11	90.91	No	0.006	NP (NDs)
Molybdenum (mg/L)	**HGWC-120**	**0.03817**	**0.02554**	**0.01**	**Yes**	**15**	**0**	**No**	**0.01**	**Param.**
Molybdenum (mg/L)	HGWC-124	0.005	0.00091	0.01	No	15	33.33	No	0.01	NP (normality)
Molybdenum (mg/L)	HGWC-125	0.00835	0.0005302	0.01	No	9	33.33	x^(1/3)	0.01	Param.
Molybdenum (mg/L)	**MW-32**	**0.06369**	**0.05917**	**0.01**	**Yes**	**7**	**0**	**No**	**0.01**	**Param.**
Molybdenum (mg/L)	**MW-39**	**0.064**	**0.012**	**0.01**	**Yes**	**6**	**0**	**No**	**0.0155**	**NP (normality)**
Molybdenum (mg/L)	**MW-41**	**0.04715**	**0.03205**	**0.01**	**Yes**	**5**	**0**	**No**	**0.01**	**Param.**
Molybdenum (mg/L)	MW-46D	0.03867	-0.01542	0.01	No	4	0	No	0.01	Param.

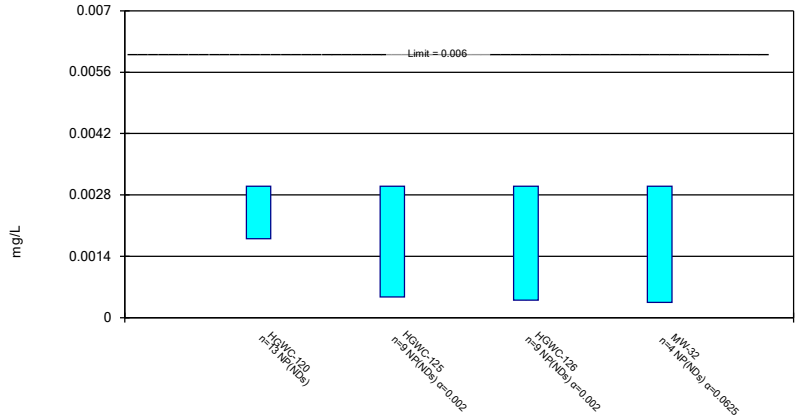
State Confidence Interval Summary Table - All Results

Plant Hammond Client: Southern Company Data: Hammond AP-3 Printed 12/14/2021, 3:34 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Selenium (mg/L)	HGWC-120	0.005	0.005	0.05	No	11	90.91	No	0.006	NP (NDs)
Selenium (mg/L)	HGWC-121A	0.005	0.005	0.05	No	11	90.91	No	0.006	NP (NDs)
Selenium (mg/L)	HGWC-124	0.005	0.005	0.05	No	11	90.91	No	0.006	NP (NDs)

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted.

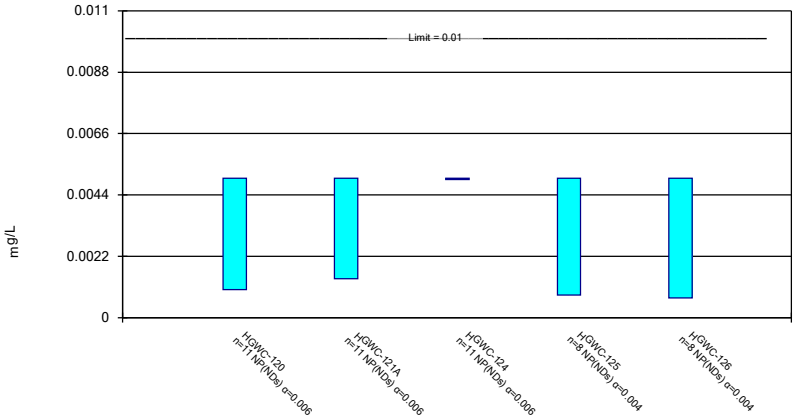


Constituent: Antimony Analysis Run 12/14/2021 3:30 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

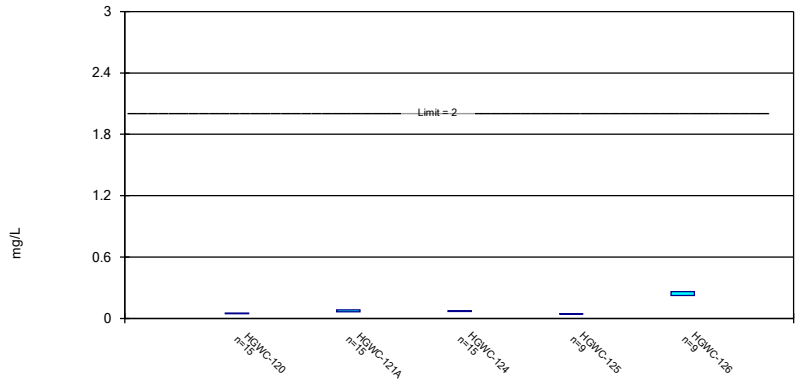


Constituent: Arsenic Analysis Run 12/14/2021 3:30 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

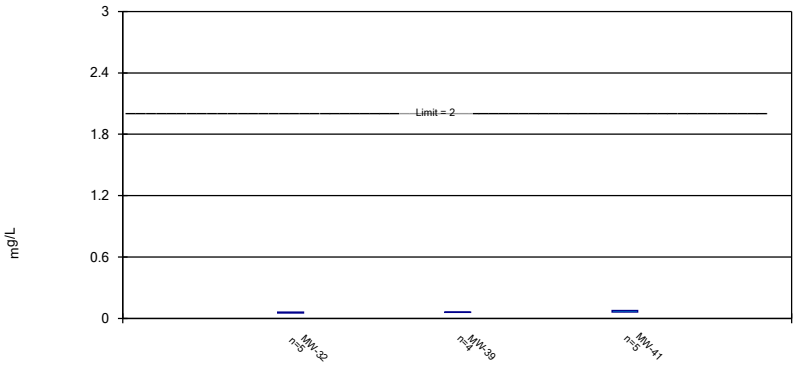


Constituent: Barium Analysis Run 12/14/2021 3:30 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

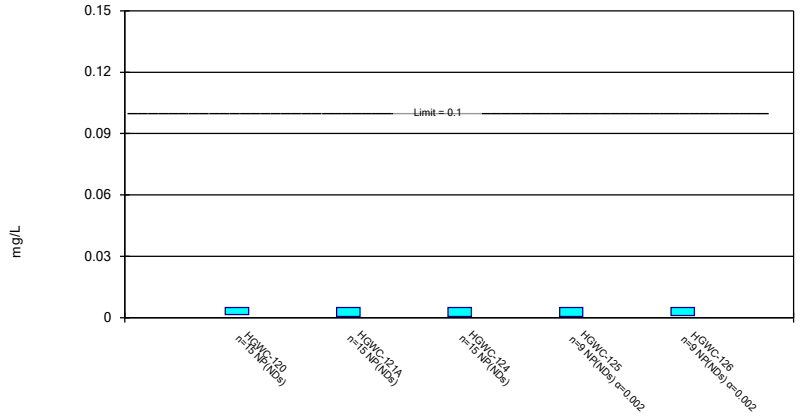


Constituent: Barium Analysis Run 12/14/2021 3:30 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted.



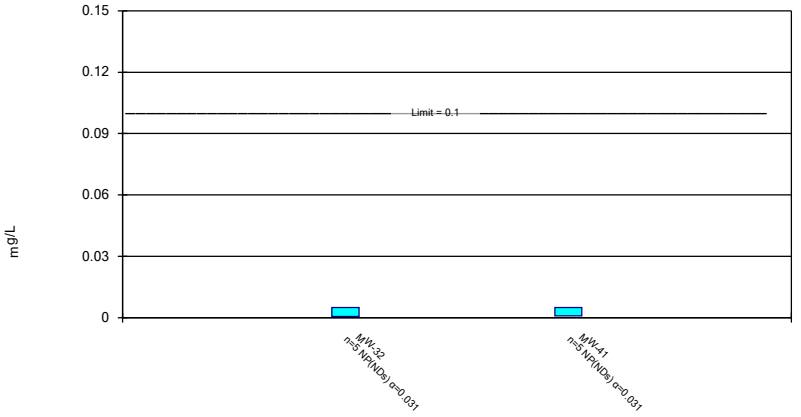
Constituent: Chromium Analysis Run 12/14/2021 3:31 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 Sanitas software utilized by Groundwater Stats Consulting. EPA

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



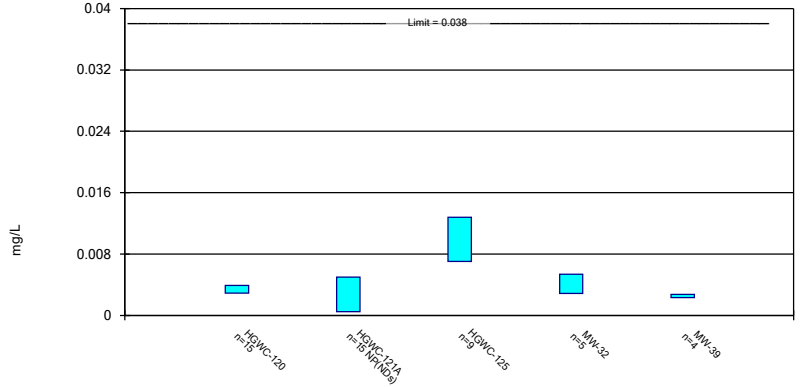
Constituent: Chromium Analysis Run 12/14/2021 3:31 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 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. Normality Test: Shapiro Wilk, alpha based on n.



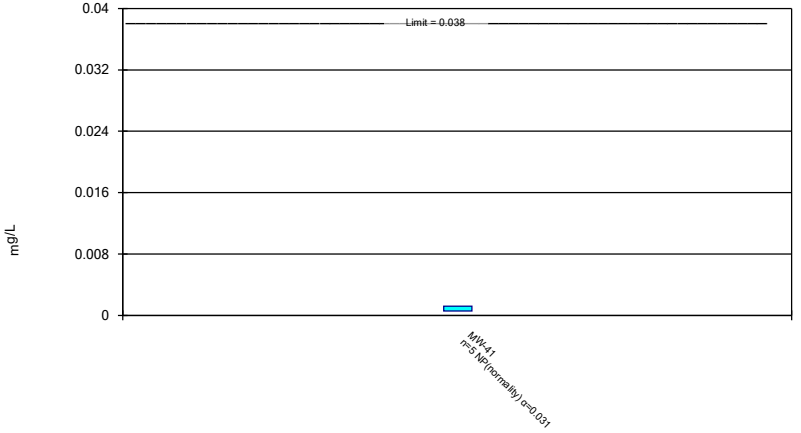
Constituent: Cobalt Analysis Run 12/14/2021 3:31 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 Sanitas software utilized by Groundwater Stats Consulting. EPA

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

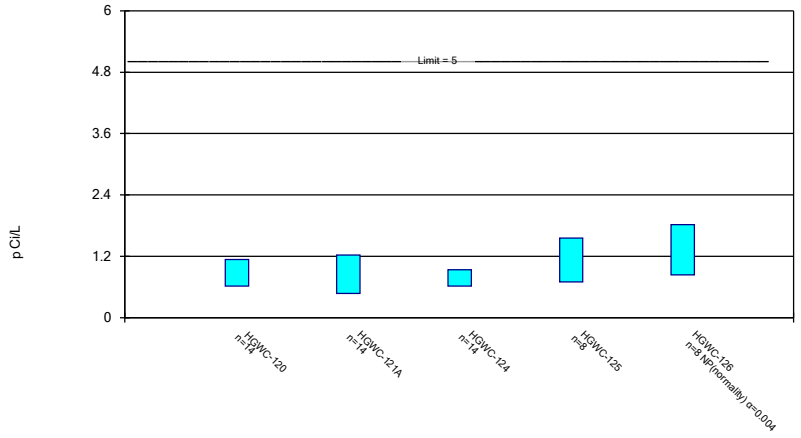


Constituent: Cobalt Analysis Run 12/14/2021 3:31 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

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.



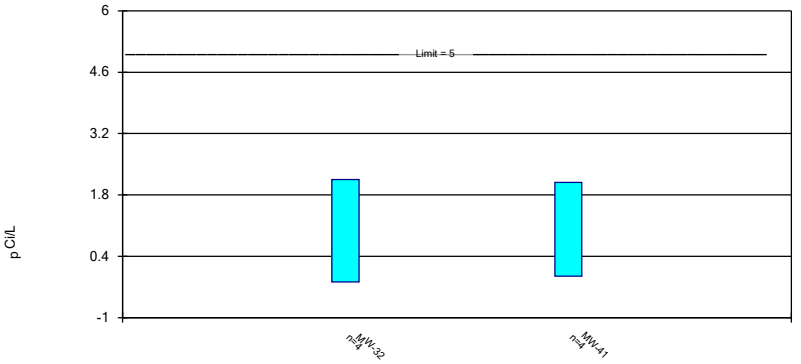
Constituent: Combined Radium 226 + 228 Analysis Run 12/14/2021 3:31 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 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.



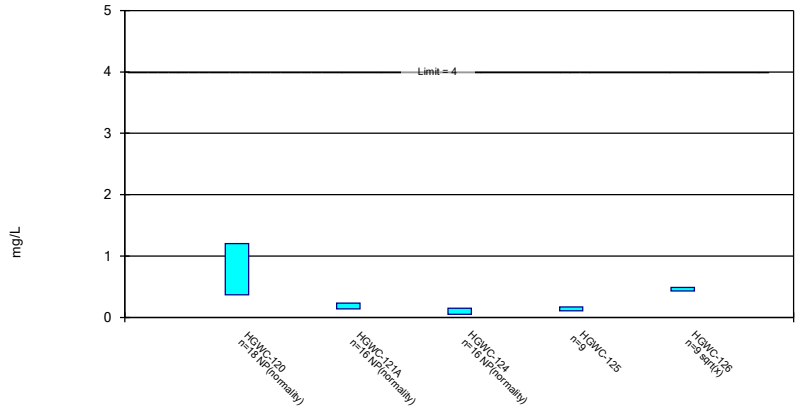
Constituent: Combined Radium 226 + 228 Analysis Run 12/14/2021 3:31 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 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. Normality Test: Shapiro Wilk, alpha based on n.



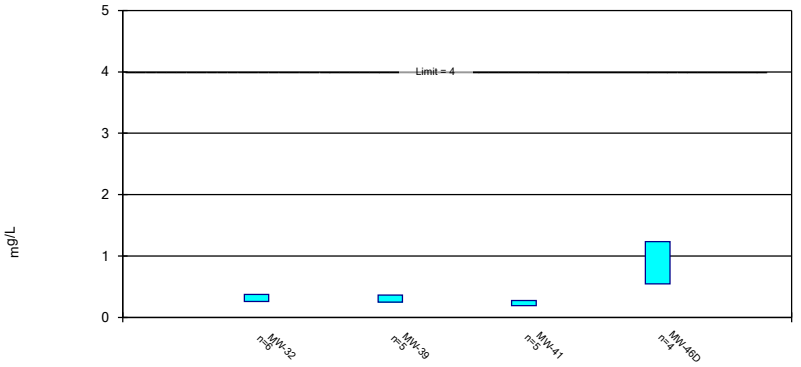
Constituent: Fluoride Analysis Run 12/14/2021 3:31 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 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.

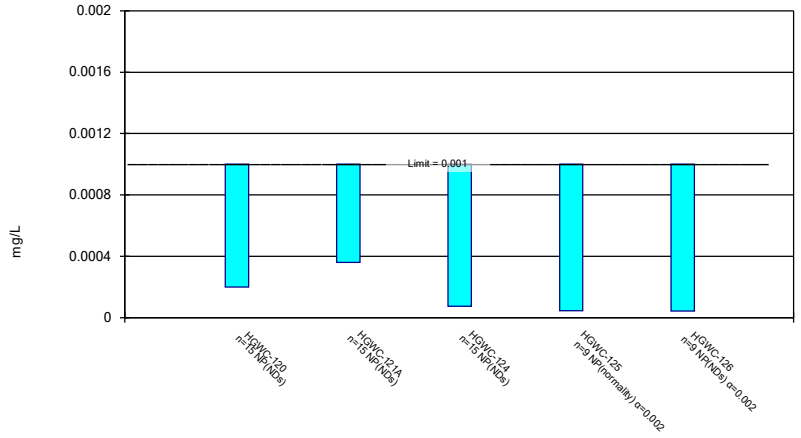


Constituent: Fluoride Analysis Run 12/14/2021 3:31 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted.

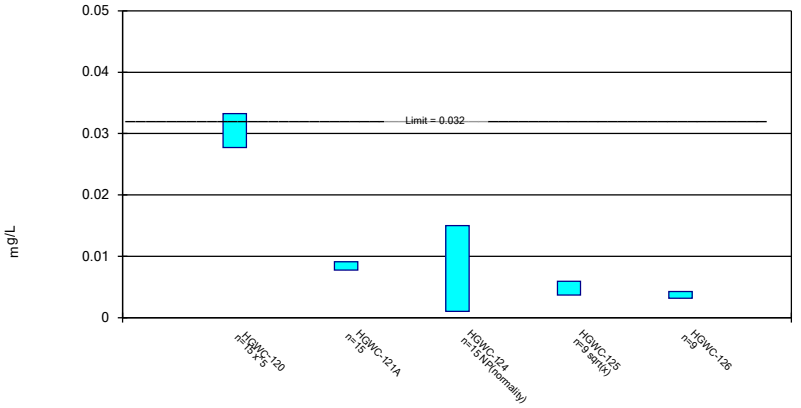


Constituent: Lead Analysis Run 12/14/2021 3:31 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

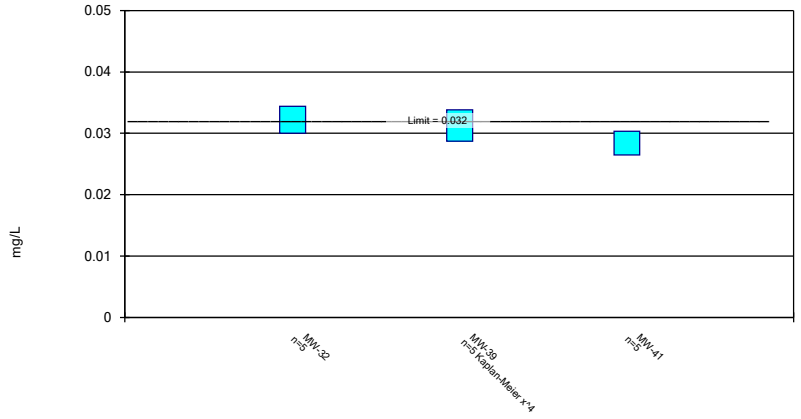


Constituent: Lithium Analysis Run 12/14/2021 3:31 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

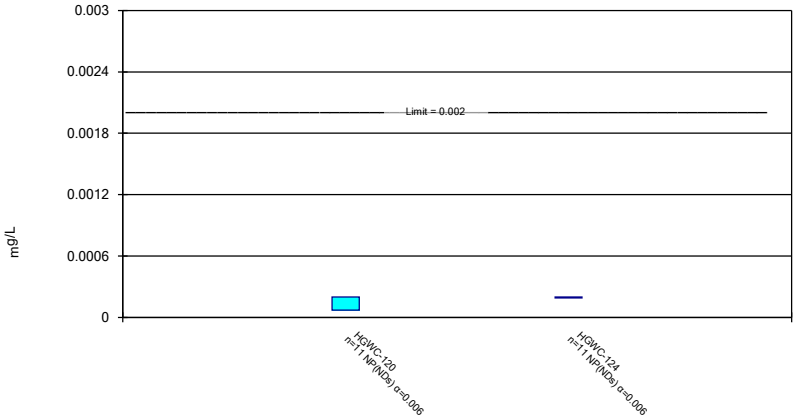


Constituent: Lithium Analysis Run 12/14/2021 3:31 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

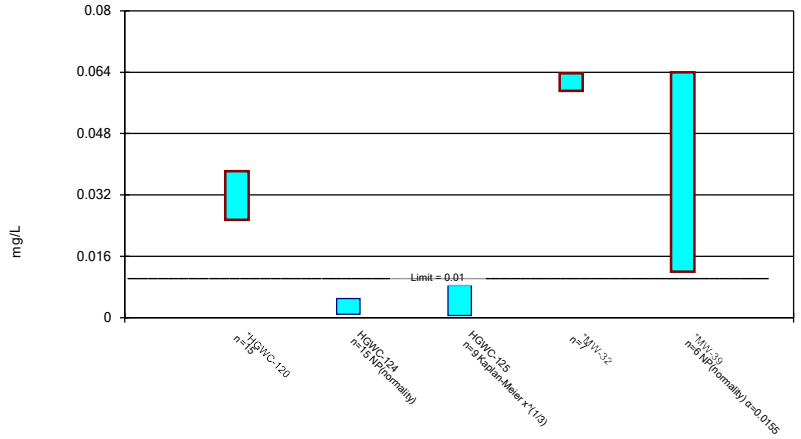


Constituent: Mercury Analysis Run 12/14/2021 3:31 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Parametric and Non-Parametric (NP) Confidence Interval

Compliance limit is exceeded.* Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



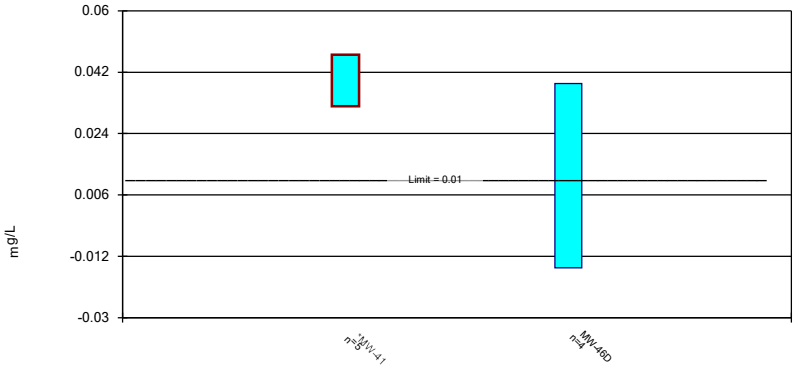
Constituent: Molybdenum Analysis Run 12/14/2021 3:31 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 Sanitas software utilized by Groundwater Stats Consulting. EPA

Parametric Confidence Interval

Compliance limit is exceeded.* Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



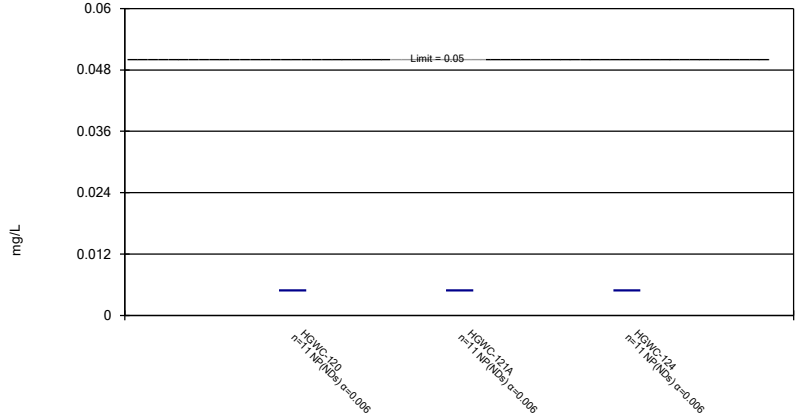
Constituent: Molybdenum Analysis Run 12/14/2021 3:31 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 Sanitas software utilized by Groundwater Stats Consulting. EPA

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



Constituent: Selenium Analysis Run 12/14/2021 3:31 PM

Plant Hammond Client: Southern Company Data: Hammond AP-3

FIGURE K.

Appendix IV Trend Tests - All Results (No Significant)

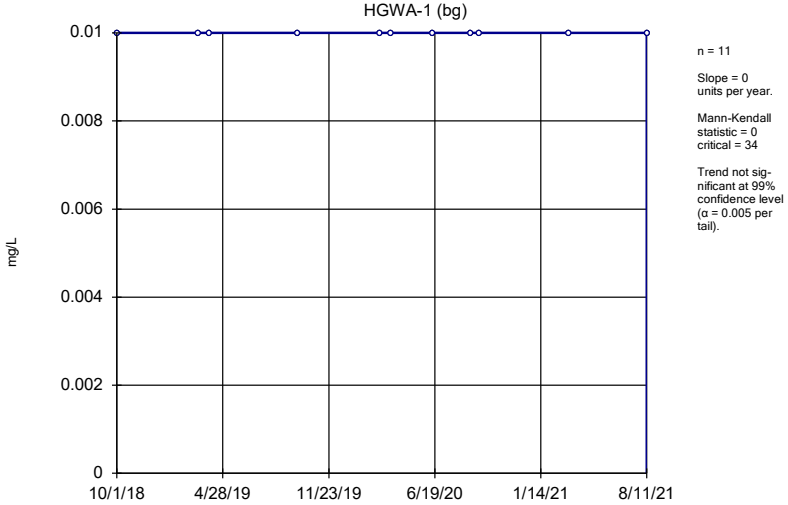
Plant Hammond Client: Southern Company Data: Hammond AP-3 Printed 1/31/2022, 1:11 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Molybdenum (mg/L)	HGWA-1 (bg)	0	0	34	No	11	100	n/a	n/a	0.01	NP
Molybdenum (mg/L)	HGWA-122 (bg)	-0.002326	-14	-21	No	8	12.5	n/a	n/a	0.01	NP
Molybdenum (mg/L)	HGWA-2 (bg)	0	0	30	No	10	100	n/a	n/a	0.01	NP
Molybdenum (mg/L)	HGWA-3 (bg)	0	0	34	No	11	100	n/a	n/a	0.01	NP
Molybdenum (mg/L)	HGWA-43D (bg)	-0.001527	-6	-14	No	6	0	n/a	n/a	0.01	NP
Molybdenum (mg/L)	HGWA-44D (bg)	0.001043	6	14	No	6	16.67	n/a	n/a	0.01	NP
Molybdenum (mg/L)	HGWA-45D (bg)	0.006769	7	14	No	6	16.67	n/a	n/a	0.01	NP
Molybdenum (mg/L)	HGWC-120	-0.0006924	-2	-21	No	8	0	n/a	n/a	0.01	NP
Molybdenum (mg/L)	MW-32	0.0006155	3	18	No	7	0	n/a	n/a	0.01	NP
Molybdenum (mg/L)	MW-39	0.001127	6	14	No	6	0	n/a	n/a	0.01	NP
Molybdenum (mg/L)	MW-41	0.006357	6	12	No	5	0	n/a	n/a	0.01	NP

Sanitas™ v.9.6.32 Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWA-1 (bg)



n = 11

Slope = 0 units per year.

Mann-Kendall statistic = 0 critical = 34

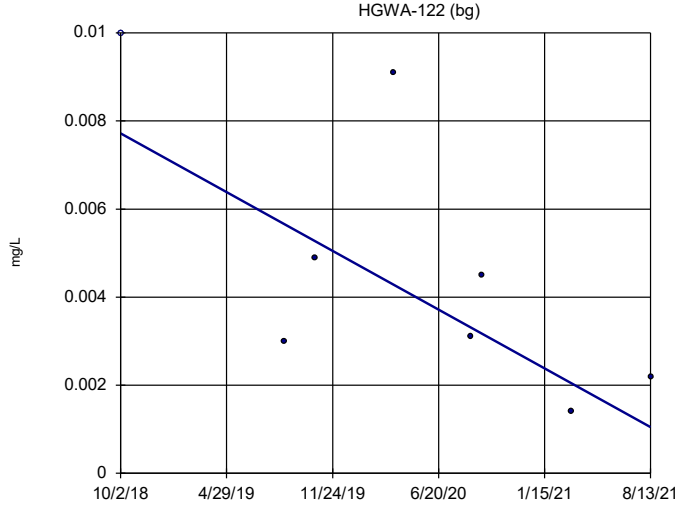
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Molybdenum Analysis Run 1/31/2022 1:10 PM View: Appendix IV Trend Tests
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWA-122 (bg)



n = 8

Slope = -0.002326 units per year.

Mann-Kendall statistic = -14 critical = -21

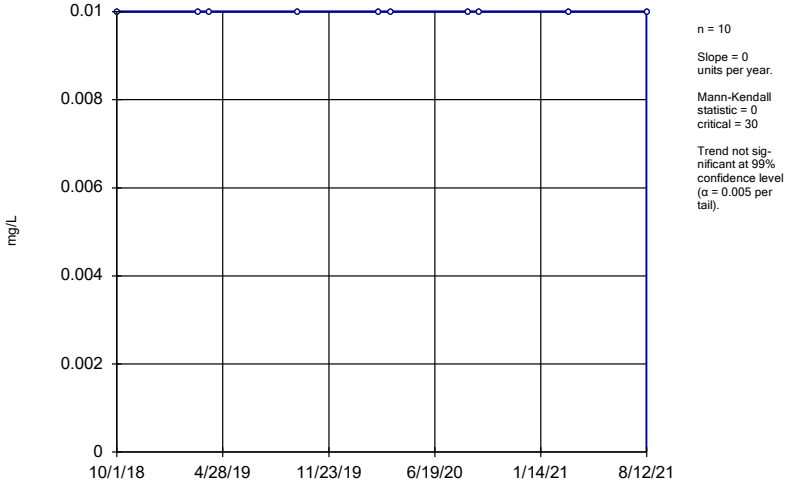
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Molybdenum Analysis Run 1/31/2022 1:10 PM View: Appendix IV Trend Tests
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWA-2 (bg)



n = 10

Slope = 0 units per year.

Mann-Kendall statistic = 0 critical = 30

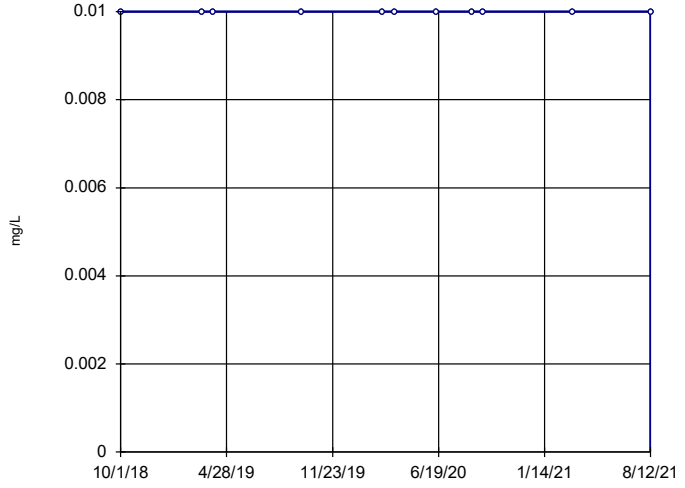
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Molybdenum Analysis Run 1/31/2022 1:10 PM View: Appendix IV Trend Tests
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWA-3 (bg)



n = 11

Slope = 0 units per year.

Mann-Kendall statistic = 0 critical = 34

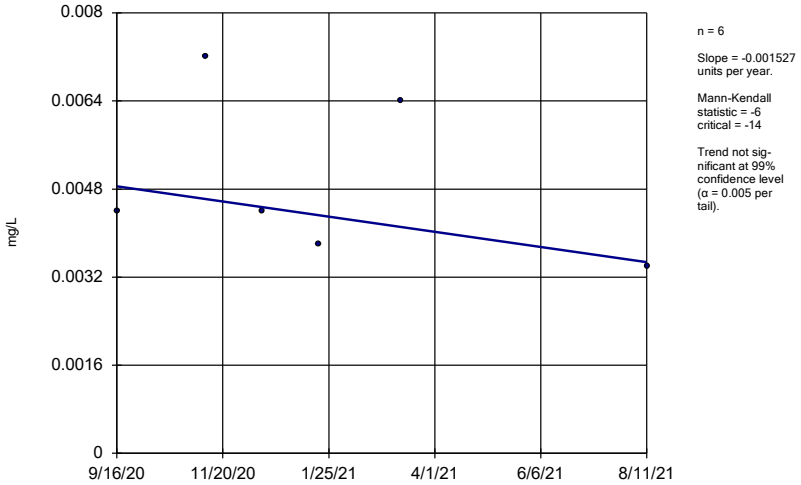
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Molybdenum Analysis Run 1/31/2022 1:10 PM View: Appendix IV Trend Tests
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 Groundwater Stats Consulting. UG

Sen's Slope Estimator

HGWA-43D (bg)



n = 6

Slope = -0.001527 units per year.

Mann-Kendall statistic = -6
critical = -14

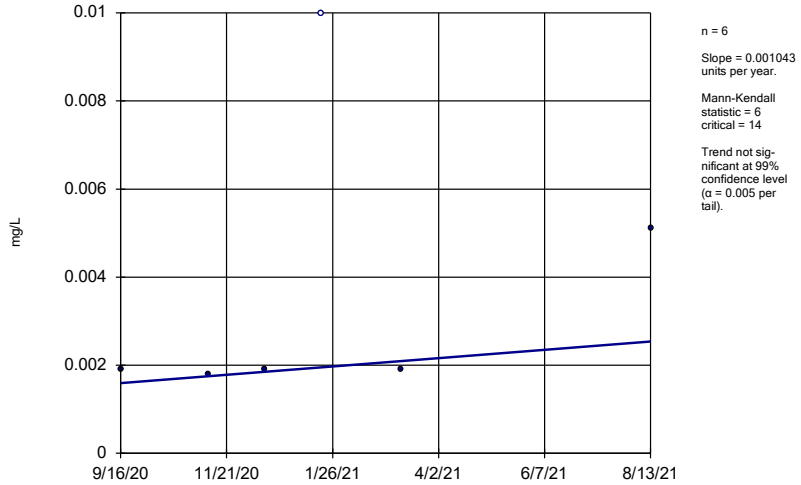
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Molybdenum Analysis Run 1/31/2022 1:10 PM View: Appendix IV Trend Tests
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWA-44D (bg)



n = 6

Slope = 0.001043 units per year.

Mann-Kendall statistic = 6
critical = 14

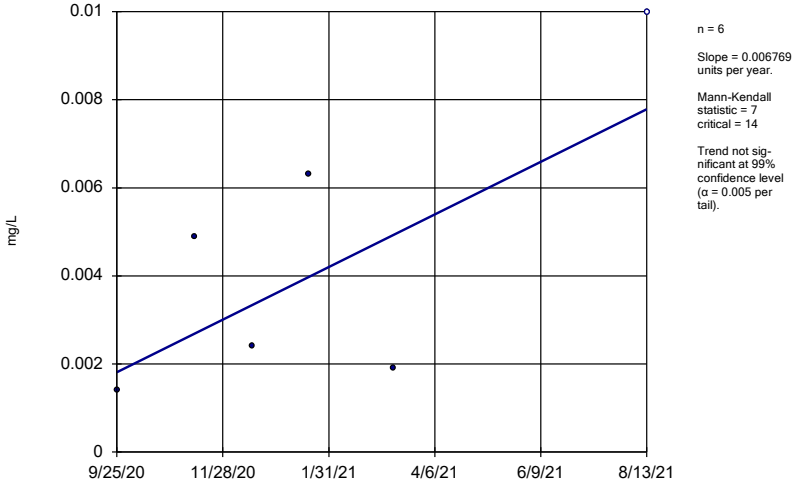
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Molybdenum Analysis Run 1/31/2022 1:10 PM View: Appendix IV Trend Tests
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

HGWA-45D (bg)



n = 6

Slope = 0.006769 units per year.

Mann-Kendall statistic = 7
critical = 14

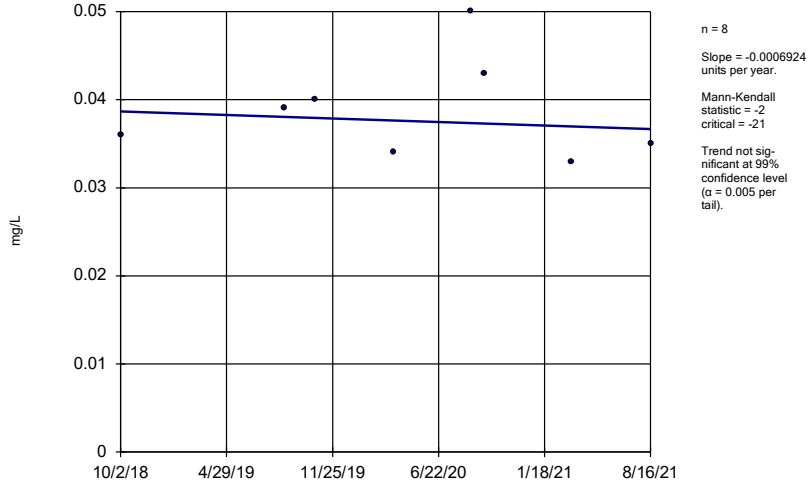
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Molybdenum Analysis Run 1/31/2022 1:10 PM View: Appendix IV Trend Tests
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 Groundwater Stats Consulting. UG

Sen's Slope Estimator

HGWC-120



n = 8

Slope = -0.0006924 units per year.

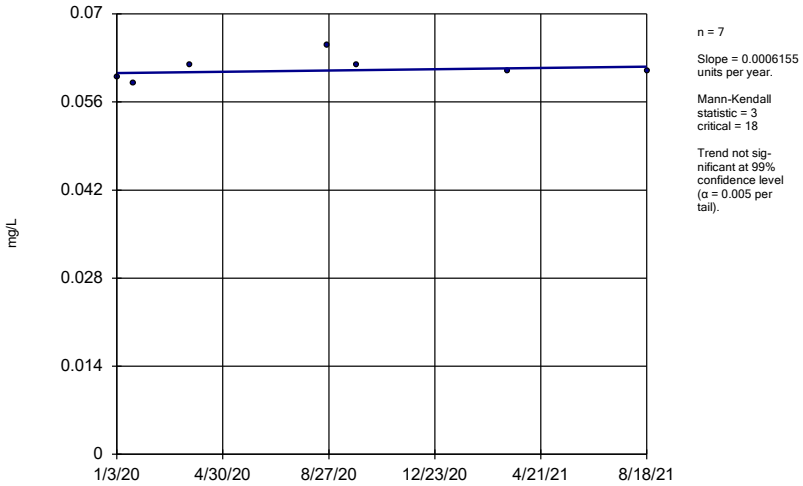
Mann-Kendall statistic = -2
critical = -21

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Molybdenum Analysis Run 1/31/2022 1:10 PM View: Appendix IV Trend Tests
Plant Hammond Client: Southern Company Data: Hammond AP-3

Sen's Slope Estimator

MW-32



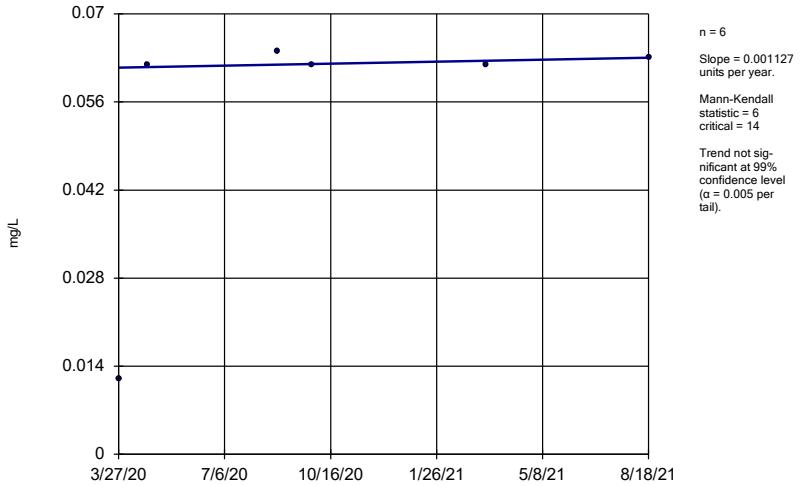
Constituent: Molybdenum Analysis Run 1/31/2022 1:10 PM View: Appendix IV Trend Tests

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 Groundwater Stats Consulting. UG

Sen's Slope Estimator

MW-39



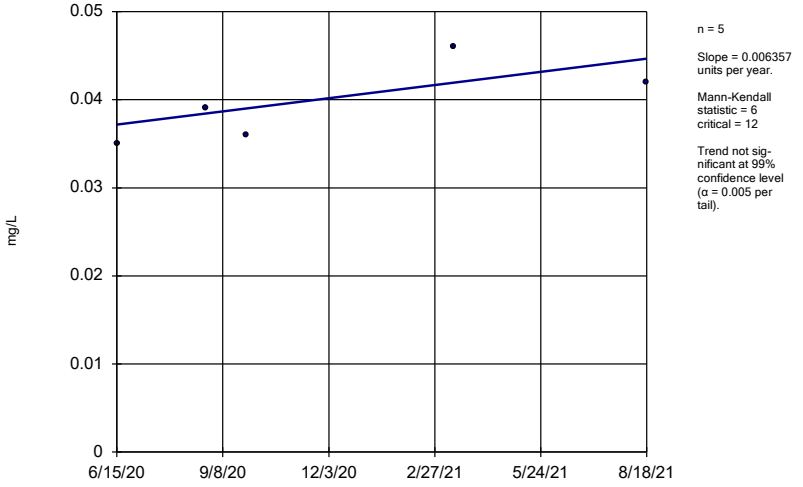
Constituent: Molybdenum Analysis Run 1/31/2022 1:10 PM View: Appendix IV Trend Tests

Plant Hammond Client: Southern Company Data: Hammond AP-3

Sanitas™ v.9.6.32 Groundwater Stats Consulting. UG

Sen's Slope Estimator

MW-41



Constituent: Molybdenum Analysis Run 1/31/2022 1:10 PM View: Appendix IV Trend Tests

Plant Hammond Client: Southern Company Data: Hammond AP-3