

REPORT

2019 Semi-Annual Groundwater Monitoring and Corrective Action Report

Georgia Power Company - Plant Branch Ash Pond E

Submitted to:



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Certification Statement

This 2019 Semi-Annual Groundwater Monitoring & Corrective Action Report, Georgia Power Company Plant Branch Ash Pond E (AP-E) has been prepared in compliance with the Georgia Environmental Protection Division Rules for Solid Waste Management 391-3-4-.10(6)(a-c) by a qualified groundwater scientist with Golder Associates.

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1.0 INTRODUCTION

In accordance with the Georgia Environmental Protection Division (GA EPD) Rules of Solid Waste Management 391-3-4-.10(6)(a)-(c), this *2019 Semi-Annual Groundwater Monitoring and Corrective Action Report* has been prepared to document groundwater monitoring activities conducted at Georgia Power Company's (GPC's) Plant Branch Ash Pond E, referred to as AP-E. To specify groundwater monitoring requirements, GA EPD rule 391-3-4-.10(6)(a) incorporates by reference the United States Environmental Protection Agency (US EPA) Coal Combustion Residuals (CCR) Rule 40 Code of Federal Regulations (CFR) § 257.90 through 257.91 and 257.93 through 257.94. This report documents the activities completed July 1 through December 31, 2019 following the requirements of the site's groundwater monitoring program and in accordance with § 257.90(e) and Georgia EPD rule 391-3-4-.10(6)(a). For ease of reference, the US EPA CCR rules are cited within this report.

Two monitoring events were conducted during this monitoring period: (1) an initial assessment monitoring event was conducted in August 2019 as a result of statistical exceedances during the first detection monitoring event, and (2) the subsequent assessment event conducted in October 2019, which served as the semi-annual compliance monitoring event for the year. This report documents the activities completed through the second half of 2019.

1.1 Site Description and Background

Plant Branch is located in Putnam County, GA, approximately 8 miles north of Milledgeville. The property occupies approximately 3,200 acres and is bounded on the south and east by Lake Sinclair, which is an approximate 15,330-acre hydroelectric reservoir that was created in 1953 by the impoundment of the Oconee River. A site location map and a detailed site map is included as Figure 1.

Plant Branch formerly operated as a coal-fired power plant since the 1960s until its retirement in 2015. Plant Branch is no longer active and is currently being decommissioned. During its operation, five ash ponds were used for management of the CCR on the plant property. These CCR ponds are identified as Ponds A, B, C, D, and E. Ash Pond A, the first ash pond constructed at the Site, was taken out of service in the late 1960's and was closed in April 2016 by the removal and relocation of its stored CCR to Ash Pond E. Ponds B, C, D, and E are currently inactive, and will be closed by removal by relocation of the stored CCR material to a proposed fully lined landfill located on the plant property. This report documents the groundwater monitoring program at the unit AP-E.

Plant Branch ceased producing electricity prior to April 2015. Therefore, Ash Pond E is not subject to the Federal CCR Rule. A CCR Unit Solid Waste Handling Permit application for AP-E was submitted to GA EPD in November 2018 and is currently under review.

1.2 Site Geology and Hydrogeologic Setting

The following section and subsections include a general description of regional geologic and hydrogeologic characteristics of formations that occur beneath the site. Information presented in this section is based on published literature, discussion with local geologic experts, and experience working in this geologic terrain.

The site is located within the Piedmont Physiographic Province of central Georgia, which is characterized by gently rolling hills and narrow valleys, with locally pronounced linear ridges. Overall, the property slopes gently east and south toward Beaverdam Creek and Lake Sinclair. The metamorphic and igneous rocks that underlie the area have been subjected to physical and chemical weathering which has created a landscape dissected by creeks and streams forming a dendritic drainage pattern. These rocks are deeply weathered due to the humid

climate and bedrock is typically overlain by a variably thick blanket of residual soils and saprolite. The overall depth of weathering in the Piedmont/Blue Ridge is generally about 20 to 60 feet; however, the depth of weathering along discontinuities and/or very feldspathic rock units may extend to depths greater than 100 feet. Because of such variations in rock types and structure, the depth of weathering can vary significantly over short horizontal distances.

The near surface conditions were determined based upon available boring and monitoring well installation logs. Based on our review of this information, micaceous, locally saprolitic soils, consisting primarily of clay, silty clay, silt, and sandy clay occur as a variably thick blanket of residuum overlying bedrock across most of the site. The thickness of the residual soil encountered in the borings is variable, ranging from approximately 11 feet to as much as 74 feet. Saprolitic soils and/or saprolitic rock vary in thickness across the site but are generally encountered at or near ground surface. Saprolitic rock is also considered to be transitionally weathered rock (TWR) or partially weathered rock (PWR), as defined by standard penetration test data, where available. Material overlying the top of rock surface, including residual soils, saprolite, and transitionally weathered rock, is collectively referred to as overburden or regolith.

1.3 Groundwater Monitoring Well Network

Pursuant to § 257.91 of the CCR rule and 391-3-4-.10(6), a groundwater monitoring system was installed within the uppermost aquifer at AP-E. Wells placed in upgradient, and downgradient locations based on groundwater flow direction as determined by the potentiometric surface elevation contour maps.

A network of 12 monitoring wells were installed between 2014 to 2018 for groundwater monitoring in proximity to AP-E. Table 1, Monitoring Well Network Summary includes the pertinent construction details for the AP-E monitoring well network at Plant Branch.

Based on the site hydrogeology, the monitoring system is designed to monitor groundwater flow in the overburden, the transition-zone, and the upper bedrock as a single inter-connected aquifer system. Wells suffixed with an "S" are installed in overburden (saprolitic soil), an "I" indicates transitionally weathered rock (transition zone), and "D" indicates upper bedrock. Groundwater in the overburden, partially weathered rock, fractured bedrock, and the materials comprise a single uppermost aquifer based on site hydrogeologic conditions.

2.0 GROUNDWATER MONITORING ACTIVITIES

The following section describes monitoring-related activities performed during the previous semi-annual monitoring period (July 1 through December 31, 2019). Groundwater sampling was performed in accordance with § 257.93 and EPD rule 391-3-4-.10(6)(a). Samples were collected from each well in the certified monitoring system for the CCR unit. The location of each of these monitoring wells is shown on Figure 2.

Pursuant to § 257.90(e)(3), Table 2, Groundwater Sampling Event Summary, presents a summary of groundwater sampling events completed for AP-E.

2.1 Monitoring Well Installation and Maintenance

For this reporting period, monitoring well-related activities included the following:

Visual inspection of well conditions prior to sampling, recording the site conditions, and performing exterior maintenance to perform sampling under safe and clean conditions. Installation of additional site piezometers as part of ongoing site investigations. Additional piezometers installed at Plant Branch are documented in a report, *Piezometer Installation Report, Georgia Power Company – Plant Branch, Milledgeville, Georgia*, dated September 26, 2018, and *Piezometer Installation Report for Surface Impoundment Georgia Power Plant Branch, Milledgeville, Georgia*, dated May 31, 2018. Each of these installation reports are included in Appendix A, Well/Piezometer Installation Reports.

2.2 Initial Assessment Monitoring

Statistically Significant Increases (SSI) of Appendix III constituents were identified in the initial detection monitoring event (March 2019). Pursuant to §257.94(e)(3), an assessment monitoring program has been initiated for AP-E at Plant Branch based on statistically significant increases documented in the 2019 Annual Groundwater Monitoring and Corrective Action Report, (Golder 2019). A notice of assessment monitoring was placed in the operation record on November 13, 2019.

Groundwater sampling events were conducted for AP-E during August and October 2019. Resampling events were also completed during November and December 2019 due to laboratory error. During the initial assessment sampling event in August 2019, groundwater samples were collected and analyzed for Appendix IV to meet the requirement of §257.95(b). During the October 2019 semi-annual sampling event, groundwater samples from each detection monitoring well were collected for analysis of Appendix III, and the Appendix IV constituents detected during the August 2019 event. Results of sampling activities conducted in 2019 are presented in Appendix B, Analytical Results, Field Data Forms, and Data Validation Summaries. Due to laboratory error, resampling of selected wells and constituents were completed during November and December 2019.

3.0 SAMPLE METHODOLOGY AND ANALYSIS

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

3.1 Groundwater Elevation Measurement

Prior to each sampling event, groundwater elevations were recorded from the monitoring well network. Groundwater elevations are summarized in Table 3, Summary of Groundwater Elevations. The October 2019 elevation data were used to develop potentiometric surface elevation contour map (Figure 3, AP-E Potentiometric Surface Elevation Contour Map – October 2019). The general direction of groundwater flow across AP-E is to the east-northeast and east-southeast towards Beaverdam Creek and other natural streams onsite. This groundwater flow pattern is consistent with previous observations.

3.2 Groundwater Gradient and Flow Velocity

Groundwater flow rates at the site were calculated based on hydraulic gradients, hydraulic conductivity from previous slug test results, and an estimated effective porosity of the screened horizon. Based on slug test data at the site, hydraulic conductivity ranges from 2.7 to 5.5 feet per day, which is used in the flow calculations. The hydraulic gradient was calculated between well pairs shown on Table 4, Groundwater Flow Velocity Calculations – October 2019. An effective porosity of 0.20 was used based on the default values for effective porosity recommended by USEPA for a silty sand-type soil (USEPA, 1996).

Horizontal flow velocity was calculated using the commonly used derivative of Darcy's Law:

Where:	-	Groundwater flowvelocity
	K=	Average hydraulic conductivity of the aquifer $\left(\frac{foor}{day}\right)$
	<i>i</i> =	Horizontal hydraulic gradient ^(feer)
		Effective porosity

Using this equation, groundwater flow velocities are calculated for various areas of the site and are tabulated on Table 4. Table 4 presents the velocities calculated using groundwater elevation data from the October 2019 sampling event.

As presented on Table 4 groundwater flow velocity at the site ranges from approximately 0.07 to 0.29 feet per day (or approximately 25 to 107 feet per year) across AP-E. The observed groundwater flow velocities calculated for this monitoring event are also generally consistent with expected velocities in the regolith-upper bedrock aquifers of Georgia Piedmont and confirm the groundwater monitoring system as properly located to monitor the uppermost aquifer for AP-E at Plant Branch.

3.3 Groundwater Sampling

Groundwater samples were collected during August and October with resampling events conducted in November and December 2019 in accordance with §257.93(a) and 391-3-4-.10(6). Monitoring wells were purged and sampled using low-flow sampling procedures. Dedicated and/or non-dedicated low-flow pneumatic bladder pumps or peristaltic pumps were used to purge and sample the wells. During the purging of each well, field measurements of temperature, specific conductance, dissolved oxygen (DO), pH, and oxidation-reduction potential (ORP), were recorded using a SmarTroll (In-Situ field instrument) along with a separate turbidity meter to verify stabilization.

Groundwater samples were collected when the following general stabilization criteria were met:

- 0.1 standard units for pH
- 5% for specific conductance
- ±10% for DO where DO>0.5 mg/L; if DO<0.5 milligrams per liter (mg/L, no stabilization criteria apply
- Turbidity measurements less than 5 nephelometric turbidity units (NTU)

Any deviation from stabilization criteria, if applicable, is identified on field sampling forms. Following well stabilization, unfiltered samples were collected directly into appropriately preserved laboratory supplied sample containers, placed in iced coolers, and submitted to the laboratory following standard chain-of-custody protocol. Field information forms generated directly from the SmarTroll® as well as chain-of-custody records are included in Appendix B.

Where sample turbidity was greater than 5 NTU and all other stabilization criteria were met, samplers continued purging for up to 3 additional hours in order to reduce the turbidity to 5 NTU or less. When turbidity remained above 5 NTU but was less than 10 NTU, and all other parameters are stabilized, the well was sampled. Where turbidity remained above 10 NTU, an additional unfiltered sample was collected followed by a filtered sample that has passed through an in-line 0.45-micron filter attached to the discharge (sample collection) tube. The unfiltered sample data are used for compliance monitoring and in the statistical analysis database. Filtered sample data are

used to assess the impacts of turbidity on groundwater quality. Additional details regarding filtered samples are recorded on the field information form and filtered samples are clearly identified as "filtered" on the laboratory reports.

3.4 Laboratory Analyses

Groundwater samples were collected in August and analyzed for Appendix IV monitoring parameters only. Samples collected during October, November and December 2019 were submitted for analysis of Appendix III and detected Appendix IV parameters. Analytical methods used for groundwater monitoring parameters can be found on the attached analytical data reports in Appendix B.

Laboratory analyses for these assessment monitoring events were performed by Pace Analytical (Pace) in Atlanta, Georgia and Greensburg, Pennsylvania. Pace is accredited by National Environmental Laboratory Accreditation Program (NELAP) and maintain a NELAP certification for all parameters analyzed for this project. NELAP certification for Pace from 2016 through 2019 are provided in Appendix B. Groundwater data and chain of custody records for the monitoring events are presented in Appendix B.

3.5 Quality Assurance and Quality Control

During each sampling event, quality assurance/quality control samples (QA/QC) are collected at a rate of one sample per every 10 samples. Equipment blanks (where non-dedicated sampling equipment is used), field blanks, and duplicate samples were also collected during each sampling event. QA/QC sample data was evaluated during data validation and is included in Appendix B.

Groundwater quality data in this report was independently validated in accordance with USEPA guidance (USEPA, 2011) and the analytical methods. Data validation generally consisted of reviewing sample integrity, holding times, laboratory method blanks, laboratory control samples, matrix spikes/matrix spike duplicate recoveries and relative percent differences, post digestions spikes, laboratory and field duplicate relative percent difference (RPDs), field and equipment blanks, and reporting limits. Where appropriate, validation qualifiers and flags are applied to the data using USEPA procedures as guidance (USEPA, 2017). Data validation summary reports prepared by Environmental Standards and Golder are included in Appendix B. Flagged data are identified in the statistical analysis reports described in the following section.

4.0 STATISTICAL ANALYSES

Statistical analysis of Appendix III groundwater monitoring data was performed pursuant to § 257.93 following the established statistical method for AP-E. Pursuant to § 257.95(d)(2) GPC will establish groundwater protection standards for the Appendix IV monitoring parameters and complete statistical analysis of the Appendix IV groundwater monitoring data obtained during the first semi-annual assessment monitoring event within 90 days of obtaining the results. GPC will complete the assessment monitoring and statistical analysis in accordance with § 257.95 and report the results in the Annual Groundwater Monitoring and Corrective Action Report, due August 1, 2020.

Sanitas groundwater statistical software was used to perform the statistical analyses at the site. Sanitas is a decision support software package that incorporates the statistical tests required of Subtitle C and D facilities by US EPA regulations and guidance as recommended in the Unified Guidance (USEPA, 2009) document.

4.1 Statistical Method

The selected statistical method for AP-E was developed in accordance with § 257.93(f) and 391-3-4-.10(6) using methodology presented in Statistical Analysis of Groundwater Data at RCRA Facilities, Unified Guidance (USEPA, 2009). 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 (2009) document.

Groundwater quality data were evaluated through use of interwell prediction limits for Appendix III parameters. Using this method, upgradient well data was pooled to establish a background statistical limit. Data from the March 2019 detection monitoring event are compared to the statistical limit to determine whether any concentrations exceed background levels. The selected statistical method uses an optional 1-of-2 verification resample plan. When an initial statistically significant increase (SSI) or questionable result occurs, a second sample may be collected to verify the initial result or determine if the result was an outlier.

If resampling is performed and the initial finding is not verified by resampling, the resampled value replaced the initial finding. When the resample confirms the initial finding, both values remain in the database and an SSI is declared. The Sen's Slope/Mann Kendall trend test was used to statistically evaluate concentration levels over time and determine whether concentrations are increasing, decreasing, or stabilizing.

TABLE 4.1.1 PLANT BRAN	CH AP-E STATISTICAL METHOD SUMMAR	RY				
Monitoring Well Network	Upgradient Wells	BRGWA-2S, BRGWA-2I, BRGWA-5S, BRGWA-5I, BRGWA-6S				
	Downgradient Wells	BRGWC-17S, BRGWC-33S, BRGWC- 34S, BRGWC-35S, BRGWC-36S, BRGWC-37S, and BRGWC-38S				
	Appendix III (Detection Monitoring)	Boron, Calcium, Chloride, Fluoride, pH, Sulfate, Total Dissolved Solids (TDS)				
CR Monitoring Parameters	Appendix IV (Assessment Monitoring)	Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Mercury, Molybdenum, Selenium, Thallium, Radium (226+228)				
	Data Screening on Proposed Background	Evaluate outliers, trends, and seasonality when sufficient data are available				
	Statistical Limits	Interwell statistical limits will be applied on a constituent basis, depending on the appropriateness of the method as determine by the Analysis of Variance.				
	Prediction Limits	Parametric when data follow a normal or transformed normal distribution and when let than 50% non-detects, utilizing Kaplan Meie non-detect adjustment when applicable; nonparametric when data sets contain great than 50% non-detects or when data are not normally or transformed-normally distributed				

Table 4.1.1 Plant Branch AP-E Statistical Method Summary provides a summary of the statistical methodology used at AP-E for the first detection monitoring conducted in March 2019 and will be used for any routine detection monitoring in the future.

TABLE 4.1.1 PLANT BRANC	H AP-E STATISTICAL METHOD SUMMAR	Y				
	Confidence Intervals	Used in Assessment and Corrective Action monitoring.				
	No Statistical Testing	Statistical testing is not required for parameters with 100% non-detects.				
	Verification Resample Plan	1-of-2 with minimum of 8 samples per well for interwell testing.				
	Optional	 Initial statistical exceedance warrants independent resampling within 90 days. If resample passes, well/parameter is not a confirmed statistically significant increase (SSI). If resample exceeds, well/parameter has a confirmed SSI. If no resample is collected, the original result is deem verified. 				

The following guidance is also applicable to the statistical analysis method:

- Statistical analyses are not performed on analytes containing 100% non-detects (USEPA Unified Guidance, 2009, Chapter 6).
- When data contain less than or equal to 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 practical quantitation limit (PQL) as reported by the laboratory.
- When data contain between 15-50% non-detects, a non-detect adjustment such as the Kaplan-Meier or Regression on Order Statistics (ROS) method for adjustment of the mean and standard deviation will be used prior to constructing a parametric prediction limit.
- Nonparametric prediction limits are used on data containing greater than 50% non-detects.

4.2 Statistical Analysis Results – Appendix III

Analytical data from the semi-annual assessment monitoring event in October 2019 at AP-E have been statistically analyzed in accordance with the site's Statistical Analysis Plan. Resampling was conducted in November and December 2019 due to laboratory error. The statistical results of the October 2019 monitoring event and resampling events are included in Appendix C, Statistical Analyses.

The verified SSIs are presented in Table 4.2.1 AP-E Inter-Well Prediction Limit Statistically Significant Increase Summary.

TABLE 4.2.1 AP-E Inter-We	TABLE 4.2.1 AP-E Inter-Well Prediction Limit Statistically Significant Increase Summary											
Appendix III Parameter	AP-E Monitoring Wells											
Boron	BRGWC-33S, BRGWC-34S, BRGWC-35S, BRGWC-36S, BRGWC-38S											
Calcium	BRGWC-17S, BRGWC-33S, BRGWC-34S, BRGWC-35S, BRGWC-36S, BRGWC-38S											
Chloride	BRGWC-33S, BRGWC-34S, BRGWC-35S, BRGWC-36S, BRGWC-38S											

Fluoride	BRGWC-38S
рН	BRGWC-33S, BRGWC-34S, BRGWC-36S, BRGWC-38S
Sulfate	BRGWC-17S, BRGWC-33S, BRGWC-34S, BRGWC-35S, BRGWC-36S, BRGWC-38S
Total Dissolved Solids	BRGWC-17S, BRGWC-34S, BRGWC-35S, BRGWC-36S, BRGWC-38S

Pursuant to §257.94(e)(3), an assessment monitoring program was established for AP-BCD at Plant Branch based on statistically significant increases documented in the *2019 Annual Groundwater Monitoring and Corrective Action Report*, (Golder 2019). A notice of assessment monitoring was placed in the operation record on November 13, 2019.

4.3 Appendix IV Statistical Analyses

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

5.0 MONITORING PROGRAM STATUS

GPC has initiated assessment monitoring at Plant Branch AP-E in accordance with the requirements of § 257.94(e)(1-3) and Georgia EPD rule 391-3-4-.10(6)(a). Table 2 presents the status of each well within the certified monitoring network for AP-E.

6.0 CONCLUSIONS AND FUTURE ACTIONS

This 2019 Semi-Annual Groundwater Monitoring and Corrective Action Report, Georgia Power Plant Branch AP-E has been prepared to fulfill the requirements of Georgia EPD Rules of Solid Waste Management 391-3-4-.10(6).

Statistical evaluations of the groundwater monitoring data for AP-E identified SSIs of Appendix III groundwater monitoring parameters. GPC has initiated assessment monitoring in accordance with the requirements of § 257.95 and Georgia EPD rule 391-3-4-.10(6)(a). The next scheduled sampling event is scheduled for March 2020. During the next semi-annual reporting period of 2020, GPC will establish groundwater protection standards for Appendix IV constituents in accordance with § 257.95 and report the results in the Annual Groundwater Monitoring and Corrective Action Report, due August 1, 2020.

7.0 **REFERENCES**

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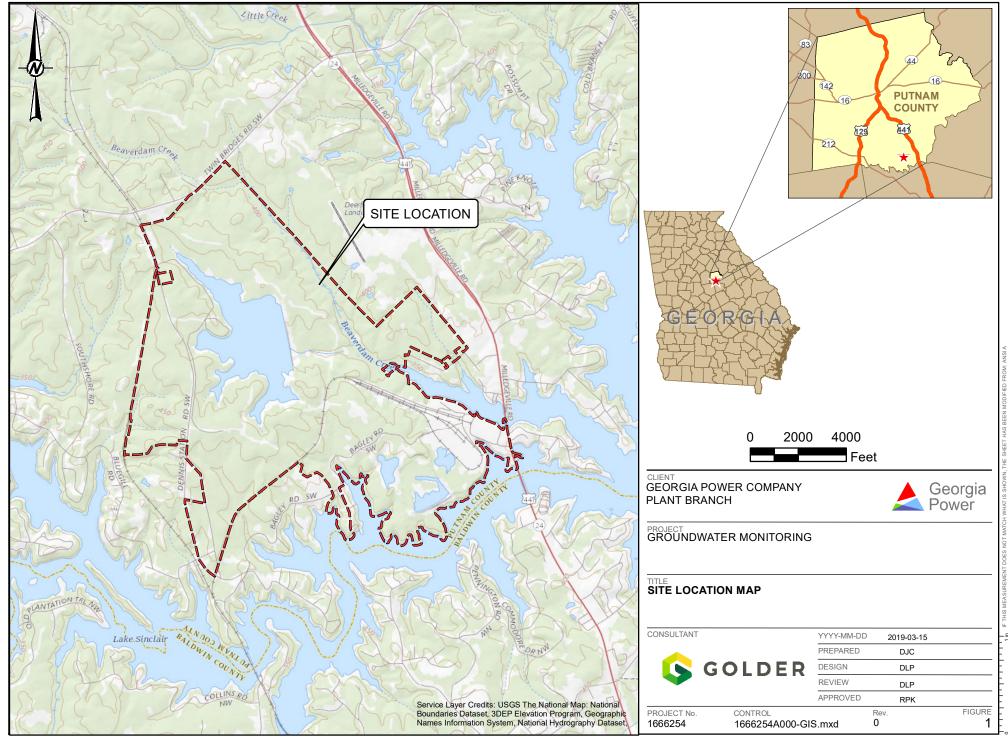
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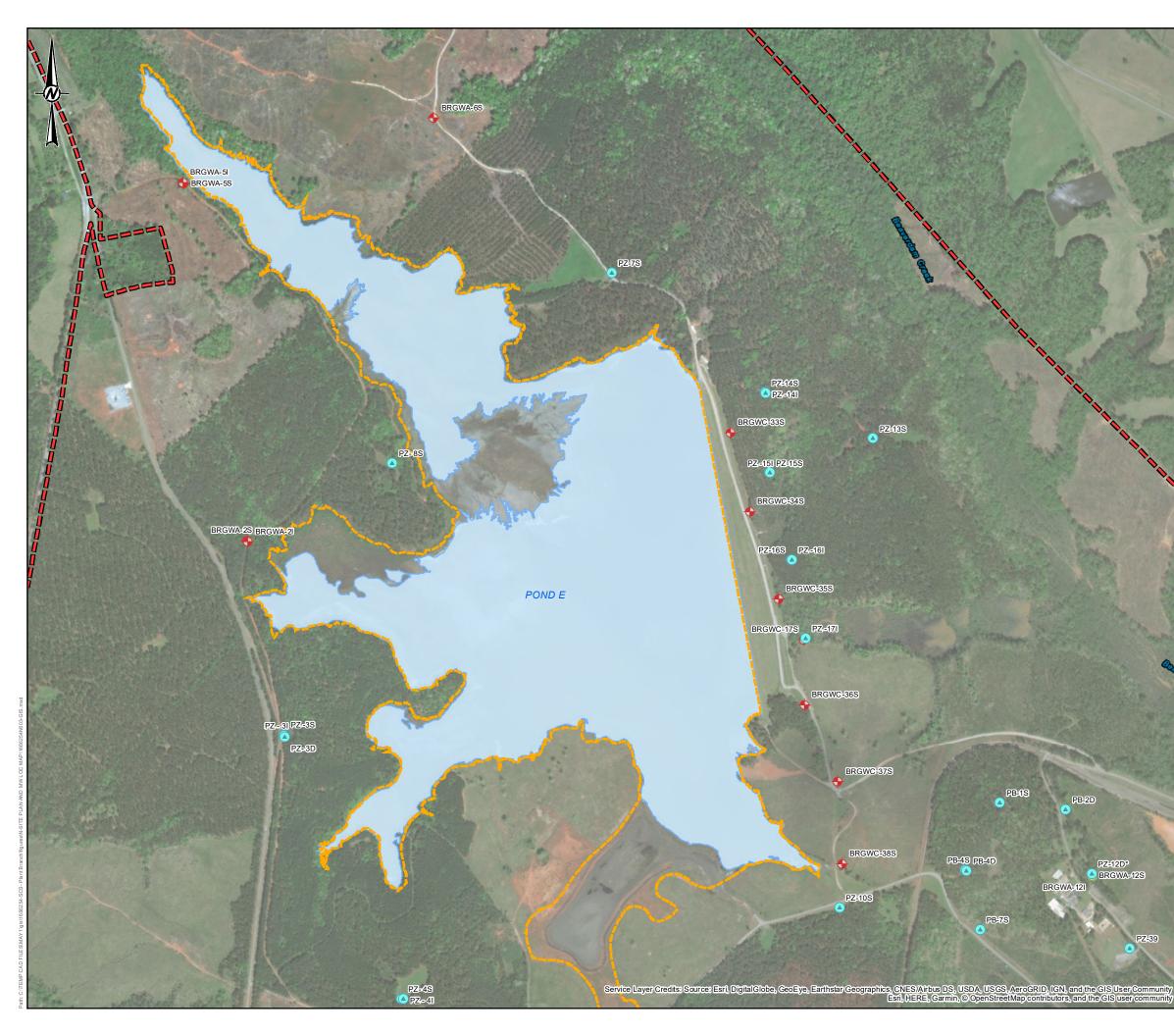
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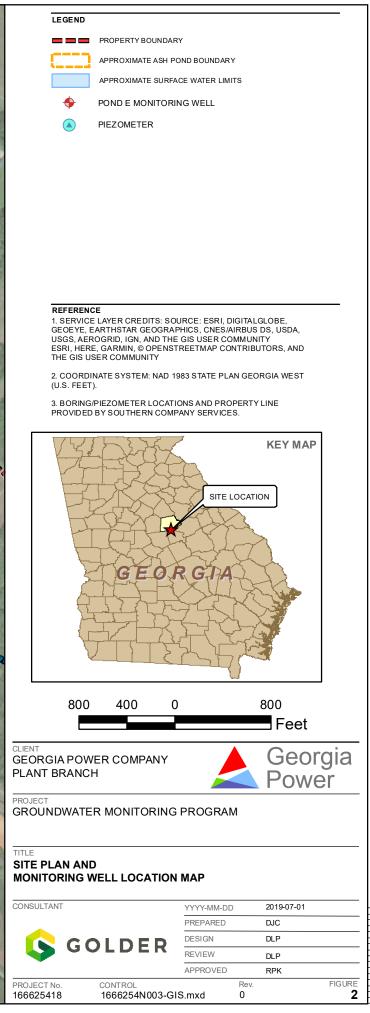
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FIGURES & TABLES

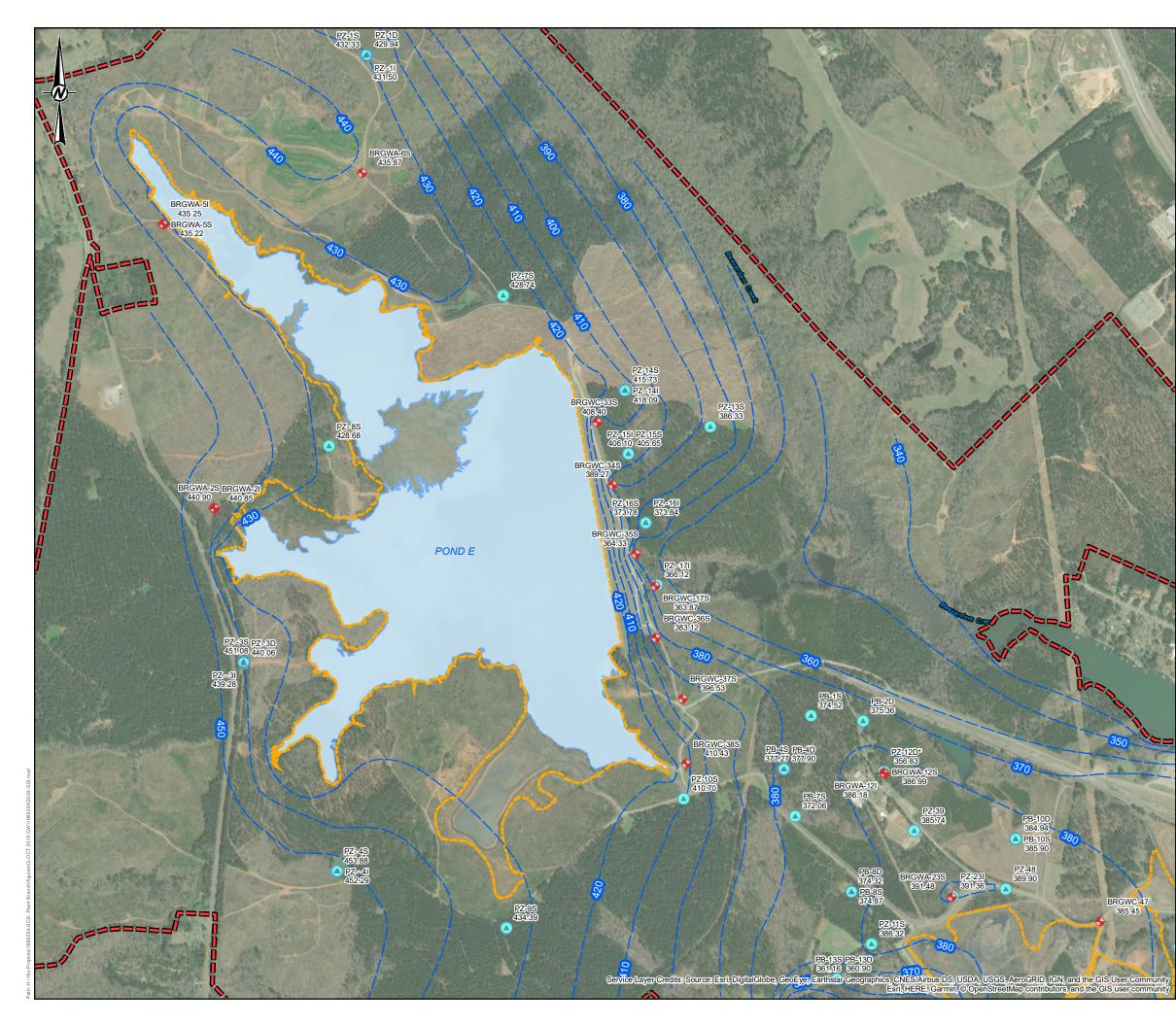
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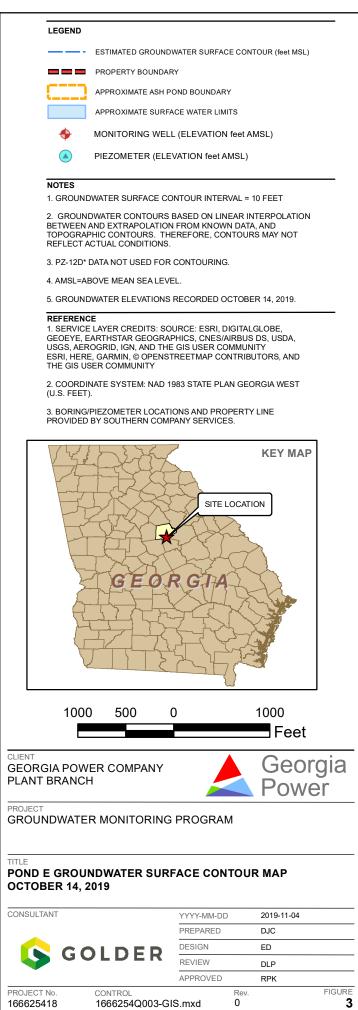


TABLE 1MONITORING WELL NETWORK SUMMARY (AP-E)

Georgia Power - Plant Branch

Milledgeville, GA

Well-ID	Location	Geologic Unit Screened ^[3]	Latitude	Longitude	Ground Surface Elevation (feet msl) ^[1]	Top of Casing Elevation (feet msl) ^[1]	Total Depth (feet bgs) ^[2]	Top of Screen Elevation (feet msl) ^[1]	Screen Tip Elevation (feet msl) ^[1]	Screen Length	Installed By	PG/PE Oversight	Bond Certification Number	Date of Installation
POND E														
BRGWA-2S	Upgradient E	Saprolite	33.205938	-83.338280	454.94	458.02	44.6	420.34	410.34	10.0	SCS	W.Shaughnessy	4993104	4/2/2014
BRGWA-2I	Upgradient E	Amphibolite Gneiss	33.205916	-83.338260	454.89	457.85	64.3	400.59	390.59	10.0	SCS	W.Shaughnessy	4993104	3/14/2014
BRGWA-5S	Upgradient E	Saprolite	33.214293	-83.339970	445.23	448.53	40.0	415.23	405.23	10.0	SCS	W.Shaughnessy	4993104	4/3/2014
BRGWA-5I	Upgradient E	Amphibolite Gneiss	33.214313	-83.339989	445.51	448.44	61.2	394.31	384.31	10.0	SCS	W.Shaughnessy	4993104	4/3/2014
BRGWA-6S	Upgradient E	Saprolite	33.215775	-83.333001	460.16	463.631	49.7	420.46	410.46	10.0	SCS	W.Shaughnessy	4993104	4/1/2014
BRGWC-17S	Downgradient E	Alluvium	33.203526	-83.322836	366.57	370.25	7.1	364.47	359.47	5.0	SCS	W.Shaughnessy	4993104	3/13/2014
BRGWC-33S	Downgradient E	Saprolite/TWR/Biotite Gneiss	33.208371	-83.324829	414.14	416.92	26.0	398.14	388.14	10.0	Cascade	R.Kirkman	K08315607	7/26/2016
BRGWC-34S	Downgradient E	Saprolite	33.206518	-83.324304	389.04	392.06	23.0	376.04	366.04	10.0	Cascade	R.Kirkman	K08315607	7/25/2016
BRGWC-35S	Downgradient E	Saprolite	33.204484	-83.323523	363.68	366.54	27.0	346.68	336.68	10.0	Cascade	R.Kirkman	K08315607	7/23/2016
BRGWC-36S	Downgradient E	Saprolite	33.201997	-83.322831	382.94	386.00	28.7	364.24	354.24	10.0	Cascade	R.Kirkman	K08315607	7/26/2016
BRGWC-37S	Downgradient E	Saprolite/TWR	33.200202	-83.321916	444.2	447.23	63.6	390.60	380.60	10.0	Cascade	R.Kirkman	K08315607	7/24/2016
BRGWC-38S	Downgradient E	Saprolite/TWR	33.198278	-83.321817	429.55	432.33	37.8	401.75	391.75	10.0	Cascade	R.Kirkman	K08315607	7/22/2016

Notes:

1. feet msl = feet mean sea level

2. feet bgs = feet below ground surface

3. TWR = Transitionally Weathered Rock



TABLE 2GROUNDWATER SAMPLING EVENT SUMMARYGeorgia Power Company - Plant Branch Pond E
Milledgeville, GA

		Summary of Sa	ampling Events			
Well ID	Hydraulic Location	August 2019	October 2019	Status of Monitoring Well		
Purpose of Sa	ampling Event	Assessment	Assessment			
ASH POND E (AP-E)						
BRGWA-2S	Upgradient	A01	A02	Assessment		
BRGWA-2I	Upgradient	A01	A02	Assessment		
BRGWA-5S	Upgradient	A01	A02	Assessment		
BRGWA-5I	Upgradient	A01	A02	Assessment		
BRGWA-6S	Upgradient	A01	A02	Assessment		
BRGWC-17S	Downgradient	A01	A02	Assessment		
BRGWC-33S	Downgradient	A01	A02	Assessment		
BRGWC-34S	Downgradient	A01	A02	Assessment		
BRGWC-35S			A02	Assessment		
BRGWC-36S Downgradient		A01	A02	Assessment		
BRGWC-37S	Downgradient	A01	A02	Assessment		
BRGWC-38S	Downgradient	A01	A02	Assessment		

Notes:

BG## = Background Event Number

D## = Detection Event Number

A## = Assessment Event Number



Georgia Power Company- Plant Branch Milledgeville, Georgia

	Top of Casing	GROUNDWATER ELEVATIONS (FEET MSL)												
Well-ID	Elevation (feet msl) ^[1]	8/30/2016	11/21/2016	2/17/2017	6/12/2017	9/25/2017	2/7/2018	2/13/2018	6/25/2018	9/18/2018	12/17/2018	3/18/2019	8/26/2019	10/14/2019
POND BCD														
BRGWA-12S	439.69	391.26	341.94	389.54	388.88	388.42	387.14	387.43	387.01	DRY	386.87	DRY	DRY	386.99
BRGWA-12I	439.43	390.64	341.60	389.57	388.80	388.47	425.03	387.40	386.99	386.50	386.14	381.53	385.78	386.18
BRGWA-23S	428.42	395.74	361.06	394.05	392.90	392.61	390.71	390.74	390.08	389.57	389.28	392.22	392.17	391.48
BRGWC-25I	357.46	348.30	338.59	349.86	349.53	349.01	349.60	349.75	348.57	347.66	349.45	350.46	348.56	348.03
BRGWC-27I	367.99	363.35	357.29	364.60	364.91	364.63	364.40	364.23	362.54	360.67	362.95	365.40	364.59	364.04
BRGWC-29I	353.30	343.46	333.29	344.15	344.30	343.72	343.73	344.06	343.48	343.05	343.94	344.48	343.58	341.20
BRGWC-30I	352.33	347.85	343.69	348.42	348.13	348.36	348.11	348.16	347.63	347.61	348.09	348.24	348.24	348.28
BRGWC-32S	406.51	372.01	335.50	370.37	371.86	372.10	371.12	371.05	370.65	369.37	368.58	371.71	371.31	370.24
BRGWC-45	384.61	NA	NA	NA	NA	NA	373.67	373.55	374.86	372.77	374.49	374.96	373.31	372.74
BRGWC-47	411.32	NA	NA	NA	NA	NA	385.72	385.59	385.68	384.27	384.52	388.07	386.23	385.45
BRGWC-50	381.53	NA	NA	NA	NA	NA	343.47	346.10	343.70	343.45	343.73	344.48	343.73	344.56
BRGWC-52I	383.83	NA	NA	NA	NA	NA	NA	NA	NA	344.6	344.9	345.8	344.81	344.40



Georgia Power Company- Plant Branch Milledgeville, Georgia

Well-ID	Top of Casing	GROUNDWATER ELEVATIONS (FEET MSL)												
wen-iD	Elevation (feet msl) ^[1]	8/30/2016	11/21/2016	2/17/2017	6/12/2017	9/25/2017	2/7/2018	2/13/2018	6/25/2018	9/18/2018	12/17/2018	3/18/2019	8/26/2019	10/14/2019
POND E														
BRGWA-2S	458.02	439.6	419.5	442.40	443.20	442.31	443.65	443.75	442.82	440.63	443.97	445.12	442.58	440.90
BRGWA-2I	457.85	439.7	419.6	442.15	443.00	442.14	443.45	443.61	442.74	440.63	443.67	445.00	442.16	440.85
BRGWA-5S	448.53	436.0	422.5	436.76	436.18	435.44	435.91	435.87	436.30	435.22	436.42	438.23	435.92	435.22
BRGWA-5I	448.44	435.9	422.5	436.74	436.17	435.49	435.91	435.86	436.32	435.24	436.42	438.24	435.93	435.25
BRGWA-6S	463.63	438.5	411.0	439.65	437.92	437.74	435.11	437.60	438.12	436.36	438.74	441.74	436.81	435.87
BRGWC-17S	370.25	364.7	358.8	364.60	364.17	364.11	364.05	364.39	363.66	363.95	364.52	364.13	364.44	363.87
BRGWC-33S	416.92	408.7	400.9	410.10	409.30	408.84	409.32	409.39	409.35	408.87	410.39	410.59	409.02	408.40
BRGWC-34S	392.06	389.3	386.7	389.68	389.52	389.36	389.59	389.67	389.32	389.36	389.80	389.73	389.51	389.27
BRGWC-35S	366.54	364.4	362.2	364.44	364.40	364.34	364.44	364.51	364.39	364.37	364.79	364.75	364.58	364.33
BRGWC-36S	386.00	384.3	382.4	384.20	383.94	383.80	383.42	383.47	383.30	383.30	383.64	383.75	383.57	383.12
BRGWC-37S	447.23	400.6	352.9	398.18	399.72	396.98	395.84	395.82	395.88	395.79	395.33	397.01	396.06	396.53
BRGWC-38S	432.33	412.2	391.0	413.61	412.05	411.47	411.78	411.69	412.15	410.79	412.53	413.93	410.92	410.43



Georgia Power Company- Plant Branch Milledgeville, Georgia

Well-ID	Top of Casing		GROUNDWATER ELEVATIONS (FEET MSL)												
weii-iD	Elevation (feet msl) ^[1]	8/30/2016	11/21/2016	2/17/2017	6/12/2017	9/25/2017	2/7/2018	2/13/2018	6/25/2018	9/18/2018	12/17/2018	3/18/2019	8/26/2019	10/14/2019	
PIEZOMETERS		<u> </u>			1			1	<u></u>	<u></u>			<u></u>		
PZ-1S	470.22	431.8	392.5	430.72	431.72	431.53	431.25	431.12	432.68	NA	432.04	434.45	433.23	432.33	
PZ-1I	469.85	431.4	391.9	430.16	431.11	430.22	430.47	430.53	431.88	NA	431.19	433.56	432.30	431.50	
PZ-1D	468.56	429.1	389.1	428.71	429.58	429.30	429.13	429.05	430.39	NA	429.93	432.13	430.91	429.94	
PZ-3S	494.63	DRY	DRY	DRY	451.05	451.09	DRY	DRY	DRY	NA	DRY	DRY	DRY	451.08	
PZ-3I	493.60	469.4	418.1	441.46	440.69	440.11	439.38	439.54	439.21	NA	439.00	438.86	439.27	439.28	
PZ-3D	491.59	442.1	393.5	441.91	441.55	441.18	440.60	440.76	440.36	NA	440.09	440.04	440.09	440.06	
PZ-4S	487.08	DRY	DRY	DRY	451.90	433.88	DRY	DRY	DRY	NA	DRY	DRY	DRY	453.88	
PZ-4I	487.22	451.6	414.6	449.32	449.23	449.01	449.90	449.61	450.89	NA	451.14	453.22	452.67	452.29	
PZ-7S	456.87	429.6	400.0	428.15	428.69	427.97	428.24	428.03	429.93	NA	429.46	432.79	429.67	428.74	
PZ-8S	457.37	428.4	397.4	429.74	430.30	429.89	431.33	431.15	431.38	NA	431.13	433.43	429.68	428.68	
PZ-9S	474.02	438.9	402.8	437.06	436.32	435.67	434.42	434.50	451.84	NA	433.48	434.89	434.78	434.39	
PZ-10S	438.95	412.3	384.5	412.83	411.85	411.41	411.31	411.24	411.72	NA	411.87	413.17	411.79	410.70	
PZ-11S	398.97	381.1	361.6	381.14	379.68	378.74	377.73	377.46	376.47	NA	375.11	377.64	375.86	386.32	
PZ-12D	439.17	361.2	282.0	362.18	359.97	351.36	349.45	348.93	360.34	NA	355.20	356.36	359.96	356.83	
PZ-13S	415.13	387.0	356.7	387.14	387.37	386.42	387.03	386.92	388.25	NA	387.62	390.76	387.09	386.33	
PZ-14S	435.51	415.5	395.8	418.16	417.20	416.53	417.17	417.24	417.41	NA	418.68	419.11	416.35	415.73	
PZ-14I	434.91	416.3	397.8	416.78	417.26	416.76	417.37	417.55	417.12	NA	417.49	418.15	418.23	418.09	
PZ-15S	415.77	405.6	395.7	406.37	406.08	405.88	406.21	406.36	405.82	NA	406.52	406.51	405.99	405.65	
PZ-15I	415.90	406.1	396.6	406.86	406.56	406.36	406.70	406.82	406.34	NA	407.01	407.02	406.53	406.10	
PZ-16S	386.97	373.9	360.6	375.04	374.59	374.20	374.84	374.99	374.43	NA	370.39	375.97	374.61	373.78	
PZ-16I	386.89	374.0	360.7	375.12	374.66	374.25	374.90	375.09	374.49	NA	375.45	376.05	374.68	373.84	
PZ-17I	370.07	366.4	362.8	367.34	366.98	366.57	366.95	367.27	366.44	NA	367.33	367.48	366.96	366.12	
PZ-18S	367.27	346.6	325.1	347.09	346.99	346.53	346.86	346.85	346.43	NA	346.72	347.38	345.88	345.56	
PZ-18I	366.75	346.2	324.9	346.71	346.92	346.19	346.47	346.51	346.07	NA	346.38	346.99	345.52	344.94	
PZ-19S	376.31	360.3	342.6	361.89	362.04	361.15	362.41	362.33	361.13	NA	359.91	364.24	360.01	358.91	
PZ-19I	376.73	360.1	341.8	361.69	362.02	362.24	362.20	362.09	360.95	NA	359.77	364.04	359.73	358.66	
PZ-20S	370.71	355.1	339.1	357.44	356.69	356.17	356.68	356.79	355.46	NA	356.84	357.90	355.63	355.56	
PZ-201	370.64	355.3	339.6	357.63	356.89	356.35	356.86	356.97	355.63	NA	357.03	358.05	355.78	355.24	
PZ-21S	358.60	353.4	342.7	355.09	354.71	354.22	354.81	354.99	353.73	NA	354.64	355.73	353.05	348.00	



TABLE 3 Summary of Groundwater Elevations Georgia Power Company- Plant Branch

Mil	ledge	ville,	Georg	lia
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Well-ID	Top of Casing						GROUNDW	ATER ELEVA	TIONS (FEET	MSL)				
weii-iD	Elevation (feet msl) ^[1]	8/30/2016	11/21/2016	2/17/2017	6/12/2017	9/25/2017	2/7/2018	2/13/2018	6/25/2018	9/18/2018	12/17/2018	3/18/2019	8/26/2019	10/14/2019
PIEZOMETERS														
PZ-211	359.20	353.3	342.1	354.93	354.57	354.05	354.67	354.84	353.56	NA	354.49	355.57	353.94	348.14
PZ-231	427.90	395.2	361.0	393.75	392.87	392.40	390.70	388.76	390.02	NA	389.17	391.95	392.19	391.36
BRGWC-24S	354.00	339.5	324.6	339.81	340.08	339.76	339.93	340.10	339.79	339.36	NA	340.16	339.39	339.02
PZ-261	370.93	348.6	325.4	349.21	349.02	348.82	349.09	348.98	348.83	NA	348.95	350.56	348.68	348.21
PZ-281	364.88	350.0	334.7	352.36	351.62	351.06	351.58	351.73	350.36	NA	351.76	352.79	350.48	350.02
PZ-31S	376.94	352.8	326.9	352.38	352.42	352.12	352.16	352.13	351.77	NA	350.81	353.04	350.96	348.44
PZ-39	434.70	388.3	340.3	385.77	DRY	385.79	385.76	385.77	385.77	NA	385.75	385.74	385.79	385.74
PZ-40S	356.06	NA	NA	340.18	340.33	340.11	340.17	340.25	340.66	339.80	NA	340.56	339.77	339.44
PZ-41S	357.23	NA	NA	340.13	340.22	340.07	340.10	340.15	340.04	339.77	NA	340.50	339.75	339.45
PZ-42S	361.69	NA	NA	340.90	340.40	340.58	340.45	340.66	341.06	340.75	NA	341.53	340.45	340.21
PZ-43	383.75	NA	NA	NA	NA	NA	353.02	NA	353.78	NA	353.75	358.05	354.35	354.30
PZ-44	383.12	NA	NA	NA	NA	NA	358.14	NA	358.83	NA	358.90	360.97	358.97	358.60
PZ-46	384.70	NA	NA	NA	NA	NA	375.58	375.61	375.52	NA	376.09	376.15	375.80	374.77
PZ-48	421.05	NA	NA	NA	NA	NA	390.41	390.37	390.09	NA	390.14	392.79	390.89	389.90
PZ-49	385.06	NA	NA	NA	NA	NA	377.17	380.58	376.47	NA	376.85	376.26	371.96	370.58
PZ-51S	380.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	341.6	342.3	341.79	341.49
PZ-511	380.60	NA	NA	NA	NA	NA	NA	NA	NA	NA	342.5	343.2	342.39	342.10



Georgia Power Company- Plant Branch Milledgeville, Georgia

	Top of Casing	GROUNDWATER ELEVATIONS (FEET MSL)													
Well-ID	Elevation (feet msl) ^[1]	8/30/2016	11/21/2016	2/17/2017	6/12/2017	9/25/2017	2/7/2018	2/13/2018	6/25/2018	9/18/2018	12/17/2018	3/18/2019	8/26/2019	10/14/2019	
Temporary Landfill Piezometers															
PB-1S	403.06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	377.5	403.06	374.52	
PB-2D	416.76	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	375.9	416.76	375.36	
PB-4S	411.06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	379.0	411.06	377.27	
PB-4D	412.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	380.6	412.18	377.90	
PB-7S	402.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	375.9	402.86	372.06	
PB-8S	401.69	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	377.4	401.69	374.87	
PB-8D	401.77	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	377.0	401.77	374.32	
PB-10S	400.94	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	388.0	400.94	385.90	
PB-10D	400.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	387.8	400.33	384.94	
PB-13S	373.38	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	363.7	373.38	361.16	
PB-13D	373.83	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	363.3	373.8	360.90	

Notes:

1. Feet msl = feet mean sea level

2. Survey data for PZ-21S and PZ-21I were updated in January 2020.



TABLE 4. **GROUNDWATER VELOCITY CALCULATIONS - 2019 Georgia Power - Plant Branch Ash Pond AP-E** Milledgeville, GA

Flow Paths	Groundwater Elevation	Δh (feet) ¹	ΔI (feet) ²	Gradient		/erag drau uctiv	-	Assumed Effective Porosity	(je Linear Iter Velocity	
	(feet msl)	(,	(1000)	(Δ h/Δ l)	(feet per day) ⁵			(n _e) ⁶	(feet p	per day) ⁴	(feet per year) ⁴	
Pond E August	t 26, 2019											
BRGWA-5S /	435.92	26.90	5108.0	0.005	2.73	to	5.47	0.2	0.07	to 0.14	26.2 to 52.6	
BRGWC-33S	409.02	20.90	5106.0	0.005	2.15	10	5.47	0.2	0.07	10 0.14	20.2 10 52.0	
PZ-4I /	452.67	41.75	3904.0	0.011	2.73	to	5.47	0.2	0.15	to 0.29	53.3 to 106.8	
BRGWC-38S	410.92	41.75	3904.0	0.011	2.75	10	5.47	0.2	0.15	10 0.29	55.5 10 100.8	
Pond E Octobe	er 14, 2019											
BRGWA-5S /	435.22	26.82	5108.0	0.005	2.73	to	5.47	0.2	0.07	to 0.14	26.2 to 52.4	
BRGWC-33S	408.40	20.02	5106.0	0.005	2.15	10	5.47	0.2	0.07	10 0.14	20.2 10 52.4	
PZ-41 /	452.29	41.86	0004.0	0.011	2.73		5.47	0.2	0.15	to 0.20	52 4 to 107 0	
BRGWC-38S	410.43	41.00	3904.0	0.011	2.75	to	5.47	0.2	0.15 to 0.29		53.4 to 107.0	

Notes:

1. Δ H = Change in groundwater elevation.

2. ΔL = Distance along flow path.

3. $I = \Delta H / \Delta L$.

4. Velocity = $(I * K)/n_e$.

5. Hydraulic conductivity range based on historic aquifer performance tests (revised 4/2019).

6. Effective porosity based on default values for effective porosity recommended by USEPA for a silty sand-type soil (USEPA, 1996)



TABLE 5 ANALYTICAL DATA SUMMARY - POND E (August 2019) GPC PLANT BRANCH MILLDEGEVILLE, GEORGIA

									GROUNDWATER M	IONITORING WELLS					
Analyte	Units	PQL/RL	MDL	BRGWA-6S	BRGWA-5S	BRGWA-5I	BRGWA-2S	BRGWA-2I	BRGWC-33S	BRGWC-34S	BRGWC-35S	BRGWC-17S	BRGWC-36S	BRGWC-37S	BRGWC-38S
		S	ample Date:	8/27/2019	8/27/2019	8/27/2019	8/27/2019	8/27/2019	8/27/2019	8/28/2019	8/28/2019	8/28/2019	8/28/2019	8/28/2019	8/28/2019
Appendix III															
BORON, TOTAL	mg/L	0.04	0.0039	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CALCIUM, TOTAL	mg/L	25	0.69	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORIDE, TOTAL	mg/L	0.3	0.024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FLUORIDE, TOTAL	mg/L	0.3	0.029	ND	ND	ND	ND	ND	ND (0.11 J)	ND (0.057 J)	ND (0.056 J)	ND (0.085 J)	ND	ND	0.90
рН	S.U.	N/R	N/R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SULFATE, TOTAL	mg/L	1.0	0.017	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	mg/L	25.0	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Appendix IV						r		r	1	1	r	1	1		1
ANTIMONY, TOTAL	mg/L	0.003	0.00078	ND	ND	ND	ND	ND	ND	ND	ND	ND (0.085 J)	ND (0.00035 J)	ND	ND
ARSENIC, TOTAL	mg/L	0.005	0.00057	ND	ND	ND	ND	ND	ND	ND	ND (0.00044 J)	ND (0.00073 J)	ND (0.00045 J)	ND (0.00038 J)	ND (0.0013 J)
BARIUM, TOTAL	mg/L	0.01	0.00078	0.013	0.056	0.028	ND (0.0095 J)	0.012	0.02	0.026	0.039	0.044	0.034	0.027	0.016
BERYLLIUM, TOTAL	mg/L	0.003	0.00005	ND	ND	ND	ND	ND	ND (0.0019 J)	ND (0.00014 J)	ND (0.00016 J)	ND	ND (0.00011 J)	ND	0.0088
CADMIUM, TOTAL	mg/L	0.001	0.00009	ND	ND	ND	ND	ND	ND (0.00032 J)	ND (0.00025 J)	ND	ND	ND	ND	ND (0.00053 J)
CHROMIUM, TOTAL	mg/L	0.01	0.0016	0.015	ND (0.0043 J)	ND (0.0055 J)	ND (0.0083 J)	ND (0.0004 J)	ND	ND	ND (0.0071 J)	0.013	ND (0.0078 J)	ND (0.0017 J)	ND (0.0044 J)
COBALT, TOTAL	mg/L	0.01	0.00052	ND	ND (0.00042 J)	ND (0.00068 J)	ND (0.0012 J)	ND	0.045	ND (0.0037 J)	ND	ND	ND	ND	0.21
LEAD, TOTAL	mg/L	0.005	0.00027	ND	ND (0.00036 J)	ND	ND (0.000058 J)	ND	ND (0.00013 J)	ND	ND	ND	ND	ND	ND (0.00035 J)
LITHIUM, TOTAL	mg/L	0.005	0.00095	ND (0.0028 J)	ND	ND (0.0019 J)	ND	ND (0.035 J)	ND (0.01 J)	ND (0.0009 J)	ND (0.0021 J)	ND (0.00097 J)	ND (0.0025 J)	ND	ND (0.00018 J)
MERCURY, TOTAL	mg/L	0.01	0.0014	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MOLYBDENUM, TOTAL	mg/L	0.005	0.00095	ND	ND	ND (0.0028 J)	ND	ND	ND	ND	ND	ND	ND	ND	ND
RADIUM (226 + 228)	pCi/L	1	varies	0.650 U	1.44	1.19	1.47	1.11	1.38	0.811 U	0.995 U	0.240 U	0.866 U	0.809 U	3.68
SELENIUM, TOTAL	mg/L	0.001	0.00014	ND	ND	ND	ND	ND	ND	ND	ND	ND (0.003 J)	ND (0.0041 J)	ND	0.036
THALLIUM, TOTAL	mg/L	0.01	0.0019	ND	ND	ND	ND	ND	ND (0.00016 J)	ND	ND	ND	ND	ND	ND (0.00021 J)

NOTES:

1. mg/L - Milligrams per Liter

2. pCi/L - picocuries per Liter

3. J - Result is an estimated value. The result is greater than or equal to the Method Detection Limit (MDL) and less than the Practical Quantitation Limit (PQL). Values are displayed as less that the PQL with a J.

4. ND - Constituent was analyzed for, but was not detected above the MDL and is considered a non-detect.

5. Radium data is a combination of radium isotopes 226 and 228. When results are reported below the MDC (Minimum Detectable Concentration), data is displayed as less than the MDC. The MDC varies depending upon the sample amount and elapsed time of the measurement.

6. NA - Constituent was not analyzed pursuant to 257.95(d)(1)



TABLE 6 ANALYTICAL DATA SUMMARY - POND E (October 2019) GPC PLANT BRANCH MILLDEGEVILLE, GEORGIA

									GF	OUNDWATER N	IONITORING WEL	LS					
Analyte	Units	PQL/RL	MDL	BRGWA-6S	BRGWA-5S	BRGWA-5I	BRGWA-2S	BRGWA-2I	BRGWC-33S	BRGWC-34S	BRGWC-35S	BRGWC-17S	BRGWC-17S	BRGWC-36S	BRGWC-36S	BRGWC-37S	BRGWC-38S
		S	ample Date:	10/15/2019	10/15/2019	10/15/2019	10/15/2019	10/15/2019	10/16/2019	10/16/2019	10/16/2019	10/17/2019	12/3/2019 ^[7]	10/17/2019	12/3/2019	10/16/2019	10/16/2019
Appendix III																	
BORON, TOTAL	mg/L	0.04	0.0049	ND (0.01 J)	ND (0.006 J)	ND	ND	ND (0.0067 J)	1.1	2.3	2.2	ND	ND (0.0063 J)	1.1	1	ND (0.0055 J)	1.5
CALCIUM, TOTAL	mg/L	5	0.55	3.5	20	14.4	3.7	15.1	46.5	78.2	61.2	NA	37.7	NA	47.8	3.4	38.4
CHLORIDE, TOTAL	mg/L	1.0	0.024	2.4	3.7	4.2	1.9	2.2	5.4	7.3	6.6	NA	4.8	NA	7.7	2.3	6.4
FLUORIDE, TOTAL	mg/L	0.3	0.029	ND	ND (0.045 J)	ND	ND	ND	ND (0.17 J)	ND (0.13 J)	ND (0.08 J)	NA	ND (0.2 J)	NA	ND (0.15 J)	ND (0.059 J)	0.61
рН	S.U.	N/R	N/R	6.36	7.01	6.77	6.06	6.57	4.78	5.85	6.08	NA	6.3	NA	5.61	5.81	4.21
SULFATE, TOTAL	mg/L	1.0	0.017	ND (0.48 J)	ND (0.68 J)	3.8	ND (0.47 J)	5.2	226	325	277	NA	180	NA	256	ND (0.29 J)	432
TOTAL DISSOLVED SOLIDS	mg/L	10.0	10	63	144	175	66	140	281	473	481	NA	378	NA	498	49	630
Appendix IV																	
ANTIMONY, TOTAL	mg/L	0.003	0.00027	ND	ND	ND	ND	ND (0.00047 J)	ND	ND	ND	NA	ND	NA	ND (0.00049 J)	ND	ND
ARSENIC, TOTAL	mg/L	0.005	0.00035	ND	ND (0.00039 J)	ND (0.00058 J)	ND (0.00063 J)	ND (0.0008 J)	ND (0.00056 J)	ND	ND (0.0004 J)	NA	ND (0.00058 J)	NA	ND (0.001 J)	ND (0.00078 J)	ND (0.0024 J)
BARIUM, TOTAL	mg/L	0.01	0.00049	0.013	0.049	0.032	ND (0.0091 J)	0.013	0.019	0.022	0.037	NA	0.043	NA	0.031	0.024	0.015
BERYLLIUM, TOTAL	mg/L	0.003	0.000074	ND	ND	ND	ND	ND	ND (0.0018 J)	ND (0.00014 J)	ND (0.00015 J)	ND	ND	ND	ND (0.000097 J)	ND	0.0079
CADMIUM, TOTAL	mg/L	0.0025	0.00011	ND	ND	ND	ND	ND	ND (0.00039 J)	ND (0.0004 J)	ND	ND	ND	ND	ND	ND	ND (0.00057 J)
CHROMIUM, TOTAL	mg/L	0.01	0.00039	0.014	ND (0.0055 J)	ND (0.0047 J)	ND (0.0083 J)	ND	ND (0.00049 J)	ND	ND (0.0064 J)	NA	0.011	NA	ND (0.007 J)	ND (0.0014 J)	ND (0.0038 J)
COBALT, TOTAL	mg/L	0.0025	0.0003	ND	ND	ND (0.00083 J)	ND (0.00097 J)	ND	0.042	0.0043	ND	ND	ND	ND	ND	ND	0.21
LEAD, TOTAL	mg/L	0.005	0.000046	ND	ND (0.000079 J)	ND	ND	ND	ND (0.000088 J)	ND	ND	NA	ND	NA	ND	ND	ND (0.00035 J)
LITHIUM, TOTAL	mg/L	0.01	0.00078	ND (0.0024 J)	ND	ND (0.002 J)	ND	0.028	ND (0.0098 J)	ND (0.00078 J)	ND (0.0022 J)	NA	ND (0.001 J)	NA	ND (0.0024 J)	ND	0.02
MERCURY, TOTAL	mg/L	0.01	0.0014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MOLYBDENUM, TOTAL	mg/L	0.01	0.00095	ND	ND	ND (0.0035 J)	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND	ND
RADIUM (226 + 228)	pCi/L	1	varies	0.402 U	0.467 U	0.714 U	0.807 U	1.02 U	1.16 U	0.561 U	1.69	NA	1.163 U	NA	1.912	0.815 U	2.66
SELENIUM, TOTAL	mg/L	0.01	0.0013	ND	ND	ND	ND	ND	ND (0.0028 J)	ND	ND	NA	ND (0.0041 J)	NA	ND (0.0035 J)	ND	0.033
THALLIUM, TOTAL	mg/L	0.001	0.000052	ND	ND	ND	ND	ND	ND (0.00019 J)	ND	ND	NA	ND (0.000066 J)	NA	ND	ND	ND (0.0002 J)

NOTES:

1. mg/L - Milligrams per Liter

2. pCi/L - picocuries per Liter

3. J - Result is an estimated value. The result is greater than or equal to the Method Detection Limit (MDL) and less than the Practical Quantitation Limit (PQL). Values are displayed as less that the PQL with a J.

4. ND - Constituent was analyzed for, but was not detected above the MDL and is considered a non-detect.

5. Radium data is a combination of radium isotopes 226 and 228. When results are reported below the MDC (Minimum Detectable Concentration), data is displayed as less than the MDC. The MDC varies depending upon the sample amount and elapsed time of the measurement.
 6. NA - Constituent was not analyzed pursuant to 257.95(d)(1); orr was Not sampled on the specified date.

7. Samples for BRGWC-17S and BRGWC-36S were not analyzed within holding time on the original sample date of 10/17/2019 and therefore were resampled on 12/3/2019.



APPENDIX A

WELL/PIEZOMETER INSTALLATION REPORTS



October 2, 2018

Project No. 166625403

Mr. Joju Abraham, PG Southern Company Services 241 Ralph McGill Blvd NE Atlanta, GA 30308 jabraham@southernco.com

PIEZOMETER INSTALLATION REPORT GEORGIA POWER COMPANY – PLANT BRANCH, MILLEDGEVILLE, GEROGIA

Dear Mr. Abraham

Golder Associates Inc. (Golder) is submitting this Piezometer Installation Report to Southern Company Services, Inc. (SCS) and Georgia Power Company (GPC), which documents the construction of piezometers at Plant Branch in Milledgeville, Georgia. Piezometer construction activities were performed in general accordance with the standards described in the RCRA Technical Enforcement Guidance Document (1986) and the Georgia Water Wells Standards Act of 1985. The installation of the piezometers was conducted under the oversight and direction of Rachel Kirkman, a Georgia registered Professional Geologist (PG).

The field activities for this investigation were performed in August 2018. The field work consisted of the installation and development of three (3) piezometers. SCS conducted a survey of the recently installed piezometers. A summary of the activities is presented below. Figure 1, Piezometer Location Map (in Attachment A, Figure & Tables) presents the location of each of the newly installed piezometers.

Piezometer Drilling and Construction Activities

Piezometers PZ-51S, PZ-51I, and PZ-52I/BRGWC-52I were drilled and installed by Cascade Drilling, LP, who was contracted through SCS, at the facility in August 2018. Cascade has a current and valid bond with the Water Wells Standards Advisory Council for the state of Georgia (in Attachment B, Boring Logs & Piezometer Construction Logs). The driller's name is provided on the boring/construction diagrams presented in Attachment B.

An experienced Golder geologist was present on site to oversee and record the drilling and piezometer construction under the supervision of a professional geologist registered to practice in Georgia (Rachel Kirkman). Drilling methods employed for borehole advancement were rotosonic drilling techniques with continuous core collected. The drilling equipment consisted of a full-sized Prosonic track mounted drilling rig, equipped with 4-inch sonic rods with an outer-casing sleeve. During the drilling, continuous core samples were logged in the field for lithologic and geotechnical properties.

Prior to use, and between boreholes, downhole equipment was steam cleaned. The boring (lithologic) logs and piezometer construction records for the newly installed piezometers are included in Attachment B. The

construction data are summarized in Table 1, Summary of Piezometer Construction Details, and the locations of the piezometers are provided on Figure 1.

Piezometers were constructed within the borehole using factory-cleaned and sealed Schedule 40 polyvinyl chloride (PVC) products with flush-threaded fittings. Specifically, piezometers were constructed with a 10-foot section of 4-inch outer diameter (OD) and 2-inch inner diameter (ID), flush-threaded, 0.010-inch factory-slotted PVC pre-packed screens. The drillers filled the annulus of each pre-pack screen section with No. 10 filter sand. In each case, the screen was placed near the bottom of the borehole, with the remainder of the piezometer constructed from 10-foot sections of 2-inch ID, flush-threaded, PVC casing riser. A flush-threaded PVC end cap placed on the bottom of each piezometer to provide a 0.4-foot sump/sediment trap, and the top of the piezometers extend approximately 30 inches above grade. The PVC products used were American Society for Testing and Materials (ASTM) and National Sanitation Foundation (NSF) rated.

Following placement of the screen and casing, the annular space in each borehole adjacent to the screen was filled with U.S. Standard Sieve size No. 20-40 filter pack sand as appropriate for the formation. The filter pack sand was placed into the borehole and extends approximately 2 feet above the screen. Immediately following placement of the filter pack, each piezometer was pumped using a portable submersible pump until visibly clear water was discharged. If settling occurred during pumping, additional sand was placed so that the filter sand thickness was approximately 2 feet above the screen. A filter pack seal, composed of approximately 5 feet of hydrated time-release coated bentonite pellets, was then placed on top of the filter pack by slowly pouring the material down the borehole and tamping it into place with a tremie pipe. The bentonite was hydrated using potable water and allowed to cure for two hours prior to grouting the piezometer.

Following hydration of the bentonite, the remaining annular space was grouted with a Portland cement / Quick Gel mixture consisting of approximately 5% bentonite, and approximately 10 pounds per gallon, to 3 feet below ground surface using a tremie method. Each piezometer surface completion consists of a locked, aluminum protective casing and a 4-foot by 4-foot by 4-inch concrete pad.

Piezometer Development Activities

The newly installed piezometers were developed in August 2018 in accordance with the Monitoring Well Development Procedures prepared by Southern Company Services, Inc. (March 2016). The piezometers were surged using a Reclaimer pump system. During development, water quality measurements of pH, temperature, specific conductance, and turbidity were periodically collected using field-calibrated water quality equipment after the piezometer responded to improving conditions. Development activities were conducted utilizing an In-Situ SmarTroll and a Lamotte 2020 turbidimeter for monitoring water quality measurements. Development forms are included in Attachment C, Piezometer Development Logs, and summarized on Table 2, Summary of Piezometer Development.

As presented on the development forms, 112.5 gallons (PZ-51S), 105 gallons (PZ- 51I), and 65 gallons (PZ-52I/BRGWC-52I) of water were removed from each piezometer during development. During development, attempts were made for each piezometer to achieve a turbidity value below 10 nephelometric turbidity units (NTUs). Water levels for the newly installed and developed piezometers was collected following development and included on the well construction diagrams. The measurements were collected using a decontaminated electronic water level indicator. The surveyed point on the top of the casing was used as reference, and the measurements were recorded to within 0.01 foot.

Piezometer Survey

The newly installed piezometers were surveyed on August 10, 2018 by SCS's Engineering and Civil Field Services group. The survey was completed using LEICA GS14 Antenna and CS15 Sensor with a positional tolerance of 0.10'H:V. Surveyed locations and elevations are presented on the boring/construction diagrams and a site map showing the locations of the newly installed piezometers is presented in Figure 1.

We appreciate the opportunity to assist SCS and GPC with this project. Should you have any questions or require additional information, please contact the undersigned at (770) 496-1893.

Golder Associates Inc.



Rachel P. Kirkman, PG Associate and Senior Consultant

Dawn L. Prell Senior Hydrogeologist

dlp/rpk

- CC: Georgia Power Company Plant Branch Tyler J. Boyles, Georgia Power Company
- Attachments: Attachment A Figure & Tables Attachment B Boring Logs/Piezometer Construction Diagrams Attachment C Well Development Forms

https://golderassociates.sharepoint.com/sites/11952g/shared documents/200 reports/1666254-03 pz50 investigation and well installation/report/1666254.03 well installation report pond b piezo_final10.2.2018.docx

ATTACHMENT A







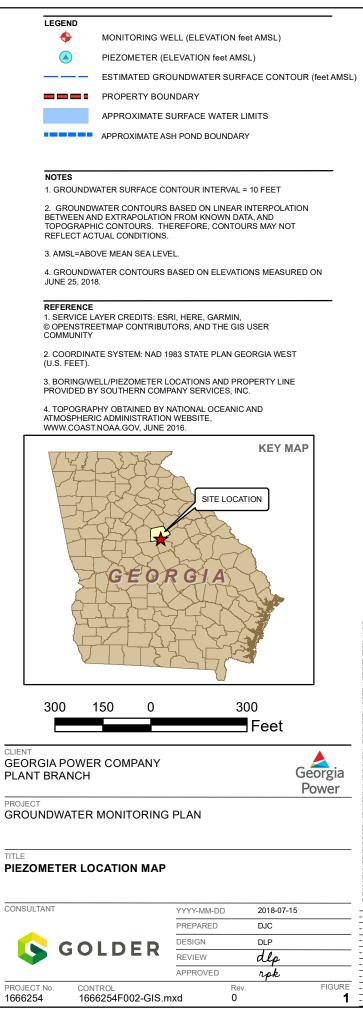


TABLE 1. PIEZOMETER CONSTRUCTION DETAILS Georgia Power Company - Plant Branch Milledgeville, Georgia

BOREHOLE ID	LATITUDE	LONGITUDE	NAD 83 NORTHING	NAD 83 EASTING	ELEVATION TOP OF PVC (feet msl)	ELEVATION GROUND SURFACE (feet msl)	ROCK TYPE	TOTAL DEPTH (feet bgs)	DEPTH TO BEDROCK (feet bgs)	SCREENED INTERVAL (feet bgs)	FORMATION SCREENED	CORE AVAILABLE	WATER LEVEL (feet bTOC) (9/18/2018) ^[1]	DATE INSTALLED
PZ-51S	33.1904759	-83.2976469	1161613.91	2562432.18	380.19	377.63	N/A	50.0	Not Encountered	40.0-45.0	Overburden	Yes	38.90	8/2/2018
PZ-511	33.1905240	-83.2976265	1161631.46	2562438.27	380.60	377.79	Biotite Gneiss	65.0	58.0	54.9-64.9	Weathered Rock	Yes	35.40	8/1/2018
BRGWC / PZ-52I	33.1895523	-83.2985957	1161275.44	2562144.69	383.83	380.93	Biotite Gneiss	75.0	50.0	63.9-73.9	Weathered Rock	Yes	39.26	8/6/2018

Notes:

MSL - mean sea level

NAD - North American Datum

NAVD - North American Vertical Datum

NA - Not Available

bgs - Below ground surface

bTOC - Below Top of Casing

[1] Depth to water recorded 9/18/2018 during sampling event



Table 2Summary of Piezometer Development Data
Georgia Power Company - Plant Branch
Milledgeville, Georgia

Piezometer ID	Date Started	Time Started (hr:min)	Elapsed Time (hr:min)	Development Method	Measured Total Depth of Well (ft. bTOC)	Initial Water level (ft. bTOC)	Final Water Level (ft. bTOC)	Volume of Casing (gal)	Total Volume Removed (gal)	рН (S.U.)	Specific Conductance (mS/cm)	Temp (°C)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Comments
PZ-51S	8/2/2018	9:25	5:31	Reclaimer	45.26	36.53	37.15	1.42	112.5	6.18	180.04	23.04	8.50	97.11	4.43	Well Purged dry 3 times during development. Field parameters recorded during lof flow sampling immediately following development.
PZ-511	8/3/2018	8:50	3:00	Reclaimer	65.00	35.18	35.80	4.86	67.5	5.47	1940.69	24.32	4.98	155.39	1.21	Field parameters recorded during lof flow sampling immediately following development.
BRGWC-521 /	8/9/2018	12:10	3:00	Reclaimer	73.60	35.88	36.23	6.15	65.0	6.28	503.21	23.12	4.86	30.12	0.21	Field parameters recorded during lof flow sampling immediately following development.
PZ-521	8/23/2018	8:25	1:23	Reclaimer	76.60	39.11	39.65	6.11	40.0	6.75	421.03	23.70	3.20	-1.41	8.84	Well Redeveloped Particulate matter observed in discharge, despite the low turbidity (<2 NTU)

Notes:

Recorded field parameter data was taken from SmarTroll Logs.

hr:min - hours:minutes

ft bTOC - feet below Top of Casing

gal - gallons

SU - Standard Units

mS/cm - millisiemens per centimeter

oC - degrees Celcius

NTU - nephelometric turbidity units

mV - millivolts

mg/L - milligrams per liter

ORP - oxygen reduction potential

DO - dissolved oxygen



ATTACHMENT B

BORING LOGS & PIEZOMETER CONSTRUCTION LOGS

		SOIL PROFILE		TOC ELEVATION: 380.60 ft SAMPLES DIAGRAM: MONITOR					DIAGRAM and	NOTES		
	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	PID (ppm)	NUMBER	ТҮРЕ	REC / ATT	2.81 ft-ags Stick up	WELL/ ER PZ-511	WELL CONSTRUCTION DETAILS
5	- 375 - 370	0.00 - 10.00 Soil was hydrovacuumed to 10 feet.										PZ-511 Borehole Diameter: 6 WELL CASING Interval: 0-65' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screen WELL SCREEN Interval: 54.9-64.9' Material: 0.010' Slotted Schedule 40 PVC Pre-Pack Screen Diameter: 2 Slot Size: 0.010 End Cap: 65.3
	- 365 - 360	10.00 - 20.00 silty SAND, reddish brown with white mottling, fine to coarse, some relic structure, non-cohesive, dy, loose	SM		367.79	No Data	S - 1	ROTO SONIC	<u>2.70</u> 10.00			FILTER PACK Interval: 52.5-65.0 Type: FilterSil Quantity: 5 - 50 lb bags FILTER PACK SEAL Interval: 49.2-52.5' Type: 3/8" PEL-PLUG Quantity: 5 gallons ANNULUS SEAL Interval: 0-49.2 Type: Portland Cement and Quick Gel Bentonite Mix Quantity: Cement: 6 - 94lb bags Water: 75 gallons
	- 355	20.00 - 25.00 silty SAND with trace gravel, fine to coarse	SM		357.79 20.00 352.79	No Data	S - 2	ROTO SONIC	<u>4.00</u> 5.00	Portland Cement and Quick Gel –	0000 00000	
	- 350	25.00 - 35.00 silty SAND with some boulders > 3inches, dark brown fine to coarse, non-cohesive, dry, loose to compact	SM		25.00	No Data	S - 3	ROTO SONIC	<u>8.40</u> 10.00	Bentonite Mix		
5	- 340	35.00 - 45.00 silty SAND, fine to coarse, relic granitic structure, micaecous, non-cohesive, moist, loose to compact	SM		342.79 35.00	No Data	S - 4	ROTO SONIC	<u>5.50</u> 10.00			

AA BOREHOLE RECORD PLANT BRANCH 20181002.GPJ GOLDER NJ-PA 05-24-06.GDT 10/2/18

RECORD OF BOREHOLE PZ-511 SHEET 2 of 2 NORTHING: 1,161,631.46 EASTING: 2,562,438.27 GS ELEVATION: 377.79 ft DEPTH W.L.: 35.20 ft ELEVATION W.L.: 345.40 ft DATE W.L.: 8/3/18 PROJECT: Plant Branch PROJECT NUMBER: 1666254-01 DRILL RIG: 8140LC DATE STARTED: 8/1/18 DRILLED DEPTH: 65.00 ft DATE COMPLETED: 8/1/18 TOC ELEVATION: 380.60 ft TIME W.L.: 08:33:00 SOIL PROFILE SAMPLES DIAGRAM and NOTES MONITORING WELL/ PIEZOMETER LEVATION (ft) DEPTH (ft) WELL CONSTRUCTION GRAPHIC LOG ELEV. (mdd) NUMBER μ USCS TYPE DESCRIPTION DETAILS REC / E Щ DEPTH PZ-511 (ft) 40 40 35 00 - 45 00 PZ-51I Borehole Diameter: 6 silty SAND, fine to coarse, relic granitic structure, micaecous, non-cohesive, moist, loose to compact (Continued) SONIC WELL CASING No Data 4 Interval: 0-65 SM <u>5.50</u> 10.00 ώ Material: Schedule 40 ROTO 335 PVC Diameter: 2' Joint Type: Flush/Screen 332.79 45 45 45.00 - 53.50 45.00 WELL SCREEN high plastic CLAY, clay with some sand, sand fine to medium, Interval: 54.9-64.9' Material: 0.010" Slotted light reddish brown, cohesive, moist to wet, stiff SONIC Schedule 40 PVC Pre-Pack Screen Data ŝ Diameter: 2 Slot Size: 0.010 <u>8.50</u> 8.50 330 ROTO (ώ ۶ End Cap: 65.3 C⊦ FILTER PACK Interval: 52.5-65.0 50 50 3/8 Type: FilterSil PEL-PLUG Quantity: 5 - 50 lb bags Bentonite Pellets FILTER PACK SEAL Interval: 49.2-52.5' Type: 3/8" PEL-PLUG Quantity: 5 gallons 325 324.29 53.50 - 55.00 53.50 ANNULUS SEAL silty Sand, reddish brown, relic foliation, micaceous, moist, loose to compact SM Interval: 0-49.2 Type: Portland Cement and Quick Gel 322.79 55 55 55.00 - 58.00 55.00 SONIC Saprolte, silty SAND with some gravel, sand and gravel fine to Bentonite Mix Quantity: Cement: 6 coarse Data SM 9 94lb bags Water: 75 gallons ROTO (່ Ŷ 6.50 320 319.79 58.00 - 60.00 58.00 BIOTITE GNEISS, gravel, highly weathered, very weak dry FilterSil BR 0.010" Slotted 317.79 60 60 60.00 - 65.00 BIOTITE GNEISS, banded white with dark brown, large 60.00 Schedule 40 PVC grained, highly weathered, strong Pre-Pack ROTO SONIC Screen Data S - 7 BR <u>3.10</u> 5.00 315 ٩ 312.79 65 End Cap 65 Boring completed at 65.00 ft 310 70 70 305 75 75 300

10/2/18

GOLDER NJ-PA 05-24-06.GDT BRANCH 20181002.GPJ PLANT RECORD 80 ш BOREHOL

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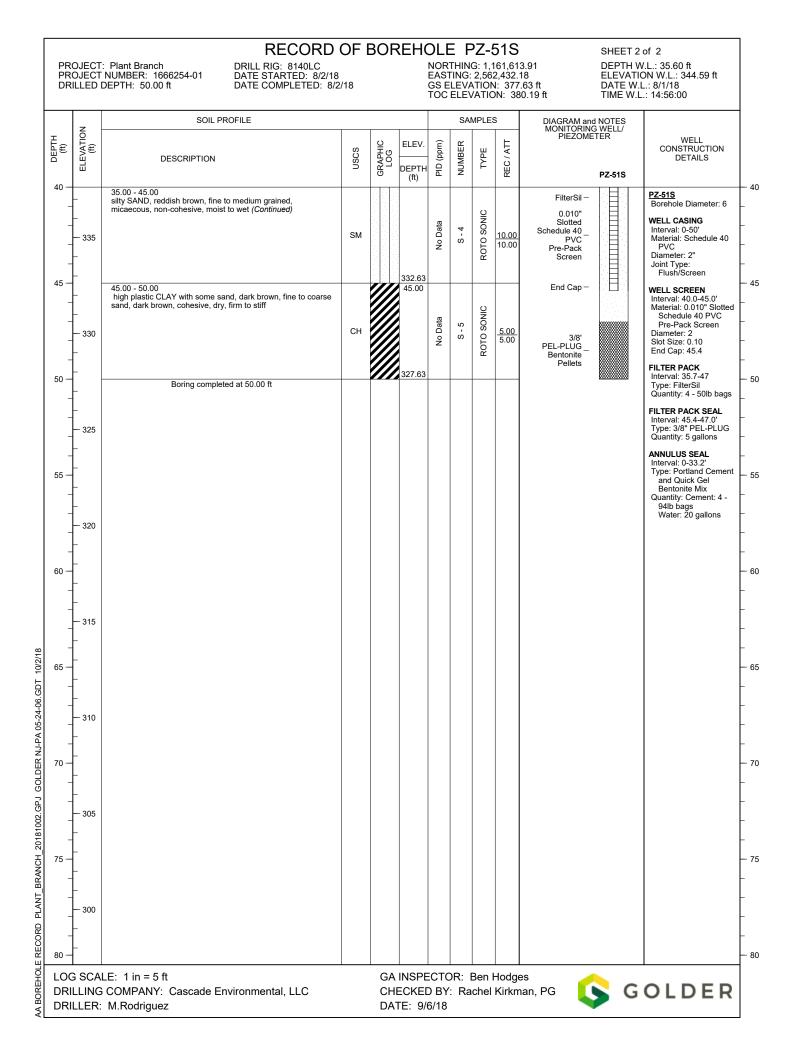
LOG SCALE: 1 in = 5 ft DRILLING COMPANY: Cascade Environmental, LLC DRILLER: M. Rodriguez

GA INSPECTOR: Ben Hodges CHECKED BY: Rachel Kirkman, PG DATE: 9/6/18



	_	SOIL PROFILE					SA	MPLE	s	DIAGRAM and	NOTES	
(tt)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	PID (ppm)	NUMBER	ТҮРЕ	REC / ATT	DIAGRAM and MONITORINO PIEZOME 2.56 ft-ags _ Stick up	PZ-51S	WELL CONSTRUCTION DETAILS
0 — — — 5 —	- - - 375 -	0.00 - 10.00 Soil was hydrovacuumed to 10 feet.								i		PZ-51S Borehole Diameter: 6 WELL CASING Interval: 0-50' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screen
- - - - - -	- 370 				367.63							WELL SCREEN Interval: 40.0-45.0' Material: 0.010' Slotted Schedule 40 PVC Pre-Pack Screen Diameter: 2 Slot Size: 0.10 End Cap: 45.4 FILTER PACK Interval: 35.7-47
-	- - - 365 -	10.00 - 20.00 Silty SAND, reddish brown, fine to medium grained, some relic structure, micaceous, cohesive, w>PL, dry, loose			10.00			Q				Type: FilterSil Quantity: 4 - 50lb bags FILTER PACK SEAL Interval: 45.4-47.0' Type: 3/8" PEL-PLUG Quantity: 5 gallons ANNULUS SEAL
5	- - 360 		SM			No Data	S - 1	ROTO SONIC	<u>3.70</u> 10.00	Portland Cement and Quick Gel – Bentonite Mix		Interval: 0-33.2 Type: Portland Cement and Quick Gel Bentonite Mix Quantity: Cement: 4 - 94lb bags Water: 20 gallons
	- - - 355 - -	20.00 - 30.00 Silty SAND, reddish brown with black sand intrusions, fine to medium grained, micaceous, non-cohesive, moist, loose	SM		357.63	No Data	S - 2	ROTO SONIC	<u>9.10</u> 10.00			
- - - -	- 350 				347.63							
	- 345 	30.00 - 35.00 silty to clayey SAND, reddish brown w/ black sand intrusions, fine to medium grain, micaecoues, non-cohesive, moist to wet	SC-SM		30.00	No Data	S - 3	ROTO SONIC	<u>5.00</u> 5.00	3/8' PEL-PLUG _ Bentonite		
5	- - - 340 -	35.00 - 45.00 sitty SAND, reddish brown, fine to medium grained, micaecous, non-cohesive, moist to wet	SM		35.00	No Data	S - 4	ROTO SONIC	<u>10.00</u> 10.00	Pellets		

AA BOREHOLE RECORD PLANT BRANCH 20181002.GPJ GOLDER NJ-PA 05-24-06.GDT 10/2/18



PR	OJECT	RECORD OF BOR Plant Branch NUMBER: 1666254-01 DEPTH: 75.00 ft DEPTH: 7		DLE		NOR EAS GS E	THING: ELEVA	G: 1,1 2,562 TION	61,27 2,144.9 : 380	5.44 69	ELEVAT DATE W	1 of 2 W.L.: 35.99 ft ION W.L.: 347.84 ft /.L.: 8/9/18 .L.: 11:45:00
0 – 0	ELEVATION (ff)	SOIL PROFILE DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	PID (ppm)	NUMBER	MPLES J	REC / ATT	DIAGRAM anı MONITORIN PIEZOME 2.9 ft-ags Stick up	PZ-52I	WELL CONSTRUCTION DETAILS
- - - 5 - - - - -	- 380 - - - - 375 - -	0.00 - 8.00 Soil was hydrovacuum to 8 feet 8.00 - 10.00 Loss of material			<u>372.93</u> 8.00							PZ-521 Borehole Diameter: 6 WELL CASING Interval: 0-73.9' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screen WELL SCREEN Interval: 63.9-73.9' Material: 0.010" Slotted Schedule 40 PVC Pre-Pack Screen Diameter: 2 Slot Size: 0.010 End Cap: 73.9
- - 0 -	- 370 	10.00 - 18.00 sandy SILT w/ trace gravel, fine to coarse, weathered, micaceous, fill, moist to dry, loose to compact, non-cohesive			370.93							FILTER PACK Interval: 59.7-73.9 Type: FilterSil Quantity: 5 - 50lb bags FILTER PACK SEAL Interval: 50.4-59.7' Type: 3/8" PEL-PLUG Quantity: 10 gallons
 5 - - -	- 365 -	18.00 - 20.00 sandy SILT, fine to coarse, weathered, dry, loose, non-cohesive, trace gravel at bottom	MLS		362.93 18.00 360.93	No Data	S - 1	ROTO SONIC	<u>4.00</u> 10.00			ANNULUS SEAL Interval: 0.50.4' Type: Portland Cement and Quick Gel Bentonite Mix Quantity: Cement: 6 - 94lb bags Water: 75 gallons
0 -	360 	20.00 - 26.00 sandy SILT with trace gravel, dark brown, micaceous, sand/gravel fine to coarse, loose to compact	MLS		20.00			NIC		Portland		
25 — - - -	- 355 	26.00 - 30.00 sandy SILT with trace gravel, grey to brown, less micaceous, sand/gravel fine to coarse, moist, compact	MLS		354.93 26.00	No Data	S - 2	ROTO SONIC	<u>7.00</u> 10.00	Cement and Quick Gel – Bentonite Mix		
30 — - -	- 350 -	30.00 - 32.50 sandy SILT with trace gravel, red, sand/gravel fine to coarse, moist, compact, non-cohesive,high plasticity	MLS		350.93 30.00 348.43							
- 35 — -	- - 345	32.50 - 37.00 CLAY with some sand, RED, cohesive, w>PL, stiff to very stiff, sand fine to coarse, high plasticity	СН		32.50	No Data	S - 3	ROTO SONIC	<u>10.00</u> 10.00			
- - 40	-	37.00 - 40.00 sandy SILT, red, w>PL, soft to firm,sand fine to coarse, cohesive, high plasticity	MLS		343.93 37.00 340.93							
DRI	LLING	Log continued on next page LE: 1 in = 5 ft COMPANY: Cascade Environmental, LLC M.Rodriguez		CH	INSPE) BY			-	es han, PG		OLDER

AA BOREHOLE RECORD PLANT_BRANCH_20181002.GPJ GOLDER NJ-PA 05-24-06.GDT 10/2/18

RECORD OF BOREHOLE BRGWC-52I/PZ-52I

PROJECT: Plant Branch PROJECT NUMBER: 1666254-01 DRILLED DEPTH: 75.00 ft DRILL RIG: 8140LC DATE STARTED: 8/6/18 DATE COMPLETED: 8/6/18

NORTHING: 1,161,275.44 EASTING: 2,562,144.69 GS ELEVATION: 380.93 ft TOC ELEVATION: 383.83 ft

SHEET 2 of 2 DEPTH W.L.: 35.99 ft ELEVATION W.L.: 347.84 ft DATE W.L.: 8/9/18 TIME W.L.: 11:45:00

z	SOIL PROFILE		1			SAI	MPLE		MONITORING WELL/	
ELEVATIC (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	PID (ppm)	NUMBER	TYPE	REC / ATT	PIEZOMETER PZ-521	WELL CONSTRUCTION DETAILS
- 340 - -	40.00 - 45.00 silty SAND with trace gravel and clay, light grey to brown , sand/gravel fine to coarse, non-cohesive, compact to dense, wet	GM		40.00			DNIC			PZ-521 Borehole Diameter: 6 WELL CASING Interval: 0-73.9' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screen
- 335 - -	45.00 - 47.50 Sandy Clay, red, cohesive, very stiff w> PL, sand, fine, high plasticity 47.50 - 50.00	SC	• Nº	335.93 45.00 333.43 47.50	No Dat	S - 4	ROTO SC	<u>10.00</u> 10.00		WELL SCREEN Interval: 63.9-73.9' Material: 0.010' Slotted Schedule 40 PVC Pre-Pack Screen Diameter: 2 Slot Size: 0.010
-	very firm to stiff, w > PL to w ~ PL, high plasticity	sc		330.93						End Cap: 73.9 FILTER PACK Interval: 59.7-73.9
- 330 - -	50.00 - 60.00 BIOTITE GNEISS, fresh to weathered, medium to coarse, banding, black/white, weak to strong			50.00	No Data	S - 5	ROTO SONIC	<u>3.00</u> 3.00		Type: FilterSil Quantity: 5 - 50lb bags FILTER PACK SEAL Interval: 50.4-59.7' Type: 3/8' PEL-PLUG Quantity: 10 gallons
- 325 - -		BR			No Data	S - 6	ROTO SONIC	<u>2.30</u> 7.00	3/8' PEL-PLUG _ Bentonite Pellets	ANNULUS SEAL Interval: 0.50.4' Type: Portland Cement and Quick Gel Bentonite Mix Quantity: Cement: 6 - 94lb bags Water: 75 gallons
- - 320 - - - - - - 315 - -	60.00 - 70.00 BIOTITE GNEISS, fresh, banded coarse and fine grain, black/white, very strong	BR		320.93	No Data	S-7	ROTO SONIC	<u>6.00</u> 10.00	FilterSil – 0.010" Slotted Schedule 40 _ PVC	
- 310 - -	70.00 - 75.00 BIOTITE GNEISS, fresh, banded coarse and fine grain, black/white, very strong	BR		310.93 70.00 305.93	No Data	S - 8	ROTO SONIC	0.00 5.00	Pre-Pack Screen	
- 305 - - -	Boring completed at 75.00 ft			100.33						
	- - - - - - - - - - - - - - - - - - -	-340 40.00 - 45.00 sand/gravel fine to coarse, non-cohesive, compact to dense, wet -340 45.00 - 47.50 Sandy Clay, red, cohesive, very stiff w> PL, sand, fine, high plasticity -335 5andy Clay, red, cohesive, very stiff w> PL, sand, fine, high plasticity -340 45.00 - 47.50 Sandy Clay, with trace gravel, red, fine to coarse, cohesive, very firm to stiff, w> PL to w ~ PL, high plasticity -330 50.00 - 60.00 BIOTITE GNEISS, fresh to weathered, medium to coarse, banding, black/white, weak to strong -330 50.00 - 70.00 BIOTITE GNEISS, fresh, banded coarse and fine grain, black/white, very strong -320 60.00 - 70.00 BIOTITE GNEISS, fresh, banded coarse and fine grain, black/white, very strong -3115	-340 40.00 - 45.00 silly SAND with trace gravel and clay, light grey to brown, sand/gravel fine to coarse, non-cohesive, compact to dense, wet GM -340 45.00 - 47.50 Sandy Clay, red, cohesive, very stiff w> PL, sand, fine, high plasticity SC -335 50.00 - 47.50 Sandy Clay, red, cohesive, very stiff w> PL, sand, fine, high plasticity SC -340 50.00 - 60.00 BiOTITE GNEISS, fresh to weathered, medium to coarse, banding, black/white, weak to strong SC -325 50.00 - 60.00 BIOTITE GNEISS, fresh, banded coarse and fine grain, black/white, very strong BR -325 60.00 - 70.00 BIOTITE GNEISS, fresh, banded coarse and fine grain, black/white, very strong BR -310 BIOTITE GNEISS, fresh, banded coarse and fine grain, black/white, very strong BR -310 BIOTITE GNEISS, fresh, banded coarse and fine grain, black/white, very strong BR -310 BIOTITE GNEISS, fresh, banded coarse and fine grain, black/white, very strong BR	340 40.00 - 45.00 silty SAND with trace gravel and clay, light grey to brown, sand/gravel fine to coarse, non-cohesive, compact to dense, wet GM GM	- 340 - 340, 00 - 45, 00 allty SAND with trace gravel and clay, light grey to brown, and gravel fine to coarse, non-cohesive, compact to dense, wet - 340, 00 - 40, 00 - 340 - 340, 00 - 335, 33 - 335, 33 - 335 - 336, 337, Clay, red, cohesive, very stiff w> PL, sand, fine, high plasticity - 335, 33 - 336 - 337, Clay, red, cohesive, very stiff w> PL, sand, fine, high plasticity - 336, 333, 43 - 336 - 347, 50 - 333, 343 - 347, 50 - 50, 00 - 330, 93 - 300 BIOTITE GNEISS, fresh to weathered, medium to coarse, banding, black/white, weak to strong - 360, 00 - 320 - 60, 00 - 800, - 70, 00 - 320 BIOTITE GNEISS, fresh, banded coarse and fine grain, black/white, very strong - 80, 00 - 310 - 70, 00 - 75, 00 - 80, 00 - 310 BIOTITE GNEISS, fresh, banded coarse and fine grain, black/white, very strong - 80, 00 - 310 BIOTITE GNEISS, fresh, banded coarse and fine grain, black/white, very strong - 80, 00 - 310 BIOTITE GNEISS, fresh, banded coarse and fine grain, black/white, very strong - 70, 00 - 310 BIOTITE GNEISS, fresh, banded coarse and fine grain, black/white, very strong - 70, 00	40.00 - 45.00 (f) L 340 safty SAND with trace gravel and clay, light gray to brown, sand safty SAND with trace gravel and clay, light gray to brown, sand safty SAND with trace gravel and clay, light gray to brown, sand safty SAND with trace gravel, non-cohesive, compact to dense, of the safty SAND with trace gravel, red, fine to coarse, cohesive, were string plasticity 0	40.00 - 45.00 (f) d L 340 shity SAND with trace gravel and clay, light gray to brown , small gray and find to coarse, non-cohesive, compact to dense, wet 40.00 40.00 40.00 340 shity SAND with trace gravel, non-cohesive, compact to dense, wet GM 0 335.93 9 7 355 Sandy Clay, red, cohesive, very stiff w> PL, sand, fine, high plasticity SC 45.00 47.50 333.43 36 Sandy Clay with trace gravel, red, fine to coarse, cohesive, very firm to stiff, w > PL, to w - PL, high plasticity SC 330.93 47.50 310.00 Sindy Clay, red, cohesive, very stiff w> PL, sand, fine, high plasticity SC 330.93 47.50 330.01 Sindy Clay with trace gravel, red, fine to coarse, baladity SC 330.93 47.50 330.02 Sindy Clay with trace gravel, red, fine to scarse, baladity SC 330.93 47.50 330.03 Sindy Clay with trace gravel, red, fine to coarse, observe, very firm to stiff, w > PL to w - PL, high plasticity SC 330.93 40.00 330.03 Sindy Clay with trace gravel, red, fine to coarse, observe, wery firm to stiff, w > PL SC 30.03	40.00 - 45.00 sulty SAND with trace gravel and day, light gray to brown, sulty SAND with trace gravel and day, light gray to brown, sulty SAND with trace gravel and day, light gray to brown, wet 0	40.00 - 45.00 sality SAND with trace gravel and clay, light grey to brown, sality SAND with trace gravel and clay, light grey to brown, wet 40.00 sality SAND with trace gravel and clay, light grey to brown, sality SAND with trace gravel field class, wet 40.00 sality SAND with trace gravel and clay, light grey to brown, sality SAND with trace gravel, red, fine, high plasticity 40.00 sality SAND 40.00 sality SAND<	August SAND with tase gravel and day, light gray to brown, and SAND with tase gravel and day, light gray to brown, and SAND with tase gravel and day, light gray to brown, and SAND with tase gravel and day, light gray to brown, wet and the cause, non-cohesive, compact to dense, wet and the second seco

ATTACHMENT C

PIEZOMETER DEVELOPMENT LOGS





WELL DEVELOPMENT FIELD RECORD

JOB NAME DEVELOPED BY STARTED DEVEL. W.L. BEFORE DEVEL WELL DEPTH: BEFOR STANDING WATER C SCREEN LENGTH	35.76 / DEPTH D RE DEVEL. *		- 0	DATE OF COMPLE AFTER D AFTER D STANDIN	TED DEVEL.		SHEET	D. <u>f2-5/5</u> OF gal. gal.	
		FIELI	D PARAME	TERS					
DATE/TIME	VOLUME REMOVED (GALS)	SPEC. COND. (umhos/cm)	TEMP. (°F)	рН (s.u.)	MTU OTHER		REMARK	S	
8-2-18/0925	5	pump m	k :	1 341/	min	PUNQ.	41.5", 1	VL= 41.5	
0945	a <i>5</i>					pumpe	41', ~	6 >41'	
000	30	222./	27.90	9.7.49	71000	pump @	42', ~	4:	
0950 1015	30	Racetter	djud (c	101	48 0950	A = 4 Q	601	1264 90	
1030	45	2042	23.24	7.49	139	pro Co		6241.85	
1045	1.0	wellon	Q I	045	124	And Q	431 6	- 2 DRY	
1130	60	resume	0. 1	30		pino @		= 36.24	
1135	65	199.30	2447	7.63	71000	1.	43' WL	3 2702	
1200	90	~ paus	ed dev	~	10. 11	PR	1		
1200		contined	der	8 0	Sgal/mn		w	2 36.34	
1310	95	186.1	23.93	8.47	GNAU		242 , ~	624256	
1330	105	- pained a	23.56	rechar	er whi	> TOP @	431	1	
1445	105	· Stupped	43.56	Flow	9-19	L due	= 36.27,	mmg 431	
1973	1	to 1	tow (<	100 ATU	ane of im	ud flow		5	
		· see M	a furn	r	Santh		4		
	V								
	112-5	= TOTAL VC	DUME REI	MOVED (al.)				
	DEVELOPMENT METHOD: -well well log ? times (bl and, 41 and 1 ? 105 an) - completed day then more to Low - then up blander pump.								

🕓 GOLDER

WELL DEVELOPMENT FIELD RECORD

JOB NAME DEVELOPED BY STARTED DEVEL. W.L. BEFORE DEVEL. WELL DEPTH: BEFOR STANDING WATER CO SCREEN LENGTH	K. M.n/K.a 8-3-18 / DATE 35.20 / DEPTH D E DEVEL.	nch Pend B A / B. Mon 0850 TIME 8-3-18 083 ATE TIME 65.00 29.8 (55-65)	der	DATE OF COMPLET AFTER DE AFTER DE STANDING	TED DEVEL.	8-2-18 8-3-18 DATI 35.60,9- DEPTH DATI 65.00 WE UME	SHEET E TIME 	<u><u><u></u><u></u><u><u></u><u></u><u></u><u></u><u></u><u></u><u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u></u></u></u>
DATE/TIME	VOLUME REMOVED (GALS)	FIEL SPEC. COND. (umhos/cm)	D PARAME TEMP. (°F)	pH (s.u.)	MTU OTHER		REMARKS	
47-18/0850 0915 0915 1945 1016 1045 1100	2.5 27.5 40 55 67.5	P-mp rat 963.1 1269.6 1370.1 1867.8 1952.7 ≤ comple	2 1/2 23.55 22.43 23.54 23.54 23.54 23.50 20 20 20 20 20 20 20 20 20 20 20 20 20	9al / M 679 5.70 5.52 5.40 5.36 40 5.36 40	5.29 5.8.6 6.3.5 4/8.1 51.7 + -	p-np p-ne 63 p-me 267 p-me 26 p-me 25	0 65 1 106 24 1 106 2 1 106	" (100 + Lom) 4.51 45-JQ 45-JQ 45-GS 45.90 45.95
DEVELOPMENT METH	-p~,	= TOTAL VO Rocla Me Marcol 2	imer ! yhro	o-ghast	jal.) <i>Sçrttış</i>	after each	n reachy	F Clounge

S GOLDER

WELL DEVELOPMENT FIELD RECORD

DEVELOPED BY	Bruch Par 16. Migl	e e	- '	DATE OF	INSTALL.	254.04 WELL NO. 22521 18-8-18 SHEET 1 OF 1 8-9-18 1500
V.L. BEFORE DEVEL.		TIME 8-2-8 1145 DATE TIME		COMPLE	TED DEVEL. EVEL.	3615, 8-4-1, 1531
VELL DEPTH: BEFOR		73.55		AFTER D		73.6 WELL DIA. (In)
TANDING WATER CO			- C		EVEL. IG WELL VOL	
CREEN LENGTH		(64-74)			WATER LOS	
		FIEL	D PARAME	ETERS		
DATE/TIME	VOLUME REMOVED (GALS)	SPEC. COND. (umhos/cm)	TEMP. (°F)	рН (s.u.)		REMARKS
4-12/1210	A	Quar 1-	*Q	1/2 -	1 min	Real C Ty (attam)
1240	20	767.6	26.7	676	39.9	Impe 74, wes 37.80
1720	30	300	THE REAL PROPERTY AND INCOMENT	6.94	19-3	C 72, 142 37.85
		Perolopment	Paus	d R	1320	0 70 , 4 5 3290
		die to	Saver	month		
			1			
1430	50	renne @	2425	1 212	13.42	(0 68', W238.30
1500	65	468.4	24.24	6.32	15.72	@ 661, wh = 38.15
						C 60 , 42 - 58.13
		4	<u> </u>			
						And a second
			<u> </u>			
	¥.					
	65	= TOTAL V	OLUME RE	MOVED (gal.)	

GOLDER

WELL DEVELOPMENT FIELD RECORD

JOB NAME Plant Branch Pond B	JOB NO. 166625418 WELL NO.	pz-52I
DEVELOPED BY K. M. n.Kim	DATE OF INSTALL. 8/9/18 SHEET	OF /
STARTED DEVEL. 8/23/18 / 0625	COMPLETED DEVEL. 8/23/18 / 0948	
DATE TIME	DATE TIME	
W.L. BEFORE DEVEL. 39.02 (64.02) 8/25/18 / 0753	AFTER DEVEL. 39 So 18/31/19 (00)	
DEPTH DATE TIME	DEPTH DATE TIME	່ວ'່
WELL DEPTH: BEFORE DEVEL. 76-60 (btog)	AFTER DEVEL. 76.60 WELL DIA. (In)	9
STANDING WATER COLUMN (FT.) 37.58	STANDING WELL VOLUME	gal.
SCREEN LENGTH	DRILLING WATER LOSS	gal.

	VOLUME	FIELD	D PARAME	TERS		
DATE/TIME	VOLUME REMOVED (GALS)	SPEC. COND. (umhos/cm)	TEMP. (°F)	рН (s.u.)	OTHER	REMARKS
8/23/18 /0825	1	pump C	2 76	ptoc	365	punp mk @ 0.5gol/min
10975	5				36.5	DTW= 40.95
0 855	15				6.22	orm = 46.60
6905	20	500.5	21.05	651	183	pr= 46.60 , 10000761
0915	25	984.(2052	645	1.57	DTW = 4640 1 P-mp @ 74'
0935	35	481.9	20.43	6.40	1.49	Druce 4625 pumpe 72'
			-	6.76		
0945	40	477	2155	675	1.94	PTW= 4635, PUMP @ 72'
					-	
				<u> </u>		
				<u> </u>		B/
			<hr/>			
					1	
	40		l	L	L	
	70	= TOTAL VO	DLUME RE	MOVED (gal.)	
DEVELOPMENT MET	HOD [.]	Rechim				

NOTES: White particulars observed in watery despite very low NTU (<2).

Lamothe calibrated forze.

Date: 2018-08-02 16:02:59

Project Information:		Pump Information:	
Operator Name	K. Minkara	Pump Model/Type	SamplePro
Company Name	Golder Associates	Tubing Type	polyethylene
Project Name	1666254.04	Tubing Diameter	.170 in
Site Name	Plant Branch	Tubing Length	42.5 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	463453		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	42.5 ft
Well Information:		Pumping Information:	
Well ID	PZ-51S	Final Pumping Rate	100 mL/min
Well diameter	2 in	Total System Volume	0.4046955 L
Well Total Depth	45.26 ft	Calculated Sample Rate	300 sec
Screen Length	5 ft	Stabilization Drawdown	7.44 in
Depth to Water	36.53 ft	Total Volume Pumped	3 L

Low-Flow Sa	mpling Stabiliz	zation Summary	/						
	Time	Elapsed	Temp C	рН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	15:41:04	600.05	23.91	6.22	178.27	17.20	36.95	5.04	93.55
Last 5	15:46:04	900.03	23.30	6.19	178.54	15.60	37.02	4.85	96.80
Last 5	15:51:04	1200.00	23.07	6.18	179.01	13.40	37.05	4.70	97.78
Last 5	15:56:05	1500.99	23.03	6.18	180.05	9.39	37.12	4.66	97.46
Last 5	16:01:08	1803.98	23.04	6.18	180.04	8.50	37.15	4.43	97.11
Variance 0			-0.22	-0.00	0.47			-0.14	0.97
Variance 1			-0.05	-0.00	1.05			-0.04	-0.32
Variance 2			0.01	-0.01	-0.01			-0.23	-0.35

Notes Sampled PZ-51S at 1600

Date: 2018-08-03 12:13:01

Project Information:		Pump Information:	
Operator Name	K. Minkara	Pump Model/Type	SamplePro
Company Name	Golder Associates	Tubing Type	polyethylene
Project Name	1666254.04	Tubing Diameter	.170 in
Site Name	Plant Branch	Tubing Length	60 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	463453		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	60 ft
Well Information:		Pumping Information:	
Well ID	PZ-511	Final Pumping Rate	120 mL/min
Well diameter	2 in	Total System Volume	0.4828054 L
Well Total Depth	65 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	7.44 in
Depth to Water	35.18 ft	Total Volume Pumped	3.6 L

Low-Flow Sa	ampling Stabiliz	zation Summary	y						
	Time	Elapsed	Temp C	рН	SpCond µS,	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	11:45:05	300.04	28.35	6.14	969.00	17.60	35.75	5.33	153.20
Last 5	11:55:05	900.01	25.01	5.49	1896.21	9.46	35.80	1.50	171.93
Last 5	12:00:05	1200.00	24.67	5.48	1905.40	8.14	35.80	1.36	169.03
Last 5	12:05:05	1499.99	24.38	5.48	1929.57	5.82	35.80	1.29	162.44
Last 5	12:10:06	1800.98	24.32	5.47	1940.69	4.98	35.80	1.21	155.39
Variance 0			-0.34	-0.00	9.19			-0.14	-2.90
Variance 1			-0.29	-0.01	24.18			-0.08	-6.59
Variance 2			-0.06	-0.00	11.12			-0.08	-7.05

Notes Sampled PZ-51I at 1210

Date: 2018-08-10 08:53:39

Project Information:		Pump Information:	
Operator Name	K. Minkara	Pump Model/Type	SamplePro
Company Name	Golder Associates	Tubing Type	polyethylene
Project Name	1666254.04	Tubing Diameter	.170 in
Site Name	Plant Branch	Tubing Length	69 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	463453		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	69 ft
Well Information:		Pumping Information:	
Well ID	PZ-521	Final Pumping Rate	150 mL/min
Well diameter	2 in	Total System Volume	0.5229762 L
Well Total Depth	73.6 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	4.2 in
Depth to Water	35.88 ft	Total Volume Pumped	6 L

Low-Flow Sa	mpling Stabiliz	ation Summary	/						
	Time	Elapsed	Temp C	рН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	08:30:07	1200.00	23.23	6.28	496.12	6.85	36.23	1.13	33.59
Last 5	08:35:09	1501.99	23.21	6.28	494.78	5.87	36.23	0.94	32.96
Last 5	08:40:09	1801.98	23.15	6.28	498.32	5.36	36.23	0.81	30.50
Last 5	08:45:14	2106.97	23.13	6.28	502.56	5.05	36.23	0.65	29.24
Last 5	08:50:15	2407.96	23.12	6.28	503.21	4.86	36.23	0.21	30.12
Variance 0			-0.05	0.00	3.54			-0.13	-2.46
Variance 1			-0.03	0.00	4.24			-0.16	-1.26
Variance 2			-0.01	-0.01	0.66			-0.44	0.88

Notes

Sampled PZ-52I at 0850. WL readings reflect ft below ground surface

Date: 2018-08-23 14:24:47

Project Information:		Pump Information:	
Operator Name	K. Minkara	Pump Model/Type	SamplePro
Company Name	Golder Associates	Tubing Type	polyethylene
Project Name	1666154	Tubing Diameter	.17 in
Site Name	Plant Branch	Tubing Length	71 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	465016		
Turbidity Make/Model	Lamotte 2020we	Pump placement from TOC	71 ft
Well Information:		Pumping Information:	
Well ID	PZ-52I	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.5319031 L
Well Total Depth	76.6 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	6.48 in
Depth to Water	39.11 ft	Total Volume Pumped	6 L

Low-Flow Sa	mpling Stabiliz	ation Summary	/						
	Time	Elapsed	Temp C	pН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	14:00:59	600.03	24.26	6.50	455.74	4.86	39.43	9.07	34.91
Last 5	14:05:59	900.03	23.92	6.63	447.68	2.99	39.43	9.50	20.71
Last 5	14:10:59	1200.03	23.79	6.70	433.09	3.07	39.45	8.92	10.18
Last 5	14:16:00	1501.03	23.71	6.74	430.09	3.05	39.60	9.00	3.21
Last 5	14:21:00	1801.03	23.70	6.75	421.03	3.20	39.65	8.84	-1.41
Variance 0			-0.13	0.07	-14.59			-0.58	-10.53
Variance 1			-0.08	0.04	-3.00			0.08	-6.97
Variance 2			-0.01	0.01	-9.07			-0.16	-4.62

Notes Sampled PZ-52I at 1420



May 31, 2018

Project No. 1666254-02

Mr. Joju Abraham, PG Southern Company Services, Inc. 241 Ralph McGill Blvd NE Atlanta, GA 30308 jabraham@southerco.com

PIEZOMETER INSTALLATION REPORT FOR SURFACE IMPOUNDMENT GEORGIA POWER PLANT BRANCH, MILLEDGEVILLE, GEORGIA

Dear Joju:

Golder Associates Inc. (Golder) is submitting this *Piezometer Installation Report to Southern Company Services, Inc. (SCS)* and *Georgia Power Company (GPC)*, which documents the construction of piezometers at Plant Branch in Milledgeville, Georgia. Piezometer construction activities were performed in general accordance with the standards described in the *RCRA Technical Enforcement Guidance Document* (1986) and the *Georgia Water Wells Standards Act of 1985.* The installation of the piezometers was conducted under the oversight and direction of Timothy Richards and Rachel Kirkman, Georgia registered Professional Geologists (PGs).

The field activities for this investigation were performed in January and February 2018. The field work consisted of the installation, development, and water level gauging of eight (8) piezometers; SCS conducted a survey of the recently installed piezometers. A summary of the activities is presented below.

Piezometer drilling and Construction Activities

Piezometers PZ-43, PZ-44, PZ-45, PZ-46, PZ-47, PZ-48, PZ-49, and PZ-50 were drilled and installed by Cascade Drilling, LP, who was contracted through SCS, at the facility in January/February 2018. Cascade has a current and valid bond with the Water Wells Standards Advisory Council for the state of Georgia (Appendix A). The driller's name is provided on the boring/construction diagrams presented in Appendix B.

An experienced Golder geologist was present on site to oversee and record the drilling and piezometer construction under the supervision of professional geologists registered to practice in Georgia (Timothy Richards and Rachel Kirkman). Drilling methods employed for borehole advancement were rotosonic drilling techniques with continuous core collected. The drilling equipment consisted of a full-sized Prosonic track mounted drilling rig, equipped with 4-inch sonic rods with an outer-casing sleeve. During the drilling, continuous core samples were logged in the field for lithologic and geotechnical properties.

Prior to use, and between boreholes, downhole equipment was steam cleaned. The boring (lithologic) logs and piezometer construction records for the newly installed piezometers are included in Appendix B. The construction data are summarized in Table 1, and the locations of the piezometers are provided on Figure 1.

Piezometers were constructed within the borehole using factory-cleaned and sealed Schedule 40 polyvinyl chloride (PVC) products with flush-threaded fittings. Specifically, piezometers were constructed with a 10 foot section of 4inch outer diameter (OD) and 2-inch inner diameter (ID), flush-threaded, 0.010-inch factory-slotted PVC pre-packed screen with the exception of PZ-43. PZ-43 was installed using a 10-foot section of 1-inch diameter, flush threaded, 0.010-inch factory-slotted PVC. The drillers filled the annulus of each pre-pack screen section with No. 10 filter sand, and the screen interval of PZ-43 was filled with sand down hole. In each case, the screen was placed near the bottom of the borehole, with the remainder of the piezometer constructed from 10-foot sections of 2-inch ID, flush-threaded, PVC casing riser. PZ-43 was completed using similar materials, but with 1-inch diameter pipe. A flush-threaded PVC end cap placed on the bottom of each piezometer to provide a 0.4-foot sump/sediment trap, and the top of the piezometers extend approximately 30 inches above grade. Construction details for the piezometer are shown on the boring/construction logs in Appendix B. The PVC products used were American Society for Testing and Materials (ASTM) and National Sanitation Foundation (NSF) rated.

Following placement of the screen and casing, the annular space in each borehole adjacent to the screen was filled with U.S. Standard Sieve size No. 20-40 filter pack sand as appropriate for the formation. The filter pack sand was placed into the borehole and extends approximately 2 feet above the screen. Immediately following placement of the filter pack, each piezometer was pumped using a portable submersible pump until visibly clear water was discharged. If settling occurred during pumping, additional sand was placed so that the filter sand thickness was approximately 2 feet above the screen. A filter pack seal, composed of approximately 5 feet of hydrated time-release coated bentonite pellets, was then placed on top of the filter pack by slowly pouring the material down the borehole and tamping it into place with a tremie pipe. The bentonite was hydrated using potable water and allowed to cure for two hours prior to grouting the piezometer.

Following hydration of the bentonite, the remaining annular space was grouted with a Portland cement / Quick Gel mixture consisting of approximately 5% bentonite, and approximately 10 pounds per gallon, to 3 feet below ground surface using a tremie method. Each piezometer surface completion consists of a locked, aluminum protective casing and a 4-foot by 4-foot by 4-inch concrete pad with the exception of PZ-43, which has a pad only and no protective casing.

Piezometer Development Activities

The newly installed piezometers were developed in February 2018 in accordance with the Monitoring Well Development Procedures prepared by Southern Company Services, Inc. (March 2016) except for PZ-43, due to its small diameter. The piezometer were surged using a Reclaimer pump system. During development, water quality measurements of pH, temperature, specific conductance, and turbidity were periodically collected using field-calibrated water quality equipment after the piezometer responded to improving conditions. Development activities were conducted utilizing an In-Situ SmarTroll and a Lamotte 2020 turbidimeter for monitoring water quality measurements. Development forms are included in Appendix B and summarized on Table 2.

As presented on the development forms, a minimum of 80.5 gallons (PZ-49) and a maximum of 184 gallons (PZ-50) of water were removed from each piezometer during development. During development, attempts were made for each piezometer to achieve a turbidity value below 10 nephelometric turbidity units (NTUs). A full round of water levels for the newly installed and developed piezometers was collected on February 21, 2018 (Table 3). The measurements were collected using a decontaminated electronic water level indicator. The surveyed point on the top of the casing was used as reference, and the measurements were recorded to within 0.01 foot.

Aquifer Testing Activities

Aquifer tests (slug tests) were performed on February 21, 2018 for all newly installed piezometers during the field investigation by experienced Golder representatives (Table 4). The purpose of the testing was to estimate the horizontal hydraulic conductivity of aquifer materials encountered at the site. In situ rising- and falling-head slug tests were chosen for the assessment due to the relatively low yields noted during installation and development.

Falling and rising-head tests were performed on the seven newly installed piezometers (PZ-44, PZ-45, PZ-46, PZ-47, PZ-48, PZ-49, and PZ-50). PZ-43 was not slug tested due to its one-inch diameter. Prior to slug testing, the wells were opened and groundwater levels were allowed to equilibrate. Groundwater levels were then measured using an electronic water level indicator referenced to a surveyed point on the top of the casing. A 100 pounds per square inch (psi) pressure transducer was lowered inside the well casing and placed approximately 2 feet above the bottom of the well. A PVC slug measuring 5 feet in length was then used to displace water inside the well.

The first portion of the test was a falling-head test that measured the rate water levels fell back to static levels after the insertion of the PVC slug. The pressure transducer was programmed to record changes in groundwater level at fast linear time intervals. Changes in groundwater levels were also measured with hand-held electronic water level indicators to field-verify the data collected by the transducer. Falling-head tests were terminated after water levels had recovered to within at least 90% of their pre-test level. A rising-head test was performed on each piezometer after the falling-head test was completed. The rising-head test was performed with the same methodology as the falling-head test, with the exception that the PVC slug was removed simultaneously with the start of the test.

In situ rising- and falling-head tests provide a quantitative estimate of horizontal hydraulic conductivity and a qualitative estimate of aquifer anisotropy in water-bearing units. The slug test data were analyzed using the Bouwer and Rice (1976 and 1989) equation which is applicable to fully or partially penetrating piezometers in unconfined or confined aquifers. Piezometer-specific aquifer thicknesses of approximately 11 (PZ-49) to 71 feet (PZ-47) were assumed based on unconfined aquifer water column thickness.

The computer software program AQTESOLV, produced by HydroSOLVE, Inc., was used to assist in the analysis and plotting of data. The best fit lines were initially calculated by the computer software and were then adjusted manually, where necessary, to ignore skin effects typically found at the start of aquifer tests and/or to ignore stabilized water levels at the end of the tests or fluctuations in the water level as they approached stabilization. Professional judgement was used to distinguish skin effects with the fact that during many tests, there is faster recovery near the beginning of an aquifer test than when water levels approach stabilization. The individual data points and computer plots of time versus groundwater displacement are presented in Appendix C. A summary of the aquifer testing and the calculated geometric mean for hydraulic conductivity for each of the hydrogeologic units are presented in Table 4.

Piezometer Survey

The newly installed piezometers were surveyed on February 14, 2018 by SCS's Engineering and Civil Field Services group. The survey was completed using LEICA GS14 Antenna and CS15 Sensor with a positional tolerance of 0.10'H:V. Surveyed locations and elevations are presented on the boring/construction diagrams and a site map showing the locations of the newly installed piezometers is presented in Figure 1.

Closing

We appreciate the opportunity to assist SCS and GPC with this project. Should you have any questions or require additional information, please contact the undersigned at (770) 496-1893.

Sincerely,

Golder Associates Inc.

P. Hulever inhal

Rachel Kirkman, P.G. Senior Consultant & Associate

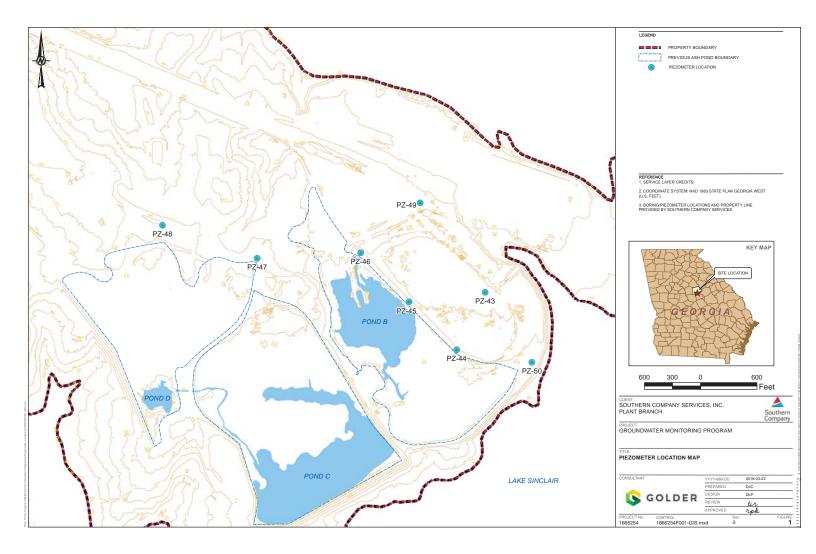
jbh\tir\dlp

Timothy Richards, P.G. Associate, Senior Consultant

Attachments: Figure 1 Piezometer Location Map Table 1 Piezometer Installation Summary Table 2 Summary of Piezometer Development Data Table 3 Summary of Post-Development Water Level and Survey Data Table 4 Summary of Aquifer Test Data Appendix A Cascade Drillng Bond Appendix B Boring Logs/Construction Diagrams and Development Forms Appendix C Aquifer (Slug) Test Results

https://golderassociates.sharepoint.com/sites/1894240/reference information/1666254-02 - branch pond b piezo installation/166625402 well installation report/branch pond b piezometer installation report_final 5.2018.docx

FIGURE



TABLES

Table 1 Piezometer Installation Summary Plant Branch

Borehole ID	Latitude	Longitude	Elevation Top of PVC (feet)	Bedrock or Overburden	Rock Type	Total Depth (feet bgs)	Screen Interval (feet bgs)	Depth to Bedrock (feet bgs)	Core Available	Water Levels (ft bgs) 2/14/2018
PZ-43	33.1919852	-83.2989422	383.75	Bedrock/Soil Interface	Biotite Gneiss	41.5	30.0 - 40.0	39.5	Yes	30.6
PZ-44	33.1907972	-83.3004071	383.12	Bedrock/Soil Interface	Biotite Gneiss	57	46.6 - 56.6	51	Yes	24.83
PZ-45	33.1921976	-83.3020666	384.61	Bedrock/Soil Interface	Biotite Gneiss	57	46.6 - 56.6	52	Yes	11.41
PZ-46	33.1936560	-83.3037406	384.70	Bedrock/Soil Interface	Biotite Gneiss	47	35.6 - 45.6	39	Yes	8.85
PZ-47	33.1935310	-83.3073442	411.32	Bedrock/Soil Interface	Biotite Gneiss	97	81.6 - 91.6	92	Yes	25.93
PZ-48	33.1945066	-83.3106408	421.05	Bedrock/Soil Interface	Biotite Gneiss	67	56.6 - 66.6	65.5	Yes	30.55
PZ-49	33.1951996	-83.3018735	385.06	Bedrock/Soil Interface	Biotite Gneiss	27	6.6 - 16.6	7	Yes	8.1
PZ-50	33.1904217	-83.2978441	381.53	Bedrock/Soil Interface	Biotite Gneiss	67	54.6 - 64.6	60	Yes	37.68

Notes: NAD - North American Datum; NAVD - North American Vertical Datum; NA - Not available; bgs - below ground surface; TOR - Top of Rock

Table 2 Summary of Piezometer Development Data Plant Branch

Well / Piezometer Name	Date Started	Time Started (hr:min)	Date Completed	Elapsed Time (hr:min)	Development Method	Measured Depth of Well (ft. btoc)	Initial Water Level (ft. btoc)	Final Water Level (ft. btoc)	Volume of Casing (gal)	Total Volume Removed (gal)	pH (SU)	Specific Cond (ms/cm)	Temp (°C)	Turb (NTU)	ORP (mV)	DO (mg/L)
PZ-43						1-inch Pi	ezometer for W	/ater Levels c	only - Not De	veloped						
PZ-44	2/12/2018	11:45	2/12/2018	4:20	Reclaimer	60.89	24.96	25.04	5.6	114.3	6.07	251.02	20.3	0.94	91.99	2.06
PZ-45	2/9/2018	9:56	2/9/2018	5:22	Reclaimer	60.48	11.12	11.49	8.0	166	5.83	501.23	19.01	4.62	123.94	0.77
PZ-46	2/8/2018	10:13	2/8/2018	4:51	Reclaimer	49.10	8.95	8.95	6.6	138	5.77	2018.19	17.81	2.90	393.00	2.54
PZ-47	2/9/2018	8:45	2/9/2018	6:15	Reclaimer	97.35	25.85	36.32	10.0	174.1	5.72	2414.53	18.75	1.48	104.81	1.66
PZ-48	2/8/2018	8:40	2/8/2018	9:00	Reclaimer	69.80	30.55	32.26	6.1	145.1	5.67	2373.43	17.89	1.55	88.54	2.08
PZ-49	2/8/2018	16:04	2/9/2018	2:41	Reclaimer	19.31	7.97	7.99	1.8	80.5	5.9	152.85	15.71	3.13	133.29	3.24
PZ-50	2/12/2018	11:22	2/12/2018	6:28	Reclaimer	69.42	38.23	38.36	5.0	184	5.49	2400.81	19.59	7.67	167.13	8.89

Notes: hr:min - hours:minutes; ft. btoc - feet below top of casing; gal - gallons; SU - Standard Units; mS/cm - millisiemens per centimeter; *C - degrees Celsius; NTU - nephelometric turbidity units; mv - millivolts; mg/L - milligrams per liter; Cond - conductivity; Temp - temperature; Turb - turbidity; ORP - oxygen reduction potential; DO - dissolved oxygen



Table 3 Summary of Post-Development Piezometer Water Level and Survey Data Plant Branch

Well / Piezometer Name	Survey Date	Survey Time	Water Level (ft. btoc) (2/21/18)	Water Elevation (ft. msl)	NAD 83 Northing (ft.)	NAD 83 Easting (ft.)	Latitude (dd)	Longitude (dd)	Elevation Top of Casing (ft. msl)	Ground Surface Elevation (ft. msl)
PZ-43	2/14/2018	NA	30.73	353.02	1162159.80	2562031.35	33.1919852	-83.2989422	383.75	NA
PZ-44	2/14/2018	NA	24.98	358.14	1161723.84	2561586.79	33.1907972	-83.3004071	383.12	380.49
PZ-45	2/14/2018	NA	10.94	373.67	1162229.18	2561074.89	33.1921976	-83.3020666	384.61	381.69
PZ-46	2/14/2018	NA	9.12	375.58	1162755.59	2560558.42	33.1936560	-83.3037406	384.70	382.11
PZ-47	2/14/2018	NA	25.60	385.72	1162701.04	2559456.38	33.1935310	-83.3073442	411.32	408.87
PZ-48	2/14/2018	NA	30.64	390.41	1163047.72	2558444.99	33.1945066	-83.3106408	421.05	418.30
PZ-49	2/14/2018	NA	7.89	377.17	1163321.94	2561124.93	33.1951996	-83.3018735	385.06	382.10
PZ-50	2/14/2018	NA	38.06	343.47	1161593.68	2562372.00	33.1904217	-83.2978441	381.53	378.79

Notes: NA = Not Available; ft. BTOC = feet below top of casing; ft. MSL = feet mean sea level; NAD = North American Datum; dd = decimal degrees Survey data collected by Southern Company Services, Inc. ; Georgia NAD83 West Zone



Table 4 Summary of Aquifer Test Data Plant Branch

PIEZOMETER IDENTIFICATION	SATURATED AQUIFER THICKNESS VALUE (feet)	SCREEN LENGTH (feet)	PIEZOMETER DIAMETER (inches)	AQUIFER ANALYSIS METHOD	AQUIFER TEST TYPE	HYDRAULIC CONDUCTIVITY (cm/sec)	SCREENED LITHOLOGY
PZ-44	35	10	2	Bouwer-Rice	Falling	5.27E-04	Sand/Gneiss
					Rising	5.44E-04	
PZ-45	50	10	2	Bouwer-Rice	Falling	4.53E-04	Sand/Gneiss
					Rising	4.11E-04	
PZ-46	40	10	2	Bouwer-Rice	Falling	1.50E-03	Silty Sand/Gneiss
					Rising	1.47E-03	
PZ-47	71	10	2	Bouwer-Rice	Falling	1.41E-04	TWR/Gneiss
					Rising	1.37E-04	
PZ-48	39	10	2	Bouwer-Rice	Falling	8.54E-05	Sand/Gneiss
					Rising	8.48E-05	
PZ-49	11	10	2	Bouwer-Rice	Falling	7.42E-03	Sand/Gneiss
					Rising	7.21E-03	
PZ-50	31	10	2	Bouwer-Rice	Falling	1.85E-03	Sand/Gneiss
					Rising	1.89E-03	
	-		-		Geomean	6.61E-04	

NOTES:

1. Geomean = geometric mean

2. cm/sec = centimeter per second

APPENDIX A

Cascade Drilling Bond

SURETY RIDER

To be attached to and form a part of	
Bond No. 800031223	
Dona No. 800031223	
Type of	
Bond: Performance Bond for Water Well Contractors	
dated	
effective June 30, 2017	
(MONTH-DAY-YEAR)	
executed by Michael C. Rice/Cascade Drilling, L.P. (PRINCIPAL)	, as Principal,
and by Atlantic Specialty Insurance Company	, as Surety,
in favor of State of Georgia (OBLIGEE)	
in consideration of the mutual agreements herein contained the Principal and the Suret	y hereby consent to changing
Coverage under the bond to include: Michael Coleman	
Michael Coleman	
Nothing herein contained shall vary, alter or extend any provision or condition of this b	bond except as herein expressly stated.
This rider	bond except as herein expressly stated.
Nothing herein contained shall vary, alter or extend any provision or condition of this b This rider is effective December 21, 2017 (MONTH-DAY-YEAR)	oond except as herein expressly stated.
This rider is effective December 21, 2017 (MONTH-DAY-YEAR)	oond except as herein expressly stated.
This rider is effective December 21, 2017	oond except as herein expressly stated.
This rider is effective December 21, 2017 (MONTH-DAY-YEAR) Signed and Sealed December 21, 2017 (MONTH-DAY-YEAR) Michael C. Rice/Cascade Drilling, L.P.	oond except as herein expressly stated.
This rider is effective December 21, 2017 (MONTH-DAY-YEAR) Signed and Sealed December 21, 2017 (MONTH-DAY-YEAR)	bond except as herein expressly stated.
This rider is effective December 21, 2017 (MONTH-DAY-YEAR) Signed and Sealed December 21, 2017 (MONTH-DAY-YEAR) Michael C. Rice/Cascade Drilling, L.P. (PRINCIPAL) By:	bond except as herein expressly stated.
This rider is effective December 21, 2017 (MONTH-DAY-YEAR) Signed and Sealed December 21, 2017 (MONTH-DAY-YEAR) Michael C. Rice/Cascade Drilling, L.P. (PRINCIPAL)	bond except as herein expressly stated.
This rider is effective December 21, 2017 (MONTH-DAY-YEAR) Signed and Sealed December 21, 2017 (MONTH-DAY-YEAR) Michael C. Rice/Cascade Drilling, L.P. (PRINCIPAL) By:	Y INSU
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This rider is effective December 21, 2017 (MONTH-DAY-YEAR) Signed and Sealed December 21, 2017 (MONTH-DAY-YEAR) Michael C. Rice/Cascade Drilling, L.P. (PRINCIPAL) By: (PRINCIPAL) Atlantic Specialty Insurance Company By: MMM: MACA	Y INSUREAL 92.6



Power of Attorney

KNOW ALL MEN BY THESE PRESENTS, that ATLANTIC SPECIALTY INSURANCE COMPANY, a New York corporation with its principal office in Plymouth, Minnesota, does hereby constitute and appoint: **Deanna M. French, Jill A. Wallace, Susan B. Larson, Elizabeth R. Hahn, Jana M. Roy, Scott McGilvray, Mindee L. Rankin, Ronald J. Lange, John R. Claeys, Roger Kaltenbach, Guy Armfield, Scott Fisher, each individually if there be more than one named, its true and lawful Attorney-in-Fact, to make, execute, seal and deliver, for and on its behalf as surety, any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof; provided that no bond or undertaking executed under this authority shall exceed in amount the sum of: sixty million dollars (\$60,000,000) and the execution of such bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof in pursuance of these presents, shall be as binding upon said Company as if they had been fully signed by an authorized officer of the Company and sealed with the Company seal. This Power of Attorney is made and executed by authority of the following resolutions adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the twenty-fifth day of September, 2012:**

Resolved: That the President, any Senior Vice President or Vice-President (each an "Authorized Officer") may execute for and in behalf of the Company any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and affix the seal of the Company thereto; and that the Authorized Officer may appoint and authorize an Attorney-in-Fact to execute on behalf of the Company any and all such instruments and to affix the Company seal thereto; and that the Authorized Officer may at any time remove any such Attorney-in-Fact and revoke all power and authority given to any such Attorney-in-Fact.

Resolved: That the Attorney-in-Fact may be given full power and authority to execute for and in the name and on behalf of the Company any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and any such instrument executed by any such Attorney-in-Fact shall be as binding upon the Company as if signed and sealed by an Authorized Officer and, further, the Attorney-in-Fact is hereby authorized to verify any affidavit required to be attached to bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof.

This power of attorney is signed and sealed by facsimile under the authority of the following Resolution adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the twenty-fifth day of September, 2012:

Resolved: That the signature of an Authorized Officer, the signature of the Secretary or the Assistant Secretary, and the Company seal may be affixed by facsimile to any power of attorney or to any certificate relating thereto appointing an Attorney-in-Fact for purposes only of executing and sealing any bond, undertaking, recognizance or other written obligation in the nature thereof, and any such signature and seal where so used, being hereby adopted by the Company as the original signature of such officer and the original seal of the Company, to be valid and binding upon the Company with the same force and effect as though manually affixed.

IN WITNESS WHEREOF, ATLANTIC SPECIALTY INSURANCE COMPANY has caused these presents to be signed by an Authorized Officer and the seal of the Company to be affixed this eighth day of December, 2014.



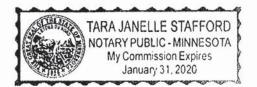
e. Anam

Paul J. Brehm, Senior Vice President

By

STATE OF MINNESOTA HENNEPIN COUNTY

On this eighth day of December, 2014, before me personally came Paul J. Brehm, Senior Vice President of ATLANTIC SPECIALTY INSURANCE COMPANY, to me personally known to be the individual and officer described in and who executed the preceding instrument, and he acknowledged the execution of the same, and being by me duly sworn, that he is the said officer of the Company aforesaid, and that the seal affixed to the preceding instrument is the seal of said Company and that the said seal and the signature as such officer was duly affixed and subscribed to the said instrument by the authority and at the direction of the Company.



Notary Public

I, the undersigned, Assistant Secretary of ATLANTIC SPECIALTY INSURANCE COMPANY, a New York Corporation, do hereby certify that the foregoing power of attorney is in full force and has not been revoked, and the resolutions set forth above are now in force.

This Power of Attorney expires October 1, 2019	1986 St. A
October 1, 2019	
	12 NEW YORK SCORPORATELY from Solar
	James G. Jordan, Assistant Secretary
	2 986 -1
	E Constant St

APPENDIX B

Boring Logs/Construction Diagrams and Development Forms PROJECT: Plant Branch PROJECT NUMBER: 1666254-01 DRILLED DEPTH: 41.50 ft LOCATION: Former Coal Pile

RECORD OF BOREHOLE PZ-43 DRILL RIG: Pro Sonic 150 DATE STARTED: 2/6/18 DATE COMPLETED: 2/7/18 NORTHING: 1,162,159.80 EASTING: 2,562,031.35 GS ELEVATION: NA TOC ELEVATION: 383.75 ft

SHEET 1 of 2 DEPTH W.L.:30.60 DATE W.L.:2/14/18 TIME W.L.:

	z	SOIL PROFILE		1			AMPLE	S		
(ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
				GR	DEPTH (ft)	SAMI	-			
0		0.00 - 8.50 Soil was removed by Hydorvac to 8.5 ft bgs							Portland Cement and _ Quick Gel Bentonite Mix Bentonite Mix 74 75 75 75 75 75 75 75 75 75	WELL CASING Interval: 0-30 Material: Schedule 40 PVC Diameter: 1 inch Joint Type: Flush/Thread SURFACE CASING Interval: Material: Diameter: WELL SCREEN Interval: 30.0-40.0 Material: .010 Slotted Scre Diameter: 1 inch Slot Size: .010" End Cap: 40-40.4
-		8.50 - 17.00 FILL, Silty SAND, sands fine to medium, reddish brown, micaceous,		1 54	8.50	_				FILTER PACK Interval: 28.0-41.5
10 —		non-cohesive, moist, loose.								Type: FilterSil
-									2000 2000 2000 2000 2000 2000 2000 200	 Interval: 23.0-28.0 Type: 3/8" PEL-PLUG
-			SM							Bentonite Pellets
										Interval: 0-23.0 Type: Portland Cement an Quick Gel Bentonite Mix
15 —									Portland Cement and Quick Gel	WELL COMPLETION
-									Bentonite Mix	Pad: Protective Casing:
-					17.00					DRILLING METHODS Soil Drill: Rotosonic
-		RESIDUUM, Silty SAND, sands fine to coarse, grayish brown, micaceous, non-cohesive, moist to wet, loose. Final three inches is transitionally weathered rock.								Rock Drill: Core
20 -										
20 -										-
_										-
-									-	-
-									3/8" - PEL-PLUG _	-
25 -									Bentonite Pellets	
_										-
-			SM							-
-										-
30 —									FilterSil –	1
_										-
-									One inch	-
35 —									piezometer – – – – – – – – – – – – – – – – – – –	-
-]
_										-
40 —			BR		39.50					-
	SCA	Log continued on next page LE: 1 in = 5 ft			SPECT		Ron L	Hoda		
		COMPANY: Cascade	(CHEC	KED BY	1: TIF		Jug		Golder
DRIL	LER:	Matt Pope	[DATE:	2/15/1	8				Associate

PR DR	OJECT	Plant Branch NUMBER: 1666254-01 DEPTH: 41.50 ft k: Former Coal Pile)F B(ORE	NOR EAS GS E	THING: TING: ELEVA	G: 1,16 2,562, TION:	62,159 ,031.3 NA	0.80 DEP 5 DATE	ET 2 of 2 TH W.L.:30.60 E W.L.:2/14/18 W.L.:
		SOIL PROFILE				S	AMPLE	s		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
-		39.50 - 41.50 BIOTITE GNEISS, slightly weathered to fresh, very thin layer of saprolite, thinly banded, white and black, phaneritic. (<i>Continued</i>) Boring completed at 41.50 ft	BR						<u> </u>	WELL CASING Interval: 0-30 Material: Schedule 40 PVC Diameter: 1 inch Joint Type: Flush/Thread
45 -									-	SURFACE CASING Interval: Material: Diameter:
-	-								-	WELL SCREEN Interval: 30.0-40.0 Material: .010 Slotted Screen Diameter: 1 inch Slot Size: .010" End Cap: 40-40.4
50 -	-								-	FILTER PACK Interval: 28.0-41.5 Type: FilterSil
-	-								-	FILTER PACK SEAL Interval: 23.0-28.0 Type: 3/8" PEL-PLUG Bentonite Pellets
- 55 -	-								-	ANNULUS SEAL Interval: 0-23.0 Type: Portland Cement and Quick Gel Bentonite Mix
-	-								-	WELL COMPLETION Pad: Protective Casing:
-	-								-	DRILLING METHODS Soil Drill: Rotosonic Rock Drill: Core
60 -	-								-	
-	-								-	
65 -	-								-	
-									-	
- 70 -	-								-	
-	-								-	
3DT 5/30/	-								-	
75 - 75 -	-								-	
-01.GPJ P	-								-	
- 08 1666254- - 08 - 08 08	-								 - 	
	ILLING	LE: 1 in = 5 ft COMPANY: Cascade Matt Pope	(CHEC	SPECT (ED B) 2/15/1	: TIF		lodge	es	Golder

ç

 RECORD OF BOREHOLE PZ-44

 PROJECT: Plant Branch
 DRILL RIG: Pro Sonic 150
 NORTHING: 1,161,723.84

 PROJECT NUMBER: 1666254-01
 DATE STARTED: 2/1/18
 NORTHING: 2,561,586.79

 DRILLED DEPTH: 57.00 ft
 DATE COMPLETED: 2/2/18
 GS ELEVATION: 380.49

 LOCATION: Former Coal Pile
 SOIL PROFILE
 SAMPLES

SHEET 1 of 2 DEPTH W.L.:24.83 DATE W.L.:2/14/18 TIME W.L.:

	z	SOIL PROFILE				SAMPLES				
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	NSCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0	- 380 - - - - - 375 -	0.00 - 8.00 Soil was removed by Hydrovac from 0-8 ft bgs							Grout Mix and Stainless – Steel Casing	WELL CASING Interval: 0-47 Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread SURFACE CASING Interval: Material: Diameter: WELL SCREEN Interval: 46.6-56.6 Material: Schedule 40 PVC Diameter: 2"
- 10 — - 15 —		8.00 - 29.00 FILL, SAND with trace silt and trace gravel, reddish brown, non-cohesive, moist.			<u>372.49</u> 8.00	R1	ROTO SONIC	6.00	Portland Cement and Quick Gel Bentonite Mix	Slot Size: 0.010" Slotted End Cap: 56.6-57 FILTER PACK Interval: 45-57 Type: FilterSil FILTER PACK SEAL Interval: 40-45 Type: 3/8" PEL-PLUG Bentonite Pellets ANNULUS SEAL Interval: 0-40 Type: Portland Cement an Quick Gel Bentonite Mix WELL COMPLETION Pad: 4'x4' Protective Casing: 4"x4"x5
_ 20 — _ _ 25 —	- - - 360 - - - - - - - - - - - - - - - - - - -	29.00 - 48.00 RESIDUUM, SAND with trace silt and trace gravel, grayish brown, micaceous, non-cohesive, moist.	SP-SM			R2	ROTO SONIC	<u>9.00</u> 10.00	Grout Mix and Stainless – Steel Casing Portland Cement and Quick Gel Bentonite Mix Portland Cement ind Quick Gel Bentonite Mix Cement ind Quick Gel Bentonite Mix Cement ind Quick Gel Cement ind Cement ind Quick Gel Cement ind Cement ind	DRILLING METHODS Soil Drill: Rotosonic Rock Drill: Core
- - 30 — - -	- - - 350 -				<u>351.49</u> 29.00	R3	ROTO	<u>9.00</u> 10.00		
- 35 — - -	- 345 - -		SP					10.00		
- 40 —	- 340	Log continued on next page				R4	ROTO SONIC	<u>10.00</u> 10.00		-
DRI	LLING	LE: 1 in = 5 ft 5 COMPANY: Cascade Matt Pope	(CHEC	SPECT SPECT SPECT SPECT SPECT SPECT	(: TI		l Han	nam	Golder

PROJECT: Plant Branch PROJECT NUMBER: 1666254-01 DRILLED DEPTH: 57.00 ft LOCATION: Former Coal Pile

RECORD OF BOREHOLE PZ-44 DRILL RIG: Pro Sonic 150 DATE STARTED: 2/1/18 DATE COMPLETED: 2/2/18 NORTHING: 1,161,723.84 EASTING: 2,561,586.79 GS ELEVATION: 380.49 TOC ELEVATION: 383.12 ft

SHEET 2 of 2 DEPTH W.L.:24.83 DATE W.L.:2/14/18 TIME W.L.:

	z	SOIL PROFILE					AMPLE	S		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	NSCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
- - 45 -	- - - - 335 -	29.00 - 48.00 RESIDUUM, SAND with trace silt and trace gravel, gravish brown, micaceous, non-cohesive, moist. <i>(Continued)</i>	SP		332.49	R4	ROTO SONIC	<u>10.00</u> 10.00	3/8" PEL-PLUG _ Bentonite Pellets	WELL CASING Interval: 0-47 Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread SURFACE CASING Interval: Material: Diameter: WELL SCREEN Interval: 46.6-56.6 Material: Schedule 40 PVC Diameter: 2"
- - - 50 - 3	_ _ 330		TWR		48.00 329.49				FilterSil – Sin –	Slot Size: 0.010" Slotted End Cap: 56.6-57 FILTER PACK Interval: 45-57 Type: FilterSil
- - 55	_ _ _ _ 325	51.00 - 57.00 BIOTITE GNEISS, slightly weathered to fresh, white/black, phaneritic, strong, oxide staining on discontinuities.	BR		51.00				FilterSil – – FilterSil – – 0.010 Schedule 40 Screen – – – – – – – – – – – – – – – –	FILTER PACK SEAL Interval: 40-45 Type: 3/8" PEL-PLUG Bentonite Pellets ANNULUS SEAL Interval: 0-40 Type: Portland Cement and Quick Gel Bentonite Mix WELL COMPLETION Pad: 4/x4'
-		Boring completed at 57.00 ft			323.49				<u></u>	Protective Casing: 4"x4"x5" DRILLING METHODS Soil Drill: Rotosonic Rock Drill: Core
60 — - -	- 320 									
- 65 — - -	- 315 									
- 70 — -	- 310 								-	
- 75 — -	- 								-	
- - 80 -	- 300 								-	
DRI	LLING	LE: 1 in = 5 ft 6 COMPANY: Cascade : Matt Pope	(CHEC	SPECT (ED B) 2/15/1	': TI		l Han	nam	Golder

RECORD OF BOREHOLE PZ-45 SHEET 1 of 2 NORTHING: 1,162,229.18 EASTING: 2,561,074.89 GS ELEVATION: 381.69 PROJECT: Plant Branch PROJECT NUMBER: 1666254-01 DRILLED DEPTH: 57.00 ft DRILL RIG: Pro Sonic 150 DATE STARTED: 2/3/18 DEPTH W.L.:11.41 DATE W.L.:2/14/18 DATE COMPLETED: 2/3/18 TIME W.L.: LOCATION: Former Coal Pile TOC ELEVATION: 384.61 ft SOIL PROFILE SAMPLES ELEVATION (ft) DEPTH (ft) MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES WELL CONSTRUCTION g GRAPHIC LOG ELEV. USCS TYPE SAMPLE REC DESCRIPTION DETAILS DEPTH (ft) 0 0.00 - 8.00 WELL CASING Grout mix Soils removed by Hydrovac from 0-8 feet bgs. *********************** Interval: 0-46.6 Material: Schedule 40 PVC with stainless steel casing 380 Diameter: 2" Joint Type: Flush/Thread SURFACE CASING Interval: Material Diameter 5 WELL SCREEN Interval: 46.6-56.6 Material: 0.010 Slotted 375 Schedule 40 PVC Diameter: 2" Slot Size: 0.010" 373.69 End Cap: 56.6-57 8.00 - 33.00 8.00 FILL, silty SAND, orangish brown, non-cohesive, moist. FILTER PACK Interval: 45-57 Type: FilterSil 10 FILTER PACK SEAL Interval: 40-45 Type: 3/8" PEL-PLUG Bentonite Pellets 370 ANNULUS SEAL Interval: 0-40 Type: Portland Cement and Portland ROTO <u>6.00</u> SONIC 10.00 Quick Gel Bentonite Mix Cement and R1 15 Quick Gel WELL COMPLETION Bentonite Mix Pad: 4'x4' Protective Casing: 4"x4"x5' 365 DRILLING METHODS Soil Drill: Rotosonic Rock Drill: Core 20 SM 360 ROTO <u>10.00</u> SONIC 10.00 25 R2 355 30 5/30/18 350 348 69 PIEDMONT.GDT 33.00 - 52.00 33.00 SAPROLITE, SAND, reddish brown with white and black relic foliation, non cohesive, moist ROTO <u>10.00</u> SONIC 10.00 35 R3 1666254-01.GPJ 345 SP RECORD 40 ROTO 10.00 R4 Log continued on next page LOG SCALE: 1 in = 5 ft GA INSPECTOR: David Hannam BOREHOLE DRILLING COMPANY: Cascade CHECKED BY: TIR Golder DATE: 2/15/18 Associates DRILLER: Matt Pope

PROJECT: Plant Branch PROJECT NUMBER: 1666254-01 DRILLED DEPTH: 57.00 ft LOCATION: Former Coal Pile

RECORD OF BOREHOLE PZ-45 DRILL RIG: Pro Sonic 150 DATE STARTED: 2/3/18 DATE COMPLETED: 2/3/18 DATE COMPLETED: 2/3/18

SHEET 2 of 2 DEPTH W.L.:11.41 DATE W.L.:2/14/18 TIME W.L.:

	Z	SOIL PROFILE					AMPLE	s		
UEPIH (ft)	ELEVATION (ft)	DESCRIPTION	NSCS	GRAPHIC LOG	ELEV.	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
-	— 340 —	33.00 - 52.00 SAPROLITE, SAND, reddish brown with white and black relic foliation, non cohesive, moist. (<i>Continued</i>)		Ō	(ft)		SONIC	10.00	3/8" PEL-PLUG Bentonite Pellets	WELL CASING Interval: 0-46.6 Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread
- 45 — -	- - 335		SP			R4	ROTO SONIC	<u>10.00</u> 10.00	FilterSil –	SURFACE CASING Interval: Material: Diameter: WELL SCREEN Interval: 46.6-56.6 Material: 0.010 Slotted Schedule 40 PVC
- 50 —	- - - 330				329.69				0.010" Slotted Schedule 40 PVC	Diameter: 2" Slot Size: 0.010" End Cap: 56.6-57 FILTER PACK Interval: 45-57 Type: FilterSil FILTER PACK SEAL
	-	52.00 - 57.00 TRANSITIONALLY WEATHERED ROCK (BIOTITE GNEISS), moderately weathered to fresh, oxide staining, thinly bedded, black and white, phaneritic, extremely weak to medium strong.	TWR		52.00	R5	ROTO SONIC	<u>5.00</u> 10.00		Interval: 40-45 Type: 3/8" PEL-PLUG Bentonite Pellets ANNULUS SEAL Interval: 0-40 Type: Portland Cement an Quick Gel Bentonite Mix
- - 60	- 325 - -	Boring completed at 57.00 ft			324.69					WELL COMPLETION Pad: 4'x4' Protective Casing: 4"x4"x5 DRILLING METHODS Soil Drill: Rotosonic Rock Drill: Core
-	- 320 								-	
- 65 — -	- - 315								- - -	
- 70 -	-								- - -	
-	310 								- - -	
75 — - -	- 305 -								 - - -	
- 80 — -	-								-	
DRI	LLING	LE: 1 in = 5 ft cOMPANY: Cascade Matt Pope	(CHECI	SPECT (ED B) 2/15/1	: TII		l Han	nam	Golder

RECORD OF BOREHOLE PZ-46 SHEET 1 of 2 NORTHING: 1,162,755.59 EASTING: 2,560,558.42 GS ELEVATION: 382.11 PROJECT: Plant Branch PROJECT NUMBER: 1666254-01 DRILLED DEPTH: 47.00 ft DRILL RIG: Pro Sonic 150 DATE STARTED: 2/5/18 DEPTH W.L.:8.85 DATE W.L.:2/14/18 DATE COMPLETED: 2/5/18 TIME W.L.: LOCATION: Former Coal Pile TOC ELEVATION: 384.70 ft SOIL PROFILE SAMPLES ELEVATION (ft) DEPTH (ft) MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES WELL CONSTRUCTION è GRAPHIC LOG ELEV. USCS TYPE SAMPLE REC DESCRIPTION DETAILS DEPTH (ft) 0 0.00 - 8.00 WELL CASING Grout mix Soil was removed by Hydrovac from 0-8 ft bgs *********************** Interval: 0-35.6 Material: Schedule 40 PVC and stainless steel casing Diameter: 2" Joint Type: Flush/Thread 380 SURFACE CASING Interval: Material Diameter 5 WELL SCREEN Interval: 35.6-45.6 Material: 0.010" Slotted Schedule 40 PVC Diameter: 2" Slot Size: 0.010" 375 374.11 End Cap: 45.6-47 8.00 - 37.00 8.00 RESIDUUM, silty Sand, sands fine to coarse, dark brown, FILTER PACK micaceous, non-cohesive, moist, loose. Interval: 34-46 10 Type: FilterSil FILTER PACK SEAL Interval: 29-34 Type: 3/8" PEL-PLUG Bentonite Pellets 370 ANNULUS SEAL Interval: 0-29 Type: Portland Cement and Quick Gel Bentonite Mix 15 WELL COMPLETION Pad: 4'x4' Protective Casing: 4"x4"x5' 365 DRILLING METHODS Soil Drill: Rotosonic Rock Drill: Core Portland Cement and 20 Quick Gel entonite Mix 360 SM 25 355 30 3/8' PEL-PLUG Bentonite 5/30/18 Pellets 350 PIEDMONT.GDT FilterSil -35 GPJ 345.11 345 37 00 - 39 00 37.00 1666254-01 TRANSITIONALLY WEATHERED ROCK (BIOTITE GNEISS), core TWR presented as rock flour, and gravel/cobbles, black and white with light green coating around rock, highly mafic, thinly laminated, fine 0.010' Slotted Schedule 40 Ď_o ŏ 343.11 grained, soft. 39.00 39.00 - 47.00 PVC BR RECORD 40 BIOTITE GNEISS, slightly weathered to fresh, thickly banded, white and black, phaneritic, very strong. Log continued on next page LOG SCALE: 1 in = 5 ft GA INSPECTOR: Ben Hodges BOREHOLE DRILLING COMPANY: Cascade CHECKED BY: TIR Golder DATE: 2/15/18 Associates DRILLER: Matt Pope

	PRC	JECT	Plant Branch NUMBER: 1666254-01 DEPTH: 47.00 ft I: Former Coal Pile	F B(ORE	NOR EAS GS E	THING:	G: 1,16 2,560 TION:	62,755 ,558.4 ,382.	5.59 DEP 2 DAT	ET 2 of 2 TH W.L.:8.85 E W.L.:2/14/18 E W.L.:
		N	SOIL PROFILE					AMPLE	S		
DEPTH	(ft)	ELEVATION (ft)	DESCRIPTION	NSCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	түре	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
4		- - 340 - - -	39.00 - 47.00 BIOTITE GNEISS, slightly weathered to fresh, thickly banded, white and black, phaneritic, very strong. <i>(Continued)</i>	BR		335.11					WELL CASING Interval: 0-35.6 Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread SURFACE CASING Interval: Material: Diameter: WELL SCREEN Interval: 35.6-45.6
		- 335 - -	Boring completed at 47.00 ft							-	Material: 0.010" Slotted Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 45.6-47
5	i0 	- - - 330									FILTER PACK Interval: 34-46 Type: FilterSil FILTER PACK SEAL Interval: 29-34 Type: 3/8" PEL-PLUG
5		-								-	ANNULUS SEAL Interval: 0-29 Type: Portland Cement and Quick Gel Bentonite Mix
		- 325 -								-	WELL COMPLETION Pad: 4'x4' Protective Casing: 4"x4"x5' DRILLING METHODS
6	 0: 	-								-	Soil Drill: Rotosonic Rock Drill: Core
		- 320								-	
6	5	-								-	
		- 315 - -								-	
	0 	- - 310 -									
GPJ PIEDMONT.GE		- - - 305									
BOREHOLE RECORD 1666254-01.GPJ PIEDMONT.GDT 5/30/18	 0. 	-								-	
BOREHOLE RE(RIL	LING	LE: 1 in = 5 ft COMPANY: Cascade Matt Pope	(CHEC	SPECT (ED B) 2/15/1	: TI		lodg	l	Golder

PROJECT: Plant Branch PROJECT NUMBER: 1666254-01 DRILLED DEPTH: 97.00 ft LOCATION: Between Pond B

RECORD OF BOREHOLE PZ-47 DRILL RIG: Pro Sonic 150 DATE STARTED: 1/25/18 DATE COMPLETED: 1/26/18 NORTHING: 1,162,701.04 EASTING: 2,559,456.38 GS ELEVATION: 408.87 TOC ELEVATION: 411.32 ft

SHEET 1 of 3 DEPTH W.L.:25.93 DATE W.L.:2/14/18 TIME W.L.:

	z	SOIL PROFILE				s	AMPLE	S		
UEPIH (ft)	ELEVATION (ft)	DESCRIPTION	NSCS	GRAPHIC LOG	ELEV.	SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
	ш			GR	DEPTH (ft)	SAM.		-		
0	- - - - - - - - - - - - - - - - - - -	0.00 - 0.50 Ash as sand, fine, dark gray, moist, non-cohesive. 0.50 - 15.00 RESIDUUM, silty SAND, sands fine to medium, reddish brown, micaceous, moist, non-cohesive.	SP		408.37 0.50		ROTO	9.00	Grout Mix with stainless – steel casing	WELL CASING Interval: 0-81.6 Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread SURFACE CASING Interval: Material: Diameter: WELL SCREEN Interval: 81.6-91.6 Material: 0.010" Slotted Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 91.6-92 FILTER PACK Interval: 80-93 Type: FilterSil FILTER PACK SEAL Interval: 75-80
- - 15 - - - 20 - - -		15.00 - 75.00			<u>393.87</u> 15.00	R2	ROTO SONIC	10.00	Grout Mix with stainless – steel casing	Type: 3/8" PEL-PLUG Bentonite Pellets ANNULUS SEAL Interval: 0-75 Type: Portland Cement and Quick Gel Bentonite Mix WELL COMPLETION Pad: 4'x4" Protective Casing: 4"x4"x5" DRILLING METHODS Soil Drill: Rotosonic Rock Drill: Core
	- 385 - - - 380 - - - - - - - - - - - - - - - - - - -		SM			R3	ROTO		Portland Cement and Quick Gel Bentonite Mix	
		Log continued on next page LE: 1 in = 5 ft COMPANY: Cascade			SPECT KED B					Golder

PROJECT: Plant Branch PROJECT NUMBER: 1666254-01 DRILLED DEPTH: 97.00 ft LOCATION: Between Pond B

RECORD OF BOREHOLE PZ-47 DRILL RIG: Pro Sonic 150 DATE STARTED: 1/25/18 DATE COMPLETED: 1/26/18 NORTHING: 1,162,701.04 EASTING: 2,559,456.38 GS ELEVATION: 408.87 TOC ELEVATION: 411.32 ft

SHEET 2 of 3 DEPTH W.L.:25.93 DATE W.L.:2/14/18 TIME W.L.:

	z	SOIL PROFILE		1		S	AMPLE	S		
(ft)	ELEVATION (ft)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV.	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
	Ξ			GR	DEPTH (ft)	SAMI	F	-		
45	- 365 	15.00 - 75.00 SAPROLITE, silty SAND, reddish brown to grayish brown with intermediate white mottling, relic structure, micaceous, dry to moist, non <i>(Continued)</i>				De	ROTO		3/8" PEL-PLOUGE Pellets 3/8" PEL-PLOUGE PEL-PLOUGE Pellets 3/8" PEL-PLOUGE PEL-PLOU	WELL CASING Interval: 0-81.6 Material: Schedule 40 PV0 Diameter: 2" Joint Type: Flush/Thread SURFACE CASING Interval: Material: Diameter: WELL SCREEN Interval: 81.6-91.6 Material: 0.010" Slotted Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 91.6-92 FILTER PACK Interval: 80-93 Type: FilterSil FILTER PACK SEAL Interval: 75-80 Type: 3/8" PEL-PLUG Bentonite Pellets
	- 355 - - - - 350 - - - - - - - - - - - - - - - - - - -		SM			R6	ROTO SONIC	<u>10.00</u>		ANNULUS SEAL Interval: 0-75 Type: Portland Cement an Quick Gel Bentonite Mix WELL COMPLETION Pad: 4'x4' Protective Casing: 4"x4"x5 DRILLING METHODS Soil Drill: Rotosonic Rock Drill: Core
65 — - - - - 70 — - - - - - - - - - -	- - - 340 - - -					R7	ROTO SONIC	10.00	3/8" PEL-PLUG Bentonite Pellets 	
	- 335 - - 330 - -	75.00 - 92.00 TRANSITIONALLY WEATHERED ROCK, shows in sample as Sand with trace gravel and trace silt, grayish brown with white mottling, micaceous, relic foliation where preserved, dry to wet, non-cohesive.	TWR		333.87 75.00	R8	ROTO SONIC	<u>10.00</u>	3/8" PEL-PLUG	
	SC AL	Log continued on next page LE: 1 in = 5 ft			SPECT	<u></u>	Davis	Han	nam	
		LE: 1 in = 5 ft COMPANY: Cascade			SPECT KED BY			i Han	nam	Coldor
		Matt Pope			2/15/1		•			Golder

PROJECT: Plant Branch PROJECT NUMBER: 1666254-01 DRILLED DEPTH: 97.00 ft LOCATION: Between Pond B

RECORD OF BOREHOLE PZ-47 DRILL RIG: Pro Sonic 150 DATE STARTED: 1/25/18 DATE COMPLETED: 1/26/18 NORTHING: 1,162,701.04 EASTING: 2,559,456.38 GS ELEVATION: 408.87 TOC ELEVATION: 411.32 ft

SHEET 3 of 3 DEPTH W.L.:25.93 DATE W.L.:2/14/18 TIME W.L.:

	z	SOIL PROFILE				S	AMPLE	S		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV.	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
	ш́	75.00 - 92.00			DEPTH (ft)	SAM		-		WELL CASING
- - 85 -		TRANSITIONALLY WEATHERED ROCK, shows in sample as Sand with trace gravel and trace silt, grayish brown with white mottling, micaceous, relic foliation where preserved, dry to wet, non-cohesive. (Continued)	TWR						0.010" Slotted PVC	Interval: 0-81.6 Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread SURFACE CASING Interval: Material: Diameter: WELL SCREEN
- - 90 —	- 320 				316.87	R9	ROTO SONIC	<u>10.00</u>		Interval: 81.6-91.6 Material: 0.010" Slotted Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 91.6-92 FILTER PACK Interval: 80-93 Type: FilterSil
- - 95	- 315 -	92.00 - 97.00 BIOTITE GNEISS, sample recovered as rock flour, cobbles, and gravel. Slightly weathered to fresh, white and black, thinly bedded, phaneritic, strong, oxide staining in discontinuities.	BR		92.00				3/8" PEL-PLUG Bentonite Pellets	FILTER PACK SEAL Interval: 75-80 Type: 3/8" PEL-PLUG Bentonite Pellets ANNULUS SEAL Interval: 0-75 Type: Portland Cement and Quick Gel Bentonite Mix
-	- 310	Boring completed at 97.00 ft			311.87				- - -	WELL COMPLETION Pad: 4'x4' Protective Casing: 4"x4"x5' DRILLING METHODS Soil Drill: Rotosonic Rock Drill: Core
100 — - -	-								 - -	Kock Dim. Core
 105	— 305 — —									
- - 10	- 300 -								- - -	
-	- - - 295								-	
15 — - -	-									
- 20 -	290 									
DRI	LLING	LE: 1 in = 5 ft COMPANY: Cascade Matt Pope	(CHEC	SPECT SPECT	': TI		l Han	nam	Golder

PROJECT: Plant Branch PROJECT NUMBER: 1666254-01 DRILLED DEPTH: 67.00 ft LOCATION: South of Skills Center

RECORD OF BOREHOLE PZ-48 DRILL RIG: Pro Sonic 150 DATE STARTED: 1/24/18 DATE COMPLETED: 1/25/18 NORTHING: 1,163,047.72 EASTING: 2,558,444.99 GS ELEVATION: 418.30 TOC ELEVATION: 421.05 ft

SHEET 1 of 2 DEPTH W.L.:30.55 DATE W.L.:2/14/18 TIME W.L.:

	z	SOIL PROFILE		1		S	AMPLE	S		
п (ff)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV.	SAMPLE NO.	түре	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
-	ELE		N	GRA LC	DEPTH (ft)	SAMPI	≽	R		DEMILO
0	- - - 415 - - -	0.00 - 8.00 Soil removed by Hydrovac from 0-8 ft bgs.							Grout mix with stainless – steel casing	WELL CASING Interval: 0-56.6 Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread SURFACE CASING Interval: Material: Diameter: WELL SCREEN Interval: 56.6-66.6 Material: 0.010" Slotted Schedule 40 PVC Diameter: 2"
_	- 410	8.00 - 17.00 FILL, silty SAND, reddish brown, micaceous, moist, non-cohesive.			410.3 8.00					Slot Size: 0.010" End Cap: 66.6-67
- 10 -	-									FILTER PACK Interval: 55-67 Type: FilterSil
-										FILTER PACK SEAL
-	_		014							Interval: 50-55 Type: 3/8" PEL-PLUG Bentonite Pellets
_	- 405		SM			R1	ROTO SONIC	10.00 10.00		ANNULUS SEAL
_	-									Interval: 0-50 Type: Portland Cement and Quick Gel Bentonite Mix
15 —	-									WELL COMPLETION Pad: 4'x4'
-	-	17.00 - 64.50	L		401.3					Protective Casing: 4"x4"x5"
_	- 400	17.00 - 64.50 RESIDUUM, SAND with some silt, grayish brown with white mottling, occasional relic structure, micaceous, dry, non-cohesive.			17.00					DRILLING METHODS Soil Drill: Rotosonic Rock Drill: Core
-										
20 —	_									
_	-									
-	-					R2	ROTO SONIC	10.00		
_	— 395 —						SUNIC	10.00	– Portland	
25 —	_								Cement and Quick Gel	
-	_									
_	-									
_	- 390		SM							
30 —	_									
_	_									
-	-					DC.	ROTO	10.00		
	- 385					R3	ROTO SONIC	10.00		
35 —										
-	_									
_	_									
-	— 380									
40	-					R4	ROTO SONIC	10.00		
-	-	Log continued on next page		리하다						
		LE: $1 \text{ in } = 5 \text{ ft}$						d Han	nam	
		COMPANY: Cascade Matt Pope			ED B۱) 2/15/1		۲			Golder

PROJECT: Plant Branch PROJECT NUMBER: 1666254-01 DRILLED DEPTH: 67.00 ft LOCATION: South of Skills Center

RECORD OF BOREHOLE PZ-48 DRILL RIG: Pro Sonic 150 DATE STARTED: 1/24/18 DATE COMPLETED: 1/25/18 NORTHING: 1,163,047.72 EASTING: 2,558,444.99 GS ELEVATION: 418.30 TOC ELEVATION: 421.05 ft

SHEET 2 of 2 DEPTH W.L.:30.55 DATE W.L.:2/14/18 TIME W.L.:

	z	SOIL PROFILE			1		AMPLE	S		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
- - 45 -	- - 375 - - -	17.00 - 64.50 RESIDUUM, SAND with some silt, grayish brown with white mottling, occasional relic structure, micaceous, dry, non-cohesive. (<i>Continued</i>)				R4	ROTO SONIC	<u>10.00</u> 10.00		WELL CASING Interval: 0-56.6 Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread SURFACE CASING Interval: Material: Diameter: WELL SCREEN Interval: 56.6-66.6 Material: 0.010" Slotted Schedule 40 PVC Diameter: 2"
- 50 — - 55 —	- 370 - - - - 365 - -		SM			R5	ROTO SONIC	<u>10.00</u> 10.00	PEL-PLUG _ Bentonite _ Pellets	Slot Size: 0.010" End Cap: 66.6-67 FILTER PACK Interval: 55-67 Type: FilterSil FILTER PACK SEAL Interval: 50-55 Type: 3/8" PEL-PLUG Bentonite Pellets ANNULS SEAL Interval: 0-50 Type: Portland Cement and Quick Gel Bentonite Mix WELL COMPLETION
60 — 60 — 65 —	- 360 	64.50 - 65.50	TWR		353.8 64.50 352.8 65.50	R6	ROTO SONIC	<u>10.00</u> 10.00		Pad: 4'x4' Protective Casing: 4"x4"x5' DRILLING METHODS Soil Drill: Rotosonic Rock Drill: Core
- - 70 - -	- 350 	65.50 - 67.00 BIOTITE GNEISS, fresh, with biotite/muscovite/feldspar/quartz, white/black, weak foliation near horizontal, phaneritic, strong.	BR		351.3					
- 75 — - 80 —	 340 									
DRI	LLING	LE: 1 in = 5 ft COMPANY: Cascade Matt Pope	(CHEC	SPECT KED BY 2/15/1	(: TI		d Han	nam	Golder

PROJECT: Plant Branch PROJECT NUMBER: 1666254-01 DRILLED DEPTH: 27.00 ft LOCATION: Near former pyrite pit

RECORD OF BOREHOLE PZ-49 DRILL RIG: Pro Sonic 150 DATE STARTED: 1/30/18 DATE COMPLETED: 1/30/18 NORTHING: 1,163,321.94 EASTING: 2,561,124.93 GS ELEVATION: 382.10 TOC ELEVATION: 385.06 ft

SHEET 1 of 1 DEPTH W.L.:8.10 DATE W.L.:2/14/18 TIME W.L.:

	z	SOIL PROFILE		1			AMPLE	S		
(ff)	ELEVATION (ft)	DESCRIPTION	NSCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0	_	0.00 - 2.00 FILL, silty SAND with trace gravel, reddish brown, micaceous, moist, non-cohesive.	SM		380.1				Grout mix and stainless – steel casing	WELL CASING Interval: 0-6.6 Material: Schedule 40 PVC Diameter: 2"
	380 	2.00 - 7.00 RESIDUUM, SAND, reddish brown, micaceous, moist, non-cohesive.	SP		2.00				Grout mix and stainless – steel casing Portland Cement and _ Quick Gel Bentonite Mix	Joint Type: Flush/Thread SURFACE CASING Interval: Material: Diameter:
_					375.1				FilterSil –	WELL SCREEN Interval: 6.6-16.6 Material: 0.010" Slotted Schedule 40 PVC
- - - - - - - - - - - - - - - - - - -	- 375 	7.00 - 27.00 BIOTITE GNEISS, slightly weathered to fresh, thinly bedded, white/black, phaneritic, strong.	BR		7.00	R1	ROTO SONIC	<u>6.00</u> 10.00	0.010" Slotted Schedule 40 PVC	Diameter: 2" Slot Size: 0.010" End Cap: 16.6-17 FILTER PACK Interval: 5-18 Type: FilterSil FILTER PACK SEAL Interval: 2-5 Type: 3/8" PEL-PLUG Bentonite Pellets ANNULUS SEAL Interval: 0-2 Type: Portland Cement an Quick Gel Bentonite Mix WELL COMPLETION Pad: 4'x4" Protective Casing: 4"x4"x5
- 20 - - 25 -	- - - - - - - - - -				355.1	R2	ROTO SONIC	<u>8.00</u> 10.00	3/8" PEL-PLUG Bentonite Pellets	DRILLING METHODS Soil Drill: Rotosonic Rock Drill: Core
30	355 1 350 	Boring completed at 27.00 ft								-
	- 345 								-	-
DRII	LLING	LE: 1 in = 5 ft COMPANY: Cascade Matt Pope	(CHEC	SPECT (ED B) 2/15/1	': TII		Han	nam	Golder

PROJECT: Plant Branch PROJECT NUMBER: 1666254-01 DRILLED DEPTH: 67.00 ft LOCATION: South boundary of site

RECORD OF BOREHOLE PZ-50 DRILL RIG: Pro Sonic 150 DATE STARTED: 1/31/18 DATE COMPLETED: 1/31/18 NORTHING: 1,161,593.68 EASTING: 2,562,372.00 GS ELEVATION: 378.79 TOC ELEVATION: 381.53 ft

SHEET 1 of 2 DEPTH W.L.:37.68 DATE W.L.:2/14/18 TIME W.L.:

		SOIL PROFILE				S	AMPLE	S		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	nscs	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
0	- - - 375 - -	0.00 - 7.00 Soil removed by Hydrovac from 0-7 ft bgs. Logged by sight. silty SAND, reddish brown, micaceous, moist, non-cohesive.	SM		371.79				Grout mix and stainless – steel casing – – – – – – – – – – – – – – – – – – –	WELL CASING Interval: 0-54.6 Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread SURFACE CASING Interval: Material: Diameter: WELL SCREEN Interval: 54.6-64.6 Material: 0.010" Slotted Schedule 40 PVC
- - - - - - - - - - - - - - - - - - -	- 370 	7.00 - 47.00 RESIDUUM, silty SAND, reddish brown, micaceous, non-cohesive, moist.			7.00	R1	ROTO	<u>10.00</u> 10.00	Grout mix and stainless steel casing 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 3 3 3 3 3 3 4 4 4 4 4 2 4 4 4 4	Diameter: 2" Slot Size: 0.010" End Cap: 64.6-65 FILTER PACK Interval: 53-66 Type: FilterSil FILTER PACK SEAL Interval: 48-53 Type: 3/8" PEL-PLUG Bentonite Pellets ANNULUS SEAL Interval: 0-48 Type: Portland Cement and Quick Gel Bentonite Mix WELL COMPLETION Pad: 4'x4' Protective Casing: 4"x4"x5
- 20 — - 25 — -	- 360 		SM			R2	ROTO SONIC	10.00		DRILLING METHODS Soil Drill: Rotosonic Rock Drill: Core
- 30 — - 35 —	- - 350 - - - - - 345 - -					R3	ROTO SONIC		Portland Cement and _ Quick Gel Bentonite Mix 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
40 -	- - 340 -	Log continued on next page					ROTO SONIC			
DRI	LLING	Log continued on next page LE: 1 in = 5 ft COMPANY: Cascade Matt Pope	(CHEC	SPECT KED B 2/15/1	: TII		l Han	nam	Golder

PROJECT: Plant Branch PROJECT NUMBER: 1666254-01 DRILLED DEPTH: 67.00 ft LOCATION: South boundary of site

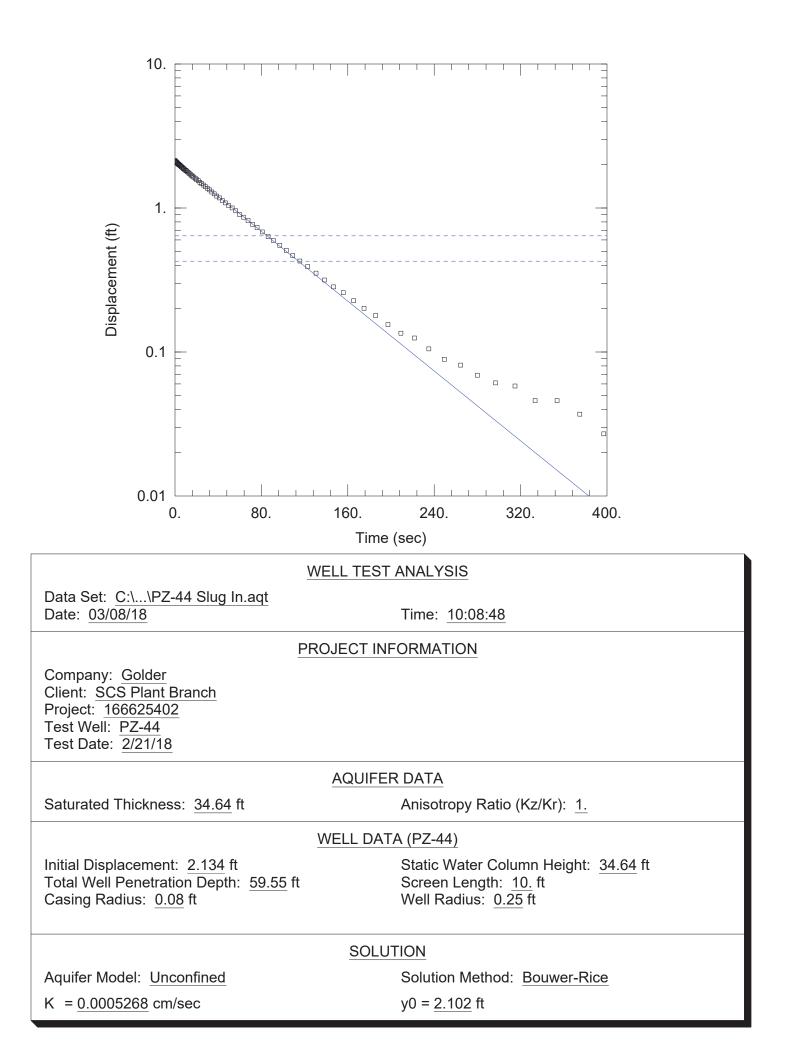
RECORD OF BOREHOLE PZ-50 DRILL RIG: Pro Sonic 150 DATE STARTED: 1/31/18 DATE COMPLETED: 1/31/18 NORTHING: 1,161,593.68 EASTING: 2,562,372.00 GS ELEVATION: 378.79 TOC ELEVATION: 381.53 ft

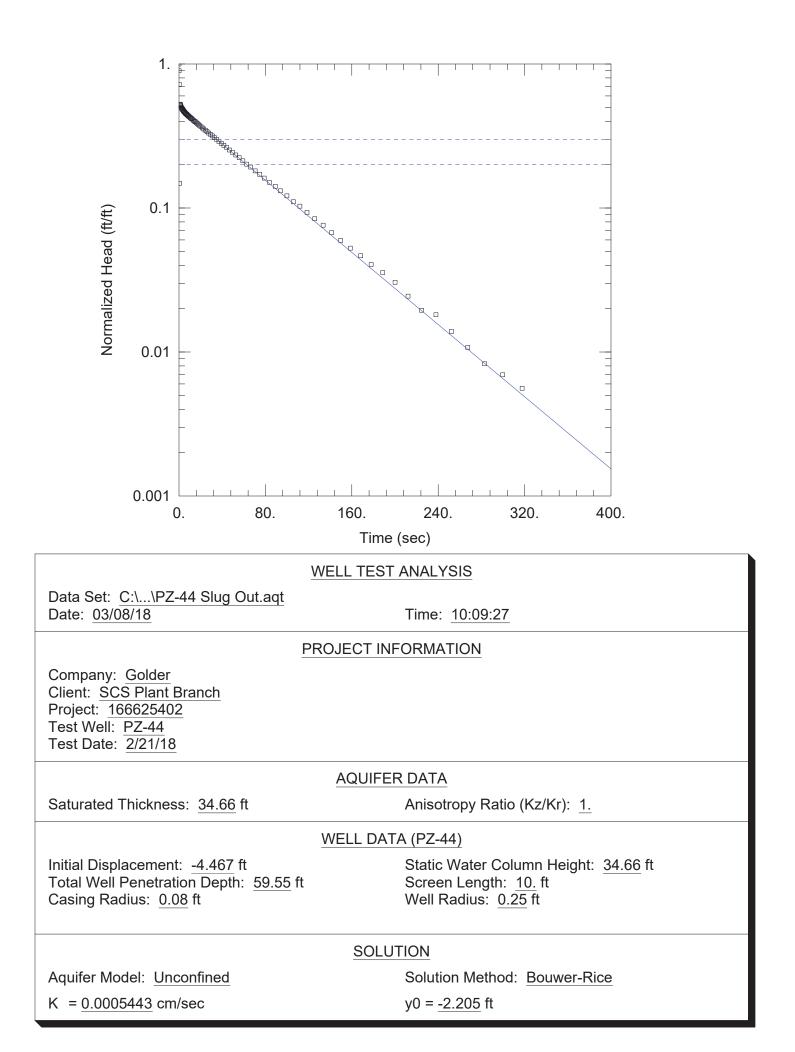
SHEET 2 of 2 DEPTH W.L.:37.68 DATE W.L.:2/14/18 TIME W.L.:

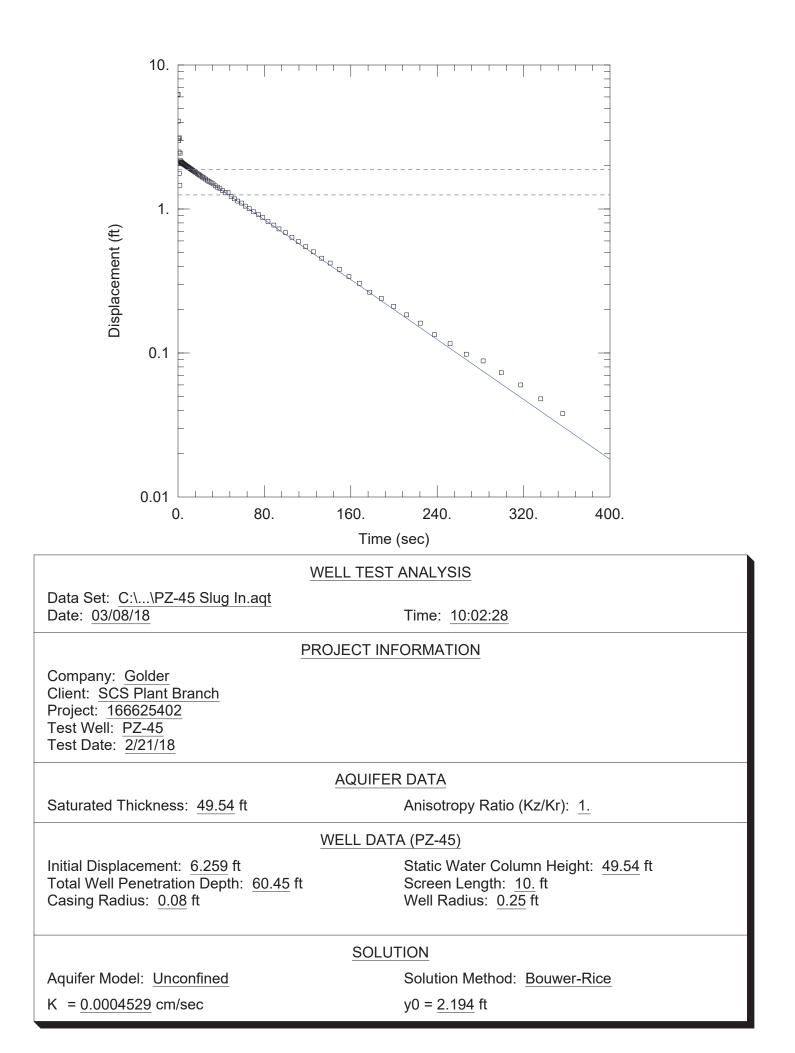
	Z	SOIL PROFILE			1		AMPLE	S		
DEPTH (ft)	ELEVATION (ft)	DESCRIPTION	NSCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	ТҮРЕ	REC	MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
 45	- 335 	7.00 - 47.00 RESIDUUM, silty SAND, reddish brown, micaceous, non-cohesive, moist. (Continued)	SM		331.79	R4	ROTO SONIC	10.00	3/8" = - -	WELL CASING Interval: 0-54.6 Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Thread SURFACE CASING Interval: Material: Diameter: WELL SCREEN Interval: 54.6-64.6
- - 50 — -	- 330 - -	47.00 - 55.00 RESIDUUM, SAND with trace gravel, some relic structure, light reddish brown, moist, non-cohesive.	SP		47.00	R5	ROTO SONIC	10.00	3/8" PEL-PLUG _ Bentonite Pellets - -	Material: 0.010" Slotted Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 64.6-65 FILTER PACK Interval: 53-66 Type: FilterSil FILTER PACK SEAL Interval: 48-53 Type: 3/8" PEL-PLUG
- 55 -	325 	55.00 - 60.00			323.79	-			FilterSil –	Bentonite Pellets ANNULUS SEAL Interval: 0-48 Type: Portland Cement and Quick Gel Bentonite Mix WELL COMPLETION Pad: 4'x4' Protective Casing: 4"x4"x5"
- 60 — -	320 	60.00 - 67.00	TWR		318.79 60.00	R6	ROTO SONIC	10.00	0.010" Slotted _ Schedule 40 PVC	Protective Casing: 4 x4 x5 DRILLING METHODS Soil Drill: Rotosonic Rock Drill: Core
- 65 -		Boring completed at 67.00 ft	BR		311.79				3/8"	-
- 70 — -	- 310 - -									-
- 75 — -									-	
- - 80 -	- 300 								-	
DRI	LLING	LE: 1 in = 5 ft cOMPANY: Cascade Matt Pope		CHEC	SPECT KED BY 2/15/1	': TI		l Han	nam	Golder

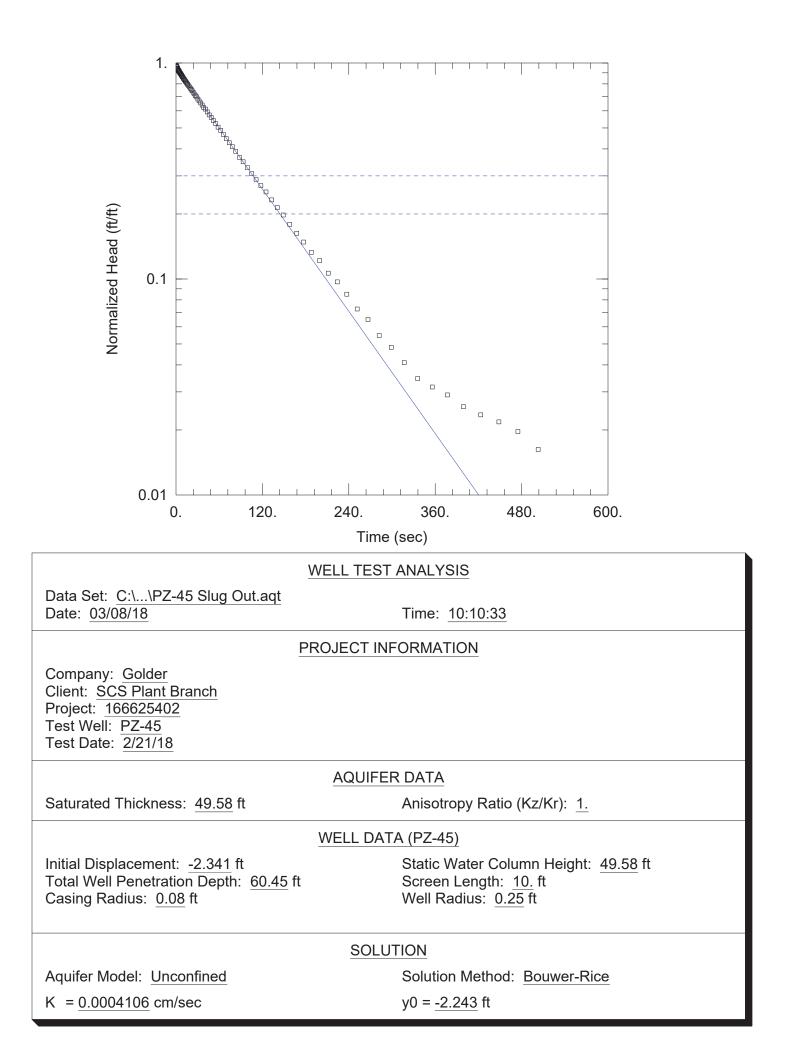
APPENDIX C

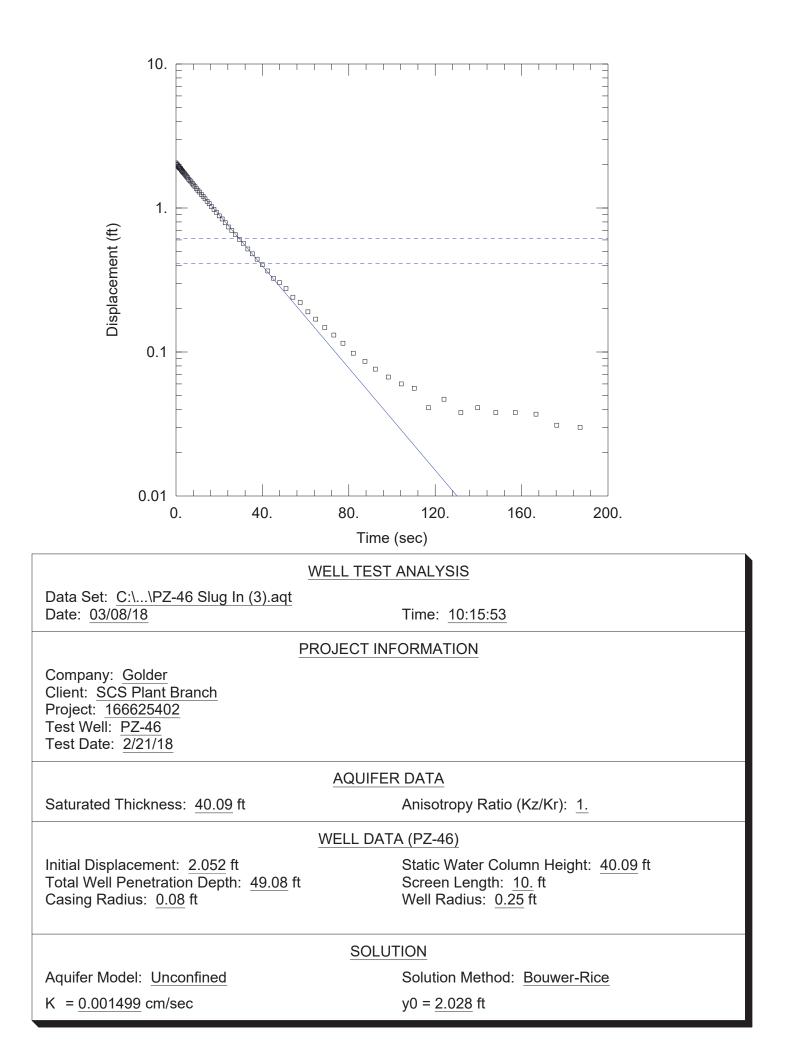
Aquifer (Slug) Test Results

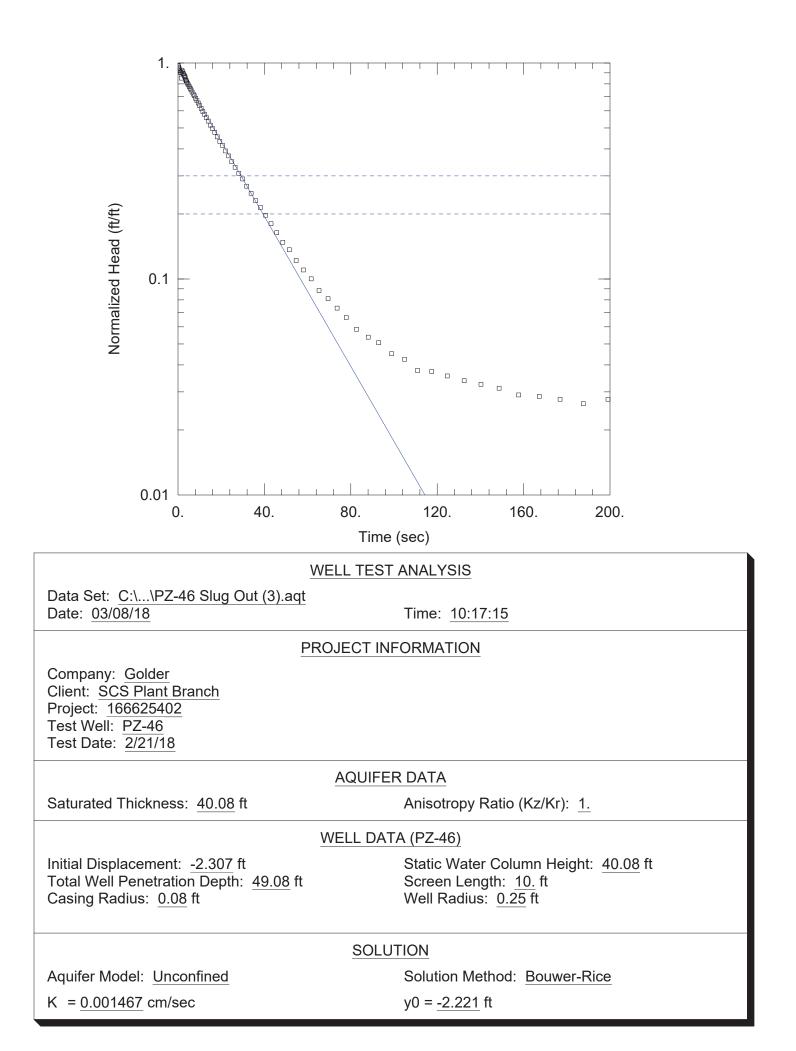


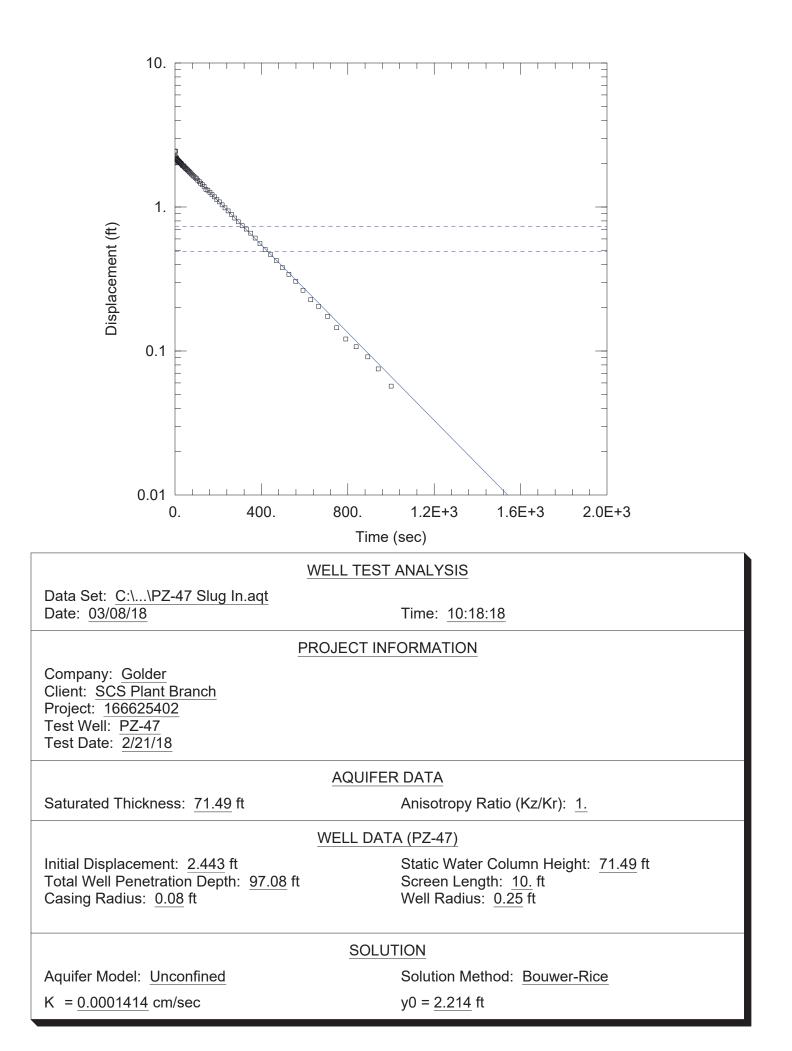


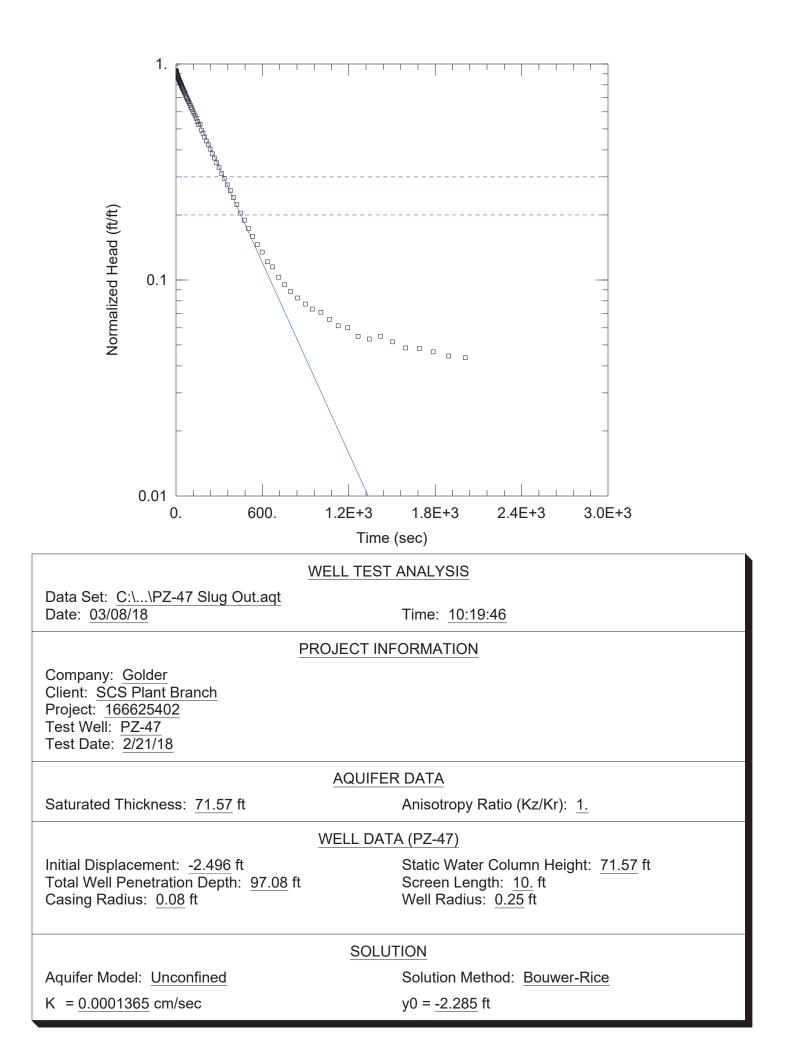


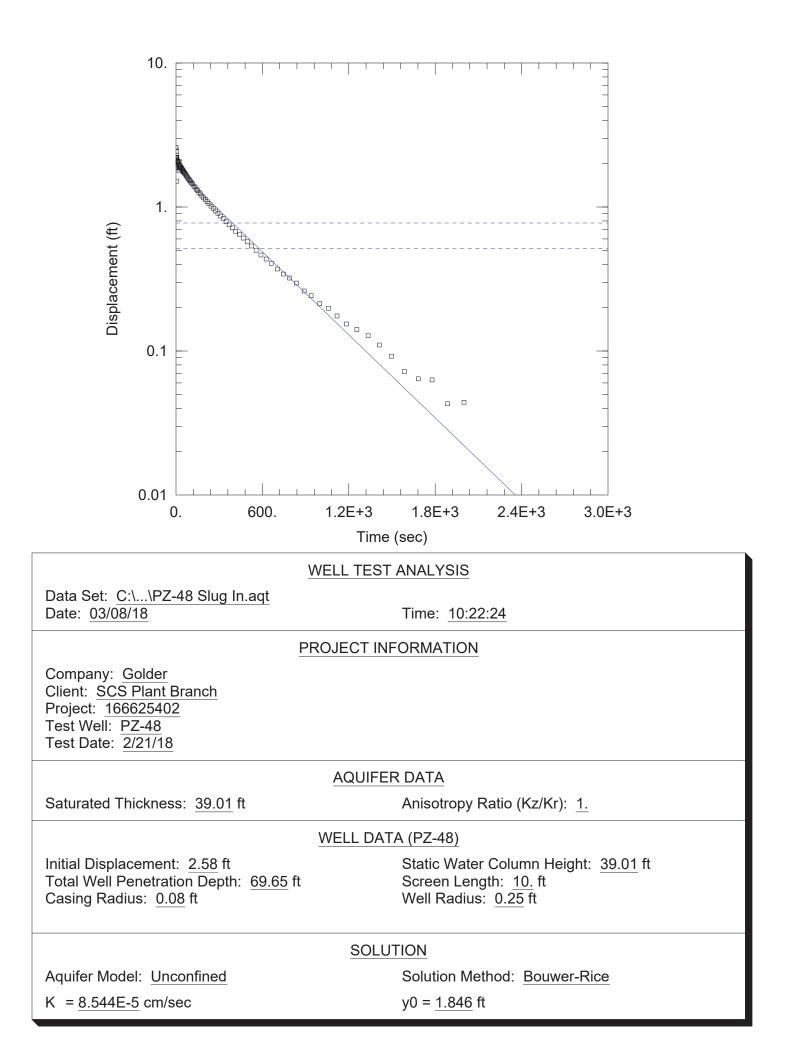


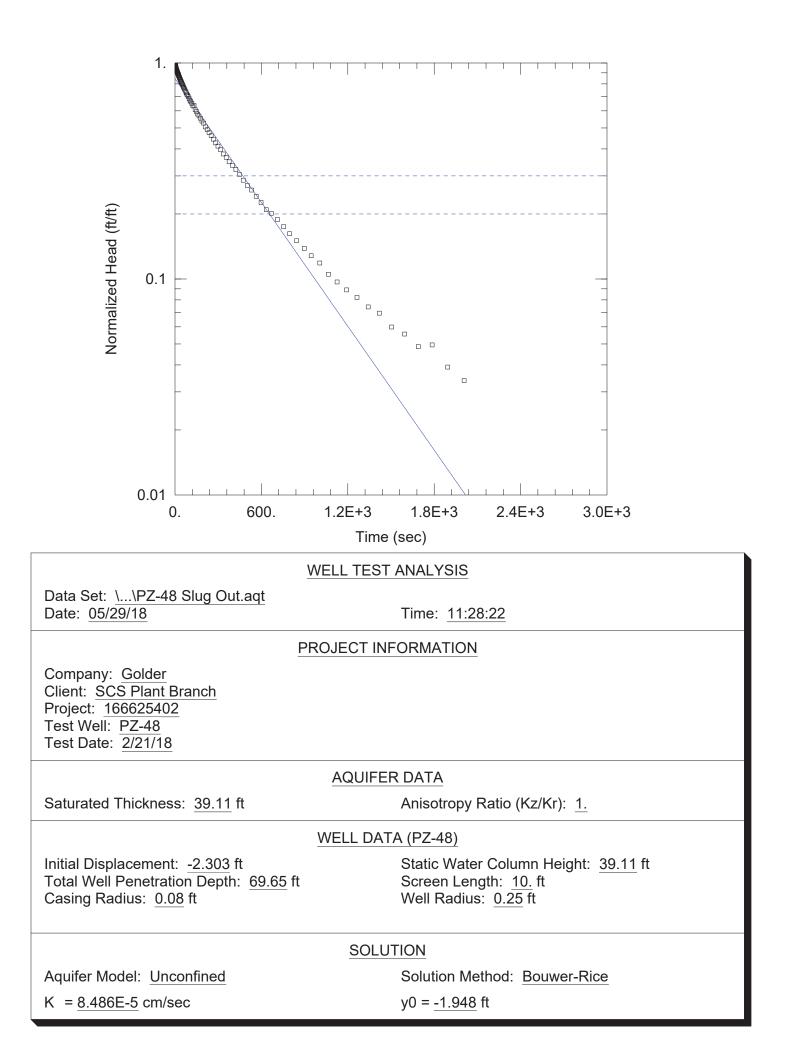


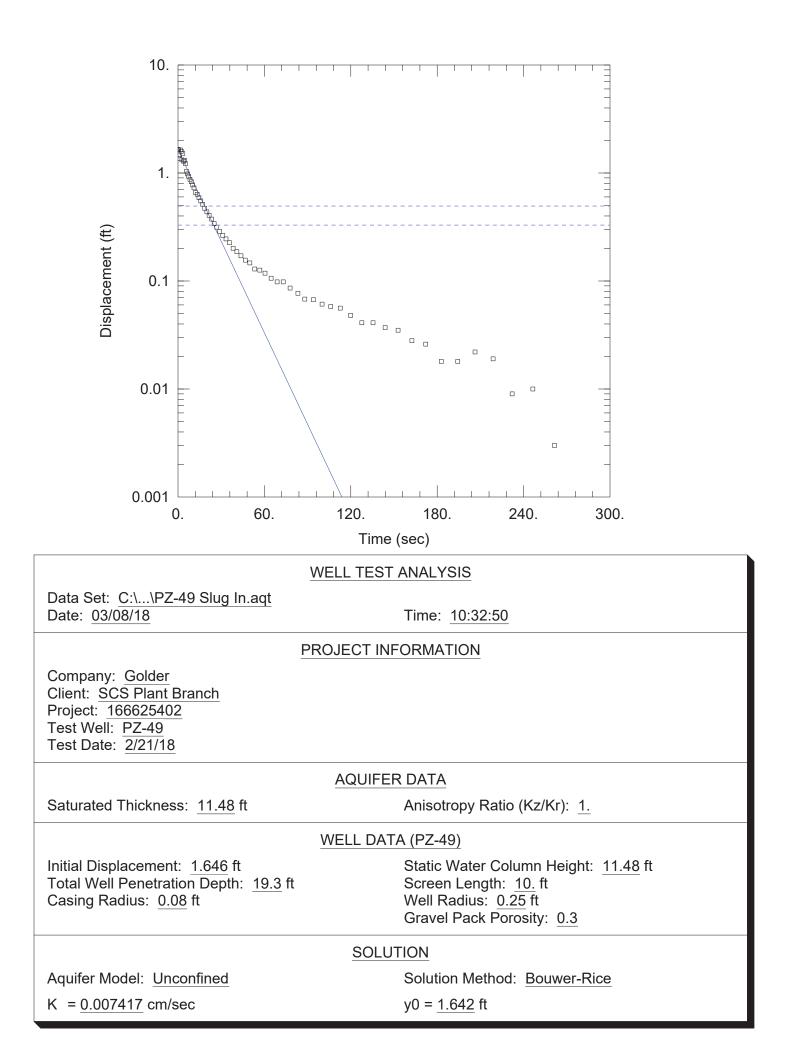


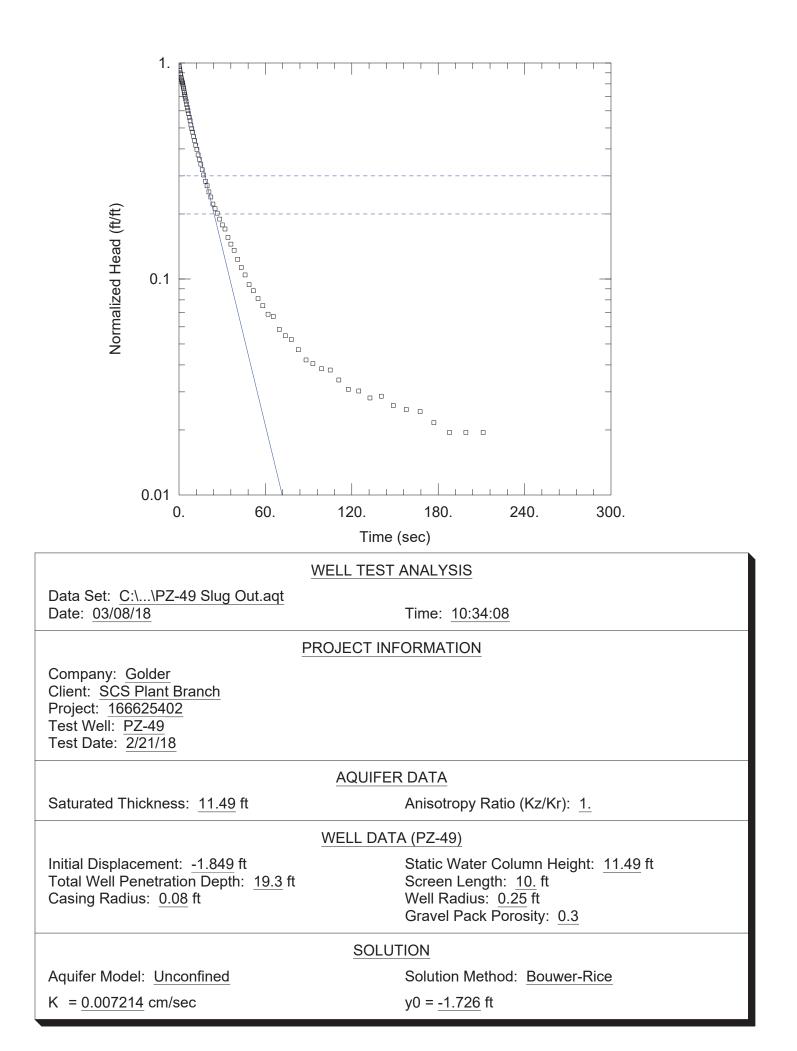


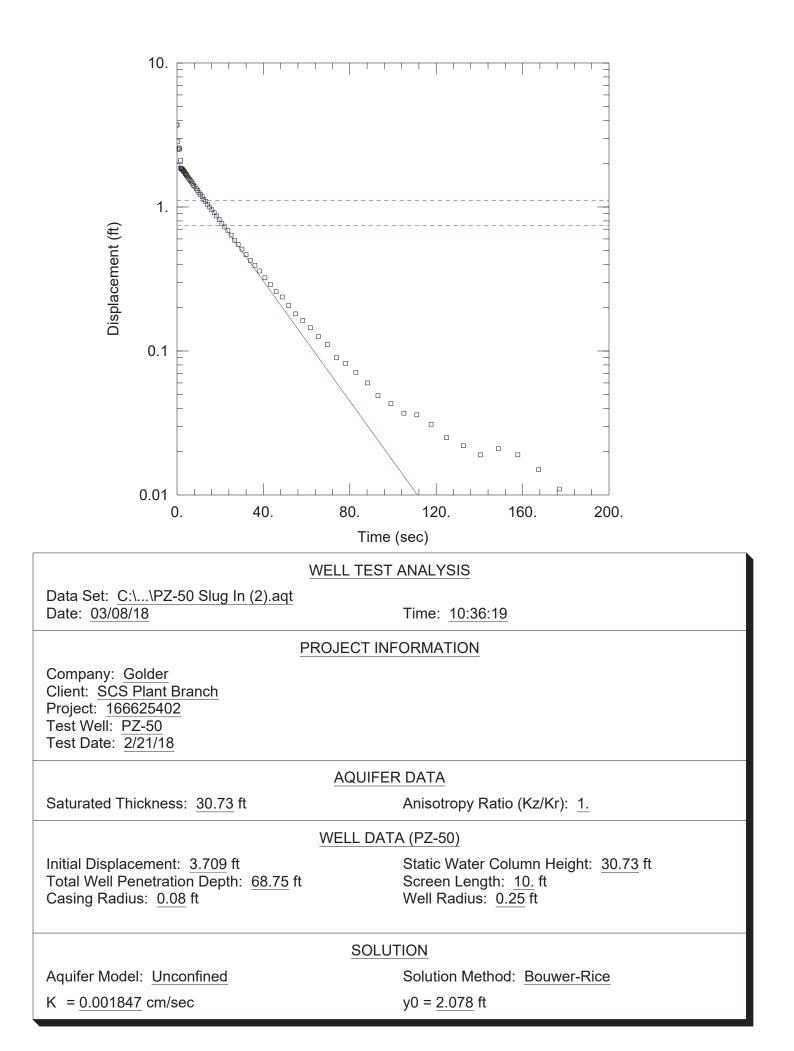


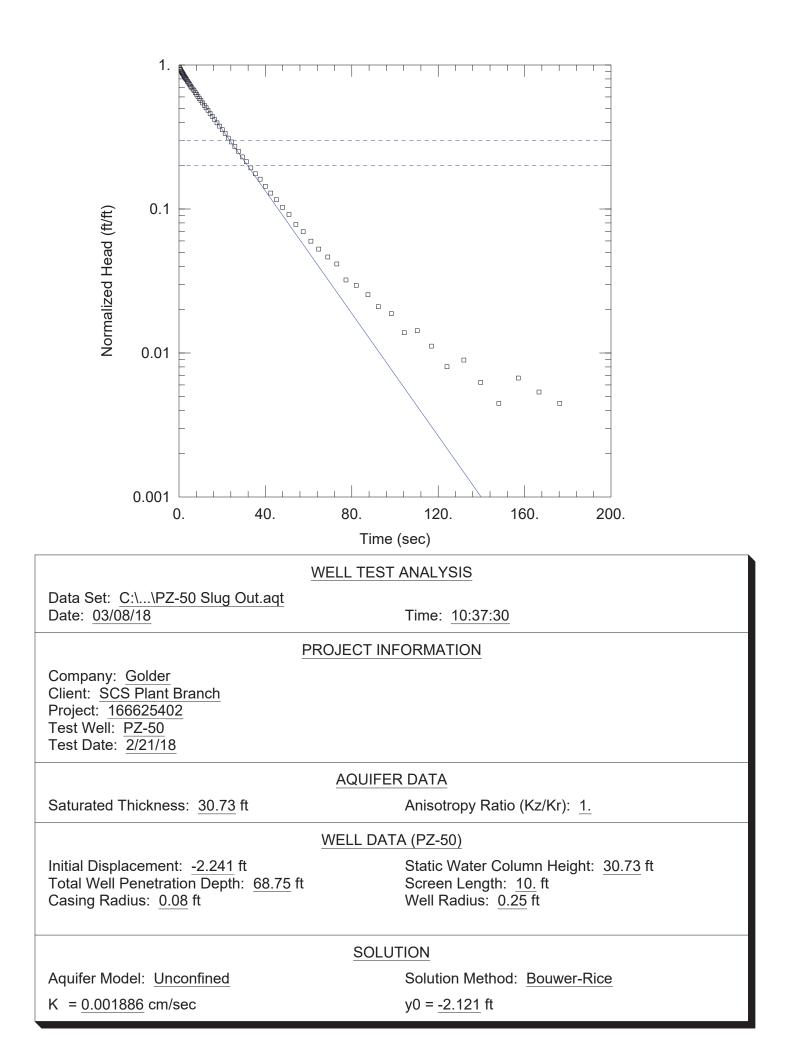












C	synte consulta	nts	BORING AND WELL LOG LEGEND
LITHOLOGY WATER I EVFI	WELL/BORING COMPLETION	SAMPLE TYPE	DESCRIPTION
		B B S S C	ASPHALT CONCRETE FILL TOPSOIL COBBLES IGNEOUS Rock METAMORPHIC Rock SEDIMENTARY Rock Well-graded GRAVEL (GW) Poorly graded GRAVEL (GP) Stilly GRAVEL (CM) Clayey GRAVEL (CP) Stilly GRAVEL (CM) Poorly graded GRAVEL (Mth sill (GW-GM) Poorly graded GRAVEL with sill (GP-GM) Poorly graded GRAVEL with sill (GP-GM) Well-graded GRAVEL with sill (GP-GM) Poorly graded GRAVEL with sill (GP-GC) Well-graded GRAVEL with sill (SW-SM) Poorly graded SAND (SM) Silly SAND (SM) Clayey SAND (SP) Silly SAND (SM) Clayer SAND with sill (SP-SM) Well-graded SAND with sill (SP-SC) SULT (ML) Lean CLAY (CL) Clayer SAND with clay (SP-SC) Soll T (ML) Claestic SLIT (MH) Fat CLAY (CL) Organic SOL(CH) Organic SOL(CH) POORT PEAT (PT) Volume Descriptors: Trace = <%

		co		nts	>		Clien Proje Addre	0 1 2	on Well N Page:	lo. PB	L LOG -1S/PB-1 f 5		
Drillin Drillin Drillin Drillin Driller	• • •	Date: bany od:	: 01/2 : Tho Holle at: CME Stan	ow St E-550 n Whit	9 n Eng em Ai	uger	•	Static Water Level (ft):24.54/NARiDTW After Drilling (ft):24.4/NASoTop of Casing Elev. (ft)403.06/NASaGround Elev. (ft):400.26/NAFil	ilot (in): 2.0/0.010 PVC 0 PVC Slotted te Chips/Pellets S/SH/CO				
DEPTH (ft)	ЛТНОГОСЛ	WATER LEVEL	WELL	Sample Type	Recovery (ft)	s	N Value A RQD (%)	SOIL/ROCK VISUAL DESCRI	IPTION		MEASURE samble Lap S	ELEV. (ft msl)	
0-				SS	0.58	1 1 1	2	(0') Clayey SAND (SC); moist, reddish-brown, organ	nic material.		PB-1 (0-2)	— 400 _	
_				SS	1.66	1 1 3 4 5	7	(2') Sandy lean CLAY (CL); medium plasticity, mediu reddish-brown, micaceous, some quartz gravel in lea	um stiff, dry, nses.		PB-1 (2-4)	_	
5				SS	2	3 5 8 9	13				PB-1 (4-6)	- 395	
_				, SS	2	3 3 5 5	8	(6') Clayey SAND (SC); mostly medium grained san few clay, medium dense, dry, light reddish-brown, so sand lenses.			PB-1 (6-8)	_	
_	<u>, , , , , , , , , , , , , , , , , , , </u>			SS	1.84	2 3 4 7	7	(8') SILT (ML); mostly silt, nonplastic, medium stiff, small iron oxide concretions throughout (10 mm).	dry, yellowish	. <u> </u>	PB-1 (8-10)	_	
10-				SS	1.84	3 4 5 5	9	(10') SILT (ML); mostly silt, nonplastic, medium stiff small iron oxide concretions throughout (10 mm), m			PB-1 (10-12)	— 390 -	
-				SS	2	3 4 5 6	9	(12') Silty SAND (SM); medium dense, dry, pale red structure, micaceous, some gravel quartz lenses.	ldish-brown, v	veak relict	PB-1 (12-14)	_	
- 15-				SS	2	4 3 5 6	8				PB-1 (14-16)	- 385	
				SS	1.66	3 5 7 7	12	(16') Silty SAND (SM); dense, moist, pale reddish-bu structure more evident, micaceous, some gravel qua	rown, relict ro artz lenses.	ock	PB-1 (16-18)	_	
20-				SS	2	7 4 4 6 7	10				PB-1 (18-20)	_	
	IOTES:		PB-1S is IA = Not			ell lo	cated	~10ft away from PB-1 borehole.					

COLLECT MEASURE (1) I	Geosyntec Consultants consultants engineers scientists Innovators Drilling Start Date: 01/18/2019 Drilling End Date: 01/22/2019 Drilling Company: Thompson Engine Drilling Method: Hollow Stem Auge Drilling Equipment: CME-550 Driller: Stan White Logged By: Joseph Ivanowski	eering er	e 1, j	Well Depth (f Well Diam. (in Riser Materia Screen Materia	I No. PB e: 2 c f(t): 38/NA in)/Screen S al: Sch 40 l erial: Sch 40 al: Bentonit Sand) PVC Slotted e Chips/Pellet	
25 2 4 13 (22) Sity SAND (SM); dense, moist, pale reddish-brown, micaceous with relict rock fabric. PB-1 (22:24) 25 5 8 19 (24) Sity SAND (SM); dense, wet, pale reddish-brown, micaceous with relict rock fabric. weathered quartz lens at 25.5 ft. PB-1 (24:26) 25 5 11 15 31 PB-1 (24:26) 26 5 2 6 11 15 30 5 2 6 13 (28) Sity SAND (SM); dense, wet, pale reddish-brown, micaceous with relict rock fabric, weathered quartz lens at 25.5 ft. PB-1 (24:26) 30 5 1.34 17 86 (28) Sity SAND (SM); dense, wet, pale reddish-brown, material becoming harder, more rock like, highly weathered Gneiss. PB-1 (26:30) 30 5 1.26 11 87 (28) Top of PWR. 98-1 (30:32) - 370 30 5 1.58 1.68 16 77 (35) Weathered Gneiss, abundant quartz, mica with biotite. PB-1 (35:37) - 365		СТ				MEASURE	ELEV. (ft msl)
	$ \begin{array}{c} $	10 10 10 10 10 10 11 10 11 11 12 13 14 17 86 14 17 87 10 11 12 13 14 15 16 17 18 19 11 12 13 14 15 16 17 18 19 10 10 11 12 13 14 15 16 17 18 19 10 10 11 12 13 14 14 15 16 17 18 17 18 17 18 19 10 10 <td>relict rock fabric. (24') Silty SAND (SM); dense, wet, pale reddish- relict rock fabric, weathered quartz lens at 25.5 ff (28') Silty SAND (SM); dense, wet, pale reddish- harder, more rock like, highly weathered Gneiss. (28') Top of PWR. (32') Switched to 5ft-center for SPT (SS) samplin</td> <th>brown, micaced t. brown, materia</th> <td>eous with</td> <td>PB-1 (22-24) . PB-1 (24-26) . PB-1 (26-28) . PB-1 (28-30) . PB-1 (30-32) .</td> <td>-</td>	relict rock fabric. (24') Silty SAND (SM); dense, wet, pale reddish- relict rock fabric, weathered quartz lens at 25.5 ff (28') Silty SAND (SM); dense, wet, pale reddish- harder, more rock like, highly weathered Gneiss. (28') Top of PWR. (32') Switched to 5ft-center for SPT (SS) samplin	brown, micaced t. brown, materia	eous with	PB-1 (22-24) . PB-1 (24-26) . PB-1 (26-28) . PB-1 (28-30) . PB-1 (30-32) .	-

Ceosyntec Consultants	Clien Proje Addr	• • •	Plant Branch CCR Landfill Site Investigation Well No. PB-1S/PB-7 SS: 1100 Milledgeville Rd, Milledgeville Page: 3 of 5			
Drilling Start Date:01/18/2019Drilling End Date:01/22/2019Drilling Company:Thompson EngineDrilling Method:Hollow Stem AugeDrilling Equipment:CME-550Driller:Stan WhiteLogged By:Joseph Ivanowski	er	Boring Depth (ft): 96 Boring Diameter (in): 6.50 Static Water Level (ft): 24.54/NA DTW After Drilling (ft): 24.4/NA Top of Casing Elev. (ft) 403.06/NA Ground Elev. (ft): 400.26/NA Location (X,Y): 1164916.83, 2556350.54	Well Depth (ft): 38/NA Well Diam. (in)/Screen Slot (in): 2.0/0.010 Riser Material: Sch 40 PVC Screen Material: Sch 40 PVC Slotted Sanitary Seal: Bentonite Chips/Pellets Filter Pack: Sand Sampling Method(s): SS/SH/CO			
DEPTH (ft) LITHOLOGY WATER LEVEL WELL COMPLETION Sample Type Recovery (ft) Blow Counts		SOIL/ROCK VISUAL DESC	CRIPTIC	DN	MEASURE emple rap Sample	ELEV. (ft msl)
$ \begin{array}{c} 40 \\ - \\ - \\ 45 \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ -$	9 75 75 95 74 1 50	(45') Silty SAND (SM); very dense, wet, mottled, quartz, biotite, and feldspar.	weather	red Gneiss with	PB-1 (40-42) PB-1 (45-47) PB-1 (50-52)	- 360 355
55 - SS 0.5 50/	/5	(55') No bag sample collected.				- - 345 - - -
NOTES: PB-1S is a stickup well I NA = Not Applicable	located	~10ft away from PB-1 borehole.				

Ceosyntec consultants engineers scientists innovators Drilling Start Date: 01/18/2019 Drilling End Date: 01/22/2019	Clien Proje Addr	• • •	Image: Second		
Drilling Company: Thompson Er Drilling Method: Hollow Stem A Drilling Equipment: CME-550 Driller: Stan White Logged By: Joseph Ivano	Auger	Static Water Level (ft): 24.54/NA DTW After Drilling (ft): 24.4/NA Top of Casing Elev. (ft) 403.06/NA Ground Elev. (ft): 400.26/NA Location (X,Y): 1164916.83, 2556350.54	Well Diam. (in)/Screen Slot (in): 2.0/0.010 Riser Material: Sch 40 PVC Screen Material: Sch 40 PVC Slotted Sanitary Seal: Bentonite Chips/Pellets Filter Pack: Sand Sampling Method(s): SS/SH/CO		
DEPTH (ft) LITHOLOGY WATER LEVEL WELL COMPLETION Sample Type Sample Type	Blow Counts N Value RQD (%)	SOIL/ROCK VISUAL DESC	RIPTION	Lab Sample Lab Sample ELEV. (ft msl)	
60 - - - - - - - - - - - - -	50/4	(60') No bag sample collected. (65') Silty SAND (SM); very dense, wet, some co weathered Gneiss with relict banding, quartz, fek	spar, and biotite. PW	- 340 - - - - - - - - - - - - - - - - - - -	
		becomes more competent. Very slow drilling, effe 67ft. (67') Began mud rotary drilling.	ctive auger refusal at	- - - - - - - - - 330	
		(72') No bag sample collected.		- - - 325 - -	
NOTES: PB-1S is a stickup NA = Not Applicabl		(79') Very hard drilling. ~10ft away from PB-1 borehole.			

Geosyntec> consultants engineers scientists innovators Drilling Start Date: 01/18/2019 Drilling End Date: 01/22/2019 Drilling Company: Thompson Engine Drilling Method: Hollow Stem Auge Drilling Equipment: CME-550 Driller: Stan White Logged By: Joseph Ivanowski	eering er								
DEPTH (ft) LITHOLOGY WATER LEVEL WELL COMPLETION Sample Type Recovery (ft)		SOIL/ROCK VISUAL DESC	CRIPTI	ON	MEASURE edu Samble Tap	ELEV. (ft msl)			
80 $ -$	100	Top of competent rock at 81.5 (81.5') MET ROCK (GNEISS); coarse grained, n hard, slightly fractured, dark gray to white, poorly fractures, abundant qzt, feldspar phenocrysts or little evidence of water flow in fractures at 82.3, 8 Cable tool (rock coring) started at 81.5 ft below g Fractures at 82.3 and 82.7 Fracture at 84.5 Fracture at 87 (96') Boring terminated. Well installed on 01/24/2	r jointed augen, 32.7, 84 round s	, few low angle biotite, pyroxene, 4.5, and 87 ft.		- 320 			
NOTES: PB-1S is a stickup well located ~10ft away from PB-1 borehole. NA = Not Applicable									

	consultants Proje engineers scientists innovators Addi							Clien Proje Addre	ct: Plant Branch CCR Landfill Site Investigation Well No. PE	L LOG 3-2D of 4		
Drillin Drillin Drillin Drillin Driller	Drilling Start Date:11/29/2018Drilling End Date:12/04/2018Drilling Company:Thompson EngineeringDrilling Method:Hollow Stem AugerDrilling Equipment:D-50Driller:Phil PittsLogged By:Nardos Tilahun							ring	Static Water Level (ft): 39.50 Riser Material: Sch 40 DTW After Drilling (ft): 12.40 Screen Material: Sch 4 Top of Casing Elev. (ft) 416.76 Sanitary Seal: Bentoni Ground Elev. (ft): 414.86 Filter Pack: Sand	Well Diam. (in)/Screen Slot (in): 2.0/0.010 Riser Material: Sch 40 PVC Screen Material: Sch 40 PVC Slotted Sanitary Seal: Bentonite Pellets		
DEPTH (ft)	ГІТНОГОСУ	WATER LEVEL	WELL	COMPLETION	Sample Type	Recovery (ft)	Blow Counts	N Value RQD (%)	SOIL/ROCK VISUAL DESCRIPTION	MEASURE Lab Sample	ELEV. (ft msl)	
0					SS	2	3 3 4 3	7	(0') Elastic SILT (MH); few medium sand, mostly silt, low plasticity, soft, moist, reddish, abundant mica.		_	
_	- SS 2 1 - 1 - 1 - 1					2	1 1	2	(2') Elastic SILT (MH); few medium sand, mostly silt, low plasticity, soft, moist, reddish, abundant mica.	PB-2 (2-4)	-	
5-					SH	1					- 410	
-					SS	2	2 3 5 9	8	(6') Elastic SILT (MH); few medium sand, mostly silt, low plasticity, soft, moist, reddish, abundant mica.		_	
-					SS	2	2 4 6 8	10		PB-2 (8-10)	-	
10					SS	2	3 3 5 4	8	(10') Lean CLAY with sand (CL); few fine sand, some silt, mostly clay, medium plasticity, soft, moist, yellowish-brown to red.		- 405 -	
_		▼			SS	2	3 3 2 5	5	(12') Elastic SILT with sand (MH); trace fine sand, mostly silt, few clay, soft, moist, yellow brown to red.	PB-2 (12-14)	-	
15-					SS SS	2	4 4 7 10 6	11	(15') Silty SAND (SM); mostly fine-coarse grained sand, some silt, trace clay, medium dense, dry, brownish-white, weathered rock fragments, black mottles.	PB-2 (15-16)	- 400 -	
					SS	2	6 5 5 5	11			_	
20-							6 5 8				- 395	
N	IOTES:					kup w cable	vell.					

	itors	1 -	ect: Plant Branch CCR Landfill Site Investiga ress: 1100 Milledgeville Rd, Milledgeville		3-2D of 4
Drilling Method: Hollo Drilling Equipment: D-50 Driller: Phil F	/2018 Ipson Eng w Stem A		Boring Depth (ft):61Well Depth (ft):57Boring Diameter (in):6.50Well Diam. (in)/Screen Slot (in):2Static Water Level (ft):39.50Riser Material:Sch 40 PVCDTW After Drilling (ft):12.40Screen Material:Sch 40 PVC SlotTop of Casing Elev. (ft)416.76Sanitary Seal:Bentonite PelletsGround Elev. (ft):414.86Filter Pack:SandLocation (X,Y):1164853.32, 2556913.92Sampling Method(s):SS/SH/CO		
DEPTH (ft) LITHOLOGY WATER LEVEL WELL COMPLETION	Sample Type Recovery (ft)	Blow Counts N Value ROD (%)	SOIL/ROCK VISUAL DESC	RIPTION	Lab Sample ELEV. (ft msl)
$\begin{array}{c} 20 \\ - \\ - \\ 25 \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ $	SS 2 SS 2 SS 2 SS 2 SS 1.5 SS 2 SS 1	7 8 5 3 5 11 5 11 5 13 5 13 5 13 5 10 4 9 5 10 4 6 9 16 9 13 7 21 10 11 15 9 32 33 8 28 13 15 17 13 38 20 32 30 50 50/5.5 50	 (21.5') SILT (ML); trace fine sand, mostly silt, few dry, reddish-brown, abundant mica. (22') SILT with sand (ML); few fine-coarse sand, nonplastic, stiff, dry, brownish-white, black mottle (24') SILT with sand (ML); few fine-coarse sand, nonplastic, stiff, dry, brownish-white to light gray, (26') SILT with sand (ML); few fine-coarse sand, nonplastic, soft, dry, white to yellow brown. (28') SILT with sand (ML); few fine-coarse sand, nonplastic, stiff, dry, brownish-white. (30') SILT (ML); few fine-coarse sand, mostly silf stiff, moist, yellow brown to brownish-white, black laminated mica. (32') SILT (ML); few fine-coarse sand, mostly silf stiff, moist, prown to yellow brown to white, black laminated, weathered white quartz rock fragment (34') SILT (ML); few fine-coarse sand, mostly silf stiff, moist, gray to white. (36') SILT with sand (ML); few fine-coarse sand, mostly silf stiff, moist, gray to white. (36') SILT with sand (ML); few fine-coarse sand, mostly silf stiff, moist, gray to white. (36') SILT with sand (ML); few fine-coarse sand, mostly silf stiff, moist, yellow shown to white, laminated. (38') Well-graded SAND (SW); mostly fine-coarse trace clay, very dense, moist, brown to dark gray. (39') Top of PWR. 	mostly silt, trace clay, abundant mica. mostly silt, trace clay, abundant mica. mostly silt, trace clay, mostly silt, trace clay, mostly silt, trace clay, t, trace clay, nonplastic, k mottles, abundant t, trace clay, nonplastic, k mottles, mica, s. t, trace clay, nonplastic, k mottles, mica, t, trace clay, nonplastic, k mottles, mica, t, trace clay, nonplastic, k mottles, mica, t, trace clay, nonplastic, k mottles, mica, trace clay, abundant mica, quartz, e grained sand, few silt,	PB-2 (24-26) - 390 - 390

Geosyntee consultant engineers scientists innovato	S		Clien Proje Addre	Well No. DD				
Drilling Method: Hollow Drilling Equipment: D-50 Driller: Phil Pit	018 son Eng Stem Au	uger	-	Boring Depth (ft): 61 Boring Diameter (in): 6.50 Static Water Level (ft): 39.50 DTW After Drilling (ft): 12.40 Top of Casing Elev. (ft) 416.76 Ground Elev. (ft): 414.86 Location (X,Y): 1164853.32, 2556913.92	Well Depth (ft): 57 Well Diam. (in)/Screen Slot (in): 2.0/0.010 Riser Material: Sch 40 PVC Screen Material: Sch 40 PVC Slotted Sanitary Seal: Bentonite Pellets Filter Pack: Sand Sampling Method(s): SS/SH/CO			010
DEPTH (ft) LITHOLOGY WATER LEVEL WELL COMPLETION	Recovery (ft)	<u>s</u>	N Value RQD (%)	SOIL/ROCK VISUAL DESC	CRIPTI	ON	MEASURE Sample Lab S	ELEV. (ft msl)
	0 2.75 0 4.3 0 3.3 0 4.75	50/2.5	64 87 66 95	 (42.9') Auger refusal. (43') MET ROCK (GNEISS); moderately bedded fractured, dark gray to white, dark biotite and whistrong, dark and light banding, trace red, flow banear top, competent, fine to medium grain. Cable at 43 ft below ground surface. (46.5') MET ROCK (GNEISS); moderately bedde unfractured, dark gray to white, dark biotite and vistrong, dark and light banding, flow banding, congrain. Couldn't retrieve core, redrilled with new core cal retrieved core, as a result Run 3 has several mee (51') MET ROCK (GNEISS); fresh, hard, unfract biotite and white feldspar minerals, strong, dark a banding, competent, medium to coarse grain, se from redrilling, 51-52 ft was drilled (not cored) du (mostly sand) jamming core bit. (56') MET ROCK (GNEISS); fresh, hard, unfract biotite and white feldspar minerals, strong, dark a banding, competent, medium to coarse grain, se from redrilling, since set in the set of the se	te felds nding, s tool (ro ed, fresh white fe npetent, tcher ar chanica ured, da and ligh veral mo ue to a v	par minerals, lightly decomposed ock coring) started n, hard, ldspar minerals, medium to coarse afk white, dark t banding, flow echanical breaks weathered layer		- 370 - 370 365
NOTES: PB-2D is a s NA = Not Ap		/ell.						

CONSULTANTS Proje engineers scientists Innovators Addr					>		Clien Proje Addr				
Drilling Start Date:11/29/2018Drilling End Date:12/04/2018Drilling Company:Thompson EngineeringDrilling Method:Hollow Stem AugerDrilling Equipment:D-50Driller:Phil PittsLogged By:Nardos Tilahun						uger	-	Boring Diameter (in):6.50WeStatic Water Level (ft):39.50RisDTW After Drilling (ft):12.40ScrTop of Casing Elev. (ft)416.76SarGround Elev. (ft):414.86Filter	Well Depth (ft): 57 Well Diam. (in)/Screen Slot (in): 2.0/0.010 Riser Material: Sch 40 PVC Screen Material: Sch 40 PVC Slotted Sanitary Seal: Bentonite Pellets Filter Pack: Sand Sampling Method(s): SS/SH/CO		
DEPTH (ft)	ГІТНОГОСУ	WATER LEVEL	WELL COMPLETION	Sample Type	Recovery (ft)	N.	N Value A RQD (%)	SOIL/ROCK VISUAL DESCRIF	TION	MEASURE Pap Sample Lab S	ELEV. (ft msl)
60 — - - 65 —								(61') Boring terminated. Well installed on 12/05/2018			- 350
N	NOTES:		PB-2D is IA = Not	a stic Appli	kup w cable	vell.					

Ceosyntec consultants engineers scientists innovators Drilling Start Date: 01/14/2019	Clien Proje Addr	ct: Plant Branch CCR Landfill Site Investigatio ess: 1100 Milledgeville Rd, Milledgeville	n Well No. PB	Page: 1 of 7		
Drilling End Date:01/16/2019Drilling Company:Thompson EngineDrilling Method:Hollow Stem AugeDrilling Equipment:CME-550Driller:Stan WhiteLogged By:Joseph Ivanowski	er	Static Water Level (ft): 31.54/29.62 Ris DTW After Drilling (ft): 31.70/31.00 So Top of Casing Elev. (ft) 411.06/412.18 Sa Ground Elev. (ft): 409.26/409.08 Fill	Well Diam. (in)/Screen Slot (in): 2.0/0.010 Riser Material: Sch 40 PVC Screen Material: Sch 40 PVC Slotted Sanitary Seal: Bentonite Pellets Filter Pack: Sand Sampling Method(s): SS/SH/CO			
DEPTH (ft) LITHOLOGY WATER LEVEL WATER LEVEL COMPLETION Sample Type Recovery (ft) Blow Counts Blow Cou		SOIL/ROCK VISUAL DESCRI	PTION	Lab Sample BAR ELEV. (ft msl)		
	3	(0') Clayey SAND (SC); some fine-coarse grained sa clay, moist, reddish.	nd, some silt, little	PB-4 (0-2) -		
		(2') Lean CLAY (CL); trace fine sand, mostly clay, m moist, dark reddish, micaceous with trace quartz frag	PB-4 (2-4) –			
5 - ¹	5			PB-4 (4-6) - 405		
1.66 5 1.66 4 1.66 7 1.7 10 1.5 2 1.5 3	2 8	(6') Elastic SILT (MH); little fine sand, mostly silt, tra stiff, moist, dark reddish, more micaceous.	ce clay, low plasticity,	PB-4 (6-8) - - - PB-4 (8-10) -		
10-11-5 10-11-5 10-11-5 1.76 3 4	5 3 9			- 400 PB-4 (10-12) -		
5 14 5 14 5 14 5 5 14 5 5 14 5 14 5 14	4 2 8 3	(11') Silty SAND (SM); mostly fine grained sand, trac silt, trace clay, dense, dry, mottled red to pink brown (12') Silty SAND (SM); mostly fine grained sand, trac silt, trace clay, moist, yellowish-white, 1 inch thick cl	trace quartz gravel.	- - PB-4 (12-14) - -		
15- 15- 15- 15- 15- 15- 15- 15-	3 9 4 5			- 395		
20		Attempted Shelby Tube, only 10 in recovery, discard	ed.	- - - 390		
	stickup	wells, PB-4S is ~10ft away from PB-4D well.				

Ceosyntec Consultants	Proje	Client: Georgia Power Company WELL LOG Project: Plant Branch CCR Landfill Site Investigation Well No. PB-4S/PB-4D Address: 1100 Milledgeville Rd, Milledgeville Page: 2 of 7 Boring Depth (ft): 121 Well Depth (ft): 48/114.5 Boring Diameter (in): 6.50 Well Diam. (in)/Screen Slot (in): 2.0/0.07					
Drilling End Date: 01/16/2019 Drilling Company: Thompson Engine Drilling Method: Hollow Stem Auge Drilling Equipment: CME-550 Driller: Stan White Logged By: Joseph Ivanowsk	er	Boring Diameter (in): 6.50 Static Water Level (ft): 31.54/29.62 DTW After Drilling (ft): 31.70/31.00 Top of Casing Elev. (ft) 411.06/412.18 Ground Elev. (ft): 409.26/409.08 Location (X,Y): 1164335.02, 2556069.22	en Slot (in): 2.0/0.010 40 PVC ch 40 PVC Slotted tonite Pellets : SS/SH/CO				
DEPTH (ft) LITHOLOGY WATER LEVEL WELL COMPLETION Sample Type Recovery (ft) Recovery (ft)		SOIL/ROCK VISUAL DESC	RIPTION	Lab Sample Lab Sample ELEV. (ft msl)			
20 	PB-4 (20-22) - - - - - - - - - - - - - -						
$ \begin{array}{c} 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 $	5 17 0 3 3 24 1 3 6 6	(25') SILT with sand (ML); trace coarse gravel, so mostly silt, nonplastic, very stiff, moist, mottled pa relict rock fabric.	ome fine-coarse sand, ale brown to gray to wh	nite, PB-4 (26-28) - - - - - - - - - - - - - -			
35 - 35 - 55 - 55 - 55 - 55 - 55 - 55 -	0 4 7 25 0 5 8	(31') SILT with sand (ML); trace coarse gravel, so mostly silt, nonplastic, very stiff, wet, pale brown, stronger. (34') Sandy zone of weathered rock at 33.7 ft.	ome fine-coarse sand, rock fabric becoming				
35 - 1.58 1.58 1.58 1.58 1.58 1.58 1.58 1.58	5 0 3 3 5 9 0	(36') Very stiff, grading to PWR.		PB-4 (36-38) - - - PB-4 (38-40) -			
	0 /5	(39') Top of PWR. wells, PB-4S is ~10ft away from PB-4D well.		- 370			

engineers scientists	ultants			Clien Proje Addr	ct: Plant Branch CCR Landfill Site Investiga ess: 1100 Milledgeville Rd, Milledgeville	Well No. PE	3 of 7		
Drilling End Date: 0 Drilling Company: 1 Drilling Method: H Drilling Equipment: 0 Driller: S	01/14/2019 Thompson Hollow Ste CME-550 Stan White	9 n Eng em Au æ	uger	-	Boring Diameter (in): 6.50 Static Water Level (ft): 31.54/29.62 DTW After Drilling (ft): 31.70/31.00 Top of Casing Elev. (ft) 411.06/412.18 Ground Elev. (ft): 409.26/409.08	.5 Slot (in): 2.0/0.0 PVC 0 PVC Slotted te Pellets S/SH/CO	010		
DEPTH (ft) LITHOLOGY WATER LEVEL WELL	COMPLETION Sample Type	Recovery (ft)	ţ	N Value A RQD (%)	SOIL/ROCK VISUAL DESC	SOIL/ROCK VISUAL DESCRIPTION			ELEV. (ft msl)
	SS	0.66	40 50/2	50	(43') Poorly graded SAND (SP); very dense.			PB-4 (43-45)	- - - 365 -
50-	SS A A	0.7	24 50/5	50	(48') Highly weathered Gneiss with quartz veins, feldspars, and quartz visible.	sandy, I	mica, chalky	PB-4 (48-50)	- - - 360 -
55 -	A SS	0.26	50/4		(53') Weathered Gneiss, mostly feldspar and qua	ırtz.		PB-4 (53-55)	- - - 355 -
	A SS	0.5	37 50/2	50	(58') Foliated, sandy, biotite.			PB-4 (58-60)	- - - 350
NOTES: PB-45	S and PB- Not Applic	-4D ar cable	re sti	ckup	wells, PB-4S is ~10ft away from PB-4D well.				

	igineers 1	CO scier	ynte nsulta atists innov	nts vators			Clien Proje Addr	• • •	L LOG 3-4S/PB-4D of 7 5		
Drilling E Drilling (Drilling N Drilling E Driller: Logged	Compa Metho Equipr	any: d:	Thor Hollo t: CME Stan	5/2019 mpson ow Sta 5-550 White ph Iv	n Enç em A e	uger	-	Static Water Level (ft): 31.54/29.62 Ris DTW After Drilling (ft): 31.70/31.00 Sc Top of Casing Elev. (ft) 411.06/412.18 Sa Ground Elev. (ft): 409.26/409.08 Filt	Slot (in): 2.0/0.010 PVC 0 PVC Slotted te Pellets S/SH/CO		
DEPTH (ft)	ГІТНОГОGY	WATER LEVEL	WELL	Sample Type	Recovery (ft)	Blow Counts	N Value H RQD (%)	SOIL/ROCK VISUAL DESCRI	PTION	MEASURE Lab Sample ELEV. (ft mst)	ברבע. נוי וואין
60				SS	0.3	50/3.	5	(63') Biotite, foliated, sandy, mostly feldspar.		PB-4 (63-65) 3.	345
70-				SS	0.62	17 50/5	50	(68') Moderately weathered biotite gneiss foliated, m	ostly feldspars.	- 	340
				SS	0.38	50/5		(73') Poorly graded SAND (SP); very dense, mostly f texture.	elsic minerals, sandy	- - - - - - - - - - - - - - - - - - -	335
80_				SS	0.2	50/3		(78') Biotite, sandy texture.		- - - - - - - - - - - - - - - - - - -	330
NO	TES:	P N	B-4S an A = Not	id PB- Appli	-4D a cable	ire sti	ickup	wells, PB-4S is ~10ft away from PB-4D well.			

Geosyntec Consultants	Proje	Client: Georgia Power Company WELL Project: Plant Branch CCR Landfill Site Investigation Well No. PB- Address: 1100 Milledgeville Rd, Milledgeville Page: 5 or Boring Depth (ft): 121 Well Depth (ft): 48/114.5				
Drilling Start Date:01/14/2019Drilling End Date:01/16/2019Drilling Company:Thompson EngineDrilling Method:Hollow Stem AugeDrilling Equipment:CME-550Driller:Stan WhiteLogged By:Joseph Ivanowski	er	Boring Depth (ft): 121 Boring Diameter (in): 6.50 Static Water Level (ft): 31.54/29.62 DTW After Drilling (ft): 31.70/31.00 Top of Casing Elev. (ft) 411.06/412.18 Ground Elev. (ft): 409.26/409.08 Location (X,Y): 1164335.02, 2556069.22	5 Slot (in): 2.0/0.010 PVC 0 PVC Slotted te Pellets S/SH/CO			
DEPTH (ft) LITHOLOGY WATER LEVEL WELL COMPLETION Sample Type Recovery (ft) Blow Counts		SOIL/ROCK VISUAL DESC	CRIPTIC	DN	MEASURE Samble Tap	ELEV. (ft msl)
80 80 80 85 85 90 90 85 85 85 85 85 85 85 85 85 85	3.5	(83') Biotite, sandy, predominately mafic minerals	S.		PB-4 (83-85)	- - - 325 - - - - - 320 -
95	0.5	(94') Hard, mostly quartz and feldspar. (96') Began mud rotary drilling.			PB-4 (93-95)	- - 315 - - - - 310
NOTES: PB-4S and PB-4D are s NA = Not Applicable	stickup	wells, PB-4S is ~10ft away from PB-4D well.				

105 -110	Geosyntec Consultants	Clien Proje Addr	• • • •		Well No. PE	LL LOG 3-4S/PB-4D of 7		
(i) ASOCIUMITION Interpretation of the second	Drilling End Date:01/16/2019Drilling Company:Thompson EngineDrilling Method:Hollow Stem AugeDrilling Equipment:CME-550Driller:Stan White	er	Boring Diameter (in): 6.50 Static Water Level (ft): 31.54/29.62 DTW After Drilling (ft): 31.70/31.00 Top of Casing Elev. (ft) 411.06/412.18 Ground Elev. (ft): 409.26/409.08	oring Diameter (in):6.50Well Diam. (in)/Screen Slot (in):2.0/tatic Water Level (ft):31.54/29.62Riser Material:Sch 40 PVCTW After Drilling (ft):31.70/31.00Screen Material:Sch 40 PVC Slotteop of Casing Elev. (ft)411.06/412.18Sanitary Seal:Bentonite Pelletsround Elev. (ft):409.26/409.08Filter Pack:Sand				
105 - 105 - 106 2 5 100 (116) No natural fractures from 116 to 121 ft.			SOIL/ROCK VISUAL DESC	CRIPTIC	DN		ELEV. (ft msl)	
NOTES: PB-4S and PB-4D are stickup wells, PB-4S is ~10ft away from PB-4D well.		89	gray, some quartz and feldspar, phenocrysts, we fractures at 104.5 and 106 ft. (110') Low angle fractures, some healed high an fractures, very hard, fractures at 110, 111, and 1 (116') No natural fractures from 116 to 121 ft.	ak band	ing, low angle		- - - - - - - - - - - - - - - - - - -	

Geosyntec Consultants	Clien Proje Addr	ject: Plant Branch CCR Landfill Site Investigation dress: 1100 Milledgeville Rd, Milledgeville					
Drilling Start Date:01/14/2019Drilling End Date:01/16/2019Drilling Company:Thompson EngineDrilling Method:Hollow Stem AugeDrilling Equipment:CME-550Driller:Stan WhiteLogged By:Joseph Ivanowski	r	Boring Depth (ft):121Well Depth (ft):48/114.5Boring Diameter (in):6.50Well Diam. (in)/Screen Slot (in):2.0/0.1Static Water Level (ft):31.54/29.62Riser Material:Sch 40 PVCDTW After Drilling (ft):31.70/31.00Screen Material:Sch 40 PVC SlottedTop of Casing Elev. (ft)411.06/412.18Sanitary Seal:Bentonite PelletsGround Elev. (ft):409.26/409.08Filter Pack:SandLocation (X,Y):1164335.02, 2556069.22Sampling Method(s):SS/SH/CO					
DEPTH (ft) LITHOLOGY WATER LEVEL WELL COMPLETION Sample Type Recovery (ft) Blow Counts		SOIL/ROCK VISUAL DESC	SOIL/ROCK VISUAL DESCRIPTION			ELEV. (ft msl)	
		(121') Boring terminated. Well installed on 01/17	/2019			- - - 285	
NOTES: PB-4S and PB-4D are s NA = Not Applicable	tickup	wells, PB-4S is ~10ft away from PB-4D well.					

Geosyntec consultants	Clien Proje Addr	· · · · · · · · · · · · · · · · · · ·	L LOG -7S/PB-7 f 3		
Drilling Start Date:01/10/2019Drilling End Date:01/14/2019Drilling Company:Thompson EngDrilling Method:Hollow Stem AuDrilling Equipment:D-50Driller:Phil PittsLogged By:Nardos Tilahun	-	Static Water Level (ft): 24.51/NA F DTW After Drilling (ft): 24.60/NA S Top of Casing Elev. (ft) 402.86/NA S Ground Elev. (ft): 399.86/399.55 F	Slot (in): 2.0/0.010 PVC 0 PVC Slotted te Pellets S/SH/CO		
DEPTH (ft) LITHOLOGY WATER LEVEL WELL COMPLETION Sample Type Recovery (ft)	Blow Counts T N Value RQD (%)	SOIL/ROCK VISUAL DESCF	RIPTION	MEASURE Lap Sample	ELEV. (ft msl)
0 SS 1.5 SS 2	1 4 1 3 6 3 11 5 6	(0') Lean CLAY (CL); few fine-coarse sand, few sil plasticity, very soft, moist, reddish, few roots and c (2') Lean CLAY (CL); few fine-coarse sand, few sil plasticity, stiff, moist, reddish, trace mica.	rganic matter.	PB-7 (0-2) - - PB-7 (2-4)	
5- 5- 5- 5- 5- 5- 5- 5- 5- 5- 5- 5- 5- 5	9 3 7 3 4 6 3 7 3 4	 (4') Lean CLAY (CL); few fine-coarse sand, few silplasticity, soft, moist, reddish, abundant mica. (5') 5-gallon bucket soil sample collected from app below ground surface. (6') Lean CLAY (CL); few fine-coarse sand, few sil soft, moist, yellowish-red, abundant mica. 	roximately 0 to 5 feet	PB-7 (4-6) - 3 - 9 - 9 - 9 - 9 - 9 - 9 - 9 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	395
10 SH 1.76	4 2 5 2 3 4	(8') Lean CLAY (CL); few fine-medium sand, some medium plasticity, soft, moist, yellow to yellowish-b abundant mica.	e silt, mostly clay, prown, back mottles,	3	390
SS 1.5	2 6 3 3 8 3 4 10	(12') CEC (12') SILT (ML); some fine-coarse sand, mostly sil yellowish-brown, black mottles, abundant mica. (14') SILT (ML); some fine-coarse sand, mostly sil yellowish-brown, black mottles, abundant mica.		PB-7 (12-14) - - - PB-7 (14-16) - 3	385
15 - SS 1.5	6 9 3 11 4 7 9 4 8	(16') SILT (ML); some fine-coarse sand, mostly sil yellowish-brown, black mottles, abundant mica, mo		PB-7 (16-18) - - PB-7 (18-20)	
20 NOTES: PB-7S is a stickup w NA = Not Applicable	3 5 7	vellowish-brown, black mottles, abundant mica.		- 3	380

Geosyntec Consultants	Clien Proje Addr	• • • •	_{tion} Well No. I	ELL LOG PB-7S/PB-7 2 of 3
Drilling Start Date:01/10/2019Drilling End Date:01/14/2019Drilling Company:Thompson EngineDrilling Method:Hollow Stem AugeDrilling Equipment:D-50Driller:Phil PittsLogged By:Nardos Tilahun	-	Boring Depth (ft): 59.6 Boring Diameter (in): 6.50 Static Water Level (ft): 24.51/NA DTW After Drilling (ft): 24.60/NA Top of Casing Elev. (ft) 402.86/NA Ground Elev. (ft): 399.86/399.55 Location (X,Y): 1163831.32, 2556176.27	n Slot (in): 2.0/0.010 40 PVC n 40 PVC Slotted onite Pellets SS/SH/CO	
DEPTH (ft) LITHOLOGY WATER LEVEL WATER LEVEL WELL COMPLETION Sample Type Recovery (ft) Blow Counts	_	SOIL/ROCK VISUAL DESC	RIPTION	Lab Sample Lab Lap Sample ELEV. (ft msl)
20 SS 1.6 5 4 7 11 25 25 1.6 5 4 7 10 10 10 10 10 10 10 10 10 10	22 23 4 4 4 4 4 7 7 7 5 4 1 4 4 7 7 7 50 7 50	 (20') Silty SAND (SM); 5-gallon bucket soil samp approximately 15 to 20 feet below ground surface (22') CEC (22') Silty SAND (SM); mostly fine-coarse grainer clay, well-graded, medium dense, moist, white to quartz. (24') Silty SAND (SM); mostly fine-coarse grainer clay, well-graded, medium dense, moist, white to quartz. (25') 5-gallon bucket soil sample collected from a below ground surface. (26') Silty SAND (SM); mostly fine-coarse grainer clay, well-graded, dense, wet, white to gray, aburn (28') Silty SAND (SM); mostly fine-coarse grainer clay, dense, wet, white to light brown to whitish-g quartz. (30') Silty SAND (SM); mostly fine-coarse grainer clay, very dense, wet, white to light brown to whit and quartz. (32') Silty SAND (SM); mostly fine-coarse grainer clay, very dense, wet, white to light brown to whit and quartz. 	e. d sand, some silt, trace gray, abundant mica ar d sand, some silt, trace gray, abundant mica ar pproximately 20 to 25 fe d sand, some silt, trace dant mica and quartz. d sand, some silt, trace ray, abundant mica and d sand, some silt, trace ish-gray, abundant mica	
	100	(37') MET ROCK (GNEISS); coarse grained, slig slightly fractured, dark biotite, light feldspar miner banding, competent, fracture at ~37.8 and ~38.5 clean, rough). Auger refusal at 37 feet below grou (rock coring) started. Fractures at 37.8 and 38.5	als, strong, light and da ft (not healed, narrow,	rk
	located	~10ft away from PB-7 borehole.		_ ,

		CO	onsulta	nts	>		Clien Proje Addre	ct: Plant Branch CCR Landfill Site Investigat	tion				
Drilling S Drilling G Drilling G Drilling I Drilling I Driller: Logged	End E Comp Metho Equip	Date: Dany: Dd:	ti 01/14 Thor Hollo ti D-50 Phil	l/2019 npso ow Ste) n Enç em A	uger	-	Boring Diameter (in): 6.50 Static Water Level (ft): 24.51/NA DTW After Drilling (ft): 24.60/NA Top of Casing Elev. (ft) 402.86/NA Ground Elev. (ft): 399.86/399.55	Dring Diameter (in):6.50Well Diam. (in)/Screen Skatic Water Level (ft):24.51/NARiser Material:Sch 40 PFW After Drilling (ft):24.60/NAScreen Material:Sch 40op of Casing Elev. (ft)402.86/NASanitary Seal:Bentoniteround Elev. (ft):399.86/399.55Filter Pack:Sand				
DEPTH (ft)	ГІТНОГОСУ	WATER LEVEL	WELL	Sample Type	Recovery (ft)	s	N Value A RQD (%)	SOIL/ROCK VISUAL DESC	RIPTIC	DN	MEASURE Sample Tap S	ELEV. (ft msl)	
				CO	5		100	(40') MET ROCK (GNEISS); coarse grained, fresh biotite, light feldspar minerals, strong, light and dar mechanical break.				_	
				СО	4.5		90	(45') MET ROCK (GNEISS); coarse grained, fresh biotite, light feldspar minerals, strong, light and dar mechanical break.				355 -	
				СО	5		100	(50') MET ROCK (GNEISS); coarse grained, fresh biotite, light feldspar minerals, strong, light and da mechanical break.				— 350 - - -	
				СО	4.6		100	(55') MET ROCK (GNEISS); coarse grained, fresh biotite, light feldspar minerals, strong, light and da mechanical break.				— 345 - - -	
60	DTES:		B-7S is a				cated	(59.6') Boring terminated. Well installed on 01/14/ ~10ft away from PB-7 borehole.	/2019		_	- 340	

		CC		nts	>		Clien Proje Addre	ct: Plant Branch CCR Landfill Site Investigation Well No. PB	L LOG -8S/PB-8D of 6
Drillin Drillin Drillin Drillin Driller		Date: bany bd:	: 01/03 : Tho Holle at: D-50 Phil	ow St) Pitts		uger	ring	Boring Depth (ft):106Well Depth (ft):35/106Boring Diameter (in):6.50Well Diam. (in)/Screen SStatic Water Level (ft):22.05/22.11Riser Material:Sch 40DTW After Drilling (ft):22.60/14.00Screen Material:Sch 40Top of Casing Elev. (ft)401.69/401.77Sanitary Seal:BentonitGround Elev. (ft):398.69/398.47Filter Pack:SandLocation (X,Y):1163024.59, 2556786.55Sampling Method(s):Sand	PVC) PVC Slotted de Pellets
DEPTH (ft)	ЛЛОГОСЛ	WATER LEVEL	WELL COMPLETION	Sample Type	Recovery (ft)	s	N Value A RQD (%)	SOIL/ROCK VISUAL DESCRIPTION	Lab Sample BELEV. (ft msl)
0				SS	2	3 4 3 4 3 4 6 9	7	 (0') Elastic SILT (MH); trace fine-coarse sand, mostly silt, few clay, low plasticity, soft, moist, reddish, few roots and mica. (2') Elastic SILT (MH); trace fine-coarse sand, mostly silt, few clay, low plasticity, soft, moist, reddish, abundant mica. 	PB-8 (2-4) - 395
5				SS	2	5 8 11 14 4 5 6 13	19	 (4') Elastic SILT (MH); trace fine-coarse sand, mostly silt, few clay, low plasticity, stiff, moist, reddish, black mottles. (5') 5-gallon bucket soil sample collected from approximately 0 to 5 feet below ground surface (6') Elastic SILT (MH); trace fine-coarse sand, mostly silt, few clay, low plasticity, stiff, moist, reddish, black mottles. 	-
				SS	2 0.84	3 3 5 10	8	 (8') Elastic SILT with sand (MH); few fine-coarse sand, mostly silt, few clay, low plasticity, soft, moist, yellowish-brown, abundant mica. Switched from 4 1/4 auger to 3 1/4 auger. Shelby tube discarded. 	PB-8 (8-10) - 390 - -
				SS	2	3 2 4 7	6	(12.5') SILT (ML); few fine-coarse sand, mostly silt, few clay, nonplastic, soft, moist, yellowish-brown, abundant mica.	PB-8 (12-12.5) PB-8 (12.5-14) - 385
-				SS	1.8	4 5 14 19	19	(16') Well-graded SAND (SW); mostly fine-coarse grained sand, some silt, trace clay, medium dense, wet, yellowish-brown, abundant mica and quartz.	- PB-8 (16-18) -
				SS	1.5	19 7 7 12 15	19	(18') Well-graded SAND (SW); mostly fine-coarse grained sand, some silt, trace clay, medium dense, wet, yellowish-brown, abundant mica and quartz.	PB-8 (18-22) - 380 -
N	IOTES:	g	PB-8S ar round su IA = Not	urface) .		ckup	wells, PB-8S is ~10ft away from PB-8D well. Depth to water at PB-8S is 2	2.6 feet below

	Ge	CC	onsu	lta	nts	>		Clien Proje Addr		L LOG -8S/PB-8D f 6	
Drillin Drillin Drillin Drillin Drille	Drilling Start Date:01/06/2019Drilling End Date:01/08/2019Drilling Company:Thompson EngineerinDrilling Method:Hollow Stem AugerDrilling Equipment:D-50Driller:Phil PittsLogged By:Nardos Tilahun								Boring Depth (ft):106Well Depth (ft):35/106Boring Diameter (in):6.50Well Diam. (in)/Screen SStatic Water Level (ft):22.05/22.11Riser Material:Sch 40 IDTW After Drilling (ft):22.60/14.00Screen Material:Sch 40 ITop of Casing Elev. (ft)401.69/401.77Sanitary Seal:BentonitGround Elev. (ft):398.69/398.47Filter Pack:SandLocation (X,Y):1163024.59, 2556786.55Sampling Method(s):State	PVC) PVC Slotted e Pellets	
DEPTH (ft)	ГІТНОГОЄУ	WATER LEVEL		COMPLETION	Sample Type	Recovery (ft)	Blow Counts	N Value A RQD (%)	SOIL/ROCK VISUAL DESCRIPTION	MEASURE Cap Sample	ELEV. (ft msl)
20-		∇			SS SS	1.5	5 6 11 17 14 16 20	17 36	 (20') Poorly graded SAND (SP); mostly fine-medium grained sand, some silt, few clay, medium dense, wet, gray to white, abundant mica and quartz. (22') Poorly graded SAND (SP); mostly fine-medium grained sand, some silt, few clay, dense, wet, gray to white, some quartz. 	PB-8 (20-22)	-
- 25 -					SS	1.4	20 27 14 17 23 32 17	40 81	(24') Poorly graded SAND (SP); mostly fine-medium grained sand, some silt, few clay, dense, wet, gray to white, some quartz.	- - - - - - - - - - - - - - - - - - -	- 375 - -
-					SS	1.5	31 50/2 25 23 40 50/4	63	 (22') Well-graded SAND (SW); mostly fine-coarse grained sand, few silt, trace clay, very dense, wet, gray to white, some quartz. 		- - 370 -
30					SS	0.8	34 50/5.8	50	(33') Well-graded SAND (SW); mostly fine-coarse grained sand, few silt, trace clay, very dense, wet, gray to white, some quartz.	-	- - 365 -
35					SS	0.5	44 50/5	50	(38') Well-graded SAND (SW); mostly fine-coarse grained sand, few silt, trace clay, very dense, wet, gray to white, some quartz.		- - - 360
40-	NOTES:	g	PB-8S pround	l su	rface).		 ckup '	wells, PB-8S is ~10ft away from PB-8D well. Depth to water at PB-8S is 2	2.6 feet below	-

		co	onsulta	nts	>		Clien Proje Addr	• • • •		Well No. P	LL LOG B-8S/PB-8D of 6	
Drillin Drillin Drillin Drillin Drille		Date bany od:	: 01/08 : Thor Holld ht: D-50 Phil	6/2019 B/2019 mpsol pw Sto Pitts los Ti	9 n Enç em A	uger	-	Boring Diameter (in): 6.50 Static Water Level (ft): 22.05/22.11 DTW After Drilling (ft): 22.60/14.00 Top of Casing Elev. (ft) 401.69/401.77 Ground Elev. (ft): 398.69/398.47	6 Slot (in): 2.0/0. 0 PVC 40 PVC Slotted nite Pellets SS/SH/CO	Slot (in): 2.0/0.010 PVC 0 PVC Slotted ite Pellets		
DEPTH (ft)	ГІТНОГОЄУ	WATER LEVEL	WELL	Sample Type	Recovery (ft)	Blow Counts	N Value A RQD (%)	SOIL/ROCK VISUAL DESC	RIPTIC	DN	MEASURE ap Sample rap C	ELEV. (ft msl)
40				SS	0.2	50/3.5		(43') Well-graded SAND (SW); mostly fine-coarse trace clay, very dense, wet, gray to white, some qu	e graine uartz.	d sand, few silt,		- - - 355 - -
- - 50- -				SS	0.3	50/3		(48') Well-graded SAND (SW); mostly fine-coarse trace clay, very dense, wet, gray to white, some qu		d sand, few silt,		- - 350 - -
- - 55-				SS	0.3	50/3.5		(53') Well-graded SAND (SW); mostly fine-coarse trace clay, very dense, wet, gray to white, some qu		d sand, few silt,		- - 345 - -
- 60				SS	0	50/2		(58') Well-graded SAND (SW); mostly fine-coarse trace clay, very dense, wet, gray to white, some qu		d sand, few silt,		- 340 -
N	NOTES:	g	PB-8S an round su IA = Not	urface			ckup	wells, PB-8S is ~10ft away from PB-8D well. Dep	oth to w	ater at PB-8S is	22.6 feet below	

		co		ants	>		Clien Proje Addr		tion	Well No. F	ELL LOG PB-8S/PB-8D I of 6	
Drillin Drillin Drillin Drillin Drille	ogged By: Nardos Tilahun COLLECT							Boring Depth (ft):106Well Depth (ft):35/106Boring Diameter (in):6.50Well Diam. (in)/Screen SStatic Water Level (ft):22.05/22.11Riser Material:Sch 40 FDTW After Drilling (ft):22.60/14.00Screen Material:Sch 40 FTop of Casing Elev. (ft)401.69/401.77Sanitary Seal:BentonitGround Elev. (ft):398.69/398.47Filter Pack:SandLocation (X,Y):1163024.59, 2556786.55Sampling Method(s):Sand			n Slot (in): 2.0/0 0 PVC 40 PVC Slotted nite Pellets	
DEPTH (ft)	ГІТНОГОЄУ	WATER LEVEL	WELL COMPLETION	Sample Type	Recovery (ft) O	s	N Value A RQD (%)	SOIL/ROCK VISUAL DESC	RIPTIC	DN	MEASURE eldumes rap rap	ELEV. (ft msl)
60 65 					0.3	50/4		(63') Well-graded SAND (SW); mostly fine-coarse trace clay, very dense, wet, gray to white, some qu	e graine uartz.	ed sand, few silt,		- - - 335 - -
					0.2	50/2.5		 (68') Well-graded SAND (SW); mostly fine-coarse trace clay, very dense, wet, gray to white, some que fragments . (73') Well-graded SAND (SW); mostly fine-coarse trace clay, very dense, wet, gray to white, some que trace clay, we provide the source clay trace clay the source clay trace cl	e graine	race rock		- 330 - - - - - 325
75				SS	0	50/1.8	5	(75') Began mud rotary drilling (78') No recovery, hard drilling				- - - - 320
	NOTES:	g	PB-8S and round s	urface			 ckup [,]	wells, PB-8S is ~10ft away from PB-8D well. Dep	oth to w	rater at PB-8S is	22.6 feet below	

consultants engineers scientists innovators	1 -	Instruction Well No. PB-8S/PB-8D Instruction Page: 5 of 6 Boring Depth (ft): 106 Well Depth (ft): 35/106				
Drilling Start Date:01/06/2019Drilling End Date:01/08/2019Drilling Company:Thompson EngDrilling Method:Hollow Stem ArDrilling Equipment:D-50Driller:Phil PittsLogged By:Nardos Tilahur	uger	Top of Casing Elev. (ft) 401.69/401.77 Ground Elev. (ft): 398.69/398.47	Glot (in): 2.0/0.010 PVC 0 PVC Slotted te Pellets S/SH/CO			
DEPTH (ft) LITHOLOGY WATER LEVEL WELL COMPLETION Sample Type Recovery (ft)	Blow Counts T N Value RQD (%)	SOIL/ROCK VISUAL DESCRIPTION		Lab Sample ELEV. (ft msl)		
80 	39 50 50/3.5 100 100	(83') Well-graded SAND (SW); mostly fine-coarse trace clay, very dense, moist, greenish-white. (83.5') Clayey SAND (SC); mostly fine-coarse gra some clay, well-graded, very dense, wet, green to (86') MET ROCK (GNEISS); coarse grained, fres biotite and light feldspar minerals, dark gray and v Cable tool (rock coring) started . (91') MET ROCK (GNEISS); coarse grained, fres biotite and light feldspar minerals, dark gray and v Cable tool (rock coring) started .	h, hard, unfractured, dark	PB-8 (83-85) - 315 		
-100-4.5	66	 (96') MET ROCK (GNEISS); coarse grained, frest dark biotite and light feldspar minerals, dark gray competent, slightly decomposed and integrated in ~98 ft and fracture zone from 99 to 100 ft (fractur narrow, stained/decomposed, and rough). (97') Lost some drilling fluid. Fracture at 98 ft bgs with weathering around fracture at 98 ft bgs with weathering around ftage around	and white banding, ear fracture, fracture at res are not healed,	- - - 300 -		

Geosyntec Consultants	Proje	Client: Georgia Power Company WELL LOG Project: Plant Branch CCR Landfill Site Investigation Address: 1100 Milledgeville Rd, Milledgeville Rd, Milledgeville Rd, Milledgeville					
Drilling Start Date:01/06/2019Drilling End Date:01/08/2019Drilling Company:Thompson EngirDrilling Method:Hollow Stem AugDrilling Equipment:D-50Driller:Phil PittsLogged By:Nardos Tilahun	-	Boring Depth (ft):106Well Depth (ft):35/106Boring Diameter (in):6.50Well Diam. (in)/Screen Slot (in):2.0/0.Botatic Water Level (ft):22.05/22.11Riser Material:Sch 40 PVCDTW After Drilling (ft):22.60/14.00Screen Material:Sch 40 PVC SlottedDrop of Casing Elev. (ft)401.69/401.77Sanitary Seal:Bentonite PelletsBround Elev. (ft):398.69/398.47Filter Pack:SandLocation (X,Y):1163024.59, 2556786.55Sampling Method(s):SS/SH/CO					
DEPTH (ft) LITHOLOGY WATER LEVEL WELL COMPLETION Sample Type Recovery (ft)	Blow counts T N Value RQD (%)	SOIL/ROCK VISUAL DESC	RIPTION	Lab Sample Lab Sample ELEV. (ft msl)			
	88	(101') MET ROCK (GNEISS); coarse grained, fr fractured, dark biotite and light feldspar minerals banding, competent, slightly decomposed and int fracture at ~103, 104.5, and 104.7 ft (fractures a stained/decomposed, and rough) . (102') Lost some drilling fluid Fracture at 103, 104.5, and 104.7 ft bgs. (106') Boring terminated.	dark gray and white egrated near fracture,	 			

		CO	onsulta	nts	>		Clien Proje Addr	ct: Plant Branch CCR Landfill Site Investigation Well No.	ELL LOG PB-10S/PB-10D 1 of 5	
Drillin Drillin Drillin Drillin Driller	• • •	Date: bany od:	ti 01/11 Thor Holld ht: D-50 Phil	ow St Pitts		uger	ring	Boring Depth (ft):91Well Depth (ft):33/8Boring Diameter (in):6.50Well Diam. (in)/ScreeStatic Water Level (ft):9.91/10.04Riser Material:SchDTW After Drilling (ft):9.70/9.70Screen Material:ScTop of Casing Elev. (ft)400.94/400.33Sanitary Seal:BentGround Elev. (ft):398.04/397.98Filter Pack:SandLocation (X,Y):1163593.00, 2558546.51Sampling Method(s):	n Slot (in): 2.0/0.010 40 PVC n 40 PVC Slotted onite Pellets)
DEPTH (ft)	LITHOLOGY	WATER LEVEL	WELL	Sample Type	Recovery (ft)	Blow Counts	N Value RQD (%)	SOIL/ROCK VISUAL DESCRIPTION	MEASURE apple Lap Sample	ELEV. (ft msl)
0				SS SS	2 2	3 2 1 2 2 3 4	3	 (0') Elastic SILT (MH); few fine-coarse sand, mostly silt, few clay, low plasticity, very soft, moist, reddish, some roots. (2') Elastic SILT (MH); few fine-coarse sand, mostly silt, few clay, low plasticity, soft, moist, reddish. 	PB-10 (0-2) - - PB-10 (2-4) - 3	395
				SS SS	2	6 3 5 9 8 12 14	10 26	 (4') Elastic SILT (MH); few fine-coarse sand, mostly silt, few clay, low plasticity, soft, moist, yellowish-brown. (5') 5-gallon bucket soil sample collected from approximately 0 to 5 feet below ground surface. (6') Elastic SILT (MH); few fine-coarse sand, mostly silt, few clay, low plasticity, medium stiff, moist, yellowish-brown, black mottles. 	PB-10 (4-6)	
- - 10		▼		SH	2	18 4 6 8	14	(10') CEC (10') Elastic SILT (MH); few fine-coarse sand, mostly silt, few clay, low plasticity, medium stiff, wet, yellowish-brown, few mica.	PB-10 (10-12)	390
				SS SS	1.6 2	12 3 4 7 10 6 7	11 23	 (12') Elastic SILT (MH); few fine-coarse sand, mostly silt, few clay, low plasticity, medium stiff, wet, yellowish-brown, abundant mica. (14') Elastic SILT (MH); few fine-coarse sand, mostly silt, few clay, medium plasticity, medium stiff, wet, light gray to light brown, abundant 	PB-10 (12-14) - 3 - 9 - 9 - 9	385
15				SS	2	16 26 8 9 16	17	mica. (15') 5-gallon bucket soil sample collected from approximately 10 to 15 f below ground surface. (16') Clayey SAND (SC); mostly fine grained sand, trace silt, some clay, medium dense, wet, greenish-gray, abundant mica.	J PB-10 (16-18) 	380
20-	NOTES:	b	PB-10S a elow gro IA = Not	and Pl ound s	urface	e.	sticku	(20') CEC up wells, PB-10S is ~10ft away from PB-10D well. Depth to water at PE		

	Ge	CO		ants	D		Clien Proje Addr	0 1 3	Well No. PE	LL LOG 3-10S/PB-10 of 5	D
Drillin Drillin Drillin Drillin Drille	Dogged By: Nardos Tilahun COLLECT							Static Water Level (ft): 9.91/10.04 Ris DTW After Drilling (ft): 9.70/9.70 Scr Top of Casing Elev. (ft) 400.94/400.33 Sar Ground Elev. (ft): 398.04/397.98 Filter	Slot (in): 2.0/0.010 PVC 0 PVC Slotted ite Pellets S/SH/CO		
DEPTH (ft)	ГІТНОГОСУ	WATER LEVEL	WELL	Sample Type		Blow Counts DI	N Value A RQD (%)	SOIL/ROCK VISUAL DESCRIF	PTION	MEASURE Sample Cap	ELEV. (ft msl)
20-						4 8 11 11 3	19	(20') Clayey SAND (SC); mostly fine grained sand, tr medium dense, wet, greenish-gray to light brown, bla mica. 5-gallon bucket soil sample collected from appr feet below ground surface. (22') Well-graded SAND (SW); mostly fine-coarse gra	ck mottles, abundant oximately 15 to 20 — — — — — — — — — —	PB-10 (20-22) PB-10 (22-24)	_
- 25-				SS		7 30 46 41 26 46	72	(24') Well-graded SAND (SW); mostly fine-coarse graded set (24') Well-graded SAND (SW); mostly fine-coarse graded set (24') Well-graded set (24') well-gra	ained sand, trace silt,	PB-10 (24-26)	— 375 - -
-				SS	0.3	50/3 50/5	1	(26') Well-graded SAND (SW); mostly fine-coarse grafew clay, very dense, wet, light brown, abundant mica	ained sand, trace silt, a.	PB-10 (26-28)	- - - 370
30				SS SS	0.3	50/3		(30') Well-graded SAND (SW); mostly fine-coarse grafew clay, very dense, wet, dark brown, abundant mice		PB-10 (30-32)	_
- - 35-				·····	0.3	50/3		(35') Well-graded SAND (SW); mostly fine-coarse grafew clay, very dense, wet, dark brown, abundant mice		PB-10 (35-37)	— 365 - -
- 40-											- - 360 -
N	NOTES	b	PB-10S elow gr IA = No	ound	surfac	ce.	sticku	ıp wells, PB-10S is ∼10ft away from PB-10D well. D	epth to water at PB-1	0S is 9.7 feet	

Geosyntec Consultants	1 1	roject: Plant Branch CCR Landfill Site Investigation ddress: 1100 Milledgeville Rd, Milledgeville						
Drilling Start Date:01/16/2019Drilling End Date:01/17/2019Drilling Company:Thompson EngliDrilling Method:Hollow Stem AuDrilling Equipment:D-50Driller:Phil PittsLogged By:Nardos Tilahun	-	Boring Depth (ft):91Well Depth (ft):33/85Boring Diameter (in):6.50Well Diam. (in)/Screen Slot (in):2.0/Static Water Level (ft):9.91/10.04Riser Material:Sch 40 PVCDTW After Drilling (ft):9.70/9.70Screen Material:Sch 40 PVC SlotteTop of Casing Elev. (ft)400.94/400.33Sanitary Seal:Bentonite PelletsGround Elev. (ft):398.04/397.98Filter Pack:SandLocation (X,Y):1163593.00, 2558546.51Sampling Method(s):SS/SH/CO						
DEPTH (ft) LITHOLOGY WATER LEVEL WELL COMPLETION Sample Type Recovery (ft)	Blow Counts D N Value RQD (%)	SOIL/ROCK VISUAL DESCR	RIPTION	Lab Sample Lab Lap Sample ELEV. (ft msl)				
	0/1.5	(40') No Recovery.		355				
	50/2	(45') Well-graded SAND (SW); mostly fine-coarse few clay, very dense, wet, dark brown, abundant m		PB-10 (45-47)				
50	50/2	(50') Well-graded SAND (SW); mostly fine-coarse few clay, very dense, wet, dark brown, abundant m		PB-10 (50-52)				
	50/1	(55') No Recovery.		- 345 - - - - -				
60 NOTES: PB-10S and PB-10D below ground surface		up wells, PB-10S is ~10ft away from PB-10D well.	Depth to water at PB-1	- 340 				

Geosyntec consultants	Proje	Client: Georgia Power Company WELL Lu Project: Plant Branch CCR Landfill Site Investigation Well No. PB-103 Address: 1100 Milledgeville Rd, Milledgeville Page: 4 of 5 Boring Depth (ft): 91 Well Depth (ft): 33/85					
Drilling Start Date:01/16/2019Drilling End Date:01/17/2019Drilling Company:Thompson EngirDrilling Method:Hollow Stem AugDrilling Equipment:D-50Driller:Phil PittsLogged By:Nardos Tilahun	-	Boring Depth (ft): 91 Boring Diameter (in): 6.50 Static Water Level (ft): 9.91/10.04 DTW After Drilling (ft): 9.70/9.70 Top of Casing Elev. (ft) 400.94/400.33 Ground Elev. (ft): 398.04/397.98 Location (X,Y): 1163593.00, 2558546.51	Slot (in): 2.0/0.010 PVC 0 PVC Slotted te Pellets S/SH/CO				
DEPTH (ft) LITHOLOGY WATER LEVEL WATER LEVEL COMPLETION Sample Type Recovery (ft)	N Value RQD (%)	SOIL/ROCK VISUAL DESC	MEASURE black mble S apple S apple T	ELEV. (ft msl)			
	072 20 88 88 0/4 14	 (60') Well-graded SAND (SW); mostly fine-coars few clay, very dense, wet, dark brown, abundant (62') Began mud rotary drilling. (63') Poorly graded SAND (SP); mostly fine-coar dense, wet, light gray to white, weathered rock fr abundant mica and quartz. (67.5') MET ROCK (GNEISS); coarse grained, n moderately hard, intensely fractured, dark biotite 	mica. se grained sand, very agments (gneiss), noderately weathered, and light feldspar banding,		335		
	20	(71') MET ROCK (GNEISS); coarse grained, mo moderately hard, moderately fractured, dark bioti banding, moderately decomposed near fracture, and are narrow to wide.	ed. derately weathered, te and light feldspar		325		
A.75 4.75 4.75 4.75 80 NOTES: PB-10S and PB-10D a below ground surface.	54	(76') MET ROCK (GNEISS); coarse grained, mo moderately hard, moderately fractured, dark bioti banding, fractures have clay filling and Fe oxide s wide.	e and light feldspar staining and are narrow to	-	320		

	consulta	nts	>		Clien Proje Addr	ect: Plant Branch CCR Landfill Site Investigation ress: 1100 Milledgeville Rd, Milledgeville Well No. PB-10S/PB-10D Page: 5 of 5					
Drilling Start Drilling End I Drilling Com Drilling Meth Drilling Equip Driller: Logged By:	Date: 01/17 pany: Thor od: Hollo pment: D-50 Phil		n Eng em Au	uger	ring	Boring Depth (ft):91Well Depth (ft):33/85Boring Diameter (in):6.50Well Diam. (in)/Screen Slot (irStatic Water Level (ft):9.91/10.04Riser Material:Sch 40 PVCDTW After Drilling (ft):9.70/9.70Screen Material:Sch 40 PVCTop of Casing Elev. (ft)400.94/400.33Sanitary Seal:Bentonite PelGround Elev. (ft):398.04/397.98Filter Pack:SandLocation (X,Y):1163593.00, 2558546.51Sampling Method(s):SS/SHA			PVC 0 PVC Slotted te Pellets	/C PVC Slotted Pellets	
DEPTH (ft) LITHOLOGY	WATER LEVEL WELL COMPLETION	Sample Type	Recovery (ft)	Blow Counts	N Value RQD (%)	SOIL/ROCK VISUAL DESC	CRIPTI	ON	MEASURE Sample Lap	ELEV. (ft msl)	
		СО	4.5		80	(81') MET ROCK (GNEISS); coarse grained, mo moderately hard, moderately fractured, dark bioti banding, moderately decomposed near the fractu- oxide staining and are narrow to wide, weathered ft). (86') MET ROCK (GNEISS); coarse grained, free competent, mechanical break. (91') Boring terminated.	te and İ ıre, frac I fractur	ight feldspar tures have Fe e zone (81-81.5		- 315 - 315 - 310 - 310 - 305 	
NOTES	: PB-10S a below gro NA = Not	und su	urface		sticku	ιρ wells, PB-10S is ~10ft away from PB-10D we	II. Dept	h to water at PB-10	DS is 9.7 feet		

		co		ints	>		Clien Proje Addre	· · · · · · · · · · · · · · · · · · ·		L LOG -13S/PB-13D f 6	1
Drillin Drillin Drillin Drillin Drillen	Drilling Start Date: 12/10/2018 Drilling End Date: 12/18/2018 Drilling Company: Thompson Engineering Drilling Method: Hollow Stem Auger Drilling Equipment: D-50 Driller: Phil Pitts Logged By: Nardos Tilahun COLLECT							Static Water Level (ft):7.19/7.74RiserDTW After Drilling (ft):7.40/7.40ScreeTop of Casing Elev. (ft)373.38/373.83SanitaGround Elev. (ft):370.88/371.13Filter	ilot (in): 2.0/0.010 PVC 0 PVC Slotted te Pellets S/SH/CO		
DEPTH (ft)	ГІТНОГОСУ	WATER LEVEL	WELL COMPLETION	Sample Type	Recovery (ft)	Blow Counts	N Value RQD (%)	SOIL/ROCK VISUAL DESCRIPTI	MEASURE Sample Tap C	ELEV. (ft msl)	
0				SS	2	2 5 5 6 6	10	(0') Sandy elastic SILT (MH); some fine-coarse sand, m low plasticity, soft, moist, reddish, some organic matter.		PB-13 (2-4)	370
-					2	6 10 16		(2') Sandy elastic SILT (MH); some fine-coarse sand, m low plasticity, medium stiff, moist, yellowish-red to red, r		-	
- 5			<pre>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>></pre>	SS	2 2	4 7 8 11 2 2	15 10	(4') Sandy elastic SILT (MH); some fine-coarse sand, m low plasticity, medium stiff, moist, yellowish-red to red, r (5') Elastic SILT with sand (MH); little fine sand, mostly plasticity, medium stiff, moist, yellowish-brown, 5-gallon collected from approximately 0 to 5 feet below ground su (6') Elastic SILT with sand (MH); little fine sand, mostly	nica. silt, few clay, low bucket soil sample urface.	- - PB-13 (6-8)	365
-		▼		SS	2	8 11 3 5 9 13	14	plasticity, medium stiff, moist, yéllowish-brown. (8') Sandy lean CLAY (CL); some fine sand, trace silt, n plasticity, medium stiff, moist, light greenish.		-	
10-				SS	2 2	3 8 10 12	18	 (10') Lean CLAY (CL); some fine-coarse sand, trace silt medium plasticity, stiff, moist, light greenish. (10.5') Clayey SAND (SC); mostly fine-coarse grained s some clay, well-graded, medium dense, moist, light gree (12') Clayey SAND (SC). 	 and, trace silt,	PB-13 (10-12) -	360
- 15- -				SS	2	2 3 4 5 2 5 6	7	 (14') Clayey SAND (SC); mostly fine-coarse grained sar clay, well-graded, loose, moist, light green to light brown (15') 5-gallon bucket soil sample collected from approximation below ground surface. (16') Well-graded SAND (SW); mostly fine-coarse grain trace clay, loose, wet, dark gray to grayish-white, abund quartz. 	n. mately 10 to 15 feet ed sand, few silt,	-	355
				SH	2					PB-13 (18-20) - -	
N	NOTES:	b	PB-13S a below gro IA = No	ound s	urface	e.	sticku	ip wells, PB-13S is ~10ft away from PB-13D well. Dep	th to water at PB-13	S is 7.4 feet	

	Ge	CC		ants	D		Clien Proje Addre	• • •	ation		L LOG -13S/PB-13 f 6	D
Drillin Drillin Drillin Drillin Drillin	ig Start I ig End I ig Comp ig Metho ig Equip r: ed By:	Date: bany bd:	: 12/ : The Hol nt: D-5 Phi	10/201 18/201 ompso llow St 60 Il Pitts rdos T	8 on Eng tem A	uger	-	Boring Depth (ft): 107.8 Boring Diameter (in): 6.50 Static Water Level (ft): 7.19/7.74 DTW After Drilling (ft): 7.40/7.40 Top of Casing Elev. (ft) 373.38/373.83 Ground Elev. (ft): 370.88/371.13 Location (X,Y): 1162084.45, 2556638.75	Well D Riser M Screer Sanita Filter F	Depth (ft): 50/97 Diam. (in)/Screen S Material: Sch 40 F In Material: Sch 40 ry Seal: Bentonit Pack: Sand ing Method(s): SS	PVC PVC Slotted e Pellets	010
DEPTH (ft)	ГІТНОГОЄУ	WATER LEVEL	WELL	Sample Type	Recovery (ft)	s.	N Value A RQD (%)	SOIL/ROCK VISUAL DESC	CRIPTIC	N	MEASURE Sample Lap S	ELEV. (ft msl)
20-			<pre>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>></pre>	SS	1.5	3 5 7 9	12	(20') Silty SAND (SM); mostly fine-medium grain clay, poorly graded, medium dense, wet, light gra		l, some silt, trace		⊢ — 350
-			<,<,<,<,<,<,<,<,<,<,<,<,<,<,<,<,<,<,<,	SS	1.2	4 6 8 11	14	(22') Silty SAND (SM); mostly fine-medium grain clay, poorly graded, medium dense, wet, light gra	ed sand ay.	l, some silt, trace		-
- 25 -				A SS	0.8	4 7 9 10	16	(24') Well-graded SAND (SW); mostly fine-coars trace clay, medium dense, wet, grayish-white, ab bucket soil sample collected from approximately 2 surface.	undant	mica, 5-gallon		_
-	· · · · · · · · · · · · · · · · · · ·			SS	1	5 6 9 12	15	(26') Well-graded SAND (SW); mostly fine-coars trace clay, medium dense, wet, grayish-white to y	e graine yellow g	ed sand, trace silt, ray.		— 345 -
-				SS	0.8	2 5 7 9	12	(28') Well-graded SAND (SW); mostly fine-coars few clay, medium dense, wet, grayish-white to ye mica and quartz.			PB-13 (28-30)	-
30-				SH	2	Ū					PB-13 (30-32) ·	- 340
-				SS	0.7	9 13 15 14	28	(32') Well-graded SAND (SW); mostly fine-coars trace clay, medium dense, wet, grayish-white to v quartz.				_
- 35-	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·	SS	0.8	5 8 15 15	23	(34') Well-graded SAND (SW); mostly fine-coars trace clay, medium dense, wet, grayish-white to v quartz, laminated.				-
-				SS	0.8	13 6 7 10 13	17	(36') Well-graded SAND (SW); mostly fine-coars trace clay, medium dense, wet, grayish-white to v quartz, laminated.				- 335 -
- - 40-				SS	1	13 6 7 10 13	17	(38') Well-graded SAND (SW); mostly fine-coars trace clay, medium dense, wet, grayish-white to v quartz.				_
N	IOTES:	b	PB-13S elow gr IA = No	ound s	surface	e.	sticku	ıp wells, PB-13S is ~10ft away from PB-13D we	II. Depti	h to water at PB-13	S is 7.4 feet	

	Ge	CC	onsu	lta	nts	>		Clien Proje Addr	ct: Plant Branch CCR Landfill Site Investigation Well No. P	LL LOG B-13S/PB-13 of 6	D
Drillin Drillin Drillin Drillin Drille	ogged By: Nardos Tilahun								Boring Depth (ft):107.8Well Depth (ft):50/97Boring Diameter (in):6.50Well Diam. (in)/ScreenStatic Water Level (ft):7.19/7.74Riser Material:Sch 40DTW After Drilling (ft):7.40/7.40Screen Material:Sch 40Top of Casing Elev. (ft)373.38/373.83Sanitary Seal:BentorGround Elev. (ft):370.88/371.13Filter Pack:SandLocation (X,Y):1162084.45, 2556638.75Sampling Method(s):S	PVC 40 PVC Slotted ite Pellets	010
DEPTH (ft)	ГІТНОГОСУ	WATER LEVEL	MELL	COMPLETION	Sample Type Recovery (ft) Blow Counts N Value				SOIL/ROCK VISUAL DESCRIPTION	MEASURE aldues arbite	ELEV. (ft msl)
40					SS	0.8	8 10 13 18	23	(40') Well-graded SAND (SW); mostly fine-coarse grained sand, trace silt, trace clay, medium dense, wet, grayish-white to white, abundant mica and quartz.		- 330
-					SS	1.3	7 7 9 16	16	(42') Silty SAND (SM); mostly fine-coarse grained sand, some silt, trace clay, well-graded, medium dense, wet, green to white, abundant mica and quartz.	PB-13 (42-44) -	_
45-					SS	1	10 17 30 41	47	(44') Silty SAND (SM); mostly fine-coarse grained sand, some silt, trace clay, well-graded, dense, wet, greenish, abundant mica and quartz.		_
_					SS	0.3	5 6 16 42	22	(46') Silty SAND (SM); mostly fine-coarse grained sand, some silt, trace clay, well-graded, medium dense, wet, green to white, abundant mica and quartz, laminated.		- 325 -
50-					SS	1.1	32 26 31 43	57	(48') Silty SAND (SM); mostly fine-coarse grained sand, some silt, trace clay, well-graded, very dense, wet, dark gray to dark brown to white, abundant mica and quartz, laminated.		-
-				> > > > > > > > >	- - -		0.1				- 320 -
- 55 -				~ ~ ~ ~ ~ ~ ~ ~ ~	SS	0.4	21 50/5	50	 (53') Silty SAND (SM); mostly fine-coarse grained sand, some silt, trace clay, very dense, wet, grayish-white, abundant mica and quartz, laminated black mottles. (54') Top of PWR. 	-	-
-				<pre>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>></pre>	SS	0.3	50/4		(58') Silty SAND (SM); mostly fine-coarse grained sand, some silt, trace	_	- 315 - -
60				< < < < <					clay, very dense, wet, grayish-white, abundant mica and quartz, laminated black mottles.	_	-
N	IOTES:	b	PB-13 elow IA = N	grou	und s	urfac	e.	sticku	up wells, PB-13S is ~10ft away from PB-13D well. Depth to water at PB-	3S is 7.4 feet	

Geosyntec Consultants	Proje	Client: Georgia Power Company Project: Plant Branch CCR Landfill Site Investigation Address: 1100 Milledgeville Rd, Milledgeville Project: Plant Branch CCR Landfill Site Investigation Address: 1100 Milledgeville Rd, Milledgeville User State					
Drilling Start Date:12/10/2018Drilling End Date:12/18/2018Drilling Company:Thompson EngDrilling Method:Hollow Stem AuDrilling Equipment:D-50Driller:Phil PittsLogged By:Nardos Tilahun	iger	Boring Diameter (in):6.50Well DStatic Water Level (ft):7.19/7.74Riser DDTW After Drilling (ft):7.40/7.40ScreenTop of Casing Elev. (ft)373.38/373.83SanitaGround Elev. (ft):370.88/371.13Filter F	epth (ft): 50/97 iam. (in)/Screen Slot (in): 2.0/0.010 /laterial: Sch 40 PVC Material: Sch 40 PVC Slotted ry Seal: Bentonite Pellets Pack: Sand ng Method(s): SS/SH/CO				
DEPTH (ft) LITHOLOGY WATER LEVEL WATER LEVEL COMPLETION Sample Type Recovery (ft)	Blow Counts T N Value RQD (%)	SOIL/ROCK VISUAL DESCRIPTIO	Lab Sample ELEV. (ft msl)				
	50/3.5 38 50	(63') Silty SAND (SM); mostly fine-coarse grained sand, clay, very dense, wet, grayish-white, abundant mica and black mottles. (68') Well-graded SAND (SW); mostly fine-coarse grained	quartz, laminated, - - 305 -				
	50/5	(70') Began mud rotary drilling. (70') Began mud rotary drilling. (73') Well-graded SAND (SW); mostly fine-coarse graine trace clay, well-graded, very dense, wet, gray, abundant mottles.	d sand, few silt,				
	50/2	(78') Well-graded SAND (SW); mostly fine-coarse graine trace clay, well-graded, very dense, wet, gray, abundant mottles. Cable tool (rock coring) started at 78.1 ft below (78.1') No Recovery. p wells, PB-13S is ~10ft away from PB-13D well. Dept	nica, quartz, black ground surface.				

Ceosyntec Consultants	Clier Proje Addr	• • • •	ion Well No. PB-	Page: 5 of 6			
Drilling Start Date:12/10/2018Drilling End Date:12/18/2018Drilling Company:Thompson EDrilling Method:Hollow StemDrilling Equipment:D-50Driller:Phil PittsLogged By:Nardos Tilah	Auger	Boring Depth (ft):107.8Well Depth (ft):50/97Boring Diameter (in):6.50Well Diam. (in)/Screen Slot (in):2.0/0.0Static Water Level (ft):7.19/7.74Riser Material:Sch 40 PVCDTW After Drilling (ft):7.40/7.40Screen Material:Sch 40 PVC SlottedTop of Casing Elev. (ft)373.38/373.83Sanitary Seal:Bentonite PelletsGround Elev. (ft):370.88/371.13Filter Pack:SandLocation (X,Y):1162084.45, 2556638.75Sampling Method(s):SS/SH/CO					
DEPTH (ft) LITHOLOGY WATER LEVEL WELL COMPLETION Sample Type Sample Type	Blow Counts 10 N Value RQD (%)	SOIL/ROCK VISUAL DESCF	SOIL/ROCK VISUAL DESCRIPTION				
80 - - - - 85-		(82') No Recovery.		- 29 - - - - - - 28			
90 - 4444	8	(87') MET ROCK (GNEISS); coarse grained, mod intensely fractured, wet, dark biotite and white feld competent, iron oxidation on fracture surface, frac recovery from 78 to 87 feet below ground surface competent rock could be at 87 ft bgs.	spar minerals, tures not healed. Coring				
95-444 ··································	2 0	(92') MET ROCK (GNEISS); coarse grained, mod intensely fractured, wet, dark biotite and white feld competent, iron oxidation on fracture surface, frac	spar minerals,	27			
- 4444 - 44444 - 44444 - 44444 - 44444 - 44444 - 44444 - 44444 - 444444 - 4444	100	(97') MET ROCK (GNEISS); coarse grained, fresh biotite and white feldspar minerals, competent, stro	n, hard, unfractured, dark ong, flow banding.	-			

Client Consultants engineers scientists Innovators Client				>		Proje	• • • •	n Well No. P				
Drillin Drillin Drillin Drillin Drille	Prilling Start Date:12/10/2018Boring Depth (ft):107.8Well Depth (ft):50/97Prilling End Date:12/18/2018Boring Diameter (in):6.50Well Diam. (in)/Screen Slot (in):2Prilling Company:Thompson EngineeringStatic Water Level (ft):7.19/7.74Riser Material:Sch 40 PVCPrilling Method:Hollow Stem AugerDTW After Drilling (ft):7.40/7.40Screen Material:Sch 40 PVC SlotPrilling Equipment:D-50Top of Casing Elev. (ft)373.38/373.83Sanitary Seal:Bentonite PelletsPriller:Phil PittsGround Elev. (ft):370.88/371.13Filter Pack:Sandogged By:Nardos TilahunLocation (X,Y):1162084.45, 2556638.75Sampling Method(s):SS/SH/CO					Slot (in): 2.0/0.0 0 PVC 40 PVC Slotted nite Pellets						
DEPTH (ft)	КОТОНТИ	WATER LEVEL	WELL	Sample Type	Recovery (ft)	N.	N Value RQD (%)	SOIL/ROCK VISUAL DESCRI	PTION	MEASURE Sample Lap S	ELEV. (ft msl)	
100 — - - 105 —		-		СО	5		100	(102') MET ROCK (GNEISS); coarse grained, fresh, dark biotite and white feldspar minerals, competent,	, hard, unfractured, strong, flow banding.		⊢ 270 	
-				CO	0.8		100	(107') MET ROCK (GNEISS); coarse grained, fresh, _dark biotite and white feldspar minerals, competent, (107.8') Boring terminated.	, hard, unfractured, strong, flow banding.		- 265 - -	
110-		1				1	1				I	
N	NOTES:	b	PB-13S a elow grou IA = Not	und s	urfac	e.	sticku	p wells, PB-13S is ~10ft away from PB-13D well. D	Depth to water at PB-	13S is 7.4 feet		

APPENDIX B

ANALYTICAL RESULTS, FIELD DATA FORMS & DATA VALIDATION SUMMARIES

APPENDIX A

ANALYTICAL RESULTS



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

December 17, 2019

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

RE: Project: Plant Branch Pace Project No.: 2622483

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on August 28, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Kein Hung

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

Enclosures

cc: Julie Lehrman, Golder Associates Inc.
 Dawn Prell, Golder Associates Inc.
 Eric Rolle, Georgia Power - Coal Combustion Residuals
 Rebecca Thornton, Pace Analytical Atlanta





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

CERTIFICATIONS

Project: Plant Branch Pace Project No.: 2622483

Pace Analytical Services Atlanta

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



SAMPLE SUMMARY

Project: Plant Branch Pace Project No.: 2622483

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2622483001	BRGWA-6S	Water	08/27/19 10:02	08/28/19 11:00
2622483002	BRGWA-5S	Water	08/27/19 10:57	08/28/19 11:00
2622483003	BRGWA-5I	Water	08/27/19 12:07	08/28/19 11:00
2622483004	BRGWA-2S	Water	08/27/19 11:53	08/28/19 11:00
2622483005	BRGWA-2I	Water	08/27/19 11:59	08/28/19 11:00
2622483006	BRGWC-33S	Water	08/27/19 16:10	08/28/19 11:00
2622483007	DUP-1	Water	08/27/19 00:00	08/28/19 11:00
2622483008	FB-1	Water	08/27/19 16:00	08/28/19 11:00
2622483009	EB-1	Water	08/27/19 16:29	08/28/19 11:00



SAMPLE ANALYTE COUNT

Project: Plant Branch Pace Project No.: 2622483

_ab ID	Sample ID	Method	Analysts	Analytes Reported
2622483001	BRGWA-6S	EPA 6020B	CSW	
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
622483002	BRGWA-5S	EPA 6020B	CSW	1:
		EPA 7470A	DRB	
		EPA 300.0	MWB	
622483003	BRGWA-5I	EPA 6020B	CSW	1:
		EPA 7470A	DRB	
		EPA 300.0	MWB	
622483004	BRGWA-2S	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	
622483005	BRGWA-2I	EPA 6020B	CSW	12
		EPA 7470A	DRB	
		EPA 300.0	MWB	
622483006	BRGWC-33S	EPA 6020B	CSW	1:
		EPA 7470A	DRB	
		EPA 300.0	MWB	
622483007	DUP-1	EPA 6020B	CSW	1:
		EPA 7470A	DRB	1
		EPA 300.0	MWB	
622483008	FB-1	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2622483009	EB-1	EPA 6020B	CSW	12
		EPA 7470A	DRB	
		EPA 300.0	MWB	



Project: Plant Branch

Pace Project No.: 2622483

Sample: BRGWA-6S	Lab ID:	2622483001	Collecte	ed: 08/27/19	9 10:02	Received: 08/	28/19 11:00 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	08/29/19 18:05	09/03/19 20:51	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/29/19 18:05	09/03/19 20:51	7440-38-2	
Barium	0.013	mg/L	0.010	0.00049	1	08/29/19 18:05	09/03/19 20:51	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/29/19 18:05	09/03/19 20:51	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/29/19 18:05	09/03/19 20:51	7440-43-9	
Chromium	0.015	mg/L	0.010	0.00039	1	08/29/19 18:05	09/03/19 20:51	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	08/29/19 18:05	09/03/19 20:51	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/29/19 18:05	09/03/19 20:51	7439-92-1	
Lithium	0.0028J	mg/L	0.030	0.00078	1	08/29/19 18:05	09/03/19 20:51	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/29/19 18:05	09/03/19 20:51	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/29/19 18:05	09/03/19 20:51	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/29/19 18:05	09/03/19 20:51	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EP	A 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	08/29/19 09:13	08/29/19 12:33	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Fluoride	ND	mg/L	0.30	0.029	1		09/01/19 04:45	16984-48-8	1A



Project: Plant Branch

Pace Project No.: 2622483

Sample: BRGWA-5S	Lab ID:	2622483002	Collecte	ed: 08/27/19	9 10:57	Received: 08/	28/19 11:00 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	08/29/19 18:05	09/03/19 20:57	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/29/19 18:05	09/03/19 20:57	7440-38-2	
Barium	0.056	mg/L	0.010	0.00049	1	08/29/19 18:05	09/03/19 20:57	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/29/19 18:05	09/03/19 20:57	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/29/19 18:05	09/03/19 20:57	7440-43-9	
Chromium	0.0043J	mg/L	0.010	0.00039	1	08/29/19 18:05	09/03/19 20:57	7440-47-3	
Cobalt	0.00042J	mg/L	0.0050	0.00030	1	08/29/19 18:05	09/03/19 20:57	7440-48-4	
Lead	0.00036J	mg/L	0.0050	0.000046	1	08/29/19 18:05	09/03/19 20:57	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	08/29/19 18:05	09/03/19 20:57	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/29/19 18:05	09/03/19 20:57	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/29/19 18:05	09/03/19 20:57	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/29/19 18:05	09/03/19 20:57	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EP	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	08/29/19 09:13	08/29/19 12:36	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	ND	mg/L	0.30	0.029	1		09/01/19 16:31	16984-48-8	1A



Project: Plant Branch

Pace Project No.: 2622483

Sample: BRGWA-5I	Lab ID:	2622483003	Collecte	ed: 08/27/19	9 12:07	Received: 08/	28/19 11:00 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	08/29/19 18:05	09/03/19 21:03	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/29/19 18:05	09/03/19 21:03	7440-38-2	
Barium	0.028	mg/L	0.010	0.00049	1	08/29/19 18:05	09/03/19 21:03	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/29/19 18:05	09/03/19 21:03	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/29/19 18:05	09/03/19 21:03	7440-43-9	
Chromium	0.0055J	mg/L	0.010	0.00039	1	08/29/19 18:05	09/03/19 21:03	7440-47-3	
Cobalt	0.00068J	mg/L	0.0050	0.00030	1	08/29/19 18:05	09/03/19 21:03	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/29/19 18:05	09/03/19 21:03	7439-92-1	
Lithium	0.0019J	mg/L	0.030	0.00078	1	08/29/19 18:05	09/03/19 21:03	7439-93-2	
Molybdenum	0.0028J	mg/L	0.010	0.00095	1	08/29/19 18:05	09/03/19 21:03	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/29/19 18:05	09/03/19 21:03	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/29/19 18:05	09/03/19 21:03	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EP	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	08/29/19 09:13	08/29/19 12:38	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	ND	mg/L	0.30	0.029	1		09/01/19 16:54	16984-48-8	1A



Project: Plant Branch

Pace Project No.: 2622483

Sample: BRGWA-2S	Lab ID:	2622483004	Collecte	ed: 08/27/19	9 11:53	Received: 08/	28/19 11:00 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	08/29/19 18:05	09/03/19 21:20	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/29/19 18:05	09/03/19 21:20	7440-38-2	
Barium	0.0095J	mg/L	0.010	0.00049	1	08/29/19 18:05	09/03/19 21:20	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/29/19 18:05	09/03/19 21:20	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/29/19 18:05	09/03/19 21:20	7440-43-9	
Chromium	0.0083J	mg/L	0.010	0.00039	1	08/29/19 18:05	09/03/19 21:20	7440-47-3	
Cobalt	0.0012J	mg/L	0.0050	0.00030	1	08/29/19 18:05	09/03/19 21:20	7440-48-4	
Lead	0.000058J	mg/L	0.0050	0.000046	1	08/29/19 18:05	09/03/19 21:20	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	08/29/19 18:05	09/03/19 21:20	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/29/19 18:05	09/03/19 21:20	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/29/19 18:05	09/03/19 21:20	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/29/19 18:05	09/03/19 21:20	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	08/29/19 10:01	08/29/19 15:23	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Fluoride	ND	mg/L	0.30	0.029	1		09/01/19 17:17	16984-48-8	1A



Project: Plant Branch

Pace Project No.: 2622483

Sample: BRGWA-2I	Lab ID:	2622483005	Collecte	ed: 08/27/19	9 11:59	Received: 08/	28/19 11:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	08/29/19 18:05	09/03/19 21:25	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/29/19 18:05	09/03/19 21:25	7440-38-2	
Barium	0.012	mg/L	0.010	0.00049	1	08/29/19 18:05	09/03/19 21:25	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/29/19 18:05	09/03/19 21:25	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/29/19 18:05	09/03/19 21:25	7440-43-9	
Chromium	0.00040J	mg/L	0.010	0.00039	1	08/29/19 18:05	09/03/19 21:25	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	08/29/19 18:05	09/03/19 21:25	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/29/19 18:05	09/03/19 21:25	7439-92-1	
Lithium	0.035	mg/L	0.030	0.00078	1	08/29/19 18:05	09/03/19 21:25	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/29/19 18:05	09/03/19 21:25	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/29/19 18:05	09/03/19 21:25	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/29/19 18:05	09/03/19 21:25	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	08/29/19 10:01	08/29/19 15:32	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Fluoride	ND	mg/L	0.30	0.029	1		09/03/19 23:36	16984-48-8	



Project: Plant Branch

Pace Project No.: 2622483

Sample: BRGWC-33S	Lab ID:	2622483006	Collecte	ed: 08/27/19	9 16:10	Received: 08/	28/19 11:00 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	08/29/19 18:05	09/03/19 21:31	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/29/19 18:05	09/03/19 21:31	7440-38-2	
Barium	0.020	mg/L	0.010	0.00049	1	08/29/19 18:05	09/03/19 21:31	7440-39-3	
Beryllium	0.0019J	mg/L	0.0030	0.000074	1	08/29/19 18:05	09/03/19 21:31	7440-41-7	
Cadmium	0.00032J	mg/L	0.0025	0.00011	1	08/29/19 18:05	09/03/19 21:31	7440-43-9	
Chromium	ND	mg/L	0.010	0.00039	1	08/29/19 18:05	09/03/19 21:31	7440-47-3	
Cobalt	0.045	mg/L	0.0050	0.00030	1	08/29/19 18:05	09/03/19 21:31	7440-48-4	
Lead	0.00013J	mg/L	0.0050	0.000046	1	08/29/19 18:05	09/03/19 21:31	7439-92-1	
Lithium	0.010J	mg/L	0.030	0.00078	1	08/29/19 18:05	09/03/19 21:31	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/29/19 18:05	09/03/19 21:31	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/29/19 18:05	09/03/19 21:31	7782-49-2	
Thallium	0.00016J	mg/L	0.0010	0.000052	1	08/29/19 18:05	09/03/19 21:31	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	08/29/19 10:01	08/29/19 15:34	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Fluoride	0.11J	mg/L	0.30	0.029	1		09/03/19 23:59	16984-48-8	



Branch

Pace Project No.: 2622483

Sample: DUP-1	Lab ID:	2622483007	Collecte	ed: 08/27/19	9 00:00	Received: 08/	28/19 11:00 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	08/29/19 18:05	09/03/19 21:37	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/29/19 18:05	09/03/19 21:37	7440-38-2	
Barium	0.021	mg/L	0.010	0.00049	1	08/29/19 18:05	09/03/19 21:37	7440-39-3	
Beryllium	0.0020J	mg/L	0.0030	0.000074	1	08/29/19 18:05	09/03/19 21:37	7440-41-7	
Cadmium	0.00033J	mg/L	0.0025	0.00011	1	08/29/19 18:05	09/03/19 21:37	7440-43-9	
Chromium	ND	mg/L	0.010	0.00039	1	08/29/19 18:05	09/03/19 21:37	7440-47-3	
Cobalt	0.047	mg/L	0.0050	0.00030	1	08/29/19 18:05	09/03/19 21:37	7440-48-4	
Lead	0.00010J	mg/L	0.0050	0.000046	1	08/29/19 18:05	09/03/19 21:37	7439-92-1	
Lithium	0.010J	mg/L	0.030	0.00078	1	08/29/19 18:05	09/03/19 21:37	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/29/19 18:05	09/03/19 21:37	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/29/19 18:05	09/03/19 21:37	7782-49-2	
Thallium	0.00017J	mg/L	0.0010	0.000052	1	08/29/19 18:05	09/03/19 21:37	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	08/29/19 10:01	08/29/19 15:37	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Fluoride	0.22J	mg/L	0.30	0.029	1		09/04/19 00:22	16984-48-8	



Project: Plar	t Branch
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Pace Project No.: 2622483

Sample: FB-1	Lab ID:	2622483008	Collect	ed: 08/27/19	9 16:00	Received: 08/	28/19 11:00 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	thod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	08/29/19 18:05	09/03/19 21:43	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/29/19 18:05	09/03/19 21:43	7440-38-2	
Barium	ND	mg/L	0.010	0.00049	1	08/29/19 18:05	09/03/19 21:43	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/29/19 18:05	09/03/19 21:43	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/29/19 18:05	09/03/19 21:43	7440-43-9	
Chromium	ND	mg/L	0.010	0.00039	1	08/29/19 18:05	09/03/19 21:43	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	08/29/19 18:05	09/03/19 21:43	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/29/19 18:05	09/03/19 21:43	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	08/29/19 18:05	09/03/19 21:43	7439-93-2	
Molybdenum	0.0020J	mg/L	0.010	0.00095	1	08/29/19 18:05	09/03/19 21:43	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/29/19 18:05	09/03/19 21:43	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/29/19 18:05	09/03/19 21:43	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	08/29/19 10:01	08/29/19 15:44	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Fluoride	ND	mg/L	0.30	0.029	1		09/04/19 00:44	16984-48-8	



Project: Plar	t Branch
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Pace Project No.: 2622483

Sample: EB-1	Lab ID:	2622483009	Collect	ed: 08/27/19	9 16:29	Received: 08/	28/19 11:00 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	thod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	08/29/19 18:05	09/03/19 21:48	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/29/19 18:05	09/03/19 21:48	7440-38-2	
Barium	ND	mg/L	0.010	0.00049	1	08/29/19 18:05	09/03/19 21:48	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/29/19 18:05	09/03/19 21:48	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/29/19 18:05	09/03/19 21:48	7440-43-9	
Chromium	ND	mg/L	0.010	0.00039	1	08/29/19 18:05	09/03/19 21:48	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	08/29/19 18:05	09/03/19 21:48	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/29/19 18:05	09/03/19 21:48	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	08/29/19 18:05	09/03/19 21:48	7439-93-2	
Molybdenum	0.0020J	mg/L	0.010	0.00095	1	08/29/19 18:05	09/03/19 21:48	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/29/19 18:05	09/03/19 21:48	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/29/19 18:05	09/03/19 21:48	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	08/29/19 10:01	08/29/19 15:46	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Fluoride	ND	mg/L	0.30	0.029	1		09/04/19 01:07	16984-48-8	



Project:	Plant Branch											
Pace Project No.:	2622483											
QC Batch:	34472		Analy	sis Metho	d:	EPA 7470A						
QC Batch Method:	EPA 7470A		Analy	sis Descri	ption:	7470 Mercu	ıry					
Associated Lab Sam	ples: 262248300	01, 2622483002,	262248300	3								
METHOD BLANK:	155027			Matrix: W	/ater							
Associated Lab Sam	ples: 262248300	01, 2622483002,	262248300	3								
			Blar	ık	Reporting							
Param	neter	Units	Resi	ult	Limit	MD	L	Analyzed	l Qi	ualifiers		
Mercury		mg/L		ND	0.0005	0 0.	.00014	08/29/19 11	:39			
LABORATORY CON	ITROL SAMPLE:	155028										
			Spike	LC	S	LCS	%	Rec				
Param	leter	Units	Conc.	Re	sult	% Rec	Li	mits	Qualifiers			
Mercury		mg/L	0.002	5	0.0027	10	8	80-120				
MATRIX SPIKE & M	ATRIX SPIKE DUP	LICATE: 1550	29		155030							
			MS	MSD								
		2622479001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
			•									
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual

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



Project:	Plant Brar	nch											
Pace Project No.:	2622483												
QC Batch:	34475			Analy	sis Metho	d:	EPA 7470A						
QC Batch Method:	EPA 747	0A		Analy	/sis Descr	iption:	7470 Mercu	ıry					
Associated Lab San	nples: 26	622483004	, 2622483005,	262248300	6, 262248	3007, 2622	483008, 26	22483009					
METHOD BLANK:	155051				Matrix: W	/ater							
Associated Lab San	nples: 26	322483004	, 2622483005,	262248300	6, 262248	3007, 2622	483008, 26	22483009					
				Blar	nk	Reporting							
Paran	neter		Units	Res	ult	Limit	MD	L	Analyzeo	d Qi	ualifiers		
Mercury			mg/L		ND	0.0005	0 0.	.00014 0	8/29/19 15	5:18			
LABORATORY COM	NTROL SAM	MPLE: 1	55052										
				Spike	LC	CS	LCS	% F	lec				
Paran	neter		Units	Conc.	Re	sult	% Rec	Lim	its	Qualifiers			
Mercury			mg/L	0.002	5	0.0025	9	9	80-120				
MATRIX SPIKE & M	IATRIX SPI	KE DUPLI	CATE: 1550	53		155054							
				MS	MSD								
			2622483004	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter		Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual

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



Project:	Plant E	Branch								
Pace Project No.:	26224	83								
QC Batch:	3452	8		Analysis I	Method:	E	PA 6020B			
QC Batch Method:	EPA	3005A		Analysis [Descriptio	on: 60	20B MET			
Associated Lab Sar	nples:	2622483001 2622483009	, 2622483002, 2	2622483003, 26	62248300	04, 26224	83005, 262248	3006, 262248	33007, 2622	483008,
METHOD BLANK:	15536	0		Mat	rix: Wate	er				
Associated Lab Sar	nples:	2622483001 2622483009	, 2622483002, 2	2622483003, 26	62248300	04, 26224	83005, 262248	3006, 262248	33007, 2622	483008,
				Blank	Re	porting				
Parar	neter		Units	Result	I	Limit	MDL	Analyz	zed	Qualifiers
Antimony			mg/L	N	ID	0.0030	0.0002	27 09/03/19	20:11	
Arsenic			mg/L	Ν	ID	0.0050	0.0003	35 09/03/19	20:11	
Barium			mg/L	N	ID	0.010	0.0004	9 09/03/19	20:11	
Beryllium			mg/L	N	ID	0.0030	0.00007	4 09/03/19	20:11	
Cadmium			mg/L	N	ID	0.0025	0.000	1 09/03/19	20:11	
Chromium			mg/L	N	ID	0.010	0.0003	89 09/03/19	20:11	
Cobalt			mg/L	N	ID	0.0050	0.0003	80 09/03/19	20:11	
Lead			mg/L	N	ID	0.0050	0.00004	6 09/03/19	20:11	
Lithium			mg/L	N	ID	0.030	0.0007	78 09/03/19	20:11	
Molybdenum			mg/L	N	ID	0.010	0.0009	09/03/19	20:11	
Selenium			mg/L	N	ID	0.010	0.001	3 09/03/19	20:11	
Thallium			mg/L	Ν	ID	0.0010	0.00005	52 09/03/19	20:11	
LABORATORY CO	NTROL	SAMPLE: 1	55361							
				Spike	LCS		LCS	% Rec		
Parar	neter		Units	Conc.	Result	t	% Rec	Limits	Qualifier	5
Antimony			mg/L	0.1		0.12	118	80-120		
Arsenic			mg/L	0.1		0.10	105	80-120		
Barium			mg/L	0.1		0.11	105	80-120		

MATRIX SPIKE & MATRIX	SPIKE DUPL	ICATE: 1553	62		155363							
Parameter	Units	2622481002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.11	0.12	114	117	75-125	2	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.10	100	103	75-125	3	20	
Barium	mg/L	0.027	0.1	0.1	0.13	0.13	101	107	75-125	4	20	
Beryllium	mg/L	ND	0.1	0.1	0.10	0.10	101	102	75-125	1	20	

0.11

0.11

0.11

0.11

0.10

0.11

0.11

0.11

0.10

109

108

107

106

105

107

108

107

105

80-120

80-120

80-120

80-120

80-120

80-120

80-120

80-120

80-120

0.1

0.1

0.1

0.1

0.1

0.1

0.1

0.1

0.1

mg/L

mg/L

mg/L

mg/L

mg/L

mg/L

mg/L

mg/L

mg/L

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

REPORT OF LABORATORY ANALYSIS

Beryllium

Cadmium

Chromium

Cobalt

Lithium

Selenium

Thallium

Molybdenum

Lead

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Project: Plant Branch Pace Project No.: 2622483

MATRIX SPIKE & MATRIX	SPIKE DUPLIC	CATE: 1553	62		155363							
		2622481002	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Cadmium	mg/L	ND	0.1	0.1	0.10	0.11	103	106	75-125	2	20	
Chromium	mg/L	0.0018J	0.1	0.1	0.11	0.11	104	107	75-125	3	20	
Cobalt	mg/L	ND	0.1	0.1	0.10	0.11	103	107	75-125	4	20	
Lead	mg/L	ND	0.1	0.1	0.10	0.10	101	104	75-125	3	20	
Lithium	mg/L	0.0014J	0.1	0.1	0.10	0.10	100	103	75-125	3	20	
Molybdenum	mg/L	ND	0.1	0.1	0.11	0.11	106	110	75-125	4	20	
Selenium	mg/L	ND	0.1	0.1	0.10	0.11	103	106	75-125	4	20	
Thallium	mg/L	ND	0.1	0.1	0.10	0.10	102	104	75-125	3	20	

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



Project:	Plant Branch							
Pace Project No.:	2622483							
QC Batch:	34615		Analysis M	lethod:	EPA 300.0			
QC Batch Method:	EPA 300.0		Analysis D	escription:	300.0 IC Ar	nions		
Associated Lab Sar	mples: 26224830	01, 2622483002, 2	622483003, 26	22483004				
METHOD BLANK:	155878		Matr	ix: Water				
Associated Lab Sar	mples: 26224830	01, 2622483002, 2	622483003, 26	22483004				
			Blank	Reportir	g			
Para	meter	Units	Result	Limit	MC	DL Anal	lyzed	Qualifiers
Fluoride		mg/L	N	D	0.30	0.029 08/31/1	9 20:05	1A
	NTROL SAMPLE:	155879						
LABORATORT CO			Out 'I a	LCS	LCS	% Rec		
LABORATORT CO			Spike	L03	LOO	70 1100		
	neter	Units	Spike Conc.	Result	% Rec	Limits	Qualif	iers

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



Project:	Plant Br	anch											
Pace Project No .:	2622483	3											
QC Batch:	34680			Anal	ysis Method	d: E	EPA 300.0						
QC Batch Method:	EPA 30	0.00		Anal	ysis Descrip	otion: 3	300.0 IC An	ions					
Associated Lab San	nples:	2622483005	, 2622483006,	262248300	07, 2622483	3008, 2622	483009						
METHOD BLANK:	156099				Matrix: Wa	ater							
Associated Lab San	nples:	2622483005	, 2622483006,	262248300	7, 262248	3008, 2622	483009						
				Bla	nk l	Reporting							
Paran	neter		Units	Res	ult	Limit	MD	_	Analyzed	Qı	ualifiers		
Fluoride			mg/L		ND	0.3	0	0.029 0	9/03/19 20:	58			
LABORATORY COM	NTROL S	AMPLE: 1	56100	Spike	LC	s	LCS	% R	ec				
Paran	neter		Units	Conc.	Res	-	% Rec	Lim		Qualifiers			
Fluoride			mg/L	1	0	9.4	94	4	90-110				
MATRIX SPIKE & M	IATRIX S		CATE: 1561	01		156102							
				MS	MSD								
			2622398001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	r	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Fluoride		mg/L	0.11J	10	10	9.4	9.2	92	91	90-110	1	15	
MATRIX SPIKE SAI	MPLE:	1	56103										
				2622	402001	Spike	MS		MS	% Rec	;		
Paran	neter		Units	Re	sult	Conc.	Result	9	6 Rec	Limits		Qualif	iers
Fluoride			mg/L		ND	10		9.6	96	90)-110		

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



QUALIFIERS

Project:	Plant Branch
Pace Project No .:	2622483

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

BATCH QUALIFIERS

Batch: 34615

[1] Batch accepted based on laboratory control sample (LCS) recovery.

ANALYTE QUALIFIERS

1A Batch accepted based on laboratory control sample (LCS) recovery.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:	Plant Branch
Pace Project No .:	2622483

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2622483001	BRGWA-6S	EPA 3005A	34528	EPA 6020B	34560
2622483002	BRGWA-5S	EPA 3005A	34528	EPA 6020B	34560
2622483003	BRGWA-5I	EPA 3005A	34528	EPA 6020B	34560
2622483004	BRGWA-2S	EPA 3005A	34528	EPA 6020B	34560
2622483005	BRGWA-2I	EPA 3005A	34528	EPA 6020B	34560
2622483006	BRGWC-33S	EPA 3005A	34528	EPA 6020B	34560
2622483007	DUP-1	EPA 3005A	34528	EPA 6020B	34560
2622483008	FB-1	EPA 3005A	34528	EPA 6020B	34560
2622483009	EB-1	EPA 3005A	34528	EPA 6020B	34560
2622483001	BRGWA-6S	EPA 7470A	34472	EPA 7470A	34485
2622483002	BRGWA-5S	EPA 7470A	34472	EPA 7470A	34485
2622483003	BRGWA-5I	EPA 7470A	34472	EPA 7470A	34485
2622483004	BRGWA-2S	EPA 7470A	34475	EPA 7470A	34513
2622483005	BRGWA-2I	EPA 7470A	34475	EPA 7470A	34513
2622483006	BRGWC-33S	EPA 7470A	34475	EPA 7470A	34513
2622483007	DUP-1	EPA 7470A	34475	EPA 7470A	34513
2622483008	FB-1	EPA 7470A	34475	EPA 7470A	34513
2622483009	EB-1	EPA 7470A	34475	EPA 7470A	34513
2622483001	BRGWA-6S	EPA 300.0	34615		
2622483002	BRGWA-5S	EPA 300.0	34615		
2622483003	BRGWA-5I	EPA 300.0	34615		
2622483004	BRGWA-2S	EPA 300.0	34615		
2622483005	BRGWA-2I	EPA 300.0	34680		
2622483006	BRGWC-33S	EPA 300.0	34680		
2622483007	DUP-1	EPA 300.0	34680		
2622483008	FB-1	EPA 300.0	34680		
2622483009	EB-1	EPA 300.0	34680		

Pace Analytical

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

Section A	Section A	Section B						S	Section C	~										L		[-	Г
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Phone: (404)50	6-7239 Fax	Project Name:		Plant Branch E	anch E				ace Proj	Pace Project Manager	ader.	hetsv	hetsv modaniet@nacelahe com	(Constraint)	a de la comparte de l	E					State	State (1 ocation		التأديب أسل	1
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ð	2622483													1											

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no Packing Material: Bubble Wrap Bubble Bags None Other Thermometer Used 2/14 Type of Ice: Web Blue None Samples on ice, cooling process has begun Cooler Temperature 1/3 C Biological Tissue is Frozen: Yes No Date and Initials of person examining contents: Chain of Custody Present: Elves INo IN/A I. Chain of Custody Filled Out: Pres INo IN/A I. Chain of Custody Relinquished: Pres INo IN/A I. Sampler Name & Signature on COC: Pres INo IN/A I. Samples Arrived within Hold Time: Pres INo IN/A I.			,	,			
PR: BI Due Date: 08/05/19 Curier: Fei Ext USPS Client Courier: Fei Ext Guerch Client C	San	nple Condition	Upon Rece	WO#	:26224	183	
Courier: Fed Ek: USPS Client Commercial Pace Other Courier: Fed Ek: USPS Client Commercial Pace Other Custody Seal on Cooler/Box Present: Type of Ex: <	Face Analytical Client Name:	MA Par	10				
Courier: Contracts Contrac	Client Name.	GH TON	/ [GAPower-CCP	Date: 09/05	/19
Tracking #:							
Custody Seal on Cooler/Box Present: Types no Seals intact: Pypes no Seals	Tracking #:						5 A
Thermometer Used 21/4/// Type of Ice: Blue None Samples on ice, cooling process has begune to be cooling process has begune to be determined in the second se	Custody Seal on Cooler/Box Present: 1995	no Seals	intact: 🚽 yes	🗌 no	Pioj. Name.		
Thermometer Used 21/4/// Type of Ice: Blue None Samples on ice, cooling process has begune to be cooling process has begune to be determined in the second se	Packing Material: Bubble Wrap Bubble	Bags - None [Other			1	
Cooler Temperature			Blue None	Sam	ples on ice, cooling	process has begu	n n
Temp should be above freezing to 6°C Comments: Chain of Custody Present: ETVE Chain of Custody Filed Out: ETVE Chain of Custody Filed Out: ETVE Sampler Name & Signature on COC: ETVE Sampler Name As update ETVE Sampler Name Signature on COC: ETVE Orter Containers Used: ETVE Containers Intact: ETVE Eltered volume received for Dissolved tests ETVE Offers Elve One Environ ETVE All containers needing preservation have been checked. ETVE Elve Environ ETVE Samples Checked for dechorination: ETVE	Cooler Temperature	Biological Tissue	is Frozen: Yes	No C	1 7 7 7	person examinin	9
Chain of Custody Filed Out: Pro NA Chain of Custody Relinquished: Pro NA Chain of Custody Relinquished: Pro NA Sampler Name & Signature on COC: Pro NA Sampler Name & Signature on COC: Pro NA Sampler Name & Signature on COC: Pro NA S Sampler Name & Signature on COC: Pro NA S Sampler Name & Signature on COC: Pro NA S Sampler Name & Signature on COC: Pro NA S Sampler Name & Signature on COC: Pro NA S Sampler Name & Signature on COC: Pro NA S Sampler Name & Signature on COC: Pro NA S S Sampler Name & Signature on COC: Pro NA S Sampler Name & Signature on COC: Pro NA S Sampler Name & Signature on COC: Pro NA S Sampler Name & Signature on COC: Pro NA S Sampler Name & Signature on COC: Pro NA S S Sampler Name & Signature on COC: Pro Sampler Name Requested: Pro NA S S Correct Containers Used: Pro NA S Cortainers Itsct: Pro NA S Containers Intact: Pro NA S Sampler Name Received for Dissolved tests Pro NA S Sampler Subol NA S Sampler Subol NA S Sampler Name Received for Dissolved tests Pro NA S Sampler Subol NA S Sampler Name Received for Dissolved tests Pro NA S Sampler Subol NA S S Sampler Name Received for Dissolved tests Pro NA S Sampler Subol NA S Sampler Subol NA S Sampler Subol NA S Sampler Subol NA S S Sampler Subol S S Sampler Subol NA S S Sampler Subol S S			Comments:		coments.	-91200	
Chain of Custody Relinquished: Dres No NA 3. Sampler Name & Signature on COC: Dres No NA 4. Samples Arrived within Hold Time: Dres Dres </td <td>Chain of Custody Present:</td> <td></td> <td>1.</td> <td></td> <td></td> <td></td> <td></td>	Chain of Custody Present:		1.				
Sampler Name & Signature on COC: Description of No. 14. Samples Arrived within Hold Time: Description of No. 14. Samples Arrived within Hold Time: Description of No. 14. Samples Arrived within Hold Time: Description of No. 14. Samples Arrived within Hold Time: Description of No. 14. Samples Arrived within Hold Time Requested: Description of No. 14. Sufficient Volume: Description of No. 14. Correct Containers Used: Description of No. 14. Pace Containers Used: Description of No. 14. Samples Arrived with Pace State Stat	Chain of Custody Filled Out:		2.		· · ·		
Samples Arrived within Hold Time: Pres DNo DNA 5. Short Hold Time Analysis (<72hr): Dres DNo DNA 6. Rush Turn Around Time Requested: Dres DNo DNA 7. Sufficient Volume: Dres DNo DNA 8. Correct Containers Used: Dres DNo DNA 9Pace Containers Used: Dres DNo DNA 10. Filtered volume received for Dissolved tests Dres DNo DNA 10. Filtered volume received for Dissolved tests Dres DNo DNA 11. Sample Labels match COC: Dres DNo DNA 12Includes date/time/ID/Analysis Matrix: NA 12Includes date/time/ID/Analysis Matrix: NA 13. All containers needing preservation are found to be in completed preservative preservation are found to be in Completed preservative Dres DNo DNA 15. Trip Blank Present: Dres DNo DNA 15. Trip Blank Lot # (if purchased): Client Notification/ Resolution: Dres DNo DNA 20. Field Data Required? Y / N Person Contacted: Data Climation: Deter Data Climation Climation Data Climation Climation Data Climation Data Climation: Deter DNo DNA 16. Trip Blank Lot # (if purchased): Client Notification/ Resolution: Deter Data Climation: Deter DNo DNA 16. Climation: Deter DNo DNA 20. Climation: Deter DNO D	Chain of Custody Relinquished:		3.		·		
Short Hold Time Analysis (<72hr):	Sampler Name & Signature on COC:		4. <u> </u>	<u> </u>			
Rush Turn Around Time Requested: IVes Prof INA 7. Sufficient Volume: IVes INO INA 8. Correct Containers Used: IVes INO INA 9. -Pace Containers Used: IVes INO INA 9. -Pace Containers Used: IVes INO INA 9. Containers Intact: IVes INO INA 9. Filtered volume received for Dissolved tests IVes INO INA 10. Filtered volume received for Dissolved tests IVes INO INA 12. -Includes dat/time/ID/Analysis Matrix: Mu Ino Ino All containers needing preservation have been checked. IVes INO INA 13. All containers needing preservation are found to be in compliance with EPA recommendation: IVes INO INA Initial when compliance in the preservative preservative preservative Samples checked for dechlorination: IVes INO INA If. Initial when compliance in VOA Vials (>6mm): IVes INO INA Trip Blank Custody Seals Present IVes <td>Samples Arrived within Hold Time:</td> <td></td> <td>5.</td> <td></td> <td></td> <td></td> <td></td>	Samples Arrived within Hold Time:		5.				
Sufficient Volume: Sufficient Volume: IVes INA 8. Correct Containers Used: IVes INA 9. -Pace Containers Used: IVes INA 9. Containers Intact: IVes INA 10. Filtered volume received for Dissolved tests IVes INA 10. Filtered volume received for Dissolved tests IVes INA 12. -Includes date/time/ID/Analysis Matrix: Matrix: Matrix: All containers needing preservation have been checked. Iffee INA 13. All containers needing preservation are found to be in compliance with EPA recommendation. IVes INA Initial when completed Lot # of added Samples checked for dechlorination: IVes INA IS. Initial when completed preservative Samples checked for dechlorination: IVes INA IS. Initial when completed preservative Samples checked for dechlorination: IVes INA IS. Initial when completed preservative Pace Trip Blank Cotady Seals Present IVes INA IS. INA IS. Trip Bl	Short Hold Time Analysis (<72hr):		6				
Correct Containers Used: Vres No N/A 9. -Pace Containers Used: Vres No N/A 10. Filtered volume received for Dissolved tests Vres No N/A 10. Filtered volume received for Dissolved tests Vres No N/A 10. Filtered volume received for Dissolved tests Vres No N/A 11. Sample Labels match COC: Vres No N/A 12. -Includes date/time/ID/Analysis Matrix: Vres No N/A 12. All containers needing preservation have been checked. Vres No N/A 13. All containers needing preservation are found to be in Vres No N/A 13. All containers needing preservation for found to be in Vres No N/A 13. All containers needing reservation for found to be in Vres No N/A 13. All containers needing reservation for found to be in Vres No N/A 15. Trip Blank Custody Seals Present Vres No M/A 15. Trip Blank Lot # (if purchased): Vres No M/A 16. Trip Blank Lot # (if purchased): Vres No M/A 16. Field Data Required? Y / N Person Contacted: Date/Time: Vres No M/A 16. Comments/ Resolution: Date/Time: Vres No M/A 16. Comments/ Resolution: Or Vres No M/A 16.	Rush Turn Around Time Requested:		7				
Pace Containers Used: Pace Containers Intact: Pace Containers Intact:	Sufficient Volume:		8.				
Containers Intact: Image: Second	Correct Containers Used:		9.				
Filtered volume received for Dissolved tests Image: State of the state of th	-Pace Containers Used:						
Sample Labels match COC: Image: Contract of the second	Containers Intact:		10.				
-Includes date/time//D/Analysis Matrix: Matrix: Matrix: All containers needing preservation have been checked. Dres IN/A 13. All containers needing preservation have been checked. Dres IN/A 13. All containers needing preservation are found to be in compliance with EPA recommendation. Dres IN/A Initial when completed preservative exceptions: VOA. coliform, TOC, O&G, WI-DRO (Weiler) Dres IN/A Initial when completed preservative Samples checked for dechlorination: Dres IN/A 15. Initial when completed preservative Samples checked for dechlorination: Dres IN/A 16. Initial when completed preservative Initial when completed preservative Samples checked for dechlorination: Dres IN/A 15. Initial when completed preservative Initial when completed preservative Samples checked in VOA Vials (>6mm): Dres IN/A 16. Initial when completed preservative Initial when completed preservative Trip Blank Custody Seats Present Dres Date/Time: Initial when completed preservative Initial when completed preservative Pace Trip Blank Lot # (if purchased): Date/Time: Initial	Filtered volume received for Dissolved tests		11.				
All containers needing preservation have been checked. If Yes IN0 IN/A 13. All containers needing preservation are found to be in compliance with EPA recommendation. If Yes IN0 IN/A 13. All containers needing preservation are found to be in compliance with EPA recommendation. If Yes IN0 IN/A 13. exceptions: VOA. coliform, TOC, 0&G, WI-DRO (Wester) If Yes IN0 Initial when completed completed preservative Samples checked for dechlorination: If Yes IN0 IN/A 14. Initial when completed	Sample Labels match COC:		12.				
All containers needing preservation are found to be in compliance with EPA recommendation. Image: Choo Control C		<u>W</u>					
compliance with EPA recommendation. Lifes INo Livia exceptions: VOA, colliform, TOC, O&G, WI-DRO (Water) Initial when completed preservative Samples checked for dechlorination: IYes INo DWA 14. Headspace in VOA Vials (>6mm): IYes INo DWA 15. Trip Blank Present: IYes INo DWA 16. Trip Blank Custody Seals Present IYes INo DWA 2004 Pace Trip Blank Lot # (if purchased): Preson Contacted: Comments/ Resolution: Date/Time: Comments/ Resolution: Date/Time: Image: Comments/ Resolution: Image: Comments/ Resolution: Image: Comments/ Resolution: Image: C	All containers needing preservation have been checked.		13.				
exceptions: VOA, coliform, TOC, O&G, WI-DRO (Water) Pres Initial when completed Lot # of added preservative Samples checked for dechlorination: Pres No Pres No Pres Samples checked for dechlorination: Pres No Pres No Pres No Headspace in VOA Vials (>6mm): Pres No Pres No Pres No Pres No Trip Blank Present: Pres No Pres Pres No Pres No Pres Pres </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
acceptions: VOA, controllin, IOC, Gals, WHORO (Water) Completed preservative Samples checked for dechlorination: IYes No DARK 14. Headspace in VOA Vials (>6mm): IYes No DN/A Trip Blank Present: IYes No DN/A Trip Blank Custody Seals Present IYes No DN/A Pace Trip Blank Lot # (if purchased):	Compliance with EPA recommendation.		Initial when	Lot #	# of added		
Headspace in VOA Vials (>6mm): Image: Yes in the image:	exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	Urges LINo	completed	pres	ervative		
Trip Blank Present: Image: Display blank Custody Seals Present Pace Trip Blank Lot # (if purchased): Client Notification/ Resolution: Person Contacted: Date/Time:	Samples checked for dechlorination:	Yes No DARTA	14.			i	
Trip Blank Custody Seals Present Date Trip Blank Lot # (if purchased):	Headspace in VOA Vials (>6mm):		15				
Pace Trip Blank Lot # (if purchased):	Trip Blank Present:		16.			•	
Client Notification/ Resolution: Field Data Required? Y / N Person Contacted:	Trip Blank Custody Seals Present	□Yes □No ₽N/A					
Person Contacted: Comments/ Resolution:	Pace Trip Blank Lot # (if purchased):						
Comments/ Resolution:	Client Notification/ Resolution:			Field	d Data Required?	Y İ N	
	Person Contacted:	Date/	Time:			1	
Project Manager Review: Date:	Comments/ Resolution:						
Project Manager Review: Date:							
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Project Manager Review: Date:	·						1
Project Manager Review: Date:							·
	Project Manager Review:				Date:		

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



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

September 26, 2019

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

RE: Project: Plant Branch Pace Project No.: 2622484

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on August 28, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Batery Mr Damil

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

Enclosures

cc: Kristen Jurinko, Golder Associates Inc.
 Julie Lehrman, Golder Associates Inc.
 Dawn Prell, Golder Associates Inc.
 Eric Rolle, Georgia Power - Coal Combustion Residuals
 Rebecca Thornton, Pace Analytical Atlanta
 Dominic Weatherhill, Georgia Power





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

CERTIFICATIONS

Project: Plant Branch Pace Project No.: 2622484

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601 ANAB DOD-ELAP Rad Accreditation #: L2417 Alabama Certification #: 41590 Arizona Certification #: AZ0734 Arkansas Certification California Certification #: 04222CA Colorado Certification #: PA01547 Connecticut Certification #: PH-0694 **Delaware Certification** EPA Region 4 DW Rad Florida/TNI Certification #: E87683 Georgia Certification #: C040 Florida: Cert E871149 SEKS WET **Guam Certification** Hawaii Certification Idaho Certification **Illinois Certification** Indiana Certification Iowa Certification #: 391 Kansas/TNI Certification #: E-10358 Kentucky Certification #: KY90133 KY WW Permit #: KY0098221 KY WW Permit #: KY0000221 Louisiana DHH/TNI Certification #: LA180012 Louisiana DEQ/TNI Certification #: 4086 Maine Certification #: 2017020 Maryland Certification #: 308 Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991

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



SAMPLE SUMMARY

Project: Plant Branch Pace Project No.: 2622484

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2622484001	BRGWA-6S	Water	08/27/19 10:02	08/28/19 11:00
2622484002	BRGWA-5S	Water	08/27/19 10:57	08/28/19 11:00
2622484003	BRGWA-5I	Water	08/27/19 12:07	08/28/19 11:00
2622484004	BRGWA-2S	Water	08/27/19 11:53	08/28/19 11:00
2622484005	BRGWA-2I	Water	08/27/19 11:59	08/28/19 11:00
2622484006	BRGWC-33S	Water	08/27/19 16:10	08/28/19 11:00
2622484007	DUP-1	Water	08/27/19 00:00	08/28/19 11:00
2622484008	FB-1	Water	08/27/19 16:00	08/28/19 11:00
2622484009	EB-1	Water	08/27/19 16:29	08/28/19 11:00



SAMPLE ANALYTE COUNT

Project: Plant Branch Pace Project No.: 2622484

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2622484001	BRGWA-6S	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622484002	BRGWA-5S	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622484003	BRGWA-5I	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622484004	BRGWA-2S	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622484005	BRGWA-2I	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622484006	BRGWC-33S	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622484007	DUP-1	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622484008	FB-1	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622484009	EB-1	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA



Project: Plant Branch

Pace Project No.: 2622484

Sample: BRGWA-6S PWS:	Lab ID: 26224840 Site ID:	Collected: 08/27/19 10:02 Sample Type:	Received:	08/28/19 11:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.315 ± 0.258 (0.439) C:79% T:NA	pCi/L	09/20/19 07:18	3 13982-63-3	
Radium-228	EPA 9320	0.335 ± 0.394 (0.832) C:80% T:86%	pCi/L	09/23/19 14:07	7 15262-20-1	
Total Radium	Total Radium Calculation	0.650 ± 0.652 (1.27)	pCi/L	09/24/19 10:3 [,]	1 7440-14-4	



Project: Plant Branch

Pace Project No.: 2622484

Sample: BRGWA-5S PWS:	Lab ID: 26224840 Site ID:	Collected: 08/27/19 10:57 Sample Type:	Received:	08/28/19 11:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.520 ± 0.288 (0.370) C:87% T:NA	pCi/L	09/20/19 07:19	9 13982-63-3	
Radium-228	EPA 9320	0.922 ± 0.410 (0.676) C:80% T:91%	pCi/L	09/23/19 14:07	7 15262-20-1	
Total Radium	Total Radium Calculation	1.44 ± 0.698 (1.05)	pCi/L	09/24/19 10:31	1 7440-14-4	



Project: Plant Branch

Pace Project No.: 2622484

Sample: BRGWA-5I PWS:	Lab ID: 26224840 Site ID:	003 Collected: 08/27/19 12:07 Sample Type:	Received:	08/28/19 11:00 I	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.512 ± 0.297 (0.372) C:76% T:NA	pCi/L	09/20/19 07:19	13982-63-3	
Radium-228	EPA 9320	0.679 ± 0.377 (0.683) C:83% T:89%	pCi/L	09/23/19 14:07	7 15262-20-1	
Total Radium	Total Radium Calculation	1.19 ± 0.674 (1.06)	pCi/L	09/24/19 10:31	7440-14-4	



Project: Plant Branch

Pace Project No.: 2622484

Sample: BRGWA-2S PWS:	Lab ID: 26224840 Site ID:	Collected: 08/27/19 11:53 Sample Type:	Received:	08/28/19 11:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.950 ± 0.400 (0.410) C:78% T:NA	pCi/L	09/20/19 07:19	9 13982-63-3	
Radium-228	EPA 9320	0.515 ± 0.403 (0.800) C:81% T:81%	pCi/L	09/23/19 14:07	7 15262-20-1	
Total Radium	Total Radium Calculation	1.47 ± 0.803 (1.21)	pCi/L	09/24/19 10:31	1 7440-14-4	



Project: Plant Branch

Pace Project No.: 2622484

Sample: BRGWA-2I PWS:	Lab ID: 2622484 Site ID:	Collected: 08/27/19 11:59 Sample Type:	Received:	08/28/19 11:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.596 ± 0.302 (0.375) C:94% T:NA	pCi/L	09/20/19 08:57	7 13982-63-3	
Radium-228	EPA 9320	0.512 ± 0.371 (0.725) C:81% T:87%	pCi/L	09/23/19 14:07	7 15262-20-1	
Total Radium	Total Radium Calculation	1.11 ± 0.673 (1.10)	pCi/L	09/24/19 10:31	7440-14-4	



Project: Plant Branch

Pace Project No.: 2622484

Sample: BRGWC-33S PWS:	Lab ID: 2622484 Site ID:	006 Collected: 08/27/19 16:10 Sample Type:	Received:	08/28/19 11:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.433 ± 0.290 (0.446) C:78% T:NA	pCi/L	09/20/19 07:19	9 13982-63-3	
Radium-228	EPA 9320	0.947 ± 0.445 (0.756) C:81% T:76%	pCi/L	09/23/19 10:5	5 15262-20-1	
Total Radium	Total Radium Calculation	1.38 ± 0.735 (1.20)	pCi/L	09/24/19 10:3 ⁻	1 7440-14-4	



Project: Plant Branch

Pace Project No.: 2622484

Sample: DUP-1 PWS:	Lab ID: 26224840 Site ID:	Collected: 08/27/19 00:00 Sample Type:	Received:	08/28/19 11:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.534 ± 0.285 (0.309) C:86% T:NA	pCi/L	09/20/19 07:18	3 13982-63-3	
Radium-228	EPA 9320	0.549 ± 0.437 (0.872) C:78% T:80%	pCi/L	09/23/19 14:07	7 15262-20-1	
Total Radium	Total Radium Calculation	1.08 ± 0.722 (1.18)	pCi/L	09/24/19 10:3 ⁻	1 7440-14-4	



Project: Plant Branch

Pace Project No.: 2622484

Sample: FB-1 PWS:	Lab ID: 26224840 Site ID:	Collected: 08/27/19 16:00 Sample Type:	Received:	08/28/19 11:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.592 ± 0.325 (0.397) C:73% T:NA	pCi/L	09/20/19 07:20	13982-63-3	
Radium-228	EPA 9320	0.321 ± 0.282 (0.564) C:81% T:92%	pCi/L	09/23/19 14:07	7 15262-20-1	
Total Radium	Total Radium Calculation	0.913 ± 0.607 (0.961)	pCi/L	09/24/19 10:3 ⁻	1 7440-14-4	



Project: Plant Branch

Pace Project No.: 2622484

Sample: EB-1 PWS:	Lab ID: 26224840 Site ID:	Collected: 08/27/19 16:29 Sample Type:	Received:	08/28/19 11:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.494 ± 0.273 (0.310) C:85% T:NA	pCi/L	09/20/19 07:20	13982-63-3	
Radium-228	EPA 9320	0.502 ± 0.390 (0.780) C:79% T:87%	pCi/L	09/23/19 10:55	5 15262-20-1	
Total Radium	Total Radium Calculation	0.996 ± 0.663 (1.09)	pCi/L	09/24/19 10:3 ⁻	1 7440-14-4	



QUALITY CONTROL - RADIOCHEMISTRY

Project:	Plant E	ranch			
Pace Project No .:	262248	34			
QC Batch:	3599	Analysis Method:	EPA 9315		
QC Batch Method:	EPA	Analysis Description:	9315 Total Radi	um	
Associated Lab Sar	nples:	2622484001, 2622484002, 2622484003, 2622484004, 26 2622484009	22484005, 262248	34006, 2622484007, 2	2622484008,
METHOD BLANK:	17473	Matrix: Water			
Associated Lab Sar	mples:	2622484001, 2622484002, 2622484003, 2622484004, 26 2622484009	22484005, 262248	34006, 2622484007, 2	2622484008,
Parar	neter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226		0.763 ± 0.364 (0.510) C:93% T:NA	pCi/L	09/20/19 07:14	

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



QUALITY CONTROL - RADIOCHEMISTRY

Project: Pace Project No.:	Plant I 26224	Branch 84			
QC Batch:	3599	68 Analysis Method:	EPA 9320		
QC Batch Method:	EPA	9320 Analysis Description:	9320 Radium 22	8	
Associated Lab Sa	mples:	2622484001, 2622484002, 2622484003, 2622484004, 26 2622484009	22484005, 262248	34006, 2622484007, 2	2622484008,
METHOD BLANK:	17473	92 Matrix: Water			
Associated Lab Sa	mples:	2622484001, 2622484002, 2622484003, 2622484004, 26 2622484009	22484005, 262248	34006, 2622484007, 2	2622484008,
Para	neter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228		0.921 ± 0.439 (0.755) C:82% T:78%	pCi/L	09/23/19 10:55	

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



QUALIFIERS

Project:	Plant Branch
Pace Project No .:	2622484

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:	Plant Branch
Pace Project No .:	2622484

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2622484001	BRGWA-6S	EPA 9315	359967		
2622484002	BRGWA-5S	EPA 9315	359967		
2622484003	BRGWA-5I	EPA 9315	359967		
2622484004	BRGWA-2S	EPA 9315	359967		
2622484005	BRGWA-2I	EPA 9315	359967		
2622484006	BRGWC-33S	EPA 9315	359967		
2622484007	DUP-1	EPA 9315	359967		
2622484008	FB-1	EPA 9315	359967		
2622484009	EB-1	EPA 9315	359967		
2622484001	BRGWA-6S	EPA 9320	359968		
2622484002	BRGWA-5S	EPA 9320	359968		
2622484003	BRGWA-5I	EPA 9320	359968		
2622484004	BRGWA-2S	EPA 9320	359968		
2622484005	BRGWA-2I	EPA 9320	359968		
2622484006	BRGWC-33S	EPA 9320	359968		
2622484007	DUP-1	EPA 9320	359968		
2622484008	FB-1	EPA 9320	359968		
2622484009	EB-1	EPA 9320	359968		
2622484001	BRGWA-6S	Total Radium Calculation	362817		
2622484002	BRGWA-5S	Total Radium Calculation	362817		
2622484003	BRGWA-5I	Total Radium Calculation	362817		
2622484004	BRGWA-2S	Total Radium Calculation	362817		
2622484005	BRGWA-2I	Total Radium Calculation	362817		
2622484006	BRGWC-33S	Total Radium Calculation	362817		
2622484007	DUP-1	Total Radium Calculation	362817		
2622484008	FB-1	Total Radium Calculation	362817		
2622484009	EB-1	Total Radium Calculation	362817		

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CHAIN-OF-CUSTODY / Analytical Request Document

	Pace Analytical					The Ch	The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.	stody	saLE	GALE	DOCUN	MENT.	All re	levani	field	s must	t be co	omplet	ed acci	urately.					
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Woff:: 2622484 Price Analytical Client Name: A forwer Courter: A forwer Client Name: A forwer Courter: A forwer Client Name: A forwer Courter: A forwer Client Superior Tracking #: Custody Seal on Cooler/Box Present: Cyres no Proj: Name: A forwer Packing Materia: Bubble Wrap Bubble Bags I forme Client Name: A forwer Courter: I for momentar Used Offer Thermoneter Used Proj: Name: A forwer Courter of Colspan="2">Date and Initigia of presenterante Comments: Date and Initigia of presenterante Contenters: I forme I how DwA 1 Comments: Date and Initigia of presenterante Contenters: I forme I how DwA Date and Initigia of presenterante Contenters: I forme I how DwA 1 Contenters: I forme I how DwA Date and Initigia of presenterante Contenters: I forme I how DwA Contenters:	San	nple Condition	Upon Receipt			
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Tracking #				GAPouer-CCR]
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Thermometer Used 2144 Type of Ice: Weiler Blue None Date and Inflation process has bee Biological Tissue is Frozen: Yes No Date and Inflation process has bee Trozen: Yes No Date and Inflation process has been frozen: Yes No Date and Inflation process has been frozen: Yes No Date and Inflation process has been frozen: Yes No Date and Inflation process has been frozen: Yes No Date and Inflation process has been frozen: Yes No Date and Inflation process has been frozen: Yes No Date and Inflation process has been froze	Custody Seal on Cooler/Box Present:	no Seals i	intact: 🚽 yes [
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Cooler Temperature 1/3 Elloogical rissue is Prozent: tes No contents: Contents: South State Stressent: Chain of Custody Present: Gres No NA 1. Chain of Custody Present: Gres No NA 2. Chain of Custody Relinquished: Gres No NA 3. Sampler Name & Signature on COC: Gres No NA 4. Samples Arrived within Hold Time: Gres No NA 5. Short Hold Time Analysis (<f2hr):< td=""> Over Entrol NA 6. Rush Turn Around Time Requested: Over Stressen No NA 8. Correct Containers Used: Ores No NA 9. -Pace Containers Used: Ores No NA 9. -Pace Containers Intact: Dres No NA 10. Filtered volume received for Dissolved tests Ores No NA 12. -Includes date/time/ID/Analysis Matrix: Matrix: Matrix: No All containers needing preservation are found to be in complance with EPA recommendation. Ores No <td< td=""><td>n ill</td><td>-</td><td>Blue None [</td><td></td><td></td><td></td></td<></f2hr):<>	n ill	-	Blue None [
Chain of Custody Filled Out: Priss No INA 2. Chain of Custody Relinquished: Priss No INA 3. Sampler Name & Signature on COC: Priss No INA 4. Sampler Name & Signature on COC: Priss INA 4. Samples Arrived within Hold Time: Priss INA 5. Short Hold Time Analysis (<72hr):	· · · · · · · · · · · · · · · · · · ·	-		7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	erson examining	-
Chain of Custody Relinquished: Pres No NA 3. Sampler Name & Signature on COC: Pres No NA 4. Samples Arrived within Hold Time: Pres No NA 5. Short Hold Time Analysis (<72hr):	Chain of Custody Present:	Elves DNo DN/A	1.			
Sampler Name & Signature on COC: Pres No N/A 4.	Chain of Custody Filled Out:	Dites INO IN/A	2.			
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Short Hold Time Analysis (<72hr):	Sampler Name & Signature on COC:		4.			
Rush Turn Around Time Requested: Ives Ives <td>Samples Arrived within Hold Time:</td> <td></td> <td>5.</td> <td></td> <td></td> <td></td>	Samples Arrived within Hold Time:		5.			
Sufficient Volume: Image: Suffic	Short Hold Time Analysis (<72hr):		6.			
Correct Containers Used: Pace Containers Used: Pace Containers Used: Pace Containers Used: Pace Containers Used: Pace Containers Used: Pace Containers Used: Pace Containers Used: Pace Containers Used: Pace Containers Intact: Pace Intituation: Pace Containers Intact: Pace Containers Intact: Pace Intituation: Pac	Rush Turn Around Time Requested:		7			
-Pace Containers Used: Image: Section of the solution of the sol	Sufficient Volume:		8.			
Containers Intact: IVes No IVA 10. Filtered volume received for Dissolved tests IVes No ENVA 11. Sample Labels match COC: IVes INO IVA 12. -Includes date/time/ID/Analysis Matrix: IVes IVA 13. All containers needing preservation have been checked. IVes INO INIA All containers needing preservation are found to be in compliance with EPA recommendation. IVes INO INIA All containers inceding preservation are found to be in compliance with EPA recommendation: IVes INO INIA Samples checked for dechlorination: IVes INO INIA Initial when completed Lot # of added preservative Samples checked for dechlorination: IVes INO INIA I5. Trip Blank Present: IVes INO INIA I6. Trip Blank Custody Seals Present IVes INO INIA Pace Trip Blank Lot # (if purchased):	Correct Containers Used:		9.			
Filtered volume received for Dissolved tests Image: State of the state of th	-Pace Containers Used:					
Sample Labels match COC: Image: Stress in the i	Containers Intact:		10.			
-Includes date/time/ID/Analysis Matrix:	Filtered volume received for Dissolved tests		11			
All containers needing preservation have been checked. Image: Sime Sime Sime Sime Sime Sime Sime Sime	Sample Labels match COC:		12.			
All containers needing preservation are found to be in compliance with EPA recommendation. exceptions: VOA, coliform, TOC, O&G, WI-DRO (Water) Samples checked for dechlorination: Headspace in VOA Vials (>6mm): Trip Blank Present: Trip Blank Present: Trip Blank Lot # (if purchased): Client Notification/ Resolution: Person Contacted: Comments/ Resolution: Comments/ Resolution: Comments/ Resolution: Client Notification: Client Notification: Client Network Present: Comments/ Resolution: Client Network Present: Comments/ Resolution: Client Network Present: Comments/ Resolution: Client Network Present: Comments/ Resolution: Client Network Present: Client Network Present: Comments/ Resolution: Client Network Present: Comments/ Resolution: Client Network Present: Comments/ Resolution: Client Network Present: Comments/ Resolution: Client Network Present: Client Network Present: Clie						
compliance with EPA recommendation. Initial When Lot # of added exceptions: VOA, coliform, TOC, O&G, WI-DRO (water) Ives Initial when Lot # of added Samples checked for dechlorination: Ives Ives Ives Ives Headspace in VOA Vials (>6mm): Ives Ives Ives Ives Ives Trip Blank Present: Ives Ives Ives Ives Ives Ives Trip Blank Custody Seals Present Ives Ives Ives Ives Ives Ives Pace Trip Blank Lot # (if purchased):	All containers needing preservation have been checked.		13.			
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water) Qres No completed preservative Samples checked for dechlorination: Qres No Qres 14. Headspace in VOA Vials (>6mm): Qres No Qres 14. Headspace in VOA Vials (>6mm): Qres No Qres 15. Trip Blank Present: Qres No Qres 16. Trip Blank Custody Seals Present Qres No Qres No Pace Trip Blank Lot # (if purchased):						
Samples checked for dechlorination: Image: Second Seco	exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)				:	
Headspace in VOA Vials (>6mm): Image: Present in the present in		Yes No ARA	14.			
Trip Blank Present: Image: Search of the search of the			15.			
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Pace Trip Blank Lot # (if purchased):						
Client Notification/ Resolution: Field Data Required? Y / Person Contacted: Date/Time: Comments/ Resolution:						
Person Contacted: Date/Time: Comments/ Resolution:				Field Data Required?	Y / N	_
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Project Manager Review: Date:	Project Manager Review:			Date:		<u> </u>

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



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

January 03, 2020

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

RE: Project: Plant Branch Pace Project No.: 2622563

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on August 29, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Kei Shing

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

Enclosures

cc: Julie Lehrman, Golder Associates Inc.
 Dawn Prell, Golder Associates Inc.
 Eric Rolle, Georgia Power - Coal Combustion Residuals
 Rebecca Thornton, Pace Analytical Atlanta





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

CERTIFICATIONS

Project: Plant Branch Pace Project No.: 2622563

Pace Analytical Services Atlanta

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

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804 Florida/NELAP Certification #: E87648 Massachusetts Certification #: M-NC030 North Carolina Drinking Water Certification #: 37712 North Carolina Certification #: 381 South Carolina Certification #: 98011001 Virginia Certification #: 460204

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



SAMPLE SUMMARY

Project: Plant Branch Pace Project No.: 2622563

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2622563001	BRGWC-17S	Water	08/28/19 12:35	08/29/19 11:15
2622563002	BRGWC-34S	Water	08/28/19 13:21	08/29/19 11:15
2622563003	BRGWC-35S	Water	08/28/19 12:08	08/29/19 11:15
2622563004	BRGWC-36S	Water	08/28/19 11:36	08/29/19 11:15
2622563005	BRGWC-37S	Water	08/28/19 14:32	08/29/19 11:15
2622563006	EB-2	Water	08/28/19 12:59	08/29/19 11:15
2622563007	FB-2	Water	08/28/19 11:50	08/29/19 11:15



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

SAMPLE ANALYTE COUNT

Project:	Plant Branch
Pace Project No .:	2622563

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2622563001	BRGWC-17S	EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
2622563002	BRGWC-34S	EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
2622563003	BRGWC-35S	EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
2622563004	BRGWC-36S	EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
2622563005	BRGWC-37S	EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
2622563006	EB-2	EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
2622563007	FB-2	EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A



Project: Plant Branch

Pace Project No.: 2622563

Sample: BRGWC-17S	Lab ID:	2622563001	Collecte	ed: 08/28/19	9 12:35	Received: 08/	29/19 11:15 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	08/30/19 16:08	09/04/19 20:57	7440-36-0	
Arsenic	0.00073J	mg/L	0.0050	0.00035	1	08/30/19 16:08	09/04/19 20:57	7440-38-2	
Barium	0.044	mg/L	0.010	0.00049	1	08/30/19 16:08	09/04/19 20:57	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/30/19 16:08	09/04/19 20:57	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/30/19 16:08	09/04/19 20:57	7440-43-9	
Chromium	0.013	mg/L	0.010	0.00039	1	08/30/19 16:08	09/04/19 20:57	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	08/30/19 16:08	09/04/19 20:57	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/30/19 16:08	09/04/19 20:57	7439-92-1	
Lithium	0.00097J	mg/L	0.030	0.00078	1	08/30/19 16:08	09/04/19 20:57	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/30/19 16:08	09/04/19 20:57	7439-98-7	
Selenium	0.0030J	mg/L	0.010	0.0013	1	08/30/19 16:08	09/04/19 20:57	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/30/19 16:08	09/04/19 20:57	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	09/03/19 11:46	09/03/19 17:21	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0 Rev 2	2.1 1993					
Fluoride	0.085J	mg/L	0.30	0.050	1		09/05/19 10:21	16984-48-8	



Project: Plant Branch

Pace Project No.: 2622563

Sample: BRGWC-34S	Lab ID:	2622563002	Collecte	ed: 08/28/19	9 13:21	Received: 08/	29/19 11:15 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	08/30/19 16:08	09/04/19 21:03	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/30/19 16:08	09/04/19 21:03	7440-38-2	
Barium	0.026	mg/L	0.010	0.00049	1	08/30/19 16:08	09/04/19 21:03	7440-39-3	
Beryllium	0.00014J	mg/L	0.0030	0.000074	1	08/30/19 16:08	09/04/19 21:03	7440-41-7	
Cadmium	0.00025J	mg/L	0.0025	0.00011	1	08/30/19 16:08	09/04/19 21:03	7440-43-9	
Chromium	ND	mg/L	0.010	0.00039	1	08/30/19 16:08	09/04/19 21:03	7440-47-3	
Cobalt	0.0037J	mg/L	0.0050	0.00030	1	08/30/19 16:08	09/04/19 21:03	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/30/19 16:08	09/04/19 21:03	7439-92-1	
Lithium	0.00090J	mg/L	0.030	0.00078	1	08/30/19 16:08	09/04/19 21:03	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/30/19 16:08	09/04/19 21:03	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/30/19 16:08	09/04/19 21:03	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/30/19 16:08	09/04/19 21:03	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	09/03/19 11:46	09/03/19 17:24	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0 Rev 2	2.1 1993					
Fluoride	0.057J	mg/L	0.30	0.050	1		09/05/19 10:50	16984-48-8	



Project: Plant Branch

Pace Project No.: 2622563

Sample: BRGWC-35S	Lab ID:	2622563003	Collecte	ed: 08/28/19	9 12:08	Received: 08/	29/19 11:15 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	08/30/19 16:08	09/04/19 21:37	7440-36-0	
Arsenic	0.00044J	mg/L	0.0050	0.00035	1	08/30/19 16:08	09/04/19 21:37	7440-38-2	
Barium	0.039	mg/L	0.010	0.00049	1	08/30/19 16:08	09/04/19 21:37	7440-39-3	
Beryllium	0.00016J	mg/L	0.0030	0.000074	1	08/30/19 16:08	09/04/19 21:37	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/30/19 16:08	09/04/19 21:37	7440-43-9	
Chromium	0.0071J	mg/L	0.010	0.00039	1	08/30/19 16:08	09/04/19 21:37	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	08/30/19 16:08	09/04/19 21:37	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/30/19 16:08	09/04/19 21:37	7439-92-1	
Lithium	0.0021J	mg/L	0.030	0.00078	1	08/30/19 16:08	09/04/19 21:37	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/30/19 16:08	09/04/19 21:37	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/30/19 16:08	09/04/19 21:37	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/30/19 16:08	09/04/19 21:37	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	09/03/19 11:46	09/03/19 17:26	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0 Rev 2	2.1 1993					
Fluoride	0.056J	mg/L	0.30	0.050	1		09/05/19 10:07	16984-48-8	



Project: Plant Branch

Pace Project No.: 2622563

Sample: BRGWC-36S	Lab ID:	2622563004	Collecte	ed: 08/28/19	9 11:36	Received: 08/	29/19 11:15 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	0.00035J	mg/L	0.0030	0.00027	1	08/30/19 16:08	09/04/19 22:00	7440-36-0	
Arsenic	0.00045J	mg/L	0.0050	0.00035	1	08/30/19 16:08	09/04/19 22:00	7440-38-2	
Barium	0.034	mg/L	0.010	0.00049	1	08/30/19 16:08	09/04/19 22:00	7440-39-3	
Beryllium	0.00011J	mg/L	0.0030	0.000074	1	08/30/19 16:08	09/04/19 22:00	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/30/19 16:08	09/04/19 22:00	7440-43-9	
Chromium	0.0078J	mg/L	0.010	0.00039	1	08/30/19 16:08	09/04/19 22:00	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	08/30/19 16:08	09/04/19 22:00	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/30/19 16:08	09/04/19 22:00	7439-92-1	
Lithium	0.0025J	mg/L	0.030	0.00078	1	08/30/19 16:08	09/04/19 22:00	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/30/19 16:08	09/04/19 22:00	7439-98-7	
Selenium	0.0041J	mg/L	0.010	0.0013	1	08/30/19 16:08	09/04/19 22:00	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/30/19 16:08	09/04/19 22:00	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	09/03/19 11:46	09/03/19 17:29	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0 Rev 2	2.1 1993					
Fluoride	ND	mg/L	0.30	0.050	1		09/05/19 08:25	16984-48-8	



Project: Plant Branch

Pace Project No.: 2622563

Sample: BRGWC-37S	Lab ID:	2622563005	Collecte	ed: 08/28/19	9 14:32	Received: 08/	29/19 11:15 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	08/30/19 16:08	09/04/19 22:06	7440-36-0	
Arsenic	0.00038J	mg/L	0.0050	0.00035	1	08/30/19 16:08	09/04/19 22:06	7440-38-2	
Barium	0.027	mg/L	0.010	0.00049	1	08/30/19 16:08	09/04/19 22:06	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/30/19 16:08	09/04/19 22:06	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/30/19 16:08	09/04/19 22:06	7440-43-9	
Chromium	0.0017J	mg/L	0.010	0.00039	1	08/30/19 16:08	09/04/19 22:06	7440-47-3	В
Cobalt	ND	mg/L	0.0050	0.00030	1	08/30/19 16:08	09/04/19 22:06	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/30/19 16:08	09/04/19 22:06	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	08/30/19 16:08	09/04/19 22:06	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/30/19 16:08	09/04/19 22:06	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/30/19 16:08	09/04/19 22:06	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/30/19 16:08	09/04/19 22:06	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	09/03/19 11:46	09/03/19 17:31	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0 Rev 2	2.1 1993					
Fluoride	ND	mg/L	0.30	0.050	1		09/05/19 11:05	16984-48-8	



Branch

Pace Project No.: 2622563

Sample: EB-2	Lab ID:	2622563006	Collecte	ed: 08/28/19	9 12:59	Received: 08/	29/19 11:15 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	thod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	08/30/19 16:08	09/04/19 22:11	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/30/19 16:08	09/04/19 22:11	7440-38-2	
Barium	ND	mg/L	0.010	0.00049	1	08/30/19 16:08	09/04/19 22:11	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/30/19 16:08	09/04/19 22:11	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/30/19 16:08	09/04/19 22:11	7440-43-9	
Chromium	ND	mg/L	0.010	0.00039	1	08/30/19 16:08	09/04/19 22:11	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	08/30/19 16:08	09/04/19 22:11	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/30/19 16:08	09/04/19 22:11	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	08/30/19 16:08	09/04/19 22:11	7439-93-2	
Molybdenum	0.0021J	mg/L	0.010	0.00095	1	08/30/19 16:08	09/04/19 22:11	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/30/19 16:08	09/04/19 22:11	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/30/19 16:08	09/04/19 22:11	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	09/03/19 11:46	09/03/19 17:33	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0 Rev 2	2.1 1993					
Fluoride	ND	mg/L	0.30	0.050	1		09/05/19 10:36	16984-48-8	



Project: Plar	t Branch
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Pace Project No.: 2622563

Sample: FB-2	Lab ID:	2622563007	Collecte	ed: 08/28/19	9 11:50	Received: 08/	29/19 11:15 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	thod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	08/30/19 16:08	09/04/19 22:17	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/30/19 16:08	09/04/19 22:17	7440-38-2	
Barium	ND	mg/L	0.010	0.00049	1	08/30/19 16:08	09/04/19 22:17	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/30/19 16:08	09/04/19 22:17	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/30/19 16:08	09/04/19 22:17	7440-43-9	
Chromium	0.00045J	mg/L	0.010	0.00039	1	08/30/19 16:08	09/04/19 22:17	7440-47-3	В
Cobalt	ND	mg/L	0.0050	0.00030	1	08/30/19 16:08	09/04/19 22:17	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/30/19 16:08	09/04/19 22:17	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	08/30/19 16:08	09/04/19 22:17	7439-93-2	
Molybdenum	0.0021J	mg/L	0.010	0.00095	1	08/30/19 16:08	09/04/19 22:17	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/30/19 16:08	09/04/19 22:17	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/30/19 16:08	09/04/19 22:17	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	ND	mg/L	0.00050	0.00014	1	09/03/19 11:46	09/03/19 17:40	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0 Rev 2	2.1 1993					
Fluoride	ND	mg/L	0.30	0.050	1		09/05/19 09:52	16984-48-8	



Project:	Plant Branch											
Pace Project No.:	2622563											
QC Batch:	34630		Analy	sis Metho	d: E	EPA 7470A						
QC Batch Method:	EPA 7470A		Analy	sis Descri	ption: 7	470 Mercu	iry					
Associated Lab San	nples: 2622563	001, 2622563002,	262256300	3, 262256	3004, 26225	563005, 26	22563006	, 26225630	007			
METHOD BLANK:	155919			Matrix: W	ater							
Associated Lab San	nples: 2622563	001, 2622563002,	262256300	3, 262256	3004, 26225	563005, 26	22563006	, 26225630	007			
			Blan	k	Reporting							
Paran	neter	Units	Resu	ult	Limit	MD	L	Analyzed	d Qu	ualifiers		
Mercury		mg/L		ND	0.00050	0.	00014 0	9/03/19 16	6:46			
		155920										
LABORATORY COM	NTROL SAMPLE:	155920	Spike	LC	S	LCS	% F	Rec				
LABORATORY COM		155920 Units	Spike Conc.	LC Res	-	LCS % Rec	% F Lim		Qualifiers			
			•	Res	-		Lim		Qualifiers			
Paran	neter	Units mg/L	Conc0.002	Res	sult	% Rec	Lim	iits	Qualifiers	_		
Paran Mercury	neter	Units mg/L	Conc0.002	Res	0.0027	% Rec	Lim	iits	Qualifiers	_		
Paran	neter	Units mg/L	Conc. 	Res 5	0.0027	% Rec	Lim	iits	Qualifiers % Rec	_	Мах	
Paran Mercury	IATRIX SPIKE DU	Units mg/L PLICATE: 1559 2622561001	21 MS	5 Res	0.0027 155922	% Rec 10	Lim	its		RPD	Max RPD	Qual

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



Project: Plant Branch

Pace Project No.: 2622563

QC Batch:	34569	Analysis Met	hod:	EPA 6020B		
QC Batch Method:	EPA 3005A	Analysis Des	cription:	6020B MET		
Associated Lab Samp	les: 2622563001, 2622563002					
METHOD BLANK: 1	55676	Matrix:	Water			
Associated Lab Samp	les: 2622563001, 2622563002					
		Blank	Reporting			
Parame	ter Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.003	0.00027	09/04/19 18:22	
Arsenic	mg/L	ND	0.005	0.00035	09/04/19 18:22	
Barium	mg/L	ND	0.01	0 0.00049	09/04/19 18:22	
Beryllium	mg/L	ND	0.003	0.000074	09/04/19 18:22	
Cadmium	mg/L	ND	0.002	0.00011	09/04/19 18:22	
Chromium	mg/L	ND	0.01	0 0.00039	09/04/19 18:22	

Caumum	ing/∟	ND	0.0025	0.00011	03/04/13 10.22	
Chromium	mg/L	ND	0.010	0.00039	09/04/19 18:22	
Cobalt	mg/L	ND	0.0050	0.00030	09/04/19 18:22	
Lead	mg/L	ND	0.0050	0.000046	09/04/19 18:22	
Lithium	mg/L	ND	0.030	0.00078	09/04/19 18:22	
Molybdenum	mg/L	ND	0.010	0.00095	09/04/19 18:22	
Selenium	mg/L	ND	0.010	0.0013	09/04/19 18:22	
Thallium	mg/L	ND	0.0010	0.000052	09/04/19 18:22	

LABORATORY CONTROL SAMPLE: 155677

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
ntimony	 mg/L	0.1	0.11	112	80-120	
rsenic	mg/L	0.1	0.10	101	80-120	
arium	mg/L	0.1	0.10	105	80-120	
eryllium	mg/L	0.1	0.099	99	80-120	
admium	mg/L	0.1	0.10	104	80-120	
hromium	mg/L	0.1	0.10	104	80-120	
balt	mg/L	0.1	0.10	104	80-120	
ad	mg/L	0.1	0.10	102	80-120	
nium	mg/L	0.1	0.099	99	80-120	
lybdenum	mg/L	0.1	0.10	103	80-120	
lenium	mg/L	0.1	0.10	104	80-120	
nallium	mg/L	0.1	0.10	103	80-120	

MATRIX SPIKE & MATRIX	SPIKE DUPLI	CATE: 1556	78 MS	MSD	155679							
Parameter	Units	2622524009 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.11	0.11	110	111	75-125	1	20	
Arsenic	mg/L	0.0011J	0.1	0.1	0.10	0.10	101	99	75-125	2	20	
Barium	mg/L	0.14	0.1	0.1	0.23	0.23	90	91	75-125	0	20	
Beryllium	mg/L	0.00090J	0.1	0.1	0.093	0.090	92	90	75-125	3	20	
Cadmium	mg/L	ND	0.1	0.1	0.097	0.096	97	96	75-125	1	20	

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Project: Plant Branch Pace Project No.: 2622563

MATRIX SPIKE & MATRIX	SPIKE DUPL	ICATE: 1556	78 MS	155679 MS MSD								
Parameter	Units	2622524009 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chromium	mg/L	0.0056J	0.1	0.1	0.11	0.11	101	100	75-125	0	20	
Cobalt	mg/L	0.00070J	0.1	0.1	0.10	0.10	99	99	75-125	0	20	
Lead	mg/L	0.00022J	0.1	0.1	0.095	0.093	95	93	75-125	2	20	
Lithium	mg/L	0.012J	0.1	0.1	0.11	0.11	93	94	75-125	0	20	
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	104	103	75-125	1	20	
Selenium	mg/L	0.0019J	0.1	0.1	0.10	0.099	100	97	75-125	3	20	
Thallium	mg/L	ND	0.1	0.1	0.096	0.094	96	94	75-125	1	20	

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QUALITY CONTROL DATA

Project:	Plant Branch		
Pace Project No.:	2622563		
QC Batch:	34570	Analysis Method:	EPA 6020B
QC Batch Method:	EPA 3005A	Analysis Description:	6020B MET
Associated Lab Sa	mples: 2622563003, 2622563004, 262	2563005, 2622563006, 26	622563007
METHOD BLANK:	155680	Matrix: Water	

Associated Lab Samples: 2622563003, 2622563004, 2622563005, 2622563006, 2622563007

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	09/04/19 21:26	
Arsenic	mg/L	ND	0.0050	0.00035	09/04/19 21:26	
Barium	mg/L	ND	0.010	0.00049	09/04/19 21:26	
Beryllium	mg/L	ND	0.0030	0.000074	09/04/19 21:26	
Cadmium	mg/L	ND	0.0025	0.00011	09/04/19 21:26	
Chromium	mg/L	0.00055J	0.010	0.00039	09/04/19 21:26	
Cobalt	mg/L	ND	0.0050	0.00030	09/04/19 21:26	
Lead	mg/L	ND	0.0050	0.000046	09/04/19 21:26	
Lithium	mg/L	ND	0.030	0.00078	09/04/19 21:26	
Molybdenum	mg/L	ND	0.010	0.00095	09/04/19 21:26	
Selenium	mg/L	ND	0.010	0.0013	09/04/19 21:26	
Thallium	mg/L	ND	0.0010	0.000052	09/04/19 21:26	

LABORATORY CONTROL SAMPLE: 155681

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Antimony	mg/L	0.1	0.11	113	80-120	
Arsenic	mg/L	0.1	0.10	100	80-120	
arium	mg/L	0.1	0.10	103	80-120	
eryllium	mg/L	0.1	0.10	103	80-120	
admium	mg/L	0.1	0.10	103	80-120	
hromium	mg/L	0.1	0.10	104	80-120	
obalt	mg/L	0.1	0.10	103	80-120	
ad	mg/L	0.1	0.099	99	80-120	
nium	mg/L	0.1	0.11	105	80-120	
blybdenum	mg/L	0.1	0.11	106	80-120	
elenium	mg/L	0.1	0.10	102	80-120	
nallium	mg/L	0.1	0.10	100	80-120	

MATRIX SPIKE & MATRIX	SPIKE DUPL	ICATE: 1556	-		155683							
Parameter	Units	2622563003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.11	0.11	114	114	75-125	0	20	
Arsenic	mg/L	0.00044J	0.1	0.1	0.10	0.10	101	101	75-125	0	20	
Barium	mg/L	0.039	0.1	0.1	0.14	0.14	103	104	75-125	0	20	
Beryllium	mg/L	0.00016J	0.1	0.1	0.10	0.099	101	99	75-125	2	20	
Cadmium	mg/L	ND	0.1	0.1	0.10	0.10	104	102	75-125	2	20	

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Project: Plant Branch Pace Project No.: 2622563

MATRIX SPIKE & MATRIX	SPIKE DUPL	ICATE: 1556	82		155683							
Parameter	Units	2622563003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chromium	mg/L	0.0071J	0.1	0.1	0.11	0.11	105	106	75-125	1	20	
Cobalt	mg/L	ND	0.1	0.1	0.11	0.10	106	104	75-125	2	20	
Lead	mg/L	ND	0.1	0.1	0.098	0.098	98	98	75-125	1	20	
Lithium	mg/L	0.0021J	0.1	0.1	0.10	0.098	98	96	75-125	2	20	
Molybdenum	mg/L	ND	0.1	0.1	0.11	0.11	108	107	75-125	1	20	
Selenium	mg/L	ND	0.1	0.1	0.10	0.10	102	102	75-125	0	20	
Thallium	mg/L	ND	0.1	0.1	0.10	0.10	100	100	75-125	0	20	

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Project:	Plant Branch											
Pace Project No .:	2622563											
QC Batch:	496024		Analy	sis Metho	d: E	EPA 300.0 I	Rev 2.1 19	93				
QC Batch Method:	EPA 300.0 Rev 2	2.1 1993	Analy	/sis Descri	ption: 3	800.0 IC An	ions					
Associated Lab San	nples: 26225630	01, 2622563002,	262256300	3, 262256	3004, 26225	563005, 26	22563006,	262256300	07			
METHOD BLANK:	2672026			Matrix: W	ater							
Associated Lab San	nples: 26225630	01, 2622563002,	262256300	3, 262256	3004, 26225	563005, 26	22563006,	262256300	07			
			Blar	nk	Reporting							
Paran	neter	Units	Res	ult	Limit	MD	L	Analyzed	Qı	alifiers		
Fluoride		mg/L		ND	0.10)	0.050 0	9/05/19 07:	56			
LABORATORY COM	NTROL SAMPLE:	2672027										
Davaa		Linita	Spike	LC		LCS	% R					
Paran	neter	Units	Conc.	Res		% Rec	Lim		Qualifiers	_		
Fluoride		mg/L	2.	5	2.6	10	4	90-110				
MATRIX SPIKE & M	ATRIX SPIKE DUE	PLICATE: 2672	028		2672029							
			MS	MSD	2012020							
		2622563004	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	r Units	s Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Fluoride	mg/L	. ND	2.5	2.5	2.5	2.7	100	105	90-110	4	10	
MATRIX SPIKE & M		PLICATE: 2672	030		2672031							
			MS	MSD								
		2622561002	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	r Units	s Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Fluoride	mg/L	. 0.055J	2.5	2.5	3.2	3.2	125	127	90-110	1	10	M1

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



QUALIFIERS

Project:	Plant Branch
Pace Project No .:	2622563

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-A Pace Analytical Services - Asheville

PASI-GA Pace Analytical Services - Atlanta, GA

ANALYTE QUALIFIERS

- B Analyte was detected in the associated method blank.
- M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:	Plant Branch
Pace Project No .:	2622563

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2622563001	BRGWC-17S	EPA 3005A	34569	EPA 6020B	34600
2622563002	BRGWC-34S	EPA 3005A	34569	EPA 6020B	34600
2622563003	BRGWC-35S	EPA 3005A	34570	EPA 6020B	34601
2622563004	BRGWC-36S	EPA 3005A	34570	EPA 6020B	34601
2622563005	BRGWC-37S	EPA 3005A	34570	EPA 6020B	34601
2622563006	EB-2	EPA 3005A	34570	EPA 6020B	34601
2622563007	FB-2	EPA 3005A	34570	EPA 6020B	34601
2622563001	BRGWC-17S	EPA 7470A	34630	EPA 7470A	34665
2622563002	BRGWC-34S	EPA 7470A	34630	EPA 7470A	34665
2622563003	BRGWC-35S	EPA 7470A	34630	EPA 7470A	34665
2622563004	BRGWC-36S	EPA 7470A	34630	EPA 7470A	34665
2622563005	BRGWC-37S	EPA 7470A	34630	EPA 7470A	34665
2622563006	EB-2	EPA 7470A	34630	EPA 7470A	34665
2622563007	FB-2	EPA 7470A	34630	EPA 7470A	34665
2622563001	BRGWC-17S	EPA 300.0 Rev 2.1 1993	496024		
2622563002	BRGWC-34S	EPA 300.0 Rev 2.1 1993	496024		
2622563003	BRGWC-35S	EPA 300.0 Rev 2.1 1993	496024		
2622563004	BRGWC-36S	EPA 300.0 Rev 2.1 1993	496024		
2622563005	BRGWC-37S	EPA 300.0 Rev 2.1 1993	496024		
2622563006	EB-2	EPA 300.0 Rev 2.1 1993	496024		
2622563007	FB-2	EPA 300.0 Rev 2.1 1993	496024		

?	CHAIN-	ļ Ģ	CHAIN-OF-CUSTODY Analytical Requ	Intica	i Request	iest Document	_		Ħ	5	3	C	JOH: 2622563)#:2622563	
Pace Analytical	ť					ab la Statement		ź				ίΞ		PM: BM	BM Due Date: 09/06/19	5/19
Company: Georgia Power - Coal Combustion Residuals	tion Residuals		Luain-or-Custooy is a ccost vocument - Comprete all relevent inero duals [Billing Information:		Complete all re									CLIENT:	GRPouer-CCR	1
Address: 2480 Maner Road			•					262	2622563							
Auaora ta suasy Report To: Joju Abraham			Email To: scsinvoices@southernco.com	nos@sə	thernco.com			* Prese	rvative Type	1 1 1 1	kric aci:	1 [] Jus [2]	furtic actid, (3)	ydrochla	• Preservative Types: (1) nitric actid. (2) suffurit actid. (4) sodium hydroxide. (5) sinc actaite.	
Copy To: Golder			Site Collection Info/Address: Plant Branch	o/Addres	is: Plant Branch			(G) meth	anol, (7) s onium hy	iodium bi droxide, {	sulfate, D) TSP, (B) sodi Unpa	(5) methanol, (7) sodium bisulfate. (8) sodium thiosulfate, (9) h (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other	. (9) hexar Ither	(6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (8) ammonium sulfate, (C) ammonium hydroxide, (0) TSP, (U) Unpreserved, (0) Other	
phone: (404) 506-7239			State: Georgia City: Milledgeville	ly: Mille		Time Zone Collected					Analyses	22			Lab Profile/Line:	
hernco.com			,	<u>Б</u>		[]CT [X]ET				an te					Lab Sample Receipt Checklist: Custody Seals Present/Intact Z'N NA	
_	Project Name: Plant Branch E # CCR	it Branc		ject Pac	Project Pace Profile# 326.11.2	11.2				112.4					Custody Signatures Present 21 IN Collector Signature Present 21 IN	
	Purchase Order # : \$C\$10382775	SCS10	382775	Pac	Pace Project Manager:	Ref:				1.05					ŢŢ	5.00
و	Quote #:			Det.	betsy.mcdaniel@p	iel@pacelabs.com		4				<u> </u>			Sufficient Volume :	
signature):	Turnaround Date Required:	tequire	;p		Immediately Packed	Packed on Ice:				<u>.</u>				ે દેશમાં	Samples Received on Ice XN NR VON - Headspace Acceptable YN ND	X
Т	Rush:			<u> 교</u> 문	Field Filtered (if ap	l (if applicable):				13(1)				2.4		
4	[] San	ne Day] Same Day [] Next Day		[] Yes [] No				in st The	294					alorine Present	N
	[] 2 Day [] 3 (Expe	3 Day (dite Cha	<pre>[] 2 Day [] 3 Day [] 4 Day [] 5 Day (Expedite Charges AppN)</pre>		Analvsis:					hita ya					CL Strips: Sample pH Acceptable	
			11.14						0	tu jak		{			pH Strips: Sulfide Present	
 Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW) Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Water (WT), Other (OT) 	ow): Drinking Wa pe (WP), Air (AR)	ter (DW , Tissue	/), Ground Water (G (TS), Bioassay (B), V	sw), wa Water (V	stewater (WW), VT), Other (OT)				pλ 300 ⁻	VI qqı		226.228			ps: ments:	
Customer Sample ID	Matrix * C	Comp / Grab	Collected (or Composite Start)		Composite End	nd Res	s # of Ctns		oride	s elet		unip		i. Sili		
			Date Time	e e	Date	Tane			nIJ	эM		вЯ				
BRGWC-17S	GW 6	<u>ں</u>		8	8/28/2019	12:35	9		1	التا 1	3	4	- 1946 1947		「「「「「「「」」」」「「「「」」」」」」「「「」」」」」」」	
BRGWC-34S	GW 0	5		8	8/28/2019	13:21	4		1	1		2				
BRGWC-35S	e M	ט ט		8/	8/28/2019	12:08	4		1 83	1		2				E
BRGWC-36S	┢	<u>ں</u>		8	8/28/2019	11:36	4		1	<u> </u>	1.2.2.2 (2.2.2)	7	1913 - 1913 1913 - 1913			
BRGWC-37S		ს ს		8/	8/28/2019	14:32	4		1	1	1 N N	2				
EB-2	WT 6	ט		8/	8/28/2019	12:59	4		1	न ्रि		2				1.5
FB-2	WT 0	ט		8/	8/28/2019	11:50	4		第 1	न हुर्	14. 14. 14. 14. 14. 14. 14. 14. 14. 14.	2		्य २ २ २ ब्रोहेड्		្លាំ
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Customer Remarks / Special Conditions / Possible Hazards:	/ Possible Hazard	ds:	Type of Ice Used:		Wet Blue	Dry None	le .		SHORT	SHORT HOLDS PRESENT (<72 hours):	RESEN	ţ <u>z</u>	jurs): V 🎝	N/N/N	A A IMAB Sample Temperature Info:	<u>.</u>
wetais : ng. su, as, as, as, bu, cu, cu, ru, u, wu, se, u Rad-2 collected at BRGWC-175	o, Li, Mo, Xe, II		Padding Material Used	Usedt	XIX				Lab Tradding #	Hand Hand						
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Relinquished by/Company: (Signature)		Dat	Date/Time:	Rec	Received by/Company: (Signature)	any: (Signatur	(a		Dat	Date/Time			M: 19:		Non Contormatice(S) Page:	(



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

September 24, 2019

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

RE: Project: Plant Branch Pace Project No.: 2622564

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on August 29, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Batery Mr Damil

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

Enclosures

cc: Kristen Jurinko, Golder Associates Inc.
 Julie Lehrman, Golder Associates Inc.
 Dawn Prell, Golder Associates Inc.
 Eric Rolle, Georgia Power - Coal Combustion Residuals
 Rebecca Thornton, Pace Analytical Atlanta





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

CERTIFICATIONS

Project: Plant Branch Pace Project No.: 2622564

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601 ANAB DOD-ELAP Rad Accreditation #: L2417 Alabama Certification #: 41590 Arizona Certification #: AZ0734 Arkansas Certification California Certification #: 04222CA Colorado Certification #: PA01547 Connecticut Certification #: PH-0694 **Delaware Certification** EPA Region 4 DW Rad Florida/TNI Certification #: E87683 Georgia Certification #: C040 Florida: Cert E871149 SEKS WET **Guam Certification** Hawaii Certification Idaho Certification **Illinois Certification** Indiana Certification Iowa Certification #: 391 Kansas/TNI Certification #: E-10358 Kentucky Certification #: KY90133 KY WW Permit #: KY0098221 KY WW Permit #: KY0000221 Louisiana DHH/TNI Certification #: LA180012 Louisiana DEQ/TNI Certification #: 4086 Maine Certification #: 2017020 Maryland Certification #: 308 Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991

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



SAMPLE SUMMARY

Project: Plant Branch Pace Project No.: 2622564

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2622564001	BRGWC-17S	Water	08/28/19 12:35	08/29/19 11:15
2622564002	BRGWC-34S	Water	08/28/19 13:21	08/29/19 11:15
2622564003	BRGWC-35S	Water	08/28/19 12:08	08/29/19 11:15
2622564004	BRGWC-36S	Water	08/28/19 11:36	08/29/19 11:15
2622564005	BRGWC-37S	Water	08/28/19 14:32	08/29/19 11:15
2622564006	EB-2	Water	08/28/19 12:59	08/29/19 11:15
2622564007	FB-2	Water	08/28/19 11:50	08/29/19 11:15



SAMPLE ANALYTE COUNT

Project: Plant Branch Pace Project No.: 2622564

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2622564001	BRGWC-17S	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622564002	BRGWC-34S	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622564003	BRGWC-35S	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622564004	BRGWC-36S	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622564005	BRGWC-37S	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622564006	EB-2	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622564007	FB-2	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA



Project: Plant Branch

Pace Project No.: 2622564

Sample: BRGWC-17S PWS:	Lab ID: 26225640 Site ID:	Collected: 08/28/19 12:35 Sample Type:	Received:	08/29/19 11:15	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.240 ± 0.244 (0.495) C:89% T:NA	pCi/L	09/12/19 08:18	3 13982-63-3	
Radium-228		-0.314 ± 0.544 (1.32) C:68% T:88%	pCi/L	09/19/19 18:47	7 15262-20-1	
Total Radium	Total Radium Calculation	0.240 ± 0.788 (1.82)	pCi/L	09/23/19 11:58	3 7440-14-4	



Project: Plant Branch

Pace Project No.: 2622564

Sample: BRGWC-34S PWS:	Lab ID: 26225640 Site ID:	Collected: 08/28/19 13:21 Sample Type:	Received:	08/29/19 11:15	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.364 ± 0.222 (0.320) C:92% T:NA	pCi/L	09/12/19 08:25	5 13982-63-3	
Radium-228	EPA 9320	0.447 ± 0.574 (1.22) C:67% T:84%	pCi/L	09/19/19 18:48	3 15262-20-1	
Total Radium	Total Radium Calculation	0.811 ± 0.796 (1.54)	pCi/L	09/23/19 11:58	3 7440-14-4	



Project: Plant Branch

Pace Project No.: 2622564

Sample: BRGWC-35S PWS:	Lab ID: 26225640 Site ID:	Collected: 08/28/19 12:08 Sample Type:	Received:	08/29/19 11:15 I	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.294 ± 0.231 (0.408) C:85% T:NA	pCi/L	09/12/19 08:18	13982-63-3	
Radium-228	EPA 9320	0.701 ± 0.658 (1.35) C:60% T:89%	pCi/L	09/19/19 18:47	15262-20-1	
Total Radium	Total Radium Calculation	0.995 ± 0.889 (1.76)	pCi/L	09/23/19 11:58	7440-14-4	



Project: Plant Branch

Pace Project No.: 2622564

Sample: BRGWC-36S PWS:	Lab ID: 26225640 Site ID:	Collected: 08/28/19 11:36 Sample Type:	Received:	08/29/19 11:15 I	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.541 ± 0.277 (0.359) C:79% T:NA	pCi/L	09/12/19 08:17	13982-63-3	
Radium-228	EPA 9320	0.325 ± 0.564 (1.23) C:68% T:87%	pCi/L	09/19/19 18:46	5 15262-20-1	
Total Radium	Total Radium Calculation	0.866 ± 0.841 (1.59)	pCi/L	09/23/19 11:58	7440-14-4	



Project: Plant Branch

Pace Project No.: 2622564

Sample: BRGWC-37S PWS:	Lab ID: 26225640 Site ID:	Collected: 08/28/19 14:32 Sample Type:	Received:	08/29/19 11:15	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.435 ± 0.295 (0.514) C:88% T:NA	pCi/L	09/12/19 08:26	3 13982-63-3	
Radium-228	EPA 9320	0.374 ± 0.517 (1.11) C:69% T:83%	pCi/L	09/19/19 18:48	3 15262-20-1	
Total Radium	Total Radium Calculation	0.809 ± 0.812 (1.62)	pCi/L	09/23/19 11:58	8 7440-14-4	



Project: Plant Branch

Pace Project No.: 2622564

Sample: EB-2 PWS:	Lab ID: 26225640 Site ID:	Collected: 08/28/19 12:59 Sample Type:	Received:	08/29/19 11:15	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.196 ± 0.202 (0.389) C:78% T:NA	pCi/L	09/12/19 08:2	5 13982-63-3	
Radium-228	EPA 9320	0.778 ± 0.588 (1.16) C:67% T:90%	pCi/L	09/19/19 18:48	3 15262-20-1	
Total Radium	Total Radium Calculation	0.974 ± 0.790 (1.55)	pCi/L	09/23/19 11:58	3 7440-14-4	



Project: Plant Branch

Pace Project No.: 2622564

Sample: FB-2 PWS:	Lab ID: 2622564 Site ID:	007 Collected: 08/28/19 11:50 Sample Type:	Received:	08/29/19 11:15	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.362 ± 0.235 (0.382) C:93% T:NA	pCi/L	09/12/19 08:17	7 13982-63-3	
Radium-228	EPA 9320	0.545 ± 0.582 (1.21) C:67% T:84%	pCi/L	09/19/19 18:47	7 15262-20-1	
Total Radium	Total Radium Calculation	0.907 ± 0.817 (1.59)	pCi/L	09/23/19 11:58	3 7440-14-4	



QUALITY CONTROL - RADIOCHEMISTRY

Project:	Plant Branch					
Pace Project No.:	2622564					
QC Batch:	359954		Analysis Method:	EPA 9320		
QC Batch Method:	EPA 9320		Analysis Description:	9320 Radium 22	8	
Associated Lab Sa	mples: 26225640	001, 2622564002, 262	22564003, 2622564004, 2	622564005, 262256	4006, 2622564007	
METHOD BLANK:	1747365		Matrix: Water			
Associated Lab Sa	mples: 26225640	001, 2622564002, 262	22564003, 2622564004, 2	622564005, 262256	4006, 2622564007	
Para	meter	Act ± Unc	(MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228 0.0188 ± 0.324 (0.758)		758) C:68% T:80%	pCi/L	09/19/19 15:18		

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



QUALITY CONTROL - RADIOCHEMISTRY

Project:	Plant Branch					
Pace Project No .:	2622564					
QC Batch:	359953	Analysis Method:	EPA 9315			
QC Batch Method: EPA 9315		Analysis Description:	9315 Total Radi	ium		
Associated Lab Sa	mples: 2622564	001, 2622564002, 2622564003, 2622564004, 26	622564005, 26225	64006, 2622564007		
METHOD BLANK: 1747363 Matrix: Water						
Associated Lab Samples: 2622564001, 2622564002, 2622564003, 2622564004, 2622564005, 2622564006, 2622564007						
Parameter Act ± Uno		Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-226 0.412 ± 0.223 (0.263)		0.412 ± 0.223 (0.263) C:94% T:NA	pCi/L	09/12/19 08:42		

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



QUALIFIERS

Project:	Plant Branch
Pace Project No .:	2622564

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:	Plant Branch
Pace Project No .:	2622564

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2622564001	BRGWC-17S	EPA 9315	359953		
2622564002	BRGWC-34S	EPA 9315	359953		
2622564003	BRGWC-35S	EPA 9315	359953		
2622564004	BRGWC-36S	EPA 9315	359953		
2622564005	BRGWC-37S	EPA 9315	359953		
2622564006	EB-2	EPA 9315	359953		
2622564007	FB-2	EPA 9315	359953		
2622564001	BRGWC-17S	EPA 9320	359954		
2622564002	BRGWC-34S	EPA 9320	359954		
2622564003	BRGWC-35S	EPA 9320	359954		
2622564004	BRGWC-36S	EPA 9320	359954		
2622564005	BRGWC-37S	EPA 9320	359954		
2622564006	EB-2	EPA 9320	359954		
2622564007	FB-2	EPA 9320	359954		
2622564001	BRGWC-17S	Total Radium Calculation	362616		
2622564002	BRGWC-34S	Total Radium Calculation	362616		
2622564003	BRGWC-35S	Total Radium Calculation	362616		
2622564004	BRGWC-36S	Total Radium Calculation	362616		
2622564005	BRGWC-37S	Total Radium Calculation	362616		
2622564006	EB-2	Total Radium Calculation	362616		
2622564007	FB-2	Total Radium Calculation	362616		



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

December 17, 2019

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

RE: Project: Plant Branch Pace Project No.: 2622604

Dear Joju Abraham:

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

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

Sincerely,

Kein Hung

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

Enclosures

cc: Julie Lehrman, Golder Associates Inc.
 Dawn Prell, Golder Associates Inc.
 Eric Rolle, Georgia Power - Coal Combustion Residuals
 Rebecca Thornton, Pace Analytical Atlanta





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

CERTIFICATIONS

Project: Plant Branch Pace Project No.: 2622604

Pace Analytical Services Atlanta

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

Pace Analytical Services Asheville

2225 Riverside Drive, Asheville, NC 28804 Florida/NELAP Certification #: E87648 Massachusetts Certification #: M-NC030 North Carolina Drinking Water Certification #: 37712 North Carolina Certification #: 381 South Carolina Certification #: 98011001 Virginia Certification #: 460204

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



SAMPLE SUMMARY

Project: Pace Project No.:	Plant Branch 2622604			
Lab ID	Sample ID	Matrix	Date Collected	Date Received
2622604001	BRGWC-38S	Water	08/29/19 15:29	08/30/19 08:00



SAMPLE ANALYTE COUNT

		Analytes
Pace Project No.:	2622604	
Project:	Plant Branch	

Method	Analvsts	Analytes Reported	Laboratory	
EPA 6020B			PASLGA	-
EPA 7470A	DRB	1	PASI-GA	
EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A	
•	EPA 6020B EPA 7470A	EPA 6020BKLHEPA 7470ADRB	MethodAnalystsReportedEPA 6020BKLH12EPA 7470ADRB1	MethodAnalystsReportedLaboratoryEPA 6020BKLH12PASI-GAEPA 7470ADRB1PASI-GA



Project: Plant Branch

Pace Project No.: 2622604

Sample: BRGWC-38S	Lab ID:	2622604001	Collecte	ed: 08/29/19	9 15:29	Received: 08/	'30/19 08:00 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	09/04/19 14:00	09/06/19 15:38	7440-36-0	
Arsenic	0.0013J	mg/L	0.0050	0.00035	1	09/04/19 14:00	09/06/19 15:38	7440-38-2	
Barium	0.016	mg/L	0.010	0.00049	1	09/04/19 14:00	09/06/19 15:38	7440-39-3	
Beryllium	0.0088	mg/L	0.0030	0.000074	1	09/04/19 14:00	09/06/19 15:38	7440-41-7	
Cadmium	0.00053J	mg/L	0.0025	0.00011	1	09/04/19 14:00	09/06/19 15:38	7440-43-9	
Chromium	0.0044J	mg/L	0.010	0.00039	1	09/04/19 14:00	09/06/19 15:38	7440-47-3	
Cobalt	0.21	mg/L	0.0050	0.00030	1	09/04/19 14:00	09/06/19 15:38	7440-48-4	
Lead	0.00035J	mg/L	0.0050	0.000046	1	09/04/19 14:00	09/06/19 15:38	7439-92-1	
Lithium	0.021J	mg/L	0.030	0.00078	1	09/04/19 14:00	09/06/19 15:38	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	09/04/19 14:00	09/06/19 15:38	7439-98-7	
Selenium	0.036	mg/L	0.010	0.0013	1	09/04/19 14:00	09/06/19 15:38	7782-49-2	
Thallium	0.00021J	mg/L	0.0010	0.000052	1	09/04/19 14:00	09/06/19 15:38	7440-28-0	
7470 Mercury	Analytical	Method: EPA	7470A Pre	paration Met	hod: EF	PA 7470A			
Mercury	0.00018J	mg/L	0.00050	0.00014	1	09/05/19 09:07	09/05/19 13:44	7439-97-6	
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0 Rev 2	2.1 1993					
Fluoride	0.90	mg/L	0.10	0.050	1		09/06/19 20:21	16984-48-8	



Project:	Plant Branch											
Pace Project No.:	2622604											
QC Batch:	34720		Analy	sis Metho	d: E	EPA 7470A						
QC Batch Method:	EPA 7470A		Analy	sis Descri	ption: 7	470 Mercu	ıry					
Associated Lab Sar	mples: 262260400)1										
METHOD BLANK:	156270			Matrix: W	ater							
Associated Lab Sar	mples: 262260400)1										
5			Blan		Reporting							
Parar	meter	Units	Resu		Limit	MD	L	Analyze	d Qi	ualifiers		
Mercury		mg/L		ND	0.0005	0 0.	00014	09/05/19 12	2:57			
LABORATORY CO	NTROL SAMPLE:	156271										
LABORATORY CO	NTROL SAMPLE:	156271	Spike	LC	s	LCS	%	6 Rec				
LABORATORY CO		156271 Units	Spike Conc.	LC Res	-	LCS % Rec		6 Rec Limits	Qualifiers			
			•	Res	-		L		Qualifiers			
Parar		Units mg/L	Conc0.002	Res	sult	% Rec	L	imits	Qualifiers			
Parar Mercury	meter	Units mg/L	Conc0.002	Res	0.0025	% Rec	L	imits	Qualifiers	_		
Parar Mercury	meter	Units mg/L	- Conc. 0.002	Res	0.0025	% Rec	9 MS	.imits 80-120 MSD	Qualifiers	_	Мах	
Parar	MATRIX SPIKE DUP	Units mg/L LICATE: 1562	- Conc. 0.002 72 MS	5 Res	0.0025 156273	% Rec 9	9 	.imits 80-120 MSD		RPD	Max RPD	Qual

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



Project: Plant Branch

Pace Project No.: 2622604						
QC Batch: 34718		Analysis Meth	hod: EPA	6020B		
QC Batch Method: EPA 3005A		Analysis Des	cription: 6020	DB MET		
Associated Lab Samples: 262260400	01					
METHOD BLANK: 156264		Matrix:	Water			
Associated Lab Samples: 262260400	01					
		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	09/06/19 14:47	
Arsenic	mg/L	ND	0.0050	0.00035	09/06/19 14:47	
Barium	mg/L	ND	0.010	0.00049	09/06/19 14:47	
Beryllium	mg/L	ND	0.0030	0.000074	09/06/19 14:47	
Cadmium	mg/L	ND	0.0025	0.00011	09/06/19 14:47	
Chromium	mg/L	ND	0.010	0.00039	09/06/19 14:47	
Cobalt	mg/L	ND	0.0050	0.00030	09/06/19 14:47	
Lead	mg/L	ND	0.0050	0.000046	09/06/19 14:47	
Lithium	mg/L	ND	0.030	0.00078	09/06/19 14:47	
Molybdenum	mg/L	ND	0.010	0.00095	09/06/19 14:47	
Selenium	mg/L	ND	0.010	0.0013	09/06/19 14:47	

LABORATORY CONTROL SAMPLE: 156265

Thallium

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
ntimony	mg/L	0.1	0.11	106	80-120	
rsenic	mg/L	0.1	0.10	101	80-120	
arium	mg/L	0.1	0.10	101	80-120	
eryllium	mg/L	0.1	0.10	101	80-120	
admium	mg/L	0.1	0.10	101	80-120	
nromium	mg/L	0.1	0.099	99	80-120	
obalt	mg/L	0.1	0.098	98	80-120	
ad	mg/L	0.1	0.097	97	80-120	
nium	mg/L	0.1	0.10	101	80-120	
blybdenum	mg/L	0.1	0.10	102	80-120	
lenium	mg/L	0.1	0.098	98	80-120	
allium	mg/L	0.1	0.099	99	80-120	

ND

mg/L

0.0010

0.000052 09/06/19 14:47

MATRIX SPIKE & MATRIX	SPIKE DUPLI	CATE: 1562	66		156267							
Parameter	Units	2622596001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.11	0.11	107	106	75-125	2	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.098	101	98	75-125	4	20	
Barium	mg/L	0.076	0.1	0.1	0.18	0.17	102	98	75-125	2	20	
Beryllium	mg/L	ND	0.1	0.1	0.099	0.098	99	98	75-125	1	20	
Cadmium	mg/L	ND	0.1	0.1	0.10	0.099	101	98	75-125	3	20	

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

REPORT OF LABORATORY ANALYSIS

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Project: Plant Branch Pace Project No.: 2622604

MATRIX SPIKE & MATRIX	SPIKE DUPL	ICATE: 1562	66		156267							
Parameter	Units	2622596001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chromium	mg/L	0.0016J	0.1	0.1	0.10	0.10	101	101	75-125	0	20	
Cobalt	mg/L	0.0015J	0.1	0.1	0.10	0.10	100	100	75-125	1	20	
Lead	mg/L	0.000070J	0.1	0.1	0.10	0.10	101	100	75-125	0	20	
Lithium	mg/L	0.0070J	0.1	0.1	0.11	0.10	98	97	75-125	2	20	
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	102	102	75-125	0	20	
Selenium	mg/L	0.0023J	0.1	0.1	0.098	0.099	96	97	75-125	1	20	
Thallium	mg/L	ND	0.1	0.1	0.10	0.10	101	100	75-125	1	20	

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

REPORT OF LABORATORY ANALYSIS

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Project:	Plant Branch											
Pace Project No.:	2622604		٨٣٠٠	vaia Matha	J. r	EPA 300.0		002				
	496440	4 4000	-	sis Metho				993				
QC Batch Method:	EPA 300.0 Rev 2.		Analy	sis Descri	otion:	300.0 IC An	ions					
Associated Lab Sam	nples: 262260400)1										
METHOD BLANK:	2673683			Matrix: W	ater							
Associated Lab Sam	nples: 262260400)1										
			Blar	nk l	Reporting							
Param	neter	Units	Res	ult	Limit	MD	L	Analyzed	Qı	ualifiers		
Fluoride		mg/L		ND	0.1	0	0.050	09/06/19 13:4	48			
LABORATORY CON	ITROL SAMPLE:	2673684										
			Spike	LC		LCS		Rec				
Param	neter	Units	Conc.	Res	ult	% Rec	Lir	nits (Qualifiers	_		
Fluoride		mg/L	2.	5	2.4	9	8	90-110				
MATRIX SPIKE & M	ATRIX SPIKE DUP	_ICATE: 2673	685		2673686	i						
			MS	MSD								
		2622572001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Fluoride	mg/L	0.78	2.5	2.5	4.9	4.8	16	4 160	90-110	2	10	M1
MATRIX SPIKE & M	ATRIX SPIKE DUP	_ICATE: 2673	687		2673688							
			MS	MSD								
		2622502009	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Fluoride	mg/L	ND	2.5	2.5	3.1	2.7	12	4 106	90-110	16	10	M1,R1

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



QUALIFIERS

Project:	Plant Branch
Pace Project No .:	2622604

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-A Pace Analytical Services - Asheville

PASI-GA Pace Analytical Services - Atlanta, GA

ANALYTE QUALIFIERS

- M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- R1 RPD value was outside control limits.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Branch Pace Project No.: 2622604

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2622604001	BRGWC-38S	EPA 3005A	34718	EPA 6020B	34727
2622604001	BRGWC-38S	EPA 7470A	34720	EPA 7470A	34792
2622604001	BRGWC-38S	EPA 300.0 Rev 2.1 1993	496440		

	09/09/19						Su ve		A N N		D' A	9	Y N NA	<u>х</u> и N										N NA	ctors 0 oc		-N NA Other	
W0#:2622604				11111日 - 1111日日 - 111日日 - 11	reservative types, (1) interesting (2) sodium thiosufface, (9) hexane, (A) ascorbic acid, (8) ammonium suffate, (6) methanol, (7) sodium bisulface, (8) sodium thiosufface, (9) hexane, (A) ascorbic acid, (8) ammonium suffate,	Lab Profile/Line:	0 0			Sufficient Volume Samples Received on Ice VOA - Headspace Acceptable	A Regulated Solls	ų	Sample pH Acceptable	8 9 7 4									LAB Sample Temperature (ptp	Temp Blank Received N NA Therm 10#: 7 [4 000 N NA	cooler 1 Them Corr. Factors 0 oc		ThpBlanKReceived: Y. N. NA HG. MeOH TSP. Other	
				trinita la	osulfate, (9) hexane, (A)						50		<u>5 0 0</u>		1					2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2		4 1997-1994	N N/N		Pade Courier	MTJL-LAB/USE ONLY Table #	Acchum: ************************************	
22604					isulfate, (8) sodium this	(U) ISP, (U) Unpreserve Analyses								526.228			5						SHORT HOLDS PRESENT (<72 hours) : X		ed via.	HAR -	3	
WO# : 2622604					methanol, (7) sodium b	(c) ammonium nydroxide, (v) 15P, (v) Unpreserved, (v) Uner Analyses	- 20.0							0.00£ yd VI qq	l ebinc als af								SHORT HOLDS P	Lab.Tradung#: V	Samples received via: FEDEX UPS	8/Date/Tige	Date/Time:	-
			4007707		<u>(e)</u>		ected:								Res # of C1 Cms		<u> </u>						None		N N	atured	(§lgnature)	
ical Request Document	NT - Complete all relevent fields			southernco.com	dress: Plant Branch	- 1	Milledgeville Time Zone Collected: []PT []MT []CT [X]ET	1 25	Pace Project Manager:		Field Filtered (if applicable):	[] Yes [] No	Analysis:	Wastewater (WW), er (WT), Other (OT)	Composite End	Date Time	8/29/2019 529						(Wet) Blue Dry		Radchem sample(s) screened (<500 cpm): ************************************	Repetited by Coppany: (Supature)	Received by/Company: (gign:	
CHAIN-OF-CUSTODY Analytical Req	ly is a LEGAL DOCUME	duals Billing Information:		Email To: scsinvoices@southernco	Site Collection Info/Address: Plant		State: Georgia City: Milledgeville []PT []MT		12775] Next Day	[] 2 Uay [] 3 Uay [] 4 Uay [] 5 Day (Expedite Charges Apply)	, Ground Water (GW), TS), Bioassay (B), Wate	Collected (or Composite Start)	Date Time							Type of Ice Used:	Packing Material Used:	Radchem sample(s) so	Date/Time: K-21)19/0%Y)		
AIN-OF-CI	hain-of-Custoc	als						Project Name: Plant Branch E # CCR	Purchase Order # : SCS10382775	Turnaround Date Required:] Same Day [] Next Day	[] 3 Day [] 4 Day [(Expedite Charges Apply)	g Water (DW) r (AR), Tissue (Comp / Grah		υ						rds:			Date/	Date/Time:	
CH	Ċ	hustion Residu						Project Name # CCR	Purchase Ord	Turnaround [Rush:		1 1 2 Day	below): Drinkin , Wipe (WP), Air	Matrix *		GW			 	 		ons / Possible H	o, Pb, Lj, Mo, Se , (Gw (- 333	• •	بر لوق	re)	
Part And Alad		Company: Georgia Power - Coal Combustion Residuals	Address: 2480 Maner Road	Report To: Joju Abraham	Copy To: Golder		phone: (404) 506-7239 Email: jabraham@southernco.com	Phone: (404) 506-7239 Email: labraham@southernco.com	Collected By (print):	Collected By (signature):				 Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW) Product (P), Soil/Soild (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Water (WT), Other (OT) 	Customer Sample ID		BRGWC-38S						Customer Remarks / Special Conditions / Possible Hazards:	Metals: Hg, Sb, As, Ba, Be, Cd, Cr, Co, Ph, Ll, Mo, Se, Tl レット・シュトロト の ちんじゃしょ 335		Relinquished by/Company; (Signature)	Relinquished by/Company: (Signature)	



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

September 24, 2019

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

RE: Project: Plant Branch Pace Project No.: 2622605

Dear Joju Abraham:

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

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

Sincerely,

Batery Mr Damil

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

Enclosures

cc: Kristen Jurinko, Golder Associates Inc.
 Julie Lehrman, Golder Associates Inc.
 Dawn Prell, Golder Associates Inc.
 Eric Rolle, Georgia Power - Coal Combustion Residuals
 Rebecca Thornton, Pace Analytical Atlanta





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

CERTIFICATIONS

Project: Plant Branch Pace Project No.: 2622605

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601 ANAB DOD-ELAP Rad Accreditation #: L2417 Alabama Certification #: 41590 Arizona Certification #: AZ0734 Arkansas Certification California Certification #: 04222CA Colorado Certification #: PA01547 Connecticut Certification #: PH-0694 **Delaware Certification** EPA Region 4 DW Rad Florida/TNI Certification #: E87683 Georgia Certification #: C040 Florida: Cert E871149 SEKS WET **Guam Certification** Hawaii Certification Idaho Certification **Illinois Certification** Indiana Certification Iowa Certification #: 391 Kansas/TNI Certification #: E-10358 Kentucky Certification #: KY90133 KY WW Permit #: KY0098221 KY WW Permit #: KY0000221 Louisiana DHH/TNI Certification #: LA180012 Louisiana DEQ/TNI Certification #: 4086 Maine Certification #: 2017020 Maryland Certification #: 308 Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991

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



SAMPLE SUMMARY

Project: Pace Project No.:	Plant Branch 2622605			
Lab ID	Sample ID	Matrix	Date Collected	Date Received
2622605001	BRGWC-38S	Water	08/29/19 15:29	08/30/19 08:00



SAMPLE ANALYTE COUNT

		Apolytoc
Pace Project No.:	2622605	
Project:	Plant Branch	

				Analytes	
Lab ID	Sample ID	Method	Analysts	Reported	Laboratory
2622605001	BRGWC-38S	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Branch

Pace Project No.: 2622605

Sample: BRGWC-38S PWS:	Lab ID: 26226050 Site ID:	Collected: 08/29/19 15:29 Sample Type:	Received:	08/30/19 08:00	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	1.37 ± 0.424 (0.311) C:91% T:NA	pCi/L	09/12/19 08:42	2 13982-63-3	
Radium-228	EPA 9320	2.31 ± 0.668 (0.756) C:67% T:84%	pCi/L	09/19/19 15:18	3 15262-20-1	
Total Radium	Total Radium Calculation	3.68 ± 1.09 (1.07)	pCi/L	09/23/19 11:58	3 7440-14-4	



QUALITY CONTROL - RADIOCHEMISTRY

Analysis Method: Analysis Description:	EPA 9320 9320 Radium 228		
Analysis Description:	9320 Radium 228		
Matrix: Water			
c (MDC) Carr Trac	Units	Analyzed	Qualifiers
758) C:68% T:80%	pCi/L	09/19/19 15:18	
	(MDC) Carr Trac	(MDC) Carr Trac Units	(MDC) Carr Trac Units Analyzed

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



QUALITY CONTROL - RADIOCHEMISTRY

Project:	Plant Branch				
Pace Project No.:	2622605				
QC Batch:	359953	Analysis Method:	EPA 9315		
QC Batch Method:	EPA 9315	Analysis Description:	9315 Total Radi	ium	
Associated Lab Sar	nples: 26226050	001			
METHOD BLANK:	1747363	Matrix: Water			
Associated Lab Sar	mples: 26226050	001			
Parar	neter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226		0.412 ± 0.223 (0.263) C:94% T:NA	pCi/L	09/12/19 08:42	

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



QUALIFIERS

Project:	Plant Branch
Pace Project No .:	2622605

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:Plant BranchPace Project No.:2622605

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2622605001	BRGWC-38S	EPA 9315	359953		
2622605001	BRGWC-38S	EPA 9320	359954		
2622605001	BRGWC-38S	Total Radium Calculation	362615		

: 2622605 WO# : 2622605	PM: BM Due Date: 09/30/19	CLIENT: GAPower-CCR		<u>방영화 [광유방] 수 [양유방] 수 [양유방국] - [Fet Stell</u>] •• Presenative Types: (1) nitric acid, (2) suffuric acid, (3) hydrochlaric acid, (4) sodium hydroxide, (5) zinc acctate,	(6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (8) ammonium suffate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other	tab Prof	Check List	Culticol (1991) Culticol (1991	ataot	ð			00	suiride Present 7 N 2 N 2 Suiride Present 7 N 2 N 2 N 2 N 2 N 2 N 2 N 2 N 2 N 2 N			「「「「「「「「」」」「「「」」」「「」」」「「」」」「「」」」「「」」」「「」」」」								Provide the second second second second second second second second second second second second second second s	S NEEDAN (X.V. 19945) - YOUNG IN THE TANK NO AND AND AND AND AND AND AND AND AND AND	A CONTRACT AND AND A CONTRACT CONTRACT TO A CONTRACT TO A CONTRACT AND A CONTRACT AND A CONTRACT A CONTRA	s and purity have control to coster 1	Prys: D. DOU Table 2010	Second and a second second second second second second second second second second second second second second	
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CHAIN-OF-CUSTODY Analytical	Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields	nation:		Email To: scsinvoices@southernco.com	Site Collection Info/Address: Plant Branch		State: Georgia City: Milledg	Projec					y 5 Day	ater (GW y (B), W2	ed (or Start)	Time										Type of loe Used: Packing Material Use		Radchem sample(s) screene	(A&U)		
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E	£	Company: Georgia Power - Coal Combustion Residuals						Project Name: Plant Branch E		Purchase Order # : SCS10382775 Quote #:	Turnaround Date Required:		[] Same Day [] Next Day [] 2 Day [] 3 Day [] 4 Day [] 5 Day (Expedite Charges Apply)	Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Water (WT), Other (OT)	Matrix •		8 ولا									Customer Kemarks / Special Conditions / Possible Hazards: Metals: Hg, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Lj, Mo, Se, Tl 	2				
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	$\sum_{i=1}^{n}$	Compar	Atlanta.	Report	Copy To: Golder		Email: ja	Phone: (Cindu: Ja	Louiected By (print): していっ イト	Collected By (signature):			• Matrix Product	Customer Sample ID		BRGWC-38S									Aetals : I	Rad-		elinquis D'	elinquis	



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

December 17, 2019

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

RE: Project: Plant Branch E Pace Project No.: 2624389

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on October 16, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Kein Hung

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

Enclosures

cc: Julie Lehrman, Golder Associates Inc.
 Dawn Prell, Golder Associates Inc.
 Eric Rolle, Georgia Power - Coal Combustion Residuals
 Rebecca Thornton, Pace Analytical Atlanta





CERTIFICATIONS

Project: Plant Branch E Pace Project No.: 2624389

Pace Analytical Services Atlanta

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



SAMPLE SUMMARY

Project: Plant Branch E Pace Project No.: 2624389

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624389001	BRGWA-6S	Water	10/15/19 08:45	10/16/19 12:30
2624389002	BRGWA-5S	Water	10/15/19 09:00	10/16/19 12:30
2624389003	BRGWA-5I	Water	10/15/19 10:20	10/16/19 12:30
2624389004	BRGWA-2S	Water	10/15/19 09:55	10/16/19 12:30
2624389005	BRGWA-2I	Water	10/15/19 11:17	10/16/19 12:30



SAMPLE ANALYTE COUNT

Project: Plant Branch E Pace Project No.: 2624389

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2624389001	BRGWA-6S	EPA 6020B	CSW	14
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2624389002	BRGWA-5S	EPA 6020B	CSW	14
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2624389003	BRGWA-5I	EPA 6020B	CSW	14
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
624389004	BRGWA-2S	EPA 6020B	CSW	14
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2624389005	BRGWA-2I	EPA 6020B	CSW	14
		SM 2540C	ALW	1
		EPA 300.0	MWB	3



Project: Plant Branch E

Pace Project No.: 2624389

Sample: BRGWA-6S	Lab ID:	2624389001	Collect	ed: 10/15/1	9 08:45	Received: 10/	/16/19 12:30 Ma	atrix: Water	
Denversion	Desults	11-26-	Report		55	Davasa	A s s h s s s d	040 N	Qual
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Me	thod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	10/20/19 16:44	10/22/19 19:43	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	10/20/19 16:44	10/22/19 19:43	7440-38-2	
Barium	0.013	mg/L	0.010	0.00049	1	10/20/19 16:44	10/22/19 19:43	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	10/20/19 16:44	10/22/19 19:43	7440-41-7	
Boron	0.010J	mg/L	0.040	0.0049	1	10/20/19 16:44	10/22/19 19:43	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	10/20/19 16:44	10/22/19 19:43	7440-43-9	
Calcium	3.5	mg/L	0.10	0.011	1	10/20/19 16:44	10/22/19 19:43	7440-70-2	
Chromium	0.014	mg/L	0.010	0.00039	1	10/20/19 16:44	10/22/19 19:43	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	10/20/19 16:44	10/22/19 19:43	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	10/20/19 16:44	10/22/19 19:43	7439-92-1	
Lithium	0.0024J	mg/L	0.030	0.00078	1	10/20/19 16:44	10/22/19 19:43	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/20/19 16:44	10/22/19 19:43	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	10/20/19 16:44	10/22/19 19:43	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	10/20/19 16:44	10/22/19 19:43	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	63.0	mg/L	10.0	10.0	1		10/18/19 10:45		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	2.4	mg/L	1.0	0.024	1		10/21/19 19:30	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		10/21/19 19:30	16984-48-8	
Sulfate	0.48J	mg/L	1.0	0.017	1		10/21/19 19:30	14808-79-8	
		-							



Project: Plant Branch E

Pace Project No.: 2624389

Sample: BRGWA-5S	Lab ID:	2624389002	Collecte	ed: 10/15/19	9 09:00	Received: 10/	/16/19 12:30 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Me	thod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	10/20/19 16:44	10/22/19 19:55	7440-36-0	
Arsenic	0.00039J	mg/L	0.0050	0.00035	1	10/20/19 16:44	10/22/19 19:55	7440-38-2	В
Barium	0.049	mg/L	0.010	0.00049	1	10/20/19 16:44	10/22/19 19:55	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	10/20/19 16:44	10/22/19 19:55	7440-41-7	
Boron	0.0060J	mg/L	0.040	0.0049	1	10/20/19 16:44	10/22/19 19:55	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	10/20/19 16:44	10/22/19 19:55	7440-43-9	
Calcium	20.0	mg/L	5.0	0.55	50	10/20/19 16:44	10/22/19 20:00	7440-70-2	
Chromium	0.0055J	mg/L	0.010	0.00039	1	10/20/19 16:44	10/22/19 19:55	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	10/20/19 16:44	10/22/19 19:55	7440-48-4	
Lead	0.000079J	mg/L	0.0050	0.000046	1	10/20/19 16:44	10/22/19 19:55	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	10/20/19 16:44	10/22/19 19:55	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/20/19 16:44	10/22/19 19:55	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	10/20/19 16:44	10/22/19 19:55	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	10/20/19 16:44	10/22/19 19:55	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	144	mg/L	10.0	10.0	1		10/18/19 10:46		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	3.7	mg/L	1.0	0.024	1		10/21/19 19:52	16887-00-6	
Fluoride	0.045J	mg/L	0.30	0.029	1		10/21/19 19:52	16984-48-8	
Sulfate	0.68J	mg/L	1.0	0.017	1		10/21/19 19:52	14808-79-8	



Project: Plant Branch E

Pace Project No.: 2624389

Sample: BRGWA-5I	Lab ID:	2624389003	Collecte	ed: 10/15/19	9 10:20	Received: 10/	16/19 12:30 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	- <u> </u>	Method: EPA		maration Met	thod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	10/20/19 16:44	10/22/19 20:06		
Arsenic	0.00058J	mg/L	0.0050	0.00035	1	10/20/19 16:44	10/22/19 20:06		В
Barium	0.032	mg/L	0.010	0.00049	1	10/20/19 16:44			
Beryllium	ND	mg/L	0.0030	0.000074	1	10/20/19 16:44	10/22/19 20:06	7440-41-7	
Boron	ND	mg/L	0.040	0.0049	1	10/20/19 16:44	10/22/19 20:06	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	10/20/19 16:44	10/22/19 20:06	7440-43-9	
Calcium	14.4	mg/L	5.0	0.55	50	10/20/19 16:44	10/22/19 20:12	7440-70-2	
Chromium	0.0047J	mg/L	0.010	0.00039	1	10/20/19 16:44	10/22/19 20:06	7440-47-3	
Cobalt	0.00083J	mg/L	0.0050	0.00030	1	10/20/19 16:44	10/22/19 20:06	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	10/20/19 16:44	10/22/19 20:06	7439-92-1	
Lithium	0.0020J	mg/L	0.030	0.00078	1	10/20/19 16:44	10/22/19 20:06	7439-93-2	
Molybdenum	0.0035J	mg/L	0.010	0.00095	1	10/20/19 16:44	10/22/19 20:06	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	10/20/19 16:44	10/22/19 20:06	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	10/20/19 16:44	10/22/19 20:06	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	175	mg/L	10.0	10.0	1		10/18/19 10:46		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	4.2	mg/L	1.0	0.024	1		10/21/19 20:14	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		10/21/19 20:14	16984-48-8	
Sulfate	3.8	mg/L	1.0	0.017	1		10/21/19 20:14	14808-79-8	



Project: Plant Branch E

Pace Project No.: 2624389

Sample: BRGWA-2S	Lab ID:	2624389004	Collecte	ed: 10/15/19	9 09:55	Received: 10/	/16/19 12:30 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
		01110							
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	10/20/19 16:44	10/22/19 20:18	7440-36-0	
Arsenic	0.00063J	mg/L	0.0050	0.00035	1	10/20/19 16:44	10/22/19 20:18	7440-38-2	В
Barium	0.0091J	mg/L	0.010	0.00049	1	10/20/19 16:44	10/22/19 20:18	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	10/20/19 16:44	10/22/19 20:18	7440-41-7	
Boron	ND	mg/L	0.040	0.0049	1	10/20/19 16:44	10/22/19 20:18	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	10/20/19 16:44	10/22/19 20:18	7440-43-9	
Calcium	3.7	mg/L	0.10	0.011	1	10/20/19 16:44	10/22/19 20:18	7440-70-2	
Chromium	0.0083J	mg/L	0.010	0.00039	1	10/20/19 16:44	10/22/19 20:18	7440-47-3	
Cobalt	0.00097J	mg/L	0.0050	0.00030	1	10/20/19 16:44	10/22/19 20:18	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	10/20/19 16:44	10/22/19 20:18	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	10/20/19 16:44	10/22/19 20:18	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/20/19 16:44	10/22/19 20:18	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	10/20/19 16:44	10/22/19 20:18	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	10/20/19 16:44	10/22/19 20:18	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	66.0	mg/L	10.0	10.0	1		10/18/19 10:46		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	1.9	mg/L	1.0	0.024	1		10/21/19 21:42	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		10/21/19 21:42	16984-48-8	
Sulfate	0.47J	mg/L	1.0	0.017	1		10/21/19 21:42	14808-79-8	



Project: Plant Branch E

Pace Project No.: 2624389

Sample: BRGWA-2I	Lab ID:	2624389005	Collecte	ed: 10/15/1	9 11:17	Received: 10/	/16/19 12:30 Ma	atrix: Water	
-			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Me	thod: EF	PA 3005A			
Antimony	0.00047J	mg/L	0.0030	0.00027	1	10/20/19 16:44	10/22/19 21:09	7440-36-0	
Arsenic	0.00080J	mg/L	0.0050	0.00035	1	10/20/19 16:44	10/22/19 21:09	7440-38-2	В
Barium	0.013	mg/L	0.010	0.00049	1	10/20/19 16:44	10/22/19 21:09	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	10/20/19 16:44	10/22/19 21:09	7440-41-7	
Boron	0.0067J	mg/L	0.040	0.0049	1	10/20/19 16:44	10/22/19 21:09	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	10/20/19 16:44	10/22/19 21:09	7440-43-9	
Calcium	15.1	mg/L	5.0	0.55	50	10/20/19 16:44	10/22/19 21:15	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	10/20/19 16:44	10/22/19 21:09	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	10/20/19 16:44	10/22/19 21:09	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	10/20/19 16:44	10/22/19 21:09	7439-92-1	
Lithium	0.028J	mg/L	0.030	0.00078	1	10/20/19 16:44	10/22/19 21:09		
Molybdenum	ND	mg/L	0.010	0.00095	1	10/20/19 16:44	10/22/19 21:09	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	10/20/19 16:44	10/22/19 21:09	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	10/20/19 16:44	10/22/19 21:09	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	140	mg/L	10.0	10.0	1		10/18/19 10:46		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	2.2	mg/L	1.0	0.024	1		10/21/19 22:04	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		10/21/19 22:04	16984-48-8	
Sulfate	5.2	mg/L	1.0	0.017	1		10/21/19 22:04	14808-79-8	



Project:	Plant Branch

Е

Pace Project No.: 2624389

QC Batch:	37136	6	Analysis Method:	EPA 6020B
QC Batch Method:	EPA 3	3005A	Analysis Description:	6020B MET
Associated Lab Sam	ples:	2624389001, 262438	39002, 2624389003, 2624389004, 26	24389005

METHOD BLANK: 167849

Matrix: Water

Associated Lab Samples: 2624389001, 2624389002, 2624389003, 2624389004, 2624389005

D		Blank	Reporting			0 11/1
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	10/22/19 18:23	
Arsenic	mg/L	0.00059J	0.0050	0.00035	10/22/19 18:23	
Barium	mg/L	ND	0.010	0.00049	10/22/19 18:23	
Beryllium	mg/L	ND	0.0030	0.000074	10/22/19 18:23	
Boron	mg/L	ND	0.040	0.0049	10/22/19 18:23	
Cadmium	mg/L	ND	0.0025	0.00011	10/22/19 18:23	
Calcium	mg/L	ND	0.10	0.011	10/22/19 18:23	
Chromium	mg/L	ND	0.010	0.00039	10/22/19 18:23	
Cobalt	mg/L	ND	0.0050	0.00030	10/22/19 18:23	
Lead	mg/L	ND	0.0050	0.000046	10/22/19 18:23	
Lithium	mg/L	ND	0.030	0.00078	10/22/19 18:23	
Molybdenum	mg/L	ND	0.010	0.00095	10/22/19 18:23	
Selenium	mg/L	ND	0.010	0.0013	10/22/19 18:23	
Thallium	mg/L	ND	0.0010	0.000052	10/22/19 18:23	

LABORATORY CONTROL SAMPLE: 167850

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
ntimony	mg/L	0.1	0.098	98	80-120	
senic	mg/L	0.1	0.098	98	80-120	
ium	mg/L	0.1	0.098	98	80-120	
yllium	mg/L	0.1	0.099	99	80-120	
ron	mg/L	1	0.96	96	80-120	
łmium	mg/L	0.1	0.097	97	80-120	
cium	mg/L	1	0.96	96	80-120	
omium	mg/L	0.1	0.098	98	80-120	
alt	mg/L	0.1	0.098	98	80-120	
l	mg/L	0.1	0.098	98	80-120	
um	mg/L	0.1	0.095	95	80-120	
/bdenum	mg/L	0.1	0.10	101	80-120	
enium	mg/L	0.1	0.10	101	80-120	
llium	mg/L	0.1	0.098	98	80-120	

MATRIX SPIKE & MATRIX SP		168477										
			MS	MSD								
		2624389004	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.098	0.097	97	97	75-125	0	20	

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

REPORT OF LABORATORY ANALYSIS

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Project: Plant Branch E Pace Project No.: 2624389

MATRIX SPIKE & MATRIX S	SPIKE DUPL	ICATE: 1684	-		168477							
		2624389004	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		Мах	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Arsenic	mg/L	0.00063J	0.1	0.1	0.095	0.098	95	97	75-125	3	20	
Barium	mg/L	0.0091J	0.1	0.1	0.11	0.11	100	103	75-125	3	20	
Beryllium	mg/L	ND	0.1	0.1	0.092	0.094	92	94	75-125	2	20	
Boron	mg/L	ND	1	1	0.89	0.94	88	93	75-125	6	20	
Cadmium	mg/L	ND	0.1	0.1	0.099	0.098	99	98	75-125	0	20	
Calcium	mg/L	3.7	1	1	4.5	4.5	88	82	75-125	1	20	
Chromium	mg/L	0.0083J	0.1	0.1	0.11	0.11	97	100	75-125	2	20	
Cobalt	mg/L	0.00097J	0.1	0.1	0.096	0.096	95	95	75-125	0	20	
Lead	mg/L	ND	0.1	0.1	0.095	0.098	95	98	75-125	3	20	
Lithium	mg/L	ND	0.1	0.1	0.092	0.094	91	93	75-125	3	20	
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	100	100	75-125	1	20	
Selenium	mg/L	ND	0.1	0.1	0.093	0.10	93	100	75-125	7	20	
Thallium	mg/L	ND	0.1	0.1	0.095	0.098	95	98	75-125	3	20	

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



Project: Pace Project No.:	Plant Branch E 2624389								
QC Batch:	37181		Analysis M	lethod:	SM 2540C				
QC Batch Method:	SM 2540C		Analysis D						
Associated Lab Sar	mples: 262438900	1, 2624389002,	2624389003, 26	24389004, 262	4389005				
LABORATORY CO	NTROL SAMPLE:	168196							
			Spike	LCS	LCS	% Rec			
Parar	neter	Units	Conc.	Result	% Rec	Limits	Qu	ualifiers	
Total Dissolved Soli	ds	mg/L	400	412	103	84-108			
SAMPLE DUPLICA	TE: 168197								
			2624388001	Dup		Max			
Parar	neter	Units	Result	Result	RPD	RPD		Qualifiers	
Total Dissolved Soli	ds	mg/L	152	0 15	70	3	10		
SAMPLE DUPLICA	TE: 168198								
			2624392001	Dup		Max			
Parar	neter	Units	Result	Result	RPD	RPD		Qualifiers	
Total Dissolved Soli	ds	mg/L	89.	0 86	5.0	3	10		

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



Project: Plant Bra	anch E											
Pace Project No.: 2624389)											
QC Batch: 37138			Analy	/sis Metho	d: E	EPA 300.0						
QC Batch Method: EPA 30	0.0		Analy	/sis Descri	ption: 3	300.0 IC Ar	nions					
Associated Lab Samples:	2624389001	, 2624389002,	262438900	3, 262438	9004, 2624;	389005						
METHOD BLANK: 167857				Matrix: W	/ater							
Associated Lab Samples:	2624389001	, 2624389002,	262438900	3, 262438	9004, 2624;	389005						
			Blar	nk	Reporting							
Parameter		Units	Res	ult	Limit	MD	L	Analyzed	d Qu	ualifiers		
Chloride		mg/L		ND	1.(0	0.024	10/21/19 16	5:11		_	
Fluoride		mg/L		ND	0.30		0.029	10/21/19 16				
Sulfate		mg/L		ND	1.0	0	0.017	10/21/19 16	5:11			
LABORATORY CONTROL S	AMPLE: 1	67858										
			Spike	LC	S	LCS		% Rec				
Parameter		Units	Conc.	Res	sult	% Rec	L	_imits	Qualifiers			
Chloride		mg/L	1	0	9.9	9	9	90-110				
Fluoride		mg/L		0	10.2	10		90-110				
Sulfate		mg/L	1	0	9.9	9	9	90-110				
MATRIX SPIKE & MATRIX SI	PIKE DUPLI	ICATE: 1678	59		167860							
			MS	MSD								
Parameter	Units	2624388001 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Re	MSD c % Rec	% Rec Limits	RPD	Max RPD	Qua
Chloride	mg/L	20.9	10	10	28.1	28.1		72 72	2 90-110	0	15	M1
Fluoride	mg/L	ND	10	10	10.0	10.1		00 10		1		
MATRIX SPIKE SAMPLE:	1	67861										
		-	26243	389005	Spike	MS		MS	% Rec	;		
Parameter		Units	Re	sult	Conc.	Result		% Rec	Limits		Quali	fiers
Chloride		mg/L		2.2	10		12.2	100	90	-110		
Fluoride		mg/L		ND	10		10.3	103	90	-110		
				5.2					90			

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Plant Branch E Pace Project No.: 2624389

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

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



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:	Plant Branch E
Pace Project No .:	2624389

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624389001	BRGWA-6S	EPA 3005A	37136	EPA 6020B	37255
2624389002	BRGWA-5S	EPA 3005A	37136	EPA 6020B	37255
2624389003	BRGWA-5I	EPA 3005A	37136	EPA 6020B	37255
2624389004	BRGWA-2S	EPA 3005A	37136	EPA 6020B	37255
2624389005	BRGWA-2I	EPA 3005A	37136	EPA 6020B	37255
2624389001	BRGWA-6S	SM 2540C	37181		
2624389002	BRGWA-5S	SM 2540C	37181		
2624389003	BRGWA-5I	SM 2540C	37181		
2624389004	BRGWA-2S	SM 2540C	37181		
2624389005	BRGWA-2I	SM 2540C	37181		
2624389001	BRGWA-6S	EPA 300.0	37138		
2624389002	BRGWA-5S	EPA 300.0	37138		
2624389003	BRGWA-5I	EPA 300.0	37138		
2624389004	BRGWA-2S	EPA 300.0	37138		
2624389005	BRGWA-2I	EPA 300.0	37138		

Brog Ansheinel	5		CRAIN-OF-CU31OU1 Allalytical heques	ומרמו עבל	-	nocument	Ē	' -								
		ain-of-Cus	Chain-of-Custody is a LEGAL DOCUMENT - Complete all	IENT - Comple	te all rele	relevent fields										
company: ocorgia rower - coar compusiti Address: 2480 Maner Road									2624389	0						AB USE ONEY
Atlanta, GA 30339								10 S	sl 1 12	1						Lao Project Manager:
Report To: Joju Abraham			Email To: scsinvoices@southernco.com	outhernco.coi	F			ě.	tservative 1	Types: (1)	vitric acid,	(2) sulfuri	c acid, (3) hy	drochtoric at	id, (4) sodia	1974 - Trees I (2014) - 2024 - Lowel I (2014) - 2024 - 2024 - 2022 - 202
Copy To: Galder			Site Collection Info/Address: Plant Branch	ress: Plant Bra	цр.			ш 9 0 0 0 0	ethanol, (7. nmonium h	sodium b ydroxide,	isulfate, (i (D) TSP, (l) Unprese	(6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) I (C) ammonium hydroxide, (0) T5P, (U) Unpreserved, (0) Other)) hexane, (A er) ascorbic a	(6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium suffate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (C) Other
phone: (404) 506-7239			State: Georgia City: Milledgeville	lledgeville T	me Zone	Time Zone Collected						Analyses				Lab Profile/Line: Lab Sample Receipt Checklist:
Email: Jabraham@southernco.com Phone: (404) 505-7239 Email: labraham@southernco.com	Project Name: Plant Branch E	ant Brancl		Project # CCR Pace Profile#	lcr (x)Er file#				Ç							Custody Seals Present/Intact N NA Custody Signatures Present MA Collector Signature Present MA
Collected By (print): Tavic Martare	Purchase Order # : Ouote #:			Pace Project M betsv.mcdanie	ject Man daniel@	lanager: I@pacelabs.com	E		570						a a	Bottles Intact Correct Bottles Correct Bottles Sufficient volume
Collected By (signature):	Turnaround Date Required:	e Required		Immediat I X I Yes	elv P	Immediately Packed on Ice: [X] Yes			9Mn	SO						Ice Y N
	Rush: [] Sa [] 2 Day [] (Ex	Same Day [] Next] 3 Day [] 4 Day (Expedite Charges Apply)	sh: []Same Day []Next Day []2 Day []3 Day []4 Day []5 Day [Expedite Charges Apply]	Field Filte [] Yes Analysis: ,	ered (if app [] No	Field Filtered (if applicable): {] Yes {] No Analysis:	1		497 225.	T ,əteilu2 ,						USDA Required Solls X H WL Samples in Rolding Time + T W M Restigual Chlorine Present Y N JM Cl Strips: Cl Strips: PH Strips:
• Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SU), Oil (OU), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Water (WT), Other (OT)	v): Drinking Water e (WP), Air (AR), T	r {DW), Gr ïssue {TS),	ound Water (GW), Wasi , Bioassay (B), Water (W	ewater (WW). T), Other (OT)				y Alteria Caluation Internation	- VI\III qq	, Fluoride		822.922		entre fine		Sulfide Prosent Load Acetate Strips: LAB USE ONLY: LAB Strips L
Customer Samole ID	Matrix •	Comp /	Collected (or Composite		Composite E	te End	Res	jo #	A els	oride		unit		1 1 1 1 1 1		
		 3	Date Time	he Date		Time			юМ	140		рвЯ				
BRGWA-6S	ВW	U	10/15/2019 8	8:45				4	1	1		2				
BRGWA-5S	GW	U	10/15/2019 5	00:6				4	ः न	<u> </u>		2			1000 1000 1000 1000	
BRGWA-51	GW	σ	<u> </u>	10:20				4	1	1		2				
BRGWA-2S	GW	σ		9:55				4	1	1 1		2				
BRGWA-21	βW	U	10/15/2019 11	11:17	2 			4	1 🖗	7		2			1	
									1							
						1						<u></u>				
									<i></i>	373		4). • -				
												<u>.</u>				
(App III Metals): B, Ca. (App IV Metals): Sb, As, Ba, Be, Cd, Cr, Co.	sb, As, Ba, Be, Cd,		Type of tee Used:	Wet Blue	ē	None			SHORT	SHORT HOLDS PRESENT (<72 hours) :	RESENT	<72 hou	<u>ک</u>	N/N/N		e Info:
Pb, Li, Mo, Se, Tl + The			Packing Material Used:		5			148	Lab Tr	Lab Tracking #:						Therm ID4: No. Therm ID4: Cooler 1 Temp Upon Accelpt:
			Radchem sample(s) screened (<600 cpm):	ened (<500 cr	, ≻ ie	Z	NA	an an an an an an an an an an an an an a	Samples (FEDEX	Samples received via FEDEX UPS_	ed via: PS Client	1.1	Counter Pace	Pace Courter		1 Therm Corr. Factor: 1 Corrected Temp:
Relinquished by/Compapy: (Signature)		loate/	Date/Time: 1 4 /0815	Received by/c	Jon .	mpany: Kagn	ature)	2	Date 10	1 6	161	12 K	A MIJL LAB USE ONLY	USE ONLY		
uished by/Company: (Signature)		Date/		Received by/Co		mpany: (Signature)	ature)		Da	Date/Time:		A	Acctnum:			Trip Blank Received: Y N NA
												2 4	Template: Prelogin:			HCL. MeOH TSP. Other
Relitiquished by/Company: (Signature)		Date/	Date/Time:	Received	by/Comp	Received by/Company: (Signature)	ature)		Da	Date/Time:		ā	PM:			Non Conformance(s): Page:

-



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

November 14, 2019

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

RE: Project: Plant Branch E Pace Project No.: 2624391

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on October 16, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Batery Mr Damil

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

Enclosures

cc: Julie Lehrman, Golder Associates Inc.
 Dawn Prell, Golder Associates Inc.
 Eric Rolle, Georgia Power - Coal Combustion Residuals
 Rebecca Thornton, Pace Analytical Atlanta





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

CERTIFICATIONS

Project: Plant Branch E Pace Project No.: 2624391

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601 ANAB DOD-ELAP Rad Accreditation #: L2417 Alabama Certification #: 41590 Arizona Certification #: AZ0734 Arkansas Certification California Certification #: 04222CA Colorado Certification #: PA01547 Connecticut Certification #: PH-0694 **Delaware Certification** EPA Region 4 DW Rad Florida/TNI Certification #: E87683 Georgia Certification #: C040 Florida: Cert E871149 SEKS WET **Guam Certification** Hawaii Certification Idaho Certification **Illinois Certification** Indiana Certification Iowa Certification #: 391 Kansas/TNI Certification #: E-10358 Kentucky Certification #: KY90133 KY WW Permit #: KY0098221 KY WW Permit #: KY0000221 Louisiana DHH/TNI Certification #: LA180012 Louisiana DEQ/TNI Certification #: 4086 Maine Certification #: 2017020 Maryland Certification #: 308 Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991

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



SAMPLE SUMMARY

Project: Plant Branch E Pace Project No.: 2624391

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624391001	BRGWA-6S	Water	10/15/19 08:45	10/16/19 12:30
2624391002	BRGWA-5S	Water	10/15/19 09:00	10/16/19 12:30
2624391003	BRGWA-5I	Water	10/15/19 10:20	10/16/19 12:30
2624391004	BRGWA-2S	Water	10/15/19 09:55	10/16/19 12:30
2624391005	BRGWA-2I	Water	10/15/19 11:17	10/16/19 12:30



SAMPLE ANALYTE COUNT

Project:Plant Branch EPace Project No.:2624391

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2624391001	BRGWA-6S	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624391002	BRGWA-5S	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624391003	BRGWA-5I	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624391004	BRGWA-2S	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624391005	BRGWA-2I	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA



Project: Plant Branch E

Pace Project No.: 2624391

Sample: BRGWA-6S PWS:	Lab ID: 26243910 Site ID:	Collected: 10/15/19 08:45 Sample Type:	Received:	10/16/19 12:30	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.402 ± 0.284 (0.490) C:95% T:NA	pCi/L	11/07/19 07:47	7 13982-63-3	
Radium-228		-0.226 ± 0.787 (1.88) C:63% T:84%	pCi/L	11/07/19 20:09	9 15262-20-1	
Total Radium	Total Radium Calculation	0.402 ± 1.07 (2.37)	pCi/L	11/12/19 10:42	2 7440-14-4	



Project: Plant Branch E

Pace Project No.: 2624391

Sample: BRGWA-5S PWS:	Lab ID: 26243910 Site ID:	Collected: 10/15/19 09:00 Sample Type:	Received:	10/16/19 12:30	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.467 ± 0.301 (0.486) C:92% T:NA	pCi/L	11/07/19 07:47	7 13982-63-3	
Radium-228	EPA 9320	-0.362 ± 0.637 (1.56) C:68% T:90%	pCi/L	11/07/19 20:09	9 15262-20-1	
Total Radium	Total Radium Calculation	0.467 ± 0.938 (2.05)	pCi/L	11/12/19 10:42	2 7440-14-4	



Project: Plant Branch E

Pace Project No.: 2624391

Sample: BRGWA-5I PWS:	Lab ID: 26243910 Site ID:	003 Collected: 10/15/19 10:20 Sample Type:	Received:	10/16/19 12:30	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.651 ± 0.319 (0.390) C:93% T:NA	pCi/L	11/07/19 07:47	7 13982-63-3	
Radium-228	EPA 9320	0.0627 ± 1.06 (2.41) C:62% T:81%	pCi/L	11/07/19 20:09	9 15262-20-1	
Total Radium	Total Radium Calculation	0.714 ± 1.38 (2.80)	pCi/L	11/12/19 10:42	2 7440-14-4	



Project: Plant Branch E

Pace Project No.: 2624391

Sample: BRGWA-2S PWS:	Lab ID: 26243910 Site ID:	Collected: 10/15/19 09:55 Sample Type:	Received:	10/16/19 12:30	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.212 ± 0.208 (0.385) C:90% T:NA	pCi/L	11/07/19 07:47	7 13982-63-3	
Radium-228		0.595 ± 0.995 (2.17) C:64% T:69%	pCi/L	11/07/19 20:09	9 15262-20-1	
Total Radium	Total Radium Calculation	0.807 ± 1.20 (2.56)	pCi/L	11/12/19 10:42	2 7440-14-4	



Project: Plant Branch E

Pace Project No.: 2624391

Sample: BRGWA-2I PWS:	Lab ID: 26243910 Site ID:	Collected: 10/15/19 11:17 Sample Type:	Received:	10/16/19 12:30	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.184 ± 0.199 (0.381) C:94% T:NA	pCi/L	11/07/19 07:16	3 13982-63-3	
Radium-228	EPA 9320	0.831 ± 0.868 (1.80) C:64% T:76%	pCi/L	11/07/19 20:10) 15262-20-1	
Total Radium	Total Radium Calculation	1.02 ± 1.07 (2.18)	pCi/L	11/12/19 10:42	2 7440-14-4	



QUALITY CONTROL - RADIOCHEMISTRY

Project:	Plant Branch E				
Pace Project No.:	2624391				
QC Batch:	368367	Analysis Method:	EPA 9315		
QC Batch Method:	EPA 9315	Analysis Description:	9315 Total Radium		
Associated Lab Sa	mples: 262439100 ²	1, 2624391002, 2624391003, 2624391004, 20	624391005		
METHOD BLANK:	1787254	Matrix: Water			
Associated Lab Sa	mples: 262439100 ⁴	1, 2624391002, 2624391003, 2624391004, 20	624391005		
Para	meter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0	.416 ± 0.262 (0.396) C:98% T:NA	pCi/L	11/07/19 07:47	

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



QUALITY CONTROL - RADIOCHEMISTRY

Project:	Plant Branch E				
Pace Project No.:	2624391				
QC Batch:	368368	Analysis Method:	EPA 9320		
QC Batch Method:	EPA 9320	Analysis Description:	9320 Radium 228		
Associated Lab Sat	mples: 26243910	001, 2624391002, 2624391003, 2624391004, 20	624391005		
METHOD BLANK:	1787255	Matrix: Water			
Associated Lab Sa	mples: 26243910	001, 2624391002, 2624391003, 2624391004, 20	624391005		
Para	meter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228		0.536 ± 0.405 (0.790) C:74% T:76%	pCi/L	11/07/19 14:59	

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



QUALIFIERS

Project: Plant Branch E Pace Project No.: 2624391

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:	Plant Branch E
Pace Project No .:	2624391

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624391001	BRGWA-6S	EPA 9315	368367		
2624391002	BRGWA-5S	EPA 9315	368367		
2624391003	BRGWA-5I	EPA 9315	368367		
2624391004	BRGWA-2S	EPA 9315	368367		
2624391005	BRGWA-2I	EPA 9315	368367		
2624391001	BRGWA-6S	EPA 9320	368368		
2624391002	BRGWA-5S	EPA 9320	368368		
2624391003	BRGWA-5I	EPA 9320	368368		
2624391004	BRGWA-2S	EPA 9320	368368		
2624391005	BRGWA-2I	EPA 9320	368368		
2624391001	BRGWA-6S	Total Radium Calculation	370511		
2624391002	BRGWA-5S	Total Radium Calculation	370511		
2624391003	BRGWA-5I	Total Radium Calculation	370511		
2624391004	BRGWA-2S	Total Radium Calculation	370512		
2624391005	BRGWA-2I	Total Radium Calculation	370512		

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		Ĩ,	Site Collection Into/Address: Mant Branch	ooress: Man	it Brancn				(C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other	troxide, {D) TSP, (U)	Unpreserve	1, (0) Other		
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Phone: (404) 506-7239 Email: labraham@southernco.com	Project Name: Plant Branch E	Branch E			e Profile#				Ç						Custody Signatures Present
	Purchase Order # : Outote #:	ļ		Pace	Pace Project Manager: betsv.mcdaniel@pacelabs.com	anager: Moacelabs.c			5 <u>+</u> 1			N 2. (*)			Bottles Intact Correct Bottles
	Turnaround Date Required:	tuired:		E	Immediately Packed on Ice:	ked on Ice			9 W I	SC					Samples Received on Ice VOA - Readspace Acceptable
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		, ·						<u>%</u> 	-/	'əp	۲ ا				pu stripsi Sulfida Present
 Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Water (WT), Other (OT) 	: Drinking Water (DW (WP), Air (AR), Tissue	N), Grour e (TS), Bic	nd Water (GW), W: oassay (B), Water (stewater (V NT), Other ((VV). (OT)				/I/III ddv	, Fluoria	526.22	37.0			Lead Acetate Strips: LAB USE ONLY: LAB Semple f / Comments:
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		 }		Time	Date	Time			ЭM	ЧЭ	H				
BRGWA-65	9 Mg		10/15/2019	8:45				4	1	-	<u>.</u> 2				
BRGWA-5S	-	t		00:6				4	1		2				
BRGWA-51				10:20				4	1	-	2		100		
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Pb, Li, Mo, Se, TI + Tre			Packing Material Used:		2				Lab Tracking #:	ding #:					Therm ID4: Cooler 1 Temp Upon Accelpt:
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Pace Analytical Services, LLC 110 Technology Parkway Peachtree Corners, GA 30092 (770)734-4200

December 17, 2019

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

RE: Project: Plant Branch Pace Project No.: 2624484

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on October 17, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Kein Hung

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

Enclosures

cc: Julie Lehrman, Golder Associates Inc.
 Dawn Prell, Golder Associates Inc.
 Eric Rolle, Georgia Power - Coal Combustion Residuals
 Rebecca Thornton, Pace Analytical Atlanta





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

CERTIFICATIONS

Project: Plant Branch Pace Project No.: 2624484

Pace Analytical Services Atlanta

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



SAMPLE SUMMARY

Project: Plant Branch Pace Project No.: 2624484

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624484001	BRGWC-33S	Water	10/16/19 09:48	10/17/19 11:35
2624484002	BRGWC-34S	Water	10/16/19 10:46	10/17/19 11:35
2624484003	BRGWC-35S	Water	10/16/19 12:02	10/17/19 11:35
2624484004	BRGWC-37S	Water	10/16/19 13:10	10/17/19 11:35
2624484005	BRGWC-38S	Water	10/16/19 14:45	10/17/19 11:35
2624484006	Dup-1	Water	10/16/19 00:00	10/17/19 11:35
2624484007	EB-1	Water	10/16/19 11:00	10/17/19 11:35
2624484008	FB-2	Water	10/16/19 13:05	10/17/19 11:35



SAMPLE ANALYTE COUNT

Project: Plant Branch Pace Project No.: 2624484

4484001 BRGWC-33S EPA 6020B CSW SM 2540C ALW EPA 300.0 MWB 4484002 BRGWC-34S EPA 6020B CSW 4484003 BRGWC-35S EPA 6020B CSW 8M 2540C ALW EPA 300.0 MWB 8M 2540C ALW EPA 300.0 MWB 8M 2540C ALW EPA 6020B CSW 8M 2540C ALW EPA 6020B CSW 8M 2540C ALW EPA 6020B CSW 8M 2540C ALW EPA 300.0 MWB
4484002 BRGWC-34S EPA 300.0 MWB 4484003 BRGWC-35S EPA 6020B CSW 8RGWC-35S EPA 300.0 MWB 8RGWC-35S EPA 6020B CSW 8M 2540C ALW 8RGWC-35S EPA 6020B CSW 8M 2540C ALW
4484002 BRGWC-34S EPA 6020B CSW SM 2540C ALW EPA 300.0 MWB 4484003 BRGWC-35S EPA 6020B CSW SM 2540C ALW ALW ALW
SM 2540C ALW EPA 300.0 MWB EPA 6020B CSW SM 2540C ALW
4484003 BRGWC-35S EPA 300.0 MWB 5M 2540C ALW
4484003 BRGWC-35S EPA 6020B CSW SM 2540C ALW
SM 2540C ALW
EPA 300.0 MWB
4484004 BRGWC-37S EPA 6020B CSW
SM 2540C ALW
EPA 300.0 MWB
4484005 BRGWC-38S EPA 6020B CSW
SM 2540C ALW
EPA 300.0 MWB
4484006 Dup-1 EPA 6020B CSW
SM 2540C ALW
EPA 300.0 MWB
4484007 EB-1 EPA 6020B CSW
SM 2540C MZP
EPA 300.0 MWB
4484008 FB-2 EPA 6020B CSW
SM 2540C MZP
EPA 300.0 MWB



Project: Plant Branch

Pace Project No.: 2624484

Sample: BRGWC-33S	Lab ID:	2624484001	Collecte	ed: 10/16/19	9 09:48	Received: 10/	'17/19 11:35 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	10/20/19 16:44	10/22/19 23:04	7440-36-0	
Arsenic	0.00056J	mg/L	0.0050	0.00035	1	10/20/19 16:44	10/22/19 23:04	7440-38-2	В
Barium	0.019	mg/L	0.010	0.00049	1	10/20/19 16:44	10/22/19 23:04	7440-39-3	
Beryllium	0.0018J	mg/L	0.0030	0.000074	1	10/20/19 16:44	10/22/19 23:04	7440-41-7	
Boron	1.1	mg/L	0.040	0.0049	1	10/20/19 16:44	10/22/19 23:04	7440-42-8	
Cadmium	0.00039J	mg/L	0.0025	0.00011	1	10/20/19 16:44	10/22/19 23:04	7440-43-9	
Calcium	46.5	mg/L	5.0	0.55	50	10/20/19 16:44	10/22/19 23:09	7440-70-2	
Chromium	0.00049J	mg/L	0.010	0.00039	1	10/20/19 16:44	10/22/19 23:04	7440-47-3	
Cobalt	0.042	mg/L	0.0050	0.00030	1	10/20/19 16:44	10/22/19 23:04	7440-48-4	
Lead	0.000088J	mg/L	0.0050	0.000046	1	10/20/19 16:44	10/22/19 23:04	7439-92-1	
Lithium	0.0098J	mg/L	0.030	0.00078	1	10/20/19 16:44	10/22/19 23:04	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/20/19 16:44	10/22/19 23:04	7439-98-7	
Selenium	0.0028J	mg/L	0.010	0.0013	1	10/20/19 16:44	10/22/19 23:04	7782-49-2	
Thallium	0.00019J	mg/L	0.0010	0.000052	1	10/20/19 16:44	10/22/19 23:04	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	281	mg/L	10.0	10.0	1		10/22/19 13:14		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	5.4	mg/L	1.0	0.024	1		10/24/19 17:04	16887-00-6	
Fluoride	0.17J	mg/L	0.30	0.029	1		10/24/19 17:04	16984-48-8	
Sulfate	226	mg/L	20.0	0.34	20		10/25/19 03:29	14808-79-8	



Project: Plant Branch

Pace Project No.: 2624484

Sample: BRGWC-34S	Lab ID:	2624484002	Collecte	ed: 10/16/19	9 10:46	Received: 10/	17/19 11:35 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	10/20/19 16:44	10/22/19 23:15	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	10/20/19 16:44	10/22/19 23:15	7440-38-2	
Barium	0.022	mg/L	0.010	0.00049	1	10/20/19 16:44	10/22/19 23:15	7440-39-3	
Beryllium	0.00014J	mg/L	0.0030	0.000074	1	10/20/19 16:44	10/22/19 23:15	7440-41-7	
Boron	2.3	mg/L	0.040	0.0049	1	10/20/19 16:44	10/22/19 23:15	7440-42-8	
Cadmium	0.00040J	mg/L	0.0025	0.00011	1	10/20/19 16:44	10/22/19 23:15	7440-43-9	
Calcium	78.2	mg/L	5.0	0.55	50	10/20/19 16:44	10/22/19 23:21	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	10/20/19 16:44	10/22/19 23:15	7440-47-3	
Cobalt	0.0043J	mg/L	0.0050	0.00030	1	10/20/19 16:44	10/22/19 23:15	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	10/20/19 16:44	10/22/19 23:15	7439-92-1	
Lithium	0.00078J	mg/L	0.030	0.00078	1	10/20/19 16:44	10/22/19 23:15	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/20/19 16:44	10/22/19 23:15	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	10/20/19 16:44	10/22/19 23:15	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	10/20/19 16:44	10/22/19 23:15	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	473	mg/L	10.0	10.0	1		10/22/19 13:14		
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Chloride	7.3	mg/L	1.0	0.024	1		10/24/19 18:08	16887-00-6	
Fluoride	0.13J	mg/L	0.30	0.029	1		10/24/19 18:08	16984-48-8	
Sulfate	325	mg/L	20.0	0.34	20		10/25/19 03:51	14808-79-8	



Project: Plant Branch

Pace Project No.: 2624484

Sample: BRGWC-35S	Lab ID:	2624484003	Collecte	ed: 10/16/1	9 12:02	Received: 10/	'17/19 11:35 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Me	thod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	10/21/19 16:03	10/23/19 18:43	7440-36-0	
Arsenic	0.00040J	mg/L	0.0050	0.00035	1	10/21/19 16:03	10/23/19 18:43	7440-38-2	
Barium	0.037	mg/L	0.010	0.00049	1	10/21/19 16:03	10/23/19 18:43	7440-39-3	
Beryllium	0.00015J	mg/L	0.0030	0.000074	1	10/21/19 16:03	10/23/19 18:43	7440-41-7	
Boron	2.2	mg/L	2.0	0.25	50	10/21/19 16:03	10/23/19 18:49	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	10/21/19 16:03	10/23/19 18:43	7440-43-9	
Calcium	61.2	mg/L	5.0	0.55	50	10/21/19 16:03	10/23/19 18:49	7440-70-2	M6
Chromium	0.0064J	mg/L	0.010	0.00039	1	10/21/19 16:03	10/23/19 18:43	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	10/21/19 16:03	10/23/19 18:43	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	10/21/19 16:03	10/23/19 18:43	7439-92-1	
Lithium	0.0022J	mg/L	0.030	0.00078	1	10/21/19 16:03	10/23/19 18:43	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/21/19 16:03	10/23/19 18:43	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	10/21/19 16:03	10/23/19 18:43	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	10/21/19 16:03	10/23/19 18:43	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	481	mg/L	10.0	10.0	1		10/22/19 13:15		
300.0 IC Anions 28 Days	Analytical	Method: EPA 3	300.0						
Chloride	6.6	mg/L	1.0	0.024	1		10/24/19 18:29	16887-00-6	
Fluoride	0.080J	mg/L	0.30	0.029	1		10/24/19 18:29	16984-48-8	
Sulfate	277	mg/L	20.0	0.34	20		10/25/19 04:13	14808-79-8	



Project: Plant Branch

Pace Project No.: 2624484

Sample: BRGWC-37S	Lab ID:	2624484004	Collecte	ed: 10/16/1	9 13:10	Received: 10/	/17/19 11:35 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Me	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	10/21/19 16:03	10/23/19 19:34	7440-36-0	
Arsenic	0.00078J	mg/L	0.0050	0.00035	1	10/21/19 16:03	10/23/19 19:34	7440-38-2	
Barium	0.024	mg/L	0.010	0.00049	1	10/21/19 16:03	10/23/19 19:34	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	10/21/19 16:03	10/23/19 19:34	7440-41-7	
Boron	0.0055J	mg/L	0.040	0.0049	1	10/21/19 16:03	10/23/19 19:34	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	10/21/19 16:03	10/23/19 19:34	7440-43-9	
Calcium	3.4	mg/L	0.10	0.011	1	10/21/19 16:03	10/23/19 19:34	7440-70-2	
Chromium	0.0014J	mg/L	0.010	0.00039	1	10/21/19 16:03	10/23/19 19:34	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	10/21/19 16:03	10/23/19 19:34	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	10/21/19 16:03	10/23/19 19:34	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	10/21/19 16:03	10/23/19 19:34	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/21/19 16:03	10/23/19 19:34	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	10/21/19 16:03	10/23/19 19:34	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	10/21/19 16:03	10/23/19 19:34	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	49.0	mg/L	10.0	10.0	1		10/22/19 13:15		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	2.3	mg/L	1.0	0.024	1		10/24/19 18:50	16887-00-6	
Fluoride	0.059J	mg/L	0.30	0.029	1		10/24/19 18:50	16984-48-8	
Sulfate	0.29J	mg/L	1.0	0.017	1		10/24/19 18:50	14808-79-8	



Project: Plant Branch

Pace Project No.: 2624484

Sample: BRGWC-38S	Lab ID:	2624484005	Collecte	ed: 10/16/1	9 14:45	Received: 10/	'17/19 11:35 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Me	thod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	10/21/19 16:03	10/23/19 19:46	7440-36-0	
Arsenic	0.0024J	mg/L	0.0050	0.00035	1	10/21/19 16:03	10/23/19 19:46	7440-38-2	
Barium	0.015	mg/L	0.010	0.00049	1	10/21/19 16:03	10/23/19 19:46	7440-39-3	
Beryllium	0.0079	mg/L	0.0030	0.000074	1	10/21/19 16:03	10/23/19 19:46	7440-41-7	
Boron	1.5	mg/L	0.040	0.0049	1	10/21/19 16:03	10/23/19 19:46	7440-42-8	
Cadmium	0.00057J	mg/L	0.0025	0.00011	1	10/21/19 16:03	10/23/19 19:46	7440-43-9	
Calcium	38.4	mg/L	5.0	0.55	50	10/21/19 16:03	10/23/19 19:52	7440-70-2	
Chromium	0.0038J	mg/L	0.010	0.00039	1	10/21/19 16:03	10/23/19 19:46	7440-47-3	
Cobalt	0.21	mg/L	0.0050	0.00030	1	10/21/19 16:03	10/23/19 19:46	7440-48-4	
Lead	0.00035J	mg/L	0.0050	0.000046	1	10/21/19 16:03	10/23/19 19:46	7439-92-1	
Lithium	0.020J	mg/L	0.030	0.00078	1	10/21/19 16:03	10/23/19 19:46	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/21/19 16:03	10/23/19 19:46	7439-98-7	
Selenium	0.033	mg/L	0.010	0.0013	1	10/21/19 16:03	10/23/19 19:46	7782-49-2	
Thallium	0.00020J	mg/L	0.0010	0.000052	1	10/21/19 16:03	10/23/19 19:46	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	630	mg/L	10.0	10.0	1		10/22/19 13:15		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	6.4	mg/L	1.0	0.024	1		10/24/19 19:11	16887-00-6	
Fluoride	0.61	mg/L	0.30	0.029	1		10/24/19 19:11	16984-48-8	
Sulfate	432	mg/L	20.0	0.34	20		10/25/19 04:35	14808-79-8	



Project:	Plant Branch
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Pace Project No.: 2624484

Sample: Dup-1	Lab ID:	2624484006	Collect	ed: 10/16/1	9 00:00	Received: 10/	'17/19 11:35 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
									. <u> </u>
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Me	thod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	10/21/19 16:03	10/23/19 19:57	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	10/21/19 16:03	10/23/19 19:57	7440-38-2	
Barium	0.023	mg/L	0.010	0.00049	1	10/21/19 16:03	10/23/19 19:57	7440-39-3	
Beryllium	0.00013J	mg/L	0.0030	0.000074	1	10/21/19 16:03	10/23/19 19:57	7440-41-7	
Boron	2.4	mg/L	2.0	0.25	50	10/21/19 16:03	10/23/19 20:03	7440-42-8	
Cadmium	0.00040J	mg/L	0.0025	0.00011	1	10/21/19 16:03	10/23/19 19:57	7440-43-9	
Calcium	81.4	mg/L	5.0	0.55	50	10/21/19 16:03	10/23/19 20:03	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	10/21/19 16:03	10/23/19 19:57	7440-47-3	
Cobalt	0.0043J	mg/L	0.0050	0.00030	1	10/21/19 16:03	10/23/19 19:57	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	10/21/19 16:03	10/23/19 19:57	7439-92-1	
Lithium	0.00079J	mg/L	0.030	0.00078	1	10/21/19 16:03	10/23/19 19:57	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/21/19 16:03	10/23/19 19:57	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	10/21/19 16:03	10/23/19 19:57	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	10/21/19 16:03	10/23/19 19:57	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		10/22/19 13:15		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	7.5	mg/L	1.0	0.024	1		10/24/19 19:33	16887-00-6	
Fluoride	0.13J	mg/L	0.30	0.029	1		10/24/19 19:33	16984-48-8	
Sulfate	317	mg/L	20.0	0.34	20		10/25/19 04:57	14808-79-8	



Branch
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Pace Project No.: 2624484

Sample: EB-1	Lab ID:	2624484007	Collecte	ed: 10/16/1	9 11:00	Received: 10/	'17/19 11:35 Ma	atrix: Water	
-			Report						. .
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Me	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	10/21/19 16:03	10/23/19 20:09	7440-36-0	
Arsenic	0.00079J	mg/L	0.0050	0.00035	1	10/21/19 16:03	10/23/19 20:09	7440-38-2	
Barium	ND	mg/L	0.010	0.00049	1	10/21/19 16:03	10/23/19 20:09	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	10/21/19 16:03	10/23/19 20:09	7440-41-7	
Boron	ND	mg/L	0.040	0.0049	1	10/21/19 16:03	10/23/19 20:09	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	10/21/19 16:03	10/23/19 20:09	7440-43-9	
Calcium	0.018J	mg/L	0.10	0.011	1	10/21/19 16:03	10/23/19 20:09	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	10/21/19 16:03	10/23/19 20:09	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	10/21/19 16:03	10/23/19 20:09	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	10/21/19 16:03	10/23/19 20:09	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	10/21/19 16:03	10/23/19 20:09	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/21/19 16:03	10/23/19 20:09	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	10/21/19 16:03	10/23/19 20:09	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	10/21/19 16:03	10/23/19 20:09	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		10/23/19 15:46		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	0.059J	mg/L	1.0	0.024	1		10/24/19 19:54	16887-00-6	В
Fluoride	ND	mg/L	0.30	0.029	1		10/24/19 19:54	16984-48-8	
Sulfate	0.042J	mg/L	1.0	0.017	1		10/24/19 19:54	14808-79-8	
		-							



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Pace Project No.: 2624484

Sample: FB-2	Lab ID:	2624484008	Collecte	ed: 10/16/1	9 13:05	Received: 10/	'17/19 11:35 Ma	atrix: Water	
			Report						
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Me	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	10/21/19 16:03	10/23/19 20:15	7440-36-0	
Arsenic	0.0011J	mg/L	0.0050	0.00035	1	10/21/19 16:03	10/23/19 20:15	7440-38-2	
Barium	ND	mg/L	0.010	0.00049	1	10/21/19 16:03	10/23/19 20:15	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	10/21/19 16:03	10/23/19 20:15	7440-41-7	
Boron	ND	mg/L	0.040	0.0049	1	10/21/19 16:03	10/23/19 20:15	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	10/21/19 16:03	10/23/19 20:15	7440-43-9	
Calcium	0.019J	mg/L	0.10	0.011	1	10/21/19 16:03	10/23/19 20:15	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	10/21/19 16:03	10/23/19 20:15	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	10/21/19 16:03	10/23/19 20:15	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	10/21/19 16:03	10/23/19 20:15	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	10/21/19 16:03	10/23/19 20:15	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/21/19 16:03	10/23/19 20:15	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	10/21/19 16:03	10/23/19 20:15	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	10/21/19 16:03	10/23/19 20:15	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	16.0	mg/L	10.0	10.0	1		10/23/19 15:47		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	0.034J	mg/L	1.0	0.024	1		10/24/19 21:21	16887-00-6	В
Fluoride	ND	mg/L	0.30	0.029	1		10/24/19 21:21	16984-48-8	
Sulfate	ND	mg/L	1.0	0.017	1		10/24/19 21:21	14808-79-8	



Project: Plant Branch

Pace Project No.: 2624484

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QC Batch:	37136	Analysis Method:	EPA 6020B	
QC Batch Method:	EPA 3005A	Analysis Description:	6020B MET	
Associated Lab San	nples: 2624484001, 2624484002			
METHOD BLANK:	167849	Matrix: Water		
Associated Lab San	nples: 2624484001, 2624484002			
		Blank Reportir	na	

Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	10/22/19 18:23	
Arsenic	mg/L	0.00059J	0.0050	0.00035	10/22/19 18:23	
Barium	mg/L	ND	0.010	0.00049	10/22/19 18:23	
Beryllium	mg/L	ND	0.0030	0.000074	10/22/19 18:23	
Boron	mg/L	ND	0.040	0.0049	10/22/19 18:23	
Cadmium	mg/L	ND	0.0025	0.00011	10/22/19 18:23	
Calcium	mg/L	ND	0.10	0.011	10/22/19 18:23	
Chromium	mg/L	ND	0.010	0.00039	10/22/19 18:23	
Cobalt	mg/L	ND	0.0050	0.00030	10/22/19 18:23	
Lead	mg/L	ND	0.0050	0.000046	10/22/19 18:23	
Lithium	mg/L	ND	0.030	0.00078	10/22/19 18:23	
Molybdenum	mg/L	ND	0.010	0.00095	10/22/19 18:23	
Selenium	mg/L	ND	0.010	0.0013	10/22/19 18:23	
Thallium	mg/L	ND	0.0010	0.000052	10/22/19 18:23	

LABORATORY CONTROL SAMPLE: 167850

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
ntimony	mg/L	0.1	0.098	98	80-120	
rsenic	mg/L	0.1	0.098	98	80-120	
irium	mg/L	0.1	0.098	98	80-120	
ryllium	mg/L	0.1	0.099	99	80-120	
ron	mg/L	1	0.96	96	80-120	
admium	mg/L	0.1	0.097	97	80-120	
lcium	mg/L	1	0.96	96	80-120	
romium	mg/L	0.1	0.098	98	80-120	
palt	mg/L	0.1	0.098	98	80-120	
d	mg/L	0.1	0.098	98	80-120	
ium	mg/L	0.1	0.095	95	80-120	
ybdenum	mg/L	0.1	0.10	101	80-120	
lenium	mg/L	0.1	0.10	101	80-120	
allium	mg/L	0.1	0.098	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 168476					168477							
			MS	MSD								
		2624389004	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.098	0.097	97	97	75-125	0	20	

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REPORT OF LABORATORY ANALYSIS

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Project:	Plant Branch
Pace Project No.:	2624484

MATRIX SPIKE & MATRIX		ICATE: 1684	MS	MSD	168477							
		2624389004	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Arsenic	mg/L	0.00063J	0.1	0.1	0.095	0.098	95	97	75-125	3	20	
Barium	mg/L	0.0091J	0.1	0.1	0.11	0.11	100	103	75-125	3	20	
Beryllium	mg/L	ND	0.1	0.1	0.092	0.094	92	94	75-125	2	20	
Boron	mg/L	ND	1	1	0.89	0.94	88	93	75-125	6	20	
Cadmium	mg/L	ND	0.1	0.1	0.099	0.098	99	98	75-125	0	20	
Calcium	mg/L	3.7	1	1	4.5	4.5	88	82	75-125	1	20	
Chromium	mg/L	0.0083J	0.1	0.1	0.11	0.11	97	100	75-125	2	20	
Cobalt	mg/L	0.00097J	0.1	0.1	0.096	0.096	95	95	75-125	0	20	
Lead	mg/L	ND	0.1	0.1	0.095	0.098	95	98	75-125	3	20	
Lithium	mg/L	ND	0.1	0.1	0.092	0.094	91	93	75-125	3	20	
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	100	100	75-125	1	20	
Selenium	mg/L	ND	0.1	0.1	0.093	0.10	93	100	75-125	7	20	
Thallium	mg/L	ND	0.1	0.1	0.095	0.098	95	98	75-125	3	20	

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



Project:	Plant Branch		
Pace Project No .:	2624484		
QC Batch:	37286	Analysis Method:	EPA 6020B
QC Batch Method:	EPA 3005A	Analysis Description:	6020B MET
Associated Lab Sar	nples: 2624484003, 2624484004, 262	4484005, 2624484006, 262	24484007, 2624484008

METHOD BLANK: 168679

Matrix: Water

Associated Lab Samples: 2624484003, 2624484004, 2624484005, 2624484006, 2624484007, 2624484008

		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	10/23/19 18:31	
Arsenic	mg/L	ND	0.0050	0.00035	10/23/19 18:31	
Barium	mg/L	ND	0.010	0.00049	10/23/19 18:31	
Beryllium	mg/L	ND	0.0030	0.000074	10/23/19 18:31	
Boron	mg/L	ND	0.040	0.0049	10/23/19 18:31	
Cadmium	mg/L	ND	0.0025	0.00011	10/23/19 18:31	
Calcium	mg/L	ND	0.10	0.011	10/23/19 18:31	
Chromium	mg/L	ND	0.010	0.00039	10/23/19 18:31	
Cobalt	mg/L	ND	0.0050	0.00030	10/23/19 18:31	
Lead	mg/L	ND	0.0050	0.000046	10/23/19 18:31	
Lithium	mg/L	ND	0.030	0.00078	10/23/19 18:31	
Molybdenum	mg/L	ND	0.010	0.00095	10/23/19 18:31	
Selenium	mg/L	ND	0.010	0.0013	10/23/19 18:31	
Thallium	mg/L	ND	0.0010	0.000052	10/23/19 18:31	

LABORATORY CONTROL SAMPLE: 168680

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
ntimony	mg/L	0.1	0.10	102	80-120	
vrsenic	mg/L	0.1	0.098	98	80-120	
arium	mg/L	0.1	0.10	101	80-120	
eryllium	mg/L	0.1	0.10	103	80-120	
oron	mg/L	1	0.99	99	80-120	
admium	mg/L	0.1	0.10	100	80-120	
alcium	mg/L	1	1.0	101	80-120	
romium	mg/L	0.1	0.099	99	80-120	
palt	mg/L	0.1	0.098	98	80-120	
d	mg/L	0.1	0.10	101	80-120	
nium	mg/L	0.1	0.10	103	80-120	
lybdenum	mg/L	0.1	0.10	101	80-120	
lenium	mg/L	0.1	0.095	95	80-120	
allium	mg/L	0.1	0.10	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 168681					168682							
			MS	MSD								
		2624484003	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.10	0.10	100	100	75-125	0	20	

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REPORT OF LABORATORY ANALYSIS

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Project:	Plant Branch
Pace Project No.:	2624484

MATRIX SPIKE & MATRIX	SPIKE DUPL	ICATE: 1686	81 MS	MSD	168682							
Parameter	Units	2624484003 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L		0.1	0.1	0.10	0.10	100	100	75-125	0		
Barium	mg/L	0.037	0.1	0.1	0.15	0.14	109	107	75-125	1	20	
Beryllium	mg/L	0.00015J	0.1	0.1	0.095	0.094	95	94	75-125	0	20	
Boron	mg/L	2.2	1	1	3.1	3.1	90	90	75-125	0	20	
Cadmium	mg/L	ND	0.1	0.1	0.10	0.10	100	100	75-125	1	20	
Calcium	mg/L	61.2	1	1	62.7	66.1	145	485	75-125	5	20	M6
Chromium	mg/L	0.0064J	0.1	0.1	0.11	0.10	100	98	75-125	2	20	
Cobalt	mg/L	ND	0.1	0.1	0.097	0.097	97	97	75-125	0	20	
Lead	mg/L	ND	0.1	0.1	0.097	0.097	97	97	75-125	0	20	
Lithium	mg/L	0.0022J	0.1	0.1	0.096	0.095	94	93	75-125	1	20	
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	104	101	75-125	3	20	
Selenium	mg/L	ND	0.1	0.1	0.096	0.096	96	95	75-125	0	20	
Thallium	mg/L	ND	0.1	0.1	0.098	0.098	98	98	75-125	0	20	

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Project:	Plant Branch								
Pace Project No.:	2624484								
QC Batch:	37331		Analysis N	lethod:	SM 2540C				
QC Batch Method:	SM 2540C		Analysis D	escription:	2540C Total D	issolved Solids			
Associated Lab Sar	mples: 26244840	01, 2624484002,	2624484003, 26	24484004, 262	4484005, 2624	484006			
LABORATORY CO	NTROL SAMPLE:	168856							
			Spike	LCS	LCS	% Rec			
Para	meter	Units	Conc.	Result	% Rec	Limits	Qu	alifiers	
Total Dissolved Sol	ids	mg/L	400	399	100	84-108			
SAMPLE DUPLICA	TE: 168857								
			2624541001	Dup		Max			
Para	meter	Units	Result	Result	RPD	RPD		Qualifiers	
Total Dissolved Sol	ids	mg/L	23	7 2	49	5	10		
SAMPLE DUPLICA	TE: 168858								
			2624432004	Dup		Max			
Para	meter	Units	Result	Result	RPD	RPD		Qualifiers	
Total Dissolved Sol	ids	mg/L	67.	0 69	9.0	3	10		

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



Project: Pace Project No.:	Plant Branch 2624484								
QC Batch:	37419		Analysis	Method:	SM 2540C				
QC Batch Method:	SM 2540C		Analysis	Description:	2540C Total D	issolved Solids			
Associated Lab San	nples: 26244840	007, 2624484008							
LABORATORY COM	NTROL SAMPLE:	169291							
			Spike	LCS	LCS	% Rec			
Paran	neter	Units	Conc.	Result	% Rec	Limits	Qı	ualifiers	
Total Dissolved Soli	ds	mg/L	400	391	98	84-108			
SAMPLE DUPLICA	TE: 169292								
_			262448400			Max			
Paran	neter	Units	Result	Result	RPD	RPD		Qualifiers	
Total Dissolved Soli	ds	mg/L	Ν	1D	ND		10		
SAMPLE DUPLICA	TE: 169293								
			262449100	4 Dup		Max			
Paran	neter	Units	Result	Result	RPD	RPD		Qualifiers	
Total Dissolved Soli	ds	mg/L	5	00 !!	501	0	10		

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



Project:	Plant Branch											
Pace Project No.:	2624484											
QC Batch:	37461		Anal	ysis Metho	d. E	EPA 300.0						
QC Batch Method:	EPA 300.0			ysis Metrio ysis Descri		600.0 IC An	ions					
Associated Lab Sam		01, 2624484002,		•				16 26244840	07 262449	24002		
	Jies. 20244040	01, 2024404002,	202440400	5, 202440	4004, 20244	+04003, 20	2440400	50, 20244040	07, 202440	4000		
METHOD BLANK:	169631			Matrix: W	/ater							
Associated Lab Sam	oles: 26244840	01, 2624484002,	262448400	03, 262448	4004, 26244	184005, 26	2448400	06, 26244840	07, 262448	84008		
			Bla		Reporting							
Paramo	eter	Units	Res	ult	Limit	MD	L	Analyzed	Qı	ualifiers		
Chloride		mg/L		0.043J	1.0		0.024	10/24/19 16:				
Fluoride		mg/L		ND	0.30		0.029	10/24/19 16:				
Sulfate		mg/L		ND	1.()	0.017	10/24/19 16:	21			
LABORATORY CON	TROL SAMPLE:	169632										
			Spike	LC	s	LCS	%	Rec				
Paramo	eter	Units	Conc.	Res	sult	% Rec	L	imits	Qualifiers	_		
Chloride		mg/L		10	10.6	10		90-110				
Fluoride		mg/L		10	10.9	109		90-110				
Sulfate		mg/L	,	10	10.4	104	4	90-110				
MATRIX SPIKE & MA	ATRIX SPIKE DUP	LICATE: 1696	33		169634							
			MS	MSD								
_		2624484001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	- ·
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	> % Rec	Limits	RPD	RPD	Qual
Chloride	mg/L		10	10	15.3	15.3		99 100		0	-	
Fluoride	mg/L	0.17J	10	10	11.1	11.1	1	10 110	90-110	0	15	
MATRIX SPIKE SAM	PLE:	169635										
			2624	487002	Spike	MS		MS	% Rec	;		
Paramo	eter	Units	Re	esult	Conc.	Result		% Rec	Limits		Qualif	fiers
Chloride		mg/L		4.6	10		14.7	101	90	-110		
Fluoride		mg/L		0.076J	10		10.6	106	00	-110		

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project:	Plant Branch
Pace Project No .:	2624484

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

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



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:	Plant Branch
Pace Project No .:	2624484

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624484001	BRGWC-33S	EPA 3005A	37136	EPA 6020B	37255
2624484002	BRGWC-34S	EPA 3005A	37136	EPA 6020B	37255
2624484003	BRGWC-35S	EPA 3005A	37286	EPA 6020B	37308
2624484004	BRGWC-37S	EPA 3005A	37286	EPA 6020B	37308
2624484005	BRGWC-38S	EPA 3005A	37286	EPA 6020B	37308
2624484006	Dup-1	EPA 3005A	37286	EPA 6020B	37308
2624484007	EB-1	EPA 3005A	37286	EPA 6020B	37308
2624484008	FB-2	EPA 3005A	37286	EPA 6020B	37308
2624484001	BRGWC-33S	SM 2540C	37331		
2624484002	BRGWC-34S	SM 2540C	37331		
2624484003	BRGWC-35S	SM 2540C	37331		
2624484004	BRGWC-37S	SM 2540C	37331		
2624484005	BRGWC-38S	SM 2540C	37331		
2624484006	Dup-1	SM 2540C	37331		
2624484007	EB-1	SM 2540C	37419		
2624484008	FB-2	SM 2540C	37419		
2624484001	BRGWC-33S	EPA 300.0	37461		
2624484002	BRGWC-34S	EPA 300.0	37461		
2624484003	BRGWC-35S	EPA 300.0	37461		
2624484004	BRGWC-37S	EPA 300.0	37461		
2624484005	BRGWC-38S	EPA 300.0	37461		
2624484006	Dup-1	EPA 300.0	37461		
2624484007	EB-1	EPA 300.0	37461		
2624484008	FB-2	EPA 300.0	37461		

Pace Analytical	;		curving of the standard substitution with the standard standard standard standard standard standard standard st	ומואנורמו	vadues	r vocument	ากอก		<u>validičanjenicatori</u> .				۹ ۲ (س		st Pace Workorder Number or e
Company: Georgia Power - Coal Combustion Residuals		Chain-of-Ci	Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields Billing Information:	CUMENT - C	omplete all	elevent fie	lds								
Address: 2480 Maner Road Atlanta, GA 30339	1) 								tainer Pri	Container Procentation Trans			
Report To: Joju Abraham			Email To: scsinvoices@southernco.com	s@southern	co.com						1				Lab Project Manager:
Copy To: Golder			Site Collection Info/Address: Plant Branch	Address: Pla	nt Branch			5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	ethanol, (7) nmonium hy	sodium bis rdroxide. (D	ric acid, (2 ilfate, (8) s 1 TSP. (11) (1	 Treversive Types: (1) intric acid, (2) suiturte acid, (3) hydroe (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) he (C) ammonium hydroxide. (D) 75P. (1) Intraesensed. (2) Arts-2. 	l, (3) hydroch lfate, (9) hex VN Other	loric acid, (4) ane, (A) ascor	rreservative 1965. (1) antir acto, (2) suffuric acto, (3) hydrochiaric acto, (4) sodium hydroxide. (5) zinc acetate. (6) methanori, (7) sodium bisultate, (8) sodium thiosulfact, (9) hexane, (A) ascorbic actd. (8) ammonium sulfate. (C) ammonium hydroxide. (D) TSP: (1) Innereservative (A) nace (A) ascorbic actd. (8) ammonium sulfate.
phone: (404) 506-7239 Email: jabraham@southernco.com			State: Georgia City: Milledgeville	: Milledgevil		Time Zone Collected	÷				₹ 	Analyses			Lab Profile/Line:
Phone: (404) 506-7239 Email: jabraham@southernco.com	Project Name: Plant Branch E	lant Branc		Project # CCR Pace Profile#	e Profile#	XIEL		T	<u></u>	a te					Lab Sampte Receipt Cheddist: Custody Seals Present/Intadrf NNA
Collected By (print): Tavris Augrich, 12 2	Purchase Order # : Ouote #:			Pac	Pace Project Manager:	anager:									Collector Signatures Present, P.R.NA Collector Signature Present, N.NA Botthes Intern
Collected By (signature):	Turnaround Date Required:	e Required	÷		Immediately Packed on Ice:	Cked on Icc	L COM						heirin. Easte		Correct Bottles
	Rush: []S []2 Day [(E)	Same Day [] Next [] 3 Day [] 4 Day [Expedite Charges Apply]	sh: [] Same Day [] Next Day [] 2 Day [] 3 Day [] 4 Day [] 5 Day [Expedite Charges Apply]		Lo I res Field Filtered (if applicable): [] Yes [] No Analvsis:	l fif applicable [] No	Ä		stnəmmoo :	SOT ,9161					2 8 S
Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Water (WT), Other (OT)	w}: Drinking Wate be {WP), Air {AR}, T	r (DW), Gr īssue (TS),	ound Water (GW), W Bioassay (B), Water	astewater (\ (WT), Other	WW), (OT)			1	992 - VI/III (uoride, Sul	9 : 558				Cl Strips: Sample pH Accortable FNNA PH Strips: Sulfide Present V N pK
Customer Sample ID	Matrix •	Comp / Grab	Collected (or Composite	tosite	Composite End	End	1	<u>بر</u> 4	qqA el	lə, fi	972 m				Lead Acctate Strips: 1.48 liver main.
			Date	Time	Date	Time	5	ŝ	stelv	pold	nipe				Lab Sample # / Comments
BRGWC-33S	GW	υ	10/16/2019	9:48					4 -	- -	8 4 				
BRGWC-34S	GW	υ	1	10:46				+ 4			~ •				
BRGWC-35S	GW	ۍ ا		12:02			$\left \right $		• -		t ((Rad - 2)
BRGWC-37S	GW	υ		13:10			+-		- - -		~ c 등 종				
BRGWC-38S	GW	ט		14:45				• 4	ि । ।		ন। ইণ্ডি				
DUP-1	GW	b	10/16/2019					• 4	(F	- - -	1 V		1.2		
EB-1	3		10/16/2019 1	11:00				. 4	 	- - -	1				
FB-2	×	σ	10/16/2019	13:05	an da Alan			4	<u>ि</u> न	•	10				
(App III Metals): B, Ca, (App IV Metals): Sb, As, Ba, Be, Cd, Cr, Co,	b, As, Ba, Be, Cd, C		Type of Ice Used:	-		Mond		24 87 87 87 87 87 87 87 87 87 87 87 87 87					· · · ·		
Pb, Li, Mo, Se, Tl			Packing Material Used:		2				Lab Tracking #:	ng #:	ENT (<72	Lab Tracking #: (2 hours) : Y</td <td>MM</td> <td></td> <td>LAB Sample Temperature Info: Temp Blank Received Ar NA</td>	MM		LAB Sample Temperature Info: Temp Blank Received Ar NA
		<u>.1.: 9</u>							Samples	Samules received vis-	.				Cooker 1 Temp Upon Receipt 7-00
inniiched hu/Comosure (Giossies)			Kadchem sample(s) screened (<500 cpm): Y	reened (<s0< td=""><td>O CPM:</td><td>_ /</td><td>۸ C</td><td></td><td>FEDEX</td><td></td><td>Client</td><td>Contier Pa</td><td>Pace Courier</td><td></td><td>Cooler 1 Therm Corr. Factor: oC</td></s0<>	O CPM:	_ /	۸ C		FEDEX		Client	Contier Pa	Pace Courier		Cooler 1 Therm Corr. Factor: oC
2 My Colder		0ate/ [0 -] -	10-17-19 10815	Recei	Received by/Compa	paily: (Siggature)	2	VVV	Date/		22	MAHED MAHED	MAHLAB USE ONLY		Comments:
Keiinquished by/Company: (Signature)		Date/Time:	ime:	Recei	Received by/Compa	oany: (Signature)]		Date/Time:	Time:		Actnum			Trio Riank Revenuel: V. N. N.
ଅ Relinquished by/Company: (Signature)		Date/Time	j j		Dominal Indiana Indiana							Template: Prelogin:			HCL MeOH TSP Other
22				עברבוו	יכם האירמשי	'uBic) :Auec	(ture)		Date/Time:	Time:		DA4.			

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50 /			upon Receipt		
Face Analytical Client Name	e: <u>61 F</u>	H	ower_	Project #	
Courier: Fed Ex UPS USPS Cli Tracking #:				Optional Proj 1000 Date: Proj 1000 Date:	
Custody Seal on Cooler/Box Present:			intact: yes	no	
0	le Bags 📈 No	one	Other		
Thermometer Used	Type of Ice:	Wet	Blue None	Samples on ice, cooling process has b	egun
Cooler Temperature	Biological Ti	issue	is Frozen: Yes No Comments:	Date and Initials of berson exami contents: / 0/17/19	ning
Chain of Custody Present:					$ \rightarrow $
Chain of Custody Filled Out:					
Chain of Custody Relinquished:					
Sampler Name & Signature on COC:			and the second sec		├
Samples Arrived within Hold Time:				······	<u> </u>
Short Hold Time Analysis (<72hr):				· · · · · · · · · · · · · · · · · · ·	<u> </u>
Rush Turn Around Time Requested:					
Sufficient Volume:					
Correct Containers Used:					
-Pace Containers Used:		□n/A	9.		
Containers Intact;			· · · · · · · · · · · · · · · · · · ·		
		_			
Filtered volume received for Dissolved tests					
Sample Labels match COC:	Dires DNg	□n/a	12.		
-Includes date/time/ID/Analysis Matrix: All containers needing preservation have been checked.					
All containers needing preservation are found to be in	-12765 []No		13.		
compliance with EPA recommendation.			Initial when	Lot # of added	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)			completed	preservative	
Samples checked for dechlorination:	□Yes □No ◄				
Headspace in VOA Vials (>6mm):		_			
Trip Blank Present:	⊡Yes ⊡No "á		16.		
Trip Blank Custody Seals Present	□Yes □No -{	ØN/A			
Pace Trip Blank Lot # (if purchased):				······································	
Client Notification/ Resolution:				Field Data Required? Y / N	1
Person Contacted:	[Date/1	"ime:		
Comments/ Resolution:		<u> </u>			
			300	0 W28	
Project Manager Review:				Date:	
Note: Whenever there is a discrepancy affecting North (Carolina complianc	e sam	ples, a copy of this form w	Il be sent to the North Carolina DEHNR	

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



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

November 14, 2019

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

RE: Project: Plant Branch Pace Project No.: 2624486

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on October 17, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Batery Mr Damil

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

Enclosures

cc: Julie Lehrman, Golder Associates Inc.
 Dawn Prell, Golder Associates Inc.
 Eric Rolle, Georgia Power - Coal Combustion Residuals
 Rebecca Thornton, Pace Analytical Atlanta





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

CERTIFICATIONS

Project: Plant Branch Pace Project No.: 2624486

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601 ANAB DOD-ELAP Rad Accreditation #: L2417 Alabama Certification #: 41590 Arizona Certification #: AZ0734 Arkansas Certification California Certification #: 04222CA Colorado Certification #: PA01547 Connecticut Certification #: PH-0694 **Delaware Certification** EPA Region 4 DW Rad Florida/TNI Certification #: E87683 Georgia Certification #: C040 Florida: Cert E871149 SEKS WET **Guam Certification** Hawaii Certification Idaho Certification **Illinois Certification** Indiana Certification Iowa Certification #: 391 Kansas/TNI Certification #: E-10358 Kentucky Certification #: KY90133 KY WW Permit #: KY0098221 KY WW Permit #: KY0000221 Louisiana DHH/TNI Certification #: LA180012 Louisiana DEQ/TNI Certification #: 4086 Maine Certification #: 2017020 Maryland Certification #: 308 Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991

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



SAMPLE SUMMARY

Project: Plant Branch Pace Project No.: 2624486

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624486001	BRGWC-33S	Water	10/16/19 09:48	10/17/19 11:35
2624486002	BRGWC-34S	Water	10/16/19 10:46	10/17/19 11:35
2624486003	BRGWC-35S	Water	10/16/19 12:02	10/17/19 11:35
2624486004	BRGWC-37S	Water	10/16/19 13:10	10/17/19 11:35
2624486005	BRGWC-38S	Water	10/16/19 14:45	10/17/19 11:35
2624486006	Dup-1	Water	10/16/19 00:00	10/17/19 11:35
2624486007	EB-1	Water	10/16/19 11:00	10/17/19 11:35
2624486008	FB-2	Water	10/16/19 13:05	10/17/19 11:35



SAMPLE ANALYTE COUNT

Project: Plant Branch Pace Project No.: 2624486

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2624486001	BRGWC-33S	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624486002	BRGWC-34S	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624486003	BRGWC-35S	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624486004	BRGWC-37S	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624486005	BRGWC-38S	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624486006	Dup-1	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624486007	EB-1	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624486008	FB-2	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA



Project: Plant Branch

Pace Project No.: 2624486

Sample: BRGWC-33S PWS:	Lab ID: 26244860 Site ID:	Collected: 10/16/19 09:48 Sample Type:	Received:	10/17/19 11:35	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.474 ± 0.268 (0.357) C:95% T:NA	pCi/L	11/06/19 07:22	2 13982-63-3	
Radium-228		0.682 ± 0.524 (1.03) C:76% T:74%	pCi/L	11/06/19 17:28	3 15262-20-1	
Total Radium	Total Radium Calculation	1.16 ± 0.792 (1.39)	pCi/L	11/12/19 10:42	2 7440-14-4	



Project: Plant Branch

Pace Project No.: 2624486

Sample: BRGWC-34S PWS:	Lab ID: 26244860 Site ID:	Collected: 10/16/19 10:46 Sample Type:	Received:	10/17/19 11:35	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.192 ± 0.231 (0.473) C:91% T:NA	pCi/L	11/06/19 07:22	2 13982-63-3	
Radium-228		0.369 ± 0.405 (0.846) C:75% T:92%	pCi/L	11/06/19 17:29	9 15262-20-1	
Total Radium	Total Radium Calculation	0.561 ± 0.636 (1.32)	pCi/L	11/12/19 10:42	2 7440-14-4	



Project: Plant Branch

Pace Project No.: 2624486

Sample: BRGWC-35S PWS:	Lab ID: 2624486 Site ID:	Collected: 10/16/19 12:02 Sample Type:	Received:	10/17/19 11:35	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.523 ± 0.306 (0.453) C:94% T:NA	pCi/L	11/06/19 07:22	2 13982-63-3	
Radium-228	EPA 9320	1.17 ± 0.548 (0.942) C:76% T:87%	pCi/L	11/06/19 17:31	1 15262-20-1	
Total Radium	Total Radium Calculation	1.69 ± 0.854 (1.40)	pCi/L	11/12/19 10:42	2 7440-14-4	



Project: Plant Branch

Pace Project No.: 2624486

Sample: BRGWC-37S PWS:	Lab ID: 26244860 Site ID:	Collected: 10/16/19 13:10 Sample Type:	Received:	10/17/19 11:35	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.403 ± 0.313 (0.576) C:96% T:NA	pCi/L	11/06/19 07:22	2 13982-63-3	
Radium-228	EPA 9320	0.412 ± 0.399 (0.818) C:73% T:94%	pCi/L	11/06/19 17:31	1 15262-20-1	
Total Radium	Total Radium Calculation	0.815 ± 0.712 (1.39)	pCi/L	11/12/19 10:42	2 7440-14-4	



Project: Plant Branch

Pace Project No.: 2624486

Sample: BRGWC-38S PWS:	Lab ID: 26244860 Site ID:	Collected: 10/16/19 14:45 Sample Type:	Received:	10/17/19 11:35	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.539 ± 0.306 (0.446) C:92% T:NA	pCi/L	11/06/19 08:52	2 13982-63-3	
Radium-228	EPA 9320	2.12 ± 0.687 (0.928) C:77% T:86%	pCi/L	11/06/19 17:3	1 15262-20-1	
Total Radium	Total Radium Calculation	2.66 ± 0.993 (1.37)	pCi/L	11/12/19 10:42	2 7440-14-4	



Project: Plant Branch Pace Project No.: 2624486

Sample: Dup-1 PWS:	Lab ID: 26244860 Site ID:	Collected: 10/16/19 00:00 Sample Type:	Received:	10/17/19 11:35	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.698 ± 0.332 (0.404) C:95% T:NA	pCi/L	11/06/19 07:33	3 13982-63-3	
Radium-228		1.34 ± 0.495 (0.721) C:77% T:94%	pCi/L	11/06/19 17:31	15262-20-1	
Total Radium	Total Radium Calculation	2.04 ± 0.827 (1.13)	pCi/L	11/12/19 10:42	2 7440-14-4	



Project: Plant Branch

Pace Project No.: 2624486

Sample: EB-1 PWS:	Lab ID: 26244860 Site ID:	07 Collected: 10/16/19 11:00 Sample Type:	Received:	10/17/19 11:35	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		0.414 ± 0.255 (0.296) C:88% T:NA	pCi/L	11/06/19 07:34	13982-63-3	
Radium-228		2.21 ± 0.691 (0.922) C:86% T:68%	pCi/L	11/11/19 11:03	8 15262-20-1	
Total Radium	Total Radium Calculation	2.62 ± 0.946 (1.22)	pCi/L	11/12/19 10:42	2 7440-14-4	



Project: Plant Branch

Pace Project No.: 2624486

Sample: FB-2 PWS:	Lab ID: 26244860 Site ID:	Collected: 10/16/19 13:05 Sample Type:	Received:	10/17/19 11:35	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.473 ± 0.298 (0.428) C:87% T:NA	pCi/L	11/06/19 07:34	4 13982-63-3	
Radium-228	EPA 9320	0.455 ± 0.495 (1.03) C:75% T:80%	pCi/L	11/06/19 17:29	9 15262-20-1	
Total Radium	Total Radium Calculation	0.928 ± 0.793 (1.46)	pCi/L	11/12/19 10:42	2 7440-14-4	



QUALITY CONTROL - RADIOCHEMISTRY

Project:	Plant Branch				
Pace Project No.:	2624486				
QC Batch:	368259	Analysis Method:	EPA 9315		
QC Batch Method:	EPA 9315	Analysis Description:	9315 Total Radi	um	
Associated Lab Sa	mples: 2624486	001, 2624486002, 2624486003, 2624486004, 26	24486005, 26244	86006, 2624486007, 2	2624486008
METHOD BLANK:	1786863	Matrix: Water			
Associated Lab Sa	imples: 2624486	001, 2624486002, 2624486003, 2624486004, 26	24486005, 26244	86006, 2624486007, 2	2624486008
Para	imeter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226		0.306 ± 0.244 (0.419) C:96% T:NA	pCi/L	11/06/19 08:02	

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



QUALITY CONTROL - RADIOCHEMISTRY

Project:	Plant Branch				
Pace Project No.:	2624486				
QC Batch:	368258	Analysis Me	thod: EPA 9320		
QC Batch Method:	EPA 9320	Analysis De	scription: 9320 Radiu	ım 228	
Associated Lab Sa	amples: 262448600	01, 2624486002, 2624486003, 262	4486004, 2624486005, 26	24486006, 2624486007	, 2624486008
METHOD BLANK:	1786861	Matrix	: Water		
Associated Lab Sa	amples: 262448600	01, 2624486002, 2624486003, 262	4486004, 2624486005, 26	24486006, 2624486007	, 2624486008
Para	meter	Act ± Unc (MDC) Carr Ti	ac Units	Analyzed	Qualifiers
Radium-228		0.0170 ± 0.384 (0.894) C:77% T:7	/9% pCi/L	11/06/19 17:17	

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



QUALIFIERS

Project:	Plant Branch
Pace Project No .:	2624486

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:	Plant Branch
Pace Project No .:	2624486

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624486001	BRGWC-33S	EPA 9315	368259		
2624486002	BRGWC-34S	EPA 9315	368259		
2624486003	BRGWC-35S	EPA 9315	368259		
2624486004	BRGWC-37S	EPA 9315	368259		
2624486005	BRGWC-38S	EPA 9315	368259		
2624486006	Dup-1	EPA 9315	368259		
2624486007	EB-1	EPA 9315	368259		
2624486008	FB-2	EPA 9315	368259		
2624486001	BRGWC-33S	EPA 9320	368258		
2624486002	BRGWC-34S	EPA 9320	368258		
2624486003	BRGWC-35S	EPA 9320	368258		
2624486004	BRGWC-37S	EPA 9320	368258		
2624486005	BRGWC-38S	EPA 9320	368258		
2624486006	Dup-1	EPA 9320	368258		
2624486007	EB-1	EPA 9320	368258		
2624486008	FB-2	EPA 9320	368258		
2624486001	BRGWC-33S	Total Radium Calculation	370511		
2624486002	BRGWC-34S	Total Radium Calculation	370511		
2624486003	BRGWC-35S	Total Radium Calculation	370511		
2624486004	BRGWC-37S	Total Radium Calculation	370511		
2624486005	BRGWC-38S	Total Radium Calculation	370511		
2624486006	Dup-1	Total Radium Calculation	370511		
2624486007	EB-1	Total Radium Calculation	370511		
2624486008	FB-2	Total Radium Calculation	370511		

Coal Combustion Residuals		IAIN-OF-CUSIOUY Analytical Request Docume	Jalytica	CHAIN-OF-CUSTODY Analytical Request	Document	ent.	5							. 8	1	
inco.com	Bi	Billing Information:						2624486		india 1	reservati	vintainer Preservative Type ••			AB-USE ONLY	
nco.com	ŭ 	Email To: scsinvoices@southernco.com	es@southe	srnco.com			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	eservative 1 ethanol, (7)	Types: (1) n sodium bi:	itric acld, ulfate, (8	(2) sulfuric sodium t	acid, (3) hyi iosulfate, (9	Jrochloric at) hexane, (A	id, (4) sodiu) ascorbic ac		
nco.com	2	Site Collection Info/Address: Plant Branch	/Address:	Plant Branch			0	(C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other Analyses	wdroxide, (0) TSP, (U) Unpreser Analyses	red, (0) Oth			Lab Profile/Une:	
nco.com	5	State: Georgia City: Milledgeville Time Zone Collected: r . IPT 1 . IMT 1 . ICT 1 X IET	y: Milledge f 1PT I	wille Time Zo	one Collected X IET					350 234 24					Lab Sample Receipt Checklist	
rico.com	t Branch		ject # CCR	Project # CCR Pace Profile#								igit i			Collector Signature Present - FUN	
Collected By (print): Purchase Order # :				Pace Project Manager: betsv.mcdaniel@pace	lanager: I@pacelabs.	E							S.		Bottles Intact 7.N.N. Corrier Bottles 7.N.N.N.	
	equired:			Immediately Packed on Ice: [X] Yes [] No	acked on Ice] No			sıı				<u> </u>	a su Sector		5 8	
Rush:				ere	if applicable			ເອເມ	501		11				USDA Regulared Solts YNNY	
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 Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Soild (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bloassay (B), Water (WT), Other (OT) 	DW), Gro iue (TS), E	yund Water (GW). Bioassay (B), Wat	Wastewat er (WT), Ot	er (WW), ther (OT)				s - VI\III qq	, Fluoride,		822.922		age and the		pH Suffee Suffishe Present Lead Acetate Strips	
Matrix *	Comp /	Collected (or Composite Start)	mposite	Composite End	te End	ci Res	Ctrs ef	A slet	loride,		, muib		- 		Lub USE ONLY: Lab Sample # / Comments:	
~	J	Date	Time	Date	Time			PM -	42		6 <i>8</i> 4					
BRGWC-335 GW G	ט	10/16/2019	9:48				4				v	+			(C- hed)	
GW	5	10/16/2019	10:46				9	-			4 4		an J			
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FB-2 W	╈						·					28 <u>3</u>	22	Sec.		
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1 1 (Ann III Metals): B. Ca. (Ann IV Metals): Sb, As, Ba, Be, Cd, Cr, C	T	Type of ice Used:	- Aker	Blue	Dry None	e E		SHOR	SHORT HOLDS PRESENT (<72 hours)	PRESENT	(<72 hot	A 1. IV	N/N		Temp Blank Received W NA	
рь, ц, мо, Se, П		Packing Material Used:	Used	A/V				I qe I	Lab Tracking #:				(1) (1)		Therm ID#: KU Receipt	
		Radchem sample(s) screened (<500 cpm):	s) screene	d (<500 cpm):	z >(AN A		Samp	FEDEX UPS	ived via: UPS CI	: Client Co	Confier Pace Counter	Courter		Cooler 1 Them Corr. Factor: oC Cooler 1 Corrected Temp:OC	
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	Date/Time			Received by/Company		- (Signature)			Date/Time			Acctnum: Tomolate			Inte Balan Recovery 11	ξ.
6 1 2 <u>8</u> 8Hinquished by/Company: (Signature)	Date/	Date/Time:		Received by/Company: (Signature)	ompany: (Si	gnature)			Date/Time:			Prelogin: PM: PM:			Non Conformance(s): Page: 1 YES / NO	

Sa	mple Conditio	n Upon Receipt		
Pace Analytical Client Name	: GIAH	ower_	Project #	
Courier: Fed Ex UPS USPS Clie Tracking #:		Pace Other	Ontional Proj. Die Date:	
Custody Seal on Cooler/Box Present:	🗌 no 🛛 Seal	s intact: yes	no Proj Name:	
Thermometer Used 83	Type of Ice: We		Samples on ice, cooling process has be	eaun
Cooler Temperature	•	e is Frozen: Yes No Comments:	Date and Initials of berson exami contents:	
Chain of Custody Present:		1.		
Chain of Custody Filled Out:				
Chain of Custody Relinquished:		3.		
Sampler Name & Signature on COC:				
Samples Arrived within Hold Time:				+
Short Hold Time Analysis (<72hr):				
Rush Turn Around Time Requested:				
Sufficient Volume:				+
Correct Containers Used:				
-Pace Containers Used:				
Containers Intact:				
Filtered volume received for Dissolved tests				
Sample Labels match COC:	Dires DNg DN/A			
-Includes date/time/ID/Analysis Matrix:	Ŵ			
All containers needing preservation have been checked.		13		
All containers needing preservation are found to be in compliance with EPA recommendation.	PYES DNo DN/A			
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)		Initial when completed	Lot # of added preservative	
Samples checked for dechlorination:		14.		
Headspace in VOA Vials (>6mm):		15.		
Trip Blank Present:		16.		
Trip Blank Custody Seals Present				
Pace Trip Blank Lot # (if purchased):				
Client Notification/ Resolution:			Field Data Required? Y / N	
Person Contacted:	Date	Time:	Field Data Required? Y / N	"
Comments/ Resolution:		·····	<u></u>	
				+
		300	0 W28	+
Project Manager Poulaum				
Project Manager Review:			Date:	
Note: Whenever there is a discrepancy affecting North C Certification Office (i.e out of hold, incorrect preservativ	Carolina compliance sai e, out of temp, incorrec	nples, a copy of this form wi t containers)	ill be sent to the North Carolina DEHNR	



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

January 03, 2020

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

RE: Project: PLANT BRANCH Pace Project No.: 2626394

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on December 04, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Kein Hung

Kevin Herring kevin.herring@pacelabs.com (704)875-9092 HORIZON Database Administrator

Enclosures

cc: Julie Lehrman, Golder Associates Inc.
 Dawn Prell, Golder Associates Inc.
 Eric Rolle, Georgia Power - Coal Combustion Residuals
 Rebecca Thornton, Pace Analytical Atlanta





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

CERTIFICATIONS

Project: PLANT BRANCH

Pace Project No.: 2626394

Pace Analytical Services Atlanta

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



SAMPLE SUMMARY

Project: PLANT BRANCH

Pace Project No.: 2626394

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2626394001	BRGWC-17S	Water	12/03/19 15:15	12/04/19 13:02
2626394002	BRGWC-36S	Water	12/03/19 14:06	12/04/19 13:02



SAMPLE ANALYTE COUNT

Project: PLANT BRANCH Pace Project No.: 2626394

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2626394001	BRGWC-17S	EPA 6020B	CSW	14
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2626394002	BRGWC-36S	EPA 6020B	CSW	14
		SM 2540C	ALW	1
		EPA 300.0	MWB	3



ANALYTICAL RESULTS

Project: PLANT BRANCH

Pace Project No.: 2626394

Sample: BRGWC-17S	Lab ID:	2626394001	Collecte	ed: 12/03/19	9 15:15	Received: 12/	04/19 13:02 Ma	atrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	ND	mg/L	0.0030	0.00027	1	12/06/19 16:36	12/09/19 18:35	7440-36-0	
Arsenic	0.00058J	mg/L	0.0050	0.00035	1	12/06/19 16:36	12/09/19 18:35	7440-38-2	
Barium	0.043	mg/L	0.010	0.00049	1	12/06/19 16:36	12/09/19 18:35	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	12/06/19 16:36	12/09/19 18:35	7440-41-7	
Boron	0.0063J	mg/L	0.040	0.0049	1	12/06/19 16:36	12/09/19 18:35	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	12/06/19 16:36	12/09/19 18:35	7440-43-9	
Calcium	37.7	mg/L	1.0	0.11	10	12/06/19 16:36	12/10/19 13:10	7440-70-2	
Chromium	0.011	mg/L	0.010	0.00039	1	12/06/19 16:36	12/09/19 18:35	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	12/06/19 16:36	12/09/19 18:35	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	12/06/19 16:36	12/09/19 18:35	7439-92-1	
Lithium	0.0010J	mg/L	0.030	0.00078	1	12/06/19 16:36	12/09/19 18:35	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	12/06/19 16:36	12/09/19 18:35	7439-98-7	
Selenium	0.0041J	mg/L	0.010	0.0013	1	12/06/19 16:36	12/09/19 18:35	7782-49-2	
Thallium	0.000066J	mg/L	0.0010	0.000052	1	12/06/19 16:36	12/09/19 18:35	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	378	mg/L	10.0	10.0	1		12/06/19 12:52		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride Fluoride Sulfate	4.8 0.20J 180	mg/L mg/L mg/L	1.0 0.30 10.0	0.024 0.029 0.17	1 1 10		12/10/19 06:02 12/10/19 06:02 12/10/19 17:05	16984-48-8	M1



ANALYTICAL RESULTS

Project: PLANT BRANCH

Pace Project No.: 2626394

Sample: BRGWC-36S	Lab ID:	2626394002	Collecte	ed: 12/03/19	9 14:06	Received: 12/	04/19 13:02 Ma	atrix: Water	
Description	Decilia	11-14-	Report	MDI	55	Descende	A s s h ses s d		Qual
Parameters	Results	Units	Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS	Analytical	Method: EPA 6	6020B Pre	paration Met	hod: EF	PA 3005A			
Antimony	0.00049J	mg/L	0.0030	0.00027	1	12/06/19 16:36	12/09/19 18:58	7440-36-0	
Arsenic	0.0010J	mg/L	0.0050	0.00035	1	12/06/19 16:36	12/09/19 18:58	7440-38-2	
Barium	0.031	mg/L	0.010	0.00049	1	12/06/19 16:36	12/09/19 18:58	7440-39-3	
Beryllium	0.000097J	mg/L	0.0030	0.000074	1	12/06/19 16:36	12/09/19 18:58	7440-41-7	
Boron	1.0	mg/L	0.040	0.0049	1	12/06/19 16:36	12/09/19 18:58	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	12/06/19 16:36	12/09/19 18:58	7440-43-9	
Calcium	47.8	mg/L	1.0	0.11	10	12/06/19 16:36	12/10/19 13:27	7440-70-2	
Chromium	0.0070J	mg/L	0.010	0.00039	1	12/06/19 16:36	12/09/19 18:58	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	12/06/19 16:36	12/09/19 18:58	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	12/06/19 16:36	12/09/19 18:58	7439-92-1	
Lithium	0.0024J	mg/L	0.030	0.00078	1	12/06/19 16:36	12/09/19 18:58	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	12/06/19 16:36	12/09/19 18:58	7439-98-7	
Selenium	0.0035J	mg/L	0.010	0.0013	1	12/06/19 16:36	12/09/19 18:58	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	12/06/19 16:36	12/09/19 18:58	7440-28-0	
2540C Total Dissolved Solids	Analytical	Method: SM 2	540C						
Total Dissolved Solids	498	mg/L	10.0	10.0	1		12/06/19 12:52		
300.0 IC Anions 28 Days	Analytical	Method: EPA	300.0						
Chloride	7.7	mg/L	1.0	0.024	1		12/10/19 07:08	16887-00-6	M1
Fluoride	0.15J	mg/L	0.30	0.029	1		12/10/19 07:08	16984-48-8	
Sulfate	256	mg/L	10.0	0.17	10		12/10/19 17:27	14808-79-8	



Project: PLANT BRANCH

Pace Project No.: 2626394

QC Batch: 40094		Analysis Meth	nod: E	PA 6020B		
QC Batch Method: EPA 3005A		Analysis Des	cription: 60	20B MET		
Associated Lab Samples: 26263	94001, 2626394002					
METHOD BLANK: 182248		Matrix:	Water			
Associated Lab Samples: 26263	94001, 2626394002					
		Blank	Reporting			
Parameter	Units	Result	Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	12/09/19 18:24	
Arsenic	mg/L	ND	0.0050	0.00035	12/09/19 18:24	
Barium	mg/L	ND	0.010	0.00049	12/09/19 18:24	
Beryllium	mg/L	ND	0.0030	0.000074	12/09/19 18:24	
Boron	mg/L	ND	0.040	0.0049	12/09/19 18:24	
Cadmium	mg/L	ND	0.0025	0.00011	12/09/19 18:24	
Calcium	mg/L	ND	0.10	0.011	12/09/19 18:24	
Chromium	mg/L	ND	0.010	0.00039	12/09/19 18:24	
Cobalt	mg/L	ND	0.0050	0.00030	12/09/19 18:24	
Lead	mg/L	ND	0.0050	0.000046	12/09/19 18:24	
Lithium	mg/L	ND	0.030	0.00078	12/09/19 18:24	
Molybdenum	mg/L	ND	0.010	0.00095	12/09/19 18:24	
Selenium	mg/L	ND	0.010	0.0013	12/09/19 18:24	
Thallium	mg/L	ND	0.0010	0.000052	12/09/19 18:24	

LABORATORY CONTROL SAMPLE: 182249

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
ntimony	mg/L	0.1	0.098	98	80-120	
senic	mg/L	0.1	0.094	94	80-120	
rium	mg/L	0.1	0.095	95	80-120	
yllium	mg/L	0.1	0.10	100	80-120	
ron	mg/L	1	1.0	100	80-120	
dmium	mg/L	0.1	0.096	96	80-120	
cium	mg/L	1	0.94	94	80-120	
omium	mg/L	0.1	0.10	100	80-120	
alt	mg/L	0.1	0.099	99	80-120	
	mg/L	0.1	0.097	97	80-120	
ım	mg/L	0.1	0.096	96	80-120	
bdenum	mg/L	0.1	0.099	99	80-120	
nium	mg/L	0.1	0.097	97	80-120	
llium	mg/L	0.1	0.099	99	80-120	

MATRIX SPIKE & MATRIX SP	IKE DUPL	ICATE: 1822	50		182251							
			MS	MSD								
		2626394001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.097	0.10	97	100	75-125	3	20	

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

REPORT OF LABORATORY ANALYSIS

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Project: PLANT BRANCH

Pace Project No.: 2626394

MATRIX SPIKE & MATRIX	SPIKE DUPL	ICATE: 1822	50 MS	MSD	182251							
		2626394001	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Arsenic	mg/L	0.00058J	0.1	0.1	0.096	0.098	95	97	75-125	2	20	
Barium	mg/L	0.043	0.1	0.1	0.13	0.13	87	91	75-125	3	20	
Beryllium	mg/L	ND	0.1	0.1	0.091	0.097	91	97	75-125	7	20	
Boron	mg/L	0.0063J	1	1	0.90	0.96	90	96	75-125	6	20	
Cadmium	mg/L	ND	0.1	0.1	0.096	0.10	96	100	75-125	4	20	
Calcium	mg/L	37.7	1	1	36.4	38.8	-129	115	75-125	7	20	
Chromium	mg/L	0.011	0.1	0.1	0.11	0.11	96	103	75-125	7	20	
Cobalt	mg/L	ND	0.1	0.1	0.096	0.10	96	101	75-125	5	20	
Lead	mg/L	ND	0.1	0.1	0.092	0.097	92	97	75-125	5	20	
Lithium	mg/L	0.0010J	0.1	0.1	0.086	0.094	85	93	75-125	9	20	
Molybdenum	mg/L	ND	0.1	0.1	0.097	0.099	97	98	75-125	2	20	
Selenium	mg/L	0.0041J	0.1	0.1	0.099	0.099	95	95	75-125	0	20	
Thallium	mg/L	0.000066J	0.1	0.1	0.096	0.098	96	98	75-125	2	20	

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REPORT OF LABORATORY ANALYSIS

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- ,	PLANT BRANCH 2626394								
QC Batch:	40059		Analysis I	Method:	SM 2540C				
QC Batch Method:	SM 2540C		Analysis [Description:	2540C Total D	issolved Solids			
Associated Lab Samp	oles: 262639400	1, 2626394002							
LABORATORY CONT	TROL SAMPLE:	182120							
			Spike	LCS	LCS	% Rec			
Parame	eter	Units	Conc.	Result	% Rec	Limits	Qu	alifiers	
Total Dissolved Solids	3	mg/L	400	405	101	84-108			
SAMPLE DUPLICATE	E: 182121								
			2626394001	l Dup		Max			
Parame	eter	Units	Result	Result	RPD	RPD		Qualifiers	
Total Dissolved Solids	3	mg/L	37	78 3	352	7	10		
SAMPLE DUPLICATE	E: 182122								
			2626443001	l Dup		Max			
Parame	eter	Units	Result	Result	RPD	RPD		Qualifiers	
Total Dissolved Solids	3	mg/L	66	.0 7	0.0	6	10		

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



Project: PLANT Pace Project No.: 262639	BRANCH											
QC Batch: 4012	5		Anal	ysis Metho	d: E	EPA 300.0						
QC Batch Method: EPA 3				ysis Descri		300.0 IC An	ions					
Associated Lab Samples:		, 2626394002										
METHOD BLANK: 182354	Ļ			Matrix: W	ater							
Associated Lab Samples:	2626394007	, 2626394002										
			Bla		Reporting							
Parameter		Units	Res	ult	Limit	MD	L	Analyzed	Qi	ualifiers	j	
Chloride		mg/L		0.040J	1.0		0.024	12/10/19 04:				
Fluoride		mg/L		ND	0.30		0.029	12/10/19 04:				
Sulfate		mg/L		ND	1.0)	0.017	12/10/19 04:	56			
LABORATORY CONTROL S	SAMPLE: 1	82355										
			Spike	LC		LCS		Rec	0 117			
Parameter		Units	Conc.	Res		% Rec	L		Qualifiers	_		
Chloride		mg/L		5	5.0	100		90-110				
Fluoride		mg/L		5	4.8	9		90-110				
Sulfate		mg/L		5	5.4	108	8	90-110				
MATRIX SPIKE & MATRIX S	SPIKE DUPL	ICATE: 1823	56		182357							
			MS	MSD								
Doromotor	Linito	2626394001	Spike	Spike	MS	MSD Decult	MS	MSD c % Rec	% Rec	RPD	Max RPD	0
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec		Limits			Qua
Chloride	mg/L	4.8	10	10	13.9	13.8		91 90 01 90				N44
Fluoride	mg/L	0.20J	10	10	9.3	9.1		91 89	90-110			IVI1
Sulfate	mg/L	180	10	10	120	120	-59	94 -593	90-110	0) 15	
MATRIX SPIKE SAMPLE:	1	82358										
			2626	394002	Spike	MS		MS	% Red			
Parameter		Units	Re	esult	Conc.	Result		% Rec	Limits		Quali	fiers
Chloride		mg/L		7.7	10		16.6	89	90)-110 N	11	
Fluoride		mg/L		0.15J	10		9.7	96	90)-110		
0		- //		050	4.0		400	070				

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

256

10

188

-673

90-110

mg/L

REPORT OF LABORATORY ANALYSIS

Sulfate

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QUALIFIERS

Project: PLANT BRANCH

Pace Project No.: 2626394

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

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



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PLANT BRANCH Pace Project No.: 2626394

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2626394001	BRGWC-17S	EPA 3005A	40094	EPA 6020B	40112
2626394002	BRGWC-36S	EPA 3005A	40094	EPA 6020B	40112
2626394001	BRGWC-17S	SM 2540C	40059		
2626394002	BRGWC-36S	SM 2540C	40059		
2626394001	BRGWC-17S	EPA 300.0	40125		
2626394002	BRGWC-36S	EPA 300.0	40125		

4	Non Conformance(s): Page: 1 YES / NO of: 1			PM:	<u> </u>		Date/Time:			sture)	any: (Signa	Received by/Company: (Signature)	Receiv	e	Date/Time:			Relinquished by/Company: (Signature)
her	HCL MeOH TSP Other			Accunum: Template: Prelogin:	말금		ate/ Inme:			aruye)	any: (sign:	received by/Company: (Signatuye)	Kecelv	Ģ	Date/Iime:			Relinquished by/Company: (Signature)
	The plant Destinut V M			Table #:		19 13	4	25	PACE	N/P	NGTO	N. Wellington		-19/302	12.4		8	
100	Comments:	IV III	MTILLAR USE ONLY	MTILLA	- 12		∃		10000	turel /	anv: /Signa	ad hv/Comn	18	1000	Date/Time			in the hulformout fiers the
	_ē }		e Courier	Courier Pace Courier	66853	ed via: PS Client	Samples received via: FEDEX UPS (Samples r FEDEX		がたい	N NA	cpm): Y	eened (<500	Radchem sample(s) screened (<500 cpm):	Rado			
æ	Therm 10#: THEO 83						Lab Tracking #:	Lab Tr						Packing Material Used:	Pack			Pb, Li, Mo, Se, Ti
	LAB Sample Temperature Info:	CONTRACT OF	N N/A	A : (sur	<72 hou	HOLDS PRESENT (<72 hours) :	T HOLDS F	SHORT	2000		None	Blue Dry	Wet B	Type of Ice Used:		Be, Cd, Cr, C): Sb, As, Ba,	(App III Metals): B, Ca, (App IV Metals): Sb, As, Ba, Be, Cd, Cr, Co,
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いたのの	の場合になっていたななのでないのなからい。	1100	All and	885	22	100	2	H	ω		1000		14:06	12/3/2019 1		< G	GW	BRGWC-36S
のないないない		1000	連載	478	1	and a	2		ω			No. of Lot	15:15	1-	╞	╞	GW	BRGWC-17S
			1	2.963	Rad		Chl	Me			Time	Date			⊢			
	LAB USE ONLY: Lab Sample # / Comments:	13		126.5	dium		orid	tals	# of Ctns		a.	Composite End		Collected (or Composite Start)	Grab Comp / Co		Matrix *	Customer Sample ID
			設定	25	n 23		le,	Ap	2	-			-14-2	Instal for Comme	4	2		
	pH Strips:Y N NA Sulfide Present Y N NA Lead Acetate Strips:			CINE POLICY	26.228		Fluoride	p III/IV				ΞŞ	tewater (WV /T), Other (O	d Water (GW), Was assay (B), Water (V	V), Ground e (TS), Bioa	ng Water (Dv r (AR), Tissu	low): Drinkir Spe (WP), Ai	* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Water (WT), Other (OT)
	CI Strips: Sample pH Acceptable Y N NA			#2327.1			, Sul	see	C.M				Anaiysis:	(ppiy)	(Expedite Charges Appiy)	(Expedi		
	Samples in Holding Time Y N NA Residual Chlorine Present Y N NA				S.S.P		lfate,	com			Ċ			2 Day []3 Day []4 Day []5 Day	[]3 Day []4 Day []	Day [] 3 D	[]2	
	USDA Regulated Soils Y N NA	Sec.		0101	12		TD	me			plicable):	tereo	Field Fil	Naxt Day		[] Came	Rush:	1
	Samples Received on Ice Y N NA			1.12			5	nts	-		ed on Ice:	[X] Yes [] No	Immedia [X] Yes		quired:	Turnaround Date Required:	Turnaro	Collected By (signature)
					22			- Netler			relabs.com	race rioject manager: kevin herring@pacelabs.com	kevin.			Quote #:	Quote #:	Collected By (print): Travis Martinez
	ature Pi	isi i Nki		at FAU				1000	-				2				, -	Email: jabraham@southernco.com
	Custody Seals Present/Intact Y N NA			1283	10				34			ace Profile#	Project # CCR Pace Profile#	Project	Branch E	Project Name: Plant Branch E	Project N	email: Jabranam@southernco.com Phone: (404) 506-7239
	Lab Sample Receipt Checklist:	Sec.		· ·		100		69			Collected: T	Time Zone Collected:	9	State: Georgia City: M	State			phone: (404) 506-7239
Print Point	tah Profile/Line:		Juner	(L) ammonium nyoroxide, (L) TSP, (U) unpreserved, (U) Uner	Analyses	(D) 138, (C	nyaraxiae,	monut	(c) ar									
	ypto: r.t.y minis edus (27 sinium edus), 13 invincium e ees, 14 socialis (48 socialis et escesic) sodium bisulfate, (8) sodium thiosulfate, (A) hexane, (A) ascorbic acid, (8) ammonium sulfate, odravida (10) TSD (11) Increased (10) Orber	t, (A) ascorbi	, (9) hexane	thiosulfate,) sodium i	isulfate, (8	sodium b	(6) methanol, (7)) (i) (i) (i) (i) (i) (i) (i) (i) (i) (i			ranch	dress: Plant E	Site Collection Info/Address: Plant Branch	Site			Copy To: Golder
0.00.000	Voes: (1) nitric acid. (2) sulfuric acid. (3) hydrochloria acid. (4) sodium hydroxide. (5) zinc acetate.	- arid (4) 50	I	I IPine d	12) sulfuri	vitric acid		** Preservative	-			ЮШ	southernco.	Email To: scsinvolces@southernco.com	Emai			Report To: Joju Abraham
の記述	Lab Project Manager:			Container Preservative Type **	oreserva	ontainer	- 0	-										Address: 2480 Maner Road Atlanta, GA 30339
	are for LAB USE ONLY	are for	ALL SHADED AREAS	ADED .	LL SH	A			-19					ng Information:	Billin	1	stion Residu	Company: Georgia Power - Coal Combustion Residuals
Page											rent fields	vlete all rele	MENT - Comp	Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields	of-Custody	Chain-		Pace Analytical
13 c	LAB USE ONLY- ATTIX Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-In Number Here	ter/Login Label Here or Lis MTJL Log-in Number Here	ALTIT FOR IL	Workorde	Y- ATTIX	USE ONL	LAB		10	nt	ocume	quest D	ytical Re	CHAIN-OF-CUSTODY Analytical Request Document	-OF-CU	CHAIN		Č.
of 15																		

Pace Analytical Client Name:		Pr	oject #
		Pace Other	
icking #: stody Seal on Cooler/Box Present: ① yes	no Seels inta	ct: 🛛 yes 🗇	10
	Bags I Nonte I		6048
			Samples on ice, cooling procless has begun
ermometer Used THRO'85	Type of Ice: Wet E		Date and Initials of person examining
ooler Temperature	Biological Tissue is I	omments:	contents:
mp should be above freezing to 6°C	Tres INO IN/A 1.		
hain of Custody Present:	GYes INO IN/A 2.		
hain of Custody Filled Out:	Ores ONO ON/A 2.		
hain of Custody Relinquished:			
ampler Name & Signature on COC:		A CALL AND A CALL AND A CALL AND A CALL AND A CALL AND A CALL AND A CALL AND A CALL AND A CALL AND A CALL AND A	
amples Arrived within Hold Time:			
short Hold Time Analysis (<72hr):	TYes Cano ON/A 6		
Rush Turn Around Time Requested:			i
Sufficient Volume:			
Correct Containers Used:	VYes DNO DN/A) ,	
-Pace Containers Used:	Yes No N/A	02	
Containers Intact:	Pres DNo DN/A		
Filtered volume received for Dissolved tests	Yes No DAIA		
Sample Labels match COC:	TYes ONO ON/A	12	
-Includes date/time/ID/Analysis Matrix: (JW_		
All containers needing preservation have been checked.	ZYes DNO DN/A	13.	
All containers needing preservation are found to be in			
compliance with EPA recommendation.		Initial when	Lot # of added
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)		completed	preservative
Samples checked for dechlorination:		14	
Headspace in VOA Vials (>6mm):		15.	
Trip Blank Present:	TYes No ON/A	16.	
Trip Blank Custody Seals Present	TYes No NA		15.8 a
Pace Trip Blank Lot # (if purchased):	<u></u>		
Client Notification/ Resolution:			Field Data Required? Y / N
Person Contacted:	Date	/Time:	
Comments/ Resolution:		570 IS	S
	5a		0 96 9 30
			3000 W28
	· · · · · · · · · · · · · · · · · · ·		Data
Project Manager Review:			Date:

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

F-ALLC003rev.3, 11September2006

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Document Issued: March 14, 2019 Document Name: Page 1 of 1 Bottle Identification Form (BIF) Pace Analytical Issuing Authority: Document No.: Pace Carolinas Quality Office F-CAR-CS-043-Rev.00 Project # *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 bottle AGOU-100 mL Amber Unpreserved vials (N/A) AG3A(DG3A)-250 mL Amber NH4CI (N/A)(CI-) AG3U-250 mL Amber Unpreserved (N/A) (CI-) WGFU-Wide-mouthed Glass jar Unpreserved BP4Z-125 mL Plastic ZN Acetate & NaOH (>9) AG1U-1 liter Amber Unpreserved (N/A) (CI-) BP4U-125 mL Plastic Unpreserved (N/A) (CI-) BP3A-250 mL Plastic (NH2)2504 (9.3-9.7) V/GK (3 vials per kit}-VPH/Gas kit (N/A) SP2T-250 mL Sterile Plastic (N/A - fab) BP4C-125 mL Plastic NaOH (pH > 12) (CI-) SPST-125 mL Sterile Plastic (N/A - lab) BP4S-125 mL Plastic H2SO4 (pH < 2) (CI-) BP3U-250 mL Plastic Unpreserved (N/A) BP2U-500 mL Plastic Unpreserved (N/A) Incrition vials (N/A) VOAK (6 vials per kit)-5035 kit (N/A) BP1U-1 liter Plastic Unpreserved (N/A) **AG3S-**250 mL Amber H2504 (pH < 2) AG1S-1 liter Amber H2SO4 (pH < 2) BP3N-250 mL plastic HNO3 (pH < 2) VG9T-40 mL VOA Na2S2O3 (N/A) AG1H-1 liter Amber HCI (pH < 2) DG9P-40.mL VOA H3PO4 (N/A) VG9U-40 mL VOA Unp (N/A) DG9H-40 mt VOA HCI (N/A) Matrix tremit 1 2 3 4 9 5 6 7 8 9 10 11 12

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			justment Log for Pres	Time preservation	Amount of Preservative	ما
Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	adjusted	added	
						<u> </u>
		<u> </u>				<u> </u>
	·	<u> </u>	10		he North Carolina DEHNR Certifi	

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this Out of hold, incorrect preservative, out of temp, incorrect containers.

Page 15 of 15



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

January 08, 2020

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

RE: Project: PLANT BRANCH RADIUM RESAMPLE Pace Project No.: 2627067

Dear Joju Abraham:

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

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

Sincerely,

Kein Hung

Kevin Herring kevin.herring@pacelabs.com (704)875-9092 HORIZON Database Administrator

Enclosures

cc: Julie Lehrman, Golder Associates Inc.
 Dawn Prell, Golder Associates Inc.
 Eric Rolle, Georgia Power - Coal Combustion Residuals
 Rebecca Thornton, Pace Analytical Atlanta





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

CERTIFICATIONS

Project: PLANT BRANCH RADIUM RESAMPLE

Pace Project No.: 2627067

Pace Analytical Services Pennsylvania

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601 ANAB DOD-ELAP Rad Accreditation #: L2417 Alabama Certification #: 41590 Arizona Certification #: AZ0734 Arkansas Certification California Certification #: 04222CA Colorado Certification #: PA01547 Connecticut Certification #: PH-0694 **Delaware Certification** EPA Region 4 DW Rad Florida/TNI Certification #: E87683 Georgia Certification #: C040 Florida: Cert E871149 SEKS WET **Guam Certification** Hawaii Certification Idaho Certification **Illinois Certification** Indiana Certification Iowa Certification #: 391 Kansas/TNI Certification #: E-10358 Kentucky Certification #: KY90133 KY WW Permit #: KY0098221 KY WW Permit #: KY0000221 Louisiana DHH/TNI Certification #: LA180012 Louisiana DEQ/TNI Certification #: 4086 Maine Certification #: 2017020 Maryland Certification #: 308 Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification #: 9991

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



SAMPLE SUMMARY

Project: PLANT BRANCH RADIUM RESAMPLE

Pace Project No.: 2627067

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2627067001	BRGWC-17S	Water	12/18/19 10:25	12/18/19 14:24
2627067002	BRGWC-36S	Water	12/18/19 11:45	12/18/19 14:24



SAMPLE ANALYTE COUNT

Project: PLANT BRANCH RADIUM RESAMPLE

Pace Project No.: 2627067

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2627067001	BRGWC-17S	EPA 9315	JJY	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2627067002	BRGWC-36S	EPA 9315	JJY	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PLANT BRANCH RADIUM RESAMPLE

Pace Project No.: 2627067

Sample: BRGWC-17S PWS:	Lab ID: 26270670 Site ID:	001 Collected: 12/18/19 10:25 Sample Type:	Received:	12/18/19 14:24	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.513 ± 0.274 (0.353) C:104% T:NA	pCi/L	12/31/19 08:34	4 13982-63-3	
Radium-228	EPA 9320	0.650 ± 0.571 (1.16) C:67% T:85%	pCi/L	01/02/20 15:04	4 15262-20-1	
Total Radium	Total Radium Calculation	1.16 ± 0.845 (1.51)	pCi/L	01/03/20 10:58	8 7440-14-4	



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: PLANT BRANCH RADIUM RESAMPLE

Pace Project No.: 2627067

Sample: BRGWC-36S PWS:	Lab ID: 26270670 Site ID:	Collected: 12/18/19 11:45 Sample Type:	Received:	12/18/19 14:24	Matrix: Water	
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	0.712 ± 0.326 (0.287) C:89% T:NA	pCi/L	12/31/19 08:34	4 13982-63-3	
Radium-228	EPA 9320	1.20 ± 0.571 (0.968) C:67% T:95%	pCi/L	01/02/20 15:04	4 15262-20-1	
Total Radium	Total Radium Calculation	1.91 ± 0.897 (1.26)	pCi/L	01/03/20 10:58	8 7440-14-4	



QUALITY CONTROL - RADIOCHEMISTRY

Project:	PLANT BRANCH	I RADIUM RESAMPLE				
Pace Project No.:	2627067					
QC Batch:	377002		Analysis Method:	EPA 9315		
QC Batch Method:	EPA 9315		Analysis Description:	9315 Total Radiun	า	
Associated Lab Sa	mples: 2627067	001, 2627067002				
METHOD BLANK:	1828861		Matrix: Water			
Associated Lab Sa	mples: 2627067	001, 2627067002				
Para	meter	Act ± Unc ((MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226		0.249 ± 0.216 (0.370	0) C:94% T:NA	pCi/L	12/31/19 08:33	

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



QUALITY CONTROL - RADIOCHEMISTRY

Project:	PLANT BRANCH	RADIUM RESAM	MPLE			
Pace Project No.:	2627067					
QC Batch:	376994		Analysis Method:	EPA 9320		
QC Batch Method:	EPA 9320		Analysis Description:	9320 Radium 228	5	
Associated Lab Sa	mples: 2627067	001, 2627067002				
METHOD BLANK:	1828831		Matrix: Water			
Associated Lab Sa	mples: 2627067	001, 2627067002				
Para	meter	Act ±	Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228		0.605 ± 0.407	(0.773) C:65% T:84%	pCi/L	01/02/20 11:57	

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



QUALIFIERS

Project: PLANT BRANCH RADIUM RESAMPLE

Pace Project No.: 2627067

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PLANT BRANCH RADIUM RESAMPLE

Pace Project No.: 2627067

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2627067001	BRGWC-17S	EPA 9315	377002		
2627067002	BRGWC-36S	EPA 9315	377002		
2627067001	BRGWC-17S	EPA 9320	376994		
2627067002	BRGWC-36S	EPA 9320	376994		
2627067001	BRGWC-17S	Total Radium Calculation	377979		
2627067002	BRGWC-36S	Total Radium Calculation	377979		



			~																				SAMPLE CONDITIONS					(Y/N) Sealed Coolar (Y/N) Coolar (Y/N)	
			Recutations Acta		State / Location	GA	The second	100															SAMPLE				uo	Received Ice (Y/N)	
			Recurdan	ion Max	State			2.83	(N/Y) en	Residual Chlori			1														:) ni 9MƏT	
			Berry B		No. Con																			54	┥				
	67		10 miles		1000		(NIN)					-	┝										TIME	12				0	
	2627067		and a		and and	Ц	Fitered			10													E	8			A STATE	61-81.	
	3						Analysis Filtered (Y/N																DATE	121				1.61	
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	tion:				nager:	2804		Preservatives		нсі													10	Mi			C. C. C.	2	
ں ^ہ	Itoma	Name		ote:	ject Ma	file #:		ā		HNO3 HSSO4	×	\times														-	1	5	
Section C	Invoice Information: Attention	Company Name	Address:	Pace Quote:	Pace Project Manager:	ace Pro			CN	# OF CONTAINE Unpreserved	3	8 8											TIME				111-	Yar	
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					Plant Branch Radium			8	START	TIME													RELINQUISHED BY / AFFILIATION	160 id			SAMPLEF		
	mation				It Branc				S.	DATE													ED BY /	Q.L					
	ct Intor Air Mir			#	Plar				(G=GRAB C=		WG	6											NQUISH	An Kaa			1		
8				e Order	Vame:	44	ŀ			MATRIX CODE	Ą	M											REL	Korn /					
Section B	Required Project Information: Report To: Karim Micham	L Vao		Purchase Order #:	Project Name:	Project #		000	ᅙᆮ ᄚ	AR OT ST														\square		-	-		
	ľ	Ť						TRIX	Drinking Water Water Waste Water Product Soi//Solid Oit	sue sue																	i.		
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į	orietee	5170 Peachtree Road	Buidling 100, Suite 300, Atlanta, GA 30341	karim_minkara@golder.com	402		ý.		SAMPLE ID	One Character per box. (A.Z, 0-9 / , -) Sample Ids must be unique	BR GWC-	52		-									ADDITIONAL COMMENTS				5		
Section A Beautred Clant Information	Golder Accordates	O Pead	300, A	nkara@	(615)586-1402	ate:			SAN	One Chi Emple (A	32	BRGW											ADC						
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Sam	ple Condition Upon Receipt	
Pace Analytical Client Name:	Alles Assasiutes	
Client Name:	Bolder Associutes PM: MZP Due Date: 01/	17/20
	CLIENT: Geosyntec	
rier: D Fed Ex D UPS USPS C Client		
stody Seal on Cooler/Box Present: yes	no Seels intact: yes The no	2.2%
	Bags Norife Other	
	Turne of Loss (Mo) Blue None Samples on ice, cooling process has begu	n
ermometer Used <u>THR 214</u>	Biological Tissue is Frozen: Yes No Contents:	9
pler Temperature 1,4°C > 7	Comments:	
ain of Custody Present:	⊠Yes □No □N/A 1.	
ain of Custody Filled Out:	Gryes □No □N/A 2.	
ain of Custody Relinquished:	Qyes □No □N/A 3.	
mpler Name & Signature on COC:		
mples Arrived within Hold Time:	⊠Yes □No □N/A 5.	
nort Hold Time Analysis (<72hr):	□Yes QN0 □N/A 6.	
ush Turn Around Time Requested:	□Yes □No 1/20N/A 7. /	
ufficient Volume:	Ø¥es □No □N/A 8. t	
orrect Containers Used:		
-Pace Containers Used:		
ontainers Intact:	ØYes □No □N/A 10.	
iltered volume received for Dissolved tests	□Yes □No ØN/A 11.	
ample Labels match COC:	\square Nes \square No \square N/A 12.	
-Includes date/time/ID/Analysis Matrix:		
Il containers needing preservation have been checked.		1.
Il containers needing preservation are found to be in		
compliance with EPA recommendation.	Initial when 12, 19, 10 Lot # of added	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)		
Samples checked for dechlorination:		
Headspace in VOA Vials (>6mm):		
Trip Blank Present:		
Trip Blank Custody Seals Present		
Pace Trip Blank Lot # (if purchased):		5
Client Notification/ Resolution:	Field Data Required? Y /	N
Person Contacted:		
Comments/ Resolution:		
	3000 W28	-
·		

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







Department of Health, Bureau of Public Health Laboratories This is to certify that

E87315

ANALYTICAL SERVICES, INC. 110 TECHNOLOGY PARKWAY NORCROSS, GA 30092

has complied with Florida Administrative Code 64E-1, for the examination of environmental samples in the following categories

DRINKING WATER - MICROBIOLOGY, DRINKING WATER - PRIMARY INORGANIC CONTAMINANTS, DRINKING WATER - SECONDARY INORGANIC CONTAMINANTS, NON-POTABLE WATER - EXTRACTABLE ORGANICS, NON-POTABLE WATER - GENERAL CHEMISTRY, NON-POTABLE WATER -METALS, NON-POTABLE WATER - MICROBIOLOGY, NON-POTABLE WATER - PESTICIDES-HERBICIDES-PCB'S, NON-POTABLE WATER - VOLATILE ORGANICS, SOLID AND CHEMICAL MATERIALS - EXTRACTABLE ORGANICS, SOLID AND CHEMICAL MATERIALS - GENERAL CHEMISTRY, SOLID AND CHEMICAL MATERIALS - METALS, SOLID AND CHEMICAL MATERIALS - MICROBIOLOGY, SOLID AND CHEMICAL MATERIALS -PESTICIDES-HERBICIDES-PCB'S, SOLID AND CHEMICAL MATERIALS - VOLATILE ORGANICS

Continued certification is contingent upon successful on-going compliance with the NELAC Standards and FAC Rule 64E-1 regulations. Specific methods and analytes certified are cited on the Laboratory Scope of Accreditation for this laboratory and are on file at the Bureau of Public Health Laboratories, P. O. Box 210, Jacksonville, Florida 32231. Clients and customers are urged to verify with this agency the laboratory's certification status in Florida for particular methods and analytes.

Date Issued: July 01, 2015 Expiration Date: June 30, 2016



Carina Blackmore, DVM, PhD, Dipl. ACVPM, CPM Chief, Bureau of Public Health Laboratories DH Form 1697, 7/04 NON-TRANSFERABLE E87315-31-07/01/2015 Supersedes all previously issued certificates







State of Florida Department of Health, Bureau of Public Health Laboratories This is to certify that

E87315

PACE ANALYTICAL SERVICES, INC. - ATLANTA 110 TECHNOLOGY PARKWAY PEACHTREE CORNERS, GA 30092

has complied with Florida Administrative Code 64E-1, for the examination of environmental samples in the following categories

DRINKING WATER - MICROBIOLOGY, DRINKING WATER - PRIMARY INORGANIC CONTAMINANTS, DRINKING WATER - SECONDARY INORGANIC CONTAMINANTS, NON-POTABLE WATER - EXTRACTABLE ORGANICS, NON-POTABLE WATER - GENERAL CHEMISTRY, NON-POTABLE WATER -METALS, NON-POTABLE WATER - MICROBIOLOGY, NON-POTABLE WATER - PESTICIDES-HERBICIDES-PCB'S, NON-POTABLE WATER - VOLATILE ORGANICS, SOLID AND CHEMICAL MATERIALS - EXTRACTABLE ORGANICS, SOLID AND CHEMICAL MATERIALS - GENERAL CHEMISTRY, SOLID AND CHEMICAL MATERIALS - METALS, SOLID AND CHEMICAL MATERIALS - MICROBIOLOGY, SOLID AND CHEMICAL MATERIALS -PESTICIDES-HERBICIDES-PCB'S, SOLID AND CHEMICAL MATERIALS - VOLATILE ORGANICS



Continued certification is contingent upon successful on-going compliance with the NELAC Standards and FAC Rule 64E-1 regulations. Specific methods and analytes certified are cited on the Laboratory Scope of Accreditation for this laboratory and are on file at the Bureau of Public Health Laboratories, P. O. Box 210, Jacksonville, Florida 32231. Clients and customers are urged to verify with this agency the laboratory's certification status in Florida for particular methods and analytes.

Date Issued: July 01, 2016 Expiration Date: June 30, 2017



Susanne Crowe, MHA Acting Chief, Bureau of Public Health Laboratories DH Form 1697, 7/04 NON-TRANSFERABLE E87315-33-07/01/2016 Supersedes all previously issued certificates







State of Florida Department of Health, Bureau of Public Health Laboratories This is to certify that

E87315

PACE ANALYTICAL SERVICES, LLC- ATLANTA GA 110 TECHNOLOGY PARKWAY PEACHTREE CORNERS, GA 30092

has complied with Florida Administrative Code 64E-1, for the examination of environmental samples in the following categories

DRINKING WATER - MICROBIOLOGY, DRINKING WATER - PRIMARY INORGANIC CONTAMINANTS, DRINKING WATER - SECONDARY INORGANIC CONTAMINANTS, NON-POTABLE WATER - EXTRACTABLE ORGANICS, NON-POTABLE WATER - GENERAL CHEMISTRY, NON-POTABLE WATER -METALS, NON-POTABLE WATER - MICROBIOLOGY, NON-POTABLE WATER - PESTICIDES-HERBICIDES-PCB'S, NON-POTABLE WATER - VOLATILE ORGANICS, SOLID AND CHEMICAL MATERIALS - EXTRACTABLE ORGANICS, SOLID AND CHEMICAL MATERIALS - GENERAL CHEMISTRY, SOLID AND CHEMICAL MATERIALS - METALS, SOLID AND CHEMICAL MATERIALS - MICROBIOLOGY, SOLID AND CHEMICAL MATERIALS -PESTICIDES-HERBICIDES-PCB'S, SOLID AND CHEMICAL MATERIALS - VOLATILE ORGANICS



Continued certification is contingent upon successful on-going compliance with the NELAC Standards and FAC Rule 64E-1 regulations. Specific methods and analytes certified are cited on the Laboratory Scope of Accreditation for this laboratory and are on file at the Bureau of Public Health Laboratories, P. O. Box 210, Jacksonville, Florida 32231. Clients and customers are urged to verify with this agency the laboratory's certification status in Florida for particular methods and analytes.

Date Issued: July 01, 2017 Expiration Date: June 30, 2018



Susanne Crowe, MHA Acting Chief, Bureau of Public Health Laboratories DH Form 1697, 7/04 NON-TRANSFERABLE E87315-37-07/01/2017 Supersedes all previously issued certificates







State of Florida Department of Health, Bureau of Public Health Laboratories This is to certify that

E87315

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Continued certification is contingent upon successful on-going compliance with the NELAC Standards and FAC Rule 64E-1 regulations. Specific methods and analytes certified are cited on the Laboratory Scope of Accreditation for this laboratory and are on file at the Bureau of Public Health Laboratories, P. O. Box 210, Jacksonville, Florida 32231. Clients and customers are urged to verify with this agency the laboratory's certification status in Florida for particular methods and analytes.

Date Issued: July 01, 2018 Expiration Date: June 30, 2019



Patty A. Lewandowski, MBA, MT(ASCP) Chief Bureau of Public Health Laboratories DH Form 1697, 7/04 NON-TRANSFERABLE E87315-39-07/01/2018 Supersedes all previously issued certificates

APPENDIX B

FIELD DATA FORMS

Date: 2019-08-27 11:57:11

Project Information:		Pump Information:	
Operator Name	Travis Martinez	Pump Model/Type	QED
Company Name	Golder	Tubing Type	poly
Project Name	Branch	Tubing Diameter	0.17 in
Site Name	Plant Branch	Tubing Length	44.60 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	642531		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	39.60 ft
Well Information:		Pumping Information:	
Well ID	BRGWA-2S	Final Pumping Rate	180 mL/min
Well diameter	2 in	Total System Volume	0.4840687 L
Well Total Depth	44.60 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	0.13 in
Depth to Water	15.35 ft	Total Volume Pumped	3.6 L

Low-Flow Sa	mpling Stabiliz	zation Summary	/						
	Time	Elapsed	Temp C	pН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 5		+/- 0.2	+/- 0
Last 5	11:38:21	300.03	20.57	6.11	62.72	0.40	15.45	3.03	8.27
Last 5	11:43:21	600.03	19.41	6.07	63.60	0.23	15.48	3.13	9.52
Last 5	11:48:21	900.02	19.38	6.07	63.58	0.34	15.48	3.31	10.44
Last 5	11:53:21	1200.02	19.47	6.09	63.68	0.33	15.48	3.20	9.33
Last 5									
Variance 0			-1.16	-0.04	0.88			0.11	1.24
Variance 1			-0.03	-0.00	-0.02			0.18	0.92
Variance 2			0.09	0.02	0.10			-0.11	-1.11

Notes

Date: 2019-08-27 12:01:25

Project Information:		Pump Information:	
Operator Name	J. Quenneville	Pump Model/Type	QED
Company Name	Golder	Tubing Type	poly
Project Name	Branch	Tubing Diameter	0.17 in
Site Name	Plant Branch	Tubing Length	5 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	646777		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	59.3 ft
Well Information:		Pumping Information:	
Well ID	BRGWA-2I	Final Pumping Rate	140 mL/min
Well diameter	2 in	Total System Volume	0.3073171 L
Well Total Depth	64.3 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	0 in
Depth to Water	17.4 ft	Total Volume Pumped	3.5 L

Low-Flow Sa	mpling Stabiliz	zation Summary	V						
	Time	Elapsed	Temp C	рН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 5		+/- 0.2	+/- 0
Last 5	11:39:07	300.03	20.24	6.92	223.07	1.11	17.41	0.43	-25.99
Last 5	11:44:07	600.03	20.26	6.88	214.23	0.93	17.42	0.39	-18.44
Last 5	11:49:07	900.03	20.44	6.84	208.61	0.92	17.42	0.34	-13.56
Last 5	11:54:07	1200.03	20.48	6.82	203.72	0.74	17.40	0.31	-9.32
Last 5	11:59:07	1500.03	20.39	6.79	200.30	0.81	17.40	0.28	-5.70
Variance 0			0.18	-0.03	-5.62			-0.05	4.88
Variance 1			0.05	-0.02	-4.90			-0.02	4.24
Variance 2			-0.09	-0.03	-3.42			-0.03	3.62

Notes

Date: 2019-08-27 10:59:29

Project Information:		Pump Information:	
Operator Name	D.Thomas	Pump Model/Type	QED
Company Name	Golder	Tubing Type	Poly
Project Name	Branch	Tubing Diameter	0.17 in
Site Name	Plant Branch	Tubing Length	43.01 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	463072		
Turbidity Make/Model	LaMotte 2020 we	Pump placement from TOC	43.01 ft
Well Information:		Pumping Information:	
Well ID	BRGWA-5S	Final Pumping Rate	150 mL/min
Well diameter	2 in	Total System Volume	0.4769718 L
Well Total Depth	43.01 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	0 in
Depth to Water	12.5 ft	Total Volume Pumped	0 L

Low-Flow Sa	mpling Stabiliz	zation Summary	/						
	Time	Elapsed	Temp C	рН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 5		+/- 0.2	+/- 0
Last 5	10:37:43	1200.02	20.39	6.42	186.02	1.24	12.60	2.12	94.79
Last 5	10:42:43	1500.02	20.43	6.44	188.90	2.23	12.60	1.97	95.15
Last 5	10:47:43	1800.02	20.77	6.47	191.61	2.54	12.60	1.88	64.94
Last 5	10:52:44	2101.02	20.79	6.48	192.31	2.49	12.60	1.85	56.03
Last 5	10:57:44	2401.02	20.52	6.49	193.08	2.56	12.60	1.79	53.54
Variance 0			0.34	0.03	2.71			-0.09	-30.21
Variance 1			0.02	0.01	0.70			-0.03	-8.91
Variance 2			-0.27	0.01	0.77			-0.06	-2.49

Notes Started purging at 1017 Began sampling at 1057

Date: 2019-08-27 12:09:51

Project Information:		Pump Information:	
Operator Name	D.Thomas	Pump Model/Type	QED
Company Name	Golder	Tubing Type	Poly
Project Name	Branch	Tubing Diameter	0.17 in
Site Name	Plant Branch	Tubing Length	63.82 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	463072		
Turbidity Make/Model	LaMotte 2020 we	Pump placement from TOC	63.82 ft
Well Information:		Pumping Information:	
Well ID	BRGWA-5I	Final Pumping Rate	120 mL/min
Well diameter	2 in	Total System Volume	0.5698556 L
Well Total Depth	63.82 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	0.6 in
Depth to Water	12.40 ft	Total Volume Pumped	3 L

Low-Flow Sa	mpling Stabiliz	zation Summary	Y						
	Time	Elapsed	Temp C	рН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 5		+/- 0.2	+/- 0
Last 5	11:46:56	300.02	20.30	6.37	162.25	0.56	12.45	3.40	45.76
Last 5	11:51:56	600.02	20.07	6.36	162.41	0.12	12.45	3.64	44.07
Last 5	11:56:56	900.02	20.17	6.37	161.78	0.32	12.45	3.74	43.10
Last 5	12:01:56	1200.02	20.00	6.36	163.12	0.38	12.45	3.89	42.19
Last 5	12:06:56	1500.02	19.70	6.37	163.28	0.24	12.45	3.96	41.47
Variance 0			0.10	0.00	-0.62			0.11	-0.97
Variance 1			-0.17	-0.00	1.33			0.15	-0.91
Variance 2			-0.29	0.00	0.16			0.06	-0.72

Notes Started purging at 1141 Stopped purging and began sampling at 1207

Date: 2019-08-27 10:04:56

Project Information:		Pump Information:	
Operator Name	Travis Martinez	Pump Model/Type	QED
Company Name	Golder	Tubing Type	poly
Project Name	Branch	Tubing Diameter	0.17 in
Site Name	Plant Branch	Tubing Length	52.90 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	642531		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	47.90 ft
Well Information:		Pumping Information:	
Well ID	BRGWA-6S	Final Pumping Rate	150 mL/min
Well diameter	2 in	Total System Volume	0.5211151 L
Well Total Depth	52.90 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	0.6 in
Depth to Water	26.81 ft	Total Volume Pumped	5 L

Low-Flow Sa	mpling Stabiliz	ation Summary	/						
	Time	Elapsed	Temp C	рН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 5		+/- 0.2	+/- 0
Last 5	09:42:45	300.09	21.82	6.24	56.87	1.80	27.30	7.41	32.30
Last 5	09:47:45	600.02	20.48	6.24	55.72	2.04	27.40	7.69	23.05
Last 5	09:52:45	900.02	20.30	6.35	55.32	1.48	27.46	7.71	18.06
Last 5	09:57:45	1200.01	20.13	6.36	54.48	1.17	27.42	7.73	17.61
Last 5	10:02:45	1500.01	20.21	6.35	54.76	1.36	27.41	7.64	18.30
Variance 0			-0.18	0.11	-0.39			0.01	-4.99
Variance 1			-0.18	0.02	-0.84			0.02	-0.45
Variance 2			0.08	-0.01	0.28			-0.09	0.68

Notes

Date: 2019-08-28 12:36:56

Project Information:		Pump Information:	
Operator Name	Travis Martinez	Pump Model/Type	Alexis
Company Name	Golder	Tubing Type	poly
Project Name	Branch	Tubing Diameter	0.17 in
Site Name	Plant Branch	Tubing Length	7.40 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	642531		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	7.00 ft
Well Information:		Pumping Information:	
Well ID	BRGWC-17S	Final Pumping Rate	155 mL/min
Well diameter	2 in	Total System Volume	0.1230293 L
Well Total Depth	7.40 ft	Calculated Sample Rate	300 sec
Screen Length	5 ft	Stabilization Drawdown	0.34 in
Depth to Water	5.88 ft	Total Volume Pumped	3.1 L

Low-Flow Sa	ampling Stabiliz	zation Summary	y						
	Time	Elapsed	Temp C	рН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 5		+/- 0.2	+/- 0
Last 5	12:20:09	300.03	22.22	6.24	450.56	48.10	6.20	1.44	29.84
Last 5	12:25:09	600.02	22.33	6.24	449.88	4.92	6.20	1.22	26.94
Last 5	12:30:09	900.02	22.33	6.25	449.69	2.03	6.21	1.19	26.58
Last 5	12:35:09	1200.01	22.38	6.25	449.47	1.48	6.22	1.15	24.83
Last 5									
Variance 0			0.11	0.00	-0.68			-0.21	-2.90
Variance 1			-0.00	0.00	-0.19			-0.03	-0.36
Variance 2			0.05	-0.00	-0.22			-0.04	-1.75

Notes Purged three well volumes

Date: 2019-08-27 16:12:46

Project Information:		Pump Information:	
Operator Name	Travis Martinez	Pump Model/Type	QED
Company Name	Golder	Tubing Type	poly
Project Name	Branch	Tubing Diameter	0.17 in
Site Name	Plant Branch	Tubing Length	31.66 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	642531		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	26.66 ft
Well Information:		Pumping Information:	
Well ID	BRGWC-33S	Final Pumping Rate	300 mL/min
Well diameter	2 in	Total System Volume	0.4263119 L
Well Total Depth	31.66 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	0.01 in
Depth to Water	7.88 ft	Total Volume Pumped	6 L

Low-Flow Sa	mpling Stabiliz	ation Summary	/						
	Time	Elapsed	Temp C	рН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 5		+/- 0.2	+/- 0
Last 5	15:56:00	300.03	21.28	4.69	453.34	1.08	7.88	0.15	92.82
Last 5	16:01:00	600.01	20.75	4.77	448.21	1.28	7.89	0.06	93.52
Last 5	16:06:00	900.02	20.61	4.78	447.65	0.81	7.89	0.05	93.93
Last 5	16:11:00	1200.02	20.66	4.78	447.89	0.51	7.89	0.04	93.96
Last 5									
Variance 0			-0.54	0.09	-5.12			-0.09	0.69
Variance 1			-0.13	0.00	-0.56			-0.01	0.41
Variance 2			0.04	-0.00	0.24			-0.01	0.03

Notes

Date: 2019-08-28 13:24:21

Project Information:		Pump Information:	
Operator Name	J. Quenneville	Pump Model/Type	QED
Company Name	Golder	Tubing Type	poly
Project Name	Branch	Tubing Diameter	0.17 in
Site Name	Plant Branch	Tubing Length	5 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	646777		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	47.64 ft
Well Information:		Pumping Information:	
Well ID	BRGWC-34S	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.3073171 L
Well Total Depth	52.64 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	0.04 in
Depth to Water	2.56 ft	Total Volume Pumped	7 L

Low-Flow Sa	mpling Stabiliz	zation Summary	/						
	Time	Elapsed	Temp C	pН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 5		+/- 0.2	+/- 0
Last 5	13:01:15	900.03	23.78	5.80	709.79	0.76	2.60	1.05	66.56
Last 5	13:06:15	1200.03	23.43	5.80	708.51	0.28	2.59	0.99	70.40
Last 5	13:11:15	1500.03	23.88	5.80	705.90	0.20	2.61	0.85	72.85
Last 5	13:16:15	1800.04	23.20	5.80	708.36	0.15	2.60	0.65	74.97
Last 5	13:21:15	2100.04	23.25	5.80	704.23	0.22	2.60	0.71	76.51
Variance 0			0.45	-0.00	-2.61			-0.14	2.45
Variance 1			-0.68	-0.00	2.46			-0.19	2.12
Variance 2			0.04	-0.01	-4.13			0.05	1.54

Notes

Date: 2019-08-28 12:10:40

Project Information:		Pump Information:	
Operator Name	J. Quenneville	Pump Model/Type	QED
Company Name	Golder	Tubing Type	poly
Project Name	Branch	Tubing Diameter	0.17 in
Site Name	Plant Branch	Tubing Length	5 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	646777		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	30.34 ft
Well Information:		Pumping Information:	
Well ID	BRGWC-35S	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.3073171 L
Well Total Depth	35.34 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	0.05 in
Depth to Water	2.01 ft	Total Volume Pumped	5 L

Low-Flow Sa	mpling Stabiliz	zation Summary	V						
	Time	Elapsed	Temp C	рН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 5		+/- 0.2	+/- 0
Last 5	11:48:28	300.04	21.77	5.94	656.49	1.78	2.02	0.95	64.10
Last 5	11:53:28	600.03	21.51	5.94	659.52	2.35	2.05	0.45	71.51
Last 5	11:58:28	900.03	21.53	5.94	661.38	1.30	2.05	0.23	75.12
Last 5	12:03:28	1200.03	21.45	5.95	662.43	0.83	2.03	0.17	77.70
Last 5	12:08:28	1500.03	21.31	5.95	661.24	0.79	2.06	0.13	79.41
Variance 0			0.02	0.00	1.86			-0.23	3.61
Variance 1			-0.08	0.00	1.06			-0.06	2.58
Variance 2			-0.14	-0.00	-1.19			-0.04	1.72

Notes

Date: 2019-08-28 11:37:27

Project Information:		Pump Information:	
Operator Name	Travis Martinez	Pump Model/Type	QED
Company Name	Golder	Tubing Type	poly
Project Name	Branch	Tubing Diameter	0.17 in
Site Name	Plant Branch	Tubing Length	34.02 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	642531		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	29.02 ft
Well Information:		Pumping Information:	
Well ID	BRGWC-36S	Final Pumping Rate	250 mL/min
Well diameter	2 in	Total System Volume	0.2418457 L
Well Total Depth	34.02 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	0.16 in
Depth to Water	2.38 ft	Total Volume Pumped	5 L

Low-Flow Sa	ampling Stabiliz	zation Summar	y						
	Time	Elapsed	Temp C	рН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 5		+/- 0.2	+/- 0
Last 5	11:21:36	300.11	22.80	5.51	634.20	1.36	2.52	2.14	72.76
Last 5	11:26:36	600.02	22.35	5.51	631.55	1.00	2.54	2.02	66.94
Last 5	11:31:36	900.02	22.13	5.51	627.01	0.69	2.54	1.97	63.49
Last 5	11:36:36	1200.01	22.22	5.52	616.44	0.83	2.54	1.95	60.21
Last 5									
Variance 0			-0.45	-0.00	-2.65			-0.11	-5.82
Variance 1			-0.22	0.00	-4.54			-0.05	-3.44
Variance 2			0.09	0.01	-10.58			-0.02	-3.28

Notes

Date: 2019-08-28 14:33:14

Project Information:		Pump Information:	
Operator Name	J. Quenneville	Pump Model/Type	QED
Company Name	Golder	Tubing Type	poly
Project Name	Branch	Tubing Diameter	0.17 in
Site Name	Plant Branch	Tubing Length	5 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	646777		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	63.78 ft
Well Information:		Pumping Information:	
Well ID	BRGWc-37S	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.3073171 L
Well Total Depth	68.73 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	0.7 in
Depth to Water	50.18 ft	Total Volume Pumped	4 L

Low-Flow Sa	mpling Stabiliz	zation Summary	/						
	Time	Elapsed	Temp C	рН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 5		+/- 0.2	+/- 0
Last 5	14:16:41	300.10	22.14	5.79	55.06	0.33	50.90	8.10	98.19
Last 5	14:21:41	600.05	22.13	5.80	55.13	0.64	50.89	8.14	97.75
Last 5	14:26:41	900.03	21.67	5.79	55.07	0.32	50.86	8.19	97.48
Last 5	14:31:41	1200.03	21.52	5.80	54.54	0.24	50.88	8.08	95.71
Last 5									
Variance 0			-0.01	0.00	0.08			0.03	-0.44
Variance 1			-0.46	-0.01	-0.06			0.05	-0.27
Variance 2			-0.15	0.01	-0.53			-0.11	-1.77

Notes

Date: 2019-08-29 15:30:29

Project Information:		Pump Information:	
Operator Name	J. Quenneville	Pump Model/Type	QED
Company Name	Golder	Tubing Type	poly
Project Name	Branch	Tubing Diameter	0.17 in
Site Name	Plant Branch	Tubing Length	5 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	646777		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	38.66 ft
Well Information:		Pumping Information:	
Well ID	BRGWC-38S	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.3073171 L
Well Total Depth	43.66 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	0.23 in
Depth to Water	21.3 ft	Total Volume Pumped	4 L

Low-Flow S	ampling Stabiliz	zation Summary	y						
	Time	Elapsed	Temp C	рН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilizatior	า		+/- 0	+/- 0.1	+/- 5%	+/- 5		+/- 0.2	+/- 0
Last 5	15:13:46	300.07	21.78	3.98	854.65	0.48	22.56	1.48	160.79
Last 5	15:18:46	600.03	21.95	4.00	848.77	0.66	22.58	1.38	163.82
Last 5	15:23:46	900.03	22.03	4.01	852.06	0.48	22.60	1.30	170.52
Last 5	15:28:46	1200.03	21.99	4.01	854.34	0.89	22.58	1.24	173.54
Last 5									
Variance 0			0.18	0.02	-5.88			-0.11	3.03
Variance 1			0.07	0.01	3.29			-0.08	6.70
Variance 2			-0.04	0.00	2.28			-0.06	3.02

Notes

Date: 2019-10-15 09:56:47

Project Information:		Pump Information:	
Operator Name	Travis Martinez	Pump Model/Type	QED
Company Name	Golder	Tubing Type	poly
Project Name	Plant Branch	Tubing Diameter	0.17 in
Site Name	Default Site	Tubing Length	47.39 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	647057		
Turbidity Make/Model	Lamotte 2020we	Pump placement from TOC	42.39 ft
Well Information:		Pumping Information:	
Well ID	BRGWA-2S	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.4955216 L
Well Total Depth	47.39 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	1.68 in
Depth to Water	17.14 ft	Total Volume Pumped	5 L

Low-Flow Sa	mpling Stabiliz	ation Summary	/						
	Time	Elapsed	Temp C	рН	SpCond µS	S/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 0
Last 5	09:35:21	300.03	18.56	5.73	68.54	1.46	17.21	2.52	76.83
Last 5	09:40:21	600.02	18.28	5.92	67.65	1.13	17.30	2.17	75.21
Last 5	09:45:21	900.02	18.26	6.02	66.51	0.68	17.28	1.80	75.28
Last 5	09:50:21	1200.02	18.28	6.04	65.88	0.61	17.28	1.80	75.32
Last 5	09:55:24	1503.02	18.31	6.06	65.89	0.66	17.28	1.82	73.23
Variance 0			-0.02	0.10	-1.14			-0.37	0.07
Variance 1			0.03	0.02	-0.63			-0.00	0.04
Variance 2			0.03	0.02	0.01			0.02	-2.09

Notes

Date: 2019-10-15 11:19:42

Project Information:		Pump Information:	
Operator Name	Travis Martinez	Pump Model/Type	QED
Company Name	Golder	Tubing Type	poly
Project Name	Plant Branch	Tubing Diameter	0.17 in
Site Name	Default Site	Tubing Length	66.96 ft
Latitude	0° 0' 0"		
Longitude	00 0, 0.		
Sonde SN	647057		
Turbidity Make/Model	Lamotte 2020we	Pump placement from TOC	61.96 ft
Well Information:		Pumping Information:	
Well ID	BRGWA-2I	Final Pumping Rate	155 mL/min
Well diameter	2 in	Total System Volume	0.5828708 L
Well Total Depth	66.96 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	2 7.6 in
Depth to Water	17.03 ft	Total Volume Pumped	9.3 L

Low-Flow Sa	mpling Stabiliz	zation Summary	/						
	Time	Elapsed	Temp C	рН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 0
Last 5	10:56:57	2402.99	18.64	6.73	226.99	0.41	19.36	0.35	63.55
Last 5	11:02:00	2705.99	18.59	6.67	208.97	0.55	19.40	0.29	59.44
Last 5	11:07:00	3005.99	18.64	6.61	200.02	0.69	19.33	0.24	56.69
Last 5	11:12:00	3305.99	18.64	6.58	193.10	0.41	19.33	0.22	52.90
Last 5	11:17:16	3621.99	18.68	6.57	189.99	0.54	19.33	0.20	50.42
Variance 0			0.04	-0.05	-8.95			-0.05	-2.76
Variance 1			0.01	-0.03	-6.92			-0.02	-3.79
Variance 2			0.04	-0.01	-3.11			-0.01	-2.48

Notes

Date: 2019-10-15 09:02:03

Project Information:		Pump Information:	
Operator Name	D.Thomas	Pump Model/Type	QED Well Wizard
Company Name	Golder Associates	Tubing Type	poly
Project Name	166625418	Tubing Diameter	.170 in
Site Name	Plant Branch	Tubing Length	38.01 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	541714		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	38.01 ft
Well Information:		Pumping Information:	
Well ID	BRGWA-5S	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.6546547 L
Well Total Depth	43.01 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	2.16 in
Depth to Water	13.25 ft	Total Volume Pumped	5 L

Low-Flow Sa	mpling Stabiliz	ation Summary	/						
	Time	Elapsed	Temp C	pН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	08:38:22	300.08	18.94	7.01	169.39	2.13	13.43	3.25	54.89
Last 5	08:43:22	600.01	18.90	7.02	173.40	2.34	13.43	3.09	51.56
Last 5	08:48:22	900.01	18.85	7.03	177.79	2.21	13.43	2.98	49.11
Last 5	08:53:22	1200.00	18.85	7.03	180.57	2.16	13.43	2.87	47.85
Last 5	08:58:22	1499.99	18.83	7.01	182.55	1.97	13.43	2.82	47.96
Variance 0			-0.04	0.02	4.40			-0.11	-2.45
Variance 1			-0.01	-0.01	2.77			-0.10	-1.26
Variance 2			-0.02	-0.01	1.98			-0.05	0.12

Notes

Began purging at 0833 Stopped purging and began sampling at 0900

Date: 2019-10-15 10:22:32

Project Information:		Pump Information:	
Operator Name	D.Thomas	Pump Model/Type	QED Well Wizard
Company Name	Golder Associates	Tubing Type	poly
Project Name	166625418	Tubing Diameter	.170 in
Site Name	Plant Branch	Tubing Length	58 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	541714		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	58 ft
Well Information:		Pumping Information:	
Well ID	BRGWA-5I	Final Pumping Rate	180 mL/min
Well diameter	2 in	Total System Volume	0.7438785 L
Well Total Depth	63.82 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	2.4 in
Depth to Water	13.10 ft	Total Volume Pumped	7 .2 L

Low-Flow Sa	mpling Stabiliz	ation Summary	1						
	Time	Elapsed	Temp C	рН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:00:00	1200.00	20.10	6.74	171.79	0.42	13.30	3.06	59.38
Last 5	10:05:00	1499.99	20.27	6.76	170.72	0.45	13.30	3.21	60.05
Last 5	10:10:00	1799.98	20.00	6.76	169.78	0.40	13.30	3.29	60.58
Last 5	10:15:00	2099.98	19.77	6.76	169.02	0.37	13.30	3.39	60.56
Last 5	10:20:00	2399.97	19.55	6.77	168.91	0.34	13.30	3.50	60.57
Variance 0			-0.27	0.00	-0.95			0.08	0.53
Variance 1			-0.23	0.00	-0.75			0.11	-0.02
Variance 2			-0.21	0.00	-0.11			0.11	0.00

Notes Started purging at 0940 Stopped purging and began sampling at 1020

Date: 2019-10-15 08:46:16

Project Information:		Pump Information:	
Operator Name	Travis Martinez	Pump Model/Type	QED
Company Name	Golder	Tubing Type	poly
Project Name	Plant Branch	Tubing Diameter	0.17 in
Site Name	Default Site	Tubing Length	52.90 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	647057		
Turbidity Make/Model	Lamotte 2020we	Pump placement from TOC	47.90 ft
Well Information:		Pumping Information:	
Well ID	BRGWA-6S	Final Pumping Rate	190 mL/min
Well diameter	2 in	Total System Volume	0.5201151 L
Well Total Depth	52.90 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	7.68 in
Depth to Water	27.79 ft	Total Volume Pumped	6.65 L

Low-Flow Sa	mpling Stabiliz	ation Summary	/						
	Time	Elapsed	Temp C	pН	SpCond µS	6/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 0
Last 5	08:25:02	900.57	19.04	6.10	58.77	0.75	28.35	6.92	68.78
Last 5	08:30:02	1200.56	19.04	6.22	58.74	0.79	28.38	6.77	68.97
Last 5	08:35:02	1500.56	18.99	6.30	58.43	0.93	28.45	6.66	68.58
Last 5	08:40:02	1800.56	18.97	6.32	58.82	0.83	28.50	6.79	69.74
Last 5	08:45:02	2100.56	19.00	6.36	59.38	1.16	28.43	6.55	69.62
Variance 0			-0.04	0.08	-0.30			-0.11	-0.39
Variance 1			-0.02	0.02	0.38			0.13	1.16
Variance 2			0.02	0.04	0.57			-0.24	-0.13

Notes

Date: 2019-10-17 10:48:09

Project Information:		Pump Information:	
Operator Name	Travis Martinez	Pump Model/Type	Alexis
Company Name	Golder	Tubing Type	poly
Project Name	Plant Branch	Tubing Diameter	0.17 in
Site Name	Default Site	Tubing Length	9.88 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	647057		
Turbidity Make/Model	Lamotte 2020we	Pump placement from TOC	7.88 ft
Well Information:		Pumping Information:	
Well ID	BRGWC-17S	Final Pumping Rate	120 mL/min
Well diameter	2 in	Total System Volume	0.1340986 L
Well Total Depth	9.88 ft	Calculated Sample Rate	300 sec
Screen Length	5 ft	Stabilization Drawdown	13.56 in
Depth to Water	6.22 ft	Total Volume Pumped	9.6 L

Low-Flow Sa	ampling Stabiliz	zation Summary	/						
	Time	Elapsed	Temp C	рН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilizatior	ı		+/- 0	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 0
Last 5	10:25:48	3616.13	18.86	6.30	458.43	0.09	7.35	1.74	85.70
Last 5	10:30:48	3916.13	18.82	6.30	458.32	0.33	7.35	1.33	84.94
Last 5	10:35:54	4222.13	18.81	6.30	459.16	0.25	7.35	1.15	84.73
Last 5	10:40:53	4522.04	18.81	6.30	460.75	0.52	7.35	1.12	84.50
Last 5	10:45:53	4822.04	18.97	6.30	461.23	0.44	7.35	1.12	84.30
Variance 0			-0.01	-0.00	0.84			-0.18	-0.21
Variance 1			0.00	0.00	1.60			-0.03	-0.23
Variance 2			0.16	0.00	0.48			-0.01	-0.20

Notes Purged three well volumes

Date: 2019-10-16 09:49:05

Project Information:		Pump Information:	
Operator Name	Travis Martinez	Pump Model/Type	QED
Company Name	Golder	Tubing Type	poly
Project Name	Plant Branch	Tubing Diameter	0.17 in
Site Name	Default Site	Tubing Length	31.66 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	647057		
Turbidity Make/Model	Lamotte 2020we	Pump placement from TOC	27.66 ft
Well Information:		Pumping Information:	
Well ID	BRGWC-33S	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.425312 L
Well Total Depth	31.66 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	0 in
Depth to Water	8.48 ft	Total Volume Pumped	5 L

Low-Flow Sa	mpling Stabiliz	ation Summary	/						
	Time	Elapsed	Temp C	pН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 0
Last 5	09:28:08	300.16	20.22	4.56	462.22	0.16	8.48	0.37	113.32
Last 5	09:33:08	600.02	20.06	4.73	458.45	0.42	8.48	0.13	114.78
Last 5	09:38:08	900.02	20.02	4.76	458.42	0.31	8.48	0.10	114.84
Last 5	09:43:08	1200.02	20.02	4.78	458.10	0.23	8.48	0.08	115.52
Last 5	09:48:08	1500.02	20.04	4.78	457.87	0.23	8.48	0.07	116.58
Variance 0			-0.04	0.03	-0.02			-0.04	0.06
Variance 1			0.01	0.02	-0.32			-0.01	0.67
Variance 2			0.01	0.00	-0.23			-0.01	1.06

Notes

Date: 2019-10-16 10:49:40

Project Information:		Pump Information:			
Operator Name	Travis Martinez	Pump Model/Type	QED		
Company Name	Golder	Tubing Type	poly		
Project Name	Plant Branch	Tubing Diameter	0.17 in		
Site Name	Default Site	Tubing Length	54.64 ft		
Latitude	00 0, 0.				
Longitude	0° 0' 0"				
Sonde SN	647057				
Turbidity Make/Model	Lamotte 2020we	Pump placement from TOC	49.64 ft		
Well Information:		Pumping Information:			
Well ID	BRGWC-34S	Final Pumping Rate	300 mL/min		
Well diameter	2 in	Total System Volume	0.5278814 L		
Well Total Depth	54.64 ft	Calculated Sample Rate	300 sec		
Screen Length	10 ft	Stabilization Drawdown	0.36 in		
Depth to Water	2.67 ft	Total Volume Pumped	7.5 L		

Low-Flow Sa	mpling Stabiliz	zation Summary	/						
	Time	Elapsed	Temp C	рН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 0
Last 5	10:26:04	300.03	21.03	5.83	728.14	0.51	2.70	0.16	94.35
Last 5	10:31:04	600.02	20.95	5.85	723.71	0.48	2.70	0.11	95.36
Last 5	10:36:05	900.68	20.97	5.86	720.84	0.18	2.70	0.07	95.41
Last 5	10:41:05	1200.68	20.95	5.86	716.14	0.42	2.70	0.05	95.46
Last 5	10:46:05	1500.68	20.81	5.85	710.22	0.17	2.70	0.04	95.64
Variance 0			0.02	0.02	-2.87			-0.04	0.05
Variance 1			-0.02	0.00	-4.69			-0.02	0.05
Variance 2			-0.14	-0.01	-5.93			-0.01	0.18

Notes

Date: 2019-10-16 12:03:57

Project Information:		Pump Information:			
Operator Name	Travis Martinez	Pump Model/Type	QED		
Company Name	Golder	Tubing Type	poly		
Project Name	Plant Branch	Tubing Diameter	0.17 in		
Site Name	Default Site	Tubing Length 35.34 ft			
Latitude	0° 0' 0"				
Longitude	0° 0' 0"				
Sonde SN	647057				
Turbidity Make/Model	Lamotte 2020we	Pump placement from TOC	30.34 ft		
Well Information:		Pumping Information:			
Well ID	BRGWC-35S	Final Pumping Rate	275 mL/min		
Well diameter	2 in	Total System Volume	0.4417374 L		
Well Total Depth	35.34 ft	Calculated Sample Rate	300 sec		
Screen Length	10 ft	Stabilization Drawdown	0.36 in		
Depth to Water	2.15 ft	Total Volume Pumped	6.875 L		

Low-Flow Sa	mpling Stabiliz	zation Summary	/						
	Time	Elapsed	Temp C	рН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 0
Last 5	11:42:42	300.02	20.76	5.98	670.58	3.63	2.17	0.39	98.32
Last 5	11:47:42	600.02	20.63	6.02	671.93	4.00	2.17	0.16	98.56
Last 5	11:52:42	900.02	20.53	6.02	674.75	2.35	2.17	0.11	98.70
Last 5	11:57:42	1200.02	20.56	6.02	677.25	1.21	2.17	0.08	98.92
Last 5	12:02:42	1500.02	20.55	6.03	680.75	0.86	2.18	0.07	98.39
Variance 0			-0.10	0.00	2.82			-0.05	0.14
Variance 1			0.03	-0.00	2.50			-0.03	0.21
Variance 2			-0.01	0.01	3.50			-0.01	-0.53

Notes

Date: 2019-10-17 12:41:52

Project Information:		Pump Information:	
Operator Name	Travis Martinez	Pump Model/Type	Alexis
Company Name	Golder	Tubing Type	poly
Project Name	Plant Branch	Tubing Diameter	0.17 in
Site Name	Default Site	Tubing Length	34.02 ft
Latitude	00 0, 0.		
Longitude	0° 0' 0"		
Sonde SN	647057		
Turbidity Make/Model	Lamotte 2020we	Pump placement from TOC	29.02 ft
Well Information:		Pumping Information:	
Well ID	BRGWC-36S	Final Pumping Rate	180 mL/min
Well diameter	2 in	Total System Volume	0.2418457 L
Well Total Depth	34.02 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	1.68 in
Depth to Water	2.80 ft	Total Volume Pumped	4.5 L

Low-Flow Sar	mpling Stabiliz	zation Summary	/						
	Time	Elapsed	Temp C	pН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 0
Last 5	12:18:56	300.02	18.01	5.62	683.36	0.26	2.95	2.05	114.65
Last 5	12:23:56	600.02	18.19	5.63	678.26	0.63	2.94	2.60	113.27
Last 5	12:28:56	900.02	18.23	5.62	658.57	0.77	2.94	2.07	111.80
Last 5	12:33:57	1201.02	18.26	5.61	644.49	0.50	2.94	2.06	110.66
Last 5	12:38:59	1503.02	18.28	5.61	636.74	0.79	2.94	2.05	109.79
Variance 0			0.04	-0.01	-19.70			-0.53	-1.47
Variance 1			0.03	-0.01	-14.08			-0.01	-1.14
Variance 2			0.01	0.01	-7.75			-0.01	-0.87

Notes

Grab Samples

Date: 2019-10-16 13:13:59

Project Information:		Pump Information:	
Operator Name	Travis Martinez	Pump Model/Type	QED
Company Name	Golder	Tubing Type	poly
Project Name	Plant Branch	Tubing Diameter	0.17 in
Site Name	Default Site	Tubing Length	68.73 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	647057		
Turbidity Make/Model	Lamotte 2020we	Pump placement from TOC	63.73 ft
Well Information:		Pumping Information:	
Well ID	BRGWC-37S	Final Pumping Rate	120 mL/min
Well diameter	2 in	Total System Volume	0.5907711 L
Well Total Depth	68.73 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	4.44 in
Depth to Water	50.70 ft	Total Volume Pumped	4.2 L

Low-Flow Sa	mpling Stabiliz	zation Summary	/						
	Time	Elapsed	Temp C	рН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 0
Last 5	12:50:51	900.60	21.62	5.61	56.55	0.31	51.19	7.86	85.27
Last 5	12:55:51	1200.60	21.93	5.67	56.12	0.24	51.18	7.93	85.91
Last 5	13:00:51	1500.60	21.82	5.75	56.05	0.71	51.12	7.94	86.03
Last 5	13:06:01	1810.60	22.29	5.80	55.80	0.56	51.08	7.93	85.60
Last 5	13:11:05	2114.61	22.69	5.81	55.78	0.23	51.07	7.90	85.96
Variance 0			-0.11	0.08	-0.07			0.01	0.13
Variance 1			0.47	0.05	-0.25			-0.01	-0.43
Variance 2			0.40	0.01	-0.02			-0.03	0.36

Notes

Grab Samples

Date: 2019-10-16 14:46:54

Project Information:		Pump Information:	
Operator Name	Travis Martinez	Pump Model/Type	QED
Company Name	Golder	Tubing Type	poly
Project Name	Plant Branch	Tubing Diameter	0.17 in
Site Name	Default Site	Tubing Length	43.66 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	647057		
Turbidity Make/Model	Lamotte 2020we	Pump placement from TOC	38.66 ft
Well Information:		Pumping Information:	
Well ID	BRGWC-38S	Final Pumping Rate	150 mL/min
Well diameter	2 in	Total System Volume	0.478873 L
Well Total Depth	43.66 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	9.00 in
Depth to Water	21.90 ft	Total Volume Pumped	6 L

Low-Flow Sa	mpling Stabiliz	zation Summary	y						
	Time	Elapsed	Temp C	рН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 0
Last 5	14:25:34	1200.02	22.11	4.20	856.52	1.08	22.68	2.35	133.95
Last 5	14:30:43	1509.02	22.25	4.21	852.74	0.43	22.68	2.20	134.09
Last 5	14:35:43	1809.02	21.62	4.20	855.45	0.52	22.67	2.09	134.52
Last 5	14:40:44	2109.42	21.49	4.21	856.01	0.66	22.67	1.99	134.27
Last 5	14:45:52	2417.42	21.35	4.21	855.66	0.33	22.65	1.93	134.39
Variance 0			-0.62	-0.00	2.71			-0.11	0.43
Variance 1			-0.13	0.01	0.56			-0.10	-0.25
Variance 2			-0.13	-0.00	-0.36			-0.06	0.12

Notes

Grab Samples

APPENDIX B

DATA VALIDATION SUMMARIES

Quality Control Review of Analytical Data- Ash Pond E Submitted by Pace Analytical Services August - December 2019

This narrative presents results of the quality control (QC) data review performed on analytical data submitted by Pace Analytical Services, LLC, for groundwater samples collected at Plant Branch CCR Ash Pond E (Site) between August 27, 2019 and December 18, 2019. The chemical data were reviewed to identify quality issues which could affect the use of the data for decision making purposes.

Information regarding the primary sample locations, analytical parameters, QC samples, sampling dates, and laboratory sample delivery group (SDG) designations is summarized in Table 1. In accordance with groundwater monitoring and corrective action procedures discussed in Title 40 CFR, Subpart D - Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments, the samples were analyzed for detection monitoring constituents listed in 40 CFR, Part 257, Appendix III and assessment monitoring constituents listed in 40 CFR, Part 257, Appendix III and assessment monitoring constituents listed in 40 CFR, Part 257, Appendix III and assessment monitoring constituents listed in 40 CFR, Part 257, Appendix III and assessment monitoring constituents listed in 40 CFR, Part 257, Appendix III and assessment monitoring constituents listed in 40 CFR, Part 257, Appendix III and assessment monitoring constituents listed in 40 CFR, Part 257, Appendix III and assessment monitoring constituents listed in 40 CFR, Part 257, Appendix III and assessment monitoring constituents listed in 40 CFR, Part 257, Appendix III and assessment monitoring constituents listed in 40 CFR, Part 257, Appendix III and assessment monitoring constituents listed in 40 CFR, Part 257, Appendix IV. Test methods included Inductively Coupled Plasma- Mass Spectrometry (USEPA Method 6020B), Mercury in Liquid Wastes (USEPA Method 7470A), Determination of Inorganic Anions By Ion Chromatography (USEPA Method 300.0), Total Dissolved Solids (Standard Methods 2540C), Radium-226 (USEPA Method 9315) and Radium-228 (USEPA Method 9320).

Data were reviewed in accordance with the US EPA Region IV Data Validation Standard Operating Procedures for Contract Laboratory Program (CLP) Inorganic Data by Inductively Coupled Plasma – Atomic Emission Spectroscopy and Inductively Coupled Plasma – Mass Spectroscopy (September 2011, Rev. 2.0), US EPA Region IV Data Validation Standard Operating Procedures for CLP Mercury Data by Cold Vapor Atomic Absorption (September 2011, Rev. 2.0), the National Functional Guidelines for Inorganic Superfund Methods Data Review (January 2017), and US Department of Energy, Evaluation of Radiochemical Data Usability (April 1997). The review included an assessment of the results for completeness, precision (laboratory duplicates, matrix spike/matrix spike duplicates), accuracy (laboratory control samples and matrix spike samples), and blank contamination (including field, equipment and laboratory blanks). Additionally, sample procedures, holding times and chains-of-custody were reviewed. Where there was a discrepancy between the QC criteria in the guidelines and the QC criterion established in the analytic methodology, method-specific criteria or professional judgment was used.

DATA QUALITY OBJECTIVES

Laboratory Precision:	Laboratory goals for precision were met.
Field Precision:	Field goals for precision were met with the exception of total dissolved solids (TDS) in BRGWC-34S as described in the qualifications section below.
Accuracy:	Laboratory goals for accuracy were met exception of fluoride for BRGWC-17S and chloride for BRGWC-36S as described in the qualifications section below.
Detection Limits:	Project goals for detection limits were met. Certain samples were diluted due to elevated concentrations of target analytes. Dilutions do not require qualifications based on USEPA guidelines. Detection and reporting limits of non-detect compounds are elevated proportional to the dilution when undiluted sample results are not provided by the laboratory. The data usability of diluted results was evaluated by the data user in the context of site-wide characterization.
Completeness:	There were no rejected analytical results for this event, resulting in a completion of 100%.

Holding Times:

All holding time requirements were met in accordance with specific analytical methods.

QUALIFICATIONS

In general, chemical results for the samples collected at the Site were qualified on the basis of low precision or accuracy, or on the basis of professional judgment. The following definitions provide brief explanations of the qualifiers which may have been assigned to data by the laboratory during the data validation process.

- J The analyte was positively identified above the method detection limit; however, the associated numerical value is the approximate concentration of the analyte in the sample.
- J- The analyte was reported above the method detection limit; however, the concentration reported is an estimated value that may be biased low.
- **J+** The analyte was reported above the method detection limit; however, the concentration reported is an estimated value that may be biased high.
- **U** The analyte was not detected above the method detection limit.

The data generated as part of this sampling event met the QC criteria established in the respective analytical methods and data validation guidelines except as specified below. Although these qualifications were applied to some data from samples collected at the Site and reported in the sample delivery group (SDGs), qualifications may not have been required or applied to all samples collected. A summary of sample qualifications can be found in Table 2.

- Certain arsenic chromium, molybdenum, sulfate, TDS, radium-226, radium-228 and total radium results were qualified as non-detect (U) when the analyte was detected at a similar level in an associated blank sample. As shown in Table 2, if the original sample results were below the reporting limit (RL) or the minimum detectable concentration (MDC), the results were qualified as non-detect (U) and the results were raised to the RL or MDC. If results were above the RL or MDC, the results were qualified U and the RL or MDC was raised to the sample result.
- Total radium was qualified as biased high (J+) in sample BRGWC-38S when one radium isotope was detected above the MDC and the other isotope was U qualified.
- Fluoride for DGWC-17S and chloride for BRGWC-36S were qualified as estimated biased low (J-) as the associated matrix spike/matrix spike duplicate (MS/MSD) recoveries were below the QC criteria.
- TDS for BRGWC-34S was qualified as estimated (J) as the field duplicate relative percent difference was outside QC criteria.

Golder reviewed the data from samples collected at Plant Branch CCR Ash Pond E between August 27, 2019 and December 18, 2019 in accordance with the analytical methods, the laboratory specific QC criteria, and the guidelines. As described above, 100% of the results were acceptable for project use.

REFERENCE

Paar, J.G. & Porterfield, D.R. *Evaluation of Radiochemical Data Usability.* United States Department of Energy, Office of Environmental Restoration and Waste Management, Oak Ridge National Laboratory, April 1997.

USEPA, January 2017, National, Office of Superfund Remediation and Technology Innovation, National Functional Guidelines for Inorganic Superfund Methods Data Review, Revision 0.0.

USEPA, September 2011, Region 4, Science and Ecosystem Support Division, Quality Assurance Section, MTSB, Data Validation Standard Operating Procedures for Contract Laboratory Program Inorganic Data By Inductively Coupled Plasma – Atomic Emission Spectroscopy and Inductively Coupled Plasma – Mass Spectroscopy, Revision 2.0.

USEPA, September 2011, Region 4, Science and Ecosystem Support Division, Quality Assurance Section, MTSB, *Data Validation Standard Operating Procedures for Contract Laboratory Program Mercury Data By Cold Vapor Atomic Absorption,* Revision 2.0.



TABLE 1

Sample Summary Table SCS Plant Branch - Pond E

							Analyses				
SDGs	Field Identification	Collection Date	Lab Identification	Matrix	QC Samples	Total Metals (6020)	Anions (300.0)	TDS (SM 2540C)	Radium 226, Radium 228 (9315, 9320)		
2622483/2622484	BRGWA-2I	8/27/2019	2622483005/2622484005	GW	-	Х	Х	-	Х		
2622483/2622484	BRGWA-2S	8/27/2019	2622483004/2622484004	GW	-	Х	Х	-	Х		
2622483/2622484	BRGWA-5I	8/27/2019	2622483003/2622484003	GW	-	Х	Х	-	Х		
2622483/2622484	BRGWA-5S	8/27/2019	2622483002/2622484002	GW	-	Х	Х	-	Х		
2622483/2622484	BRGWA-6S	8/27/2019	2622483001/2622484001	GW	-	Х	Х	-	Х		
2622483/2622484	BRGWC-33S	8/27/2019	2622483006/2622484006	GW	-	Х	Х	-	Х		
2622483/2622484	Dup-1	8/27/2019	2622483007/2622484007	GW	DUP (BRGWC-33S)	Х	Х	-	Х		
2622563/2622564	BRGWC-17S	8/28/2019	2622563001/2622564001	GW	-	Х	Х	-	Х		
2622563/2622564	BRGWC-34S	8/28/2019	2622563002/2622564002	GW	-	Х	Х	-	Х		
2622563/2622564	BRGWC-35S	8/28/2019	2622563003/2622564003	GW	-	Х	Х	-	Х		
2622563/2622564	BRGWC-36S	8/28/2019	2622563004/2622564004	GW	-	Х	Х	-	Х		
2622563/2622564	BRGWC-37S	8/28/2019	2622563005/2622564005	GW	-	Х	Х	-	Х		
2622604/2622605	BRGWC-38S	8/29/2019	2622604001/2622605001	GW	-	Х	Х	-	Х		
2624391/2624389	BRGWA-2I	10/15/2019	2624391005/2624389005	GW	-	Х	Х	Х	Х		
2624391/2624389	BRGWA-2S	10/15/2019	2624391004/2624389004	GW	-	Х	Х	Х	Х		
2624391/2624389	BRGWA-5I	10/15/2019	2624391003/2624389003	GW	-	Х	Х	Х	Х		
2624391/2624389	BRGWA-5S	10/15/2019	2624391002/2624389002	GW	-	Х	Х	Х	Х		
2624391/2624389	BRGWA-6S	10/15/2019	2624391001/2624389001	GW	-	Х	Х	Х	Х		
2624484/2624486	BRGWC-33S	10/16/2019	2624484001/2624486001	GW	-	Х	Х	Х	Х		
2624484/2624486	BRGWC-34S	10/16/2019	2624484002/2624486002	GW	-	Х	Х	Х	Х		
2624484/2624486	BRGWC-35S	10/16/2019	2624484003/2624486003	GW	-	Х	Х	Х	Х		
2624484/2624486	BRGWC-37S	10/16/2019	2624484004/2624486004	GW	-	Х	Х	Х	Х		
2624484/2624486	BRGWC-38S	10/16/2019	2624484005/2624486005	GW	-	Х	Х	Х	Х		
2624484/2624486	Dup-1	10/16/2019	2624484006/2624486006	GW	DUP (BRGWC-34S)	Х	Х	Х	Х		
2626394	BRGWC-17S	12/3/2019	2626394001	GW	-	Х	Х	-	Х		
2626394	BRGWC-36S	12/3/2019	2626394002	GW	-	Х	Х	-	Х		
2627067	BRGWC-17S	12/18/2019	2627067001	GW	-	-	-	-	Х		
2627067	BRGWC-36S	12/18/2019	2627067002	GW	-	-	-	-	Х		

Abbreviations:

DUP - Field duplicate

GW - Groundwater

TDS - Total Dissolved Solids

SDG - Sample Delivery Group

QC - Quality Control

TABLE 2 Qualifier Summary Table Plant Branch - Pond E

SDG	Sample Name	Constituent	New Result	New RL or MDC	Qualifier	Reason
2622563	BRGWC-17S	Arsenic	0.005	-	U	Blank contamination
2622563	BRGWC-35S	Arsenic	0.005	-	U	Blank contamination
2622563	BRGWC-36S	Arsenic	0.005	-	U	Blank contamination
2622563	BRGWC-37S	Arsenic	0.005	-	U	Blank contamination
2622563	BRGWC-37S	Chromium	0.000	-	U	Blank contamination
2622483	BRGWA-5I	Molybdenum	0.01	-	U	Blank contamination
2622484	BRGWA-2I	Radium-226	-	0.596	U	Blank contamination
2622484	BRGWA-2S	Radium-226	-	0.950	U	Blank contamination
2622484	BRGWA-20 BRGWA-5I	Radium-226		0.512	U	Blank contamination
2622484	BRGWA-5S	Radium-226	_	0.520	U	Blank contamination
2624486	BRGWC-33S	Radium-226	-	0.474	U	Blank contamination
2622564	BRGWC-34S	Radium-226	-	0.364	U	Blank contamination
2624486	BRGWC-35S	Radium-226	-	0.523	U	Blank contamination
2622564	BRGWC-36S	Radium-226	-	0.541	U	Blank contamination
2622605	BRGWC-38S	Radium-226	-	1.370	U	Blank contamination
2624486	BRGWC-38S	Radium-226	-	0.539	U	Blank contamination
2622484	BRGWA-5S	Radium-228	-	0.922	U	Blank contamination
2622484	BRGWC-33S	Radium-228	-	0.922	U	Blank contamination
2624486	BRGWC-35S BRGWC-35S	Radium-228	-	1.17	U	Blank contamination
2624486	BRGWC-33S BRGWC-38S	Radium-228	-	2.12	U	Blank contamination
2622484	BRGWA-2I	Total Radium	-	1.11	U	Blank contamination
2622484	BRGWA-21 BRGWA-2S			1.47	U	
	BRGWA-25 BRGWA-5I	Total Radium	-	1.47	U	Blank contamination
2622484	BRGWA-51 BRGWA-5S	Total Radium Total Radium			-	Blank contamination
2622484			-	1.44	U	Blank contamination
2622484	BRGWC-33S	Total Radium	-	1.38	U	Blank contamination
2624486	BRGWC-35S	Total Radium Total Radium	-	1.69	U J+	Blank contamination
2622605 2624486	BRGWC-38S BRGWC-38S		-	-	J+ U	Blank contamination
2624486	BRGWC-363 BRGWC-37S	Total Radium	- 1	2.66	U	Blank contamination
	BRGWC-37S BRGWC-33S	Sulfate		-	U	Blank contamination
2624484	BRGWC-35S	Arsenic	0.005	-	U	Blank contamination
2624484	BRGWC-353 BRGWC-37S	Arsenic	0.005	-	U	Blank contamination
2624484		Arsenic	0.005	-	U	Blank contamination
2624484	BRGWC-38S	Arsenic	0.005	-	U	Blank contamination
2624389	BRGWA-5I	Molybdenum	0.01	- 140	U	Blank contamination
2624389	BRGWA-2I	TDS	-		U	Blank contamination
2624389	BRGWA-2S BRGWA-5I	TDS	-	66 175	U	Blank contamination
2624389		TDS	-		-	Blank contamination
2624389	BRGWA-5S	TDS	-	144	UU	Blank contamination
2624389	BRGWA-6S	TDS	-	63	-	Blank contamination
2624484	BRGWC-37S	TDS	-	49	U	Blank contamination
2624389	BRGWA-2I	Arsenic	0.005	-	-	Blank contamination
2624389	BRGWA-2S	Arsenic	0.005	-	U	Blank contamination
2624389	BRGWA-5I	Arsenic	0.005	-	U	Blank contamination
2624389	BRGWA-5S	Arsenic	0.005	-	U	Blank contamination
2624391	BRGWA-5I	Radium-226	-	0.651	U	Blank contamination
2626394	BRGWC-36S	Chloride	-	-	J-	MS and/or MSD recovered below lower limit
2626394	BRGWC-17S	Fluoride	-	-	J-	MS and/or MSD recovered below lower limit
2624487	BRGWC-34S	TDS	-	-	J	RPD exceedance between field duplicate and parent sample
2622484	Dup-1	Radium-226	-	0.534	U	Blank contamination
2624486	Dup-1	Radium-226	-	0.698	Ŭ	Blank contamination
2624486	Dup-1	Radium-228	_	1.34	Ŭ	Blank contamination
2624486	Dup-1	Total Radium	_	2.04	U	Blank contamination
						RPD exceedance between field duplicate and
2624486	Dup-1	TDS	-	-	J	parent sample

Abbreviations:

MDC: Minimum detectable concentration MDL: Method detection limit

RL : Reporting limit

SDG : Sample delivery group

Qualifiers:

J+ : Estimated result, biased high

J-: Estimated result, biased low

J : Estimated result

U : Non-detect result

APPENDIX C

STATISTICAL ANALYSES

Interwell Prediction Limit

Branch Client: Golder Associates Data: Plant Branch Ash Pond Printed 2/7/2020, 11:16 AM

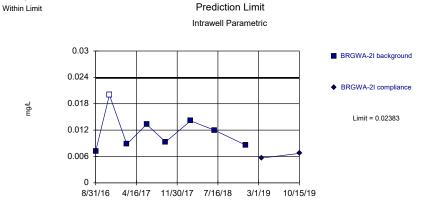
<u>Constituent</u>	Well	Upper Lim.	Lower Lim.	<u>Date</u>	Observ.	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>ND Adj.</u>	<u>Transform</u>	<u>Alpha</u>	Method
Boron (mg/L)	BRGWC-33S	0.25	n/a	10/16/2019	1.1	Yes	50	64	n/a	n/a	0.000	NP (NDs) 1 of 2
Boron (mg/L)	BRGWC-34S	0.25	n/a	10/16/2019	2.3	Yes	50	64	n/a	n/a	0.000	NP (NDs) 1 of 2
Boron (mg/L)	BRGWC-35S	0.25	n/a	10/16/2019	2.2	Yes	50	64	n/a	n/a	0.000	NP (NDs) 1 of 2
Boron (mg/L)	BRGWC-36S	0.25	n/a	12/3/2019	1	Yes	50	64	n/a	n/a	0.000	NP (NDs) 1 of 2
Boron (mg/L)	BRGWC-38S	0.25	n/a	10/16/2019	1.5	Yes	50	64	n/a	n/a	0.000	NP (NDs) 1 of 2
Calcium (mg/L)	BRGWC-17S	24	n/a	12/3/2019	37.7	Yes	50	6	n/a	n/a	0.000	NP (normality) 1 of 2
Calcium (mg/L)	BRGWC-33S	24	n/a	10/16/2019	46.5	Yes	50	6	n/a	n/a	0.000	NP (normality) 1 of 2
Calcium (mg/L)	BRGWC-34S	24	n/a	10/16/2019	78.2	Yes	50	6	n/a	n/a	0.000	NP (normality) 1 of 2
Calcium (mg/L)	BRGWC-35S	24	n/a	10/16/2019	61.2	Yes	50	6	n/a	n/a	0.000	NP (normality) 1 of 2
Calcium (mg/L)	BRGWC-36S	24	n/a	12/3/2019	47.8	Yes	50	6	n/a	n/a	0.000	NP (normality) 1 of 2
Calcium (mg/L)	BRGWC-38S	24	n/a	10/16/2019	38.4	Yes	50	6	n/a	n/a	0.000	NP (normality) 1 of 2
Chloride (mg/L)	BRGWC-33S	4.8	n/a	10/16/2019	5.4	Yes	50	0	n/a	n/a	0.000	NP (normality) 1 of 2
Chloride (mg/L)	BRGWC-34S	4.8	n/a	10/16/2019	7.3	Yes	50	0	n/a	n/a	0.000	NP (normality) 1 of 2
Chloride (mg/L)	BRGWC-35S	4.8	n/a	10/16/2019	6.6	Yes	50	0	n/a	n/a	0.000	NP (normality) 1 of 2
Chloride (mg/L)	BRGWC-36S	4.8	n/a	12/3/2019	7.7	Yes	50	0	n/a	n/a	0.000	NP (normality) 1 of 2
Chloride (mg/L)	BRGWC-38S	4.8	n/a	10/16/2019	6.4	Yes	50	0	n/a	n/a	0.000	NP (normality) 1 of 2
Fluoride (mg/L)	BRGWC-38S	0.19	n/a	10/16/2019	0.61	Yes	55	49.09	n/a	n/a	0.000631	NP (normality) 1 of 2
pH (S.U)	BRGWC-33S	7.169	5.91	10/16/2019	4.78	Yes	54	0	None	No	0.000	Param 1 of 2
pH (S.U)	BRGWC-34S	7.169	5.91	10/16/2019	5.85	Yes	54	0	None	No	0.000	Param 1 of 2
pH (S.U)	BRGWC-36S	7.169	5.91	10/17/2019	5.61	Yes	54	0	None	No	0.000	Param 1 of 2
pH (S.U)	BRGWC-38S	7.169	5.91	10/16/2019	4.21	Yes	54	0	None	No	0.000	Param 1 of 2
Sulfate (mg/L)	BRGWC-17S	7.5	n/a	12/3/2019	180	Yes	50	12	n/a	n/a	0.000	NP (normality) 1 of 2
Sulfate (mg/L)	BRGWC-33S	7.5	n/a	10/16/2019	226	Yes	50	12	n/a	n/a	0.000	NP (normality) 1 of 2
Sulfate (mg/L)	BRGWC-34S	7.5	n/a	10/16/2019	325	Yes	50	12	n/a	n/a	0.000	NP (normality) 1 of 2
Sulfate (mg/L)	BRGWC-35S	7.5	n/a	10/16/2019	277	Yes	50	12	n/a	n/a	0.000	NP (normality) 1 of 2
Sulfate (mg/L)	BRGWC-36S	7.5	n/a	12/3/2019	256	Yes	50	12	n/a	n/a	0.000	NP (normality) 1 of 2
Sulfate (mg/L)	BRGWC-38S	7.5	n/a	10/16/2019	432	Yes	50	12	n/a	n/a	0.000	NP (normality) 1 of 2
Total Dissolved Solids (mg/L)	BRGWC-17S	299	n/a	12/3/2019	378	Yes	50	10	n/a	n/a	0.000	NP (normality) 1 of 2
Total Dissolved Solids (mg/L)	BRGWC-34S	299	n/a	10/16/2019	473	Yes	50	10	n/a	n/a	0.000	NP (normality) 1 of 2
Total Dissolved Solids (mg/L)	BRGWC-35S	299	n/a	10/16/2019	481	Yes	50	10	n/a	n/a	0.000	NP (normality) 1 of 2
Total Dissolved Solids (mg/L)	BRGWC-36S	299	n/a	12/3/2019	498	Yes	50	10	n/a	n/a	0.000	NP (normality) 1 of 2
Total Dissolved Solids (mg/L)	BRGWC-38S	299	n/a	10/16/2019	630	Yes	50	10	n/a	n/a	0.000	NP (normality) 1 of 2

Interwell Prediction Limit

Branch Client: Golder Associates Data: Plant Branch Ash Pond Printed 2/7/2020, 11:16 AM

Calcium (mg/L) BRGWC-33S 24 n/a 10/16/2019 46.5 Yes 50 6 n/a n/a 0.000 NP (norm Calcium (mg/L) BRGWC-34S 24 n/a 10/16/2019 78.2 Yes 50 6 n/a n/a 0.000 NP (norm	1 of 2 1 of 2 1 of 2 1 of 2 1 of 2 1 of 2 ality) 1 of 2 ali
Boron (mg/L) BRGWC-34S 0.25 n/a 10/16/2019 2.3 Yes 50 64 n/a n/a 0.000 NP (NDs Boron (mg/L) BRGWC-35S 0.25 n/a 10/16/2019 2.2 Yes 50 64 n/a n/a 0.000 NP (NDs Boron (mg/L) BRGWC-36S 0.25 n/a 12/3/2019 1 Yes 50 64 n/a n/a 0.000 NP (NDs Boron (mg/L) BRGWC-36S 0.25 n/a 10/16/2019 1.5 Yes 50 64 n/a n/a 0.000 NP (NDs Boron (mg/L) BRGWC-38S 0.25 n/a 10/16/2019 1.5 Yes 50 64 n/a n/a 0.000 NP (NDs Calcium (mg/L) BRGWC-33S 2.4 n/a 10/16/2019 37.7 Yes 50 6 n/a n/a 0.000 NP (norm Calcium (mg/L) BRGWC-33S 2.4 n/a	1 of 2 1 of 2 1 of 2 1 of 2 ality) 1 of 2 alit
Boron (mg/L) BRGWC-35S 0.25 n/a 10/16/2019 2.2 Yes 50 64 n/a n/a 0.000 NP (NDs) Boron (mg/L) BRGWC-36S 0.25 n/a 12/3/2019 1 Yes 50 64 n/a n/a 0.000 NP (NDs) Boron (mg/L) BRGWC-36S 0.25 n/a 10/16/2019 1.5 Yes 50 64 n/a n/a 0.000 NP (NDs) Boron (mg/L) BRGWC-38S 0.25 n/a 10/16/2019 1.5 Yes 50 64 n/a n/a 0.000 NP (NDs) Calcium (mg/L) BRGWC-33S 2.4 n/a 12/3/2019 37.7 Yes 50 6 n/a n/a 0.000 NP (norm) Calcium (mg/L) BRGWC-33S 2.4 n/a 10/16/2019 46.5 Yes 50 6 n/a n/a 0.000 NP (norm) Calcium (mg/L) BRGWC-34S 2.4 n/a </td <td>1 of 2 1 of 2 1 of 2 ality) 1 of 2</td>	1 of 2 1 of 2 1 of 2 ality) 1 of 2
Boron (mg/L) BRGWC-36S 0.25 n/a 12/3/2019 1 Yes 50 64 n/a n/a 0.000 NP (NDs Boron (mg/L) BRGWC-38S 0.25 n/a 10/16/2019 1.5 Yes 50 64 n/a n/a 0.000 NP (NDs Calcium (mg/L) BRGWC-17S 24 n/a 12/3/2019 37.7 Yes 50 6 n/a n/a 0.000 NP (NDs Calcium (mg/L) BRGWC-33S 24 n/a 10/16/2019 46.5 Yes 50 6 n/a n/a 0.000 NP (norm Calcium (mg/L) BRGWC-34S 24 n/a 10/16/2019 78.2 Yes 50 6 n/a n/a 0.000 NP (norm Calcium (mg/L) BRGWC-34S 24 n/a 10/16/2019 78.2 Yes 50 6 n/a n/a 0.000 NP (norm	1 of 2 1 of 2 ality) 1 of 2
Boron (mg/L) BRGWC-38S 0.25 n/a 10/16/2019 1.5 Yes 50 64 n/a n/a 0.000 NP (NDs) Calcium (mg/L) BRGWC-17S 24 n/a 12/3/2019 37.7 Yes 50 6 n/a n/a 0.000 NP (norm) Calcium (mg/L) BRGWC-33S 24 n/a 10/16/2019 46.5 Yes 50 6 n/a n/a 0.000 NP (norm) Calcium (mg/L) BRGWC-34S 24 n/a 10/16/2019 78.2 Yes 50 6 n/a n/a 0.000 NP (norm)	1 of 2 ality) 1 of 2 ality) 1 of 2 ality) 1 of 2 ality) 1 of 2 ality) 1 of 2 ality) 1 of 2 ality) 1 of 2
Calcium (mg/L) BRGWC-17S 24 n/a 12/3/2019 37.7 Yes 50 6 n/a n/a 0.000 NP (norm Calcium (mg/L) BRGWC-33S 24 n/a 10/16/2019 46.5 Yes 50 6 n/a n/a 0.000 NP (norm Calcium (mg/L) BRGWC-34S 24 n/a 10/16/2019 78.2 Yes 50 6 n/a n/a 0.000 NP (norm	ality) 1 of 2 ality) 1 of 2
Calcium (mg/L) BRGWC-33S 24 n/a 10/16/2019 46.5 Yes 50 6 n/a n/a 0.000 NP (norm Calcium (mg/L) BRGWC-34S 24 n/a 10/16/2019 78.2 Yes 50 6 n/a n/a 0.000 NP (norm	ality) 1 of 2 ality) 1 of 2
Calcium (mg/L) BRGWC-34S 24 n/a 10/16/2019 78.2 Yes 50 6 n/a n/a 0.000 NP (norm	ality) 1 of 2 ality) 1 of 2 ality) 1 of 2 ality) 1 of 2 ality) 1 of 2
	ality) 1 of 2 ality) 1 of 2 ality) 1 of 2
	ality) 1 of 2 ality) 1 of 2
Calcium (mg/L) BRGWC-35S 24 n/a 10/16/2019 61.2 Yes 50 6 n/a n/a 0.000 NP (norm	ality) 1 of 2
Calcium (mg/L) BRGWC-36S 24 n/a 12/3/2019 47.8 Yes 50 6 n/a n/a 0.000 NP (norm	• ·
Calcium (mg/L) BRGWC-38S 24 n/a 10/16/2019 38.4 Yes 50 6 n/a n/a 0.000 NP (norm	11-11-11-1-1-0
Chloride (mg/L) BRGWC-17S 4.8 n/a 12/3/2019 4.8 No 50 0 n/a n/a 0.000 NP (norm	anty) 1 of 2
Chloride (mg/L) BRGWC-33S 4.8 n/a 10/16/2019 5.4 Yes 50 0 n/a n/a 0.000 NP (norm	ality) 1 of 2
Chloride (mg/L) BRGWC-34S 4.8 n/a 10/16/2019 7.3 Yes 50 0 n/a n/a 0.000 NP (norm	ality) 1 of 2
Chloride (mg/L) BRGWC-35S 4.8 n/a 10/16/2019 6.6 Yes 50 0 n/a n/a 0.000 NP (norm	ality) 1 of 2
Chloride (mg/L) BRGWC-36S 4.8 n/a 12/3/2019 7.7 Yes 50 0 n/a n/a 0.000 NP (norm	ality) 1 of 2
Chloride (mg/L) BRGWC-38S 4.8 n/a 10/16/2019 6.4 Yes 50 0 n/a n/a 0.000 NP (norm	ality) 1 of 2
Fluoride (mg/L) BRGWC-17S 0.19 n/a 12/3/2019 0.2 No 55 49.09 n/a n/a 0.000631 NP (norm	ality) 1 of 2
Fluoride (mg/L) BRGWC-33S 0.19 n/a 10/16/2019 0.17 No 55 49.09 n/a n/a 0.000631 NP (norm	ality) 1 of 2
Fluoride (mg/L) BRGWC-34S 0.19 n/a 10/16/2019 0.13 No 55 49.09 n/a n/a 0.000631 NP (norm	ality) 1 of 2
Fluoride (mg/L) BRGWC-35S 0.19 n/a 10/16/2019 0.08 No 55 49.09 n/a n/a 0.000631 NP (norm	
Fluoride (mg/L) BRGWC-36S 0.19 n/a 12/3/2019 0.15 No 55 49.09 n/a n/a 0.000631 NP (norm	ality) 1 of 2
Fluoride (mg/L) BRGWC-38S 0.19 n/a 10/16/2019 0.61 Yes 55 49.09 n/a n/a 0.000631 NP (norm	ality) 1 of 2
pH (S.U) BRGWC-17S 7.169 5.91 10/17/2019 6.3 No 54 0 None No 0.000 Param 1 o	/f 2
pH (S.U) BRGWC-33S 7.169 5.91 10/16/2019 4.78 Yes 54 0 None No 0.000 Param 1 d	/f 2
pH (S.U) BRGWC-34S 7.169 5.91 10/16/2019 5.85 Yes 54 0 None No 0.000 Param 1 o	/f 2
pH (S.U) BRGWC-35S 7.169 5.91 10/16/2019 6.03 No 54 0 None No 0.000 Param 1 o	/f 2
pH (S.U) BRGWC-36S 7.169 5.91 10/17/2019 5.61 Yes 54 0 None No 0.000 Param 1 o	/f 2
pH (S.U) BRGWC-38S 7.169 5.91 10/16/2019 4.21 Yes 54 0 None No 0.000 Param 1 o	/f 2
Sulfate (mg/L) BRGWC-17S 7.5 n/a 12/3/2019 180 Yes 50 12 n/a n/a 0.000 NP (norm	ality) 1 of 2
Sulfate (mg/L) BRGWC-33S 7.5 n/a 10/16/2019 226 Yes 50 12 n/a n/a 0.000 NP (norm	ality) 1 of 2
Sulfate (mg/L) BRGWC-34S 7.5 n/a 10/16/2019 325 Yes 50 12 n/a n/a 0.000 NP (norm	ality) 1 of 2
Sulfate (mg/L) BRGWC-35S 7.5 n/a 10/16/2019 277 Yes 50 12 n/a n/a 0.000 NP (norm	ality) 1 of 2
Sulfate (mg/L) BRGWC-36S 7.5 n/a 12/3/2019 256 Yes 50 12 n/a n/a 0.000 NP (norm	ality) 1 of 2
Sulfate (mg/L) BRGWC-38S 7.5 n/a 10/16/2019 432 Yes 50 12 n/a n/a 0.000 NP (norm	ality) 1 of 2
	ality) 1 of 2
Total Dissolved Solids (mg/L) BRGWC-33S 299 n/a 10/16/2019 281 No 50 10 n/a n/a 0.000 NP (norm	ality) 1 of 2
Total Dissolved Solids (mg/L) BRGWC-34S 299 n/a 10/16/2019 473 Yes 50 10 n/a n/a 0.000 NP (norm	ality) 1 of 2
Total Dissolved Solids (mg/L) BRGWC-35S 299 n/a 10/16/2019 481 Yes 50 10 n/a n/a 0.000 NP (norm	ality) 1 of 2
	ality) 1 of 2
Total Dissolved Solids (mg/L) BRGWC-38S 299 n/a 10/16/2019 630 Yes 50 10 n/a n/a 0.000 NP (norm	ality) 1 of 2

Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values.

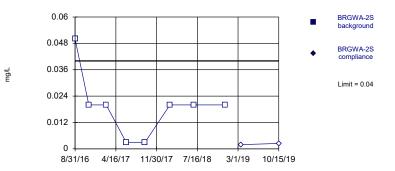


Background Data Summary: Mean=0.01166, Std. Dev.=0.004163, n=8, 12.5% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8954, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

> Constituent: Boron Analysis Run 2/7/2020 10:06 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values. Prediction Limit Within Limit





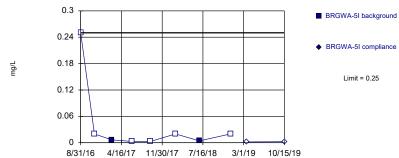
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 8) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.04242. Individual comparison alpha = 0.02144 (1 of 2).

> Constituent: Boron Analysis Run 2/7/2020 10:06 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values.

Within Limit

Prediction Limit Intrawell Non-parametric



Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

Within Limit

mg/L

Hollow symbols indicate censored values. Prediction Limit

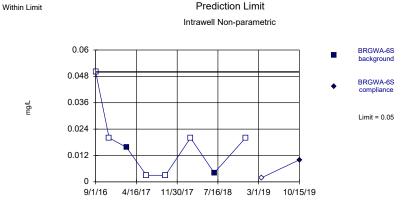
0.3 BRGWA-5S background 0.24 BRGWA-5S compliance 0.18 Limit = 0.25 0.12 0.06 0 8/31/16 4/16/17 11/30/17 7/16/18 3/1/19 10/15/19

Intrawell Non-parametric

Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 8 background values. 62.5% NDs. Well-constituent pair annual alpha = 0.04242. Individual comparison alpha = 0.02144 (1 of 2).

Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 8 background values. 75% NDs. Well-constituent pair annual alpha = 0.04242. Individual comparison alpha = 0.02144 (1 of 2).

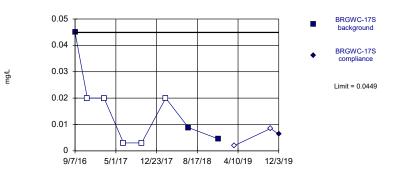
Sanitas[™] v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values.



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 8 background values. 75% NDs. Well-constituent pair annual alpha = 0.04242. Individual comparison alpha = 0.02144 (1 of 2).

Constituent: Boron Analysis Run 2/7/2020 10:06 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond Sanitas[™] 9.6.25 For the satisficial analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values. Writhin Limit Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 8 background values. 62.5% NDs. Well-constituent pair annual alpha = 0.04242. Individual comparison alpha = 0.02144 (1 of 2).

Constituent: Boron Analysis Run 2/7/2020 10:06 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas[™] v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

1.6

1.28

0.96

0.64

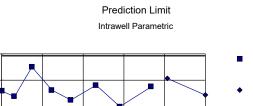
0.32

0

9/7/16

Within Limit

ng/L



BRGWC-33S compliance

BRGWC-33S

background

Limit = 1.576

Background Data Summary: Mean=1.156, Std. Dev.=0.1436, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9426, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

4/21/17 12/4/17 7/19/18

3/3/19 10/16/19

Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

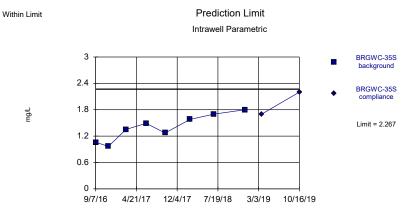
Within Limit

Prediction Limit Intrawell Parametric



Background Data Summary: Mean=2.244, Std. Dev.=0.2134, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9608, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

> Constituent: Boron Analysis Run 2/7/2020 10:06 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond



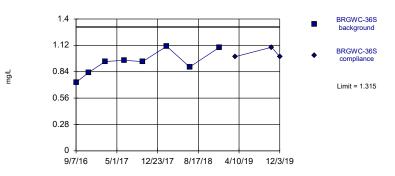
Background Data Summary: Mean=1.402, Std. Dev.=0.2959, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9636, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Boron Analysis Run 2/7/2020 10:06 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

Within Limit

Within Limit

Prediction Limit



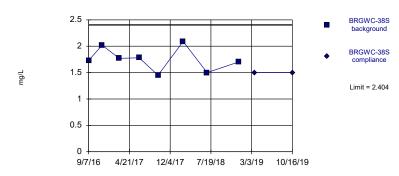
Background Data Summary: Mean=0.9393, Std. Dev.=0.1286, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9444, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Boron Analysis Run 2/7/2020 10:06 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas[™] v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

Within Limit

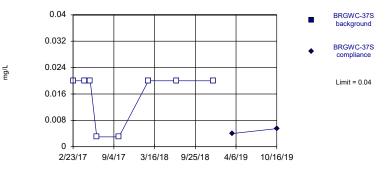
Prediction Limit Intrawell Parametric



Background Data Summary: Mean=1.755, Std. Dev.=0.222, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9353, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

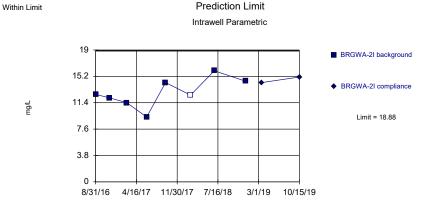
Sanitas¹⁸ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values.

Prediction Limit Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. All background values (n = 8) were censored; limit is most recent reporting limit. Well-constituent pair annual alpha = 0.04242. Individual comparison alpha = 0.02144 (1 of 2).

Sanitas¹¹⁰ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values.

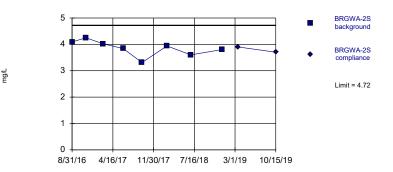


Background Data Summary: Mean=12.84, Std. Dev.=2.067, n=8, 12.5% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9749, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Calcium Analysis Run 2/7/2020 10:06 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG



Prediction Limit



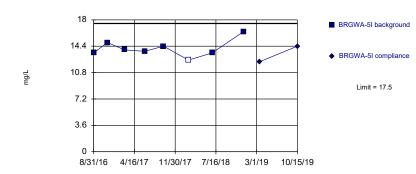
Background Data Summary: Mean=3.856, Std. Dev.=0.2954, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9651, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Calcium Analysis Run 2/7/2020 10:07 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas $^{\mbox{\tiny W}}$ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values.

Within Limit

Prediction Limit Intrawell Parametric

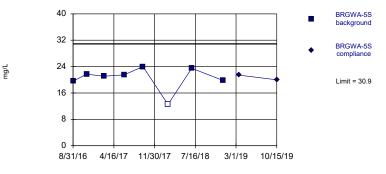


Background Data Summary: Mean=14.1, Std. Dev.=1.165, n=8, 12.5% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9293, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

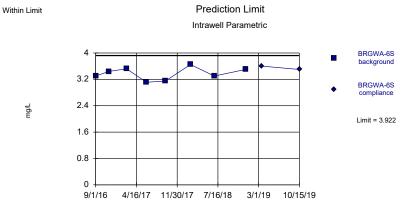
Sanitas[®] v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values. Within Limit Prediction



Prediction Limit



Background Data Summary: Mean=20.46, Std. Dev.=3.572, n=8, 12.5% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8178, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.



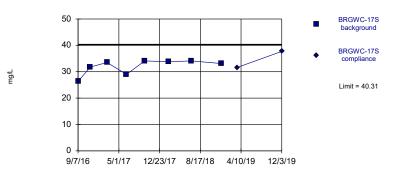
Background Data Summary: Mean=3.371, Std. Dev.=0.1884, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9528, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

> Constituent: Calcium Analysis Run 2/7/2020 10:07 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

Within Limit

Prediction Limit Intrawell Parametric



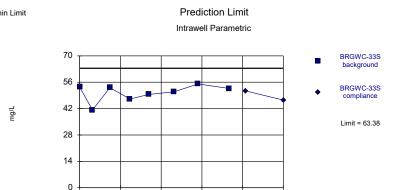
Background Data Summary: Mean=31.96, Std. Dev.=2.855, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7882, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

> Constituent: Calcium Analysis Run 2/7/2020 10:07 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

9/7/16

Within Limit



Background Data Summary: Mean=50.39, Std. Dev.=4.447, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8858, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

4/21/17 12/4/17 7/19/18

Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

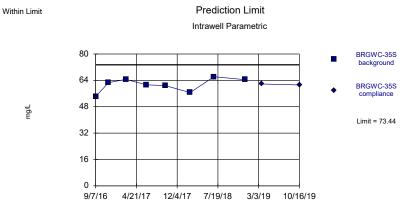
Within Limit

Prediction Limit Intrawell Parametric



Background Data Summary: Mean=96.24, Std. Dev.=6.296, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9437, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

3/3/19 10/16/19



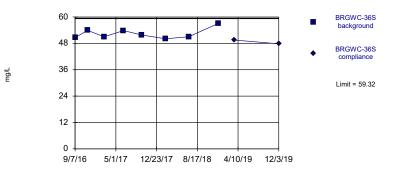
Background Data Summary: Mean=61.33, Std. Dev.=4.147, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9254, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

> Constituent: Calcium Analysis Run 2/7/2020 10:07 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

Within Limit

Prediction Limit Intrawell Parametric

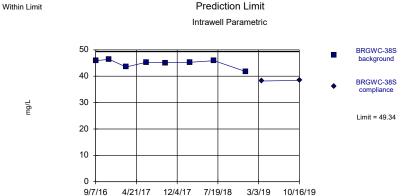


Background Data Summary: Mean=52.41, Std. Dev.=2.364, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8642, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

> Constituent: Calcium Analysis Run 2/7/2020 10:07 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

9/7/16

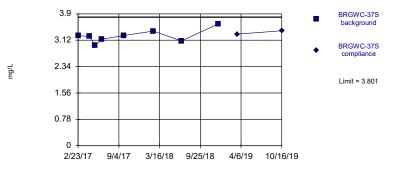


Background Data Summary: Mean=44.9, Std. Dev.=1.52, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8382, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

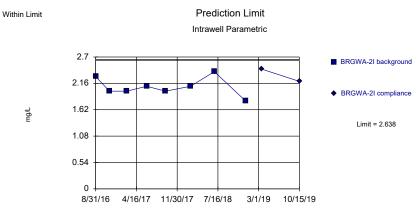
Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

Within Limit

Prediction Limit Intrawell Parametric



Background Data Summary: Mean=3.245, Std. Dev.=0.1903, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9626, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

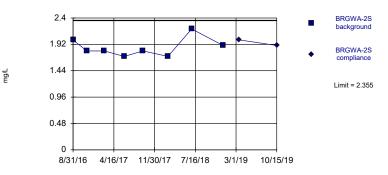


Background Data Summary: Mean=2.088, Std. Dev.=0.1885, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9304, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Chloride Analysis Run 2/7/2020 10:07 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

Within Limit

Prediction Limit



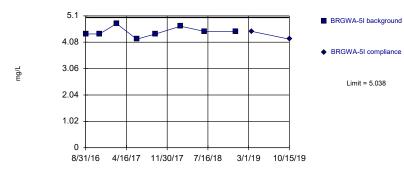
Background Data Summary: Mean=1.863, Std. Dev.=0.1685, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8663, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Chloride Analysis Run 2/7/2020 10:07 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas[™] v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

Within Limit

Prediction Limit

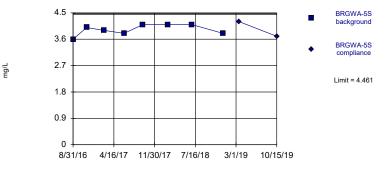


Background Data Summary: Mean=4.488, Std. Dev.=0.1885, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9304, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

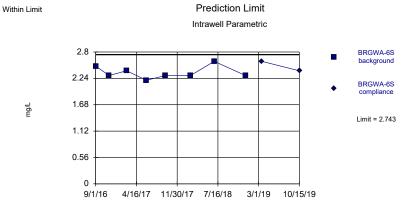
Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

Within Limit

Prediction Limit Intrawell Parametric



Background Data Summary: Mean=3.925, Std. Dev.=0.1832, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8826, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

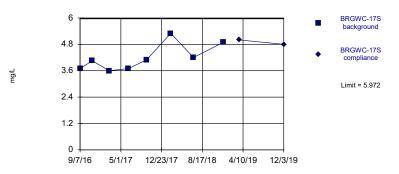


Background Data Summary: Mean=2.363, Std. Dev.=0.1302, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8774, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Chloride Analysis Run 2/7/2020 10:07 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

Within Limit

Prediction Limit



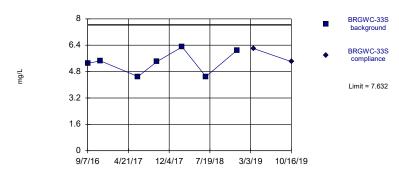
Background Data Summary: Mean=4.194, Std. Dev.=0.6085, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8662, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Chloride Analysis Run 2/7/2020 10:07 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

Within Limit

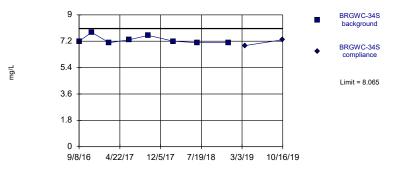
Prediction Limit Intrawell Parametric



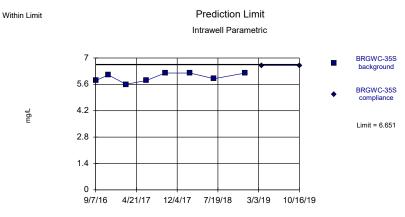
Background Data Summary: Mean=5.364, Std. Dev.=0.698, n=7. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9065, critical = 0.73. Kappa = 3.249 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075. Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG



Prediction Limit Intrawell Parametric



Background Data Summary: Mean=7.3, Std. Dev.=0.2619, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7923, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

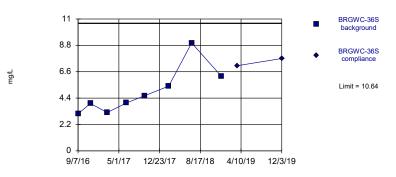


Background Data Summary: Mean=5.975, Std. Dev.=0.2315, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8683, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Chloride Analysis Run 2/7/2020 10:07 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

Within Limit

Prediction Limit



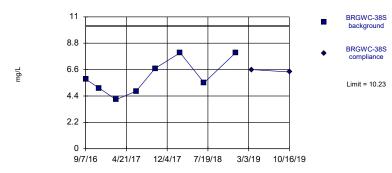
Background Data Summary: Mean=4.931, Std. Dev.=1.952, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.866, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Chloride Analysis Run 2/7/2020 10:07 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas[™] v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

Within Limit

Prediction Limit Intrawell Parametric

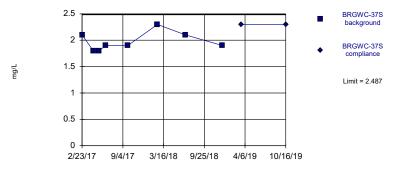


Background Data Summary: Mean=5.994, Std. Dev.=1.451, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9118, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Sanitas[™] v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

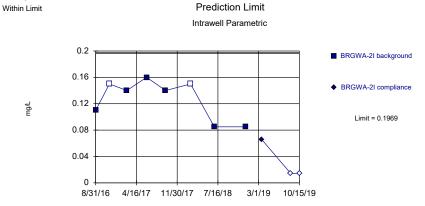


Prediction Limit Intrawell Parametric



Background Data Summary: Mean=1.975, Std. Dev.=0.1753, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8695, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

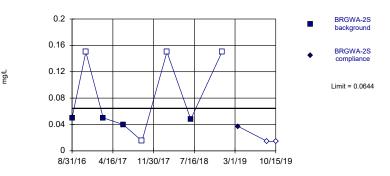
Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values.



Background Data Summary (after Kaplan-Meier Adjustment): Mean=0.1122, Std. Dev.=0.02897, n=8, 25% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8442, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values. Prediction Limit Within Limit

Intrawell Parametric



Background Data Summary (after Kaplan-Meier Adjustment): Mean=0.04147, Std. Dev.=0.007847, n=8, 50% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.773, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Fluoride Analysis Run 2/7/2020 10:07 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

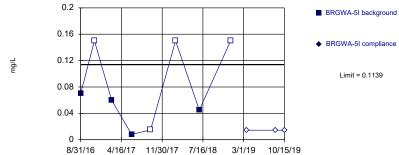
Constituent: Fluoride Analysis Run 2/7/2020 10:07 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values.

Within Limit

Prediction Limit

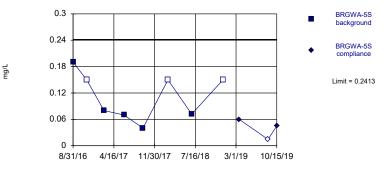
Intrawell Parametric



Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values.

Within Limit

Prediction Limit Intrawell Parametric

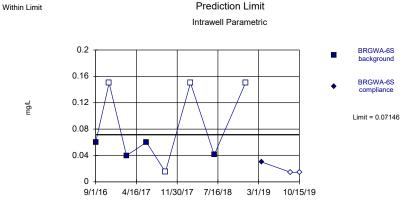


Background Data Summary (after Kaplan-Meier Adjustment): Mean=0.0904, Std. Dev.=0.05162, n=8, 37.5% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8934, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Background Data Summary (after Kaplan-Meier Adjustment): Mean=0.0382, Std. Dev.=0.02591, n=8, 50% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8426, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

> Constituent: Fluoride Analysis Run 2/7/2020 10:07 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values.

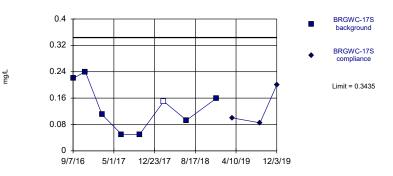


Background Data Summary (after Kaplan-Meier Adjustment): Mean=0.0416, Std. Dev.=0.01022, n=8, 50% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8067, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Fluoride Analysis Run 2/7/2020 10:07 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values. Prediction Limit Within Limit

Intrawell Parametric

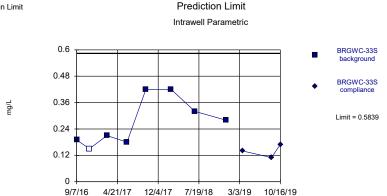


Background Data Summary: Mean=0.1341, Std. Dev.=0.07165, n=8, 12.5% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9289, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

> Constituent: Fluoride Analysis Run 2/7/2020 10:07 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values.

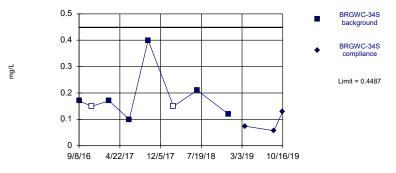
Within Limit



Background Data Summary: Mean=0.2713, Std. Dev.=0.107, n=8, 12.5% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.883, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values. Prediction Limit Within Limit

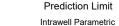
Intrawell Parametric

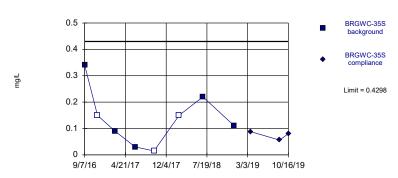


Background Data Summary (after Kaplan-Meier Adjustment): Mean=0.1743, Std. Dev.=0.0939, n=8, 25% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.753, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

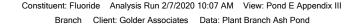
Sanitas[™] v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values.





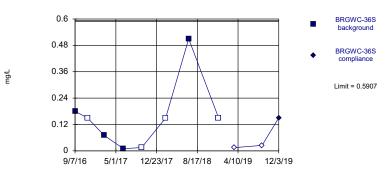


Background Data Summary (after Kaplan-Meier Adjustment): Mean=0.1265, Std. Dev.=0.1038, n=8, 37.5% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9348, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.





Intrawell Parametric



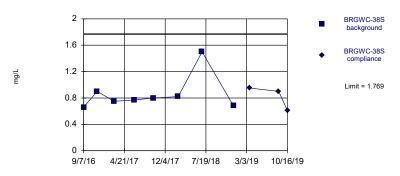
Background Data Summary (after Kaplan-Meier Adjustment): Mean=0.1228, Std. Dev.=0.1601, n=8, 50% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7789, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

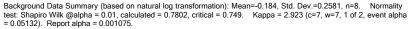
Constituent: Fluoride Analysis Run 2/7/2020 10:07 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

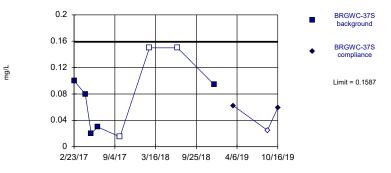
Within Limit

Prediction Limit

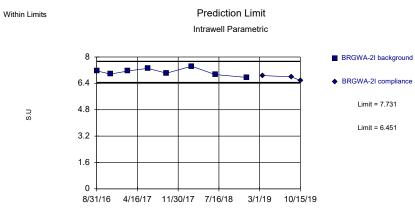




Sanitas^w v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values. Within Limit Prediction Limit Intrawell Parametric



Background Data Summary (after Kaplan-Meier Adjustment): Mean=0.05733, Std. Dev.=0.03467, n=8, 37.5% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8903, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.00175.



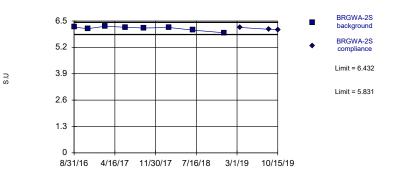
Background Data Summary: Mean=7.091, Std. Dev.=0.219, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9812, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: pH Analysis Run 2/7/2020 10:07 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond





Prediction Limit



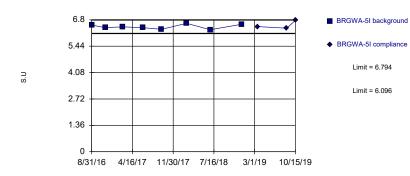
Background Data Summary: Mean=6.131, Std. Dev.=0.1029, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8777, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: pH Analysis Run 2/7/2020 10:07 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas[™] v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

Within Limits

Prediction Limit Intrawell Parametric

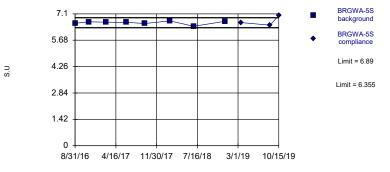


Background Data Summary: Mean=6.445, Std. Dev.=0.1194, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9437, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

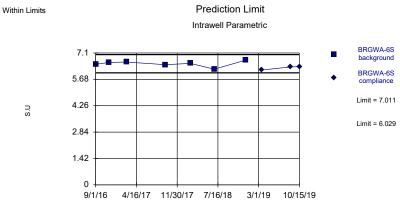
Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

Exceeds Limits

Prediction Limit Intrawell Parametric



Background Data Summary: Mean=6.623, Std. Dev.=0.09161, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8847, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

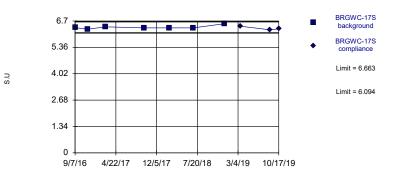


Background Data Summary: Mean=6.52, Std. Dev.=0.1511, n=7. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9231, critical = 0.73. Kappa = 3.249 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: pH Analysis Run 2/7/2020 10:07 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

Within Limits

Prediction Limit Intrawell Parametric



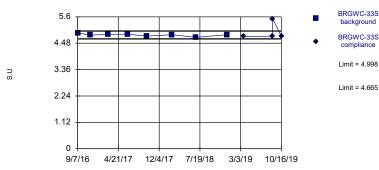
Background Data Summary: Mean=6.379, Std. Dev.=0.08745, n=7. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7957, critical = 0.73. Kappa = 3.249 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: pH Analysis Run 2/7/2020 10:07 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas[™] v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

Within Limits

Prediction Limit Intrawell Parametric



Background Data Summary: Mean=4.831, Std. Dev.=0.05693, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.956, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

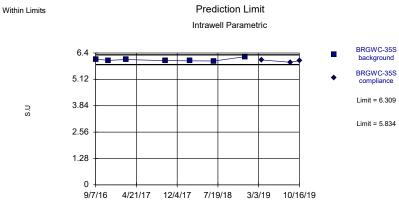
Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

Within Limits

Prediction Limit Intrawell Parametric



Background Data Summary: Mean=5.836, Std. Dev.=0.09441, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9751, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

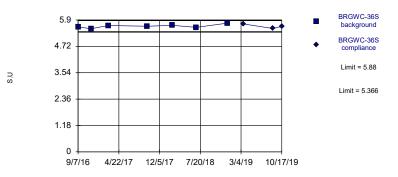


Background Data Summary: Mean=6.071, Std. Dev.=0.07313, n=7. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8194, critical = 0.73. Kappa = 3.249 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: pH Analysis Run 2/7/2020 10:07 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

Within Limits

Prediction Limit



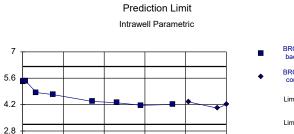
Background Data Summary: Mean=5.623, Std. Dev.=0.0791, n=7. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9769, critical = 0.73. Kappa = 3.249 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: pH Analysis Run 2/7/2020 10:07 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

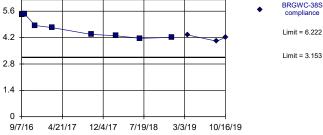
Sanitas[™] v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

Within Limits

S.U



BRGWC-38S background

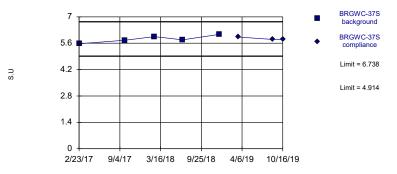


Background Data Summary: Mean=4.688, Std. Dev.=0.5251, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.85822, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

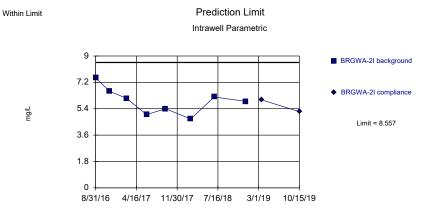
Sanitas[™] v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

Within Limits

Prediction Limit Intrawell Parametric



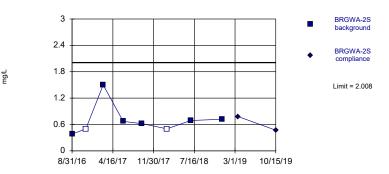
Background Data Summary: Mean=5.826, Std. Dev.=0.1917, n=5. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9733, critical = 0.686. Kappa = 4.761 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.



Background Data Summary: Mean=5.925, Std. Dev.=0.9004, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9743, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

> Constituent: Sulfate Analysis Run 2/7/2020 10:08 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values. Prediction Limit Within Limit



Intrawell Parametric

Background Data Summary (based on natural log transformation) (after Kaplan-Meier Adjustment): Mean=-0.3948, Std. Dev.=0.3736, n=8, 25% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.888, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

> Constituent: Sulfate Analysis Run 2/7/2020 10:08 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

Within Limit

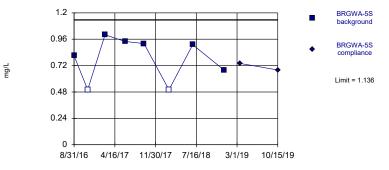
Prediction Limit Intrawell Parametric



Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values.

Within Limit

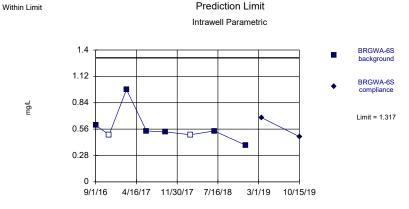
Prediction Limit Intrawell Parametric



Background Data Summary (after Kaplan-Meier Adjustment): Mean=0.852, Std. Dev.=0.09704, n=8, 25% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8606, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Background Data Summary: Mean=4.025, Std. Dev.=1.15, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8236, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Sanitas¹¹⁰ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values.



Background Data Summary (based on natural log transformation) (after Kaplan-Meier Adjustment): Mean=-0.5853, Std. Dev.=0.2944, n=8, 25% NDs. Normality test: Shapiro Wilk (@alpha = 0.01, calculated = 0.8276, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

> Constituent: Sulfate Analysis Run 2/7/2020 10:08 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

Exceeds Limit

Prediction Limit



Background Data Summary: Mean=117.4, Std. Dev.=10.17, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.89, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

> Constituent: Sulfate Analysis Run 2/7/2020 10:08 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

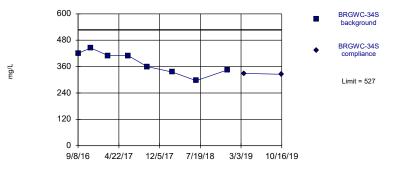
Prediction Limit Within Limit Intrawell Parametric 290 BRGWC-33S background 232 BRGWC-33S compliance 174 mg/L Limit = 280.8 116 58 0 4/21/17 12/4/17 7/19/18 9/7/16 3/3/19 10/16/19

Background Data Summary: Mean=215.5, Std. Dev.=22.35, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8217, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

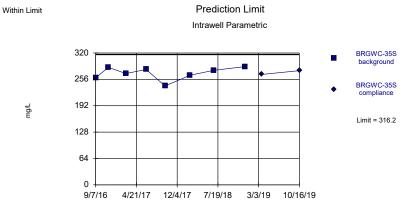
Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG



Prediction Limit Intrawell Parametric



Background Data Summary: Mean=377.6, Std. Dev.=51.11, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9414, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

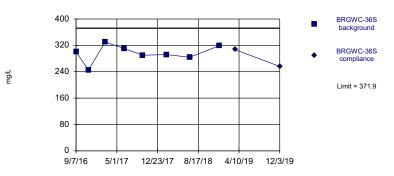


Background Data Summary: Mean=270.8, Std. Dev.=15.54, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9115, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Sulfate Analysis Run 2/7/2020 10:08 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

Within Limit

Prediction Limit



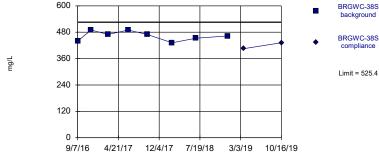
Background Data Summary: Mean=296.3, Std. Dev.=25.89, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9408, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Sulfate Analysis Run 2/7/2020 10:08 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas[™] v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

Within Limit

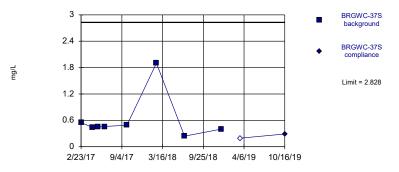
Prediction Limit Intrawell Parametric



Background Data Summary: Mean=463.5, Std. Dev.=21.19, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.937, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075. Sanitas^m v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values.

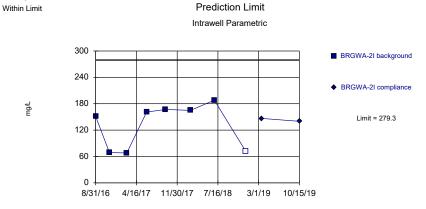
Within Limit

Prediction Limit Intrawell Parametric



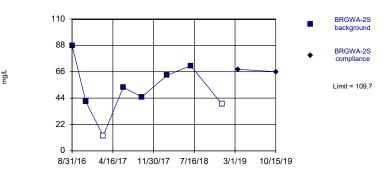
Background Data Summary (based on natural log transformation): Mean=-0.6761, Std. Dev.=0.587, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7813, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Sanitas[™] v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values.



Background Data Summary: Mean=130.2, Std. Dev.=51.03, n=8, 12.5% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.794, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Total Dissolved Solids Analysis Run 2/7/2020 10:08 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond Sanitas[™] v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values. Within Limit Prediction Limit



Intrawell Parametric

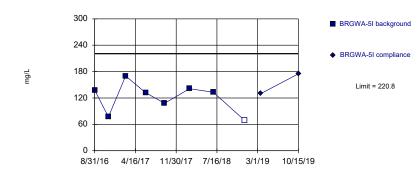
Background Data Summary (after Kaplan-Meier Adjustment): Mean=54.46, Std. Dev.=18.91, n=8, 25% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9824, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.00175.

Constituent: Total Dissolved Solids Analysis Run 2/7/2020 10:08 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas^w v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values. Within Limit Prediu

mit

Prediction Limit Intrawell Parametric

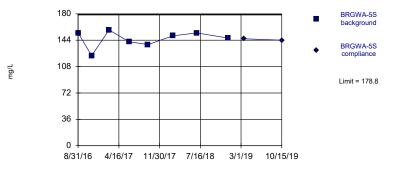


Background Data Summary: Mean=121, Std. Dev=34.15, n=8, 12.5% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9199, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

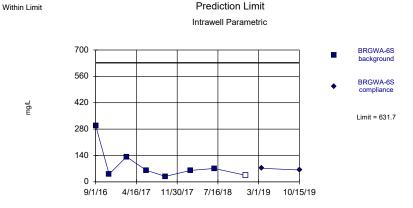
Within Limit

Prediction Limit Intrawell Parametric



Background Data Summary: Mean=145.8, Std. Dev.=11.32, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9053, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Total Dissolved Solids Analysis Run 2/7/2020 10:08 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond Sanitas¹¹⁰ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values.



Background Data Summary (based on natural log transformation): Mean=4.214, Std. Dev.=0.7646, n=8, 12.5% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9105, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Total Dissolved Solids Analysis Run 2/7/2020 10:08 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond





Prediction Limit



Background Data Summary: Mean=318.9, Std. Dev.=17.12, n=7. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9586, critical = 0.73. Kappa = 3.249 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Total Dissolved Solids Analysis Run 2/7/2020 10:08 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas[™] v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

Prediction Limit Within Limit Intrawell Parametric 500 BRGWC-33S background 400 BRGWC-33S compliance 300 mg/L Limit = 463.6 200 100 0 4/21/17 12/4/17 7/19/18 9/7/16 3/3/19 10/16/19

Background Data Summary: Mean=351.4, Std. Dev.=34.53, n=7. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8803, critical = 0.73. Kappa = 3.249 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075. Sanitas[™] v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

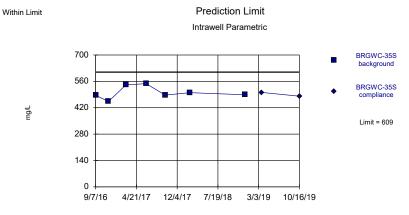


Prediction Limit



Background Data Summary: Mean=627, Std. Dev.=56.81, n=7. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9766, critical = 0.73. Kappa = 3.249 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Total Dissolved Solids Analysis Run 2/7/2020 10:08 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

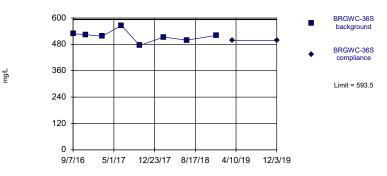


Background Data Summary: Mean=500.6, Std. Dev.=33.36, n=7. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9042, critical = 0.73. Kappa = 3.249 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Total Dissolved Solids Analysis Run 2/7/2020 10:08 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond







Prediction Limit

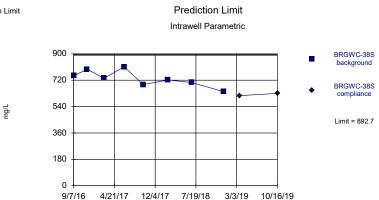
Intrawell Parametric

Background Data Summary: Mean=517.9, Std. Dev.=25.87, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9408, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Total Dissolved Solids Analysis Run 2/7/2020 10:08 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

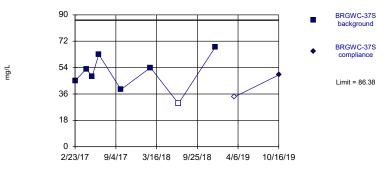
Within Limit



Background Data Summary: Mean=731, Std. Dev.=55.34, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9774, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values. Prediction Limit Within Limit

Intrawell Parametric

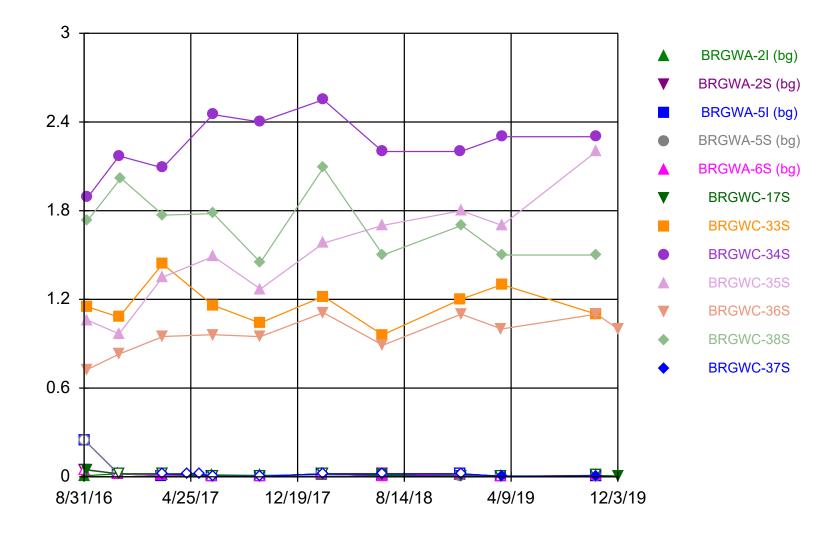


Background Data Summary: Mean=49.94, Std. Dev.=12.47, n=8, 12.5% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9852, critical = 0.749. Kappa = 2.923 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001075.

Constituent: Total Dissolved Solids Analysis Run 2/7/2020 10:08 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas[™] v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values.

Time Series

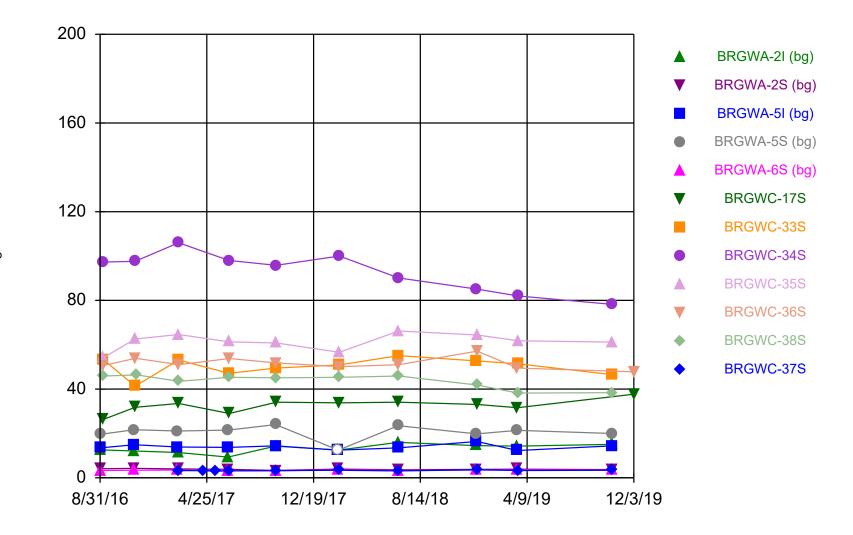


Constituent: Boron Analysis Run 2/7/2020 11:17 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

mg/L

Sanitas[™] v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values.

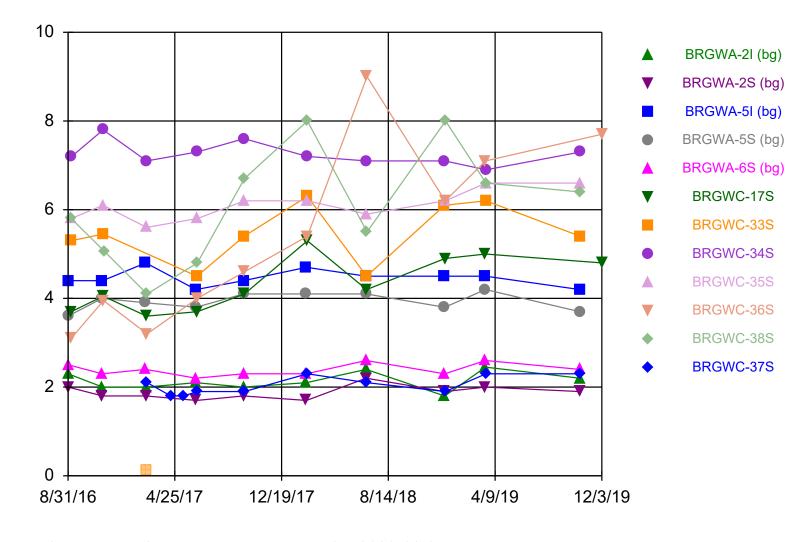
Time Series



Constituent: Calcium Analysis Run 2/7/2020 11:17 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

mg/L

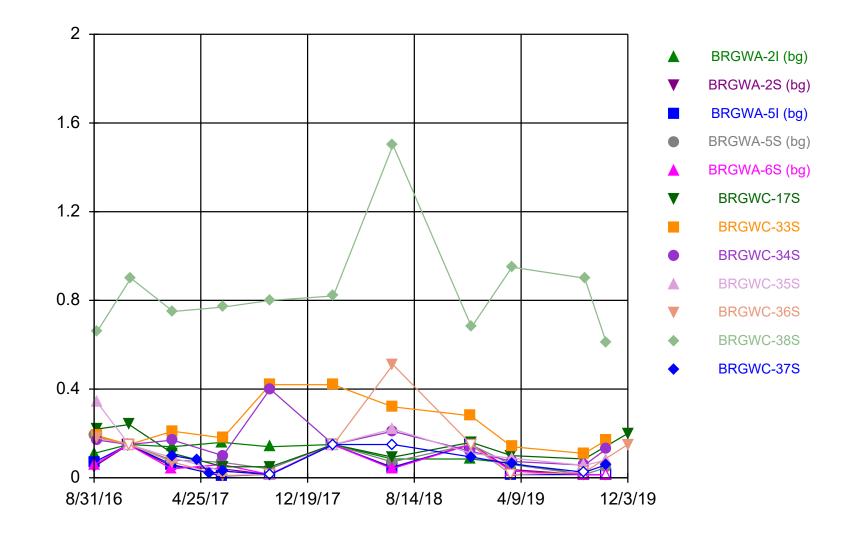
Time Series



Constituent: Chloride Analysis Run 2/7/2020 11:17 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

mg/L

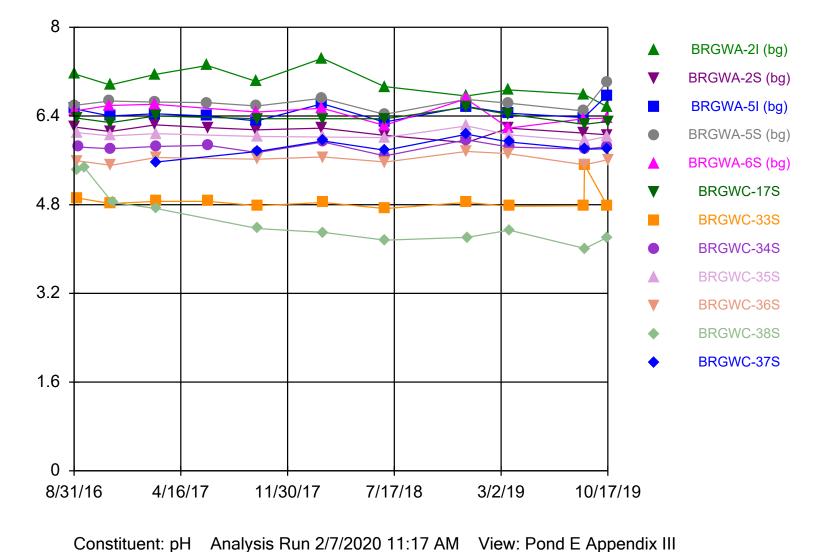
Time Series



Constituent: Fluoride Analysis Run 2/7/2020 11:17 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

mg/L

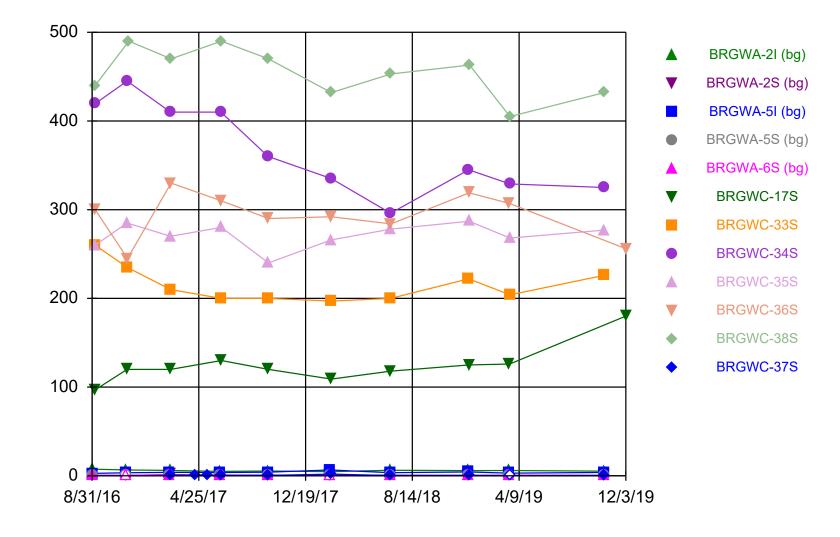
Time Series



Branch Client: Golder Associates Data: Plant Branch Ash Pond

S.U

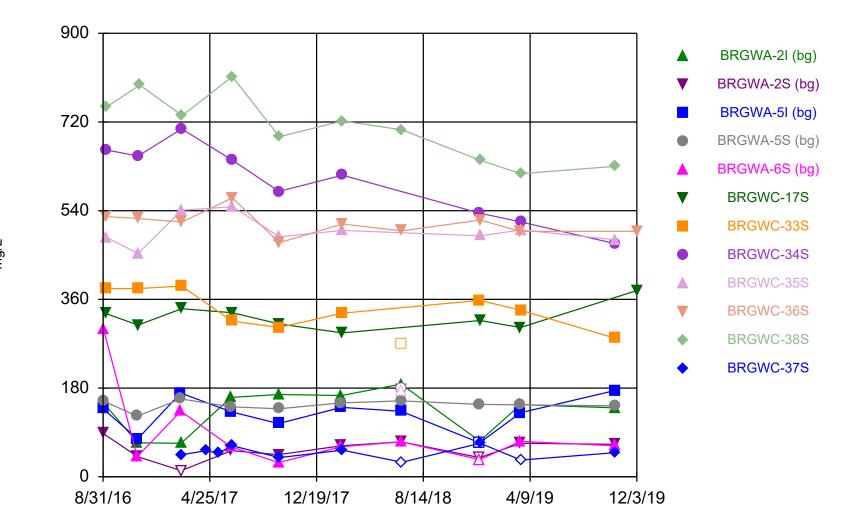
Time Series



Constituent: Sulfate Analysis Run 2/7/2020 11:17 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

mg/L

Time Series



Constituent: Total Dissolved Solids Analysis Run 2/7/2020 11:17 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

mg/L

Trend Test

Branch Client: Golder Associates Data: Plant Branch Ash Pond Printed 2/7/2020, 11:25 AM

<u>Constituent</u>	Well	Slope	Calc.	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	Normality	<u>Xform</u>	<u>Alpha</u>	Method
Boron (mg/L)	BRGWC-35S	0.3242	36	27	Yes	10	0	n/a	n/a	0.02	NP
Chloride (mg/L)	BRGWC-35S	0.2575	28	27	Yes	10	0	n/a	n/a	0.02	NP
Chloride (mg/L)	BRGWC-36S	1.563	37	27	Yes	10	0	n/a	n/a	0.02	NP
Fluoride (mg/L)	BRGWA-2I	-0.04097	-33	-31	Yes	11	36.36	n/a	n/a	0.02	NP
pH (S.U)	BRGWC-38S	-0.303	-40	-31	Yes	11	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	BRGWC-34S	-41.2	-34	-27	Yes	10	0	n/a	n/a	0.02	NP
Total Dissolved Solids (mg/L)	BRGWC-34S	-66.99	-30	-23	Yes	9	0	n/a	n/a	0.02	NP
Total Dissolved Solids (mg/L)	BRGWC-38S	-55.23	-31	-27	Yes	10	0	n/a	n/a	0.02	NP

Trend Test

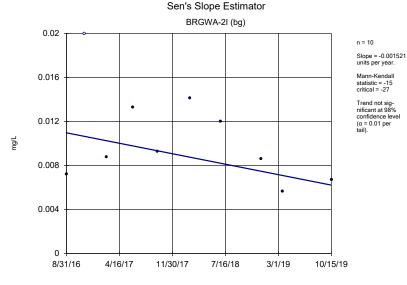
Branch Client: Golder Associates Data: Plant Branch Ash Pond Printed 2/7/2020, 11:25 AM

	Branch	Client: Goldel	r Associates	Data: Plant Bra	anch Ash Po	ona Prii	nted 2/7/2020	J, 11:25 AM			
<u>Constituent</u>	Well	Slope	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Xform</u>	<u>Alpha</u>	Method
Boron (mg/L)	BRGWA-2I	-0.00	-15	-27	No	10	10	n/a	n/a	0.02	NP
Boron (mg/L)	BRGWA-2S	-0.00	-20	-27	No	10	100	n/a	n/a	0.02	NP
Boron (mg/L)	BRGWA-5I	-0.00	-21	-27	No	10	80	n/a	n/a	0.02	NP
Boron (mg/L)	BRGWA-5S	-0.00	-19	-27	No	10	60	n/a	n/a	0.02	NP
Boron (mg/L)	BRGWA-6S	-0.00	-15	-27	No	10	70	n/a	n/a	0.02	NP
Boron (mg/L)	BRGWC-17S	-0.00	-23	-31	No	11	63.64	n/a	n/a	0.02	NP
Boron (mg/L)	BRGWC-33S	0.006867	1	27	No	10	0	n/a	n/a	0.02	NP
Boron (mg/L)	BRGWC-34S	0.07935	15	27	No	10	0	n/a	n/a	0.02	NP
Boron (mg/L)	BRGWC-35S	0.3242	36	27	Yes	10	0	n/a	n/a	0.02	NP
Boron (mg/L)	BRGWC-36S	0.07407	27	31	No	11	0	n/a	n/a	0.02	NP
Boron (mg/L)	BRGWC-38S	-0.1021	-14	-27	No	10	0	n/a	n/a	0.02	NP
Boron (mg/L)	BRGWC-37S	0	-7	-27	No	10	80	n/a	n/a	0.02	NP
Calcium (mg/L)	BRGWA-2I	1.125	20	27	No	10	10	n/a	n/a	0.02	NP
Calcium (mg/L)	BRGWA-2S	-0.1249	-21	-27	No	10	0	n/a	n/a	0.02	NP
Calcium (mg/L)	BRGWA-5I	-0.1717	-3	-27	No	10	10	n/a	n/a	0.02	NP
Calcium (mg/L)	BRGWA-5S	-0.05659	-1	-27	No	10	10	n/a	n/a	0.02	NP
Calcium (mg/L)	BRGWA-6S	0.08711	13	27	No	10	0	n/a	n/a	0.02	NP
Calcium (mg/L)	BRGWC-17S	1.604	18	27	No	10	0	n/a	n/a	0.02	NP
Calcium (mg/L)	BRGWC-33S	-0.2199	-1	-27	No	10	0	n/a	n/a	0.02	NP
Calcium (mg/L)	BRGWC-34S	-7.628	-27	-27	No	10	0	n/a	n/a	0.02	NP
Calcium (mg/L)	BRGWC-35S	0.2838	3	27	No	10	0	n/a	n/a	0.02	NP
Calcium (mg/L)	BRGWC-36S	-0.9202	-14	-27	No	10	0	n/a	n/a	0.02	NP
Calcium (mg/L)	BRGWC-38S	-1.949	-23	-27	No	10	0	n/a	n/a	0.02	NP
Calcium (mg/L)	BRGWC-37S	0.08515	18	27	No	10	0	n/a	n/a	0.02	NP
Chloride (mg/L)	BRGWA-2I	0.05887	9	27	No	10	0	n/a	n/a	0.02	NP
Chloride (mg/L)	BRGWA-2S	0.03434	7	27	No	10	0	n/a	n/a	0.02	NP
Chloride (mg/L)	BRGWA-5I	0	0	27	No	10	0	n/a	n/a	0.02	NP
Chloride (mg/L)	BRGWA-5S	0.06772	9	27	No	10	0	n/a	n/a	0.02	NP
Chloride (mg/L)	BRGWA-6S	0	7	27	No	10	0	n/a	n/a	0.02	NP
Chloride (mg/L)	BRGWC-17S	0.4179	26	27	No	10	0	n/a	n/a	0.02	NP
Chloride (mg/L)	BRGWC-33S	0.3163	8	23	No	9	0	n/a	n/a	0.02	NP
Chloride (mg/L)	BRGWC-34S	-0.1193	-14	-27	No	10	0	n/a	n/a	0.02	NP
Chloride (mg/L)	BRGWC-35S	0.2575	28	27	Yes	10	0	n/a	n/a	0.02	NP
Chloride (mg/L)	BRGWC-36S	1.563	37	27	Yes	10	0	n/a	n/a	0.02	NP
Chloride (mg/L)	BRGWC-38S	0.6846	14	27	No	10	0	n/a	n/a	0.02	NP
Chloride (mg/L)	BRGWC-37S	0.1931	21	27	No	10	0	n/a	n/a	0.02	NP
Fluoride (mg/L)	BRGWA-2I	-0.04097	-33	-31	Yes	11	36.36	n/a	n/a	0.02	NP
Fluoride (mg/L)	BRGWA-2S	-0.01156	-24	-31	No	11	54.55	n/a	n/a	0.02	NP
Fluoride (mg/L)	BRGWA-5I	-0.01717	-17	-31	No	11	63.64	n/a	n/a	0.02	NP
Fluoride (mg/L)	BRGWA-5S	-0.0275	-28	-31	No	11	36.36	n/a	n/a	0.02	NP
Fluoride (mg/L)	BRGWA-6S	-0.01509	-22	-31	No	11	54.55	n/a	n/a	0.02	NP
Fluoride (mg/L)	BRGWC-17S	-0.00	-6	-31	No	11	9.091	n/a	n/a	0.02	NP
Fluoride (mg/L)	BRGWC-33S	-0.02121	-18	-35	No	12	8.333	n/a	n/a	0.02	NP
Fluoride (mg/L)	BRGWC-34S	-0.02196	-21	-31	No	11	18.18	n/a	n/a	0.02	NP
Fluoride (mg/L)	BRGWC-35S	-0.03638	-18	-31	No	11	27.27	n/a	n/a	0.02	NP
Fluoride (mg/L)	BRGWC-36S	-6.2e-9	-5	-31	No	11	54.55	n/a	n/a	0.02	NP
Fluoride (mg/L)	BRGWC-38S	0.05214	8	31	No	11	0	n/a	n/a	0.02	NP
Fluoride (mg/L)	BRGWC-37S	-0.00	-6	-31	No	11	36.36	n/a	n/a	0.02	NP
pH (S.U)	BRGWA-2I	-0.1352	-31	-31	No	11	0	n/a	n/a	0.02	NP
pH (S.U)	BRGWA-2S	-0.04482	-26	-31	No	11	0	n/a	n/a	0.02	NP

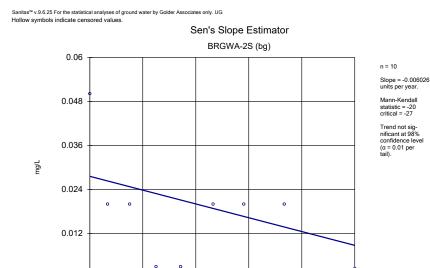
Trend Test

Branch Client: Golder Associates Data: Plant Branch Ash Pond Printed 2/7/2020, 11:25 AM

	Branon		1710000101000								
Constituent	Well	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	Normality	<u>Xform</u>	<u>Alpha</u>	Method
pH (S.U)	BRGWA-5I	0.0174	4	31	No	11	0	n/a	n/a	0.02	NP
pH (S.U)	BRGWA-5S	0.01435	1	31	No	11	0	n/a	n/a	0.02	NP
pH (S.U)	BRGWA-6S	-0.06861	-13	-27	No	10	0	n/a	n/a	0.02	NP
pH (S.U)	BRGWC-17S	-0.00	-4	-27	No	10	0	n/a	n/a	0.02	NP
pH (S.U)	BRGWC-33S	-0.02089	-17	-35	No	12	0	n/a	n/a	0.02	NP
pH (S.U)	BRGWC-34S	0.003222	3	31	No	11	0	n/a	n/a	0.02	NP
pH (S.U)	BRGWC-35S	-0.02253	-16	-27	No	10	0	n/a	n/a	0.02	NP
pH (S.U)	BRGWC-36S	0.02837	7	27	No	10	0	n/a	n/a	0.02	NP
pH (S.U)	BRGWC-38S	-0.303	-40	-31	Yes	11	0	n/a	n/a	0.02	NP
pH (S.U)	BRGWC-37S	0.05061	10	20	No	8	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	BRGWA-2I	-0.4451	-17	-27	No	10	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	BRGWA-2S	0.06257	10	27	No	10	20	n/a	n/a	0.02	NP
Sulfate (mg/L)	BRGWA-5I	0.2192	11	27	No	10	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	BRGWA-5S	-0.05656	-11	-27	No	10	20	n/a	n/a	0.02	NP
Sulfate (mg/L)	BRGWA-6S	-0.03443	-13	-27	No	10	20	n/a	n/a	0.02	NP
Sulfate (mg/L)	BRGWC-17S	11.02	20	27	No	10	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	BRGWC-33S	-4.451	-8	-27	No	10	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	BRGWC-34S	-41.2	-34	-27	Yes	10	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	BRGWC-35S	2.645	5	27	No	10	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	BRGWC-36S	-6.047	-5	-27	No	10	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	BRGWC-38S	-16.14	-20	-27	No	10	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	BRGWC-37S	-0.08245	-17	-27	No	10	10	n/a	n/a	0.02	NP
Total Dissolved Solids (mg/L)	BRGWA-2I	5.935	5	27	No	10	10	n/a	n/a	0.02	NP
Total Dissolved Solids (mg/L)	BRGWA-2S	5.556	7	27	No	10	20	n/a	n/a	0.02	NP
Total Dissolved Solids (mg/L)	BRGWA-5I	0.9631	1	27	No	10	10	n/a	n/a	0.02	NP
Total Dissolved Solids (mg/L)	BRGWA-5S	-2.974	-4	-27	No	10	0	n/a	n/a	0.02	NP
Total Dissolved Solids (mg/L)	BRGWA-6S	-6.134	-4	-27	No	10	10	n/a	n/a	0.02	NP
Total Dissolved Solids (mg/L)	BRGWC-17S	-3.45	-2	-23	No	9	0	n/a	n/a	0.02	NP
Total Dissolved Solids (mg/L)	BRGWC-33S	-21.24	-15	-23	No	9	0	n/a	n/a	0.02	NP
Total Dissolved Solids (mg/L)	BRGWC-34S	-66.99	-30	-23	Yes	9	0	n/a	n/a	0.02	NP
Total Dissolved Solids (mg/L)	BRGWC-35S	0.9313	2	23	No	9	0	n/a	n/a	0.02	NP
Total Dissolved Solids (mg/L)	BRGWC-36S	-9.264	-22	-27	No	10	0	n/a	n/a	0.02	NP
Total Dissolved Solids (mg/L)	BRGWC-38S	-55.23	-31	-27	Yes	10	0	n/a	n/a	0.02	NP
Total Dissolved Solids (mg/L)	BRGWC-37S	-1.601	-1	-27	No	10	20	n/a	n/a	0.02	NP



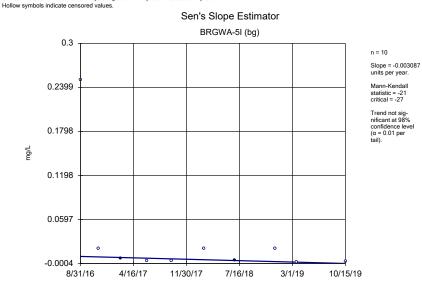
Constituent: Boron Analysis Run 2/7/2020 11:22 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond



8/31/16 4/16/17 11/30/17 7/16/18 3/1/19 10/15/19 Constituent: Boron Analysis Run 2/7/2020 11:22 AM View: Pond E Appendix III

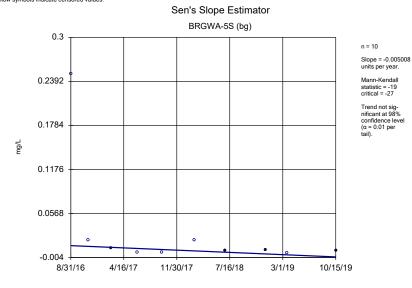
Branch Client: Golder Associates Data: Plant Branch Ash Pond

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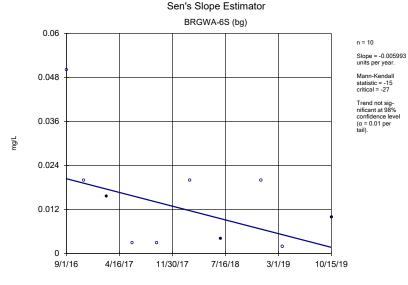


Constituent: Boron Analysis Run 2/7/2020 11:22 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond Sanitas^{tw} v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values.

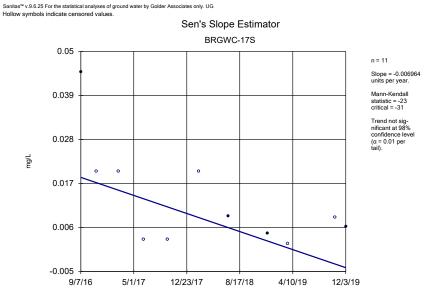
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Constituent: Boron Analysis Run 2/7/2020 11:23 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

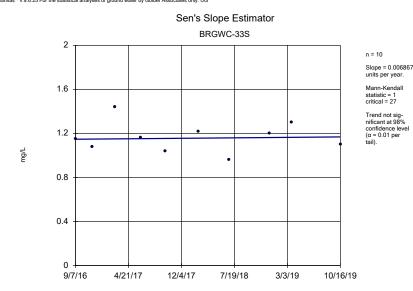


Constituent: Boron Analysis Run 2/7/2020 11:23 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

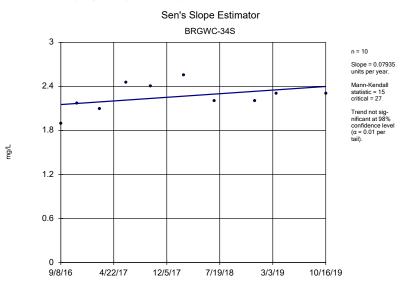


Constituent: Boron Analysis Run 2/7/2020 11:23 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

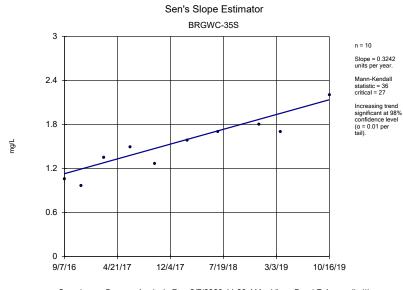


Constituent: Boron Analysis Run 2/7/2020 11:23 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond Sanitas[™] v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

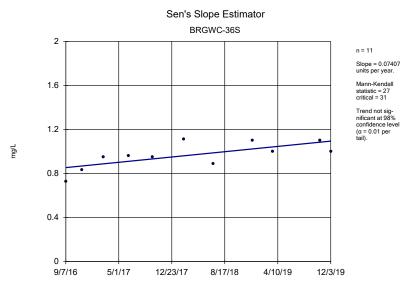


Constituent: Boron Analysis Run 2/7/2020 11:23 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond



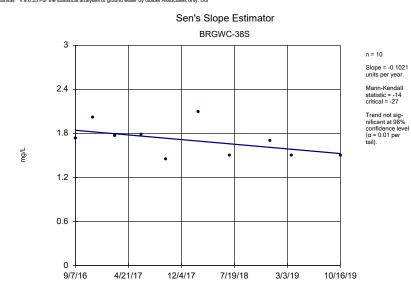


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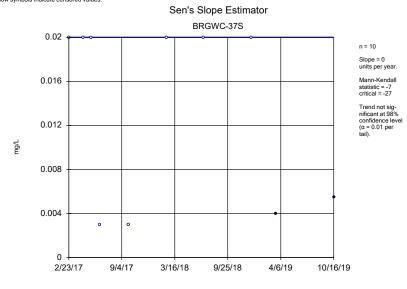


Constituent: Boron Analysis Run 2/7/2020 11:23 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas[™] v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

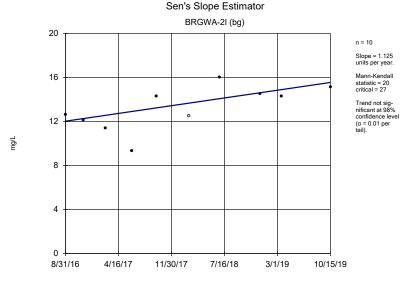


Constituent: Boron Analysis Run 2/7/2020 11:23 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond Sanitas[™] v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values.

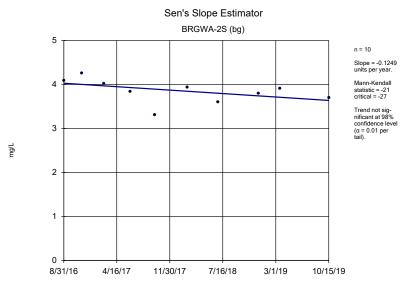


Constituent: Boron Analysis Run 2/7/2020 11:23 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond



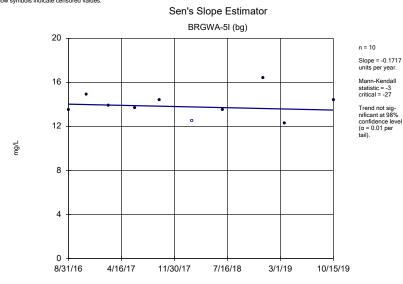


Constituent: Calcium Analysis Run 2/7/2020 11:23 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

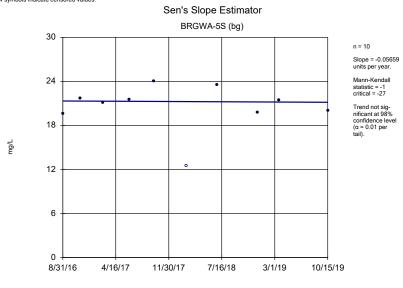


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Sanitas^m v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values.



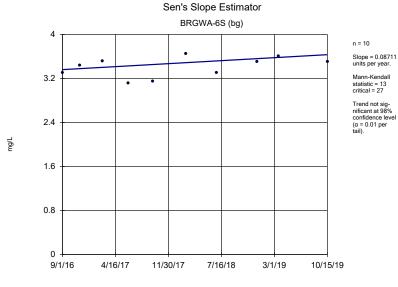
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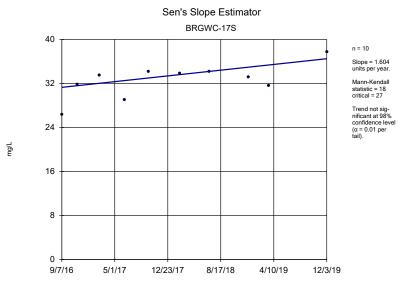
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Sanitas[™] v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG



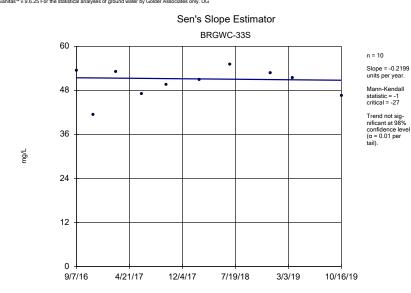


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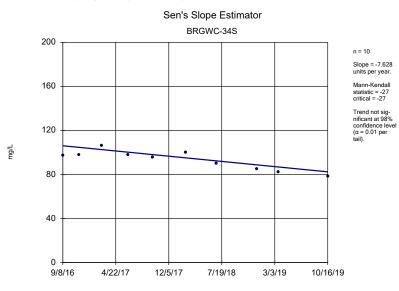


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Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG



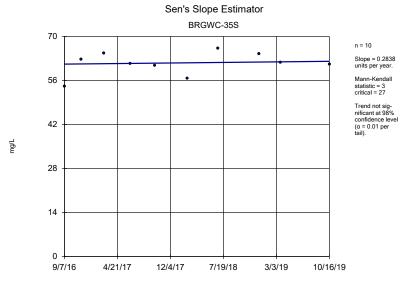
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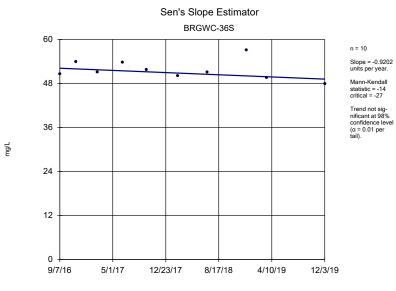
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Sanitas[™] v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG





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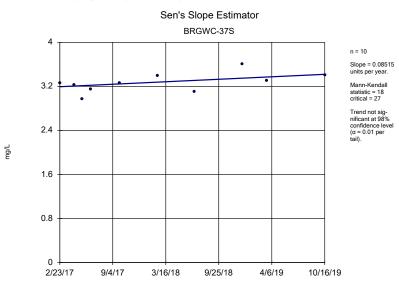
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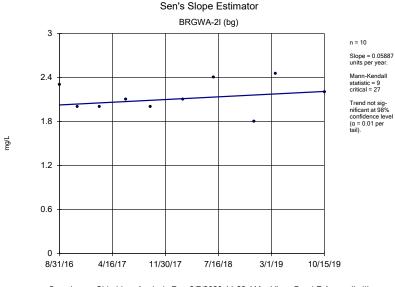
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Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

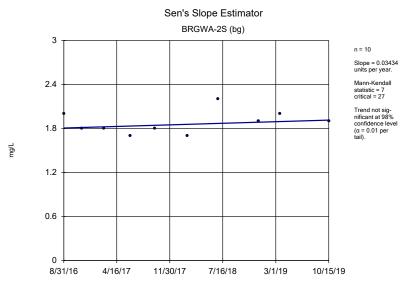


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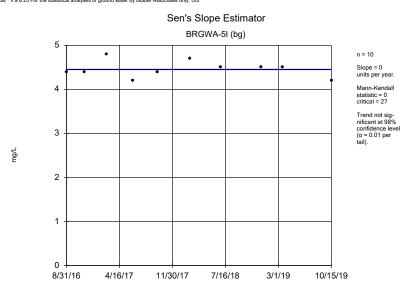


Constituent: Chloride Analysis Run 2/7/2020 11:23 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

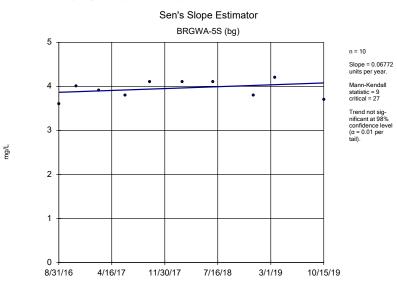


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Sanitas[™] v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG



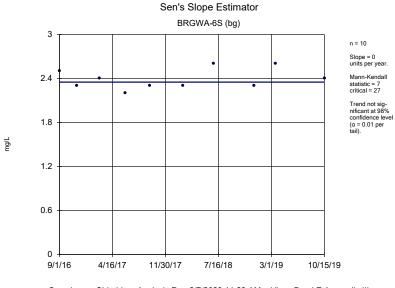
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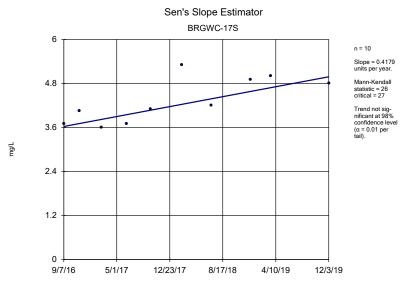
Constituent: Chloride Analysis Run 2/7/2020 11:23 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas[™] v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

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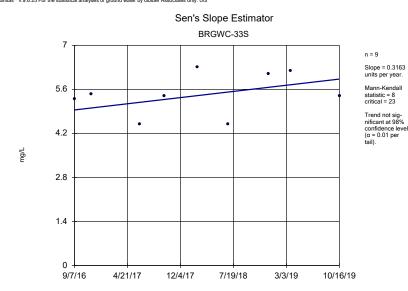


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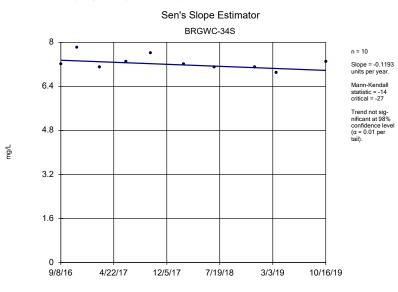


Constituent: Chloride Analysis Run 2/7/2020 11:23 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG



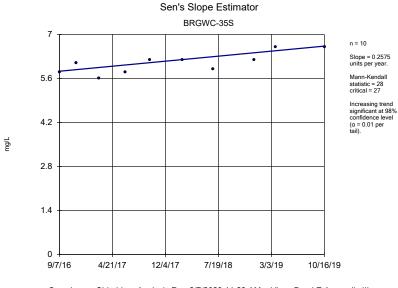
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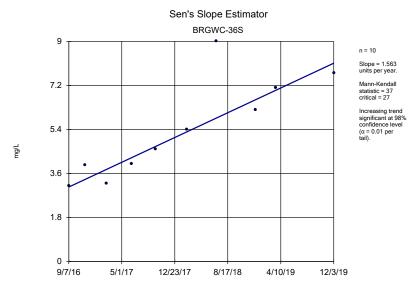
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Sanitas[™] v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

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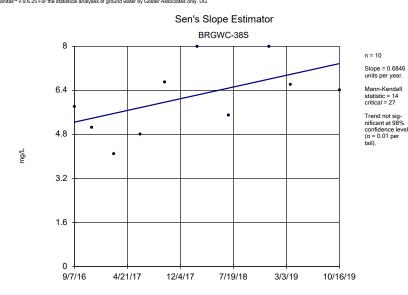


Constituent: Chloride Analysis Run 2/7/2020 11:23 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond



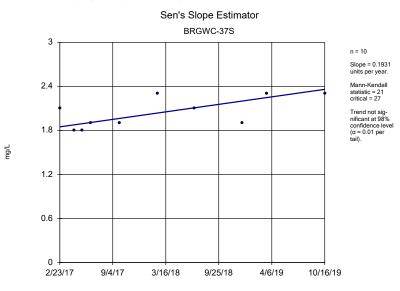
Constituent: Chloride Analysis Run 2/7/2020 11:23 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

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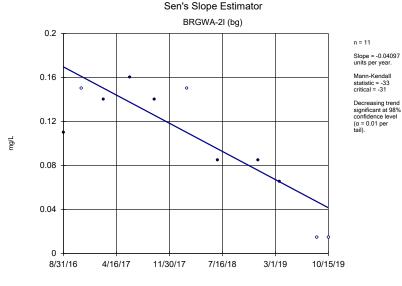


Constituent: Chloride Analysis Run 2/7/2020 11:23 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas™ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

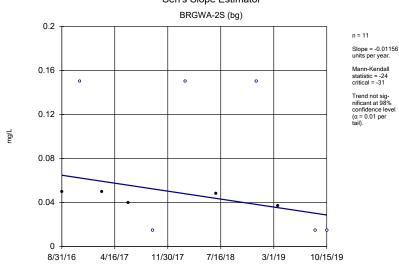


Constituent: Chloride Analysis Run 2/7/2020 11:23 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond



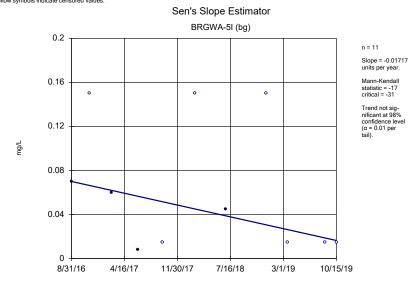
Constituent: Fluoride Analysis Run 2/7/2020 11:23 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

Sanitas^w v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values. Sen's Slope Estimator



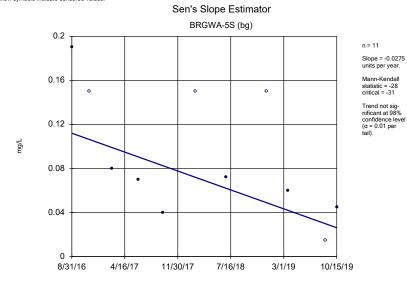
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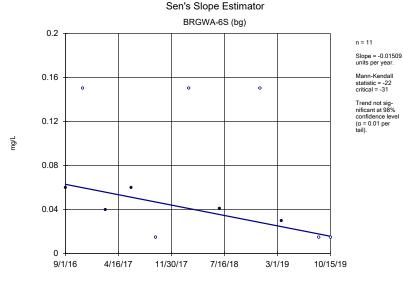


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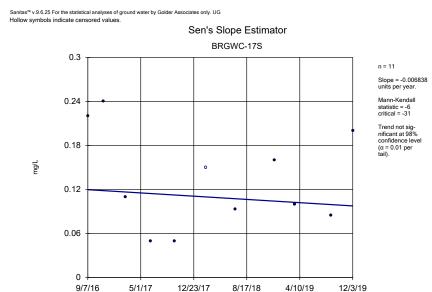
Sanitas[™] v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values.



Constituent: Fluoride Analysis Run 2/7/2020 11:23 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

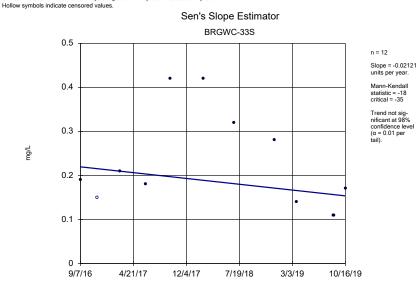


Constituent: Fluoride Analysis Run 2/7/2020 11:23 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond



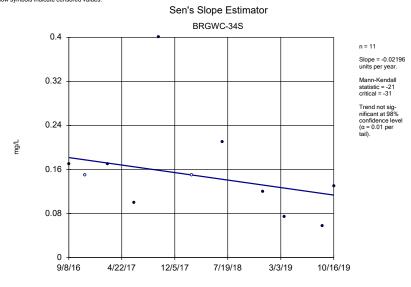
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Sanitas¹¹⁴ v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG

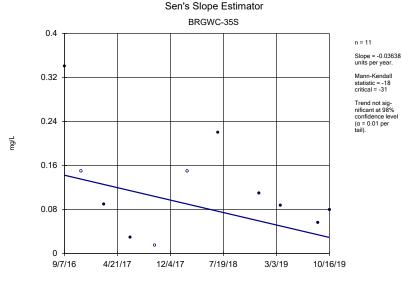


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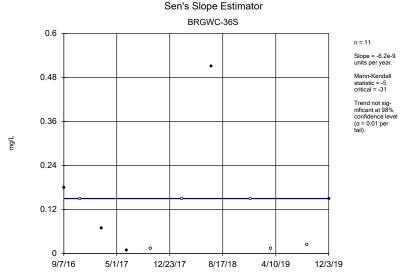


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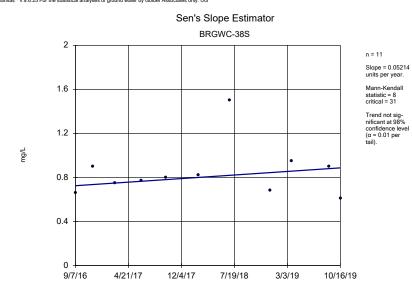
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Sanitas^{ter} v.9.6.25 For the statistical analyses of ground water by Golder Associates only. UG Hollow symbols indicate censored values.

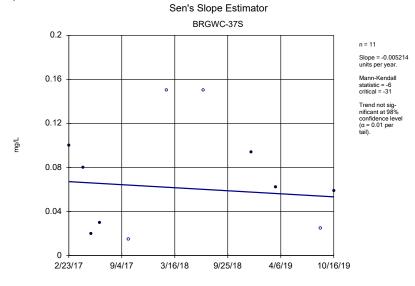


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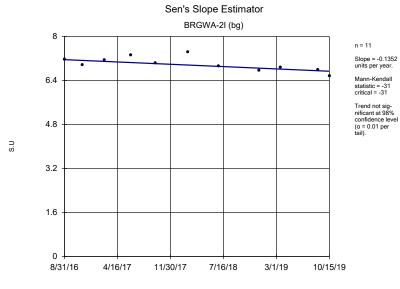
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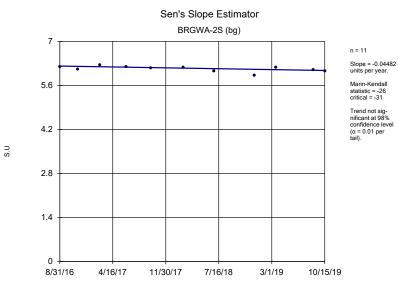
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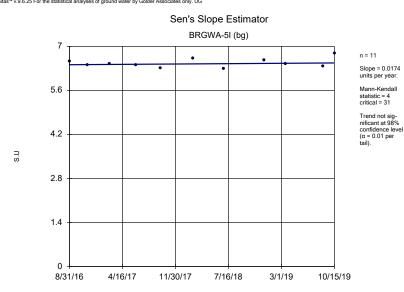


Constituent: pH Analysis Run 2/7/2020 11:23 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond

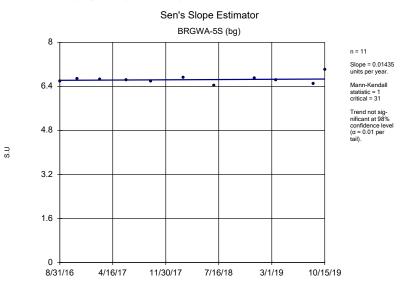


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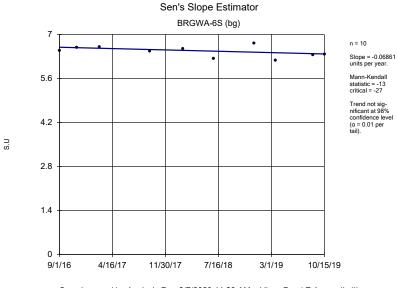


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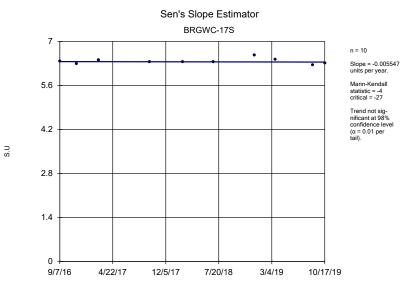


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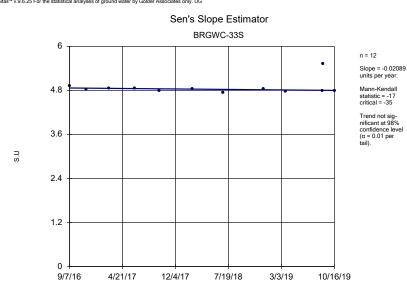


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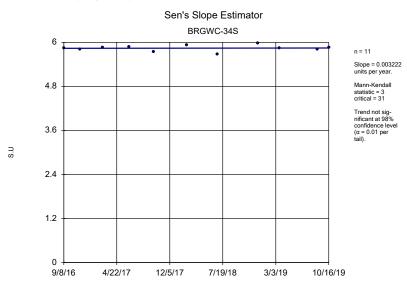


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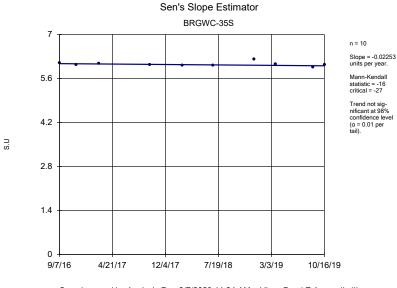


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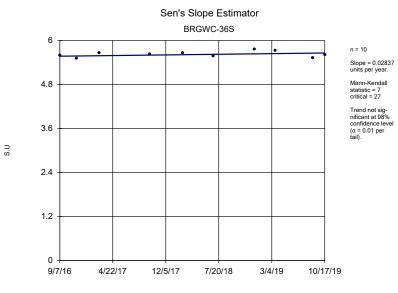


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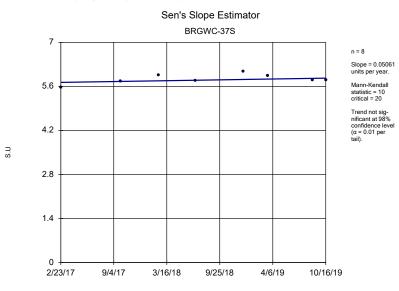
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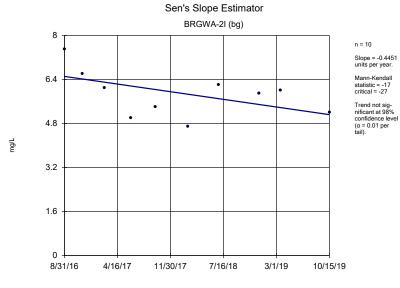


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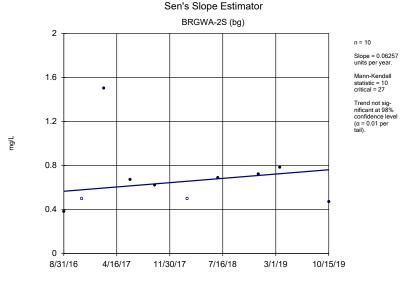


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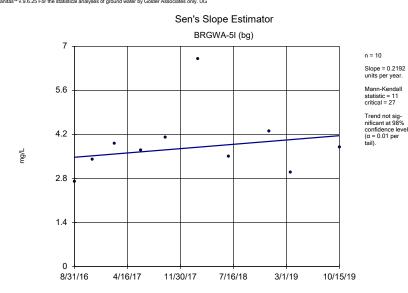


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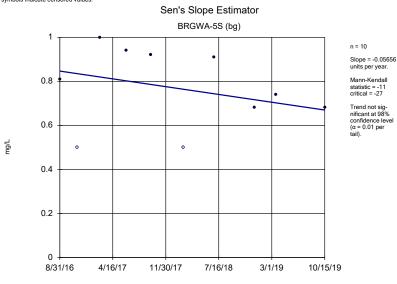


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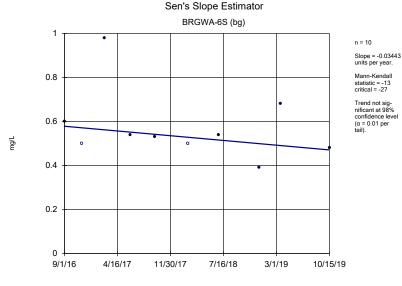


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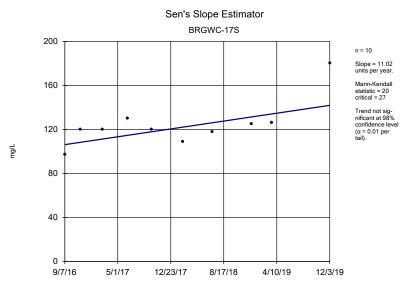


Constituent: Sulfate Analysis Run 2/7/2020 11:24 AM View: Pond E Appendix III Branch Client: Golder Associates Data: Plant Branch Ash Pond





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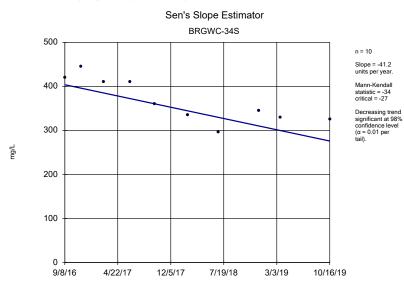


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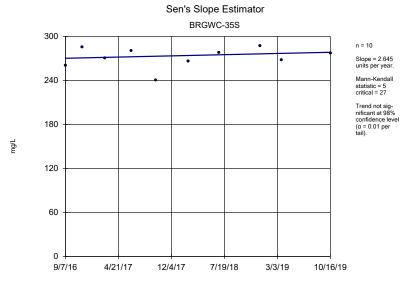
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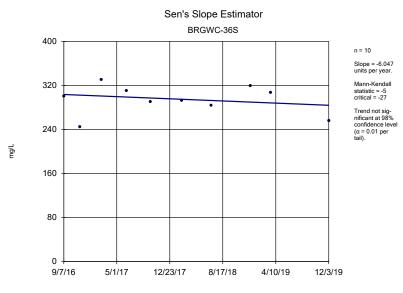
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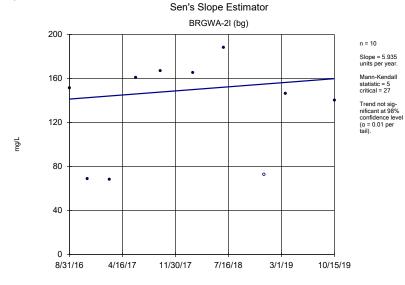
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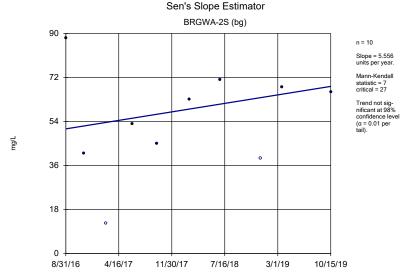


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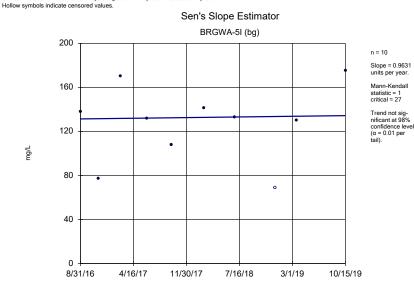
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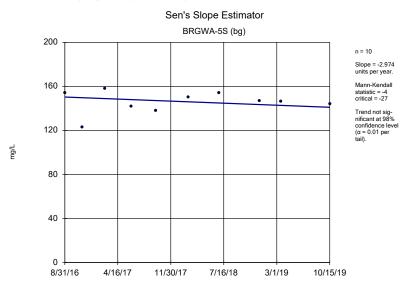
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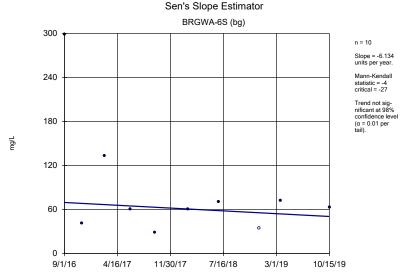


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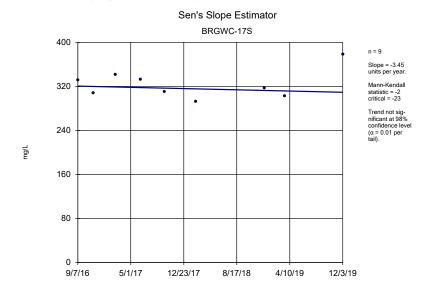
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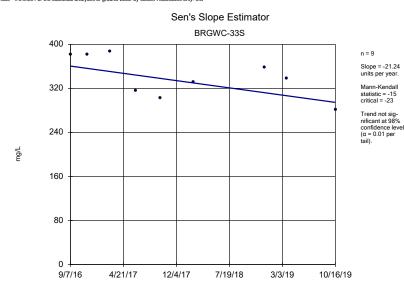


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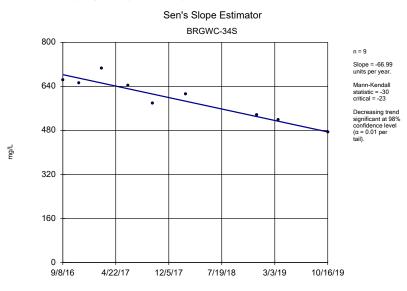
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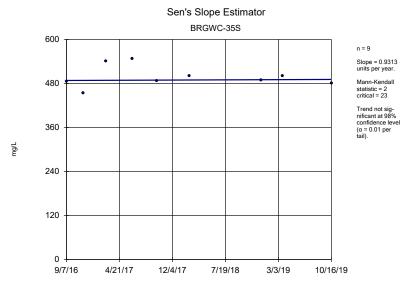
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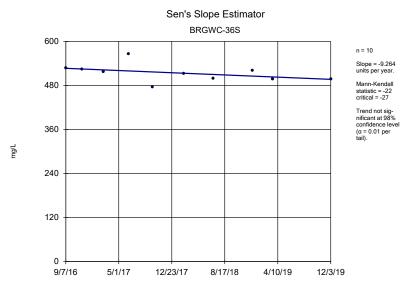
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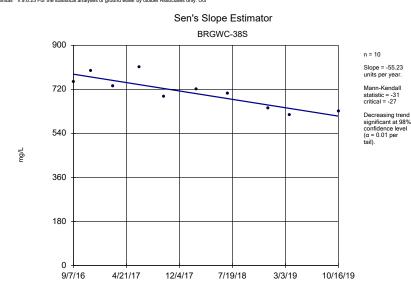


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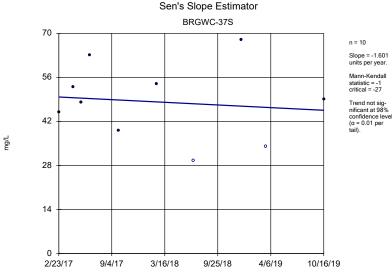
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