2021 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT CLASS 2 LANDFILL CROSS GENERATING STATION

by Santee Cooper
Moncks Corner, South Carolina

January 31, 2022 (Amended March 2, 2022)

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1. Annual Groundwater Monitoring Report Summary

The South Carolina Public Service Authority (Santee Cooper) has prepared this 2021 Annual Groundwater Monitoring Corrective Action Report for Class 2 Landfill at the Cross Generating Station (CGS). This 2021 Annual Report was prepared to comply with the United States Environmental Protection Agency Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals (CCR) from Electric Utilities, 40 Code of Federal Regulations (CFR) Part 257, Subpart D dated April 17, 2015 (CCR Rule), specifically subsection § 257.90(e)(1) through (6).

The Class 2 Landfill ceased operations by December 31, 2015, and closure was completed by August 9, 2016 per a plan approved by the South Carolina Department of Health and Environmental Control (SCDHEC). The Class 2 Landfill was certified closed by SCDHEC on February 28, 2017. In addition to the federal CCR rule groundwater monitoring program discussed throughout, an SCDHEC approved groundwater monitoring program is also being implemented to comply with the SCDHEC Post Closure Permit #08337-1601.

In accordance with § 257.90(e)(6), an overview of the current status of groundwater monitoring and corrective action programs for the CCR unit is provided below:

Statistically significant increases (SSIs) of boron, calcium, chloride, sulfate, and TDS were identified in POZ-4, POZ-6 and POZ-7 during the detection monitoring events in 2017. This triggered an assessment monitoring program which was initiated on January 15, 2018. The statistical analysis of the downgradient wells for of the Class 2 Landfill identified a statistically significant level (SSL) of the Appendix IV constituent cobalt in well POZ-4. As a result, an assessment of corrective measures was initiated on January 14, 2019 for this unit. The assessment of corrective measures report was completed on June 12, 2019 and a public meeting was held on December 3, 2019 to discuss five remedial alternatives per § 257.96(e). A remedy has been selected pursuant to § 257.97 and the remedy selection report was completed on July 27, 2020. The documents referenced above, along with their corresponding notifications were placed in the facilities operating record in accordance with § 257.105(h) and§ 257.106(h) and posted on the facilities publicly available website in accordance with § 257.107(h).

At the start of the current annual reporting period (January 1, 2021), the Class 2 Landfill continued to operate under a corrective action monitoring program in accordance with § 257.98. During both the January and June 2021 sampling events, cobalt was identified at SSLs in monitoring well POZ-4. At the end of the current annual reporting period (December 31, 2021), the corrective action groundwater monitoring program was in place consistent with the selected remedy (Landfill Closure with Monitored Natural Attenuation (MNA) and Enhanced Water Management). Post-closure monitoring of the selected remedy will continue in 2022.

To report on the activities conducted during the prior calendar year and document progress complying with the CCR Rule, the specific requirements listed in § 257.90(e)(1) through (5) are provided in the next section in bold/italic type followed by a short narrative stating how that specific requirement was met.

2. 40 CFR § 257.90 Applicability

2.1 40 CFR § 257.90(a)

All CCR landfills, CCR surface impoundments, and lateral expansions of CCR units are subject to the groundwater monitoring and corrective action requirements under § 257.90 through § 257.98.

The Class 2 Landfill at the CGS is subject to the groundwater monitoring and corrective action requirements set forth by the Environmental Protection Agency (EPA) in the Code of Federal Regulations Title 40 (40 CFR) § 257.90 through § 257.98. This document satisfies the requirement under § 257.90(e) which requires the CCR landfill Owner/Operator to prepare an Annual Report. The Class 2 Landfill ceased operations by December 31, 2015, and closure was completed by August 9, 2016 per a plan approved by SCDHEC. The Class 2 Landfill was certified closed on February 28, 2017. In addition to the federal CCR rule groundwater monitoring program discussed throughout, a SCDHEC approved groundwater monitoring program is also being implemented to comply with the SCDHEC Post Closure Permit #08337-1601.

2.2 40 CFR § 257.90(e) - SUMMARY

Annual groundwater monitoring and corrective action report. For existing CCR landfills and existing CCR surface impoundments, no later than January 31, 2018, and annually thereafter, the owner or operator must prepare an annual groundwater monitoring and corrective action report. [...] For the preceding calendar year, the annual report must document the status of the groundwater monitoring and corrective action program for the CCR unit, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year. For purposes of this section, the owner or operator has prepared the annual report when the report is placed in the facility's operating record as required by § 257.105(h)(1).

This Annual Report documents the activities completed in 2021 for the closed Class 2 Landfill at CGS as required by the Groundwater Monitoring and Corrective Action regulations. Groundwater sampling and analysis was conducted per the requirements of § 257.93, and the status of the groundwater monitoring program, as set forth in § 257.98, is provided in this report.

2.2.1 Status of the Groundwater Monitoring and Corrective Action Program

In 2021, the corrective action groundwater monitoring program was continued since it's initiation in 2020 in accordance with § 257.98. An SSL of cobalt in POZ-4 remains the only exceedance of an Appendix IV groundwater protection standard (GWPS) downgradient of the Class 2 Landfill. It is worth noting that while the concentrations vary between sampling events, the concentrations detected are considerably lower than the historical range of concentrations for cobalt in POZ-4. This observation indicates that the selected groundwater remedy is performing as anticipated.

During the 2019 Assessment of Corrective Measures and Nature & Extent evaluations, analytical results from the groundwater monitoring well installed in the uppermost aquifer at the downgradient property boundary (monitoring well CCMLF-1) showed intermittent results above the GWPS for cobalt. While off-site migration had not been confirmed, Santee Cooper notified SCDHEC and nearby residents and/or landowners that the GWPS for cobalt had been exceeded per 257.105(h)(8). To evaluate potential for

off-site migration and impacts to off-site drinking water supplies, samples were collected from both the one potable well that supplies drinking water for the surrounding residences and at multiple residential taps and analyzed for cobalt. Santee Cooper has continued to monitor this property boundary well in both the uppermost shallow and deeper aquifers and the same nearby residential potable well for cobalt through 2021. **To date, there have been no detections of cobalt (thus below the groundwater protection standard) in the nearby residents' drinking water or in the deeper aquifer.** The detections of cobalt in past events have been confined to the uppermost aquifer. In 2021, the cobalt concentrations at all sample points, including the uppermost aquifer, were below the GWPS. Communication with SCDHEC and the residents have been ongoing.

The remedy selection process, in accordance with § 257.97, began in 2020 following the public meeting held on December 3, 2019, to discuss the remedial alternatives. In accordance with § 257.97(a), a semi-annual progress report was posted to the publicly available website on January 23, 2020, detailing a summary of actions completed to date in selecting and designing the remedy as well as activities planned for the remainder of 2020. The remedy selection report was finalized on July 27, 2020 and posted to the publicly available website. The selected remedial alternative is landfill closure (cap in place) with monitored natural attenuation (MNA) and enhanced water management improvements.

The landfill was closed by installing a low-permeability geomembrane and clay cap and cover along with surface water controls for drainage and erosion protection. The enhanced water management improvements refer to capturing water present in the landfill at the time of closure, thereby removing as much of the source material potentially being released from the CCR unit as is feasible. The landfill closure and water management improvements were completed in August 2016 and January 2020, respectively, under the oversight of SCDHEC. The remaining component of the selected remedy is MNA, which is a viable remedial strategy recognized by state and federal regulators that is applicable to inorganic compounds in groundwater. Natural attenuation, in combination with source control, is intended to reduce concentrations of cobalt in groundwater at the Class 2 Landfill boundary, thereby attaining the GWPS.

The development of the corrective action groundwater monitoring program for MNA was completed by reevaluating the current groundwater sampling plan. This evaluation concluded that the assessment monitoring protocol currently being implemented is sufficient to meet the needs of corrective action groundwater monitoring program, which is consistent with § 257.98(a)(1)(i) and thus will continue to be implemented during the regularly scheduled semi-annual groundwater monitoring events.

2.2.2 Key Actions Completed

The following key actions were completed in 2021:

- Prepared 2020 Annual Report including:
    - The Annual Report was placed in the facility's operating record pursuant to § 257.105(h)(1);
    - Pursuant to § 257.106(h)(1), the notification was sent to the relevant State Director within 30 days of the Annual Report being placed in the facility's operating record [§ 257.106(d)];

    - Pursuant to § 257.107(h)(1), the Annual Report was posted to the CCR Website within 30 days of the Annual Report being placed in the facility's operating record [§ 257.107(d)];
- Collected and analyzed two rounds of groundwater monitoring (January and June) (Table 1 & Appendix B) in accordance with § 257.95(b) and § 257.95(d)(1) and recorded the concentrations in the facility's operating record as required by § 257.95(d)(1) (which is also consistent with § 257.98 (a)(1)).
- Completed statistical evaluation to determine statistically significant exceedance of GWPS for Appendix IV constituents in accordance with § 257.93(h)(2) (Appendix A).
- Santee Cooper continued monitoring boundary wells for cobalt and continued to collect drinking water samples from a nearby resident. **Analytical results for these wells continue to show cobalt below detection and thus below the groundwater protection standard.**
- Santee Cooper continued monitoring surface water in the Bulltown Ditch for cobalt. Analytical results continue to show cobalt is below detection and thus below the groundwater protection standard.
- Installed an additional groundwater monitoring well (CCMLF-2) by a South Carolina Certified Well Driller in December 2021, to supplement the Corrective Measures Assessment and Nature and Extent investigation to define the horizontal extent of the plume at an interior, on-site location. Well installation records are provided in Appendix C.
- Continued to characterize the nature and extent of Appendix IV constituents identified at statistically significant levels above the GWPS in accordance with § 257.95(g)(1).
- Implemented the semiannual Corrective Action Groundwater Monitoring Program consistent with § 257.98 (a)(1).
- Slug testing was performed on the two background groundwater monitoring wells (PM-1 and CBW-1) and POZ-4 for the Class 2 Landfill in November 2021. This data provided additional information on the hydraulic conductivity of the uppermost aquifer for the unit. The findings are summarized in Appendix D.

2.2.3 Problems Encountered

Problems, such as damaged wells, issues with sample collection, lack of sampling, or problems with analytical testing were not encountered at the Class 2 Landfill in 2021.

2.2.4 Actions to Resolve Problems

Actions to resolve problems were not required.

2.2.5 Project Key Activities for Upcoming Year

Key activities to be completed in 2022 include the following:

- Conduct semi-annual groundwater monitoring consistent with § 257.98(a)(1) and § 257.95(d)(1).
- Statistical analysis of Assessment Monitoring analytical data to determine if SSLs of the detected Appendix IV constituents are present.
- Calibrate the existing groundwater model as needed to support remedy selection and utilize as a comparative tool to track actual site conditions against predicted values post-closure.

- Conduct additional nature and extent activities, including possible installation of additional monitoring well(s), in accordance with § 257.95(g)(1).
- Prepare the 2022 annual report; place it in the record as required by § 257.105(h)(1), notify the Relevant State Director [§ 257.106(d)]; and post to the facility's publicly available CCR website [§ 257.107(d)].

2.3 40 CFR § 257.90(e) - INFORMATION

At a minimum, the annual groundwater monitoring and corrective action report must contain the following information, to the extent available:

2.3.1 40 CFR § 257.90(e)(1)

A map, aerial image, or diagram showing the CCR unit and all background (or upgradient) and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the CCR unit;

As required by § 257.90(e)(1), a map showing the locations of the CCR unit and associated upgradient and downgradient monitoring wells for the Class 2 Landfill is presented as Figure 1.

2.3.2 40 CFR § 257.90(e)(2)

Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken;

In December 2021, groundwater monitoring well CCMLF-2 was installed by a South Carolina certified well driller to supplement the Nature & Extent investigation. This well was installed downgradient of the Class 2 Landfill to further define the horizontal extent of the plume at an interior, on-site location. The outer extent of the plume was initially demarcated at the facility property boundary with the installation of CCMLF-1 and CCMLF-1D in 2019.

2.3.3 40 CFR § 257.90(e)(3)

In addition to all the monitoring data obtained under § 257.90 through § 257.98, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring programs;

In accordance with § 257.95(b) and § 257.95(d)(1), at least two independent samples from each background and downgradient monitoring well were collected and analyzed. A summary table including the sample names, dates of sample collection, reason for sample collection, and monitoring data obtained for the groundwater monitoring program for the Class 2 Landfill is presented in Table 1 of this report. In addition, as required by § 257.95(d)(3), Table 1 includes the GWPS established under § 257.95(d)(2). Laboratory analytical data reports, along with field sampling forms, are provided in Appendix B to this report.

2.3.4 40 CFR § 257.90(e)(4)

A narrative discussion of any transition between monitoring programs (e.g., the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels); and

The groundwater monitoring program remained in corrective action monitoring for the duration of 2021. A summary of the history of the evolution of the monitoring programs is provided in this section.

As required by § 257.93(h) a statistical analysis of the Appendix III constituents was completed January 15, 2018. Baseline analytical data collected from background monitoring wells CBW-1 and PM-1 were combined to develop Upper Tolerance Limits (UTLs). The UTLs for each Appendix III constituent were compared to the analytical results for the downgradient monitoring wells POZ-4, POZ-6, and POZ-7. Constituents with analytical results exceeding the UTLs were identified as SSIs over background for the respective Appendix III constituent. Per § 257.94(h) an Assessment Monitoring program was initiated on February 14, 2018.

The statistical analysis of Appendix IV constituents was conducted within 90-days of completing each semiannual sampling and analysis event in 2021 and it was determined that a statistically significant level of cobalt continues to be present downgradient of the Class 2 Landfill. There is no maximum contaminant level (MCL) for cobalt and elevated levels of cobalt were not identified in the background wells, therefore, the GWPS for cobalt was set at the regional screening level (RSL). The sample concentrations from the downgradient wells for each of the detected Appendix IV constituents from the monitoring events of 2021 were compared to their respective background UTLs and GWPS (Appendix A). A sample concentration greater than the GWPS is considered to represent an SSL. Based on previous compliance sampling event and statistical evaluations, interwell comparisons were utilized for all downgradient wells and constituents. During both sampling events in January and June 2021, an SSL above GWPS was identified at the Class 2 Landfill in monitoring well POZ-4 for cobalt, consistent with previous results.

The development of the corrective action groundwater monitoring program was completed by reevaluating the current groundwater sampling plan. It was determined that the current assessment monitoring plan being implemented is sufficient to meet the post-closure monitoring needs to evaluate the performance of the selected remedy and thus will continue to be implemented during the regularly scheduled semi-annual groundwater monitoring events. This is consistent with § 257.98(a)(1)(i).

2.3.5 40 CFR § 257.90(e)(5)

Other information required to be included in the annual report as specified in § 257.90 through § 257.98.

Other information including development of groundwater protection standards, recording groundwater monitoring results in the operating record, and the remedy selection process is discussed in prior annual reports. Groundwater flow rate and direction are provided as Figures 2 and 3 for each sampling event as specified in § 257.93(c).

Additionally, an overview of the performance of the remedy implementation to date is provided. The landfill closure and water management improvements were completed in August 2016 and January 2020, respectively, under the oversight of SCDHEC. The enhanced water management improvements refer to capturing water present in the landfill at the time of closure, therefore removing as much of the source material potentially being released from the CCR unit as is feasible. Although the Class 2 Landfill has been closed since 2016, water entrained in the landfilled CCR material had been observed seeping from the toe drain outlets which flowed into unlined stormwater conveyances and was being managed with other site stormwater. The improvement consisted of installing a seepage collection system including discharge piping and lift stations. The water captured from the toe drains is now isolated from

stormwater and is being redirected to the operational Class 3 Landfill Leachate Collection Pond before further treatment in the station's permitted wastewater treatment facility prior to discharge under NPDES permit #SC0037401.

Since the completion of the water management improvements, the uppermost shallow aquifer boundary well (CCMLF-1) has shown marked decreases in cobalt concentrations from 17.8 ug/L to 3.8 ug/L. The sampling results from both 2021 sampling events remained below the GWPS of 6 ug/L. The adjacent deeper aquifer boundary well (CCMLF-1D) has consistently been below detection, and thus below the GWPS since monitoring of the property boundary began with the initial nature & extent activities in 2019. These property boundary wells will continue to be monitored closely in 2022. The decline in cobalt concentrations observed in the shallow aquifer boundary well CCLMF-1 indicates that the cobalt plume is contracting, and that natural attenuation is being effective in reducing cobalt concentrations in groundwater.

The only remaining monitoring well with a statistically significant level of cobalt is POZ-4. This well is located on the northeastern boundary of the CCR unit. While the concentrations have increased from 32.3 ug/L to 90.5 ug/L over the course of the 2021 sampling events, these concentrations are considerably lower than the historical range. Additionally, it is not unusual to observe a temporary spike during the summer sampling events. These seasonal fluctuations do not suggest continuing releases from the Class 2 Landfill. This well will be monitored closely during ongoing corrective action sampling activities in 2022.

Slug testing was performed on the two background (PM-1 and CBW-1) and one downgradient (POZ-4) groundwater monitoring wells for the Class 2 Landfill in November 2021. This data provided additional information on the hydraulic conductivity of the uppermost aquifer in the immediate vicinity of the selected wells. The range of hydraulic conductivities from the monitoring wells that were tested were 1.387E-04 (cm/sec) to 4.800E-03 (cm/sec). These results are comparable to the Site Hydrogeologic Characterization Report completed in 2011 which reported a range of hydraulic conductivities of 3.357E-04 (cm/sec) to 8.93E-03 (cm/sec) for the shallow aquifer. This range of hydraulic conductivities is typical for the soil types identified and for this depositional setting. This information, combined with the calculated horizontal hydraulic gradients, and an assumed effective porosity of 25 percent will be used to report on groundwater flow direction and rate following each semiannual sampling event as required by § 257.93(c). These findings are provided in Appendix D.

TABLES

TABLE 1 - Summary of Analytical Results
Cross Generating Station Class 2 Landfill Corrective Action Monitoring 2021

					Appendix III Constituents							Appendix IV Constituents																Field Parameters							
Well ID	Purpose	Date of Sample Event	Laboratory Sample ID Number		Boron	Calcium	Chloride	Fluoride	Sulfate	Total Dissolved Solids	pH	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Fluoride	Lead	Lithium	Mercury	Molybdenum	Radium 226	Radium 228	Radium 226/228 Combined Calculation	Selenium	Thallium	Depth	Elevation	pH	Specific Conductivity	Temp	Oxidation Reduction Potential	Turbidity	Dissolved Oxygen
				Unit	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	SU	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	pCi/L	pCi/L	pCi/L	ug/L	ug/L	Feet	Feet	SU	uS	C	mv	NTU	ppm
				Method	EPA 6010D	EPA 6020B	EPA 300.0	EPA 300.0	EPA 300.0	SM 2540C		EPA 6020B	EPA 6020B	EPA 6020B	EPA 6020B	EPA 6020B	EPA 6020B	EPA 6020B	EPA 300.0	EPA 6020B	EPA 6010D	EPA 7470	EPA 6010D	EPA 903.1 Mod	EPA 904.0	EPA 903.1 Mod	EPA 6020B	EPA 6020B						SM2580		
				GWPS/US EPA MCL/RSL	—	—	—	4	—	—	—	6	10	2000	4	5	100	6	4	15	40	2	100	—	—	5	50	2	—	—	—	—	—	—	—	—
	Site Background Wells																																			
PM-1	Background	1/26/2021	AE94872		<15	14.3	11.8	<0.10	9.98	110	5.03	<5.0	<5.00	85.7	<0.50	<0.50	<5.0	1	<0.10	<1.0	<10	<0.20	<10	0.569	2.88	3.44	<10.0	<1.0	8.27	74.97	5.03	143	19.47	1	4.4	6.12
PM-1	Background	6/21/2021	AF07281		<15	17	12	<0.10	11.9	155	5.21	<5.0	<5.0	87.3	<0.50	<0.50	<5.0	0.94	<0.10	<1.0	<10	<0.2	<10	0.369	1.73	2.1	<10.0	<1.0	7.91	75.33	5.21	169	26.49	45	4.3	3.96
PM-1	total samples				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
CBW-1	Background	1/26/2021	AE94854		18	29.2	3.22	0.15	80.7	138.8	4.31	<5.0	<5.0	46.6	<0.50	<0.50	<5.0	0.66	0.15	2.5	<10	<0.20	<10	0.436	1.29	1.73	<10.0	<1.0	10.12	75.68	4.31	192	20.25	336	0	0.71
CBW-1	Background	6/21/2021	AF07259		<40	29.9	3.05	0.19	86.6	178.8	4.25	<5.0	<5.0	42.3	<0.50	<0.50	<5.0	0.7	0.19	2.6	<20	<0.2	<20	0.433	0.12	0.552	<10.0	<1.0	10.07	75.73	4.25	194	24.16	75	0.2	0.66
CBW-1	total samples				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
	Class 2 Landfill Wells																																			
POZ-4	Corrective Action	1/28/2021	AE94874		<15		385	<0.10	98.1	1395	6.33	<5.0	<5.00	161	<0.50	<0.50	<5.0	32.3	<0.10	<1.0	<10	<0.20	<10	0.792	1.43	2.22	<10.0	<1.0	4.39	78.34	6.33	1470	15.64	62	0	1.02
POZ-4	Corrective Action	6/23/2021	AF07283		<15	356	555	<0.10	144	2028	6.13		<5.0	136	0.51	<0.50	<5.0	90.5	<0.10	<1.0				0.244	-0.898	0.244	<10.0		7.74	74.99	6.13	1930	30.37	42	8.5	0.28
POZ-4	total samples				2	1	2	2	2	2	2	1	2	2	2	2	2	2	2	2	1	1	1	2	2	2	2	1	2	2	2	2	2	2	2	2
POZ-6	Corrective Action	1/28/2021	AE94876		44		302	<0.10	459	1674	6.57	<5.0	<5.00	60.4	<0.50	<0.50	<5.0	3.2	<0.10	<1.0	<10	<0.20	<10	0.517	0.718	1.23	<10.0	<1.0	5.58	78.26	6.57	2270	16.87	-64	10.2	0.6
POZ-6	Corrective Action	6/23/2021	AF07285		41	414	276	<0.10	441	1686	6.57		<5.0	49.9	<0.50	<0.50	<5.0	2.2	<0.10	<1.0				0.17	0.801	0.971	<10.0		9.38	74.46	6.57	1940	24.57	-24	35.4	0.37
POZ-6	total samples				2	1	2	2	2	2	2	1	2	2	2	2	2	2	2	2	1	1	1	2	2	2	2	1	2	2	2	2	2	2	2	2
POZ-7	Corrective Action	1/28/2021	AE94877		<15		24.8	<0.10	<2.0	121.2	4.81	<5.0	<5.00	123	0.74	<0.50	<5.0	2.4	<0.10	<1.0	<10	<0.20	<10	1.28	0.175	1.45	<10.0	<1.0	4.99	77.03	4.81	93	16.99	214	0.6	7.92
POZ-7	Duplicate	1/28/2021	AE94878		<15		25.1	<0.10	<2.0	76.25		<5.0	<5.00	132	0.67	<0.50	<5.0	1.4	<0.10	<1.0	<10	<0.20	<10	2.27	-0.568	2.27	<10.0	<1.0								
POZ-7	Corrective Action	6/24/2021	AF07286		<15	82.4	135	<0.10	10.1	626.2	5.88		<5.0	303	<0.50	<0.50	<5.0	<0.50	<0.10	<1.0				0.124	1.5	1.63	<10.0		7.51	74.51	5.88	457	23.27	123	0	1.28
POZ-7	Duplicate	6/24/2021	AF07287		15	88.5	142	<0.10	10.8	532.5			<5.0	311	<0.50	<0.50	<5.0	<0.50	<0.10	<1.0				0.862	0.116	0.977	<10.0									
POZ-7	total samples				4	2	4	4	4	4	2	2	4	4	4	4	4	4	4	4	2	2	2	4	4	4	4	2	2	2	2	2	2	2	2	2
POZ-8	CMA/NE	1/28/2021	AE94879								6.48							<0.50											5.21	77.92	6.48	4598	16.14	-55	2.6	0.66
POZ-8	CMA/NE	6/23/2021	AF07288								6.66							<0.50											8.45	74.68	6.66	2330	24.87	-74	1.4	0.42
POZ-8	total samples				0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2
CCMLF-1	CMA/NE	2/11/2021	AE94859								5.07							4.7											3.44	77.42	5.07	107	17.99	174	2.6	1.09
CCMLF-1	CMA/NE	7/6/2021	AF07260								5.57							1.5											7.09	73.77	5.57	128	25.42	114	82.5	6.07
CCMLF-1	total samples				0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2
CCMLF-1D	CMA/NE	2/11/2021	AE94860								7.11							<0.50											3.27	77.38	7.11	253	17.99	123	5	1.14
CCMLF-1D	CMA/NE	7/6/2021	AF07261								5.81							<0.50											6.85	73.8	5.81	249	28.07	116	76.1	6.01
CCMLF-1D	total samples				0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2

All groundwater samples collected from the monitoring wells for Corrective Action Monitoring in 2021 for the constituents listed in Appendix III and Appendix IV of the EPA CCR Rule (40 CFR) were analyzed by South Carolina Certified laboratories: Santee Cooper Analytical Services (Certification # 08552), GEL Laboratories, LLC (Certification # 10120), and Rogers & Callcot, Inc. (Certification # 23105001).

Notes:
1. Some groundwater monitoring wells are sampled for both Federal CCR and State Permit program compliance. Applicable analytical results from the State Permit program have been included in this summary table. All Background & Corrective Action compliance wells have been sampled to meet § 257.98(a)(1)
2. The Corrective Measures Assessment/Nature & Extent (CMA/NE) wells were not sampled to comply with § 257.95(g)(iv) as the CCR Unit had already moved out of the CMA/NE monitoring program. These wells continue to provide additional insight to the nature & extent of the plume during corrective action. Moving forward, all CMA/NE wells will be sampled to comply with § 257.95(g)(iv) or § 257.98(a)(1).
3. The sample results for background well, CBW-1, in June (Lab ID# AF07259) indicated higher reporting limits than usual for boron, lithium, and molybdenum (40 ug/l vs 15 ug/L, 20 ug/l vs 10 ug/L, and 20 ug/l vs 10 ug/L, respectively). The results for these three constituents were all non-detect at the reported limit. This particular sample was subject to sample matrix interference resulting in a higher reporting limit. Even though the reporting limits were higher than typical, they were all le than the GWPS by more than half (except for boron which does not have a GWPS). The analytical reports are being carefully reviewed for this occurrence in the future

FIGURES

LEGEND

- BACKGROUND WELL
- CLASS 2 LANDFILL PROPERTY BOUNDARY WELL
- CLASS 2 LANDFILL NATURE & EXTENT WELL
- CLASS 2 LANDFILL MONITORING WELL
- BULLTOWN DITCH SURFACE WATER SAMPLE
- CCR UNIT BOUNDARY
- SANTEE COOPER PROPERTY BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. AERIAL IMAGERY SOURCE: ESRI

N

0 1,100 2,200

SCALE IN FEET

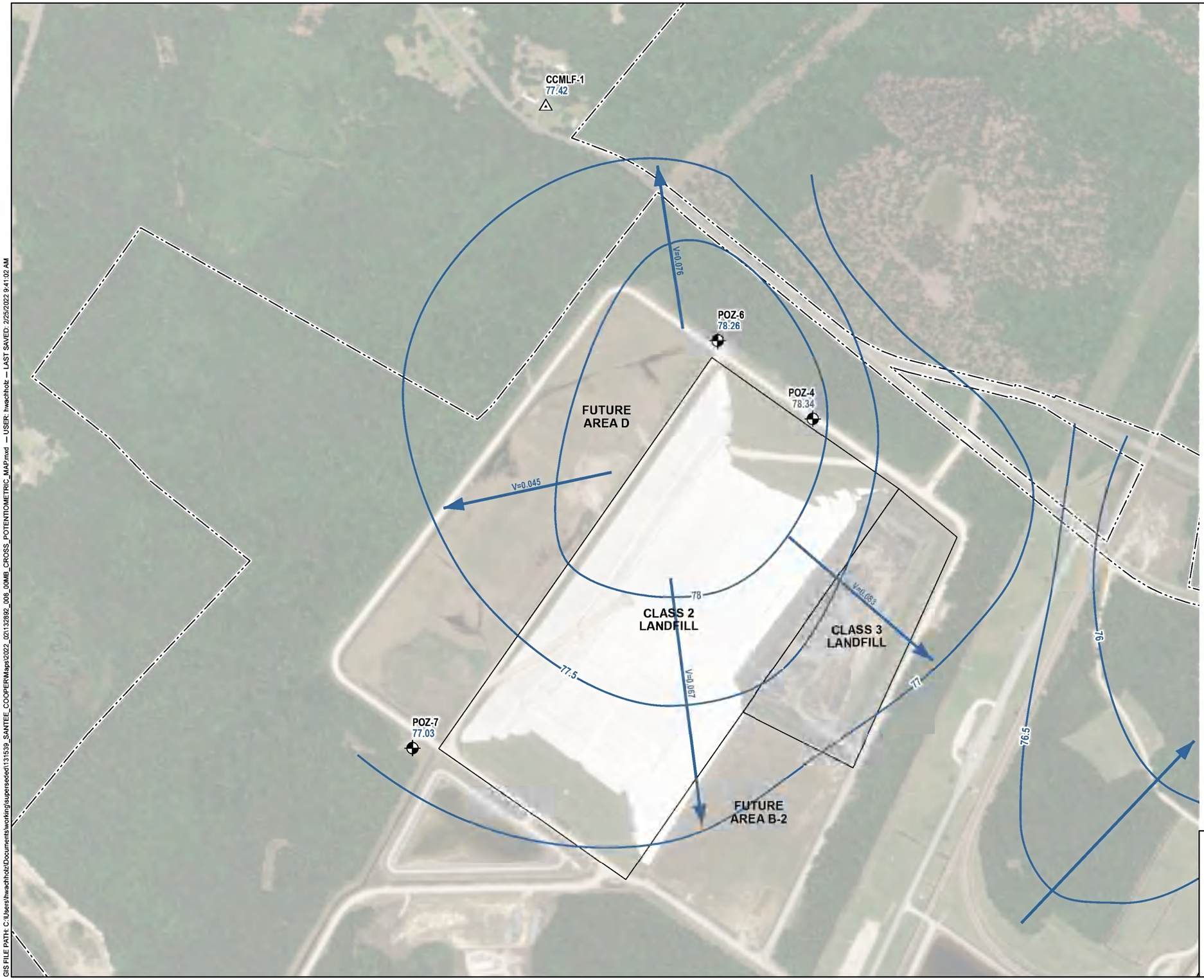
SANTEE COOPER
CROSS GENERATING STATION
PINEVILLE, SOUTH CAROLINA

JANUARY 2022

LOCATION OF CLASS 2 LANDFILL GROUNDWATER MONITORING WELLS FOR CCR COMPLIANCE

FIGURE 1

GIS FILE PATH: I:\97130\Groundwater\GIS Groundwater\mxd map files\CGS_CCR_WELL_LOCATIONS.mxd — USER: ALDECOTE — LAST SAVED: 1/25/2022 8:59:27 AM



LEGEND

- CLASS 2 LANDFILL WELL
- NATURE & EXTENT WELL
- GROUNDWATER ELEVATION CONTOUR, 0.5-FT INTERVAL
- GROUNDWATER FLOW DIRECTION
- CCR UNIT BOUNDARY
- SANTEE COOPER PROPERTY BOUNDARY

NOTES

1. ALL LOCATIONS ARE APPROXIMATE.

2. AVERAGE LINEAR VELOCITY WAS CALCULATED USING:

$$v = -\frac{K}{n_e}\frac{\Delta h}{\Delta L}$$

3. ABREVIATIONS:
ft/day = FEET PER DAY
V = AVERAGE LINEAR VELOCITY (ft/day)
K = HORIZONTAL HYDRAULIC CONDUCTIVITY (ft/day)
Δh/ΔL = HORIZONTAL GRADIENT (CHANGE IN HYDRAULIC HEAD / LENGTH OF HORIZONTAL HYDRAULIC FLOW PATH)
ne = EFFECTIVE POROSITY

4. K = 25 FEET PER DAY (ft/day)

5. n_e = 0.25

6. WATER LEVELS WERE MEASURED BY SANTEE COOPER FROM JANUARY26, 2021 THROUGH FEBRUARY 11, 2021

7. AERIAL IMAGERY SOURCE: ESRI

N

0 600 1,200
SCALE IN FEET

HALEY ALDRICH

SANTEE COOPER
CROSS GENERATING STATION
PINEVILLE, SOUTH CAROLINA

POTENTIOMETRIC MAP
CLASS 2 LANDFILL
JANUARY-FEBRUARY 2021

FEBRUARY 2022

FIGURE 2

GIS FILE PATH: C:\Users\hwachholz\Documents\working\superseded\131539_SANTEE_COOPER\Maps\2022_02\132892_008_00MB_CROSS_POTENTIOMETRIC_MAP.mxd — USER: hwachholz — LAST SAVED: 2/25/2022 9:41:02 AM

LEGEND

- CLASS 2 LANDFILL WELL
- NATURE & EXTENT WELL
- GROUNDWATER ELEVATION CONTOUR, 0.5-FT INTERVAL
- GROUNDWATER FLOW DIRECTION
- CCR UNIT BOUNDARY
- SANTEE COOPER PROPERTY BOUNDARY

NOTES

1. ALL LOCATIONS ARE APPROXIMATE.

2. AVERAGE LINEAR VELOCITY WAS CALCULATED USING:

$$v = -\frac{K}{n_e}\frac{\Delta h}{\Delta L}$$

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ft/day = FEET PER DAY
V = AVERAGE LINEAR VELOCITY (ft/day)
K = HORIZONTAL HYDRAULIC CONDUCTIVITY (ft/day)
Δh/ΔL = HORIZONTAL GRADIENT (CHANGE IN HYDRAULIC HEAD / LENGTH OF HORIZONTAL HYDRAULIC FLOW PATH)
ne = EFFECTIVE POROSITY

4. K = 25 FEET PER DAY (ft/day)

5. n_e = 0.25

6. WATER LEVELS WERE MEASURED BY SANTEE COOPER FROM JUNE 21, 2021 THROUGH JULY 6, 2021

7. AERIAL IMAGERY SOURCE: ESRI

N

0 600 1,200
SCALE IN FEET

HALEY ALDRICH

SANTEE COOPER
CROSS GENERATING STATION
PINEVILLE, SOUTH CAROLINA

POTENTIOMETRIC MAP
CLASS 2 LANDFILL
JUNE-JULY 2021

FEBRUARY 2022

FIGURE 3

GIS FILE PATH: C:\Users\hwachholz\Documents\working\superseded\131539_SANTEE_COOPER\Maps\2022_02\132892_008_00MB_CROSS_POTENTIOMETRIC_MAP.mxd — USER: hwachholz — LAST SAVED: 2/25/2022 9:41:02 AM

Appendix A – Statistical Analysis

HALEY & ALDRICH, INC.
400 Augusta Street
Suite 100
Greenville, SC 29601
864.214.8750

TECHNICAL MEMORANDUM

June 11, 2021
File No. 132892-011

SUBJECT: 2021 Semi-annual Groundwater Assessment Monitoring Data
Statistical Evaluation
Cross Generating Station
Class 2 Landfill

Pursuant to Title 40 Code of Federal Regulations (40 CFR) § 257.93 and § 257.95 (Rule), this memorandum summarizes the statistical evaluation of the analytical results for the January 2021 semi-annual assessment monitoring sampling event for the Cross Generating Station (CGS) Class 2 Landfill. The statistical evaluation discussed in this memorandum was conducted to determine if Appendix IV groundwater monitoring constituents have been detected in downgradient wells at statistically significant levels (SSL) above Groundwater Protection Standards (GWPS) consistent with the requirements in 40 CFR § 257.95.

Utilizing interwell statistical evaluations, data from the groundwater sampling event for the downgradient monitoring wells were compared to the GWPS established from the background dataset for the upgradient monitoring wells (PM-1 and CBW-1) for detected Appendix IV constituents. GWPS for each of the Appendix IV constituents have been set equal to the highest value of the maximum contaminant level (MCL), regional screening level (RSL), or background concentration. The results of the assessment monitoring statistical evaluation are discussed below and provided in Table I.

Statistical Evaluation of Appendix IV Constituents

The Rule provides four specific options for statistical evaluation of groundwater quality data collected at a coal combustion residual (CCR) unit (40 CFR §257.93(f) (1-4)). The statistical method used for these evaluations is tolerance limit (TL), which was certified by Haley & Aldrich, Inc. on October 14, 2017. The TL method, determined applicable for this sampling event, was used to evaluate potential SSLs above GWPS. GWPS for each constituent listed in Appendix IV were computed as upper tolerance limits (UTL), with a minimum 95 percent confidence coefficient and 95 percent coverage. The most recent groundwater sampling result from each compliance well was compared to the GWPS to determine if an SSL existed.

STATISTICAL EVALUATION

An interwell statistical evaluation was used to identify SSLs. An interwell evaluation compares the most recent values from downgradient compliance wells to a background dataset composed of upgradient

well data. Because the CCR unit has transitioned into assessment monitoring, no statistical evaluations were conducted on Appendix III (detection monitoring) semi-annual assessment monitoring data.

The parametric TL method was used to complete statistical evaluations of the referenced dataset. The TL procedure is one in which a concentration limit for each constituent is established from the distribution of the background data, with a minimum 95 percent confidence level. The upper endpoint of a tolerance interval is called the UTL. Depending on the data distribution, parametric or non-parametric TL procedures are used to evaluate groundwater monitoring data using this method. Parametric TLs utilize normally distributed data or data normalized via a transformation of the sample background data used to construct the limit. If the data are non-normal and a transformation is not indicated, non-parametric procedures (order statistics or bootstrap methods) are used to calculate the TL. If all the background data are non-detect, a maximum reporting limit may serve as an appropriate UTL.

These statistical evaluations were conducted using the background dataset for all detected Appendix IV constituents using parametric TL. If an Appendix IV constituent concentration from the January 2021 sampling event was above the GWPS, the lower confidence limit (LCL) for the downgradient well constituent was used to evaluate if an SSL was indicated. The LCL is the lower end of the confidence interval range, which is an estimated concentration range intended to contain the true mean or median of the population from which the sample is drawn. The confidence interval range is designed to locate the true population mean or median with a high degree of statistical confidence, or conversely, with a low probability of error.

The UTLs were calculated from the background well dataset using Chemstat software after testing for outlier sample results that would warrant removal from the dataset based on likely error in sampling or measurement. Both visual and statistical outlier tests for the background data were performed using Chemstat and U.S. Environmental Protection Agency's ProUCL 5.1 software, and a visual inspection of the data was performed using box plots and distribution plots for the downgradient sample data. No sample data were identified as outliers that warranted removal from the dataset.

BACKGROUND DISTRIBUTIONS

The groundwater analytical results for each sampling event from the background sample locations (PM-1 and CBW-1) were combined to calculate the UTL for each detected Appendix IV constituent. The variability and distribution of the pooled dataset was evaluated to determine the method for UTL calculation. Per the document *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance, March 2009* (Unified Guidance), background concentrations were updated for the February 2020 semi-annual sampling event based on statistical evaluation of analytical results collected through February 2020. The background dataset will be updated again in February 2022 per the Unified Guidance.

RESULTS OF APPENDIX IV DOWNGRADIENT STATISTICAL COMPARISONS

The sample concentrations from the downgradient wells for each of the detected Appendix IV constituents from the January 2021 assessment monitoring event were compared to their respective GWPS (Table I). A sample concentration greater than the GWPS is considered to represent a SSL. Based on previous compliance sampling events and statistical evaluations, interwell comparisons were utilized for all downgradient wells and constituents. Based on this statistical evaluation an SSL above GWPS remains at the Class 2 Landfill for cobalt. While an SSL for cobalt was identified, the concentrations detected are significantly lower than the values recorded during assessment monitoring in 2019 prior to implementing the selected remedy for this unit (Capping with Drainage Enhancements plus Monitored Natural Attenuation). The decreasing concentrations of cobalt detected in groundwater downgradient of the Class 2 Landfill are demonstrate that the selected remedy is performing as designed.

The performance of the selected remedy in achieving GWPS will continue to be evaluated during subsequent semiannual sampling events.

Tables:

Table I – Summary of Assessment Monitoring Statistical Evaluation – January 2021

TABLES

Cross Class 2 Landfill

Detection Monitoring Statistical Analysis Summary

Prepared: June 11, 2021

																		Inter-well Analysis					
Location Id	Frequency of Detection	Percent Non-Detects	Range of Non-Detect	Mean	50th Percentile (Median)	95th Percentile	Maximum Detect	Variance	Standard Deviation	Coefficient of Variance	CCR MCL/RSL	Report Result Unit	Detection Exceedances (Y/N)	Number of Detection Exceedances	Number of Non-Detection Exceedances	Outlier Presence	Outlier Removed	Trend	Distribution Well*	January 2021 Concentrations	Detect?	Upper Tolerance Limit (mg/L)	SSI	GWPS (Higher of MCL/RSL or Upper Tolerance Limit) (mg/L)	SSL
CCR Appendix-IV: Antimony, Total (mg/L)																									
CBW-1	0/14	100%	0.005-0.025	0.00643	0.005	0.012		0.00002857	0.005345	0.8315	0.006	mg/L	N	0	1	NA	NA	NA	NA			0.025		0.025	
PM-1	0/14	100%	0.005-0.025	0.00643	0.005	0.012		0.00002857	0.005345	0.8315	0.006	mg/L	N	0	1	NA	NA	NA							
POZ-4	0/13	100%	0.005-0.025	0.00654	0.005	0.013		0.00003077	0.005547	0.8484	0.006	mg/L	N	0	1	NA	NA	NA	NA	0.005	N		N		FALSE
POZ-6	0/13	100%	0.005-0.025	0.00654	0.005	0.013		0.00003077	0.005547	0.8484	0.006	mg/L	N	0	1	NA	NA	NA	NA	0.005	N		N		FALSE
POZ-7	0/13	100%	0.005-0.025	0.00654	0.005	0.013		0.00003077	0.005547	0.8484	0.006	mg/L	N	0	1	NA	NA	NA	NA	0.005	N		N		FALSE
CCR Appendix-IV: Arsenic, Total (mg/L)																									
CBW-1	3/16	81%	0.005-0.005	0.00582	0.005	0.009025	0.016	0.000007557	0.002749	0.4726	0.01	mg/L	Y	1	0	Yes	No	NA	Non-parametric			0.016		0.016	
PM-1	2/16	88%	0.005-0.005	0.00486	0.005	0.005	0.0042	1.706E-07	0.0004131	0.08506	0.01	mg/L	N	0	0	NA	NA	NA							
POZ-4	1/15	93%	0.003-0.005	0.00474	0.005	0.005	0.0031	4.711E-07	0.0006864	0.1448	0.01	mg/L	N	0	0	NA	NA	NA	NA	0.005	N		N		FALSE
POZ-6	1/15	93%	0.003-0.005	0.00479	0.005	0.005	0.0039	3.264E-07	0.0005713	0.1192	0.01	mg/L	N	0	0	NA	NA	NA	NA	0.005	N		N		FALSE
POZ-7	0/15	100%	0.003-0.005	0.00473	0.005	0.005		4.952E-07	0.0007037	0.1487	0.01	mg/L	N	0	0	NA	NA	NA	NA	0.005	N		N		FALSE
CCR Appendix-IV: Barium, Total (mg/L)																									
CBW-1	16/16	0%	-	0.0442	0.04315	0.05073	0.061	0.00002457	0.004957	0.1122	2	mg/L	N	0	0	Yes	No	Stable	Non-parametric			0.103		2.000	
PM-1	16/16	0%	-	0.0823	0.08025	0.1007	0.103	0.00008368	0.009147	0.1112	2	mg/L	N	0	0	Yes	No	Stable							
POZ-4	15/15	0%	-	0.116	0.09	0.2081	0.255	0.002909	0.05394	0.4644	2	mg/L	N	0	0	Yes	No	Increasing	Non-parametric	0.161	Y		Y		FALSE
POZ-6	15/15	0%	-	0.0529	0.046	0.0748	0.1	0.000226	0.01503	0.2839	2	mg/L	N	0	0	Yes	No	Stable	Non-parametric	0.060	Y		N		FALSE
POZ-7	15/15	0%	-	0.244	0.25	0.3288	0.389	0.004421	0.06649	0.2726	2	mg/L	N	0	0	No	No	Stable	Normal	0.123	Y		Y		FALSE
CCR Appendix-IV: Beryllium, Total (mg/L)																									
CBW-1	1/15	93%	0.0005-0.0005	0.000509	0.0005	0.000539	0.00063	1.127E-09	0.00003357	0.06599	0.004	mg/L	N	0	0	NA	NA	NA	Non-parametric			0.00063		0.004	
PM-1	0/16	100%	0.0005-0.0005	0.0005	0.0005	0.0005		0	0	0	0.004	mg/L	N	0	0	NA	NA	NA							
POZ-4	8/14	43%	0.0005-0.0005	0.000689	0.000516	0.001201	0.00139	8.414E-08	0.0002901	0.4212	0.004	mg/L	N	0	0	No	No	Stable	Non-parametric	0.0005	N		N		FALSE
POZ-6	0/14	100%	0.0005-0.0005	0.0005	0.0005	0.0005		0	0	0	0.004	mg/L	N	0	0	NA	NA	NA	NA	0.0005	N		N		FALSE
POZ-7	10/14	29%	0.0005-0.0005	0.00068	0.000675	0.0009058	0.000935	2.502E-08	0.0001582	0.2327	0.004	mg/L	N	0	0	No	No	Stable	Normal	0.0007	Y		Y		FALSE
CCR Appendix-IV: Cadmium, Total (mg/L)																									
CBW-1	0/15	100%	0.0005-0.0005	0.0005	0.0005	0.0005		0	0	0	0.005	mg/L	N	0	0	NA	NA	NA	NA			0.0005		0.005	
PM-1	0/15	100%	0.0005-0.0005	0.0005	0.0005	0.0005		0	0	0	0.005	mg/L	N	0	0	NA	NA	NA							
POZ-4	2/15	87%	0.0005-0.0005	0.000527	0.0005	0.000663	0.00081	6.778E-09	0.00008233	0.1561	0.005	mg/L	N	0	0	NA	NA	NA	NA	0.0005	N		N		FALSE
POZ-6	0/15	100%	0.0005-0.0005	0.0005	0.0005	0.0005		0	0	0	0.005	mg/L	N	0	0	NA	NA	NA	NA	0.0005	N		N		FALSE
POZ-7	1/15	93%	0.0005-0.0005	0.000507	0.0005	0.00053	0.0006	6.667E-10	0.00002582	0.05096	0.005	mg/L	N	0	0	NA	NA	NA	NA	0.0005	N		N		FALSE
CCR Appendix-IV: Chromium, Total (mg/L)																									
CBW-1	1/15	93%	0.005-0.005	0.0056	0.005	0.0077	0.014	0.0000054	0.002324	0.415	0.1	mg/L	N	0	0	NA	NA	NA	Non-parametric			0.0140		0.100	
PM-1	0/15	100%	0.005-0.005	0.005	0.005	0.005		7.744E-21	8.8E-11	1.76E-08	0.1	mg/L	N	0	0	NA	NA	NA							
POZ-4	0/15	100%	0.005-0.005	0.005	0.005	0.005		7.744E-21	8.8E-11	1.76E-08	0.1	mg/L	N	0	0	NA	NA	NA	NA	0.005	N		N		FALSE
POZ-6	0/15	100%	0.005-0.005	0.005	0.005	0.005		7.744E-21	8.8E-11	1.76E-08	0.1	mg/L	N	0	0	NA	NA	NA	NA	0.005	N		N		FALSE
POZ-7	1/15	93%	0.005-0.005	0.00506	0.005	0.00527	0.0059	0.000000054	0.0002324	0.04592	0.1	mg/L	N	0	0	NA	NA	NA	NA	0.005	N		N		FALSE
CCR Appendix-IV: Cobalt, Total (mg/L)																									
CBW-1	16/16	0%	-	0.0011	0.00094	0.001825	0.0034	4.069E-07	0.0006379	0.5796	0.006	mg/L	N	0	0	Yes	No	Decreasing	Non-parametric			0.0034		0.006	
PM-1	16/16	0%	-	0.000923	0.00091	0.001	0.001	4.677E-09	0.00006839	0.07413	0.006	mg/L	N	0	0	No	No	Stable							
POZ-4	18/18	0%	-	0.0922	0.06265	0.1998	0.21	0.004912	0.07009	0.7605	0.006	mg/L	Y	17	0	No	No	Stable	Normal	0.0323	Y		Y		TRUE
POZ-6	15/15	0%	-	0.00312	0.0032	0.00596	0.0082	0.000003713	0.001927	0.6185	0.006	mg/L	Y	1	0	No	No	Stable	Normal	0.0032	Y		N		FALSE
POZ-7	10/15	33%	0.0005-0.0005	0.00114	0.00096	0.00252	0.0028	5.081E-07	0.0007128	0.6278	0.006	mg/L	N	0	0	No	No	Stable	Non-parametric	0.0024	Y		N		FALSE
CCR Appendix-IV: Fluoride (mg/L)																									
CBW-1	16/16	0%	-	0.226	0.22	0.2925	0.3	0.00192	0.04381	0.1942	4	mg/L	N	0	0	No	No	Decreasing	Non-parametric			0.300		4.00	
PM-1	0/16	100%	0.1-0.1	0.1	0.1	0.1		1.85E-18	1.36E-09	1.36E-08	4	mg/L	N	0	0	NA	NA	NA							
POZ-4	6/15	60%	0.1-0.1	0.112	0.1	0.163	0.17	0.0005457	0.02336	0.2086	4	mg/L	N	0	0	Yes	No	Stable	Non-parametric	0.100	N		N		FALSE
POZ-6	4/15	73%	0.1-0.1	0.112	0.1	0.15	0.15	0.0004457	0.02111	0.1885	4	mg/L	N	0	0	No	No	Stable	Non-parametric	0.100	N		N		FALSE
POZ-7	6/15	60%	0.1-0.1	0.107	0.1	0.13	0.13	0.0001381	0.01175	0.1102	4	mg/L	N	0	0	No	No	Stable	Non-parametric	0.100	N		N		FALSE
CCR Appendix-IV: Lead, Total (mg/L)																									
CBW-1	16/16	0%	-	0.00348	0.00305	0.005563	0.011	0.000004149	0.002037	0.5848	0.015	mg/L	N	0	0	Yes	No	Decreasing	Non-parametric			0.0110		0.015	
PM-1	0/16	100%	0.001-0.0025	0.00119	0.001	0.0025		2.625E-07	0.0005123	0.4315	0.015	mg/L	N	0	0	NA	NA	NA							
POZ-4	0/15	100%	0.001-0.0025	0.0012	0.001	0.0025		2.786E-07	0.0005278	0.4398	0.015	mg/L	N	0	0	NA	NA	NA	NA	0.001	N		N		FALSE
POZ-6	0/15	100%	0.001-0.0025	0.0012	0.001	0.0025		2.786E-07	0.0005278	0.4398	0.015	mg/L	N	0	0	NA	NA	NA	NA	0.001	N		N		FALSE
POZ-7	0/15	100%	0.001-0.0025	0.0012	0.001	0.0025		2.786E-07	0.0005278	0.4398	0.015	mg/L	N	0	0	NA	NA	NA	NA	0.001	N		N		FALSE
CCR Appendix-IV: Lithium, Total (mg/L)																									
CBW-1	0/16	100%	0.005-0.01	0.00969	0.01	0.01		0.000001562	0.00125	0.129	0.04	mg/L	N	0	0	NA	NA	NA	NA			0.010		0.040	
PM-1	0/16	100%	0.005-0.01	0.00969	0.01	0.01		0.000001562	0.00125	0.129	0.04	mg/L	N	0	0	NA	NA	NA							
POZ-4	8/13	38%	0.01-0.01	0.013	0.0111	0.0204	0.021	0.0000163	0.004037	0.3096	0.04	mg/L	N	0	0	No	No	Stable	Non-parametric	0.010	N		N		FALSE
POZ-6	0/13	100%	0.01-0.01	0.01	0.01	0.01		7.228E-20	2.688E-10	2.688E-08	0.04	mg/L	N	0	0	NA	NA	NA	NA	0.010	N		N		FALSE
POZ-7	1/13	92%	0.01-0.01	0.0108	0.01	0.014	0.02	0.000007692	0.002774	0.2575	0.04	mg/L	N	0	0	NA	NA	NA	NA	0.010	N		N		FALSE
CCR Appendix-IV: Mercury, Total (mg/L)																									
CBW-1	0/16	100%	0.0002-0.001	0.00025	0.0002	0.0004		0.00000004	0.0002	0.8	0.002	mg/L	N	0	0	NA	NA	NA	NA			0.0010		0.0020	
PM-1	0/16	100%	0.0002-0.001	0.00025	0.0002	0.0004		0.00000004	0.0002	0.8	0.002	mg/L	N	0	0	NA	NA	NA							
POZ-4	0/13	100%	0.0002-0.001	0.000262	0.0002	0.00052		4.923E-08	0.0002219	0.8484	0.002	mg/L	N	0	0	NA	NA	NA	NA	0.0002	N		N		FALSE
POZ-6	0/13	100%	0.0002-0.001	0.000262	0.0002	0.00052		4.923E-08	0.0002219	0.8484	0.002	mg/L	N	0	0	NA	NA	NA	NA	0.0002	N		N		FALSE
POZ-7	2/13	85%	0.0002-0.001	0.000279	0.0002	0.0006268	0.000378	4.941E-08	0.0002223	0.7965	0.002	mg/L	N	0	0	Yes	No	NA	NA	0.0002	N		N		FALSE

Cross Class 2 Landfill

Detection Monitoring Statistical Analysis Summary

Prepared: June 11, 2021

CCR Appendix-IV: Molybdenum, Total (mg/L)																								
CBW-1	0/14	100%	0.01-0.01	0.01	0.01	0.01		5.00E-20	2.23E-10	2.23E-08	0.1	mg/L	N	0	0	NA	NA	NA	NA			0.010		0.10	
PM-1	0/14	100%	0.01-0.01	0.01	0.01	0.01		5.00E-20	2.23E-10	2.23E-08	0.1	mg/L	N	0	0	NA	NA	NA							
POZ-4	0/13	100%	0.01-0.01	0.01	0.01	0.01		7.22E-20	2.68E-10	2.68E-08	0.1	mg/L	N	0	0	NA	NA	NA	NA	0.010	N		N		FALSE
POZ-6	0/13	100%	0.01-0.01	0.01	0.01	0.01		7.22E-20	2.68E-10	2.68E-08	0.1	mg/L	N	0	0	NA	NA	NA	NA	0.010	N		N		FALSE
POZ-7	0/13	100%	0.01-0.01	0.01	0.01	0.01		7.22E-20	2.68E-10	2.68E-08	0.1	mg/L	N	0	0	NA	NA	NA	NA	0.010	N		N		FALSE
CCR Appendix-IV: Radium-226 & 228 (pCi/L)																								
CBW-1	8/15	47%	4-4	3.63	4	5.619	6.34	2.644	1.626	0.4478	5	pCi/L	Y	3	0	No	No	Decreasing				16.3		16.3	
PM-1	9/15	40%	4-4	4.45	4	9.853	16.3	13.52	3.677	0.8267	5	pCi/L	Y	2	0	Yes	No	Stable	Non-parametric						
POZ-4	7/14	50%	4-4	3.56	4	5.055	6.29	1.852	1.36L	0.3824	5	pCi/L	Y	L	0	No	No	Decreasing	Non-parametric	2.220	Y		N		FALSE
POZ-6	6/14	57%	4-4	3.23	4	4.306	4.78	2.06L	1.435	0.445	5	pCi/L	N	0	0	No	No	Decreasing	Non-parametric	1.230	Y		N		FALSE
POZ-7	11/14	21%	4-4	3.55	4	5.058	5.39	1.94L	1.393	0.3919	5	pCi/L	Y	L	0	No	No	Decreasing	Normal	1.450	Y		N		FALSE
CCR Appendix-IV: Selenium, Total (mg/L)																								
CBW-1	0/16	100%	0.01-0.02	0.0112	0.01	0.02		0.00001167	0.003416	0.3036	0.05	mg/L	N	0	0	NA	NA	NA	NA			0.020		0.050	
PM-1	0/16	100%	0.01-0.02	0.0112	0.01	0.02		0.00001167	0.003416	0.3036	0.05	mg/L	N	0	0	NA	NA	NA							
POZ-4	0/15	100%	0.01-0.02	0.0113	0.01	0.02		0.00001238	0.003519	0.3105	0.05	mg/L	N	0	0	NA	NA	NA	NA	0.010	N		N		FALSE
POZ-6	0/15	100%	0.01-0.02	0.0113	0.01	0.02		0.00001238	0.003519	0.3105	0.05	mg/L	N	0	0	NA	NA	NA	NA	0.010	N		N		FALSE
POZ-7	0/15	100%	0.01-0.02	0.0113	0.01	0.02		0.00001238	0.003519	0.3105	0.05	mg/L	N	0	0	NA	NA	NA	NA	0.010	N		N		FALSE
CCR Appendix-IV: Thallium, Total (mg/L)																								
CBW-1	0/14	100%	0.001-0.001	0.001	0.001L	0.001		0	0	0	0.002	mg/L	N	0	0	NA	NA	NA	NA			0.001		0.002	
PM-1	0/14	100%	0.001-0.001	0.001	0.001L	0.001		0	0	0	0.002	mg/L	N	0	0	NA	NA	NA							
POZ-4	0/13	100%	0.001-0.001	0.001	0.001L	0.001		0	0	0	0.002	mg/L	N	0	0	NA	NA	NA	NA	0.001L	N		N		FALSE
POZ-6	0/13	100%	0.001-0.001	0.001	0.001L	0.001		0	0	0	0.002	mg/L	N	0	0	NA	NA	NA	NA	0.001L	N		N		FALSE
POZ-7	0/13	100%	0.001-0.001	0.001	0.001L	0.001		0	0	0	0.002	mg/L	N	0	0	NA	NA	NA	NA	0.001L	N		N		FALSE

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TECHNICAL MEMORANDUM

October 15, 2021
File No. 132892-011

SUBJECT: Statistical Evaluation of the June 2021 Semi-annual Groundwater Assessment Monitoring Data
Cross Generating Station
Class 2 Landfill

Pursuant to Title 40 Code of Federal Regulations (40 CFR) § 257.93 and § 257.95 (Rule), this memorandum summarizes the statistical evaluation of the analytical results for the June 2021 semi-annual assessment monitoring event for the Cross Generating Station (CGS) Class 2 Landfill. The statistical evaluation discussed in this memorandum was conducted to determine if Appendix IV groundwater monitoring constituents have been detected in downgradient wells at statistically significant levels (SSL) above Groundwater Protection Standards (GWPS) consistent with the requirements in 40 CFR § 257.95.

Data from the groundwater sampling event for the downgradient monitoring wells were compared to the GWPS established from the background dataset for the upgradient monitoring wells (PM-1 and CBW-1) for detected Appendix IV constituents. GWPS for each of the Appendix IV constituents have been set equal to the highest value of the maximum contaminant level (MCL), regional screening level (RSL), or background concentration. The results of the assessment monitoring statistical evaluation are discussed below and provided in Table I.

Statistical Evaluation of Appendix IV Constituents

The Rule provides four specific options for statistical evaluation of groundwater quality data collected at a coal combustion residual (CCR) unit (40 CFR §257.93(f) (1-4)). The statistical method used for these evaluations is tolerance limit (TL), which was certified by Haley & Aldrich, Inc. on October 14, 2017. The TL method, determined applicable for this sampling event, was used to evaluate potential SSLs above GWPS. GWPS for each constituent listed in Appendix IV were computed as upper tolerance limits (UTL), with a minimum 95 percent confidence coefficient and 95 percent coverage. The most recent groundwater sampling result from each compliance well was compared to the GWPS to determine if an SSL existed.

STATISTICAL EVALUATION

An interwell statistical evaluation was used to identify SSLs. An interwell evaluation compares the most recent values from downgradient compliance wells to a background dataset composed of upgradient

well data. Because the CCR unit is in assessment monitoring, no statistical evaluations were conducted on Appendix III (detection monitoring) constituents.

The parametric TL method was used to complete statistical evaluations of the referenced dataset. The TL procedure is one in which a concentration limit for each constituent is established from the distribution of the background data, with a minimum 95 percent confidence level. The upper endpoint of a tolerance interval is called the UTL. Depending on the data distribution, parametric or non-parametric TL procedures are used to evaluate groundwater monitoring data using this method. Parametric TLs utilize normally distributed data or data normalized via a transformation of the sample background data used to construct the limit. If the data are non-normal and a transformation is not indicated, non-parametric procedures (order statistics or bootstrap methods) are used to calculate the TL. If all the background data are non-detect, a maximum reporting limit may serve as an appropriate UTL.

These statistical evaluations were conducted using the background dataset for all detected Appendix IV constituents using parametric TL. If an Appendix IV constituent concentration from the June 2021 sampling event was above the GWPS, the lower confidence limit (LCL) for the downgradient well constituent was used to evaluate if an SSL was indicated. The LCL is the lower end of the confidence interval range, which is an estimated concentration range intended to contain the true mean or median of the population from which the sample is drawn. The confidence interval range is designed to locate the true population mean or median with a high degree of statistical confidence, or conversely, with a low probability of error.

The UTLs were calculated from the background well dataset using Chemstat software after testing for outlier sample results that would warrant removal from the dataset based on likely error in sampling or measurement. Both visual and statistical outlier tests for the background data were performed using Chemstat and U.S. Environmental Protection Agency's ProUCL 5.1 software, and a visual inspection of the data was performed using box plots and distribution plots for the downgradient sample data. No sample data were identified as outliers that warranted removal from the dataset.

BACKGROUND DISTRIBUTIONS

The groundwater analytical results for each sampling event from the background sample locations (PM-1 and CBW-1) were combined to calculate the UTL for each detected Appendix IV constituent. The variability and distribution of the pooled dataset was evaluated to determine the method for UTL calculation. Per the document *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance, March 2009* (Unified Guidance), background concentrations were updated for the February 2020 semi-annual sampling event based on statistical evaluation of analytical results collected through February 2020. The background dataset will be updated again in February 2022 per the Unified Guidance.

RESULTS OF APPENDIX IV DOWNGRADIENT STATISTICAL COMPARISONS

The sample concentrations from the downgradient wells for each of the detected Appendix IV constituents from the June 2021 assessment monitoring event were compared to their respective GWPS (Table I). A sample concentration greater than the GWPS is considered to represent a SSL. Based on previous compliance sampling events and statistical evaluations, interwell comparisons were utilized for all downgradient wells and constituents. Based on this statistical evaluation an SSL above GWPS remains at the Class 2 Landfill for cobalt. While an SSL for cobalt was identified, the concentrations detected are significantly lower than the values recorded during assessment monitoring in 2019 prior to implementing the selected remedy for this unit (Capping with water management enhancements plus Monitored Natural Attenuation). It is worth noting, the increase in the concentration of cobalt typically observed in the second semiannual sampling event each year was much lower than previous sampling events conducted during the same time of year (approximately 40 to 50 percent lower). This suggests the remedy is working as intended.

The performance of the selected remedy in achieving GWPS will continue to be evaluated during subsequent semiannual sampling events.

Tables:

Table I – Summary of Assessment Monitoring Statistical Evaluation – June 2021

TABLES

Cross Class 2 Landfill

Summary of Assessment Monitoring Statistical Evaluation – June 2021

Prepared: October 4, 2021

																		Inter-well Analysis					
Location Id	Frequency of Detection	Percent Non-Detects	Range of Non-Detect	Mean	50th Percentile (Median)	95th Percentile	Maximum Detect	Variance	Standard Deviation	Coefficient of Variance	CCR MCL/RSL	Report Result Unit	Detection Exceedances (Y/N)	Number of Detection Exceedances	Number of Non-Detection Exceedances	Outlier Presence	Outlier Removed	Trend	Distribution Well*	June 2021 Concentrations	Detect?	Upper Tolerance Limit	SSI	GWPS (Higher of MCL/RSL or Upper Tolerance Limit)	SSL
CCR Appendix-IV: Antimony, Total (mg/L)																									
CBW-1	0/15	100%	0.005-0.025	0.00633	0.005	0.011		0.00002667	0.005164	0.8154	0.006	mg/L	N	0	1	NA	NA	NA	NA			0.025		0.025	
PM-1	0/15	100%	0.005-0.025	0.00633	0.005	0.011		0.00002667	0.005164	0.8154	0.006	mg/L	N	0	1	NA	NA	NA							
POZ-4	0/13	100%	0.005-0.025	0.00654	0.005	0.013		0.00003077	0.005547	0.8484	0.006	mg/L	N	0	1	NA	NA	NA	NA				N		FALSE
POZ-6	0/13	100%	0.005-0.025	0.00654	0.005	0.013		0.00003077	0.005547	0.8484	0.006	mg/L	N	0	1	NA	NA	NA	NA				N		FALSE
POZ-7	0/13	100%	0.005-0.025	0.00654	0.005	0.013		0.00003077	0.005547	0.8484	0.006	mg/L	N	0	1	NA	NA	NA	NA				N		FALSE
CCR Appendix-IV: Arsenic, Total (mg/L)																									
CBW-1	3/17	82%	0.005-0.005	0.00577	0.005	0.00856	0.016	0.000007124	0.002669	0.4627	0.01	mg/L	Y	1	0	Yes	No	NA	Non-parametric			0.016		0.016	
PM-1	2/17	88%	0.005-0.005	0.00486	0.005	0.005	0.0042	1.612E-07	0.0004015	0.08253	0.01	mg/L	N	0	0	NA	NA	NA							
POZ-4	1/16	94%	0.003-0.005	0.00476	0.005	0.005	0.0031	0.000000444	0.0006663	0.1401	0.01	mg/L	N	0	0	NA	NA	NA	NA	0.005	N		N		FALSE
POZ-6	1/16	94%	0.003-0.005	0.00481	0.005	0.005	0.0039	3.073E-07	0.0005543	0.1153	0.01	mg/L	N	0	0	NA	NA	NA	NA	0.005	N		N		FALSE
POZ-7	0/16	100%	0.003-0.005	0.00475	0.005	0.005		4.667E-07	0.0006831	0.1438	0.01	mg/L	N	0	0	NA	NA	NA	NA	0.005	N		N		FALSE
CCR Appendix-IV: Barium, Total (mg/L)																									
CBW-1	17/17	0%	-	0.0441	0.043	0.05004	0.061	0.00002325	0.004822	0.1094	2	mg/L	N	0	0	Yes	No	Stable	Non-parametric			0.103		2.000	
PM-1	17/17	0%	-	0.0826	0.0803	0.1006	0.103	0.00007993	0.00894	0.1083	2	mg/L	N	0	0	Yes	No	Stable							
POZ-4	16/16	0%	-	0.117	0.096	0.2048	0.255	0.00274	0.05234	0.4459	2	mg/L	N	0	0	Yes	No	Increasing	Non-parametric	0.136	Y		Y		FALSE
POZ-6	16/16	0%	-	0.0528	0.04795	0.073	0.1	0.0002115	0.01454	0.2757	2	mg/L	N	0	0	Yes	No	Stable	Non-parametric	0.050	Y		N		FALSE
POZ-7	16/16	0%	-	0.248	0.2505	0.3245	0.389	0.004344	0.06591	0.2662	2	mg/L	N	0	0	No	No	Stable	Normal	0.303	Y		Y		FALSE
CCR Appendix-IV: Beryllium, Total (mg/L)																									
CBW-1	1/16	94%	0.0005-0.0005	0.000508	0.0005	0.0005325	0.00063	1.056E-09	0.0000325	0.06396	0.004	mg/L	N	0	0	NA	NA	NA	Non-parametric			0.00063		0.004	
PM-1	0/17	100%	0.0005-0.0005	0.0005	0.0005	0.0005		0	0	0	0.004	mg/L	N	0	0	NA	NA	NA							
POZ-4	9/15	40%	0.0005-0.0005	0.000677	0.000512	0.001187	0.00139	8.026E-08	0.0002833	0.4186	0.004	mg/L	N	0	0	No	No	Stable	Non-parametric	0.0005	Y		N		FALSE
POZ-6	0/15	100%	0.0005-0.0005	0.0005	0.0005	0.0005		0	0	0	0.004	mg/L	N	0	0	NA	NA	NA	NA	0.0005	N		N		FALSE
POZ-7	10/15	33%	0.0005-0.0005	0.000668	0.00063	0.0009035	0.000935	2.538E-08	0.0001593	0.2386	0.004	mg/L	N	0	0	No	No	Stable	Normal	0.0005	N		N		FALSE
CCR Appendix-IV: Cadmium, Total (mg/L)																									
CBW-1	0/16	100%	0.0005-0.0005	0.0005	0.0005	0.0005		0	0	0	0.005	mg/L	N	0	0	NA	NA	NA	NA			0.0005		0.005	
PM-1	0/16	100%	0.0005-0.0005	0.0005	0.0005	0.0005		0	0	0	0.005	mg/L	N	0	0	NA	NA	NA							
POZ-4	2/16	88%	0.0005-0.0005	0.000526	0.0005	0.0006525	0.00081	6.373E-09	0.00007983	0.1519	0.005	mg/L	N	0	0	NA	NA	NA	NA	0.0005	N		N		FALSE
POZ-6	0/16	100%	0.0005-0.0005	0.0005	0.0005	0.0005		0	0	0	0.005	mg/L	N	0	0	NA	NA	NA	NA	0.0005	N		N		FALSE
POZ-7	1/16	94%	0.0005-0.0005	0.000506	0.0005	0.000525	0.0006	6.25E-10	0.000025	0.04938	0.005	mg/L	N	0	0	NA	NA	NA	NA	0.0005	N		N		FALSE
CCR Appendix-IV: Chromium, Total (mg/L)																									
CBW-1	1/16	94%	0.005-0.005	0.00556	0.005	0.00725	0.014	0.000005062	0.00225	0.4045	0.1	mg/L	N	0	0	NA	NA	NA	Non-parametric			0.0140		0.100	
PM-1	0/16	100%	0.005-0.005	0.005	0.005	0.005		7.228E-21	8.502E-11	0.000000017	0.1	mg/L	N	0	0	NA	NA	NA							
POZ-4	0/16	100%	0.005-0.005	0.005	0.005	0.005		7.228E-21	8.502E-11	0.000000017	0.1	mg/L	N	0	0	NA	NA	NA	NA	0.005	N		N		FALSE
POZ-6	0/16	100%	0.005-0.005	0.005	0.005	0.005		7.228E-21	8.502E-11	0.000000017	0.1	mg/L	N	0	0	NA	NA	NA	NA	0.005	N		N		FALSE
POZ-7	1/16	94%	0.005-0.005	0.00506	0.005	0.005225	0.0059	5.063E-08	0.000225	0.0445	0.1	mg/L	N	0	0	NA	NA	NA	NA	0.005	N		N		FALSE
CCR Appendix-IV: Cobalt, Total (mg/L)																									
CBW-1	17/17	0%	-	0.00108	0.00088	0.00172	0.0034	3.909E-07	0.0006252	0.5805	0.006	mg/L	N	0	0	Yes	No	Decreasing	Non-parametric			0.0034		0.006	
PM-1	17/17	0%	-	0.000924	0.00091	0.001	0.001	4.403E-09	0.00006635	0.07184	0.006	mg/L	N	0	0	No	No	Stable							
POZ-4	19/19	0%	-	0.0921	0.065	0.1992	0.21	0.004639	0.06811	0.7398	0.006	mg/L	Y	18	0	No	No	Stable	Normal	0.0905	Y		Y		TRUE
POZ-6	16/16	0%	-	0.00306	0.00317	0.0058	0.0082	0.000003518	0.001876	0.6133	0.006	mg/L	Y	1	0	No	No	Stable	Normal	0.0022	Y		N		FALSE
POZ-7	10/16	38%	0.0005-0.0005	0.0011	0.000955	0.0025	0.0028	4.994E-07	0.0007067	0.645	0.006	mg/L	N	0	0	No	No	Stable	Non-parametric	0.0005	N		N		FALSE
CCR Appendix-IV: Fluoride (mg/L)																									
CBW-1	17/17	0%	-	0.224	0.22	0.292	0.3	0.001874	0.04329	0.1937	4	mg/L	N	0	0	No	No	Decreasing	Non-parametric			0.300		4.00	
PM-1	0/17	100%	0.1-0.1	0.1	0.1	0.1		0	0	0	4	mg/L	N	0	0	NA	NA	NA							
POZ-4	6/16	62%	0.1-0.1	0.111	0.1	0.1625	0.17	0.0005183	0.02277	0.2046	4	mg/L	N	0	0	Yes	No	Stable	Non-parametric	0.100	N		N		FALSE
POZ-6	4/16	75%	0.1-0.1	0.111	0.1	0.15	0.15	0.000425	0.02062	0.1853	4	mg/L	N	0	0	No	No	Stable	Non-parametric	0.100	N		N		FALSE
POZ-7	6/16	62%	0.1-0.1	0.106	0.1	0.13	0.13	0.0001317	0.01147	0.108	4	mg/L	N	0	0	No	No	Stable	Non-parametric	0.100	N		N		FALSE
CCR Appendix-IV: Lead, Total (mg/L)																									
CBW-1	17/17	0%	-	0.00343	0.003	0.0052	0.011	0.000003936	0.001984	0.5782	0.015	mg/L	N	0	0	Yes	No	Decreasing	Non-parametric			0.0110		0.015	
PM-1	0/17	100%	0.001-0.0025	0.00118	0.001	0.0025		2.482E-07	0.0004982	0.4234	0.015	mg/L	N	0	0	NA	NA	NA							
POZ-4	0/16	100%	0.001-0.0025	0.00119	0.001	0.0025		2.625E-07	0.0005123	0.4315	0.015	mg/L	N	0	0	NA	NA	NA	NA	0.001	N		N		FALSE
POZ-6	0/16	100%	0.001-0.0025	0.00119	0.001	0.0025		2.625E-07	0.0005123	0.4315	0.015	mg/L	N	0	0	NA	NA	NA	NA	0.001	N		N		FALSE
POZ-7	0/16	100%	0.001-0.0025	0.00119	0.001	0.0025		2.625E-07	0.0005123	0.4315	0.015	mg/L	N	0	0	NA	NA	NA	NA	0.001	N		N		FALSE
CCR Appendix-IV: Lithium, Total (mg/L)																									
CBW-1	0/17	100%	0.005-0.02	0.0103	0.01	0.012		0.000007721	0.002779	0.2699	0.04	mg/L	N	0	0	NA	NA	NA	NA			0.010		0.040	
PM-1	0/17	100%	0.005-0.01	0.00971	0.01	0.01		0.000001471	0.001213	0.1249	0.04	mg/L	N	0	0	NA	NA	NA							
POZ-4	8/13	38%	0.01-0.01	0.013	0.0111	0.0204	0.021	0.0000163	0.004037	0.3096	0.04	mg/L	N	0	0	No	No	Stable	Non-parametric				N		FALSE
POZ-6	0/13	100%	0.01-0.01	0.01	0.01	0.01		7.228E-20	2.688E-10	2.688E-08	0.04	mg/L	N	0	0	NA	NA	NA	NA				N		FALSE
POZ-7	1/13	92%	0.01-0.01	0.0108	0.01	0.014	0.02	0.000007692	0.002774	0.2575	0.04	mg/L	N	0	0	NA	NA	NA	NA				N		FALSE
CCR Appendix-IV: Mercury, Total (mg/L)																									
CBW-1	0/17	100%	0.0002-0.001	0.000247	0.0002	0.00036		3.765E-08	0.000194	0.7854	0.002	mg/L	N	0	0	NA	NA	NA	NA			0.0010		0.0020	
PM-1	0/17	100%	0.0002-0.001	0.000247	0.0002	0.00036		3.765E-08	0.000194	0.7854	0.002	mg/L	N	0	0	NA	NA	NA							
POZ-4	0/13	100%	0.0002-0.001	0.000262	0.0002	0.00052		4.923E-08	0.0002219	0.8484	0.002	mg/L	N	0	0	NA	NA	NA	NA				N		FALSE
POZ-6	0/13	100%	0.0002-0.001	0.000262	0.0002	0.00052		4.923E-08	0.0002219	0.8484	0.002	mg/L	N	0	0	NA	NA	NA	NA				N		FALSE
POZ-7	2/13	85%	0.0002-0.001	0.000279	0.0002	0.0006268	0.000378	4.941E-08	0.0002223	0.7965	0.002	mg/L	N	0	0	Yes	No	NA	NA				N		FALSE

Cross Class 2 Landfill

Detection Monitoring Statistical Analysis Summary

Prepared: September 22, 2021

CCR Appendix-IV: Molybdenum, Total (mg/L)																								
CBW-1	0/15	100%	0.01-0.02	0.0107	0.01	0.013		0.0000006667	0.002582	0.2421	0.1	mg/L	N	0	0	NA	NA	NA	NA			0.010		0.10	
PM-1	0/15	100%	0.01-0.01	0.01	0.01	0.01		3.098E-20	1.76E-10	1.76E-08	0.1	mg/L	N	0	0	NA	NA	NA							
POZ-4	0/13	100%	0.01-0.01	0.01	0.01	0.01		7.228E-20	2.688E-10	2.688E-08	0.1	mg/L	N	0	0	NA	NA	NA	NA				N		FALSE
POZ-6	0/13	100%	0.01-0.01	0.01	0.01	0.01		7.228E-20	2.688E-10	2.688E-08	0.1	mg/L	N	0	0	NA	NA	NA	NA				N		FALSE
POZ-7	0/13	100%	0.01-0.01	0.01	0.01	0.01		7.228E-20	2.688E-10	2.688E-08	0.1	mg/L	N	0	0	NA	NA	NA	NA				N		FALSE
CCR Appendix-IV: Radium-226 & 228 (pCi/L)																								
CBW-1	9/16	44%	4-4	3.44	4	5.568	6.34	3.06	1.749	0.5087	5	pCi/L	Y	3	0	No	No	Decreasing	Non-parametric			16.3		16.3	
PM-1	10/16	38%	4-4	4.3	4	9.392	16.3	12.97	3.601	0.8372	5	pCi/L	Y	2	0	Yes	No	Stable							
POZ-4	8/15	47%	4-4	3.34	4	4.96	6.29	2.452	1.566	0.4692	5	pCi/L	Y	1	0	No	No	Decreasing	Non-parametric	0.244	Y		N		FALSE
POZ-6	7/15	53%	4-4	3.08	4	4.269	4.78	2.252	1.501	0.488	5	pCi/L	N	0	0	No	No	Decreasing	Non-parametric	0.971	Y		N		FALSE
POZ-7	12/15	20%	4-4	3.43	4	5.033	5.39	2.049	1.432	0.4178	5	pCi/L	Y	1	0	No	No	Decreasing	Normal	1.630	Y		N		FALSE
CCR Appendix-IV: Selenium, Total (mg/L)																								
CBW-1	0/17	100%	0.01-0.02	0.0112	0.01	0.02		0.00001103	0.003321	0.2971	0.05	mg/L	N	0	0	NA	NA	NA	NA			0.020		0.050	
PM-1	0/17	100%	0.01-0.02	0.0112	0.01	0.02		0.00001103	0.003321	0.2971	0.05	mg/L	N	0	0	NA	NA	NA							
POZ-4	0/16	100%	0.01-0.02	0.0112	0.01	0.02		0.00001167	0.003416	0.3036	0.05	mg/L	N	0	0	NA	NA	NA	NA	0.010	N		N		FALSE
POZ-6	0/16	100%	0.01-0.02	0.0112	0.01	0.02		0.00001167	0.003416	0.3036	0.05	mg/L	N	0	0	NA	NA	NA	NA	0.010	N		N		FALSE
POZ-7	0/16	100%	0.01-0.02	0.0112	0.01	0.02		0.00001167	0.003416	0.3036	0.05	mg/L	N	0	0	NA	NA	NA	NA	0.010	N		N		FALSE
CCR Appendix-IV: Thallium, Total (mg/L)																								
CBW-1	0/15	100%	0.001-0.001	0.001	0.001	0.001		0	0	0	0.002	mg/L	N	0	0	NA	NA	NA				0.001		0.002	
PM-1	0/15	100%	0.001-0.001	0.001	0.001	0.001		0	0	0	0.002	mg/L	N	0	0	NA	NA	NA							
POZ-4	0/13	100%	0.001-0.001	0.001	0.001	0.001		0	0	0	0.002	mg/L	N	0	0	NA	NA	NA	NA				N		FALSE
POZ-6	0/13	100%	0.001-0.001	0.001	0.001	0.001		0	0	0	0.002	mg/L	N	0	0	NA	NA	NA	NA				N		FALSE
POZ-7	0/13	100%	0.001-0.001	0.001	0.001	0.001		0	0	0	0.002	mg/L	N	0	0	NA	NA	NA	NA				N		FALSE

Appendix B – Laboratory Analytical Reports

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SANTEE COOPER ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

LAB CERTIFICATION #08552

Sample # AE94854 **Location:** GW Well CBW-1 **Date:** 01/26/2021 **Sample Collector:** ATH/DEW

Loc. Code CBW-1 **Time:** 10:39

Analysis	Result	Units	Test Date	Analyst	Method
Arsenic	<5.0	ug/L	02/19/2021	SJHATCHE	EPA 6020B
Arsenic Dissolved	<5.0	ug/L	02/12/2021	SJHATCHE	EPA 6020B
Barium	46.6	ug/L	02/19/2021	SJHATCHE	EPA 6020B
Beryllium	<0.50	ug/L	02/19/2021	SJHATCHE	EPA 6020B
Boron	18	ug/L	02/10/2021	ROGERSNCALLC	EPA 6010D
Calcium	29.2	mg/L	02/19/2021	SJHATCHE	EPA 6020B
Cadmium	<0.50	ug/L	02/19/2021	SJHATCHE	EPA 6020B
Cobalt	0.66	ug/L	02/19/2021	SJHATCHE	EPA 6020B
Chromium	<5.0	ug/L	02/19/2021	SJHATCHE	EPA 6020B
Iron	64.6	ug/L	02/19/2021	SJHATCHE	EPA 6020B
Mercury	<0.20	ug/L	02/09/2021	ROGERSNCALLC	EPA 7470
Lithium	<10	ug/L	02/05/2021	ROGERSNCALLC	EPA 6010D
Molybdenum	<10	ug/L	02/05/2021	ROGERSNCALLC	EPA 6010D
Lead	2.5	ug/L	02/19/2021	SJHATCHE	EPA 6020B
Antimony	<5.0	ug/L	02/19/2021	SJHATCHE	EPA 6020B
Selenium	<10.0	ug/L	02/19/2021	SJHATCHE	EPA 6020B
Thallium	<1.0	ug/L	02/19/2021	SJHATCHE	EPA 6020B
Radium 226	0.436	pCi/L	02/25/2021	GEL	EPA 903.1 Mod
Radium 228	1.29	pCi/L	02/23/2021	GEL	EPA 904.0
Radium 226/228 Combined Calculation	1.73	pCi/L	02/25/2021	GEL	EPA 903.1 Mod
Chloride	3.22	mg/L	01/27/2021	KCWELLS	EPA 300.0
Fluoride	0.15	mg/L	01/27/2021	KCWELLS	EPA 300.0
Sulfate	80.7	mg/L	01/27/2021	KCWELLS	EPA 300.0
Total Dissolved Solids	138.8	mg/L	01/28/2021	KCWELLS	SM 2540C
pH	4.31	SU	01/26/2021	DEW/ATH	
Spec. Cond.	192	uS	01/26/2021	DEW/ATH	
Dissolved Oxygen	0.710	ppm	01/26/2021	DEW/ATH	
Oxidation Reduction Potential	338	mv	01/26/2021	DEW/ATH	SM2580
Temp	20.25	C	01/26/2021	DEW/ATH	
Turbidity	0	NTU	01/26/2021	DEW/ATH	
Depth	10.12	Feet	01/26/2021	DEW/ATH	
Elevation	75.68	Feet	02/12/2021	DEWEST	
Aluminum	0.90	mg/L	02/19/2021	SJHATCHE	EPA 6020B
Potassium	0.67	mg/L	02/19/2021	SJHATCHE	EPA 6020B
Magnesium	2.2	mg/L	02/19/2021	SJHATCHE	EPA 6020B
Sodium	2.1	mg/L	02/19/2021	SJHATCHE	EPA 6020B
Nitrate	<0.10	mg/L	01/27/2021	KCWELLS	EPA 300.0
Total Organic Carbon	2.43	mg/L	02/04/2021	GEL	SM 5310B
Zinc	<10.0	ug/L	02/19/2021	SJHATCHE	EPA 6020B

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SANTEE COOPER ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

LAB CERTIFICATION #08552

Comments:

Independent Laboratory Results: "GEL" - GEL Laboratories LLC - Lab ID # 10120; "Test America" - TestAmerica Laboratories, Inc. - Lab ID# 98001; "DavisBrown"- Davis & Brown Lab ID # 21117; "Shealy"- Shealy Environmental Services, Inc.- Lab ID# 32010 "ROGERSCALLCO"- Rogers & Callcot, Inc.- Lab ID # 23105001

Analysis Validated: Linda Williams

Linda Williams - Supervisor Analytical Services

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SANTEE COOPER ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

LAB CERTIFICATION #08552

Sample # AF03823 **Location:** GW Well CBW-1 **Date:** 05/13/2021 **Sample Collector:** MDG/BWM

Loc. Code CBW-1 **Time:** 14:39

Analysis	Result	Units	Test Date	Analyst	Method
Depth	9.87	Feet	05/14/2021	MDG/BWM	
Elevation	75.93	Feet	05/17/2021	MDGOINGS	

Comments:

Independent Laboratory Results: "GEL" - GEL Laboratories LLC - Lab ID # 10120; "Test America" - TestAmerica Laboratories, Inc. - Lab ID# 98001; "DavisBrown"- Davis & Brown Lab ID # 21117; "Shealy"- Shealy Environmental Services, Inc.- Lab ID# 32010 "ROGERSCALLCO"- Rogers & Callcot, Inc.- Lab ID # 23105001

Analysis Validated: Linda Williams

Linda Williams - Supervisor Analytical Services

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SANTEE COOPER ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

LAB CERTIFICATION #08552

Sample # AF07259 **Location:** GW Well CBW-1 **Date:** 06/21/2021 **Sample Collector:** MDG/BRT

Loc. Code CBW-1 **Time:** 14:13

Analysis	Result	Units	Test Date	Analyst	Method
Arsenic	<5.0	ug/L	07/29/2021	SJHATCHE	EPA 6020B
Arsenic Dissolved	<5.0	ug/L	07/28/2021	SJHATCHE	EPA 6020B
Barium	42.3	ug/L	07/29/2021	SJHATCHE	EPA 6020B
Beryllium	<0.50	ug/L	07/29/2021	SJHATCHE	EPA 6020B
Boron	<40	ug/L	07/05/2021	R&C	EPA 6010D
Calcium	29.9	mg/L	07/29/2021	SJHATCHE	EPA 6020B
Cadmium	<0.50	ug/L	07/29/2021	SJHATCHE	EPA 6020B
Cobalt	0.70	ug/L	07/29/2021	SJHATCHE	EPA 6020B
Chromium	<5.0	ug/L	07/29/2021	SJHATCHE	EPA 6020B
Iron	135	ug/L	07/29/2021	SJHATCHE	EPA 6020B
Mercury	<0.2	ug/L	07/05/2021	R&C	EPA 7470
Lithium	<20	ug/L	07/05/2021	R&C	EPA 6010D
Molybdenum	<20	ug/L	07/05/2021	R&C	EPA 6010D
Lead	2.6	ug/L	07/29/2021	SJHATCHE	EPA 6020B
Antimony	<5.0	ug/L	07/29/2021	SJHATCHE	EPA 6020B
Selenium	<10.0	ug/L	07/29/2021	SJHATCHE	EPA 6020B
Thallium	<1.0	ug/L	07/29/2021	SJHATCHE	EPA 6020B
Radium 226	0.433	pCi/L	07/13/2021	GEL	EPA 903.1 Mod
Radium 228	0.120	pCi/L	07/06/2021	GEL	EPA 904.0
Radium 226/228 Combined Calculation	0.552	pCi/L	07/20/2021	GEL	EPA 903.1 Mod
Chloride	3.05	mg/L	06/28/2021	KCWELLS	EPA 300.0
Fluoride	0.19	mg/L	06/28/2021	KCWELLS	EPA 300.0
Sulfate	86.6	mg/L	06/28/2021	KCWELLS	EPA 300.0
Total Dissolved Solids	178.8	mg/L	06/29/2021	SJBROWN	SM 2540C
pH	4.25	SU	06/21/2021	MDG/BRT	
Spec. Cond.	194	uS	06/21/2021	MDG/BRT	
Dissolved Oxygen	0.660	ppm	06/21/2021	MDG/BRT	
Oxidation Reduction Potential	75.0	mv	06/21/2021	MDG/BRT	SM2580
Temp	24.16	C	06/21/2021	MDG/BRT	
Turbidity	0.200	NTU	06/21/2021	MDG/BRT	
Depth	10.07	Feet	06/21/2021	MDG/BRT	
Elevation	75.73	Feet	07/14/2021	BRTAYLOR	
Aluminum	1.0	mg/L	07/29/2021	SJHATCHE	EPA 6020B
Potassium	0.63	mg/L	07/29/2021	SJHATCHE	EPA 6020B
Magnesium	2.2	mg/L	07/29/2021	SJHATCHE	EPA 6020B
Sodium	2.2	mg/L	07/29/2021	SJHATCHE	EPA 6020B
Nitrate	0.35	mg/L	06/28/2021	KCWELLS	EPA 300.0
Total Organic Carbon	2.11	mg/L	06/28/2021	GEL	SM 5310B
Zinc	<10.0	ug/L	07/29/2021	SJHATCHE	EPA 6020B

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SANTEE COOPER ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

LAB CERTIFICATION #08552

Comments:

Independent Laboratory Results: "GEL" - GEL Laboratories LLC - Lab ID # 10120; "Test America" - TestAmerica Laboratories, Inc. - Lab ID# 98001; "DavisBrown"- Davis & Brown Lab ID # 21117; "Shealy"- Shealy Environmental Services, Inc.- Lab ID# 32010 "ROGERSCALLCO"- Rogers & Callcot, Inc.- Lab ID # 23105001

Analysis Validated: Linda Williams

Linda Williams - Supervisor Analytical Services

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SANTEE COOPER ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

LAB CERTIFICATION #08552

Sample # AE94872 **Location:** GW Well PM-1 **Date:** 01/26/2021 **Sample Collector:** ATH/DEW

Loc. Code PM-1 **Time:** 09:27

Analysis	Result	Units	Test Date	Analyst	Method
Arsenic	<5.00	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Arsenic Dissolved	<5.0	ug/L	02/04/2021	SJHATCHE	EPA 6020B
Barium	85.7	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Beryllium	<0.50	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Boron	<15	ug/L	02/09/2021	ROGERSNCALLC	EPA 6010D
Calcium	14.3	mg/L	02/09/2021	SJHATCHE	EPA 6020B
Cadmium	<0.50	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Cobalt	1.0	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Chromium	<5.0	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Iron	13300	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Mercury	<0.20	ug/L	02/09/2021	ROGERSNCALLC	EPA 7470
Lithium	<10	ug/L	02/05/2021	ROGERSNCALLC	EPA 6010D
Molybdenum	<10	ug/L	02/05/2021	ROGERSNCALLC	EPA 6010D
Lead	<1.0	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Antimony	<5.0	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Selenium	<10.0	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Thallium	<1.0	ug/L	02/10/2021	SJHATCHE	EPA 6020B
Radium 226	0.559	pCi/L	02/25/2021	GEL	EPA 903.1 Mod
Radium 228	2.88	pCi/L	02/23/2021	GEL	EPA 904.0
Radium 226/228 Combined Calculation	3.44	pCi/L	02/25/2021	GEL	EPA 903.1 Mod
Chloride	11.8	mg/L	01/27/2021	KCWELLS	EPA 300.0
Fluoride	<0.10	mg/L	01/27/2021	KCWELLS	EPA 300.0
Sulfate	9.98	mg/L	01/27/2021	KCWELLS	EPA 300.0
Total Dissolved Solids	110.0	mg/L	01/28/2021	KCWELLS	SM 2540C
pH	5.03	SU	01/26/2021	DEW/ATH	
Spec. Cond.	143	uS	01/26/2021	DEW/ATH	
Dissolved Oxygen	6.12	ppm	01/26/2021	DEW/ATH	
Oxidation Reduction Potential	1.00	mv	01/26/2021	DEW/ATH	SM2580
Temp	19.47	C	01/26/2021	DEW/ATH	
Turbidity	4.40	NTU	01/26/2021	DEW/ATH	
Depth	8.27	Feet	01/26/2021	DEW/ATH	
Elevation	74.97	Feet	02/12/2021	DEWEST	
Aluminum	<0.10	mg/L	02/09/2021	SJHATCHE	EPA 6020B
Potassium	0.57	mg/L	02/09/2021	SJHATCHE	EPA 6020B
Magnesium	0.77	mg/L	02/09/2021	SJHATCHE	EPA 6020B
Sodium	5.4	mg/L	02/09/2021	SJHATCHE	EPA 6020B
Nitrate	<0.10	mg/L	01/27/2021	KCWELLS	EPA 300.0
Total Organic Carbon	6.25	mg/L	02/04/2021	GEL	SM 5310B
Zinc	<10.0	ug/L	02/10/2021	SJHATCHE	EPA 6020B

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SANTEE COOPER ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

LAB CERTIFICATION #08552

Comments:

Independent Laboratory Results: "GEL" - GEL Laboratories LLC - Lab ID # 10120; "Test America" - TestAmerica Laboratories, Inc. - Lab ID# 98001; "DavisBrown"- Davis & Brown Lab ID # 21117; "Shealy"- Shealy Environmental Services, Inc.- Lab ID# 32010 "ROGERSCALLCO"- Rogers & Callcot, Inc.- Lab ID # 23105001

Analysis Validated: Linda Williams

Linda Williams - Supervisor Analytical Services

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CERTIFICATE OF ANALYSIS

LAB CERTIFICATION #08552

Sample # AF03824 **Location:** GW Well PM-1 **Date:** 05/13/2021 **Sample Collector:** MDG/BWM

Loc. Code PM-1 **Time:** 14:39

Analysis	Result	Units	Test Date	Analyst	Method
Depth	7.77	Feet	05/14/2021	MDG/BWM	
Elevation	75.47	Feet	05/17/2021	MDGOINGS	

Comments:

Independent Laboratory Results: "GEL" - GEL Laboratories LLC - Lab ID # 10120; "Test America" - TestAmerica Laboratories, Inc. - Lab ID# 98001; "DavisBrown"- Davis & Brown Lab ID # 21117; "Shealy"- Shealy Environmental Services, Inc.- Lab ID# 32010 "ROGERSCALLCO"- Rogers & Callcot, Inc.- Lab ID # 23105001

Analysis Validated: Linda Williams

Linda Williams - Supervisor Analytical Services

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CERTIFICATE OF ANALYSIS

LAB CERTIFICATION #08552

Sample # AF07281 **Location:** GW Well PM-1 **Date:** 06/21/2021 **Sample Collector:** MDG/BRT

Loc. Code PM-1 **Time:** 13:08

Analysis	Result	Units	Test Date	Analyst	Method
Arsenic	<5.0	ug/L	07/09/2021	SJHATCHE	EPA 6020B
Arsenic Dissolved	<5.0	ug/L	07/06/2021	SJHATCHE	EPA 6020B
Barium	87.3	ug/L	07/09/2021	SJHATCHE	EPA 6020B
Beryllium	<0.50	ug/L	07/09/2021	SJHATCHE	EPA 6020B
Boron	<15	ug/L	07/05/2021	R&C	EPA 6010D
Calcium	17.0	mg/L	07/09/2021	SJHATCHE	EPA 6020B
Cadmium	<0.50	ug/L	07/09/2021	SJHATCHE	EPA 6020B
Cobalt	0.94	ug/L	07/09/2021	SJHATCHE	EPA 6020B
Chromium	<5.0	ug/L	07/09/2021	SJHATCHE	EPA 6020B
Iron	14800	ug/L	07/09/2021	SJHATCHE	EPA 6020B
Mercury	<0.2	ug/L	07/05/2021	R&C	EPA 7470
Lithium	<10	ug/L	07/05/2021	R&C	EPA 6010D
Molybdenum	<10	ug/L	07/05/2021	R&C	EPA 6010D
Lead	<1.0	ug/L	07/09/2021	SJHATCHE	EPA 6020B
Antimony	<5.0	ug/L	07/09/2021	SJHATCHE	EPA 6020B
Selenium	<10.0	ug/L	07/09/2021	SJHATCHE	EPA 6020B
Thallium	<1.0	ug/L	07/09/2021	SJHATCHE	EPA 6020B
Radium 226	0.369	pCi/L	07/13/2021	GEL	EPA 903.1 Mod
Radium 228	1.73	pCi/L	07/06/2021	GEL	EPA 904.0
Radium 226/228 Combined Calculation	2.10	pCi/L	07/20/2021	GEL	EPA 903.1 Mod
Chloride	12.0	mg/L	06/28/2021	KCWELLS	EPA 300.0
Fluoride	<0.10	mg/L	06/28/2021	KCWELLS	EPA 300.0
Sulfate	11.9	mg/L	06/28/2021	KCWELLS	EPA 300.0
Total Dissolved Solids	155.0	mg/L	06/29/2021	SJBROWN	SM 2540C
pH	5.21	SU	06/21/2021	MDG/BRT	
Spec. Cond.	169	uS	06/21/2021	MDG/BRT	
Dissolved Oxygen	3.96	ppm	06/21/2021	MDG/BRT	
Oxidation Reduction Potential	45.0	mv	06/21/2021	MDG/BRT	SM2580
Temp	26.49	C	06/21/2021	MDG/BRT	
Turbidity	4.30	NTU	06/21/2021	MDG/BRT	
Depth	7.91	Feet	06/21/2021	MDG/BRT	
Elevation	75.33	Feet	07/14/2021	BRTAYLOR	
Aluminum	<0.10	mg/L	07/09/2021	SJHATCHE	EPA 6020B
Potassium	0.60	mg/L	07/09/2021	SJHATCHE	EPA 6020B
Magnesium	0.79	mg/L	07/09/2021	SJHATCHE	EPA 6020B
Sodium	5.1	mg/L	07/09/2021	SJHATCHE	EPA 6020B
Nitrate	0.18	mg/L	06/28/2021	KCWELLS	EPA 300.0
Total Organic Carbon	6.57	mg/L	06/28/2021	GEL	SM 5310B
Zinc	10.8	ug/L	07/09/2021	SJHATCHE	EPA 6020B

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CERTIFICATE OF ANALYSIS

LAB CERTIFICATION #08552

Comments:

Independent Laboratory Results: "GEL" - GEL Laboratories LLC - Lab ID # 10120; "Test America" - TestAmerica Laboratories, Inc. - Lab ID# 98001; "DavisBrown"- Davis & Brown Lab ID # 21117; "Shealy"- Shealy Environmental Services, Inc.- Lab ID# 32010 "ROGERSCALLCO"- Rogers & Callcot, Inc.- Lab ID # 23105001

Analysis Validated: Linda Williams

Linda Williams - Supervisor Analytical Services

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SANTEE COOPER ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

LAB CERTIFICATION #08552

Sample # AE94874 **Location:** GW Well POZ-4 **Date:** 01/28/2021 **Sample Collector:** ATH/DEW

Loc. Code POZ-4 **Time:** 11:43

Analysis	Result	Units	Test Date	Analyst	Method
Arsenic	<5.00	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Arsenic Dissolved	<5.0	ug/L	02/04/2021	SJHATCHE	EPA 6020B
Barium	161	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Beryllium	<0.50	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Boron	<15	ug/L	02/10/2021	ROGERSNCALLC	EPA 6010D
Cadmium	<0.50	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Cobalt	32.3	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Chromium	<5.0	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Iron	339	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Mercury	<0.20	ug/L	02/09/2021	ROGERSNCALLC	EPA 7470
Lithium	<10	ug/L	02/05/2021	ROGERSNCALLC	EPA 6010D
Molybdenum	<10	ug/L	02/05/2021	ROGERSNCALLC	EPA 6010D
Lead	<1.0	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Antimony	<5.0	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Selenium	<10.0	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Thallium	<1.0	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Radium 226	0.792	pCi/L	02/25/2021	GEL	EPA 903.1 Mod
Radium 228	1.43	pCi/L	02/23/2021	GEL	EPA 904.0
Radium 226/228 Combined Calculation	2.22	pCi/L	02/25/2021	GEL	EPA 903.1 Mod
Chloride	385	mg/L	01/27/2021	KCWELLS	EPA 300.0
Fluoride	<0.10	mg/L	01/27/2021	KCWELLS	EPA 300.0
Sulfate	98.1	mg/L	01/27/2021	KCWELLS	EPA 300.0
Total Dissolved Solids	1395	mg/L	02/02/2021	KCWELLS	SM 2540C
pH	6.33	SU	01/28/2021	DEW/ATH	
Spec. Cond.	1470	uS	01/28/2021	DEW/ATH	
Dissolved Oxygen	1.02	ppm	01/28/2021	DEW/ATH	
Oxidation Reduction Potential	62.0	mv	01/28/2021	DEW/ATH	SM2580
Temp	15.64	C	01/28/2021	DEW/ATH	
Turbidity	0	NTU	01/28/2021	DEW/ATH	
Depth	4.39	Feet	01/28/2021	DEW/ATH	
Elevation	78.34	Feet	02/12/2021	DEWEST	
Nitrate	<0.10	mg/L	01/27/2021	KCWELLS	EPA 300.0
Total Organic Carbon	1.85	mg/L	02/03/2021	GEL	SM 5310B
Zinc	<10.0	ug/L	02/10/2021	SJHATCHE	EPA 6020B

Comments:

Independent Laboratory Results: "GEL" - GEL Laboratories LLC - Lab ID # 10120; "Test America" - TestAmerica Laboratories, Inc. - Lab ID# 98001; "DavisBrown"- Davis & Brown Lab ID # 21117; "Shealy"- Shealy Environmental Services, Inc.- Lab ID# 32010 "ROGERSCALLCO"- Rogers & Callcot, Inc.- Lab ID # 23105001

Analysis Validated: Linda Williams

Linda Williams - Supervisor Analytical Services

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SANTEE COOPER ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

LAB CERTIFICATION #08552

Sample # AF07283 **Location:** GW Well POZ-4 **Date:** 06/23/2021 **Sample Collector:** BRT/ML

Loc. Code POZ-4 **Time:** 13:55

Analysis	Result	Units	Test Date	Analyst	Method
Arsenic	<5.0	ug/L	08/05/2021	SJHATCHE	EPA 6020B
Arsenic Dissolved	<5.0	ug/L	07/28/2021	SJHATCHE	EPA 6020B
Barium	136	ug/L	08/05/2021	SJHATCHE	EPA 6020B
Beryllium	0.51	ug/L	08/05/2021	SJHATCHE	EPA 6020B
Boron	<15	ug/L	07/05/2021	R&C	EPA 6010D
Calcium	356	mg/L	08/05/2021	SJHATCHE	EPA 6020B
Cadmium	<0.50	ug/L	08/05/2021	SJHATCHE	EPA 6020B
Cobalt	90.5	ug/L	08/05/2021	SJHATCHE	EPA 6020B
Chromium	<5.0	ug/L	08/05/2021	SJHATCHE	EPA 6020B
Iron	634	ug/L	08/05/2021	SJHATCHE	EPA 6020B
Lead	<1.0	ug/L	08/05/2021	SJHATCHE	EPA 6020B
Selenium	<10.0	ug/L	08/05/2021	SJHATCHE	EPA 6020B
Radium 226	0.244	pCi/L	07/13/2021	GEL	EPA 903.1 Mod
Radium 228	-0.898	pCi/L	07/06/2021	GEL	EPA 904.0
Radium 226/228 Combined Calculation	0.244	pCi/L	07/20/2021	GEL	EPA 903.1 Mod
Chloride	555	mg/L	07/03/2021	KCWELLS	EPA 300.0
Fluoride	<0.10	mg/L	06/30/2021	KCWELLS	EPA 300.0
Sulfate	144	mg/L	07/03/2021	KCWELLS	EPA 300.0
Total Dissolved Solids	2028	mg/L	06/29/2021	SJBROWN	SM 2540C
pH	6.13	SU	06/23/2021	BRT/ML	
Spec. Cond.	1930	uS	06/23/2021	BRT/ML	
Dissolved Oxygen	0.280	ppm	06/23/2021	BRT/ML	
Oxidation Reduction Potential	42.0	mv	06/23/2021	BRT/ML	SM2580
Temp	30.37	C	06/23/2021	BRT/ML	
Turbidity	8.50	NTU	06/23/2021	BRT/ML	
Depth	7.74	Feet	06/23/2021	BRT/ML	
Elevation	74.99	Feet	07/14/2021	BRTAYLOR	
Nitrate	<0.10	mg/L	06/30/2021	KCWELLS	EPA 300.0
Total Organic Carbon	1.94	mg/L	06/28/2021	GEL	SM 5310B
Zinc	12.2	ug/L	08/05/2021	SJHATCHE	EPA 6020B

Comments:

Independent Laboratory Results: "GEL" - GEL Laboratories LLC - Lab ID # 10120; "Test America" - TestAmerica Laboratories, Inc. - Lab ID# 98001; "DavisBrown"- Davis & Brown Lab ID # 21117; "Shealy"- Shealy Environmental Services, Inc.- Lab ID# 32010 "ROGERSCALLCO"- Rogers & Callcot, Inc.- Lab ID # 23105001

Analysis Validated: Linda Williams

Linda Williams - Supervisor Analytical Services

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SANTEE COOPER ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

LAB CERTIFICATION #08552

Sample # AE94876 **Location:** GW Well POZ-6 **Date:** 01/28/2021 **Sample Collector:** ATH/DEW

Loc. Code POZ-6 **Time:** 14:34

Analysis	Result	Units	Test Date	Analyst	Method
Arsenic	<5.00	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Arsenic Dissolved	<5.0	ug/L	02/04/2021	SJHATCHE	EPA 6020B
Barium	60.4	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Beryllium	<0.50	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Boron	44	ug/L	02/09/2021	ROGERSNCALLC	EPA 6010D
Cadmium	<0.50	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Cobalt	3.2	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Chromium	<5.0	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Iron	11000	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Mercury	<0.20	ug/L	02/09/2021	ROGERSNCALLC	EPA 7470
Lithium	<10	ug/L	02/05/2021	ROGERSNCALLC	EPA 6010D
Molybdenum	<10	ug/L	02/05/2021	ROGERSNCALLC	EPA 6010D
Lead	<1.0	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Antimony	<5.0	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Selenium	<10.0	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Thallium	<1.0	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Radium 226	0.517	pCi/L	02/25/2021	GEL	EPA 903.1 Mod
Radium 228	0.718	pCi/L	02/23/2021	GEL	EPA 904.0
Radium 226/228 Combined Calculation	1.23	pCi/L	02/25/2021	GEL	EPA 903.1 Mod
Chloride	302	mg/L	01/27/2021	KCWELLS	EPA 300.0
Fluoride	<0.10	mg/L	01/27/2021	KCWELLS	EPA 300.0
Sulfate	459	mg/L	01/27/2021	KCWELLS	EPA 300.0
Total Dissolved Solids	1674	mg/L	02/02/2021	KCWELLS	SM 2540C
pH	6.57	SU	01/28/2021	DEW/ATH	
Spec. Cond.	2270	uS	01/28/2021	DEW/ATH	
Dissolved Oxygen	0.600	ppm	01/28/2021	DEW/ATH	
Oxidation Reduction Potential	-64.0	mv	01/28/2021	DEW/ATH	SM2580
Temp	18.87	C	01/28/2021	DEW/ATH	
Turbidity	18.2	NTU	01/28/2021	DEW/ATH	
Depth	5.58	Feet	01/28/2021	DEW/ATH	
Elevation	78.26	Feet	02/12/2021	DEWEST	
Nitrate	<0.10	mg/L	01/27/2021	KCWELLS	EPA 300.0
Total Organic Carbon	2.54	mg/L	02/03/2021	GEL	SM 5310B
Zinc	10.4	ug/L	02/10/2021	SJHATCHE	EPA 6020B

Comments:

Independent Laboratory Results: "GEL" - GEL Laboratories LLC - Lab ID # 10120; "Test America" - TestAmerica Laboratories, Inc. - Lab ID# 98001; "DavisBrown"- Davis & Brown Lab ID # 21117; "Shealy"- Shealy Environmental Services, Inc.- Lab ID# 32010 "ROGERSCALLCO"- Rogers & Callcot, Inc.- Lab ID # 23105001

Analysis Validated: Linda Williams

Linda Williams - Supervisor Analytical Services

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SANTEE COOPER ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

LAB CERTIFICATION #08552

Sample # AF07285 **Location:** GW Well POZ-6 **Date:** 06/23/2021 **Sample Collector:** BRT/ML

Loc. Code POZ-6 **Time:** 15:04

Analysis	Result	Units	Test Date	Analyst	Method
Arsenic	<5.0	ug/L	08/05/2021	SJHATCHE	EPA 6020B
Arsenic Dissolved	<5.0	ug/L	07/28/2021	SJHATCHE	EPA 6020B
Barium	49.9	ug/L	08/09/2021	SJHATCHE	EPA 6020B
Beryllium	<0.50	ug/L	08/05/2021	SJHATCHE	EPA 6020B
Boron	41.0	ug/L	07/05/2021	R&C	EPA 6010D
Calcium	414	mg/L	08/05/2021	SJHATCHE	EPA 6020B
Cadmium	<0.50	ug/L	08/05/2021	SJHATCHE	EPA 6020B
Cobalt	2.2	ug/L	08/05/2021	SJHATCHE	EPA 6020B
Chromium	<5.0	ug/L	08/05/2021	SJHATCHE	EPA 6020B
Iron	7000	ug/L	08/09/2021	SJHATCHE	EPA 6020B
Lead	<1.0	ug/L	08/09/2021	SJHATCHE	EPA 6020B
Selenium	<10.0	ug/L	08/05/2021	SJHATCHE	EPA 6020B
Radium 226	0.170	pCi/L	07/20/2021	GEL	EPA 903.1 Mod
Radium 228	0.801	pCi/L	07/06/2021	GEL	EPA 904.0
Radium 226/228 Combined Calculation	0.971	pCi/L	07/20/2021	GEL	EPA 903.1 Mod
Chloride	276	mg/L	06/30/2021	KCWELLS	EPA 300.0
Fluoride	<0.10	mg/L	06/30/2021	KCWELLS	EPA 300.0
Sulfate	441	mg/L	06/30/2021	KCWELLS	EPA 300.0
Total Dissolved Solids	1886	mg/L	06/29/2021	SJBROWN	SM 2540C
pH	6.57	SU	06/23/2021	BRT/ML	
Spec. Cond.	1940	uS	06/23/2021	BRT/ML	
Dissolved Oxygen	0.370	ppm	06/23/2021	BRT/ML	
Oxidation Reduction Potential	-24.0	mv	06/23/2021	BRT/ML	SM2580
Temp	24.57	C	06/23/2021	BRT/ML	
Turbidity	35.4	NTU	06/23/2021	BRT/ML	
Depth	9.38	Feet	06/23/2021	BRT/ML	
Elevation	74.46	Feet	07/14/2021	BRTAYLOR	
Nitrate	<0.10	mg/L	06/30/2021	KCWELLS	EPA 300.0
Total Organic Carbon	2.71	mg/L	06/28/2021	GEL	SM 5310B
Zinc	<10.0	ug/L	08/05/2021	SJHATCHE	EPA 6020B

Comments:

Independent Laboratory Results: "GEL" - GEL Laboratories LLC - Lab ID # 10120; "Test America" - TestAmerica Laboratories, Inc. - Lab ID# 98001; "DavisBrown"- Davis & Brown Lab ID # 21117; "Shealy"- Shealy Environmental Services, Inc.- Lab ID# 32010 "ROGERSCALLCO"- Rogers & Callcot, Inc.- Lab ID # 23105001

Analysis Validated: Linda Williams

Linda Williams - Supervisor Analytical Services

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SANTEE COOPER ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

LAB CERTIFICATION #08552

Sample # AE94877 **Location:** GW Well POZ-7 **Date:** 01/28/2021 **Sample Collector:** ATH/DEW

Loc. Code POZ-7 **Time:** 09:15

Analysis	Result	Units	Test Date	Analyst	Method
Arsenic	<5.00	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Arsenic Dissolved	<5.0	ug/L	02/04/2021	SJHATCHE	EPA 6020B
Barium	123	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Beryllium	0.74	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Boron	<15	ug/L	02/09/2021	ROGERSNCALLC	EPA 6010D
Cadmium	<0.50	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Cobalt	2.4	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Chromium	<5.0	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Iron	331	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Mercury	<0.20	ug/L	02/09/2021	ROGERSNCALLC	EPA 7470
Lithium	<10	ug/L	02/05/2021	ROGERSNCALLC	EPA 6010D
Molybdenum	<10	ug/L	02/05/2021	ROGERSNCALLC	EPA 6010D
Lead	<1.0	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Antimony	<5.0	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Selenium	<10.0	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Thallium	<1.0	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Radium 226	1.28	pCi/L	02/25/2021	GEL	EPA 903.1 Mod
Radium 228	0.175	pCi/L	02/23/2021	GEL	EPA 904.0
Radium 226/228 Combined Calculation	1.45	pCi/L	02/25/2021	GEL	EPA 903.1 Mod
Chloride	24.8	mg/L	01/27/2021	KCWELLS	EPA 300.0
Fluoride	<0.10	mg/L	01/27/2021	KCWELLS	EPA 300.0
Sulfate	<2.0	mg/L	01/27/2021	KCWELLS	EPA 300.0
Total Dissolved Solids	121.2	mg/L	02/02/2021	KCWELLS	SM 2540C
pH	4.81	SU	01/28/2021	DEW/ATH	
Spec. Cond.	93.0	uS	01/28/2021	DEW/ATH	
Dissolved Oxygen	7.92	ppm	01/28/2021	DEW/ATH	
Oxidation Reduction Potential	214	mv	01/28/2021	DEW/ATH	SM2580
Temp	16.99	C	01/28/2021	DEW/ATH	
Turbidity	0.600	NTU	01/28/2021	DEW/ATH	
Depth	4.99	Feet	01/28/2021	DEW/ATH	
Elevation	77.03	Feet	02/12/2021	DEWEST	
Nitrate	<0.10	mg/L	01/27/2021	KCWELLS	EPA 300.0
Total Organic Carbon	<1	mg/L	02/03/2021	GEL	SM 5310B
Zinc	10.1	ug/L	02/10/2021	SJHATCHE	EPA 6020B

Comments:

Independent Laboratory Results: "GEL" - GEL Laboratories LLC - Lab ID # 10120; "Test America" - TestAmerica Laboratories, Inc. - Lab ID# 98001; "DavisBrown"- Davis & Brown Lab ID # 21117; "Shealy"- Shealy Environmental Services, Inc.- Lab ID# 32010 "ROGERSCALLCO"- Rogers & Callcot, Inc.- Lab ID # 23105001

Analysis Validated: Linda Williams

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SANTEE COOPER ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

LAB CERTIFICATION #08552

Sample # AE94878 **Location:** GW Well POZ-7 **Date:** 01/28/2021 **Sample Collector:** ATH/DEW

Loc. Code POZ-7 DUP **Time:** 09:20

Analysis	Result	Units	Test Date	Analyst	Method
Arsenic	<5.00	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Arsenic Dissolved	<5.0	ug/L	02/04/2021	SJHATCHE	EPA 6020B
Barium	132	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Beryllium	0.67	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Boron	<15	ug/L	02/09/2021	ROGERSNCALLC	EPA 6010D
Cadmium	<0.50	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Cobalt	1.4	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Chromium	<5.0	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Iron	138	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Mercury	<0.20	ug/L	02/09/2021	ROGERSNCALLC	EPA 7470
Lithium	<10	ug/L	02/05/2021	ROGERSNCALLC	EPA 6010D
Molybdenum	<10	ug/L	02/05/2021	ROGERSNCALLC	EPA 6010D
Lead	<1.0	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Antimony	<5.0	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Selenium	<10.0	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Thallium	<1.0	ug/L	02/09/2021	SJHATCHE	EPA 6020B
Radium 226	2.27	pCi/L	02/25/2021	GEL	EPA 903.1 Mod
Radium 228	-0.568	pCi/L	02/23/2021	GEL	EPA 904.0
Radium 226/228 Combined Calculation	2.27	pCi/L	02/25/2021	GEL	EPA 903.1 Mod
Chloride	25.1	mg/L	01/27/2021	KCWELLS	EPA 300.0
Fluoride	<0.10	mg/L	01/27/2021	KCWELLS	EPA 300.0
Sulfate	<2.0	mg/L	01/27/2021	KCWELLS	EPA 300.0
Total Dissolved Solids	76.25	mg/L	02/02/2021	KCWELLS	SM 2540C
Nitrate	<0.10	mg/L	01/27/2021	KCWELLS	EPA 300.0
Total Organic Carbon	<1	mg/L	02/03/2021	GEL	SM 5310B
Zinc	15.1	ug/L	02/10/2021	SJHATCHE	EPA 6020B

Comments:

Independent Laboratory Results: "GEL" - GEL Laboratories LLC - Lab ID # 10120; "Test America" - TestAmerica Laboratories, Inc. - Lab ID# 98001; "DavisBrown"- Davis & Brown Lab ID # 21117; "Shealy"- Shealy Environmental Services, Inc.- Lab ID# 32010 "ROGERSCALLCO"- Rogers & Callcot, Inc.- Lab ID # 23105001

Analysis Validated: Linda Williams

Linda Williams - Supervisor Analytical Services

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CERTIFICATE OF ANALYSIS

LAB CERTIFICATION #08552

Sample # AF07286 **Location:** GW Well POZ-7 **Date:** 06/24/2021 **Sample Collector:** BRT/ML

Loc. Code POZ-7 **Time:** 10:40

Analysis	Result	Units	Test Date	Analyst	Method
Arsenic	<5.0	ug/L	08/05/2021	SJHATCHE	EPA 6020B
Arsenic Dissolved	<5.0	ug/L	07/28/2021	SJHATCHE	EPA 6020B
Barium	303	ug/L	08/09/2021	SJHATCHE	EPA 6020B
Beryllium	<0.50	ug/L	08/05/2021	SJHATCHE	EPA 6020B
Boron	<15	ug/L	07/05/2021	R&C	EPA 6010D
Calcium	82.4	mg/L	08/05/2021	SJHATCHE	EPA 6020B
Cadmium	<0.50	ug/L	08/05/2021	SJHATCHE	EPA 6020B
Cobalt	<0.50	ug/L	08/05/2021	SJHATCHE	EPA 6020B
Chromium	<5.0	ug/L	08/05/2021	SJHATCHE	EPA 6020B
Iron	108	ug/L	08/09/2021	SJHATCHE	EPA 6020B
Lead	<1.0	ug/L	08/09/2021	SJHATCHE	EPA 6020B
Selenium	<10.0	ug/L	08/05/2021	SJHATCHE	EPA 6020B
Radium 226	0.124	pCi/L	07/13/2021	GEL	EPA 903.1 Mod
Radium 228	1.50	pCi/L	07/06/2021	GEL	EPA 904.0
Radium 226/228 Combined Calculation	1.63	pCi/L	07/20/2021	GEL	EPA 903.1 Mod
Chloride	135	mg/L	07/03/2021	KCWELLS	EPA 300.0
Fluoride	<0.10	mg/L	06/30/2021	KCWELLS	EPA 300.0
Sulfate	10.1	mg/L	06/30/2021	KCWELLS	EPA 300.0
Total Dissolved Solids	626.2	mg/L	07/02/2021	SJBROWN	SM 2540C
pH	5.88	SU	06/24/2021	BRT/ML	
Spec. Cond.	457	uS	06/24/2021	BRT/ML	
Dissolved Oxygen	1.28	ppm	06/24/2021	BRT/ML	
Oxidation Reduction Potential	123	mv	06/24/2021	BRT/ML	SM2580
Temp	23.27	C	06/24/2021	BRT/ML	
Turbidity	0	NTU	06/24/2021	BRT/ML	
Depth	7.51	Feet	06/24/2021	BRT/ML	
Elevation	74.51	Feet	07/14/2021	BRTAYLOR	
Nitrate	<0.10	mg/L	06/30/2021	KCWELLS	EPA 300.0
Total Organic Carbon	<1.00	mg/L	06/28/2021	GEL	SM 5310B
Zinc	10.5	ug/L	08/05/2021	SJHATCHE	EPA 6020B

Comments:

Independent Laboratory Results: "GEL" - GEL Laboratories LLC - Lab ID # 10120; "Test America" - TestAmerica Laboratories, Inc. - Lab ID# 98001; "DavisBrown"- Davis & Brown Lab ID # 21117; "Shealy"- Shealy Environmental Services, Inc.- Lab ID# 32010 "ROGERSCALLCO"- Rogers & Callcot, Inc.- Lab ID # 23105001

Analysis Validated: Linda Williams

Linda Williams - Supervisor Analytical Services

santee cooper

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Moncks Corner, SC 29461-2901
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SANTEE COOPER ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

LAB CERTIFICATION #08552

Sample # AF07287 **Location:** GW Well POZ-7 **Date:** 06/24/2021 **Sample Collector:** BRT/ML

Loc. Code POZ-7 DUP **Time:** 10:45

Analysis	Result	Units	Test Date	Analyst	Method
Arsenic	<5.0	ug/L	08/05/2021	SJHATCHE	EPA 6020B
Arsenic Dissolved	<5.0	ug/L	07/28/2021	SJHATCHE	EPA 6020B
Barium	311	ug/L	08/09/2021	SJHATCHE	EPA 6020B
Beryllium	<0.50	ug/L	08/05/2021	SJHATCHE	EPA 6020B
Boron	15.0	ug/L	07/05/2021	R&C	EPA 6010D
Calcium	88.5	mg/L	08/05/2021	SJHATCHE	EPA 6020B
Cadmium	<0.50	ug/L	08/05/2021	SJHATCHE	EPA 6020B
Cobalt	<0.50	ug/L	08/05/2021	SJHATCHE	EPA 6020B
Chromium	<5.0	ug/L	08/05/2021	SJHATCHE	EPA 6020B
Iron	169	ug/L	08/09/2021	SJHATCHE	EPA 6020B
Lead	<1.0	ug/L	08/09/2021	SJHATCHE	EPA 6020B
Selenium	<10.0	ug/L	08/05/2021	SJHATCHE	EPA 6020B
Radium 226	0.862	pCi/L	07/20/2021	GEL	EPA 903.1 Mod
Radium 228	0.116	pCi/L	07/06/2021	GEL	EPA 904.0
Radium 226/228 Combined Calculation	0.977	pCi/L	07/20/2021	GEL	EPA 903.1 Mod
Chloride	142	mg/L	07/06/2021	KCWELLS	EPA 300.0
Fluoride	<0.10	mg/L	06/30/2021	KCWELLS	EPA 300.0
Sulfate	10.8	mg/L	06/30/2021	KCWELLS	EPA 300.0
Total Dissolved Solids	532.5	mg/L	07/02/2021	SJBROWN	SM 2540C
Nitrate	<0.10	mg/L	06/30/2021	KCWELLS	EPA 300.0
Total Organic Carbon	<1.00	mg/L	06/28/2021	GEL	SM 5310B
Zinc	<10.0	ug/L	08/05/2021	SJHATCHE	EPA 6020B

Comments:

Independent Laboratory Results: "GEL" - GEL Laboratories LLC - Lab ID # 10120; "Test America" - TestAmerica Laboratories, Inc. - Lab ID# 98001; "DavisBrown"- Davis & Brown Lab ID # 21117; "Shealy"- Shealy Environmental Services, Inc.- Lab ID# 32010 "ROGERSCALLCO"- Rogers & Callcot, Inc.- Lab ID # 23105001

Analysis Validated: Linda Williams

Linda Williams - Supervisor Analytical Services

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SANTEE COOPER ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

LAB CERTIFICATION #08552

Sample # AE94879 **Location:** GW Well POZ-8 **Date:** 01/28/2021 **Sample Collector:** ATH/DEW

Loc. Code POZ-8 **Time:** 13:34

Analysis	Result	Units	Test Date	Analyst	Method
Cobalt	<0.50	ug/L	02/09/2021	SJHATCHE	EPA 6020B
pH	6.48	SU	01/28/2021	DEW/ATH	
Spec. Cond.	4590	uS	01/28/2021	DEW/ATH	
Dissolved Oxygen	0.660	ppm	01/28/2021	DEW/ATH	
Oxidation Reduction Potential	-55.0	mv	01/28/2021	DEW/ATH	SM2580
Temp	16.14	C	01/28/2021	DEW/ATH	
Turbidity	2.60	NTU	01/28/2021	DEW/ATH	
Depth	5.21	Feet	01/28/2021	DEW/ATH	
Elevation	77.92	Feet	02/12/2021	DEWEST	

Comments:

Independent Laboratory Results: "GEL" - GEL Laboratories LLC - Lab ID # 10120; "Test America" - TestAmerica Laboratories, Inc. - Lab ID# 98001; "DavisBrown"- Davis & Brown Lab ID # 21117; "Shealy"- Shealy Environmental Services, Inc.- Lab ID# 32010 "ROGERSCALLCO"- Rogers & Callcot, Inc.- Lab ID # 23105001

Analysis Validated: Linda Williams

Linda Williams - Supervisor Analytical Services

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SANTEE COOPER ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

LAB CERTIFICATION #08552

Sample # AF07288 **Location:** GW Well POZ-8 **Date:** 06/23/2021 **Sample Collector:** BRT/ML

Loc. Code POZ-8 **Time:** 11:33

Analysis	Result	Units	Test Date	Analyst	Method
Cobalt	<0.50	ug/L	07/29/2021	SJHATCHE	EPA 6020B
pH	6.66	SU	06/23/2021	BRT/ML	
Spec. Cond.	2330	uS	06/23/2021	BRT/ML	
Dissolved Oxygen	0.420	ppm	06/23/2021	BRT/ML	
Oxidation Reduction Potential	-74.0	mv	06/23/2021	BRT/ML	SM2580
Temp	24.87	C	06/23/2021	BRT/ML	
Turbidity	1.40	NTU	06/23/2021	BRT/ML	
Depth	8.45	Feet	06/23/2021	BRT/ML	
Elevation	74.68	Feet	07/14/2021	BRTAYLOR	

Comments:

Independent Laboratory Results: "GEL" - GEL Laboratories LLC - Lab ID # 10120; "Test America" - TestAmerica Laboratories, Inc. - Lab ID# 98001; "DavisBrown"- Davis & Brown Lab ID # 21117; "Shealy"- Shealy Environmental Services, Inc.- Lab ID# 32010 "ROGERSCALLCO"- Rogers & Callcot, Inc.- Lab ID # 23105001

Analysis Validated: Linda Williams

Linda Williams - Supervisor Analytical Services

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Moncks Corner, SC 29461-2901
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SANTEE COOPER ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

LAB CERTIFICATION #08552

Sample # AE94859 **Location:** GW Well CCMLF-1 **Date:** 02/11/2021 **Sample Collector:** MDG/DEW

Loc. Code CCMLF-1 **Time:** 10:38

Analysis	Result	Units	Test Date	Analyst	Method
Cobalt	4.7	ug/L	02/19/2021	SJHATCHE	EPA 6020B
pH	5.07	SU	02/11/2021	DEW/MDG	
Spec. Cond.	107	uS	02/11/2021	DEW/MDG	
Dissolved Oxygen	1.09	ppm	02/11/2021	DEW/MDG	
Oxidation Reduction Potential	174	mv	02/11/2021	DEW/MDG	SM2580
Temp	17.99	C	02/11/2021	DEW/MDG	
Turbidity	2.60	NTU	02/11/2021	DEW/MDG	
Depth	3.44	Feet	02/11/2021	DEW/MDG	
Elevation	77.42	Feet	02/12/2021	DEWEST	

Comments:

Independent Laboratory Results: "GEL" - GEL Laboratories LLC - Lab ID # 10120; "Test America" - TestAmerica Laboratories, Inc. - Lab ID# 98001; "DavisBrown"- Davis & Brown Lab ID # 21117; "Shealy"- Shealy Environmental Services, Inc.- Lab ID# 32010 "ROGERSCALLCO"- Rogers & Callcot, Inc.- Lab ID # 23105001

Analysis Validated: Linda Williams

Linda Williams - Supervisor Analytical Services

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SANTEE COOPER ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

LAB CERTIFICATION #08552

Sample # AF07260 **Location:** GW Well CCMLF-1 **Date:** 07/06/2021 **Sample Collector:** BRT/MDG

Loc. Code CCMLF-1 **Time:** 10:39

Analysis	Result	Units	Test Date	Analyst	Method
Cobalt	1.5	ug/L	07/29/2021	SJHATCHE	EPA 6020B
pH	5.57	SU	07/14/2021	BRTAYLOR	
Spec. Cond.	128	uS	07/06/2021	MDG/BRT	
Dissolved Oxygen	6.07	ppm	07/14/2021	BRTAYLOR	
Oxidation Reduction Potential	114	mv	07/14/2021	BRTAYLOR	SM2580
Temp	25.42	C	07/14/2021	BRTAYLOR	
Turbidity	82.5	NTU	07/14/2021	BRTAYLOR	
Depth	7.09	Feet	07/06/2021	MDG/BRT	
Elevation	73.77	Feet	07/14/2021	BRTAYLOR	

Comments:

Independent Laboratory Results: "GEL" - GEL Laboratories LLC - Lab ID # 10120; "Test America" - TestAmerica Laboratories, Inc. - Lab ID# 98001; "DavisBrown"- Davis & Brown Lab ID # 21117; "Shealy"- Shealy Environmental Services, Inc.- Lab ID# 32010 "ROGERSCALLCO"- Rogers & Callcot, Inc.- Lab ID # 23105001

Analysis Validated: Linda Williams

Linda Williams - Supervisor Analytical Services

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SANTEE COOPER ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

LAB CERTIFICATION #08552

Sample # AE94860 **Location:** GW Well CCMLF-1D **Date:** 02/11/2021 **Sample Collector:** MDG/DEW

Loc. Code CCMLF-1D **Time:** 11:16

Analysis	Result	Units	Test Date	Analyst	Method
Cobalt	<0.50	ug/L	02/19/2021	SJHATCHE	EPA 6020B
pH	7.11	SU	02/11/2021	DEW/MDG	
Spec. Cond.	253	uS	02/11/2021	DEW/MDG	
Dissolved Oxygen	1.14	ppm	02/11/2021	DEW/MDG	
Oxidation Reduction Potential	123	mv	02/11/2021	DEW/MDG	SM2580
Temp	17.99	C	02/11/2021	DEW/MDG	
Turbidity	5.00	NTU	02/11/2021	DEW/MDG	
Depth	3.27	Feet	02/11/2021	DEW/MDG	
Elevation	77.38	Feet	02/12/2021	DEWEST	

Comments:

Independent Laboratory Results: "GEL" - GEL Laboratories LLC - Lab ID # 10120; "Test America" - TestAmerica Laboratories, Inc. - Lab ID# 98001; "DavisBrown"- Davis & Brown Lab ID # 21117; "Shealy"- Shealy Environmental Services, Inc.- Lab ID# 32010 "ROGERSCALLCO"- Rogers & Callcot, Inc.- Lab ID # 23105001

Analysis Validated: Linda Williams

Linda Williams - Supervisor Analytical Services

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SANTEE COOPER ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

LAB CERTIFICATION #08552

Sample # AF07261 **Location:** GW Well CCMLF-1D **Date:** 07/06/2021 **Sample Collector:** BRT/MDG

Loc. Code CCMLF-1D **Time:** 11:10

Analysis	Result	Units	Test Date	Analyst	Method
Cobalt	<0.50	ug/L	07/29/2021	SJHATCHE	EPA 6020B
pH	5.81	SU	07/07/2021	MDG/BRT	
Spec. Cond.	249	uS	07/21/2021	BRTAYLOR	
Dissolved Oxygen	6.01	ppm	07/07/2021	MDG/BRT	
Oxidation Reduction Potential	116	mv	07/07/2021	MDG/BRT	SM2580
Temp	28.07	C	07/07/2021	MDG/BRT	
Turbidity	76.1	NTU	07/07/2021	MDG/BRT	
Depth	6.85	Feet	07/07/2021	MDG/BRT	
Elevation	73.80	Feet	07/14/2021	BRTAYLOR	

Comments:

Independent Laboratory Results: "GEL" - GEL Laboratories LLC - Lab ID # 10120; "Test America" - TestAmerica Laboratories, Inc. - Lab ID# 98001; "DavisBrown"- Davis & Brown Lab ID # 21117; "Shealy"- Shealy Environmental Services, Inc.- Lab ID# 32010 "ROGERSCALLCO"- Rogers & Callcot, Inc.- Lab ID # 23105001

Analysis Validated: Linda Williams

Linda Williams - Supervisor Analytical Services

Rogers & Callcott ENVIRONMENTAL

Laboratory Services

Laboratory Report

Client	Santee Cooper Linda Williams 1 Riverwood Dr. Moncks Corner, SC 29461	**Project:** **Work Order:** **Received:**	Ground Water 1020352 02/04/2021 10:45

Dear Client:

Rogers and Callcott appreciates the opportunity to be of service to you. The attached laboratory services report includes analytical results and chain of custody for samples that were received on February 04, 2021. Rogers and Callcott maintains a formal QA/QC program. Unless otherwise noted, all analyses performed under NELAP certification have complied with all the requirements for the TNI standard. The analyses met the QA/QC confidence interval for each test method unless otherwise qualified. Estimated uncertainty is available upon request.

Privileged / Confidential information may be contained in this report and is intended only for the use of the addressee. If you are not the addressee, or the person responsible for delivering to the person addressed, you may not copy or deliver this message to anyone else. If you receive this message by mistake, please notify Rogers and Callcott immediately.

We strive to provide excellent service to our clients. Please contact Lauren Hollister, your Project Manager, at lhollister@rcenviro.com, (864)-232-1556 if you have any questions about this report.

CC: Jeanette Gilmetti, Sherri Brown, Courtney Ames Watkins

Report Approved By:

Lauren Hollister
Project Manager

PO Box 5655 | Greenville, SC 29606 | 426 Fairforest Way | Greenville, SC 29607 | main 864.232.1556 | fax 864.232.6140 rogersandcallcott.com
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Rogers & Callcott ENVIRONMENTAL

South Carolina Greenville Laboratory Identification 23105
South Carolina Columbia Laboratory Identification 40572
North Carolina Laboratory Certification Number 27
North Carolina Drinking Water Lab Number 45710
NELAP Utah Certificate Number SC000042014-1
Georgia Drinking Water Lab ID 880

Certificate of Analysis

Client Santee Cooper
Linda Williams
1 Riverwood Dr.
Moncks Corner, SC 29461

Project: Ground Water
Work Order: 1020352
Received: 02/04/2021 10:45

Sample Number	Sample Description	Matrix	Sampled	Type
1020352-01	AE94877 POZ-7	Ground Water	01/28/21 09:15	Grab
1020352-02	AE94878 POZ-7 Dup	Ground Water	01/28/21 09:20	Grab
1020352-03	AE94876 POZ-6	Ground Water	01/28/21 14:34	Grab
1020352-04	AE94874 POZ-4	Ground Water	01/28/21 11:43	Grab
1020352-05	AE94869 CLFIB-4	Ground Water	01/27/21 09:18	Grab
1020352-06	AE94870 CLFIB-5	Ground Water	01/27/21 10:21	Grab
1020352-07	AE94871 CLFIB-5D	Ground Water	01/27/21 11:17	Grab
1020352-08	AE94875 POZ-5D	Ground Water	01/27/21 12:23	Grab
1020352-09	AE94873 POZ-3	Ground Water	01/27/21 13:21	Grab
1020352-10	AE94872 PM-1	Ground Water	01/26/21 09:27	Grab
1020352-11	AE94854 CBW-1	Ground Water	01/26/21 10:39	Grab
1020352-12	AE94865 CLFIB-1	Ground Water	01/26/21 12:01	Grab
1020352-13	AE94866 CLFIB-1 Dup	Ground Water	01/26/21 12:06	Grab
1020352-14	AE94867 CLFIB-2	Ground Water	01/26/21 13:06	Grab
1020352-15	AE94868 CLFIB-3	Ground Water	01/26/21 13:58	Grab

Santee Cooper		Project:	Ground Water
1 Riverwood Dr.		Work Order:	1020352
Moncks Corner, SC 29461		Reported:	02/11/21 16:21

Sample Data

Sample Number 1020352-01
Sample Description AE94877 POZ-7 collected on 01/28/21 09:15

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Mercury	ND	0.20	ug/L	1.00	02/09/21 10:28	EPA 7470A		MLR	B1B0412
Boron	ND	15	ug/L	1.00	02/09/21 18:02	EPA 6010D		MLR	B1B0278
Lithium	ND	10	ug/L	1.00	02/05/21 17:09	EPA 6010D		MLR	B1B0278
Molybdenum	ND	10	ug/L	1.00	02/05/21 17:09	EPA 6010D		MLR	B1B0278

Sample Number 1020352-02
Sample Description AE94878 POZ-7 Dup collected on 01/28/21 09:20

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Mercury	ND	0.20	ug/L	1.00	02/09/21 10:40	EPA 7470A		MLR	B1B0412
Boron	ND	15	ug/L	1.00	02/09/21 18:06	EPA 6010D		MLR	B1B0278
Lithium	ND	10	ug/L	1.00	02/05/21 17:12	EPA 6010D		MLR	B1B0278
Molybdenum	ND	10	ug/L	1.00	02/05/21 17:12	EPA 6010D		MLR	B1B0278

Sample Number 1020352-03
Sample Description AE94876 POZ-6 collected on 01/28/21 14:34

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Mercury	ND	0.20	ug/L	1.00	02/09/21 10:42	EPA 7470A		MLR	B1B0412
Boron	**44**	15	ug/L	1.00	02/09/21 18:10	EPA 6010D		MLR	B1B0278
Lithium	ND	10	ug/L	1.00	02/05/21 17:16	EPA 6010D		MLR	B1B0278
Molybdenum	ND	10	ug/L	1.00	02/05/21 17:16	EPA 6010D		MLR	B1B0278

Sample Number 1020352-04
Sample Description AE94874 POZ-4 collected on 01/28/21 11:43

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Mercury	ND	0.20	ug/L	1.00	02/09/21 10:45	EPA 7470A		MLR	B1B0412
Boron	ND	15	ug/L	1.00	02/10/21 13:59	EPA 6010D		MLR	B1B0474
Lithium	ND	10	ug/L	1.00	02/05/21 16:30	EPA 6010D		MLR	B1B0278
Molybdenum	ND	10	ug/L	1.00	02/05/21 16:30	EPA 6010D		MLR	B1B0278

Santee Cooper		Project:	Ground Water
1 Riverwood Dr.		Work Order:	1020352
Moncks Corner, SC 29461		Reported:	02/11/21 16:21

Sample Number 1020352-05
Sample Description AE94869 CLFIB-4 collected on 01/27/21 09:18

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Boron	**17**	15	ug/L	1.00	02/09/21 18:14	EPA 6010D		MLR	B1B0278

Sample Number 1020352-06
Sample Description AE94870 CLFIB-5 collected on 01/27/21 10:21

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Boron	**19**	15	ug/L	1.00	02/09/21 18:18	EPA 6010D		MLR	B1B0278

Sample Number 1020352-07
Sample Description AE94871 CLFIB-5D collected on 01/27/21 11:17

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Boron	ND	15	ug/L	1.00	02/09/21 18:21	EPA 6010D		MLR	B1B0278

Sample Number 1020352-08
Sample Description AE94875 POZ-5D collected on 01/27/21 12:23

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Boron	**260**	15	ug/L	1.00	02/09/21 18:25	EPA 6010D		MLR	B1B0278

Sample Number 1020352-09
Sample Description AE94873 POZ-3 collected on 01/27/21 13:21

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Boron	ND	15	ug/L	1.00	02/09/21 18:29	EPA 6010D		MLR	B1B0278

Santee Cooper		Project:	Ground Water
1 Riverwood Dr.		Work Order:	1020352
Moncks Corner, SC 29461		Reported:	02/11/21 16:21

Sample Number 1020352-10
Sample Description AE94872 PM-1 collected on 01/26/21 09:27

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Mercury	ND	0.20	ug/L	1.00	02/09/21 10:54	EPA 7470A		MLR	B1B0412
Boron	ND	15	ug/L	1.00	02/09/21 18:33	EPA 6010D		MLR	B1B0278
Lithium	ND	10	ug/L	1.00	02/05/21 17:51	EPA 6010D		MLR	B1B0278
Molybdenum	ND	10	ug/L	1.00	02/05/21 17:51	EPA 6010D		MLR	B1B0278

Sample Number 1020352-11
Sample Description AE94854 CBW-1 collected on 01/26/21 10:39

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Mercury	ND	0.20	ug/L	1.00	02/09/21 10:56	EPA 7470A		MLR	B1B0412
Boron	**18**	15	ug/L	1.00	02/10/21 13:36	EPA 6010D		MLR	B1B0474
Lithium	ND	10	ug/L	1.00	02/05/21 16:49	EPA 6010D		MLR	B1B0278
Molybdenum	ND	10	ug/L	1.00	02/05/21 16:49	EPA 6010D		MLR	B1B0278

Sample Number 1020352-12
Sample Description AE94865 CLFIB-1 collected on 01/26/21 12:01

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Boron	ND	15	ug/L	1.00	02/09/21 18:48	EPA 6010D		MLR	B1B0278

Sample Number 1020352-13
Sample Description AE94866 CLFIB-1 Dup collected on 01/26/21 12:06

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Boron	ND	15	ug/L	1.00	02/09/21 18:52	EPA 6010D		MLR	B1B0278

Sample Number 1020352-14
Sample Description AE94867 CLFIB-2 collected on 01/26/21 13:06

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Boron	**17**	15	ug/L	1.00	02/09/21 18:56	EPA 6010D		MLR	B1B0278

Rogers & Callcott ENVIRONMENTAL

Santee Cooper		Project:	Ground Water
1 Riverwood Dr.		Work Order:	1020352
Moncks Corner, SC 29461		Reported:	02/11/21 16:21

Sample Number 1020352-15
Sample Description AE94868 CLFIB-3 collected on 01/26/21 13:58

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Boron	**34**	15	ug/L	1.00	02/09/21 19:00	EPA 6010D		MLR	B1B0278

Santee Cooper		Project:	Ground Water
1 Riverwood Dr.		Work Order:	1020352
Moncks Corner, SC 29461		Reported:	02/11/21 16:21

Total Metals
Quality Control Summary

Parameter	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flags
Batch B1B0278 - EPA 3005A										
Blank (B1B0278-BLK1)										
Boron	ND	15	ug/L							
Lithium	ND	10	ug/L							
Molybdenum	ND	10	ug/L							
LCS (B1B0278-BS1)										
Boron	260	15	ug/L	250		103	80-120			
Lithium	261	10	ug/L	250		104	80-120			
Molybdenum	250	10	ug/L	250		102	80-120			
LCS Dup (B1B0278-BSD1)										
Boron	260	15	ug/L	250		102	80-120	0.2	20	
Lithium	262	10	ug/L	250		105	80-120	0.3	20	
Molybdenum	250	10	ug/L	250		102	80-120	0.001	20	
Matrix Spike (B1B0278-MS1)	**Source: 1020352-04**									
Lithium	278	10	ug/L	250	ND	108	75-125			
Molybdenum	250	10	ug/L	250	ND	100	75-125			
Matrix Spike (B1B0278-MS2)	**Source: 1020352-11**									
Lithium	255	10	ug/L	250	ND	102	75-125			
Molybdenum	250	10	ug/L	250	ND	100	75-125			
Matrix Spike (B1B0278-MS3)	**Source: 1020352-04RE1**									
Boron	270	30	ug/L	250	ND	107	75-125			
Matrix Spike (B1B0278-MS4)	**Source: 1020352-11RE1**									
Boron	270	30	ug/L	250	ND	110	75-125			
Matrix Spike Dup (B1B0278-MSD1)	**Source: 1020352-04**									
Lithium	271	10	ug/L	250	ND	105	75-125	2	20	
Molybdenum	250	10	ug/L	250	ND	99	75-125	0.7	20	
Matrix Spike Dup (B1B0278-MSD2)	**Source: 1020352-11**									
Lithium	253	10	ug/L	250	ND	101	75-125	0.6	20	
Molybdenum	250	10	ug/L	250	ND	99	75-125	1	20	

Rogers & Callcott ENVIRONMENTAL

Santee Cooper		Project:	Ground Water
1 Riverwood Dr.		Work Order:	1020352
Moncks Corner, SC 29461		Reported:	02/11/21 16:21

Total Metals
Quality Control Summary

Parameter	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flags
Batch B1B0278 - EPA 3005A										
Matrix Spike Dup (B1B0278-MSD3)	**Source: 1020352-04RE1**									
Boron	270	30	ug/L	250	ND	106	75-125	0.9	20	
Matrix Spike Dup (B1B0278-MSD4)	**Source: 1020352-11RE1**									
Boron	280	30	ug/L	250	ND	111	75-125	0.9	20	
Post Spike (B1B0278-PS1)	**Source: 1020352-04**									
Lithium	0.521		mg/L	0.500	ND	103	75-125			
Molybdenum	0.51		mg/L	0.500	ND	102	75-125			
Post Spike (B1B0278-PS2)	**Source: 1020352-11**									
Lithium	0.475		mg/L	0.500	ND	95	75-125			
Molybdenum	0.51		mg/L	0.500	ND	101	75-125			
Post Spike (B1B0278-PS3)	**Source: 1020352-04RE1**									
Boron	1000	30	ug/L	1000	ND	103	75-125			
Post Spike (B1B0278-PS4)	**Source: 1020352-11RE1**									
Boron	1000	30	ug/L	1000	ND	102	75-125			
Batch B1B0412 - EPA 7470A										
Blank (B1B0412-BLK1)										
Mercury	ND	0.20	ug/L							
LCS (B1B0412-BS1)										
Mercury	4.8	0.20	ug/L	5.00		96	80-120			
LCS Dup (B1B0412-BSD1)										
Mercury	4.8	0.20	ug/L	5.00		95	80-120	0.9	20	
Matrix Spike (B1B0412-MS1)	**Source: 1020352-01**									
Mercury	5.2	0.20	ug/L	5.00	ND	105	75-125			

Santee Cooper		Project:	Ground Water
1 Riverwood Dr.		Work Order:	1020352
Moncks Corner, SC 29461		Reported:	02/11/21 16:21

Total Metals
Quality Control Summary

Parameter	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flags
Batch B1B0412 - EPA 7470A										
Matrix Spike Dup (B1B0412-MSD1)	**Source: 1020352-01**									
Mercury	5.3	0.20	ug/L	5.00	ND	105	75-125	0.3	20	
Post Spike (B1B0412-PS1)	**Source: 1020352-01**									
Mercury	4.3		ug/L	4.00	ND	106	80-120			
Batch B1B0474 - EPA 3005A										
Blank (B1B0474-BLK1)										
Boron	ND	15	ug/L							
LCS (B1B0474-BS1)										
Boron	270	15	ug/L	250		107	80-120			
LCS Dup (B1B0474-BSD1)										
Boron	270	15	ug/L	250		107	80-120	0.2	20	
Matrix Spike (B1B0474-MS1)	**Source: 1020352-11**									
Boron	270	15	ug/L	250	18	101	75-125			
Matrix Spike Dup (B1B0474-MSD1)	**Source: 1020352-11**									
Boron	270	15	ug/L	250	18	99	75-125	2	20	
Post Spike (B1B0474-PS1)	**Source: 1020352-11**									
Boron	0.52		mg/L	0.500	ND	101	75-125			

Santee Cooper		Project:	Ground Water
1 Riverwood Dr.		Work Order:	1020352
Moncks Corner, SC 29461		Reported:	02/11/21 16:21

Sample Preparation Data

Parameter	Batch	Sample ID	Prepared	Analyst
EPA 3005A ICP Digestion				
EPA 3005A	B1B0278	1020352-01	02/05/2021 09:16	MTH
EPA 3005A	B1B0278	1020352-02	02/05/2021 09:16	MTH
EPA 3005A	B1B0278	1020352-03	02/05/2021 09:16	MTH
EPA 3005A	B1B0278	1020352-04	02/05/2021 09:16	MTH
EPA 3005A	B1B0474	1020352-04	02/09/2021 14:39	MTH
EPA 3005A	B1B0278	1020352-05	02/05/2021 09:16	MTH
EPA 3005A	B1B0278	1020352-06	02/05/2021 09:16	MTH
EPA 3005A	B1B0278	1020352-07	02/05/2021 09:16	MTH
EPA 3005A	B1B0278	1020352-08	02/05/2021 09:16	MTH
EPA 3005A	B1B0278	1020352-09	02/05/2021 09:16	MTH
EPA 3005A	B1B0278	1020352-10	02/05/2021 09:16	MTH
EPA 3005A	B1B0278	1020352-11	02/05/2021 09:16	MTH
EPA 3005A	B1B0474	1020352-11	02/09/2021 14:39	MTH
EPA 3005A	B1B0278	1020352-12	02/05/2021 09:16	MTH
EPA 3005A	B1B0278	1020352-13	02/05/2021 09:16	MTH
EPA 3005A	B1B0278	1020352-14	02/05/2021 09:16	MTH
EPA 3005A	B1B0278	1020352-15	02/05/2021 09:16	MTH
EPA 7470A Mercury Digestion				
EPA 7470A	B1B0412	1020352-01	02/08/2021 15:10	MLR
EPA 7470A	B1B0412	1020352-02	02/08/2021 15:10	MLR
EPA 7470A	B1B0412	1020352-03	02/08/2021 15:10	MLR
EPA 7470A	B1B0412	1020352-04	02/08/2021 15:10	MLR
EPA 7470A	B1B0412	1020352-10	02/08/2021 15:10	MLR
EPA 7470A	B1B0412	1020352-11	02/08/2021 15:10	MLR

Santee Cooper		Project:	Ground Water
1 Riverwood Dr.		Work Order:	1020352
Moncks Corner, SC 29461		Reported:	02/11/21 16:21

Data Qualifiers and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not reported
RPD	Relative Percent Difference

Contract Lab Info: R/C Contract Lab Due Date (Lab Only): 2 / 11 / 21 Send report to lcwillia@santeecooper.com & sjbrown@santeecooper.com

Chain of Custody

1020352

santee cooper
Santee Cooper
One Riverwood Drive
Moncks Corner, SC 29461
Phone: (843)761-8000 Ext. 5148
Fax: (843)761-4175

Customer Email/Report Recipient: LCWILLIA @santeecooper.com

Date Results Needed by: ___/___/___

Project/Task/Unit #: 121567 / JM02.09.G01 / 36500

Rerun request for any flagged QC Yes No

Labworks ID # (Internal use only)	Sample Location/ Description	Collection Date	Collection Time	Sample Collector	Total # of containers	Bottle type: (Glass-G/Plastic-P)	Grab (G) or Composite (C)	Matrix(see below)	Preservative (see below)	Comments • Method # • Reporting limit • Misc. sample info • Any other notes	Analysis Group: B	Li	Mo	Hg
AE94877	POZ-7 -01	1/28/21	0915	ATH/DEW	1	P	G	GW	2	B-6010 RL< 15.0 ug/L	X	X	X	X
AE94878	POZ-7 DUP -02	"	0920	"	"	"	"	"	"	Li-6010 RL< 10.0 ug/L	X	X	X	X
AE94876	POZ-6 -03	"	1434	"	"	"	"	"	"	Mo 6010 RL< 15.0 ug/L	X	X	X	X
AE94874	POZ-4 -04	"	1143	"	"	"	"	"	"	Hg 7470 RL< 0.200 ug/L	X	X	X	X
AE94869	CLFIB-4 -05	1/27/21	0918	"	"	"	"	"	"		X			
AE94870	CLFIB-5 -06	"	1021	"	"	"	"	"	"		X			
AE94871	CLFIB-5D -07	1/27/21	1117	"	"	"	"	"	"		X			
AE94875	POZ-5D -08	"	1223	"	"	"	"	"	"		X			
AE94873	POZ-3 -09	"	1321	"	"	"	"	"	"		X			

Relinquished by:	Employee#	Date	Time	Received by:	Employee #	Date	Time
Signature	35594	2/3/21	1300	FedEx			
Relinquished by:	**Employee#**	**Date**	**Time**	**Received by:**	**Employee #**	**Date**	**Time**
FedEx		2-4-21	1045	[signature]		2-4-21	1045
Relinquished by:	**Employee#**	**Date**	**Time**	**Received by:**	**Employee #**	**Date**	**Time**

Sample Receiving (Internal Use Only)
TEMP (°C): 10.5 Initial: [initials]
Correct pH: (Yes) No
Preservative Lot#:
Date/Time/Init for preservative:

☐ **METALS (all)**

☐ Ag	☐ Cu	☐ Sb
☐ Al	☐ Fe	☐ Se
☐ As	☐ K	☐ Sn
☒ B	☒ Li	☐ Sr
☐ Ba	☐ Mg	☐ Ti
☐ Be	☐ Mn	☐ Tl
☐ Ca	☒ Mo	☐ V
☐ Cd	☐ Na	☐ Zn
☐ Co	☐ Ni	☒ Hg
☐ Cr	☐ Pb	☐ CrVI

Nutrients
- TOC
- DOC
- TP/TPO4
- NH3-N
- F
- Cl
- NO3
- Br
- NO3
- SO4

MISC.
- ☐ BTEX
- ☐ Napthalene
- ☐ THM/HAA
- ☐ VOC
- ☐ Oil & Grease
- ☐ E. Coli
- ☐ Total Coliform
- ☐ pH
- ☐ Dissolved As
- ☐ Dissolved Fe
- ☐ Rad 226
- ☐ Rad 228
- ☐ PCB

Gypsum
- ☐ Wallboard Gypsum(*all below*)
- AIM
- TOC
- Total metals
- Soluble Metals
- Purity (CaSO4)
- % Moisture
- Sulfites
- pH
- Chlorides
- Particle Size
- Sulfur

Coal
- ☐ Ultimate
- ☐ % Moisture
- ☐ Ash
- ☐ Sulfur
- ☐ BTUs
- ☐ Volatile Matter
- ☐ CHN

Other Tests:
- ☐ XRF Scan
- ☐ HGI
- ☐ Fineness
- ☐ Particulate Matter

Flyash
- Ammonia
- LOI
- % Carbon
- Mineral Analysis
- Sieve
- % Moisture

NPDES
- Oil & Grease
- As
- TSS

Oil

Matrix codes: GW-groundwater, DW-drinking water, SW-surface water, WW-waste water, BW-boiler water, L-limestone, Oil-oil, S-Soil, SL-solid, C-coal, G-gypsum, FA-flyash, BA-bottom ash, M-misc (describe in comment section)
Preservative code- 1=<4°C 2=HNO_3 3=H_2SO_4 4-HCl 5=$Na_2S_2O_3$ 6-Other (Specify)

Contract Lab Info: R/C Contract Lab Due Date (Lab Only): 2 / 11 / 21 Send report to lcwillia@santeecooper.com & sjbrown@santeecooper.com

Chain of Custody

1020352

santee cooper
Santee Cooper
One Riverwood Drive
Moncks Corner, SC 29461
Phone: (843)761-8000 Ext. 5148
Fax: (843)761-4175

Customer Email/Report Recipient: LCWILLIA @santeecooper.com

Date Results Needed by: ___/___/___

Project/Task/Unit #: 121567 / JM02.09.G01 / 36500

Rerun request for any flagged QC Yes No

Analysis Group

Labworks ID # (Internal use only)	Sample Location/ Description	Collection Date	Collection Time	Sample Collector	Total # of containers	Bottle type: (Glass-G/Plastic-P)	Grab (G) or Composite (C)	Matrix(see below)	Preservative (see below)	Comments • Method # • Reporting limit • Misc. sample info • Any other notes	B	Li	Mo	Hg
AE94872	PM-1 -10	1/26/21	0927	ATH/DEW	1	P	G	GW	2	B-6010 RL< 15.0 ug/L	X	X	X	X
AE94854	CBW-1 -11	〃	1039	〃	〃	〃	〃	〃	〃	Li-6010 RL< 10.0 ug/L	X	X	X	X
AE94865	CLFIB-1 -12	〃	1201	〃	〃	〃	〃	〃	〃	Mo 6010 RL < 15.0 ug/L	X			
AE94866	CLFIB-1 DUP -13	〃	1206	〃	〃	〃	〃	〃	〃	Hg 7470 RL< 0.200 ug/L	X			
AE94867	CLFIB-2 -14	〃	1306	〃	〃	〃	〃	〃	〃		X			
AE94868	CLFIB-3 -15	〃	1358	〃	〃	〃	〃	〃	〃		X			

Relinquished by:	Employee#	Date	Time	Received by:	Employee #	Date	Time
[signature]	35594	2/3/21	1300	FedEx			
Relinquished by:	**Employee#**	**Date**	**Time**	**Received by:**	**Employee #**	**Date**	**Time**
FedEx		2.4.21	1045	[signature]		2.4.21	1045
Relinquished by:	**Employee#**	**Date**	**Time**	**Received by:**	**Employee #**	**Date**	**Time**

Sample Receiving (Internal Use Only)
TEMP (°C): 10.5 Initial: MWS
Correct pH: (Yes) No
Preservative Lot#:
Date/Time/Init for preservative:

☐ **METALS (all)**

☐ Ag	☐ Cu	☐ Sb
☐ Al	☐ Fe	☐ Se
☐ As	☐ K	☐ Sn
☒ B	☒ Li	☐ Sr
☐ Ba	☐ Mg	☐ Ti
☐ Be	☐ Mn	☐ Tl
☐ Ca	☒ Mo	☐ V
☐ Cd	☐ Na	☐ Zn
☐ Co	☐ Ni	☒ Hg
☐ Cr	☐ Pb	☐ CrVI

Nutrients
- ☐ TOC
- ☐ DOC
- ☐ TP TPO4
- ☐ NH3-N
- ☐ F
- ☐ Cl
- ☐ NO2
- ☐ Br
- ☐ NO3
- ☐ SO4

MISC.
- ☐ BTEX
- ☐ Napthalene
- ☐ THM/HAA
- ☐ VOC
- ☐ Oil & Grease
- ☐ E. Coli
- ☐ Total Coliform
- ☐ pH
- ☐ Dissolved As
- ☐ Dissolved Fe
- ☐ Rad 226
- ☐ Rad 228
- ☐ PCB

Gypsum
- ☐ Wallboard Gypsum(*all below*)
- ☐ AIM
- ☐ TOC
- ☐ Total metals
- ☐ Soluble Metals
- ☐ Purity (CaSO4)
- ☐ % Moisture
- ☐ Sulfites
- ☐ pH
- ☐ Chlorides
- ☐ Particle Size
- ☐ Sulfur

Coal
- ☐ Ultimate
- ☐ % Moisture
- ☐ Ash
- ☐ Sulfur
- ☐ BTUs
- ☐ Volatile Matter
- ☐ CHN

Other Tests:
- ☐ XRF Scan
- ☐ HGI
- ☐ Fineness
- ☐ Particulate Matter

Flyash
- ☐ Ammonia
- ☐ LOI
- ☐ % Carbon
- ☐ Mineral Analysis
- ☐ Sieve
- ☐ % Moisture

NPDES
- ☐ Oil & Grease
- ☐ As
- ☐ TSS

Oil
- ☐ Used Oil

Matrix codes: GW-groundwater, DW-drinking water, SW-surface water, WW-waste water, BW-boiler water, L-limestone, Oil-oil, S-Soil, SL-solid, C-coal, G-gypsum, FA-flyash, BA-bottom ash, M-misc (describe in comment section)
Preservative code- 1=<4°C 2=HNO_3 3=H_2SO_4 4-HCl 5=$Na_2S_2O_3$ 6-Other (Specify)

Rogers & Callcott ENVIRONMENTAL

Sample Receipt Verification

Client: Santee Cooper | Date Received: 2-4-21 | Work Order: 1020352

Carrier Name: Client (FedEx) UPS US Mail Courier Field Services Other: _____

Tracking Number: 816240672602

Receipt Criteria	Yes	No	NA	Comments
Shipping container / cooler intact?	X			Damaged Leaking Other:
Custody seals intact?			X	
COC included with samples?	X			
COC signed when relinquished and received?	X			
Sample bottles intact?	X			Damaged Leaking Other:
Sample ID on COC agree with label on bottle(s)?	X			
Date / time on COC agree with label on bottle(s)?	X			
Number of bottles on COC agrees with number of bottles received?	X			
Samples received within holding time?	X			
Sample volume sufficient for analysis?	X			
VOA vials free of headspace (<6mm bubble)?			X	
Samples cooled? Temp at receipt recorded on COC; Temp measured with IR thermometer - SN: 97050067			X	Ice Cold Packs Dry Ice (None)
Samples requiring pH preservation at proper pH? Note: Samples for metals analysis may be preserved upon receipt in the lab. Note: Samples for O&G and VOA analysis – preservation checked at bench.	X			
Samples dechlorinated for parameters requiring chlorine removal at the time of sample collection? Note: Chlorine checked at bench for samples requiring Bacterial, VOA, and HAA analysis.			X	

If in-house preservation used – record Lot #			
HCL		H_3PO_4	
H_2SO_4		NaOH	
HNO_3		Other	

Comments:

Were non-conformance issues noted at sample receipt? Yes or (No)

Non-Conformance issue other than noted above:

Rogers & Callcott ENVIRONMENTAL

Laboratory Services

Laboratory Report

Client	Santee Cooper Linda Williams 1 Riverwood Dr. Moncks Corner, SC 29461	**Project:** **Work Order:** **Received:**	Ground Water 1061329 06/30/2021 09:30

Dear Client:

Rogers and Callcott appreciates the opportunity to be of service to you. The attached laboratory services report includes analytical results and chain of custody for samples that were received on June 30, 2021. Rogers and Callcott maintains a formal QA/QC program. Unless otherwise noted, all analyses performed under NELAP certification have complied with all the requirements for the TNI standard. The analyses met the QA/QC confidence interval for each test method unless otherwise qualified. Estimated uncertainty is available upon request.

Privileged / Confidential information may be contained in this report and is intended only for the use of the addressee. If you are not the addressee, or the person responsible for delivering to the person addressed, you may not copy or deliver this message to anyone else. If you receive this message by mistake, please notify Rogers and Callcott immediately.

We strive to provide excellent service to our clients. Please contact Lauren Hollister, your Project Manager, at lhollister@rcenviro.com, (864)-232-1556 if you have any questions about this report.

CC: Jeanette Gilmetti, Sherri Brown, Courtney Ames Watkins

Report Approved By:

Lauren Hollister
Project Manager

PO Box 5655 | Greenville, SC 29606 | 426 Fairforest Way | Greenville, SC 29607 | main 864.232.1556 | fax 864.232.6140 rogersandcallcott.com
an employee-owned company

Rogers & Callcott ENVIRONMENTAL

South Carolina Greenville Laboratory Identification 23105
South Carolina Columbia Laboratory Identification 40572
North Carolina Laboratory Certification Number 27
North Carolina Drinking Water Lab Number 45710
NELAP Utah Certificate Number SC000042014-1
Georgia Drinking Water Lab ID 880

Certificate of Analysis

Client Santee Cooper
Linda Williams
1 Riverwood Dr.
Moncks Corner, SC 29461

Project: Ground Water
Work Order: 1061329
Received: 06/30/2021 09:30

Sample Number	Sample Description	Matrix	Sampled	Type
1061329-01	AF07281 PM-1	Ground Water	06/21/21 13:08	Grab
1061329-02	AF07259 CBW-1	Ground Water	06/21/21 14:13	Grab
1061329-03	AF07274 CLFIB-1	Ground Water	06/22/21 10:07	Grab
1061329-04	AF07275 CLFIB-1 DUP	Ground Water	06/22/21 10:12	Grab
1061329-05	AF07276 CLFIB-2	Ground Water	06/22/21 12:13	Grab
1061329-06	AF07277 CLFIB-3	Ground Water	06/22/21 13:58	Grab
1061329-07	AF07278 CLFIB-4	Ground Water	06/22/21 14:54	Grab
1061329-08	AF07283 POZ-4	Ground Water	06/23/21 13:55	Grab
1061329-09	AF07285 POZ-6	Ground Water	06/23/21 15:04	Grab
1061329-10	AF07280 CLFIB-5D	Ground Water	06/23/21 10:29	Grab
1061329-11	AF07284 POZ-5D	Ground Water	06/23/21 12:49	Grab
1061329-12	AF07279 CLFIB-5	Ground Water	06/23/21 09:15	Grab
1061329-13	AF07286 POZ-7	Ground Water	06/24/21 10:40	Grab
1061329-14	AF07287 POZ-7-DUP	Ground Water	06/24/21 10:45	Grab
1061329-15	AF07282 POZ-3	Ground Water	06/24/21 09:18	Grab
1061329-16	AF07244 CAP-1	Ground Water	06/24/21 12:19	Grab

Santee Cooper		Project:	Ground Water
1 Riverwood Dr.		Work Order:	1061329
Moncks Corner, SC 29461		Reported:	07/07/21 14:46

Sample Data

Sample Number 1061329-01
Sample Description AF07281 PM-1 collected on 06/21/21 13:08

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Mercury	ND	0.20	ug/L	1.00	07/05/21 12:07	EPA 7470A		NAR	B1G0086
Boron	ND	15	ug/L	1.00	07/05/21 14:38	EPA 6010D		MLR	B1F1295
Lithium	ND	10	ug/L	1.00	07/05/21 14:38	EPA 6010D		MLR	B1F1295
Molybdenum	ND	10	ug/L	1.00	07/05/21 14:38	EPA 6010D		MLR	B1F1295

Sample Number 1061329-02
Sample Description AF07259 CBW-1 collected on 06/21/21 14:13

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Mercury	ND	0.20	ug/L	1.00	07/05/21 12:18	EPA 7470A		NAR	B1G0086
Boron	ND	40	ug/L	2.00	07/05/21 16:38	EPA 6010D	X	MLR	B1F1295
Lithium	ND	20	ug/L	2.00	07/05/21 16:38	EPA 6010D	X	MLR	B1F1295
Molybdenum	ND	20	ug/L	2.00	07/05/21 16:38	EPA 6010D	X	MLR	B1F1295

Sample Number 1061329-03
Sample Description AF07274 CLFIB-1 collected on 06/22/21 10:07

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Boron	ND	15	ug/L	1.00	07/05/21 14:59	EPA 6010D		MLR	B1F1295

Sample Number 1061329-04
Sample Description AF07275 CLFIB-1 DUP collected on 06/22/21 10:12

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Boron	ND	15	ug/L	1.00	07/05/21 15:24	EPA 6010D		MLR	B1F1295

Santee Cooper		Project:	Ground Water
1 Riverwood Dr.		Work Order:	1061329
Moncks Corner, SC 29461		Reported:	07/07/21 14:46

Sample Number 1061329-05
Sample Description AF07276 CLFIB-2 collected on 06/22/21 12:13

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Boron	**16**	15	ug/L	1.00	07/05/21 15:28	EPA 6010D		MLR	B1F1295

Sample Number 1061329-06
Sample Description AF07277 CLFIB-3 collected on 06/22/21 13:58

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Boron	**80**	15	ug/L	1.00	07/05/21 15:32	EPA 6010D		MLR	B1F1295

Sample Number 1061329-07
Sample Description AF07278 CLFIB-4 collected on 06/22/21 14:54

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Boron	**16**	15	ug/L	1.00	07/05/21 15:36	EPA 6010D		MLR	B1F1295

Sample Number 1061329-08
Sample Description AF07283 POZ-4 collected on 06/23/21 13:55

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Boron	ND	15	ug/L	1.00	07/05/21 16:04	EPA 6010D		MLR	B1F1295

Sample Number 1061329-09
Sample Description AF07285 POZ-6 collected on 06/23/21 15:04

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Boron	**41**	15	ug/L	1.00	07/05/21 16:09	EPA 6010D		MLR	B1F1295

Santee Cooper		Project:	Ground Water
1 Riverwood Dr.		Work Order:	1061329
Moncks Corner, SC 29461		Reported:	07/07/21 14:46

Sample Number 1061329-10
Sample Description AF07280 CLFIB-5D collected on 06/23/21 10:29

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Boron	ND	15	ug/L	1.00	07/05/21 16:13	EPA 6010D		MLR	B1F1295

Sample Number 1061329-11
Sample Description AF07284 POZ-5D collected on 06/23/21 12:49

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Boron	**230**	15	ug/L	1.00	07/05/21 16:17	EPA 6010D		MLR	B1F1295

Sample Number 1061329-12
Sample Description AF07279 CLFIB-5 collected on 06/23/21 09:15

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Boron	**19**	15	ug/L	1.00	07/05/21 16:21	EPA 6010D		MLR	B1F1295

Sample Number 1061329-13
Sample Description AF07286 POZ-7 collected on 06/24/21 10:40

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Boron	ND	15	ug/L	1.00	07/05/21 16:26	EPA 6010D		MLR	B1F1295

Sample Number 1061329-14
Sample Description AF07287 POZ-7-DUP collected on 06/24/21 10:45

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Boron	**15**	15	ug/L	1.00	07/05/21 16:30	EPA 6010D		MLR	B1F1295

Santee Cooper		Project:	Ground Water
1 Riverwood Dr.		Work Order:	1061329
Moncks Corner, SC 29461		Reported:	07/07/21 14:46

Sample Number 1061329-15
Sample Description AF07282 POZ-3 collected on 06/24/21 09:18

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Boron	ND	15	ug/L	1.00	07/05/21 16:34	EPA 6010D		MLR	B1F1295

Sample Number 1061329-16
Sample Description AF07244 CAP-1 collected on 06/24/21 12:19

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch
Total Metals									
Mercury	ND	0.20	ug/L	1.00	07/05/21 12:21	EPA 7470A		NAR	B1G0086
Boron	**480**	15	ug/L	1.00	07/05/21 17:06	EPA 6010D		MLR	B1F1295
Lithium	**96**	10	ug/L	1.00	07/05/21 17:06	EPA 6010D		MLR	B1F1295

Santee Cooper		Project:	Ground Water
1 Riverwood Dr.		Work Order:	1061329
Moncks Corner, SC 29461		Reported:	07/07/21 14:46

Total Metals
Quality Control Summary

Parameter	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flags
Batch B1F1295 - EPA 3005A										
Blank (B1F1295-BLK1)										
Boron	ND	15	ug/L							
Lithium	ND	10	ug/L							
Molybdenum	ND	10	ug/L							
LCS (B1F1295-BS1)										
Boron	230	15	ug/L	250		93	80-120			
Lithium	235	10	ug/L	250		94	80-120			
Molybdenum	230	10	ug/L	250		91	80-120			
Matrix Spike (B1F1295-MS1)	**Source: 1061329-01**									
Boron	250	15	ug/L	250	ND	101	75-125			
Lithium	257	10	ug/L	250	ND	102	75-125			
Molybdenum	240	10	ug/L	250	ND	94	75-125			
Matrix Spike (B1F1295-MS2)	**Source: 1061329-03**									
Boron	260	15	ug/L	250	ND	102	75-125			
Lithium	290	10	ug/L	250	ND	113	75-125			
Molybdenum	240	10	ug/L	250	ND	96	75-125			
Matrix Spike Dup (B1F1295-MSD1)	**Source: 1061329-01**									
Boron	250	15	ug/L	250	ND	99	75-125	2	20	
Lithium	254	10	ug/L	250	ND	100	75-125	1	20	
Molybdenum	230	10	ug/L	250	ND	93	75-125	2	20	
Matrix Spike Dup (B1F1295-MSD2)	**Source: 1061329-03**									
Boron	250	15	ug/L	250	ND	101	75-125	2	20	
Lithium	282	10	ug/L	250	ND	109	75-125	3	20	
Molybdenum	230	10	ug/L	250	ND	94	75-125	2	20	
Post Spike (B1F1295-PS1)	**Source: 1061329-01**									
Boron	0.48		mg/L	0.500	ND	95	75-125			
Lithium	0.507		mg/L	0.500	ND	101	75-125			
Molybdenum	0.47		mg/L	0.500	ND	93	75-125			

Santee Cooper		Project:	Ground Water
1 Riverwood Dr.		Work Order:	1061329
Moncks Corner, SC 29461		Reported:	07/07/21 14:46

Total Metals
Quality Control Summary

Parameter	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flags
Batch B1F1295 - EPA 3005A										
Post Spike (B1F1295-PS2)	**Source: 1061329-03**									
Boron	0.49		mg/L	0.500	ND	96	75-125			
Lithium	0.552		mg/L	0.500	ND	109	75-125			
Molybdenum	0.47		mg/L	0.500	ND	94	75-125			
Batch B1G0086 - EPA 7470A										
Blank (B1G0086-BLK1)										
Mercury	ND	0.20	ug/L							
LCS (B1G0086-BS1)										
Mercury	5.0	0.20	ug/L	5.00		100	80-120			
Matrix Spike (B1G0086-MS1)	**Source: 1061329-01**									
Mercury	5.0	0.20	ug/L	5.00	ND	100	75-125			
Matrix Spike Dup (B1G0086-MSD1)	**Source: 1061329-01**									
Mercury	4.9	0.20	ug/L	5.00	ND	99	75-125	0.7	20	
Post Spike (B1G0086-PS1)	**Source: 1061329-01**									
Mercury	3.9		ug/L	4.00	ND	98	80-120			

Santee Cooper		Project:	Ground Water
1 Riverwood Dr.		Work Order:	1061329
Moncks Corner, SC 29461		Reported:	07/07/21 14:46

Sample Preparation Data

Parameter	Batch	Sample ID	Prepared	Analyst
EPA 3005A ICP Digestion				
EPA 3005A	B1F1295	1061329-01	06/30/2021 15:35	MTH
EPA 3005A	B1F1295	1061329-02	06/30/2021 15:35	MTH
EPA 3005A	B1F1295	1061329-03	06/30/2021 15:35	MTH
EPA 3005A	B1F1295	1061329-04	06/30/2021 15:35	MTH
EPA 3005A	B1F1295	1061329-05	06/30/2021 15:35	MTH
EPA 3005A	B1F1295	1061329-06	06/30/2021 15:35	MTH
EPA 3005A	B1F1295	1061329-07	06/30/2021 15:35	MTH
EPA 3005A	B1F1295	1061329-08	06/30/2021 15:35	MTH
EPA 3005A	B1F1295	1061329-09	06/30/2021 15:35	MTH
EPA 3005A	B1F1295	1061329-10	06/30/2021 15:35	MTH
EPA 3005A	B1F1295	1061329-11	06/30/2021 15:35	MTH
EPA 3005A	B1F1295	1061329-12	06/30/2021 15:35	MTH
EPA 3005A	B1F1295	1061329-13	06/30/2021 15:35	MTH
EPA 3005A	B1F1295	1061329-14	06/30/2021 15:35	MTH
EPA 3005A	B1F1295	1061329-15	06/30/2021 15:35	MTH
EPA 3005A	B1F1295	1061329-16	06/30/2021 15:35	MTH
EPA 7470A Mercury Digestion				
EPA 7470A	B1G0086	1061329-01	07/05/2021 09:25	NAR
EPA 7470A	B1G0086	1061329-02	07/05/2021 09:25	NAR
EPA 7470A	B1G0086	1061329-16	07/05/2021 09:25	NAR

Santee Cooper		Project:	Ground Water
1 Riverwood Dr.		Work Order:	1061329
Moncks Corner, SC 29461		Reported:	07/07/21 14:46

Data Qualifiers and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not reported
RPD	Relative Percent Difference
X	Result subject to sample matrix interference. Reporting limit has been adjusted where applicable.

Contract Lab Info: R/C Contract Lab Due Date (Lab Only): 7 / 9 / 21 Send report to lcwillia@santeecooper.com & slbrown@santeecooper.com

Chain of Custody

1061329

santee cooper
Santee Cooper
One Riverwood Drive
Moncks Corner, SC 29461
Phone: (843)761-8000 Ext. 5148
Fax: (843)761-4175

Customer Email/Report Recipient: LCWILLIA @santeecooper.com **Date Results Needed by:** / / **Project/Task/Unit #:** 121567 / JM02.07.G01 / 36500 **Rerun request for any flagged QC** Yes No

Analysis Group

Labworks ID # (Internal use only)	Sample Location/ Description	Collection Date	Collection Time	Sample Collector	Total # of containers	Bottle type: (Glass-G/Plastic-P)	Grab (G) or Composite (C)	Matrix(see below)	Preservative (see below)	Comments • Method # • Reporting limit • Misc. sample info • Any other notes	B	Li	Mo	Hg
AF07281	PM-1 -01	6/21/21	1308	MDG/BRT	1	P	G	GW	2		X	X	X	X
AF07259	CBW-1 -02	〃	1443	〃	1	〃	〃	〃	〃		X	X	X	X
AF07274	CLF1B-1 -03	6/22/21	1007	BRT/ML	〃	〃	〃	〃	〃		X			
AF07275	CLF1B-1 DUP -04	〃	1012	〃	〃	〃	〃	〃	〃		X			
AF07276	CLF1B-2 -05	〃	1213	〃	〃	〃	〃	〃	〃		X			
AF07277	CLF1B-3 -06	〃	1358	〃	〃	〃	〃	〃	〃		X			
AF07278	CLF1B-4 -07	〃	1454	〃	〃	〃	〃	〃	〃		X			
AF07283	POZ-4 -08	6/23/21	1355	〃	〃	〃	〃	〃	〃		X			
AF07285	POZ-6 -09	〃	1504	〃	〃	〃	〃	〃	〃		X			

Relinquished by:	Employee#	Date	Time	Received by:	Employee #	Date	Time
SLBrown	35594	6/29/21	1500	FEDEX			
Relinquished by:	Employee#	Date	Time	Received by:	Employee #	Date	Time
FEDEX				Coe		10/30/21	5930
Relinquished by:	Employee#	Date	Time	Received by:	Employee #	Date	Time:

Sample Receiving (Internal Use Only)
TEMP (°C): 23.8 Initial: Coe
Correct pH: Yes No
Preservative Lot#:
Date/Time/Init for preservative:

METALS (all)		
☐ Ag	☐ Cu	☐ Sb
☐ Al	☐ Fe	☐ Se
☐ As	☐ K	☐ Sn
☐ B	☐ Li	☐ Sr
☐ Ba	☐ Mg	☐ Ti
☐ Be	☐ Mn	☐ Tl
☐ Ca	☐ Mo	☐ V
☐ Cd	☐ Na	☐ Zn
☐ Co	☐ Ni	☐ Hg
☐ Cr	☐ Pb	☐ CrVI

Nutrients
☐ TOC
☐ DOC
☐ TP TPO4
☐ NH3-N
☐ F
☐ Cl
☐ NO2
☐ Br
☐ NO3
☐ SO4

MISC.
☐ BTEX
☐ Napthalene
☐ THM/HAA
☐ VOC
☐ Oil & Grease
☐ E-Coli
☐ Total Coliform
☐ pH
☐ Dissolved As
☐ Dissolved Fe
☐ Rad 226
☐ Rad 228
☐ PCB

Gypsum
☐ Wallboard
☐ Gypsum(all below)
☐ AM
☐ TOC
☐ Total metals
☐ Soluble Metals
☐ Purity (CaSO4)
☐ % Moisture
☐ Sulfites
☐ pH
☐ Chlorides
☐ Particle Size
☐ Sulfites

Coal
☐ Ultimate
☐ % Moisture
☐ Ash
☐ Sulfur
☐ BTUs
☐ Volatile Matter
☐ CHN
Other Tests:
☐ XRF Scan
☐ HGI
☐ Fineness
☐ Particulate Matter

Flyash
☐ Ammonia
☐ LOI
☐ % Carbon
☐ Mineral Analysis
☐ Sieve
☐ % Moisture

NPDES
☐ Oil & Grease
☐ As
☐ TSS

Oil
Trace Oil Quals
Used Oil

Matrix codes: GW-groundwater, DW-drinking water, SW-surface water, WW-waste water, BW-boiler water, L-limestone, Oil-oil, S-Soil, SL-solid, C-coal, G-gypsum, FA-flyash, BA-bottom ash, M-misc (describe in comment section)
Preservative code- 1=<4°C 2=HNO_3 3=H_2SO_4 4-HCl 5=$Na_2S_2O_3$ 6-Other (Specify)

Contract Lab Info: R/C Contract Lab Due Date (Lab Only): 7 / 9 / 21 Send report to lcwillia@santeecooper.com & sjbrown@santeecooper.com

Chain of Custody

10621329

santee cooper
Santee Cooper
One Riverwood Drive
Moncks Corner, SC 29461
Phone: (843)761-8000 Ext. 5148
Fax: (843)761-4175

Customer Email/Report Recipient: LCWILLIA @santeecooper.com **Date Results Needed by:** / / **Project/Task/Unit #:** 121567 / JM02.09.601 / 36500 **Rerun request for any flagged QC** Yes No

Analysis Group

Labworks ID # (Internal use only)	Sample Location/ Description	Collection Date	Collection Time	Sample Collector	Total # of containers	Bottle type: (Glass-G/Plastic-P)	Grab (G) or Composite (C)	Matrix(see below)	Preservative (see below)	Comments: Method # / Reporting limit / Misc. sample info / Any other notes				
AF07280	CLF1B-SD -10	6/23/21	1029	BRT/ML	1	P	G	GW	2		X			
AF07284	POZ-5D -11	〃	1249	〃	1	〃	〃	〃	〃		X			
AF07279	CLF1B-5 -12	〃	0915	〃	〃	〃	〃	〃	〃		X			
AF07286	POZ-7 -13	6/24/21	1040	〃	〃	〃	〃	〃	〃		X			
AF07287	POZ-7DUP -14	〃	1045	〃	〃	〃	〃	〃	〃		X			
AF07282	POZ-3 -15	〃	0918	〃	〃	〃	〃	〃	〃		X			
AF07244	CAP-1 -16	〃	1219	〃	〃	〃	〃	〃	〃		X	X	X	
~~AF07265~~	~~CAP-11~~	〃	1340	〃	〃	〃	〃	〃	〃		~~X~~	~~X~~	~~X~~	
	SJB 6/25													

Relinquished by:	Employee#:	Date	Time	Received by:	Employee #	Date	Time
SJBrown	35594	6/29/21	1500	FEDEX			
Relinquished by:	Employee#:	Date	Time	Received by:	Employee #:	Date:	Time:
FEDEX				CEL		6/30/21	0930
Relinquished by:	Employee#:	Date	Time	Received by:	Employee #	Date	Time

Sample Receiving (Internal Use Only)
TEMP (°C): 23.8 Initial: cre
Correct pH: Yes No
Preservative Lot#:
Date/Time/Init for preservative:

METALS (all)		
Ag	Cu	Sb
Al	Fe	Se
As	K	Sn
B	Li	Sr
Ba	Mg	Ti
Be	Mn	Tl
Ca	Mo	V
Cd	Na	Zn
Co	Ni	Hg
Cr	Pb	CrVI

Nutrients
- TOC
- DOC
- TP/TPO4
- NH3-N
- F
- Cl
- NO2
- Br
- NO3
- SO4

MISC.
- BTEX
- Napthalene
- THM/HAA
- VOC
- Oil & Grease
- E. Coli
- Total Coliform
- pH
- Dissolved As
- Dissolved Fe
- Rad 226
- Rad 228
- PCB

Gypsum
- Wallboard
- Gypsum (all [calc...])
- AIM
- TOC
- Moisture
- Soluble Metals
- Purity (CaSO4)
- % Moisture
- Sulfite
- pH
- Chlorides
- Particle Size
- Sulfur

Coal
- Ultimate
- % Moisture
- Ash
- Sulfur
- BTUs
- Volatile Matter
- CHN

Other Tests:
- XRF Scan
- HGI
- Fineness
- Particulate Matter

Flyash
- Ammonia
- LOI
- % Carbon
- Mineral Analysis
- Sieve
- % Moisture

NPDES
- Oil & Grease
- As
- TSS

Oil
- Trans. Oil Qual.
- [illegible] Moisture
- [illegible]
- [illegible]
- Used Oil
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]

Matrix codes: GW-groundwater, DW-drinking water, SW-surface water, WW-waste water, BW-boiler water, L-limestone, Oil-oil, S-Soil, SL-solid, C-coal, G-gypsum, FA-flyash, BA-bottom ash, M-misc (describe in comment section)
Preservative code- 1=<4°C 2=HNO_3 3=H_2SO_4 4-HCl 5=$Na_2S_2O_3$ 6-Other (Specify)

Rogers & Callcott ENVIRONMENTAL

Sample Receipt Verification

Client: Santee Cooper | Date Received: 06/30/21 | Work Order: 1061329

Carrier Name: Client (FedEx) UPS US Mail Courier Field Services Other: _____

Tracking Number: 815367915239

Receipt Criteria	Yes	No	NA	Comments
Shipping container / cooler intact?	X			Damaged Leaking Other:
Custody seals intact?			X	
COC included with samples?	X			
COC signed when relinquished and received?	X			
Sample bottles intact?	X			Damaged Leaking Other:
Sample ID on COC agree with label on bottle(s)?	X			
Date / time on COC agree with label on bottle(s)?	X			
Number of bottles on COC agrees with number of bottles received?	X			
Samples received within holding time?	X			
Sample volume sufficient for analysis?	X			
VOA vials free of headspace (<6mm bubble)?			X	
Samples cooled? Temp at receipt recorded on COC; Temp measured with IR thermometer - SN: 97050067	X			(Ice) Cold Packs Dry Ice None
Samples requiring pH preservation at proper pH? Note: Samples for metals analysis may be preserved upon receipt in the lab. Note: Samples for O&G and VOA analysis – preservation checked at bench.	X			
Samples dechlorinated for parameters requiring chlorine removal at the time of sample collection? Note: Chlorine checked at bench for samples requiring Bacterial, VOA, and HAA analysis.			X	

If in-house preservation used – record Lot #			
HCL		H_3PO_4	
H_2SO_4		NaOH	
HNO_3		Other	

Comments:

Were non-conformance issues noted at sample receipt? Yes or (No)

Non-Conformance issue other than noted above:

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171
F 843.766.1178

gel.com

February 26, 2021

Ms. Jeanette Gilmetti
Santee Cooper
P.O. Box 2946101
OCO3
Moncks Corner, South Carolina 29461

Re: ABS Lab Analytical
Work Order: 533780

Dear Ms. Gilmetti:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on February 02, 2021. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4289.

Sincerely,

Julie Robinson

Julie Robinson
Project Manager

Purchase Order: 367074
Enclosures

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report
for

SOOP001 Santee Cooper

Client SDG: 533780 GEL Work Order: 533780

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a Tracer compound

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Julie Robinson.

Reviewed by Julie Robinson

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: February 26, 2021

Company :	Santee Cooper
Address :	P.O. Box 2946101 OCO3 Moncks Corner, South Carolina 29461
Contact:	Ms. Jeanette Gilmetti
Project:	ABS Lab Analytical
Client Sample ID:	AE94877
Sample ID:	533780001
Matrix:	Ground Water
Collect Date:	28-JAN-21 09:15
Receive Date:	02-FEB-21
Collector:	Client
Project:	SOOP00119
Client ID:	SOOP001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC, Ra228, Liquid "As Received"													
Radium-228	U	0.175	+/-0.753	1.40	3.00	pCi/L			LXB3	02/23/21	0657	2090245	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.45	+/-0.912			pCi/L		1	AEA	02/25/21	1158	2090294	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		1.28	+/-0.515	0.524	1.00	pCi/L			MXH8	02/25/21	0914	2089473	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			89	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: February 26, 2021

Company :	Santee Cooper
Address :	P.O. Box 2946101 OCO3 Moncks Corner, South Carolina 29461
Contact:	Ms. Jeanette Gilmetti
Project:	ABS Lab Analytical
Client Sample ID:	AE94878
Sample ID:	533780002
Matrix:	Ground Water
Collect Date:	28-JAN-21 09:20
Receive Date:	02-FEB-21
Collector:	Client
Project:	SOOP00119
Client ID:	SOOP001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC, Ra228, Liquid "As Received"													
Radium-228	U	-0.568	+/-0.908	1.85	3.00	pCi/L			LXB3	02/23/21	0657	2090245	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		2.27	+/-1.10			pCi/L		1	AEA	02/25/21	1158	2090294	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		2.27	+/-0.627	0.403	1.00	pCi/L			MXH8	02/25/21	0914	2089473	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			87.6	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: February 26, 2021

Company :	Santee Cooper
Address :	P.O. Box 2946101 OCO3 Moncks Corner, South Carolina 29461
Contact:	Ms. Jeanette Gilmetti
Project:	ABS Lab Analytical
Client Sample ID:	AE94876
Sample ID:	533780003
Matrix:	Ground Water
Collect Date:	28-JAN-21 14:34
Receive Date:	02-FEB-21
Collector:	Client
Project:	SOOP00119
Client ID:	SOOP001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC, Ra228, Liquid "As Received"													
Radium-228	U	0.718	+/-0.820	1.38	3.00	pCi/L			LXB3	02/23/21	0657	2090245	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.23	+/-0.888			pCi/L		1	AEA	02/25/21	1158	2090294	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.517	+/-0.340	0.440	1.00	pCi/L			MXH8	02/25/21	0914	2089473	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			86.5	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: February 26, 2021

Company :	Santee Cooper
Address :	P.O. Box 2946101 OCO3 Moncks Corner, South Carolina 29461
Contact:	Ms. Jeanette Gilmetti
Project:	ABS Lab Analytical
Client Sample ID:	AE94874
Sample ID:	533780004
Matrix:	Ground Water
Collect Date:	28-JAN-21 11:43
Receive Date:	02-FEB-21
Collector:	Client
Project:	SOOP00119
Client ID:	SOOP001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC, Ra228, Liquid "As Received"													
Radium-228	U	1.43	+/-1.37	2.26	3.00	pCi/L			LXB3	02/23/21	0705	2090245	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		2.22	+/-1.42			pCi/L		1	AEA	02/25/21	1158	2090294	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.792	+/-0.364	0.303	1.00	pCi/L			MXH8	02/25/21	0914	2089473	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			84	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: February 26, 2021

Company :	Santee Cooper
Address :	P.O. Box 2946101 OCO3 Moncks Corner, South Carolina 29461
Contact:	Ms. Jeanette Gilmetti
Project:	ABS Lab Analytical

Client Sample ID:	AE94872	Project:	SOOP00119
Sample ID:	533780005	Client ID:	SOOP001
Matrix:	Ground Water		
Collect Date:	26-JAN-21 09:27		
Receive Date:	02-FEB-21		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC, Ra228, Liquid "As Received"													
Radium-228		2.88	+/-1.39	2.06	3.00	pCi/L			LXB3	02/23/21	0705	2090245	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		3.44	+/-1.46			pCi/L		1	AEA	02/25/21	1158	2090294	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.559	+/-0.438	0.659	1.00	pCi/L			MXH8	02/25/21	0914	2089473	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			90.6	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: February 26, 2021

Company :	Santee Cooper
Address :	P.O. Box 2946101 OCO3 Moncks Corner, South Carolina 29461
Contact:	Ms. Jeanette Gilmetti
Project:	ABS Lab Analytical

Client Sample ID:	AE94854	Project:	SOOP00119
Sample ID:	533780006	Client ID:	SOOP001
Matrix:	Ground Water		
Collect Date:	26-JAN-21 10:39		
Receive Date:	02-FEB-21		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC, Ra228, Liquid "As Received"													
Radium-228	U	1.29	+/-1.12	1.83	3.00	pCi/L			LXB3	02/23/21	0705	2090245	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.73	+/-1.22			pCi/L		1	AEA	02/25/21	1158	2090294	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.436	+/-0.477	0.784	1.00	pCi/L			MXH8	02/25/21	0914	2089473	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			90.2	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

QC Summary

Report Date: February 26, 2021

Santee Cooper
P.O. Box 2946101
OCO3
Moncks Corner, South Carolina

Contact: **Ms. Jeanette Gilmetti**

Workorder: **533780**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 2090245										
QC1204749130 533780006 DUP										
Radium-228	U	1.29	U	0.286	pCi/L	N/A			N/A LXB3	02/23/21 07:05
	Uncertainty	+/-1.12		+/-0.659						
QC1204749131 LCS										
Radium-228	54.8			55.9	pCi/L		102	(75%-125%)		02/23/21 07:05
	Uncertainty			+/-3.76						
QC1204749129 MB										
Radium-228			U	-0.160	pCi/L					02/23/21 07:05
	Uncertainty			+/-0.717						
Rad Ra-226										
Batch 2089473										
QC1204747700 533780004 DUP										
Radium-226		0.792		0.729	pCi/L	8.25		(0% - 100%)	MXH8	02/25/21 09:55
	Uncertainty	+/-0.364		+/-0.366						
QC1204747702 LCS										
Radium-226	54.1			45.0	pCi/L		83.3	(75%-125%)		02/25/21 09:55
	Uncertainty			+/-2.92						
QC1204747699 MB										
Radium-226			U	-0.118	pCi/L					02/25/21 09:55
	Uncertainty			+/-0.277						
QC1204747701 533780004 MS										
Radium-226	135	0.792		168	pCi/L		124	(75%-125%)		02/25/21 09:55
	Uncertainty	+/-0.364		+/-12.1						

Notes:

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

- ** Analyte is a Tracer compound
- < Result is less than value reported
- > Result is greater than value reported
- BD Results are either below the MDC or tracer recovery is low
- FA Failed analysis.

QC Summary

Workorder: 533780

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

H	Analytical holding time was exceeded
J	See case narrative for an explanation
J	Value is estimated
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	REMP Result > MDC/CL and < RDL
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Radiochemistry
Technical Case Narrative
Santee Cooper
SDG #: 533780

Product: **GFPC, Ra228, Liquid**
Analytical Method: EPA 904.0/SW846 9320 Modified
Analytical Procedure: GL-RAD-A-063 REV# 5
Analytical Batch: 2090245

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
533780001	AE94877
533780002	AE94878
533780003	AE94876
533780004	AE94874
533780005	AE94872
533780006	AE94854
1204749129	Method Blank (MB)
1204749130	533780006(AE94854) Sample Duplicate (DUP)
1204749131	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: **Lucas Cell, Ra226, Liquid**
Analytical Method: EPA 903.1 Modified
Analytical Procedure: GL-RAD-A-008 REV# 15
Analytical Batch: 2089473

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
533780001	AE94877
533780002	AE94878
533780003	AE94876
533780004	AE94874
533780005	AE94872
533780006	AE94854
1204747699	Method Blank (MB)
1204747700	533780004(AE94874) Sample Duplicate (DUP)
1204747701	533780004(AE94874) Matrix Spike (MS)
1204747702	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Miscellaneous Information

Additional Comments
The matrix spike, 1204747701 (AE94874MS), aliquot was reduced to conserve sample volume.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

3/3/21 – RAD

533780 / 533779

Contract Lab Info: GEL Contract Lab Due Date (Lab Only): 2 / 9 / 21 Send report to lcwillia@santeecooper.com & sjbrown@santeecooper.com

Chain of Custody

santee cooper
Santee Cooper
One Riverwood Drive
Moncks Corner, SC 29461
Phone: (843)761-8000 Ext. 5148
Fax: (843)761-4175

Customer Email/Report Recipient: LCWILLIA @santeecooper.com

Date Results Needed by: ___/___/___

Project/Task/Unit #: 121567 / JM02.09.G01 / 36500

Rerun request for any flagged QC Yes No

Analysis Group

Labworks ID # (Internal use only)	Sample Location/ Description	Collection Date	Collection Time	Sample Collector	Total # of containers	Bottle type: (Glass-G/Plastic-P)	Grab (G) or Composite (C)	Matrix(see below)	Preservative (see below)	Comments • Method # • Reporting limit • Misc. sample info • Any other notes	RAD 226	RAD 228	TOTAL RAD (CALC)	TOC
AE94877	POZ-7	1/28/21	0915	ATH/DEW	3	P/G	G	GW	1/3/2		1	1	X	1
AE94878	POZ-7 DUP	"	0920	"	"	"	"	"	"		"	"	"	"
AE94876	POZ-6	"	1434	"	"	"	"	"	"		"	"	"	"
AE94874	POZ-4	"	1148	"	"	"	"	"	"		"	"	"	"
AE94869	CLFIB-4	1/27/21	0918	ATH/DEW	1	G	G	GW	1/3					X
AE94870	CLFIB-5	"	1021	"	"	"	"	"	"					X
AE94871	CLFIB-5D	1/27/21	1117	ATH/DEW	1	G	G	GW	1/3					X
AE94875	POZ-5D	"	1223	"	"	"	"	"	"					X
AE94873	POZ-3	"	1321	"	"	"	"	"	"					X

Relinquished by:	Employee#	Date	Time	Received by:	Employee #	Date	Time
SJBrown	35594	2/2/21	0915	[illegible]	GEL	2/2/21	0915
Relinquished by:	Employee#	Date	Time	Received by:	Employee #	Date	Time
[illegible]	GEL	2/2/21	1615	[illegible]	GEL	2/2/21	1615
Relinquished by:	Employee#	Date	Time	Received by:	Employee #	Date	Time

Sample Receiving (Internal Use Only)
TEMP (°C):_____ Initial:_____
Correct pH: Yes No
Preservative Lot#:
Date/Time/Init for preservative:

☐ METALS (all)

☐ Ag	☐ Cu	☐ Sb
☐ Al	☐ Fe	☐ Se
☐ As	☐ K	☐ Sn
☐ B	☐ Li	☐ Sr
☐ Ba	☐ Mg	☐ Ti
☐ Be	☐ Mn	☐ Tl
☐ Ca	☐ Mo	☐ V
☐ Cd	☐ Na	☐ Zn
☐ Co	☐ Ni	☐ Hg
☐ Cr	☐ Pb	☐ CrVI

Nutrients
☐ TOC
☐ DOC
☐ TP/TPO4
☐ NH3-N
☐ F
☐ Cl
☐ NO2
☐ Br
☐ NO3
☐ SO4

MISC.
☐ BTEX
☐ Napthalene
☐ THM/HAA
☐ VOC
☐ Oil & Grease
☐ E. Coli
☐ Total Coliform
☐ pH
☐ Dissolved As
☐ Dissolved Fe
☐ Rad 226
☐ Rad 228
☐ PCB

Gypsum
☐ Wallboard Gypsum(*all below*)
☐ AIM
☐ TOC
☐ Total metals
☐ Soluble Metals
☐ Purity ($CaSO_4$)
☐ % Moisture
☐ Sulfites
☐ pH
☐ Chlorides
☐ Particle Size
☐ Sulfur

Coal
☐ Ultimate
☐ % Moisture
☐ Ash
☐ Sulfur
☐ BTUs
☐ Volatile Matter
☐ CHN
Other Tests:
☐ XRF Scan
☐ HGI
☐ Fineness
☐ Particulate Matter

Flyash
☐ Ammonia
☐ LOI
☐ % Carbon
☐ Mineral Analysis
☐ Sieve
☐ % Moisture

NPDES
☐ Oil & Grease
☐ As
☐ TSS

Oil
Trans. Oil Qual.
%Moisture
Color
Acidity
Dielectric Strength
IFT
Dissolved Gases
Used Oil
Flashpoint
Metals in oil
(As, Cd, Cr, Ni, Pb, Hg)
TN
TX
GOFER

Matrix codes: GW-groundwater, DW-drinking water, SW-surface water, WW-waste water, BW-boiler water, L-limestone, Oil-oil, S-Soil, SL-solid, C-coal, G-gypsum, FA-flyash, BA-bottom ash, M-misc (describe in comment section)
Preservative code: 1=4°C 2=HNO_3 3=H_2SO_4 4-HCl 5=$Na_2S_2O_3$ 6-Other (Specify)

3/3/21 - RAD

Contract Lab Info: GEL Contract Lab Due Date (Lab Only): 2 / 9 / 21 Send report to lcwillia@santeecooper.com & slbrown@santeecooper.com

Chain of Custody

santee cooper
Santee Cooper
One Riverwood Drive
Moncks Corner, SC 29461
Phone: (843)761-8000 Ext. 5148
Fax: (843)761-4175

Customer Email/Report Recipient: LCWILLIA @santeecooper.com

Date Results Needed by: ___/___/___

Project/Task/Unit #: 121567 / JM02.09.G01 / 36500

Rerun request for any flagged QC Yes No

Analysis Group

Labworks ID # (Internal use only)	Sample Location/ Description	Collection Date	Collection Time	Sample Collector	Total # of containers	Bottle type: (Glass-G/Plastic-P)	Grab (G) or Composite (C)	Matrix(see below)	Preservative (see below)	Comments • Method # • Reporting limit • Misc. sample info • Any other notes	RAD 226	RAD 228	TOTAL RAD CALC	TOC
AE94872	PM-1	1/26/21	0927	ATH/DEW	3	P/G	G	GW	1/3/2		1	1	X	1
AE94854	CBW-1	〃	1039	〃	〃	〃	〃	〃	〃		〃	〃	X	〃
AE94865	CLFIB-1	1/26/21	1201	〃	1	G	G	GW	1/3					X
AE94866	CLFIB-1 DUP	〃	1206	〃	〃	〃	〃	〃	〃					〃
AE94867	CLFIB-2	〃	1306	〃	〃	〃	〃	〃	〃					〃
AE94868	CLFIB-3	〃	1358	〃	〃	〃	〃	〃	〃					〃

Relinquished by:	Employee#	Date	Time	Received by:	Employee #	Date	Time
SBrown	35594	2/2/21	0915	[signature]	GEL	2/2/21	0915
Relinquished by:	**Employee#**	**Date**	**Time**	**Received by:**	**Employee #**	**Date**	**Time**
[signature]	GEL	2-2-21	1615	[signature]	GEL	2/2/21	1615
Relinquished by:	**Employee#**	**Date**	**Time**	**Received by:**	**Employee #**	**Date**	**Time**

Sample Receiving (Internal Use Only)
TEMP (°C): _____ Initial: _____
Correct pH: Yes No
Preservative Lot#:
Date/Time/Init for preservative:

☐ METALS (all)

☐ Ag	☐ Cu	☐ Sb
☐ Al	☐ Fe	☐ Se
☐ As	☐ K	☐ Sn
☐ B	☐ Li	☐ Sr
☐ Ba	☐ Mg	☐ Ti
☐ Be	☐ Mn	☐ Tl
☐ Ca	☐ Mo	☐ V
☐ Cd	☐ Na	☐ Zn
☐ Co	☐ Ni	☐ Hg
☐ Cr	☐ Pb	☐ CrVI

Nutrients
☐ TOC
☐ DOC
☐ TP/TPO4
☐ NH3-N
☐ F
☐ Cl
☐ NO2
☐ Br
☐ NO3
☐ SO4

MISC.
☐ BTEX
☐ Napthalene
☐ THM/HAA
☐ VOC
☐ Oil & Grease
☐ E. Coli
☐ Total Coliform
☐ pH
☐ Dissolved As
☐ Dissolved Fe
☐ Rad 226
☐ Rad 228
☐ PCB

Gypsum
☐ Wallboard Gypsum(*all below*)
☐ AIM
☐ TOC
☐ Total metals
☐ Soluble Metals
☐ Purity (CaSO4)
☐ % Moisture
☐ Sulfites
☐ pH
☐ Chlorides
☐ Particle Size
☐ Sulfur

Coal
☐ Ultimate
☐ % Moisture
☐ Ash
☐ Sulfur
☐ BTUs
☐ Volatile Matter
☐ CHN
Other Tests:
☐ XRF Scan
☐ HGI
☐ Fineness
☐ Particulate Matter

Flyash
☐ Ammonia
☐ LOI
☐ % Carbon
☐ Mineral Analysis
☐ Sieve
☐ % Moisture

NPDES
☐ Oil & Grease
☐ As
☐ TSS

Oil
Trans. Oil Qual.
%Moisture
Color
Acidity
Dielectric Strength
IFT
Dissolved Gases
Used Oil
Flashpoint
Metals in oil (As,Cd,Cr,Ni,Pb Hg)
TAN
COLOR

Matrix codes: GW-groundwater, DW-drinking water, SW-surface water, WW-waste water, BW-boiler water, L-limestone, Oil-oil, S-Soil, SL-solid, C-coal, G-gypsum, FA-flyash, BA-bottom ash, M-misc (describe in comment section)
Preservative Code: 1=HNO_3 2=HNO_3 3=H_2SO_4 4-HCl 5=$Na_2S_2O_3$ 6-Other (Specify)

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: SCOP	SDG/AR/COC/Work Order: 533780/533779 S.R.
Received By: Tye	Date Received: 2/2/21
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
A)Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes___ No___
B) Did the client designate the samples are to be received as radioactive?		✓	COC notation or radioactive stickers on containers equal client designation.
C) Did the RSO classify the samples as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3
D) Did the client designate samples are hazardous?		✓	COC notation or hazard labels on containers equal client designation.
E) Did the RSO identify possible hazards?		✓	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: (Wet Ice) Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: 2C
4	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: IR3-19 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?	✓			Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?			✓	If Yes, are Encores or Soil Kits present for solids? Yes___ No___ NA___(If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes___ No___ NA___(If unknown, select No) Are liquid VOA vials free of headspace? Yes___ No___ NA___ Sample ID's and containers affected:
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
11	Number of containers received match number indicated on COC?	✓			Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided by use of GEL labels?	✓			
13	COC form is properly signed in relinquished/received sections?	✓			Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials CAD Date 2/2/21 Page 1 of 1

GL-CHL-SR-001 Rev 7

List of current GEL Certifications as of 26 February 2021

State	Certification
Alabama	42200
Alaska	17-018
Alaska Drinking Water	SC00012
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2019020
Maryland	270
Massachusetts	M-SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122021-1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	2019-165
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-21-19
Utah NELAP	SC000122020-34
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171
F 843.766.1178

gel.com

July 26, 2021

Ms. Jeanette Gilmetti
Santee Cooper
P.O. Box 2946101
OCO3
Moncks Corner, South Carolina 29461

Re: ABS Lab Analytical
Work Order: 548337

Dear Ms. Gilmetti:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on June 25, 2021. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Test results for NELAP or ISO 17025 accredited tests are verified to meet the requirements of those standards, with any exceptions noted. The results reported relate only to the items tested and to the sample as received by the laboratory. These results may not be reproduced except as full reports without approval by the laboratory. Copies of GEL's accreditations and certifications can be found on our website at www.gel.com.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4289.

Sincerely,

Julie Robinson

Julie Robinson
Project Manager

Purchase Order: 367074
Enclosures

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis Report
for

SOOP001 Santee Cooper

Client SDG: 548337 GEL Work Order: 548337

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a Tracer compound

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the limit as defined in the 'U' qualifier above.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Julie Robinson.

Reviewed by Julie Robinson

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: July 26, 2021

Company :	Santee Cooper
Address :	P.O. Box 2946101 OCO3 Moncks Corner, South Carolina 29461
Contact:	Ms. Jeanette Gilmetti
Project:	ABS Lab Analytical
Client Sample ID:	AF07244
Sample ID:	548337001
Matrix:	Ground Water
Collect Date:	24-JUN-21 12:19
Receive Date:	25-JUN-21
Collector:	Client
Project:	SOOP00119
Client ID:	SOOP001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC, Ra228, Liquid "As Received"													
Radium-228	U	0.659	+/-1.18	2.07	3.00	pCi/L			JXC9	07/06/21	1315	2144300	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.789	+/-1.19			pCi/L		1	AEA	07/20/21	0551	2144335	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.130	+/-0.190	0.332	1.00	pCi/L			LXP1	07/13/21	0828	2144215	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			79.4	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: July 26, 2021

Company :	Santee Cooper
Address :	P.O. Box 2946101 OCO3 Moncks Corner, South Carolina 29461
Contact:	Ms. Jeanette Gilmetti
Project:	ABS Lab Analytical
Client Sample ID:	AF07286
Sample ID:	548337003
Matrix:	Ground Water
Collect Date:	24-JUN-21 10:40
Receive Date:	25-JUN-21
Collector:	Client
Project:	SOOP00119
Client ID:	SOOP001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC, Ra228, Liquid "As Received"													
Radium-228	U	1.50	+/-1.16	1.81	3.00	pCi/L			JXC9	07/06/21	1315	2144300	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		1.63	+/-1.17			pCi/L		1	AEA	07/20/21	0551	2144335	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.124	+/-0.151	0.254	1.00	pCi/L			LXP1	07/13/21	0828	2144215	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			78.8	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: July 26, 2021

Company :	Santee Cooper
Address :	P.O. Box 2946101 OCO3 Moncks Corner, South Carolina 29461
Contact:	Ms. Jeanette Gilmetti
Project:	ABS Lab Analytical
Client Sample ID:	AF07287
Sample ID:	548337004
Matrix:	Ground Water
Collect Date:	24-JUN-21 10:45
Receive Date:	25-JUN-21
Collector:	Client
Project:	SOOP00119
Client ID:	SOOP001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC, Ra228, Liquid "As Received"													
Radium-228	U	0.116	+/-0.995	1.87	3.00	pCi/L			JXC9	07/06/21	1315	2144300	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.977	+/-1.03			pCi/L		1	AEA	07/20/21	0551	2144335	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.862	+/-0.270	0.230	1.00	pCi/L			LXP1	07/13/21	0828	2144215	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			84.5	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: July 26, 2021

Company :	Santee Cooper
Address :	P.O. Box 2946101 OCO3 Moncks Corner, South Carolina 29461
Contact:	Ms. Jeanette Gilmetti
Project:	ABS Lab Analytical
Client Sample ID:	AF07281
Sample ID:	548337005
Matrix:	Ground Water
Collect Date:	21-JUN-21 13:08
Receive Date:	25-JUN-21
Collector:	Client
Project:	SOOP00119
Client ID:	SOOP001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC, Ra228, Liquid "As Received"													
Radium-228	U	1.73	+/-1.22	1.89	3.00	pCi/L			JXC9	07/06/21	1315	2144300	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		2.10	+/-1.23			pCi/L		1	AEA	07/20/21	0551	2144335	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.369	+/-0.179	0.194	1.00	pCi/L			LXP1	07/13/21	0828	2144215	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			89.3	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: July 26, 2021

Company :	Santee Cooper
Address :	P.O. Box 2946101 OCO3 Moncks Corner, South Carolina 29461
Contact:	Ms. Jeanette Gilmetti
Project:	ABS Lab Analytical
Client Sample ID:	AF07259
Sample ID:	548337006
Matrix:	Ground Water
Collect Date:	21-JUN-21 14:13
Receive Date:	25-JUN-21
Collector:	Client
Project:	SOOP00119
Client ID:	SOOP001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC, Ra228, Liquid "As Received"													
Radium-228	U	0.120	+/-1.04	1.96	3.00	pCi/L			JXC9	07/06/21	1315	2144300	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.552	+/-1.06			pCi/L		1	AEA	07/20/21	0551	2144335	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.433	+/-0.218	0.254	1.00	pCi/L			LXP1	07/13/21	0828	2144215	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			83	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

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Certificate of Analysis

Report Date: July 26, 2021

Company :	Santee Cooper
Address :	P.O. Box 2946101 OCO3 Moncks Corner, South Carolina 29461
Contact:	Ms. Jeanette Gilmetti
Project:	ABS Lab Analytical
Client Sample ID:	AF07283
Sample ID:	548337007
Matrix:	Ground Water
Collect Date:	23-JUN-21 13:55
Receive Date:	25-JUN-21
Collector:	Client
Project:	SOOP00119
Client ID:	SOOP001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC, Ra228, Liquid "As Received"													
Radium-228	U	-0.898	+/-0.740	1.73	3.00	pCi/L			JXC9	07/06/21	1315	2144300	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.244	+/-0.757			pCi/L		1	AEA	07/20/21	0551	2144335	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226		0.244	+/-0.160	0.195	1.00	pCi/L			LXP1	07/13/21	0828	2144215	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			88.4	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

GEL LABORATORIES LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: July 26, 2021

Company :	Santee Cooper
Address :	P.O. Box 2946101 OCO3 Moncks Corner, South Carolina 29461
Contact:	Ms. Jeanette Gilmetti
Project:	ABS Lab Analytical
Client Sample ID:	AF07285
Sample ID:	548337008
Matrix:	Ground Water
Collect Date:	23-JUN-21 15:04
Receive Date:	25-JUN-21
Collector:	Client
Project:	SOOP00119
Client ID:	SOOP001

Parameter	Qualifier	Result	Uncertainty	MDC	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting													
GFPC, Ra228, Liquid "As Received"													
Radium-228	U	0.801	+/-1.20	2.07	3.00	pCi/L			JXC9	07/06/21	1315	2144300	1
Radium-226+Radium-228 Calculation "See Parent Products"													
Radium-226+228 Sum		0.971	+/-1.20			pCi/L		1	AEA	07/20/21	0551	2144335	2
Rad Radium-226													
Lucas Cell, Ra226, Liquid "As Received"													
Radium-226	U	0.170	+/-0.144	0.203	1.00	pCi/L			LXP1	07/13/21	0900	2144215	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 904.0/SW846 9320 Modified	
2	Calculation	
3	EPA 903.1 Modified	

Surrogate/Tracer Recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			80	(15%-125%)

Notes:
Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

Column headers are defined as follows:

DF: Dilution Factor	Lc/LC: Critical Level
DL: Detection Limit	PF: Prep Factor
MDA: Minimum Detectable Activity	RL: Reporting Limit
MDC: Minimum Detectable Concentration	SQL: Sample Quantitation Limit

QC Summary

Report Date: July 26, 2021

Santee Cooper
P.O. Box 2946101
OCO3
Moncks Corner, South Carolina

Contact: **Ms. Jeanette Gilmetti**

Workorder: **548337**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Rad Gas Flow											
Batch 2144300											
QC1204852392 548337008 DUP											
Radium-228	U	0.801	U	-0.509	pCi/L	N/A			N/A JXC9	07/06/21	13:15
	Uncertainty	+/-1.20		+/-0.937							
QC1204852393 LCS											
Radium-228	51.1			51.6	pCi/L		101	(75%-125%)		07/06/21	13:15
	Uncertainty			+/-4.05							
QC1204852391 MB											
Radium-228			U	-1.27	pCi/L					07/06/21	13:15
	Uncertainty			+/-0.862							
Rad Ra-226											
Batch 2144215											
QC1204852184 548337001 DUP											
Radium-226	U	0.130	U	0.270	pCi/L	N/A			N/A LXP1	07/13/21	09:00
	Uncertainty	+/-0.190		+/-0.196							
QC1204852186 LCS											
Radium-226	26.8			23.6	pCi/L		87.9	(75%-125%)		07/13/21	09:00
	Uncertainty			+/-1.30							
QC1204852183 MB											
Radium-226			U	0.107	pCi/L					07/13/21	09:00
	Uncertainty			+/-0.111							
QC1204852185 548337001 MS											
Radium-226	134 U	0.130		115	pCi/L		85.6	(75%-125%)		07/13/21	09:00
	Uncertainty	+/-0.190		+/-6.66							

Notes:

Counting Uncertainty is calculated at the 95% confidence level (1.96-sigma).

The Qualifiers in this report are defined as follows:

- ** Analyte is a Tracer compound
- < Result is less than value reported
- > Result is greater than value reported
- BD Results are either below the MDC or tracer recovery is low
- FA Failed analysis.

QC Summary

Workorder: 548337

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

H	Analytical holding time was exceeded
J	See case narrative for an explanation
J	Value is estimated
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	REMP Result > MDC/CL and < RDL
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Radiochemistry
Technical Case Narrative
Santee Cooper
SDG #: 548337

Product: **GFPC, Ra228, Liquid**
Analytical Method: EPA 904.0/SW846 9320 Modified
Analytical Procedure: GL-RAD-A-063 REV# 5
Analytical Batch: 2144300

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
548337001	AF07244
548337003	AF07286
548337004	AF07287
548337005	AF07281
548337006	AF07259
548337007	AF07283
548337008	AF07285
1204852391	Method Blank (MB)
1204852392	548337008(AF07285) Sample Duplicate (DUP)
1204852393	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: **Lucas Cell, Ra226, Liquid**
Analytical Method: EPA 903.1 Modified
Analytical Procedure: GL-RAD-A-008 REV# 15
Analytical Batch: 2144215

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
548337001	AF07244
548337003	AF07286
548337004	AF07287
548337005	AF07281
548337006	AF07259
548337007	AF07283
548337008	AF07285
1204852183	Method Blank (MB)
1204852184	548337001(AF07244) Sample Duplicate (DUP)

1204852185	548337001(AF07244) Matrix Spike (MS)
1204852186	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Miscellaneous Information

Additional Comments
The matrix spike, 1204852185 (AF07244MS), aliquot was reduced to conserve sample volume.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

7/26/21 - RAD

Contract Lab Info: GEL Contract Lab Due Date (Lab Only): 7 / 2 / 21 Send report to lcwillia@santeecooper.com & sjbrown@santeecooper.com

Chain of Custody

548333
548337

santee cooper
Santee Cooper
One Riverwood Drive
Moncks Corner, SC 29461
Phone: (843)761-8000 Ext. 5148
Fax: (843)761-4175

Customer Email/Report Recipient: LCWILLIA@santeecooper.com

Date Results Needed by: ___/___/___

Project/Task/Unit #: 121567 / JM02.09.G01 / 36500

Rerun request for any flagged QC Yes No

Labworks ID # (Internal use only)	Sample Location/ Description	Collection Date	Collection Time	Sample Collector	Total # of containers	Bottle type: (Glass-G/Plastic-P)	Grab (G) or Composite (C)	Matrix(see below)	Preservative (see below)	Comments • Method # • Reporting limit • Misc. sample info • Any other notes	Analysis Group: TOC	RAD 226	RAD 228	TOTAL RAD CALC.
AF07280	CLF1B-5D	6/23/21	1029	BRT/ML	1	G	G	GW	1/3		X			
AF07284	POZ-5D	"	1249	"	1	G	G	GW	"		X			
AF07279	CLF1B-5	"	0915	"	1	G	G	GW	"		X			
AF07244	CAP-1	6/24/21	1219	BRT/ML	2	P	G	GW	2			X	X	X
AF07246	CAP-3	"	1340	"	2	P	G	GW	2			X	X	X
AF07286	POZ-7	"	1040	"	3	P/G	G	GW	2/1,3		X	X	X	X
AF07287	POZ-7 DUP	"	1045	"	3	P/G	G	GW	2/1,3		X	X	X	X
AF07282	POZ-3	6/24/21	0918	"	1	G	G	GW	1,3		X			

Relinquished by:	Employee#	Date	Time	Received by:	Employee #	Date	Time
SJBrown	35594	6/25/21	1310		GEL	6/25/21	1310
Relinquished by:	Employee#	Date	Time	Received by:	Employee #	Date	Time
	GEL	6/25/21	1446		GEL	6/25/21	1446
Relinquished by:	Employee#	Date	Time	Received by:	Employee #	Date	Time

Sample Receiving (Internal Use Only)
TEMP (°C): _____ Initial: _____
Correct pH: Yes No
Preservative Lot#:
Date/Time/Init for preservative:

☐ METALS (all)

☐ Ag	☐ Cu	☐ Sb
☐ Al	☐ Fe	☐ Se
☐ As	☐ K	☐ Sn
☐ B	☐ Li	☐ Sr
☐ Ba	☐ Mg	☐ Ti
☐ Be	☐ Mn	☐ Tl
☐ Ca	☐ Mo	☐ V
☐ Cd	☐ Na	☐ Zn
☐ Co	☐ Ni	☐ Hg
☐ Cr	☐ Pb	☐ CrVI

Nutrients
☐ TOC
☐ DOC
☐ TP/TPO4
☐ NH3-N
☐ F
☐ Cl
☐ NO2
☐ Br
☐ NO3
☐ SO4

MISC.
☐ BTEX
☐ Napthalene
☐ THM/HAA
☐ VOC
☐ Oil & Grease
☐ E. Coli
☐ Total Coliform
☐ pH
☐ Dissolved As
☐ Dissolved Fe
☐ Rad 226
☐ Rad 228
☐ PCB

Gypsum
☐ Wallboard Gypsum *(all below)*
☐ AIM
☐ TOC
☐ Total metals
☐ Soluble Metals
☐ Purity ($CaSO_4$)
☐ % Moisture
☐ Sulfites
☐ pH
☐ Chlorides
☐ Particle Size
☐ Sulfur

Coal
☐ Ultimate
☐ % Moisture
☐ Ash
☐ Sulfur
☐ BTUs
☐ Volatile Matter
☐ CHN
Other Tests:
☐ XRF Scan
☐ HGI
☐ Fineness
☐ Particulate Matter

Flyash
☐ Ammonia
☐ LOI
☐ % Carbon
☐ Mineral Analysis
☐ Sieve
☐ % Moisture

NPDES
☐ Oil & Grease
☐ As
☐ TSS

Oil
Trans. Oil Qual.
☐ %Moisture
☐ Color
☐ Acidity
☐ Dielectric Strength
☐ IFT
☐ Dissolved Gases
Used Oil
☐ Flashpoint
☐ Metals in oil (As, Cd, Cr, Ni, Pb, Hg)
☐ TX
☐ GOFER

Matrix codes: GW-groundwater, DW-drinking water, SW-surface water, WW-waste water, BW-boiler water, L-limestone, Oil-oil, S-Soil, SL-solid, C-coal, G-gypsum, FA-flyash, BA-bottom ash, M-misc (describe in comment section)
Preservative Code: 1=4°C 2=HNO_3 3=H_2SO_4 4-HCl 5=$Na_2S_2O_3$ 6-Other (Specify)

7/26/21 - RAD

Contract Lab Info: _____ Contract Lab Due Date (Lab Only): 7 / 2 / 21 Send report to lcwillia@santeecooper.com & sjbrown@santeecooper.com

Chain of Custody

santee cooper
Santee Cooper
One Riverwood Drive
Moncks Corner, SC 29461
Phone: (843)761-8000 Ext. 5148
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Customer Email/Report Recipient: LCWILLIA @santeecooper.com

Date Results Needed by: ___/___/___

Project/Task/Unit #: 121567 / JM02.09.G01 / 36500

Rerun request for any flagged QC Yes No

Analysis Group

Labworks ID # (Internal use only)	Sample Location/ Description	Collection Date	Collection Time	Sample Collector	Total # of containers	Bottle type: (Glass-G/Plastic-P)	Grab (G) or Composite (C)	Matrix(see below)	Preservative (see below)	Comments • Method # • Reporting limit • Misc. sample info • Any other notes	RAD 226	RAD 228	TOTAL RAD CALC	TOC
AF07281	PM-1	6/21/21	1308	MDG/BRT	3	P/G	G	GW	2/1,3		X	X	X	X
AF07259	CBW-1	〃	1413	〃	3	P/G	G	GW	2/1,3		X	X	X	X
AF07274	CLF1B-1	6/22/21	1007	BRT/ML	1	G	G		1,3					X
AF07275	CLF1B-1 DUP	〃	1012	〃	〃	〃	〃	〃	〃					X
AF07276	CLF1B-2	〃	1213	〃	〃	〃	〃	〃	〃					X
AF07277	CLF1B-3	〃	1358	〃	〃	〃	〃	〃	〃					X
AF07278	CLF1B-4	〃	1454	〃	〃	〃	〃	〃	〃					X
AF07283	POZ-4	6/23/21	1355	BRT/ML	3	P/G	G	GW	2/1,3		X	X	X	X
AF07285	POZ-6	〃	1504	〃	〃	〃	〃	〃	〃		X	X	X	X

Relinquished by:	Employee#	Date	Time	Received by:	Employee #	Date	Time
SJBrown	35594	6/25/21	1310	GEL	GEL	6/25/21	1310
Relinquished by:	Employee#	Date	Time	Received by:	Employee #	Date	Time
[illegible]	[illegible]	6/25/21	1440	[illegible]	GEL	6/25/21	1440
Relinquished by:	Employee#	Date	Time	Received by:	Employee #	Date	Time

Sample Receiving (Internal Use Only)
TEMP (°C): _____ Initial: _____
Correct pH: Yes No
Preservative Lot#:
Date/Time/Init for preservative:

☐ METALS (all)

☐ Ag	☐ Cu	☐ Sb
☐ Al	☐ Fe	☐ Se
☐ As	☐ K	☐ Sn
☐ B	☐ Li	☐ Sr
☐ Ba	☐ Mg	☐ Ti
☐ Be	☐ Mn	☐ Tl
☐ Ca	☐ Mo	☐ V
☐ Cd	☐ Na	☐ Zn
☐ Co	☐ Ni	☐ Hg
☐ Cr	☐ Pb	☐ CrVI

Nutrients
☐ TOC
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☐ NH3-N
☐ F
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MISC.
☐ BTEX
☐ Napthalene
☐ THM/HAA
☐ VOC
☐ Oil & Grease
☐ E. Coli
☐ Total Coliform
☐ pH
☐ Dissolved As
☐ Dissolved Fe
☐ Rad 226
☐ Rad 228
☐ PCB

Gypsum
☐ Wallboard Gypsum(*all below*)
☐ AIM
☐ TOC
☐ Total metals
☐ Soluble Metals
☐ Purity (CaSO4)
☐ % Moisture
☐ Sulfites
☐ pH
☐ Chlorides
☐ Particle Size
☐ Sulfur

Coal
☐ Ultimate
☐ % Moisture
☐ Ash
☐ Sulfur
☐ BTUs
☐ Volatile Matter
☐ CHN
Other Tests:
☐ XRF Scan
☐ HGI
☐ Fineness
☐ Particulate Matter

Flyash
☐ Ammonia
☐ LOI
☐ % Carbon
☐ Mineral Analysis
☐ Sieve
☐ % Moisture

NPDES
☐ Oil & Grease
☐ As
☐ TSS

Oil
Trans. Oil Qual.
☐ %Moisture
☐ Color
☐ Acidity
☐ Dielectric Strength
☐ IFT
☐ Dissolved Gases
Used Oil
☐ Flashpoint
☐ Metals in oil (As,Cd,Cr,Ni,Pb, Hg)
☐ TX
☐ GOFER

Matrix codes: GW-groundwater, DW-drinking water, SW-surface water, WW-waste water, BW-boiler water, L-limestone, Oil-oil, S-Soil, SL-solid, C-coal, G-gypsum, FA-flyash, BA-bottom ash, M-misc (describe in comment section)
Preservative code- 1=<4°C 2=HNO_3 3=H_2SO_4 4-HCl 5=$Na_2S_2O_3$ 6-Other (Specify)

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: SDDP	SDG/AR/COC/Work Order: 548333
Received By: TYE	Date Received: 6/25/21
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services (Courier) Other

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
A) Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#: If UN2910, Is the Radioactive Shipment Survey Compliant? Yes___ No___
B) Did the client designate the samples are to be received as radioactive?		✓	COC notation or radioactive stickers on containers equal client designation.
C) Did the RSO classify the samples as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): Ø CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3
D) Did the client designate samples are hazardous?		✓	COC notation or hazard labels on containers equal client designation.
E) Did the RSO identify possible hazards?		✓	If D or E is yes, select Hazards below. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			Circle Applicable: Client contacted and provided COC COC created upon receipt
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓	✓		Preservation Method: (Wet Ice) Ice Packs Dry ice (None) Other: *all temperatures are recorded in Celsius TEMP: GHem-1C Rhem-16C
4	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: IR2-20 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?	✓	✓		Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?			✓	If Yes, are Encores or Soil Kits present for solids? Yes___ No___ NA___(If yes, take to VOA Freezer) Do liquid VOA vials contain acid preservation? Yes___ No___ NA___(If unknown, select No) Are liquid VOA vials free of headspace? Yes___ No___ NA___ Sample ID's and containers affected:
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Circle Applicable: No dates on containers No times on containers COC missing info Other (describe)
11	Number of containers received match number indicated on COC?	✓			Circle Applicable: No container count on COC Other (describe)
12	Are sample containers identifiable as GEL provided by use of GEL labels?		✓		
13	COC form is properly signed in relinquished/received sections?	✓			Circle Applicable: Not relinquished Other (describe)

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials GB Date 6/28/21 Page 1 of 1

GL-CHL-SR-001 Rev 7

List of current GEL Certifications as of 26 July 2021

State	Certification
Alabama	42200
Alaska	17-018
Alaska Drinking Water	SC00012
Arkansas	88-0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH-0169
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330-15-00283, P330-15-00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho	SC00012
Illinois NELAP	200029
Indiana	C-SC-01
Kansas NELAP	E-10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana Drinking Water	LA024
Louisiana NELAP	03046 (AI33904)
Maine	2019020
Maryland	270
Massachusetts	M-SC012
Massachusetts PFAS Approv	Letter
Michigan	9976
Mississippi	SC00012
Nebraska	NE-OS-26-13
Nevada	SC000122021-1
New Hampshire NELAP	2054
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R-158
Oklahoma	2019-165
Pennsylvania NELAP	68-00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
Sanitation Districts of L	9255651
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235-21-19
Utah NELAP	SC000122021-35
Vermont	VT87156
Virginia NELAP	460202
Washington	C780

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Moncks Corner, SC 29461-2901
(843) 761-8000

SANTEE COOPER ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

LAB CERTIFICATION #08552

Sample # AE99289 **Location:** CGS **Date:** 03/04/2021 **Sample Collector:** CB/EG

Loc. Code CGS_MISC Bulltown Ditch Site 1 **Time:** 10:22

Analysis	Result	Units	Test Date	Analyst	Method
Oxidation Reduction Potential	149.4	mv	03/18/2021	EHGUERRY	SM2580
Air Temp	16	C	03/18/2021	EHGUERRY	N/A
Cobalt	1.3	ppb	04/13/2021	SJHATCHE	EPA 200.8
Collection Depth	0.3	m	03/18/2021	EHGUERRY	
Field Conductivity	71	uS	03/18/2021	EHGUERRY	120.1
Field pH	4.70	SU	03/18/2021	EHGUERRY	SM 4500-H-B
Weather	0	other	03/18/2021	EHGUERRY	N/A
Water Temp	11.18	C	03/18/2021	EHGUERRY	

Comments:

Independent Laboratory Results: "GEL" - GEL Laboratories LLC - Lab ID # 10120; "Test America" - TestAmerica Laboratories, Inc. - Lab ID# 98001; "DavisBrown"- Davis & Brown Lab ID # 21117; "Shealy"- Shealy Environmental Services, Inc.- Lab ID# 32010 "ROGERSCALLCO"- Rogers & Callcot, Inc.- Lab ID # 23105001

Analysis Validated: Linda Williams

Linda Williams - Supervisor Analytical Services

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SANTEE COOPER ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

LAB CERTIFICATION #08552

Sample # AE99290 **Location:** CGS **Date:** 03/04/2021 **Sample Collector:** CB/EG

Loc. Code CGS_MISC Bulltown Ditch Site 2 **Time:** 10:31

Analysis	Result	Units	Test Date	Analyst	Method
Oxidation Reduction Potential	216.0	mv	03/18/2021	EHGUERRY	SM2580
Air Temp	16	C	03/18/2021	EHGUERRY	N/A
Cobalt	1.2	ppb	04/13/2021	SJHATCHE	EPA 200.8
Collection Depth	0.3	m	03/18/2021	EHGUERRY	
Field Conductivity	69	uS	03/18/2021	EHGUERRY	120.1
Field pH	4.89	SU	03/18/2021	EHGUERRY	SM 4500-H-B
Weather	0	other	03/18/2021	EHGUERRY	N/A
Water Temp	11.18	C	03/18/2021	EHGUERRY	

Comments:

Independent Laboratory Results: "GEL" - GEL Laboratories LLC - Lab ID # 10120; "Test America" - TestAmerica Laboratories, Inc. - Lab ID# 98001; "DavisBrown"- Davis & Brown Lab ID # 21117; "Shealy"- Shealy Environmental Services, Inc.- Lab ID# 32010 "ROGERSCALLCO"- Rogers & Callcot, Inc.- Lab ID # 23105001

Analysis Validated: Linda Williams

Linda Williams - Supervisor Analytical Services

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SANTEE COOPER ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

LAB CERTIFICATION #08552

Sample # AE99291 **Location:** CGS **Date:** 03/04/2021 **Sample Collector:** CB/EG

Loc. Code CGS_MISC Bulltown Ditch Site 3 **Time:** 10:37

Analysis	Result	Units	Test Date	Analyst	Method
Oxidation Reduction Potential	157.2	mv	03/18/2021	EHGUERRY	SM2580
Air Temp	16	C	03/18/2021	EHGUERRY	N/A
Cobalt	1.1	ppb	04/13/2021	SJHATCHE	EPA 200.8
Collection Depth	0.3	m	03/18/2021	EHGUERRY	
Field Conductivity	70	uS	03/18/2021	EHGUERRY	120.1
Field pH	4.75	SU	03/18/2021	EHGUERRY	SM 4500-H-B
Weather	0	other	03/18/2021	EHGUERRY	N/A
Water Temp	11.48	C	03/18/2021	EHGUERRY	

Comments:

Independent Laboratory Results: "GEL" - GEL Laboratories LLC - Lab ID # 10120; "Test America" - TestAmerica Laboratories, Inc. - Lab ID# 98001; "DavisBrown"- Davis & Brown Lab ID # 21117; "Shealy"- Shealy Environmental Services, Inc.- Lab ID# 32010 "ROGERSCALLCO"- Rogers & Callcot, Inc.- Lab ID # 23105001

Analysis Validated: Linda Williams

Linda Williams - Supervisor Analytical Services

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SANTEE COOPER ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

LAB CERTIFICATION #08552

Sample # AE99292 **Location:** CGS **Date:** 03/04/2021 **Sample Collector:** CB/EG

Loc. Code CGS_MISC Bulltown Ditch Site 4 **Time:** 10:44

Analysis	Result	Units	Test Date	Analyst	Method
Oxidation Reduction Potential	152.0	mv	03/18/2021	EHGUERRY	SM2580
Air Temp	17	C	03/18/2021	EHGUERRY	N/A
Cobalt	1.1	ppb	04/13/2021	SJHATCHE	EPA 200.8
Collection Depth	0.3	m	03/18/2021	EHGUERRY	
Field Conductivity	78	uS	03/18/2021	EHGUERRY	120.1
Field pH	4.56	SU	03/18/2021	EHGUERRY	SM 4500-H-B
Weather	0	other	03/18/2021	EHGUERRY	N/A
Water Temp	11.45	C	03/18/2021	EHGUERRY	

Comments:

Independent Laboratory Results: "GEL" - GEL Laboratories LLC - Lab ID # 10120; "Test America" - TestAmerica Laboratories, Inc. - Lab ID# 98001; "DavisBrown"- Davis & Brown Lab ID # 21117; "Shealy"- Shealy Environmental Services, Inc.- Lab ID# 32010 "ROGERSCALLCO"- Rogers & Callcot, Inc.- Lab ID # 23105001

Analysis Validated: Linda Williams

Linda Williams - Supervisor Analytical Services

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SANTEE COOPER ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

LAB CERTIFICATION #08552

Sample # AE99293 **Location:** CGS **Date:** 03/04/2021 **Sample Collector:** CB/EG

Loc. Code CGS_MISC Bulltown Ditch Site 5 **Time:** 11:01

Analysis	Result	Units	Test Date	Analyst	Method
Oxidation Reduction Potential	-18.5	mv	03/18/2021	EHGUERRY	SM2580
Air Temp	17	C	03/18/2021	EHGUERRY	N/A
Cobalt	2.6	ppb	04/13/2021	SJHATCHE	EPA 200.8
Collection Depth	0.1	m	03/18/2021	EHGUERRY	
Field Conductivity	502	uS	03/18/2021	EHGUERRY	120.1
Field pH	5.14	SU	03/18/2021	EHGUERRY	SM 4500-H-B
Weather	0	other	03/18/2021	EHGUERRY	N/A
Water Temp	14.02	C	03/18/2021	EHGUERRY	

Comments:

Independent Laboratory Results: "GEL" - GEL Laboratories LLC - Lab ID # 10120; "Test America" - TestAmerica Laboratories, Inc. - Lab ID# 98001; "DavisBrown"- Davis & Brown Lab ID # 21117; "Shealy"- Shealy Environmental Services, Inc.- Lab ID# 32010 "ROGERSCALLCO"- Rogers & Callcot, Inc.- Lab ID # 23105001

Analysis Validated: Linda Williams

Linda Williams - Supervisor Analytical Services

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SANTEE COOPER ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

LAB CERTIFICATION #08552

Sample # AF13399 **Location:** GW Sample **Date:** 08/18/2021 **Sample Collector:** RWL

Loc. Code GW_MISC CGS Viper Rd **Time:** 13:30

Analysis	Result	Units	Test Date	Analyst	Method
Cobalt	<1.0	ug/L	09/09/2021	GEL	EPA 200.8

Comments:

Independent Laboratory Results: "GEL" - GEL Laboratories LLC - Lab ID # 10120; "Test America" - TestAmerica Laboratories, Inc. - Lab ID# 98001; "DavisBrown"- Davis & Brown Lab ID # 21117; "Pace"- Pace Analytical Services, LLC.- Lab ID# 99030, "ROGERSNCALLC"- Rogers & Callcott, Inc. - Lab ID: 23105001

Analysis Validated: Linda Williams

Linda Williams - Supervisor Analytical Services

Contract Lab Info:_____ Contract Lab Due Date (Lab Only):_____/_____/_____ Send report to lcwillia@santeecooper.com & sjbrown@santeecooper.com

Chain of Custody

santee cooper
Santee Cooper
One Riverwood Drive
Moncks Corner, SC 29461
Phone: (843)761-8000 Ext. 5148
Fax: (843)761-4175

Customer Email/Report Recipient: rwlwhrs @santeecooper.com

Date Results Needed by: 8/26/21

Project/Task/Unit #: 124526/_____/_____

Rerun request for any flagged QC Yes No

Analysis Group

Labworks ID # (Internal use only)	Sample Location/ Description	Collection Date	Collection Time	Sample Collector	Total # of containers	Bottle type: (Glass-G/Plastic-P)	Grab (G) or Composite (C)	Matrix(see below)	Preservative (see below)	Comments • Method # • Reporting limit • Misc. sample info • Any other notes	9			
AF13399	VIPER Rd COBALT DRINKING WATER SAMPLE	8/18/21	1:30PM	RWL	1	PL	G	DW	1	COBALT SAMPLE GROUND WATER ANALYSIS FOR MELANIE	X			

Relinquished by:	Employee#	Date	Time	Received by:	Employee #	Date	Time
Rlwhrs	35784	8/19/21	10:48a	[illegible]		8/19	11:10
[illegible]		8/19	12:30	[illegible]	37024	8/19/21	1348

Sample Receiving (Internal Use Only)
TEMP (°C): 1.7 Initial: COM
Correct pH: Yes No
Lot # 1121030
Batch # 081321-01
1:1 Nitric Acid (HNO3)

☐ METALS (all)

☐ Ag	☐ Cu	☐ Sb
☐ Al	☐ Fe	☐ Se
☐ As	☐ K	☐ Sn
☐ B	☐ Li	☐ Sr
☐ Ba	☐ Mg	☐ Ti
☐ Be	☐ Mn	☐ Tl
☐ Ca	☐ Mo	☐ V
☐ Cd	☐ Na	☐ Zn
☐ Co	☐ Ni	☐ Hg
☐ Cr	☐ Pb	☐ CrVI

Nutrients
- ☐ TOC
- ☐ DOC
- ☐ TP/TPO4
- ☐ NH3-N
- ☐ F
- ☐ Cl
- ☐ NO2
- ☐ Br
- ☐ NO3
- ☐ SO4

MISC.
- ☐ BTEX
- ☐ Napthalene
- ☐ THM/HAA
- ☐ VOC
- ☐ Oil & Grease
- ☐ E. Coli
- ☐ Total Coliform
- ☐ pH
- ☐ Dissolved As
- ☐ Dissolved Fe
- ☐ Rad 226
- ☐ Rad 228
- ☐ PCB

Gypsum
Wallboard Gypsum(*all below*)
- ☐ ATM
- ☐ TOC
- ☐ Total metals
- ☐ Soluble Metals
- ☐ Purity (CaSO4)
- ☐ % Moisture
- ☐ Sulfites
- ☐ pH
- ☐ Chlorides
- ☐ Particle Size

Sulfur

Coal
- ☐ Ultimate
  - ☐ % Moisture
  - ☐ Ash
  - ☐ Sulfur
  - ☐ BTUs
  - ☐ Volatile Matter
  - ☐ CHN

Other Tests:
- ☐ XRF Scan
- ☐ HGI
- ☐ Fineness
- ☐ Particulate Matter

Flyash
Ammonia
- ☐ LOI
- ☐ % Carbon
- ☐ Mineral Analysis
- ☐ Sieve
- ☐ % Moisture

NPDES
- ☐ Oil & Grease
- ☐ As
- ☐ TSS

Oil
- ☐ Trans. Oil Qual.
  - ☐ %Moisture
  - ☐ Color
  - ☐ Acidity
  - ☐ Dielectric Strength
  - ☐ IFT
  - ☐ Dissolved Gases
- ☐ Used Oil
  - ☐ Flashpoint
  - ☐ Metals in oil (As,Cd,Cr,Ni,Pb Hg)
  - ☐ TX
- ☐ GOFER

Matrix codes: GW-groundwater, DW-drinking water, SW-surface water, WW-waste water, BW-boiler water, L-limestone, Oil-oil, S-Soil, SL-solid, C-coal, G-gypsum, FA-flyash, BA-bottom ash, M-misc (describe in comment section)
Preservative code- 1=<4°C 2=HNO_3 3=H_2SO_4 4-HCl 5=$Na_2S_2O_3$ 6-Other (Specify)

Field Data Sheets

(Note: the color coding is to assist field personnel in determining when the well has stabilized enough to begin sample collection.)

Cross Generating Station
Class 2 Landfill Background Groundwater Monitoring Wells

Well ID	TOC Elevation (feet)	GW Depth (feet)	Screen Intervals (ft, bgs)	Sample Date	Sample Time	Total Well Depth
PM-1	83.24	8.27	4-24	1/26/2021	927	26.31
Drawdown:	8.82		depth to GW (ft)			

Time	Temp round 1 (celcius)	pH round 1 (units)	Eh ORP (mV)	Spec Cond round 1 (uS/cm)	Turbidity (NTU)	Dissolved Oxygen (ppm)
907	19.45	5.07	57	146	0	7.86
912	19.37	4.86	30	143	11.8	6.69
917	19.43	4.92	18	142	13.3	6.44
922	19.51	4.95	8	142	2.6	6.16
927	19.47	5.03	1	143	4.4	6.12

Comments/Conditions:

Samples were collected by Aaron Hill and Trey West

Cross Generating Station
Class 2 Landfill Background Groundwater Monitoring Wells

Well ID	TOC Elevation (feet)	GW Depth (feet)	Screen Intervals (ft, bgs)	Sample Date	Sample Time	Total Well Depth
PM-1	83.24	7.91	4-24	6/21/2021	1308	26.33
Drawdown:	8.34		depth to GW (ft)			

Time	Temp round 1 (celcius)	pH round 1 (units)	Eh ORP (mV)	Spec Cond round 1 (uS/cm)	Turbidity (NTU)	Dissolved Oxygen (ppm)
1240	25.76	4.9	63	183	14.6	3.07
1245	26.43	4.87	67	184	14.4	5.7
1250	26.24	5.29	40	182	10.5	5.17
1255	26.41	5.21	43	178	6.4	4.65
1300	26.34	5.23	41	172	4.5	4.32
1305	26.47	5.17	45	170	5.2	4.09
1308	26.49	5.21	45	169	4.3	3.96

Comments/Conditions:

Samples were collected by Melanie Goings and Ben Taylor

Cross Generating Station
Class 2 Landfill Background Groundwater Monitoring Wells

Well ID	TOC Elevation (feet)	GW Depth (feet)	Screen Intervals (ft, bgs)	Sample Date	Sample Time	Total Well Depth
CBW-1	85.80	10.12	14-24	1/26/2021	1039	26.94
Drawdown:	10.15		depth to GW (ft)			

Time	Temp round 1 (celcius)	pH round 1 (units)	Eh ORP (mV)	Spec Cond round 1 (uS/cm)	Turbidity (NTU)	Dissolved Oxygen (ppm)
1005	20.71	4.33	160	187	3.2	2.82
1010	20.31	4.27	221	187	0.6	1.48
1015	20.2	4.2	268	191	0	1.15
1020	20.25	4.22	288	191	0	1.05
1025	20.3	4.29	303	192	0	0.84
1030	20.32	4.29	318	192	0	0.78
1033	20.34	4.29	326	192	0	0.76
1036	20.31	4.28	334	192	0	0.74
1039	20.25	4.31	338	192	0	0.71

Comments/Conditions:

Samples were collected by Aaron Hill and Trey West

Cross Generating Station
Class 2 Landfill Background Groundwater Monitoring Wells

Well ID	TOC Elevation (feet)	GW Depth (feet)	Screen Intervals (ft, bgs)	Sample Date	Sample Time	Total Well Depth
CBW-1	85.80	10.07	14-24	6/21/2021	1413	26.76
Drawdown:	10.11		depth to GW (ft)			

Time	Temp round 1 (celcius)	pH round 1 (units)	Eh ORP (mV)	Spec Cond round 1 (uS/cm)	Turbidity (NTU)	Dissolved Oxygen (ppm)
1345	26.18	4.24	96	167	0	1.66
1350	25.53	4.18	98	182	0	0.92
1355	24.62	3.9	104	187	0	0.78
1400	24.48	3.94	98	190	0	0.73
1405	23.9	4.28	76	193	0	0.7
1410	23.89	4.27	74	194	0.4	0.67
1413	24.16	4.25	75	194	0.2	0.66

Comments/Conditions:

Samples were collected by Melanie Goings and Ben Taylor

Cross Generating Station
Class 2 Landfill CCR Groundwater Monitoring Wells

Well ID	TOC Elevation (feet)	GW Depth (feet)	Depth of Screened Interval (ft, bgs)	Sample Date	Sample Time	Total Well Depth
POZ-4	82.73	4.39	9.5 - 14.5	1/28/2021	1143	15.58
Drawdown:	4.88	depth to GW (ft)				

Time	Temp round 1 (celcius)	pH round 1 (units)	Eh ORP (mV)	Spec Cond round 1 (uS/cm)	Turbidity (NTU)	Dissolved Oxygen (ppm)
1106	16.68	6.66	436	1370	0	4.99
1111	16.14	6.61	563	1370	0	2.72
1116	15.92	6.56	558	1380	0	2.45
1121	15.88	6.51	517	1410	0	2.11
1126	15.83	6.47	191	1430	0.2	1.79
1131	15.73	6.42	112	1430	0	1.46
1134	15.79	6.39	88	1460	0	1.35
1137	15.74	6.38	72	1460	0	1.21
1140	15.67	6.36	68	1460	0	1.13
1143	15.64	6.33	62	1470	0	1.02

Comments/Conditions:

Samples were collected by Aaron Hill and Trey West

Cross Generating Station
Class 2 Landfill CCR Groundwater Monitoring Wells

Well ID	TOC Elevation (feet)	GW Depth (feet)	Depth of Screened Interval (ft, bgs)	Sample Date	Sample Time	Total Well Depth
POZ-4	82.73	7.74	9.5 - 14.5	6/23/2021	1355	18.58

Drawdown: 8.17 depth to GW (ft)

Time	Temp round 1 (celcius)	pH round 1 (units)	Eh ORP (mV)	Spec Cond round 1 (uS/cm)	Turbidity (NTU)	Dissolved Oxygen (ppm)
1312	30.12	6.36	1	1510	10.5	1.55
1317	30.08	6.36	6	1520	4	0.93
1322	30.2	6.34	10	1530	3.7	0.75
1327	30.61	6.3	22	1530	4.7	0.42
1332	30.64	6.25	29	1600	7.8	0.35
1337	30.43	6.22	33	1670	8.3	0.31
1340	30.36	6.21	34	1720	7.9	0.31
1343	30.33	6.17	36	1790	8.8	0.31
1346	30.3	6.17	38	1830	7.8	0.29
1349	30.32	6.15	39	1890	8.9	0.29
1352	30.34	6.13	41	1900	8.2	0.28
1355	30.37	6.13	42	1930	8.5	0.28

Comments/Conditions:

Samples were collected by Marvin Lewis and Ben Taylor

Cross Generating Station
Class 2 Landfill CCR Groundwater Monitoring Wells

Well ID	TOC Elevation (feet)	GW Depth (feet)	Depth of Screened Interval (ft, bgs)	Sample Date	Sample Time	Total Well Depth
POZ-6	83.84	5.58	12-22	1/28/2021	1434	24.22
Drawdown:	13.53	depth to GW (ft)				

Time	Temp round 1 (celcius)	pH round 1 (units)	Eh ORP (mV)	Spec Cond round 1 (uS/cm)	Turbidity (NTU)	Dissolved Oxygen (ppm)
1354	18.6	6.61	-52	2360	28.2	4.16
1359	18.5	6.55	-52	2350	29.5	1.22
1404	18.32	6.55	-55	2340	24	0.84
1409	18.54	6.55	-56	2320	18	0.67
1414	18.43	6.55	-58	2320	16.9	0.62
1419	18.64	6.56	-59	2280	18.9	0.59
1422	18.65	6.56	-61	2280	16.8	0.59
1425	18.87	6.56	-62	2280	22	0.58
1428	18.82	6.57	-63	2280	18.8	0.58
1431	18.77	6.57	-63	2270	17.9	0.6
1434	18.87	6.57	-64	2270	18.2	0.6

Comments/Conditions: Well started to run dry at 1027, we restarted sampling after letting well fill back up

Samples were collected by Aaron Hill and Trey West

Cross Generating Station
Class 2 Landfill CCR Groundwater Monitoring Wells

Well ID	TOC Elevation (feet)	GW Depth (feet)	Depth of Screened Interval (ft, bgs)	Sample Date	Sample Time	Total Well Depth
POZ-6	83.84	9.38	12-22	6/23/2021	1504	24.24
Drawdown:	16.84	depth to GW (ft)				

Time	Temp round 1 (celcius)	pH round 1 (units)	Eh ORP (mV)	Spec Cond round 1 (uS/cm)	Turbidity (NTU)	Dissolved Oxygen (ppm)
1433	28.65	6.66	44	1780	53.4	5.36
1438	26.76	6.59	27	2020	28.4	0.83
1443	25.83	6.56	9	2050	27.2	0.55
1448	25.32	6.56	0	2000	28.7	0.46
1453	24.86	6.57	-8	1940	32.8	0.42
1458	24.64	6.57	-16	1920	32.9	0.39
1501	24.57	6.57	-21	1930	34.4	0.37
1504	24.57	6.57	-24	1940	35.4	0.37

Comments/Conditions:

Samples were collected by Marvin Lewis and Ben Taylor

Cross Generating Station
Class 2 Landfill CCR Groundwater Monitoring Wells

Well ID	TOC Elevation (feet)	GW Depth (feet)	Depth of Screened Interval (ft, bgs)	Sample Date	Sample Time	Total Well Depth
POZ-7	82.02	4.99	12-22	1/28/2021	915	25.07

Drawdown: 5.09 depth to GW (ft)

Time	Temp round 1 (celcius)	pH round 1 (units)	Eh ORP (mV)	Spec Cond round 1 (uS/cm)	Turbidity (NTU)	Dissolved Oxygen (ppm)
855	17.52	4.87	197	97	0	9.2
900	16.56	4.79	204	97	0	8.81
905	16.4	4.81	206	91	0	8.45
910	16.78	4.78	211	91	0	8.15
915	16.99	4.81	214	93	0.6	7.92

Comments/Conditions: Duplicate taken at 920

Samples were collected by Aaron Hill and Trey West

Cross Generating Station
Class 2 Landfill CCR Groundwater Monitoring Wells

Well ID	TOC Elevation (feet)	GW Depth (feet)	Depth of Screened Interval (ft, bgs)	Sample Date	Sample Time	Total Well Depth
POZ-7	82.02	7.51	12-22	6/24/2021	1040	25.07

Drawdown: 7.63 depth to GW (ft)

Time	Temp round 1 (celcius)	pH round 1 (units)	Eh ORP (mV)	Spec Cond round 1 (uS/cm)	Turbidity (NTU)	Dissolved Oxygen (ppm)
951	23.68	5.66	106	269	0	3.07
956	23.07	5.76	107	279	0	1.46
1001	22.73	5.64	116	290	0.5	1.35
1006	22.55	5.69	115	305	3.5	1.33
1011	22.48	5.73	117	333	3.5	1.33
1016	22.43	5.75	118	358	3.1	1.36
1019	22.42	5.79	118	372	2.4	1.37
1022	22.37	5.8	119	384	2.8	1.37
1025	22.38	5.83	119	401	1.6	1.38
1028	22.4	5.86	120	421	1.6	1.37
1031	22.59	5.9	118	436	1.5	1.35
1034	22.84	5.93	118	455	1.7	1.33
1037	23.14	5.91	120	458	1	1.3
1040	23.27	5.88	123	457	0	1.28

Comments/Conditions:
Duplicate at 1045

Samples were collected by Marvin Lewis and Ben Taylor

Cross Generating Station
Class 2 Landfill CMA/NE Groundwater Monitoring Wells

Well ID	TOC Elevation (feet)	GW Depth (feet)	Depth of Screened Interval (ft, bgs)	Sample Date	Sample Time	Total Well Depth
POZ-8	83.13	5.21	44.5 - 55.5	1/28/2021	1334	59.05

Drawdown: 5.18 depth to GW (ft)

Time	Temp round 1 (celcius)	pH round 1 (units)	Eh ORP (mV)	Spec Cond round 1 (uS/cm)	Turbidity (NTU)	Dissolved Oxygen (ppm)
1221	14.89	6.89	-73	1060	15.15	5.58
1226	15.42	6.85	-100	1040	16.1	1.58
1231	15.6	6.83	-102	1050	12.6	1.25
1236	15.81	6.53	-76	1080	7.7	0.93
1241	15.94	6.45	-66	1440	5.4	1.08
1246	16.03	6.48	-63	2390	4.3	0.75
1249	16.07	6.46	-62	2850	3.9	0.92
1252	16.22	6.46	-61	3220	3.7	1
1255	16.24	6.47	-61	3600	3.4	0.67
1258	16.1	6.48	-60	3900	3.2	0.64
1301	16.02	6.48	-59	4090	3.6	0.91
1304	16.05	6.48	-59	4250	4.4	1.32
1307	16.08	6.47	-58	4350	4.3	1.26
1310	16.1	6.47	-57	4420	4	0.8
1313	16.07	6.48	-57	4460	3.7	0.6
1316	16.07	6.48	-57	4490	3.6	1.05
1319	16.09	6.48	-57	4520	3.8	1.57
1322	16.14	6.48	-56	4550	3.3	1.06
1325	16.16	6.48	-56	4560	2.8	0.71
1328	16.17	6.48	-56	4580	2.8	0.59
1331	16.15	6.48	-55	4580	2.6	0.57
1334	16.14	6.48	-55	4590	2.6	0.66

Comments/Conditions: DO was eratic and we couldn't get within 10% after a hour an thriteen minutes of waiting

Samples were collected by Aaron Hill and Trey West

Cross Generating Station
Class 2 Landfill CMA/NE Groundwater Monitoring Wells

Well ID	TOC Elevation (feet)	GW Depth (feet)	Depth of Screened Interval (ft, bgs)	Sample Date	Sample Time	Total Well Depth
POZ-8	83.13	8.45	44.5 - 55.5	6/23/2021	1133	60.47

Drawdown: 8.89 depth to GW (ft)

Time	Temp round 1 (celcius)	pH round 1 (units)	Eh ORP (mV)	Spec Cond round 1 (uS/cm)	Turbidity (NTU)	Dissolved Oxygen (ppm)
1108	26.56	6.42	28	2310	0	2.15
1113	25.91	6.55	-32	2390	0	0.79
1118	25.47	6.62	-59	2380	0	0.59
1123	25.16	6.64	-67	2360	0.5	0.49
1128	24.99	6.66	-72	2340	1.2	0.45
1133	24.87	6.66	-74	2330	1.4	0.42

Comments/Conditions:

Samples were collected by Marvin Lewis and Ben Taylor

Cross Generating Station
Class 2 Landfill CMA/NE Groundwater Monitoring Wells

Well ID	TOC Elevation (feet)	GW Depth (feet)	Screen Intervals (ft, bgs)	Sample Date	Sample Time	Total Well Depth
CCMLF-1	80.862	3.44	10-15	2/11/2021	1038	18.38
Drawdown:	3.54		depth to GW (ft)			

Time	Temp round 1 (celcius)	pH round 1 (units)	Eh ORP (mV)	Spec Cond round 1 (uS/cm)	Turbidity (NTU)	Dissolved Oxygen (ppm)
1018	18.76	5.15	194	134	0.1	1.68
1023	18.59	5.11	203	118	1.2	1.46
1028	18.47	5.1	177	109	3.3	1.27
1033	18.08	5.07	176	110	2.5	1.18
1038	17.99	5.07	174	107	2.6	1.09

Comments/Conditions: Duplicate taken at

Samples were collected by Melanie Goings and Trey West

Cross Generating Station
Class 2 Landfill CMA/NE Groundwater Monitoring Wells

Well ID	TOC Elevation (feet)	GW Depth (feet)	Screen Intervals (ft, bgs)	Sample Date	Sample Time	Total Well Depth
CCMLF-1	80.862	7.09	10-15	7/6/2021	1039	18.39
Drawdown:	7.29		depth to GW (ft)			

Time	Temp round 1 (celcius)	pH round 1 (units)	Eh ORP (mV)	Spec Cond round 1 (uS/cm)	Turbidity (NTU)	Dissolved Oxygen (ppm)
959	21.27	4.92	215	0	102	8.96
1004	21.73	5.1	205	0	94.6	8.51
1009	22.27	5.57	84	0	97.7	7.94
1014	22.73	5.76	91	0	79.4	8.02
1019	23.12	5.62	103	0	87.3	7.63
1024	23.86	5.64	106	0	86.4	7.08
1027	24.14	5.55	104	0	83.2	6.79
1030	24.4	5.68	99	0	83.2	6.65
1033	24.87	5.64	105	0	82.3	6.38
1036	25.09	5.56	111	0	82.2	6.25
1039	25.42	5.57	114	0	82.5	6.07
1330	27.35	6.83	-51	235	2	1.35
1335	27.85	6.34	-13	158	6.8	1.22
1340	28.53	6.09	9	133	0	0.72
1345	28.67	6.13	11	130	0	0.67
1350	28.6	6.12	14	128	0	0.5

Comments/Conditions:

Conductivity was not showing when initially sampled, returned to headquarters and recalibrated, returned to well for second sampling to collect specific conductivity readings. Samples were collected by Melanie Goings and Ben Taylor

Cross Generating Station
Class 2 Landfill CMA/NE Groundwater Monitoring Wells

Well ID	TOC Elevation (feet)	GW Depth (feet)	Screen Intervals (ft, bgs)	Sample Date	Sample Time	Total Well Depth
CCMLF-1D	80.653	3.27	23 - 28	2/11/2021	1116	31.16
Drawdown:	4.4		depth to GW (ft)			

Time	Temp round 1 (celcius)	pH round 1 (units)	Eh ORP (mV)	Spec Cond round 1 (uS/cm)	Turbidity (NTU)	Dissolved Oxygen (ppm)
1056	18.21	6.78	150	248	6.2	2.96
1101	18.02	7.06	139	250	4.2	1.51
1106	17.9	7.1	132	251	6.3	1.29
1111	17.82	7.09	128	251	3.6	1.2
1116	17.99	7.11	123	253	5	1.14

Comments/Conditions:

Samples were collected by Melanie Goings and Trey West

Cross Generating Station
Class 2 Landfill CMA/NE Groundwater Monitoring Wells

Well ID	TOC Elevation (feet)	GW Depth (feet)	Screen Intervals (ft, bgs)	Sample Date	Sample Time	Total Well Depth
CCMLF-1D	80.653	6.85	23 - 28	7/6/2021	1110	31.18
Drawdown:	7.05	depth to GW (ft)				

Time	Temp round 1 (celcius)	pH round 1 (units)	Eh ORP (mV)	Spec Cond round 1 (uS/cm)	Turbidity (NTU)	Dissolved Oxygen (ppm)
1055	27	6.18	95	0	80.8	6.52
1100	27.32	5.81	116	0	79.4	6.38
1105	27.66	5.75	119	0	77.7	6.21
1110	28.07	5.81	116	0	76.1	6.01
1316	27.54	6.75	22	251	5.5	1.35
1321	27.4	6.74	-31	251	2.8	0.89
1326	27.47	6.81	-66	249	0.5	0.73

Comments/Conditions:

Conductivity was not showing when initially sampled, returned to headquarters and recalibrated, returned to well for second sampling to collect specific conductivity readings.

Samples were collected by Melanie Goings and Ben Taylor

Appendix C – Well Installation Records

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

Note: Personal information provided on this document is subject to public scrutiny or release.

1. WELL OWNER INFORMATION:
Name: Santee Cooper (last) (first)
Address: One Riverwood Drive
City: Moncks Corner State: SC Zip: 29461-2998
Telephone: Work: Home:

2. LOCATION OF WELL: SC **COUNTY:** Berkeley
Name: Cross Generating Station
Street Address: 553 Cross Station Road
City: Pineville, SC Zip:
Latitude: 33.3705 Longitude: -80.1121

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from ____ ft. to ____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Orange Yellow Gray Clay	0	5
Orange Yellow Gray Clay w/Sand	5	10
Dark Brown Fine Silty Sand	10	10.5
Orange Med-Coarse Sand w/Clay	10.5	11.5
Light Gray Coarse Sand w/Silt	11.5	13
Light Gray Medium Sand	13	20
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other

7. PERMIT NUMBER: CCMLF-2

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 12.10.21
19.5 ft. Date Completed: 12.10.21

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in. to 9.5 ft. depth
____ in. to ____ ft. depth
Height: Above/Below Surface ____ ft.
Weight ____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: PVC Diam.: 2
Slot/Gauge: 0.010 Length: 10
Set Between: 9.5 ft. and 19.5 ft.
____ ft. and ____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☑ No

12. STATIC WATER LEVEL ____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
____ ft. after ____ hrs. Pumping ____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: ____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 7 ft. to 20.5 ft.
Effective size #2 Uniformity Coefficient ____

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☑ Bentonite ☐ Bentonite/Cement ☐ Other ____
Depth: From 0 ft. to 7 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type ____
Well Disinfected ☐ Yes ☐ No Type: ____ Amount: ____

18. PUMP: Date installed: ____ Not installed ☐
Mfr. Name: ____ Model No.: ____
H.P. ____ Volts ____ Length of drop pipe ____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Elbert Rozier **CERT. NO.:** 2088
Address: (Print) Level: A B C D ✓ (circle one)
1800 Reynolds Ave N. Charleston, SC 29405
Telephone No.: Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: ____ Date: ____
Well Driller

If D Level Driller, provide supervising driller's name:
Charles Clymer A-75

DHEC 1903 (08/2017)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

Appendix D – Slug Testing Results

HALEY & ALDRICH, INC.
400 Augusta Street
Suite 100
Greenville, SC 29601
864.214.8750

MEMORANDUM

January 27, 2022
File No. 132892-013

SUBJECT: Slug Testing Results
Cross Generating Station

Rising-head and falling-head permeability ("slug") tests were conducted for the newly installed monitoring wells in the vicinity of the Closed Gypsum Pond, site-wide background wells and nature and extent monitoring wells for the Bottom Ash Pond and Class 2 Landfill. These slug tests were conducted to measure the hydraulic conductivity of the uppermost aquifer for the newly installed/existing monitoring wells, compare them to historical results documented in the "Site Hydrogeologic Characterization Report" by Garrett & Moore in 2011, and if necessary and appropriate, refine the hydraulic properties in the groundwater flow and solute transport model.

SLUG TESTING AND DATA ANALYSIS PROCEDURES

To conduct the slug tests at the well locations, the following steps were completed at each location.

- Static water level measurements were collected at the well prior to the test.
- To measure the displacement of the water column over time in the well, a pressure transducer was lowered to the bottom of the well (In-Situ Level Troll™).
- A solid PVC rod was constructed cut to length and attached to a rope to be used as a slug of known volume to displace water within the well.
- The slug was lowered into the well instantaneously and completely below the static water level without splashing the water column. The water level was then allowed to recover to within 90 percent of the static water level. This portion of the test constituted the "slug in" test.
- Once the water level recovered the slug was removed instantaneously and completely from the water column and the water level was allowed to recover to within 90 percent of the static water level. This portion of the test constituted the "slug out" test.
- This pair of slug in and slug out tests were repeated at each well up to three times to compare results and obtain a geometric mean for hydraulic conductivity.
- The measured rate of recovery of the water level is a function of the horizontal hydraulic conductivity of the aquifer material in the vicinity of the monitoring well.

The slug test data were analyzed using the HydroSOLVE, Inc. AQTESOLV for Windows™ program according to the Bouwer-Rice solution method. This method estimates hydraulic conductivity through graphical straight line slope matching. The data output and graphs generated by AQTESOLV™ are provided in Attachment A. Calculated values of K based on the slug test data are presented in Table 1.

SLUG TESTING RESULTS

The range of hydraulic conductivities from the monitoring wells that were tested were 1.387E-04 (cm/sec) to 4.800E-03 (cm/sec). These results are comparable to the Site Hydrogeologic Characterization Report which reported a range of hydraulic conductivities of 3.357E-04 (cm/sec) to 8.93E-03 (cm/sec) for the shallow aquifer. This range of hydraulic conductivities is typical for the soil types identified and for this depositional setting. This information, combined with the calculated horizontal hydraulic gradients, and an assumed effective porosity of 25 percent will be used to report on groundwater flow direction and rate following each semiannual sampling event as required by § 257.93(c) of the Federal CCR Rule.

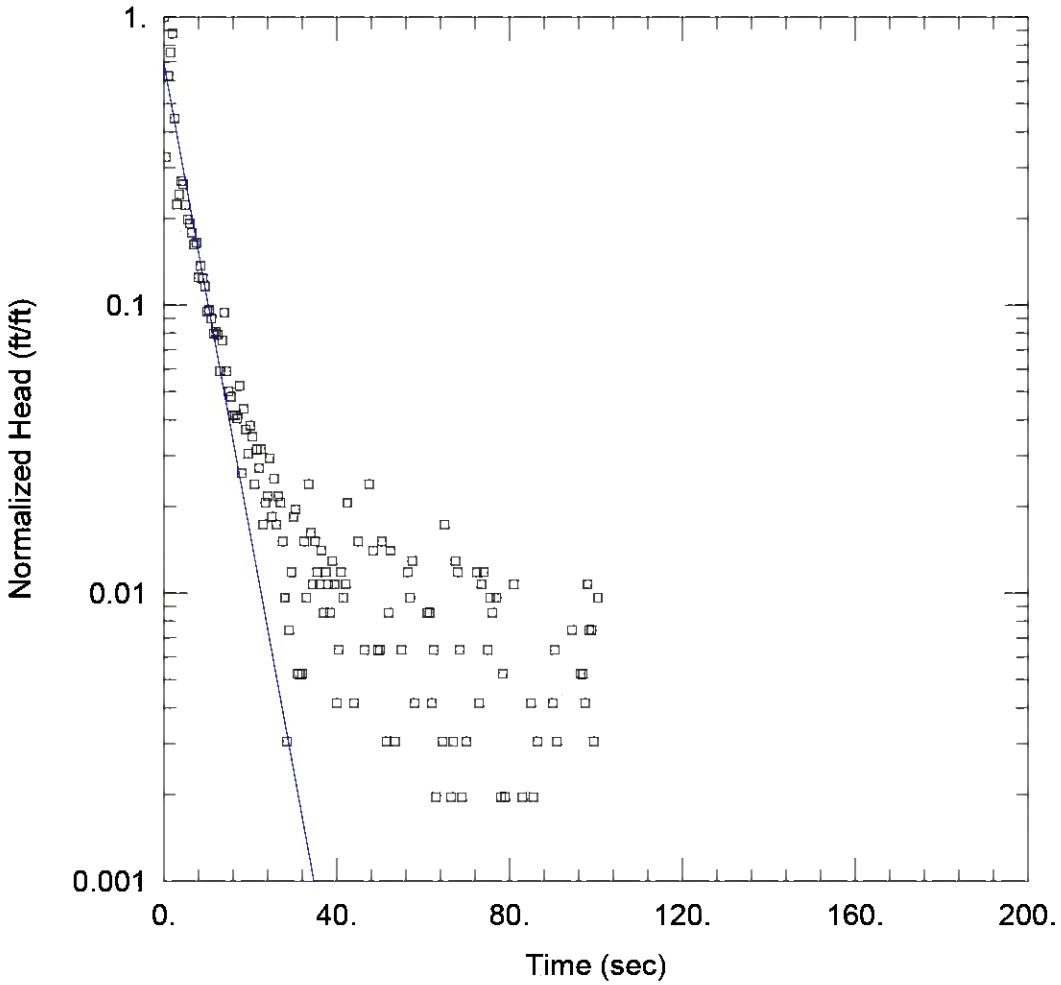
TABLES

TABLE 1
SUMMARY OF SLUG TEST DATA
CROSS GENERATING STATION
SANTEE COOPER
CROSS, SOUTH CAROLINA

Well ID	Slug In 1 (cm/sec)	Slug Out 1 (cm/sec)	Slug In 2 (cm/sec)	Slug Out 2 (cm/sec)	Slug In 3 (cm/sec)	Slug Out 3 (cm/sec)	Geom. Mean (cm/sec)	Formatted Geom. (cm/sec)
CGYP-5	0.0001439	0.0001419	0.0001481	0.0001225			0.000138734	1.387E-04
CGYP-2	0.0003882	0.000484	0.0004948	0.0004822			0.000460139	4.601E-04
CGYP-6	0.0005347	0.0004815	0.0005616	0.0005252			0.000524946	5.249E-04
CGYP-3	0.0005141	0.0005617	0.0005961	0.0005746			0.000560802	5.608E-04
POZ-4	0.0006012	0.0006036	0.000628	0.0006124			0.00061121	6.112E-04
CGYP-4	0.0007695	0.0007741	0.0007724	0.0007743			0.000772573	7.726E-04
CCMAP-1	0.001106	0.001122	0.001127	0.001169			0.001130763	1.131E-03
PM-1	0.002385	0.001913	0.003361	0.00166	0.006277	0.00214	0.002644383	2.644E-03
CCMAP-2	0.002834	0.002656	0.002835	0.002556			0.0027176	2.718E-03
CGYP-1	0.001177	0.004646	0.00266	0.004105	0.002869	0.004905	0.003071874	3.072E-03
CBW-1	0.005518	0.004379	0.004712	0.004799	0.004725	0.00474	0.004800452	4.800E-03

Notes:
Geom. = Geometric Mean

ATTACHMENTS



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CBW1 Slug In 1.aqt
Date: 11/08/21 Time: 10:58:16

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CBW-1

AQUIFER DATA

Saturated Thickness: 15.01 ft Anisotropy Ratio (Kz/Kr): 1.

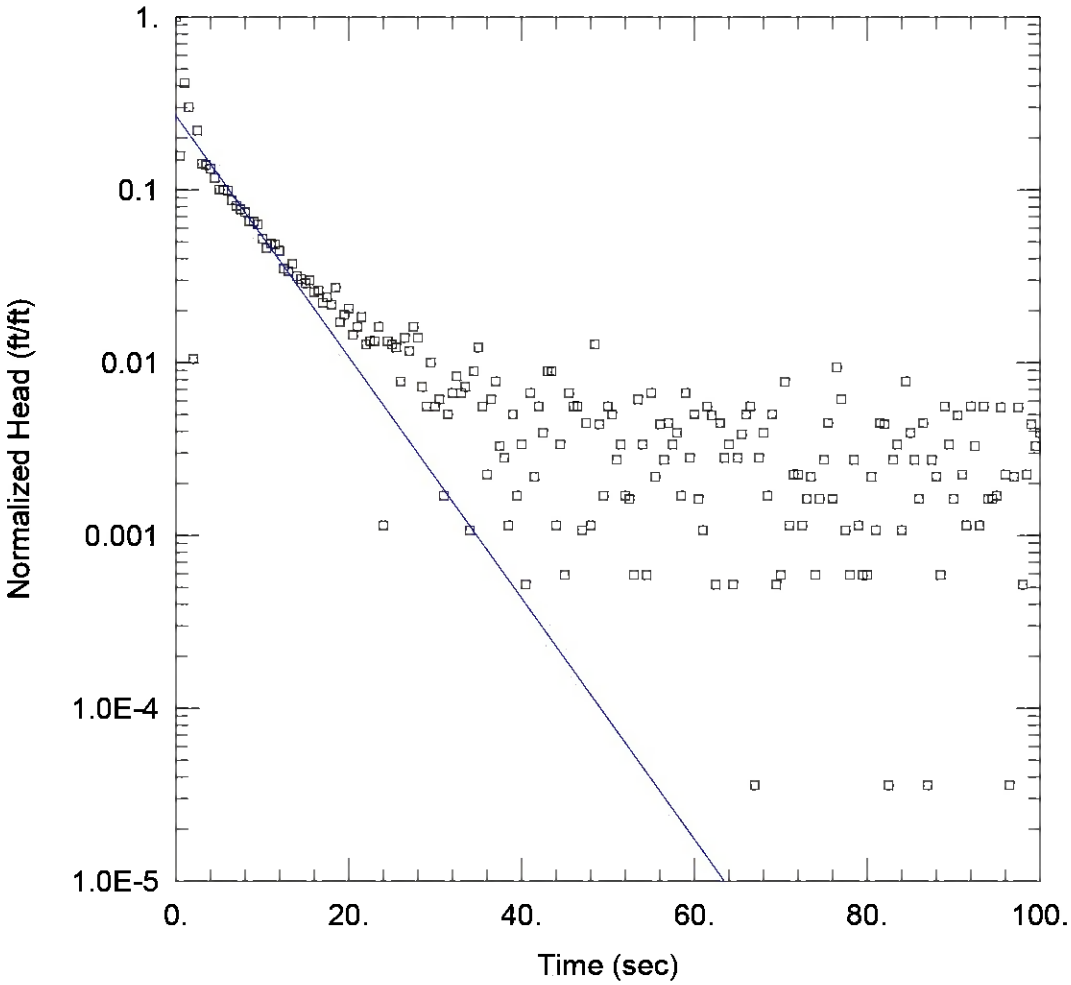
WELL DATA (CBW-1)

Initial Displacement: 0.9118 ft
Total Well Penetration Depth: 15.01 ft
Casing Radius: 0.083 ft
Static Water Column Height: 15.01 ft
Screen Length: 10. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.005518 cm/sec y0 = 0.6261 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CBW1 Slug In 2.aqt
Date: 11/08/21 Time: 11:06:54

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CBW-1

AQUIFER DATA

Saturated Thickness: 15.01 ft Anisotropy Ratio (Kz/Kr): 1.

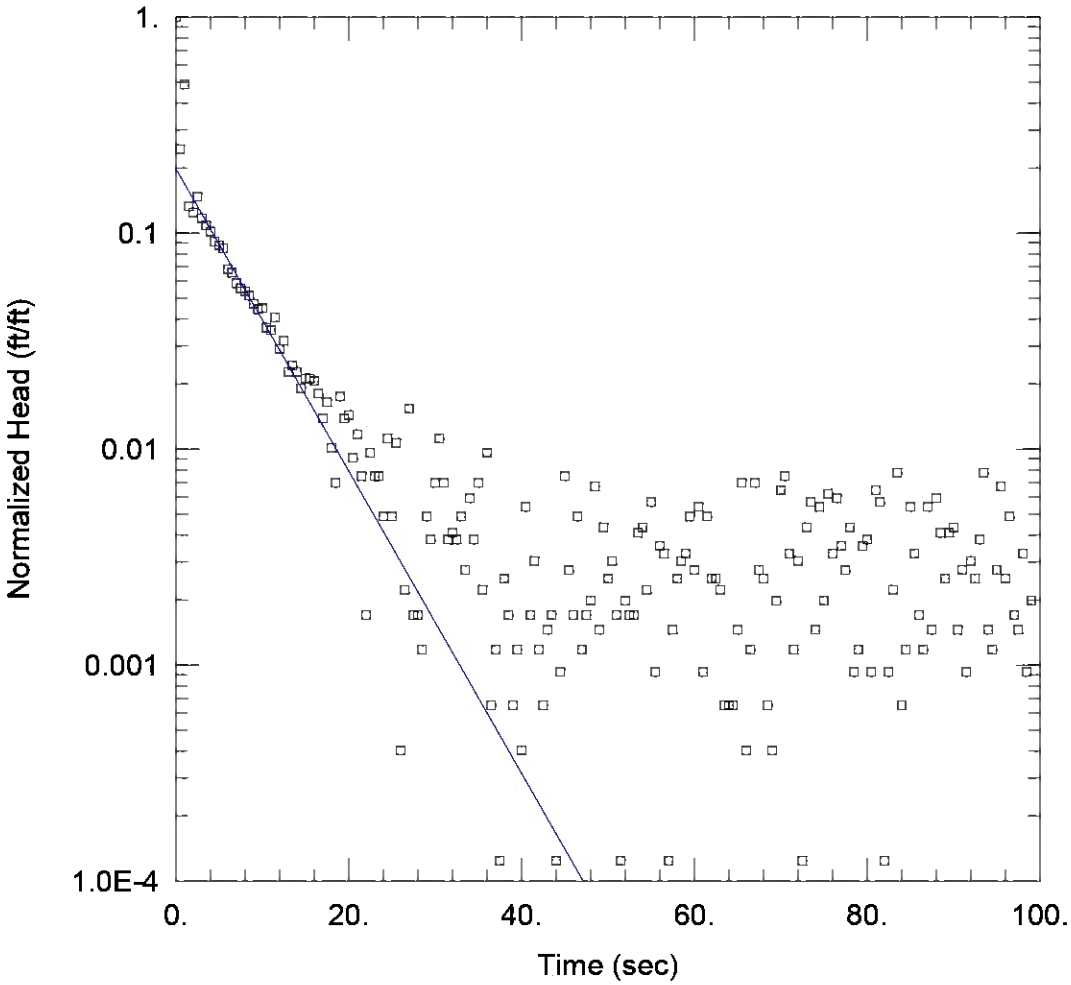
WELL DATA (CBW-1)

Initial Displacement: 1.802 ft
Total Well Penetration Depth: 15.01 ft
Casing Radius: 0.083 ft
Static Water Column Height: 15.01 ft
Screen Length: 10. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.004712 cm/sec y0 = 0.4834 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CBW1 Slug in 3.aqt
Date: 11/08/21 Time: 11:44:47

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CBW-1

AQUIFER DATA

Saturated Thickness: 15.01 ft Anisotropy Ratio (Kz/Kr): 1.

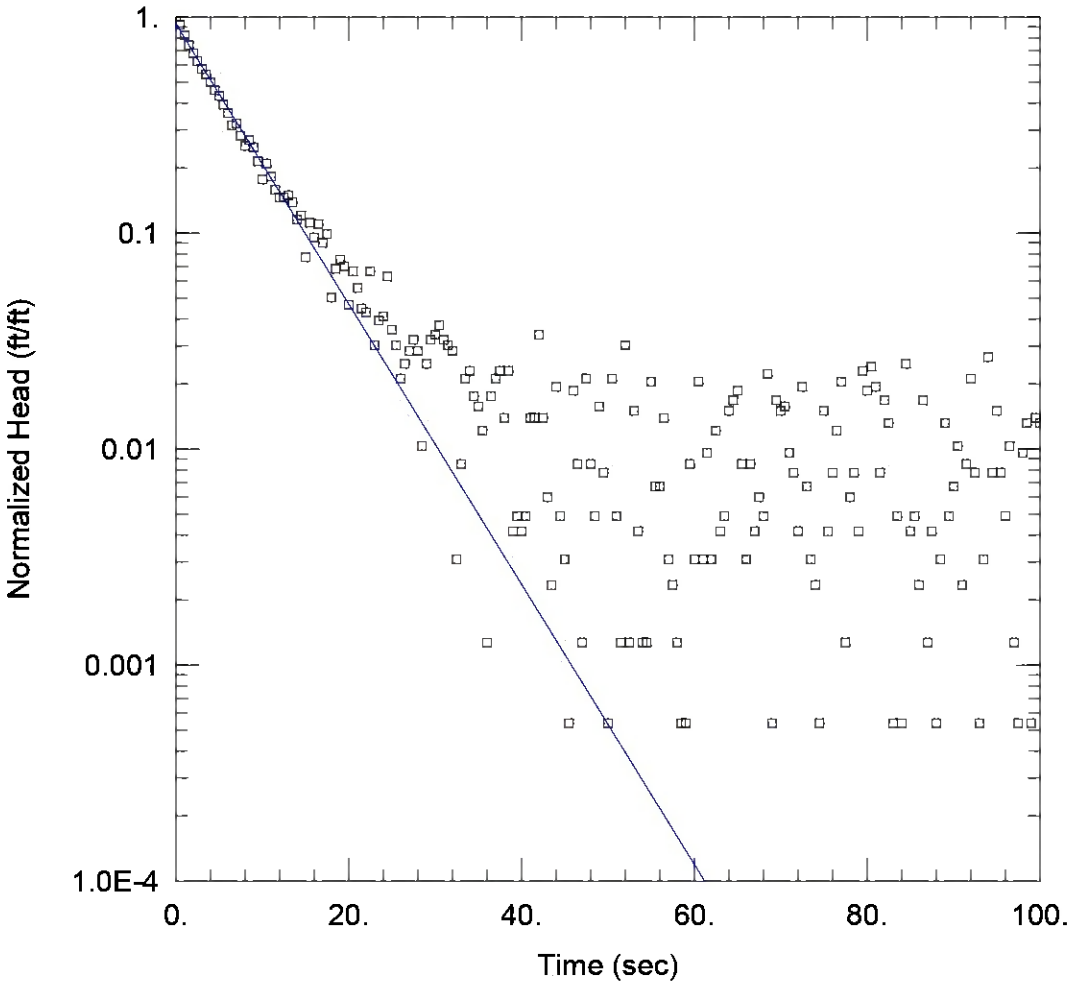
WELL DATA (CBW-1)

Initial Displacement: 1.896 ft
Total Well Penetration Depth: 15.01 ft
Casing Radius: 0.083 ft
Static Water Column Height: 15.01 ft
Screen Length: 10. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.004725 cm/sec y0 = 0.3762 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CBW1 Slug out 1.aqt
Date: 11/08/21 Time: 10:59:18

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CBW-1

AQUIFER DATA

Saturated Thickness: 15.01 ft Anisotropy Ratio (Kz/Kr): 1.

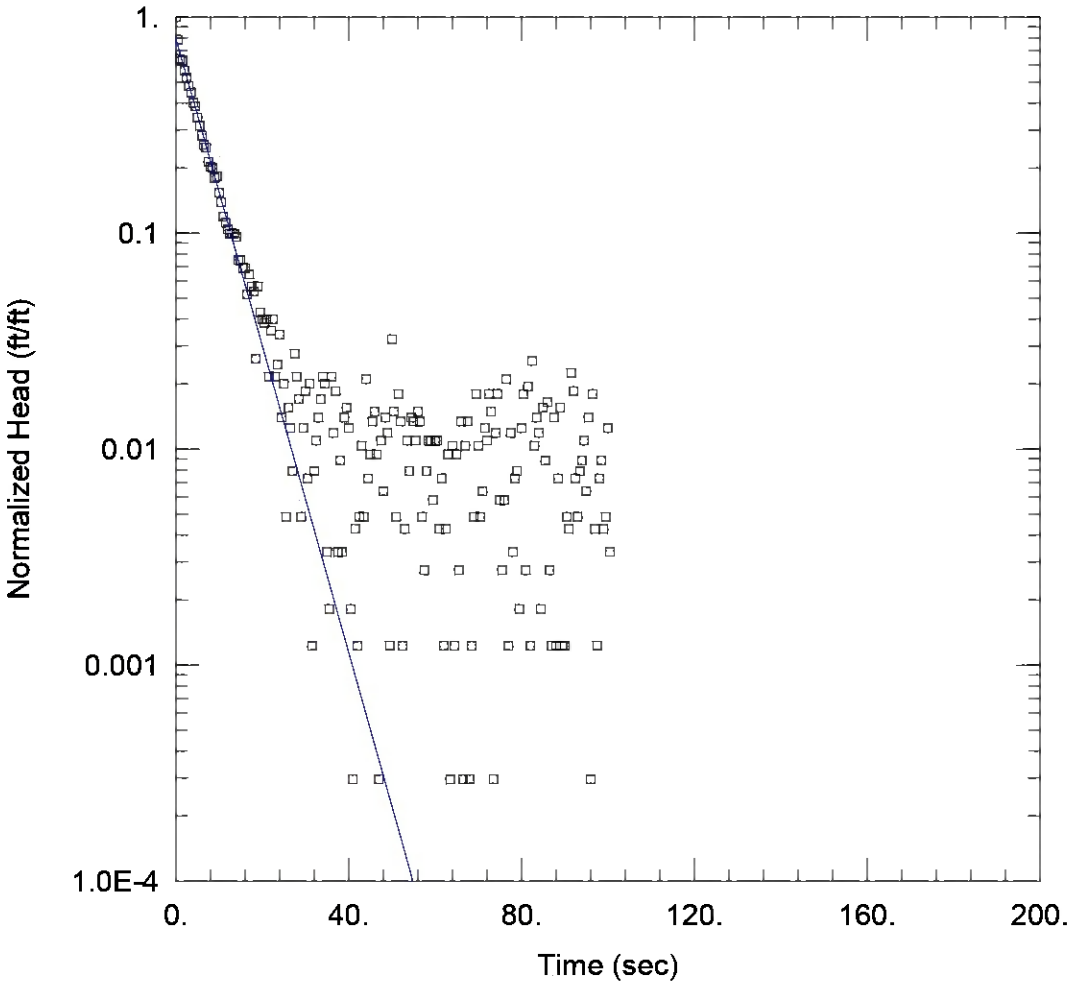
WELL DATA (CBW-1)

Initial Displacement: 0.5517 ft
Total Well Penetration Depth: 15.01 ft
Casing Radius: 0.083 ft
Static Water Column Height: 15.01 ft
Screen Length: 10. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.004379 cm/sec y0 = 0.5124 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CBW1 Slug out 2.aqt
Date: 11/08/21 Time: 11:39:00

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CBW-1

AQUIFER DATA

Saturated Thickness: 15.01 ft Anisotropy Ratio (Kz/Kr): 1.

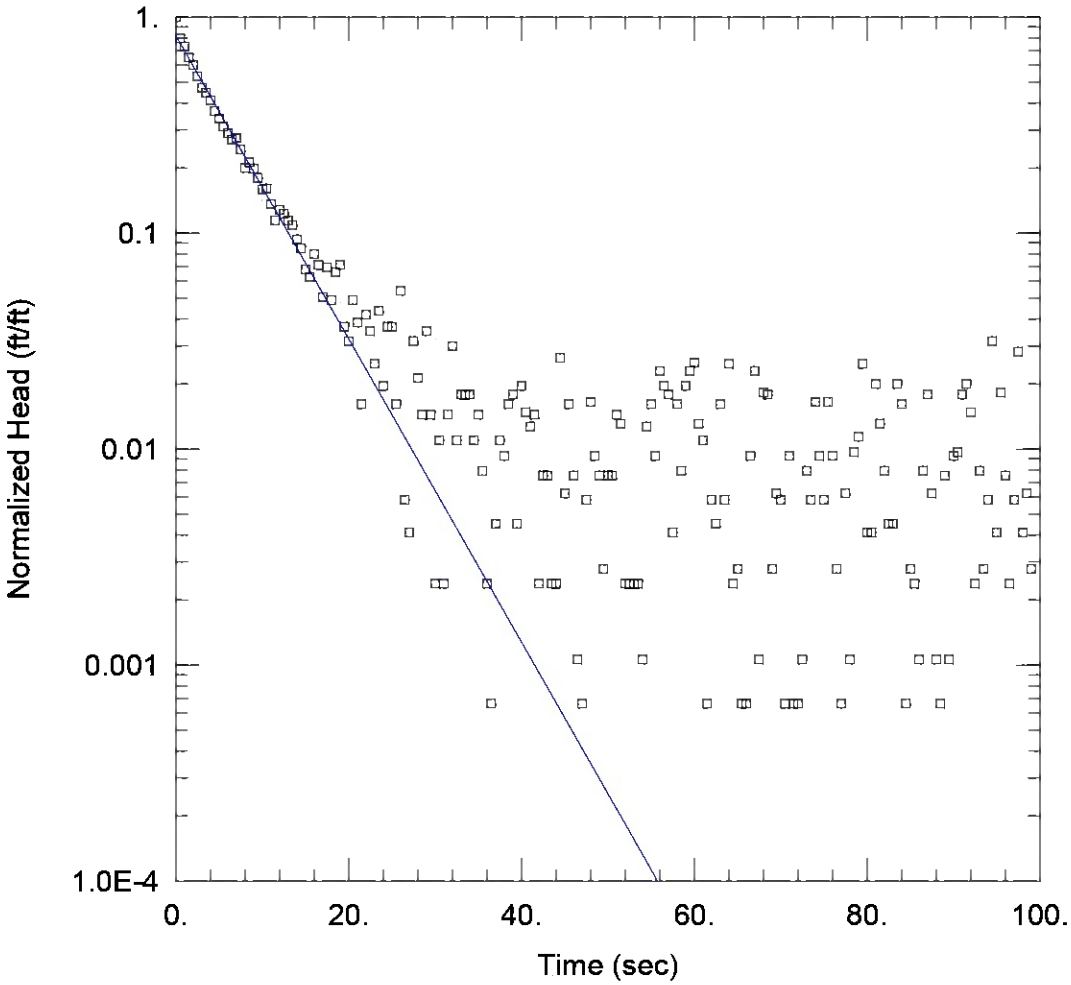
WELL DATA (CBW-1)

Initial Displacement: 0.6562 ft
Total Well Penetration Depth: 15.01 ft
Casing Radius: 0.083 ft
Static Water Column Height: 15.01 ft
Screen Length: 10. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.004799 cm/sec y0 = 0.5205 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CBW1 Slug out 3.aqt
Date: 11/08/21 Time: 11:51:27

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CBW-1

AQUIFER DATA

Saturated Thickness: 15.01 ft Anisotropy Ratio (Kz/Kr): 1.

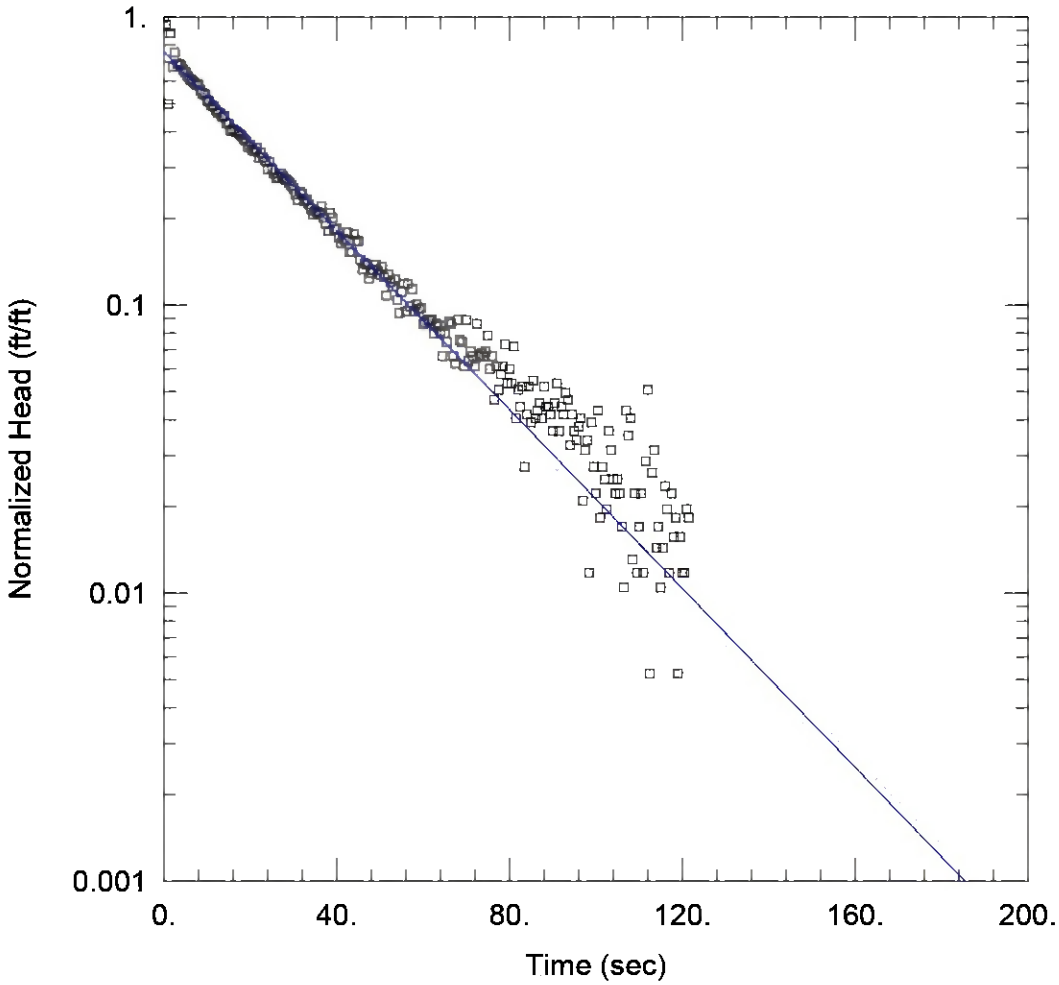
WELL DATA (CBW-1)

Initial Displacement: 0.5804 ft
Total Well Penetration Depth: 15.01 ft
Casing Radius: 0.083 ft
Static Water Column Height: 15.01 ft
Screen Length: 10. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.00474 cm/sec y0 = 0.4754 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CCMAP1 Slug in 1.aqt
Date: 11/08/21 Time: 16:24:09

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CCMAP-1

AQUIFER DATA

Saturated Thickness: 18.75 ft Anisotropy Ratio (Kz/Kr): 1.

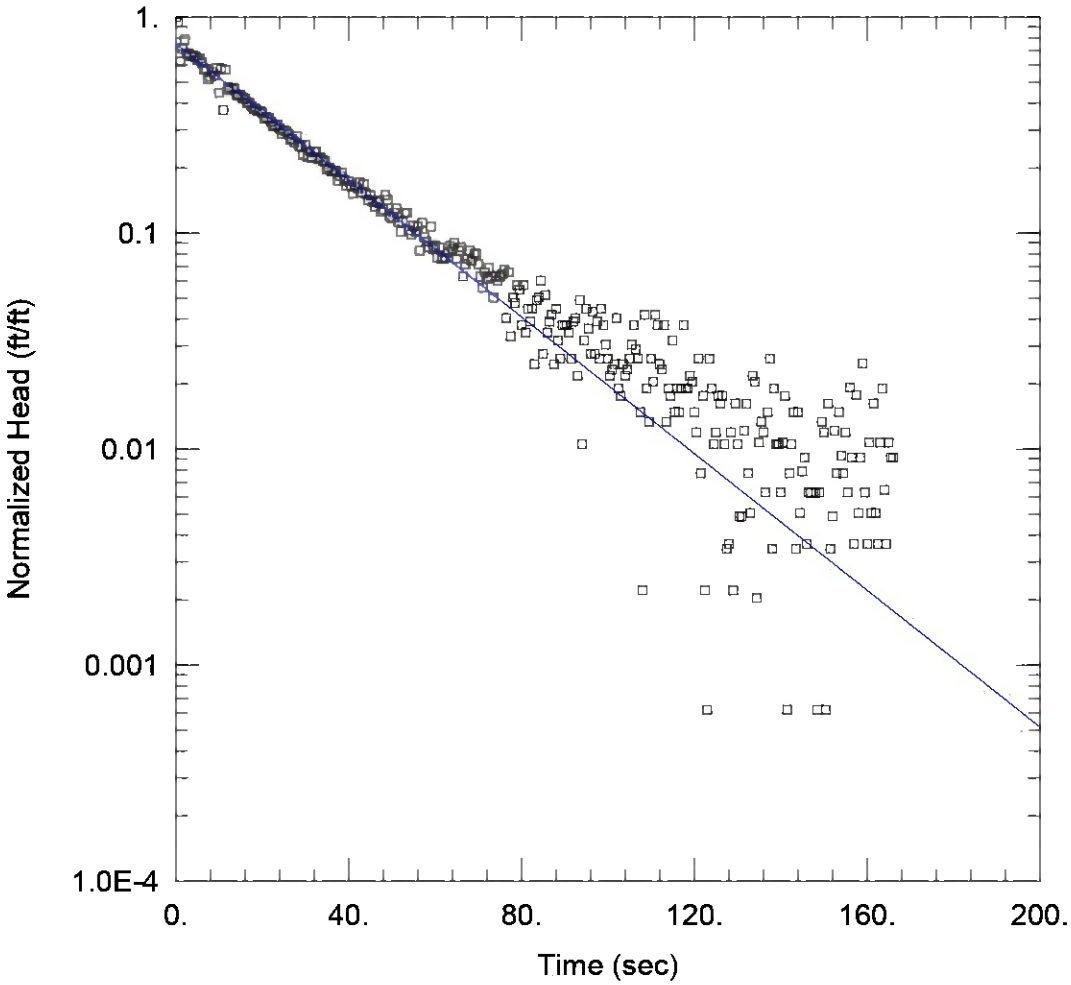
WELL DATA (CCMAP-1)

Initial Displacement: 0.767 ft
Total Well Penetration Depth: 18.75 ft
Casing Radius: 0.0833 ft
Static Water Column Height: 18.75 ft
Screen Length: 10. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.001106 cm/sec y0 = 0.5808 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CCMAP1 Slug in 2.aqt
Date: 11/08/21 Time: 16:23:51

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CCMAP-1

AQUIFER DATA

Saturated Thickness: 18.75 ft Anisotropy Ratio (Kz/Kr): 1.

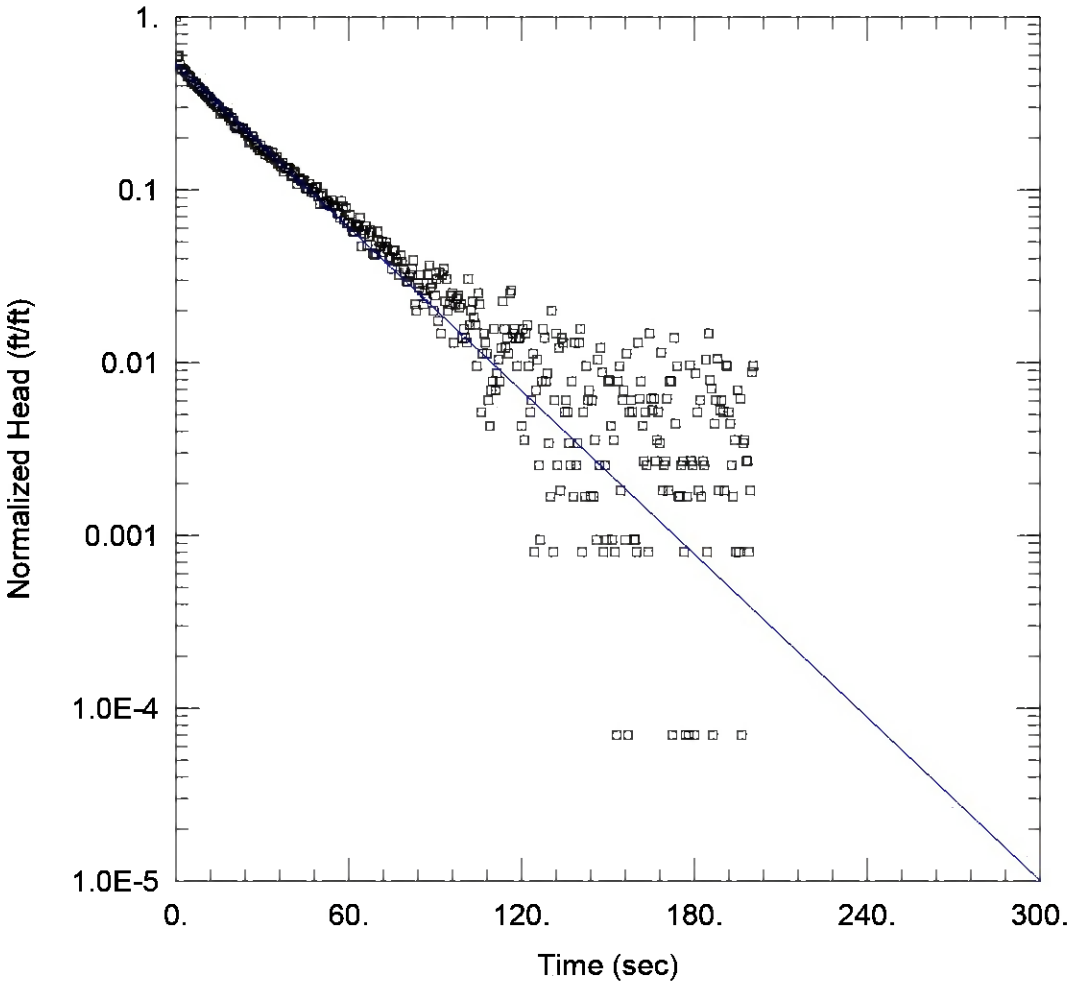
WELL DATA (CCMAP-1)

Initial Displacement: 0.7044 ft
Total Well Penetration Depth: 18.75 ft
Casing Radius: 0.0833 ft
Static Water Column Height: 18.75 ft
Screen Length: 10. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.001127 cm/sec y0 = 0.5305 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CCMAP1 Slug out 1.aqt
Date: 11/08/21 Time: 16:23:35

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CCMAP-1

AQUIFER DATA

Saturated Thickness: 18.75 ft Anisotropy Ratio (Kz/Kr): 1.

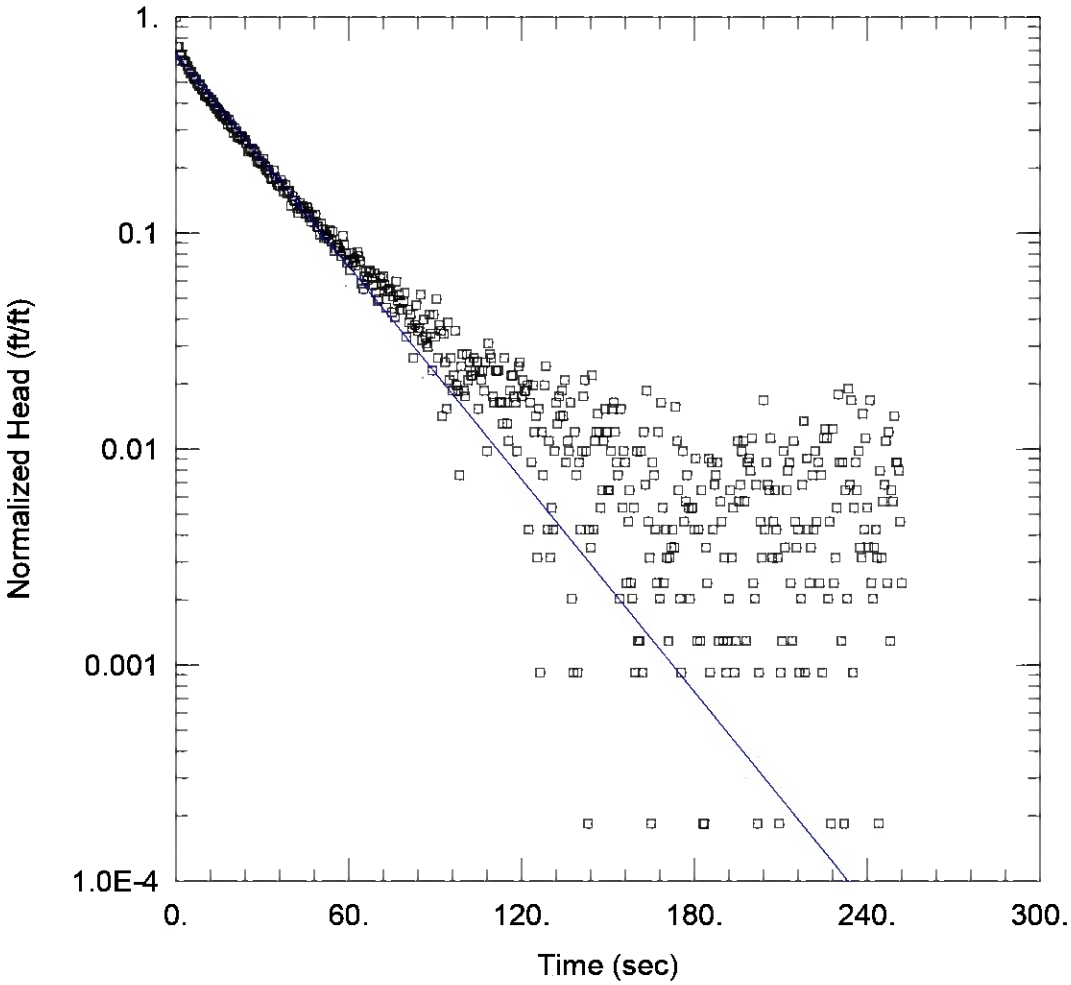
WELL DATA (CCMAP-1)

Initial Displacement: 1.144 ft
Total Well Penetration Depth: 18.75 ft
Casing Radius: 0.0833 ft
Static Water Column Height: 18.75 ft
Screen Length: 10. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.001122 cm/sec y0 = 0.6091 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CCMAP1 Slug out 2.aqt
Date: 11/08/21 Time: 16:20:26

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CCMAP-1

AQUIFER DATA

Saturated Thickness: 18.75 ft Anisotropy Ratio (Kz/Kr): 1.

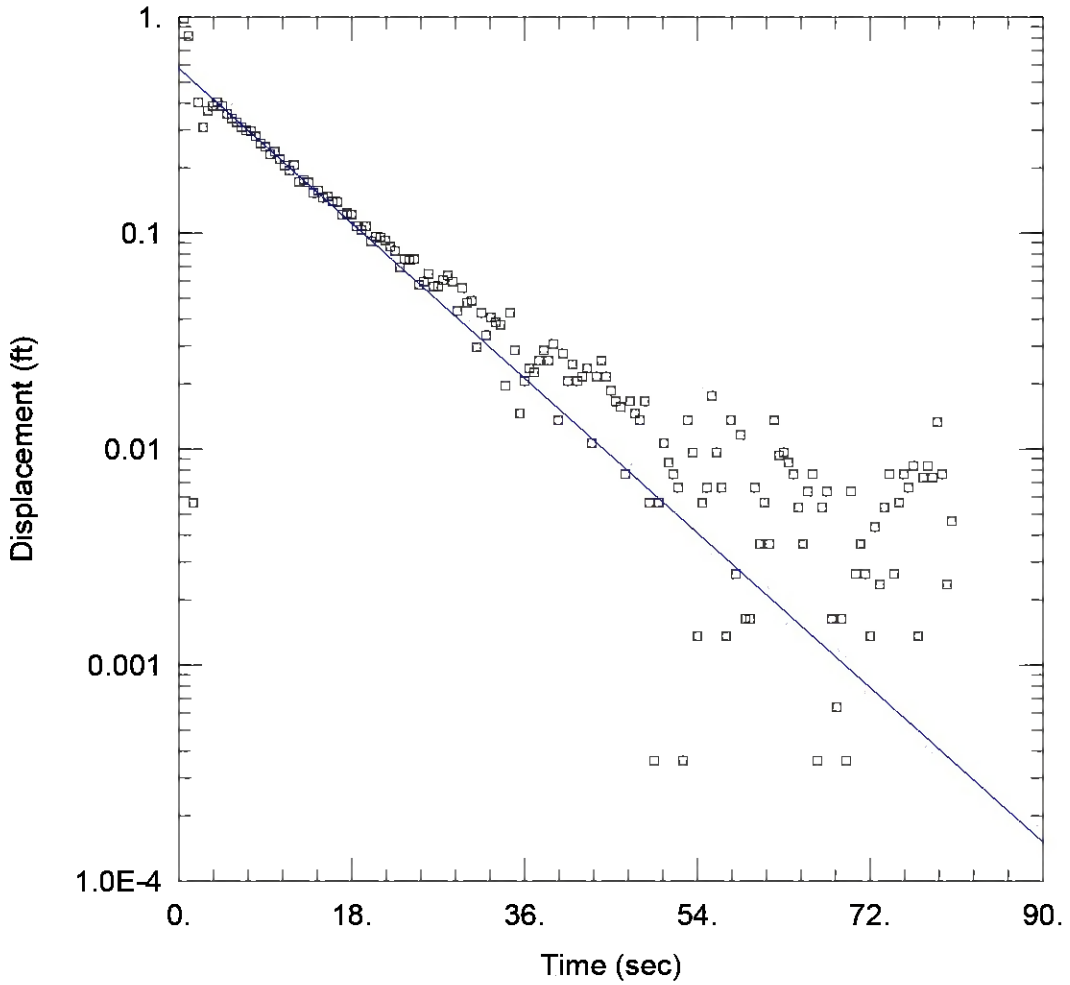
WELL DATA (CCMAP-1)

Initial Displacement: 0.9028 ft
Total Well Penetration Depth: 18.75 ft
Casing Radius: 0.0833 ft
Static Water Column Height: 18.75 ft
Screen Length: 10. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.001169 cm/sec y0 = 0.6094 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CCMAP-2 Slug In 1.aqt
Date: 11/08/21 Time: 16:39:53

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CCMAP-2

AQUIFER DATA

Saturated Thickness: 18.65 ft Anisotropy Ratio (Kz/Kr): 1.

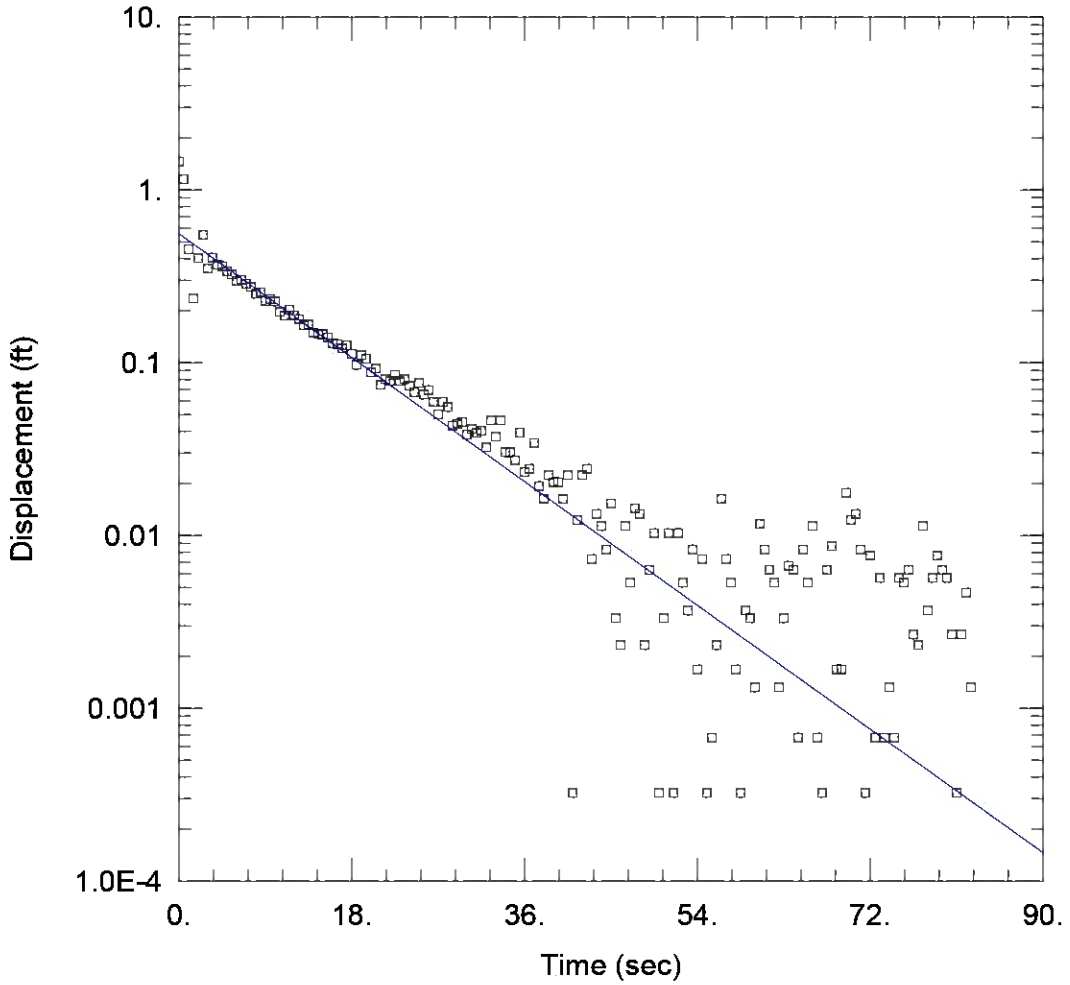
WELL DATA (CCMAP-2)

Initial Displacement: 1.109 ft
Total Well Penetration Depth: 18.65 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 18.65 ft
Screen Length: 10. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.002834 cm/sec y0 = 0.5778 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CCMAP-2 Slug in 2.aqt
Date: 11/08/21 Time: 16:59:53

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CCMAP-2

AQUIFER DATA

Saturated Thickness: 18.65 ft Anisotropy Ratio (Kz/Kr): 1.

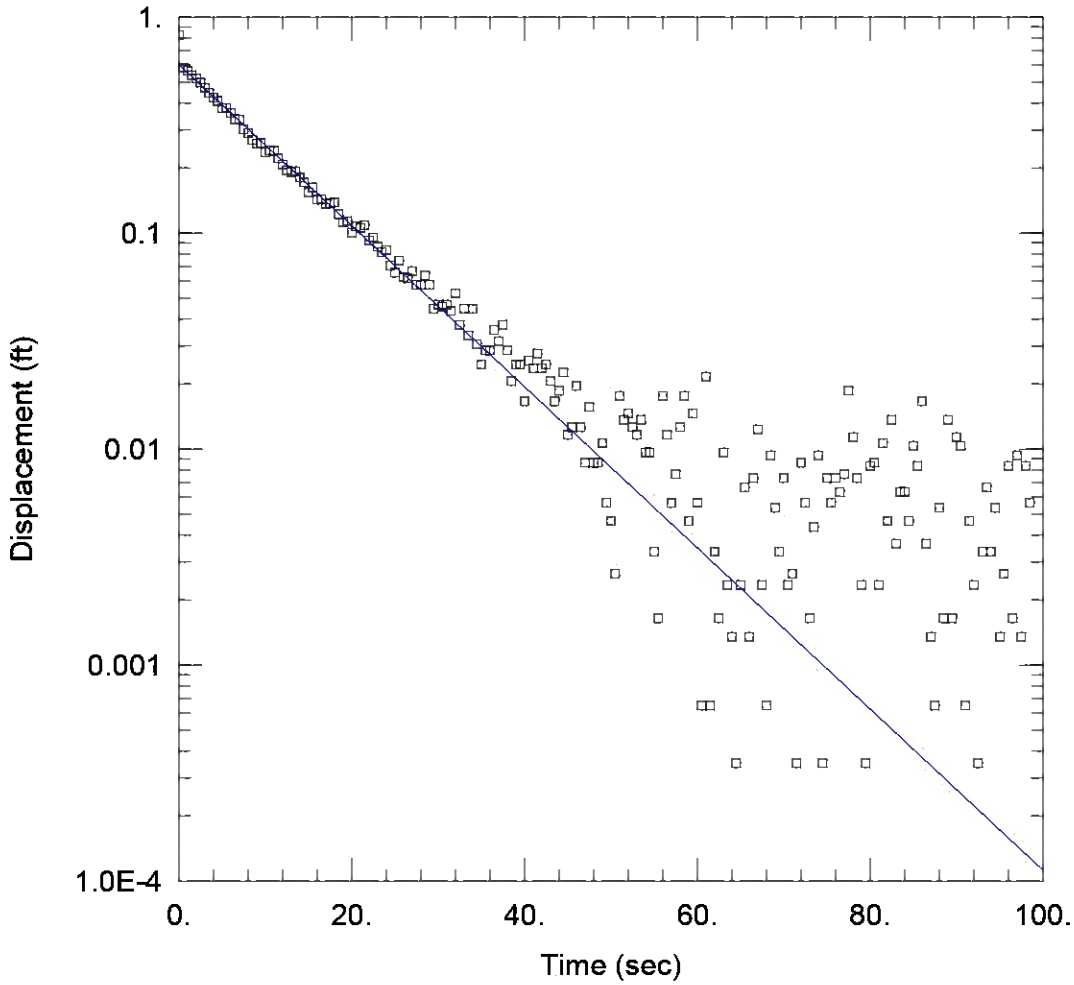
WELL DATA (CCMAP-2)

Initial Displacement: 1.46 ft
Total Well Penetration Depth: 18.65 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 18.65 ft
Screen Length: 10. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.002835 cm/sec y0 = 0.5577 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CCMAP-2 Slug out 1.aqt
Date: 11/08/21 Time: 16:55:05

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CCMAP-2

AQUIFER DATA

Saturated Thickness: 18.65 ft Anisotropy Ratio (Kz/Kr): 1.

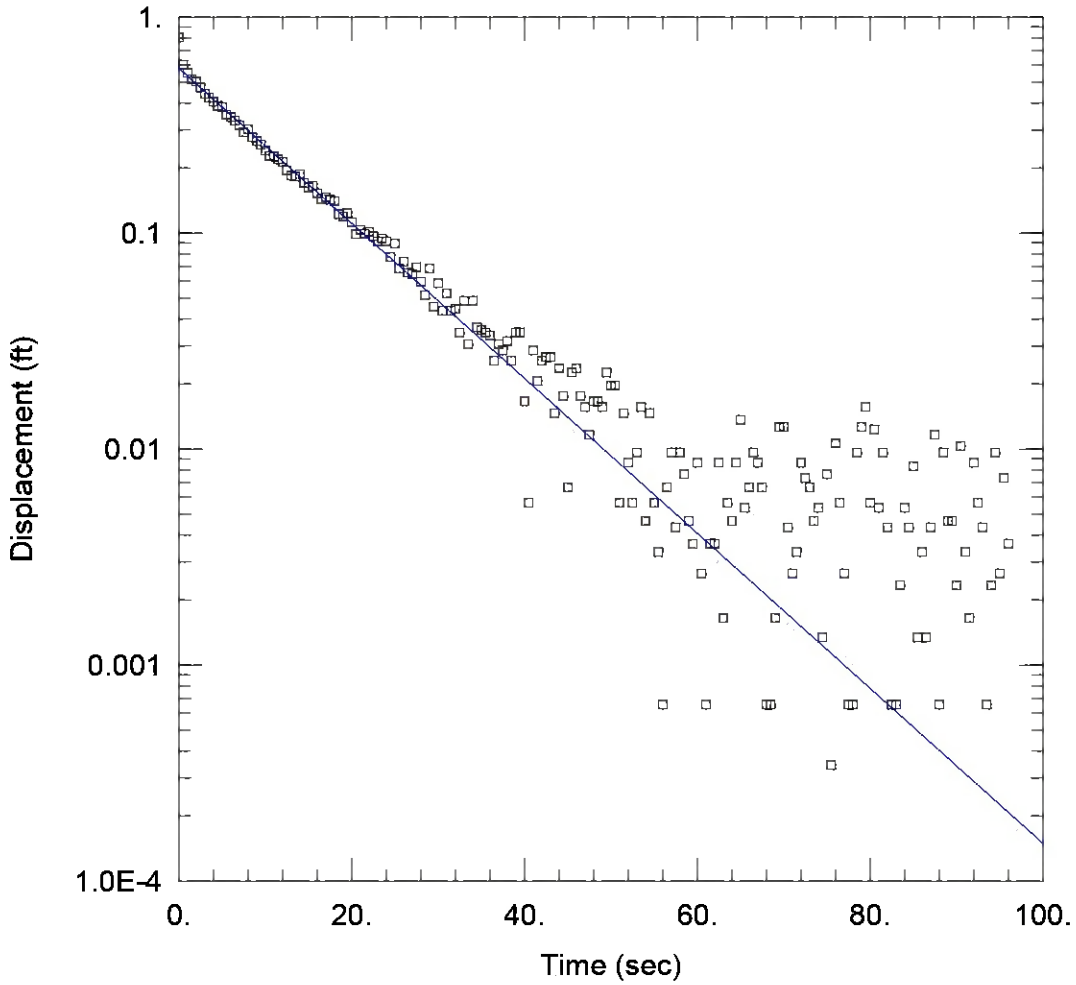
WELL DATA (CCMAP-2)

Initial Displacement: 0.8286 ft
Total Well Penetration Depth: 18.65 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 18.65 ft
Screen Length: 10. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.002656 cm/sec y0 = 0.6026 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CCMAP-2 Slug out 2.aqt
Date: 11/08/21 Time: 17:19:40

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CCMAP-2

AQUIFER DATA

Saturated Thickness: 18.65 ft Anisotropy Ratio (Kz/Kr): 1.

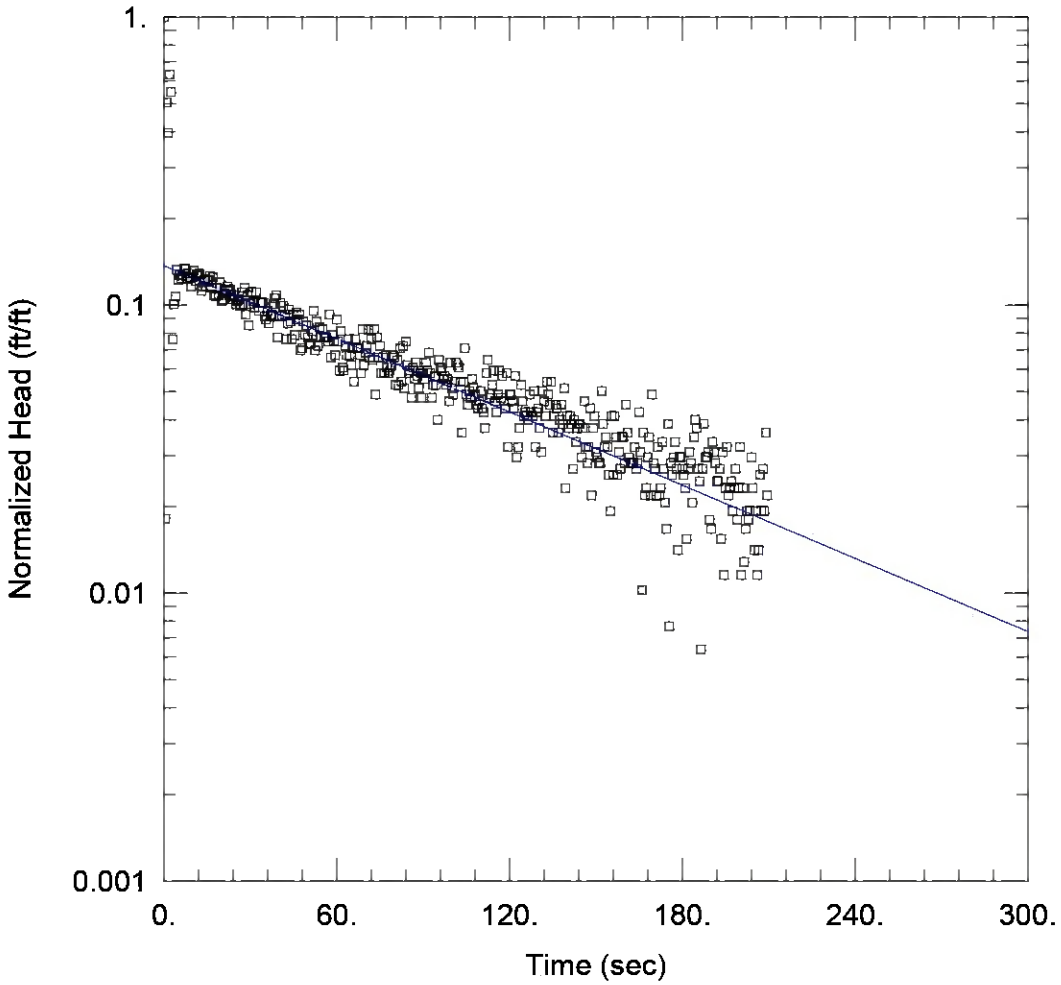
WELL DATA (CCMAP-2)

Initial Displacement: 0.8047 ft
Total Well Penetration Depth: 18.65 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 18.65 ft
Screen Length: 10. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.002556 cm/sec y0 = 0.5789 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CGYP-1 Slug in 1.aqt
Date: 11/09/21 Time: 09:06:02

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CGYP-1

AQUIFER DATA

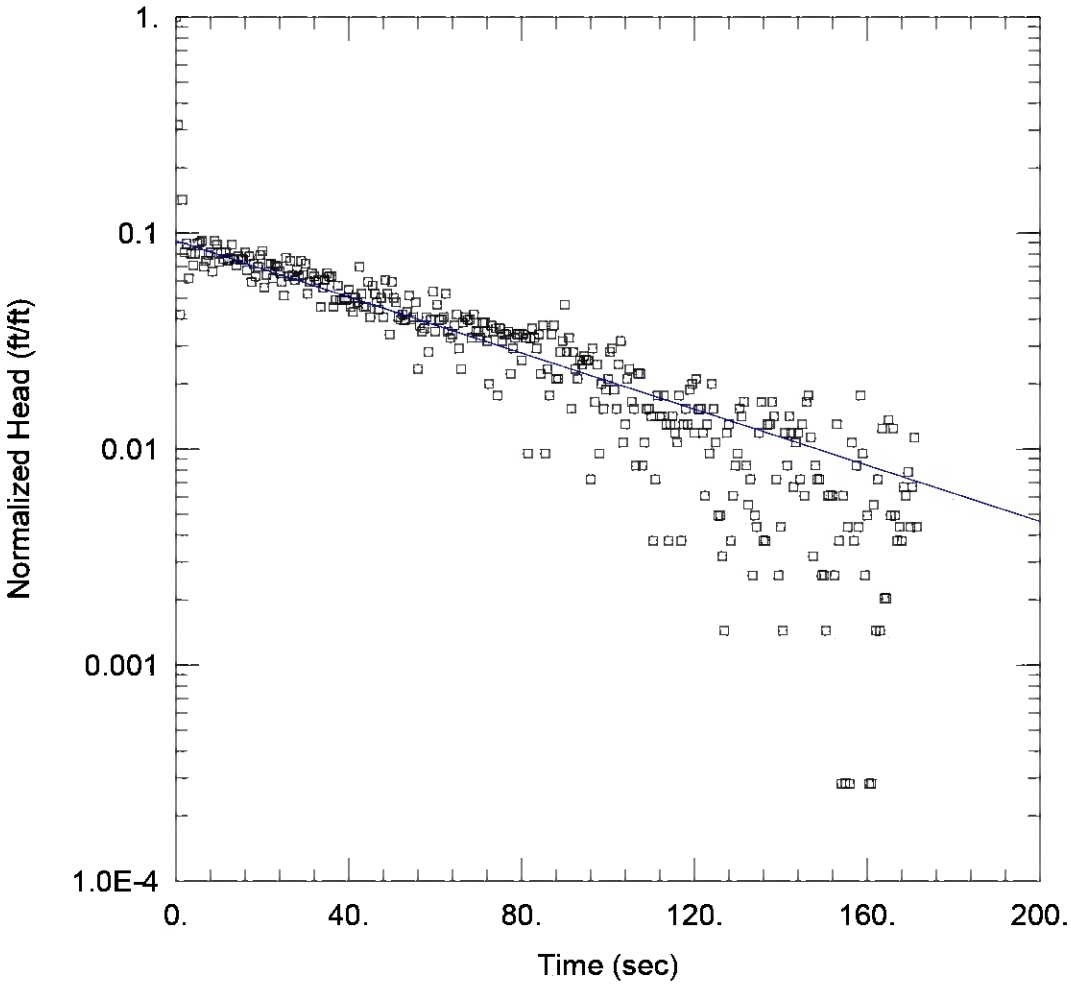
Saturated Thickness: 9.32 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (CGYP-1)

Initial Displacement: 0.7749 ft
Total Well Penetration Depth: 10. ft
Casing Radius: 0.08333 ft
Static Water Column Height: 9.32 ft
Screen Length: 10. ft
Well Radius: 0.3438 ft
Gravel Pack Porosity: 0.2

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.001177 cm/sec
y0 = 0.1063 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CGYP-1 Slug in 2.aqt
Date: 11/09/21 Time: 12:22:13

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CGYP-1

AQUIFER DATA

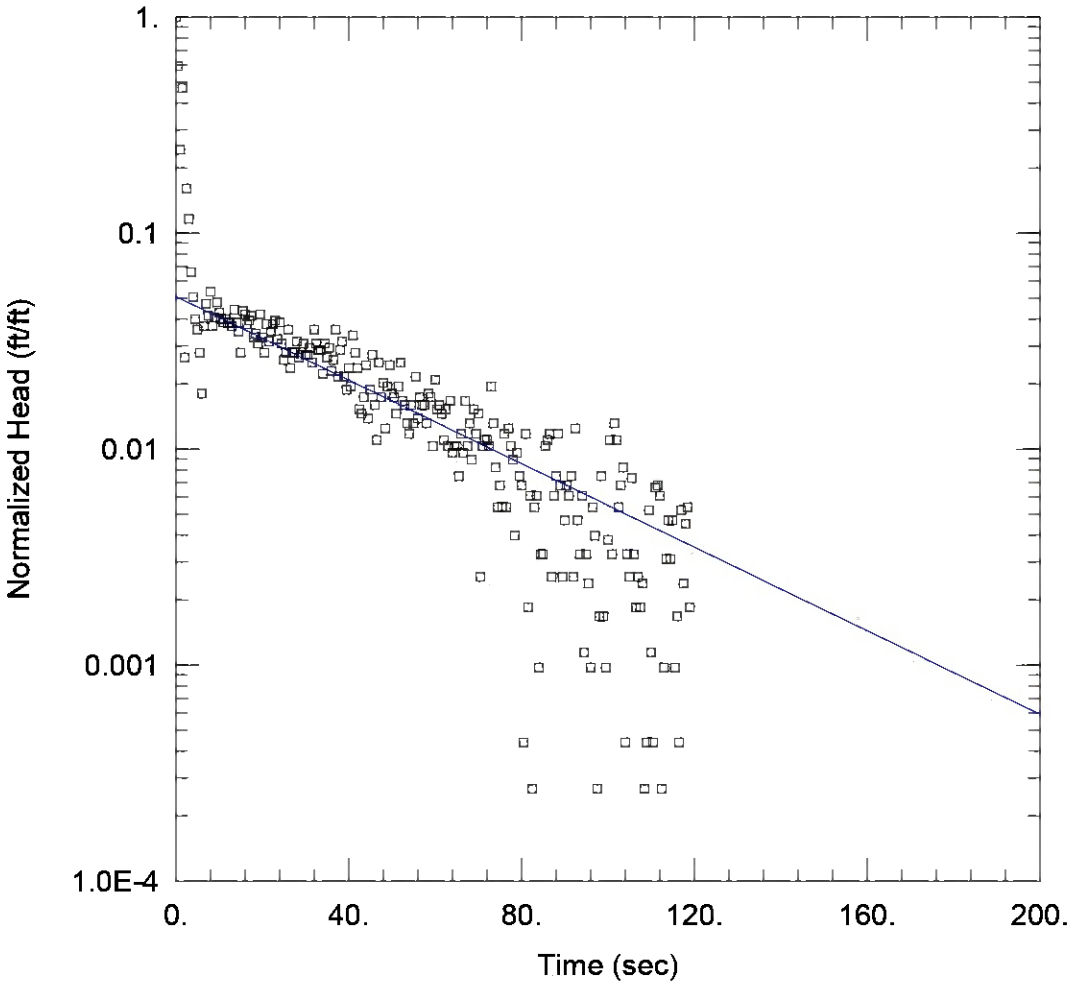
Saturated Thickness: 9.33 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (CGYP-1)

Initial Displacement: 0.8622 ft
Total Well Penetration Depth: 9.32 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 9.32 ft
Screen Length: 9.32 ft
Well Radius: 0.3438 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.00266 cm/sec
y0 = 0.07938 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CGYP-1 Slug in 3.aqt
Date: 11/09/21 Time: 12:19:23

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CGYP-1

AQUIFER DATA

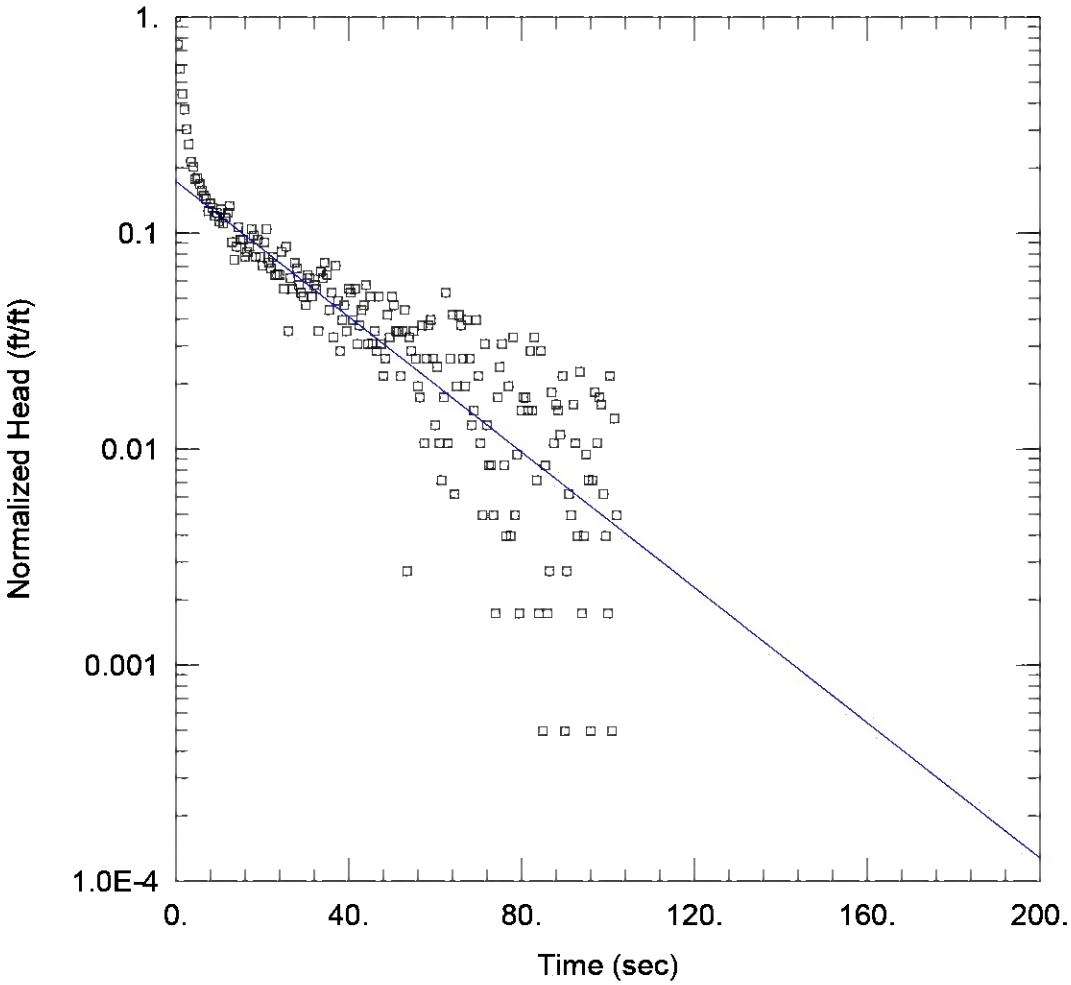
Saturated Thickness: 9.33 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (CGYP-1)

Initial Displacement: 1.416 ft
Total Well Penetration Depth: 9.32 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 9.32 ft
Screen Length: 9.32 ft
Well Radius: 0.3438 ft
Gravel Pack Porosity: 0.2

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.002869 cm/sec
y0 = 0.07198 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CGYP-1 Slug out 1.aqt
Date: 11/09/21 Time: 12:21:09

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CGYP-1

AQUIFER DATA

Saturated Thickness: 9.33 ft Anisotropy Ratio (Kz/Kr): 1.

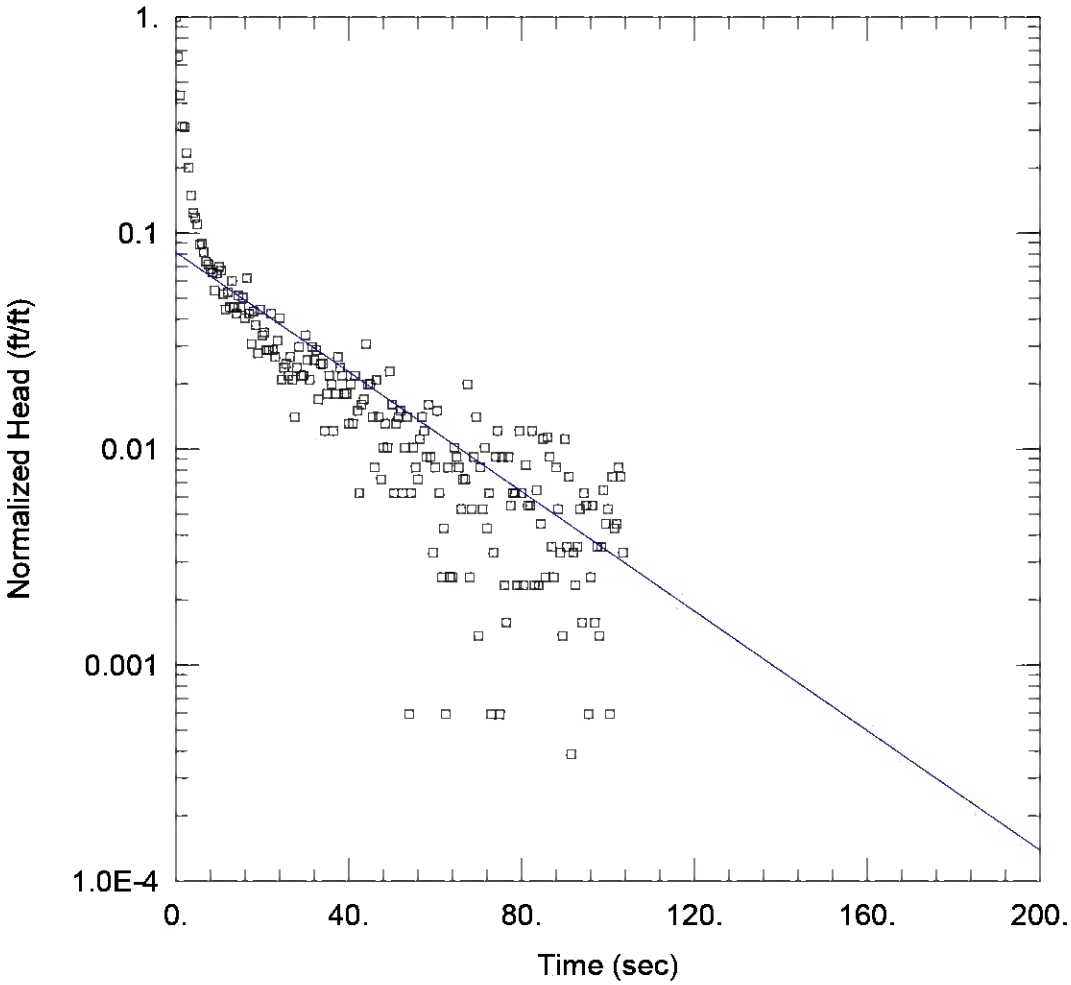
WELL DATA (CGYP-1)

Initial Displacement: 0.4488 ft
Total Well Penetration Depth: 9.32 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 9.32 ft
Screen Length: 9.32 ft
Well Radius: 0.3438 ft
Gravel Pack Porosity: 0.2

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.004646 cm/sec y0 = 0.07784 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CGYP-1 Slug out 2.aqt
Date: 11/09/21 Time: 12:23:26

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CGYP-1

AQUIFER DATA

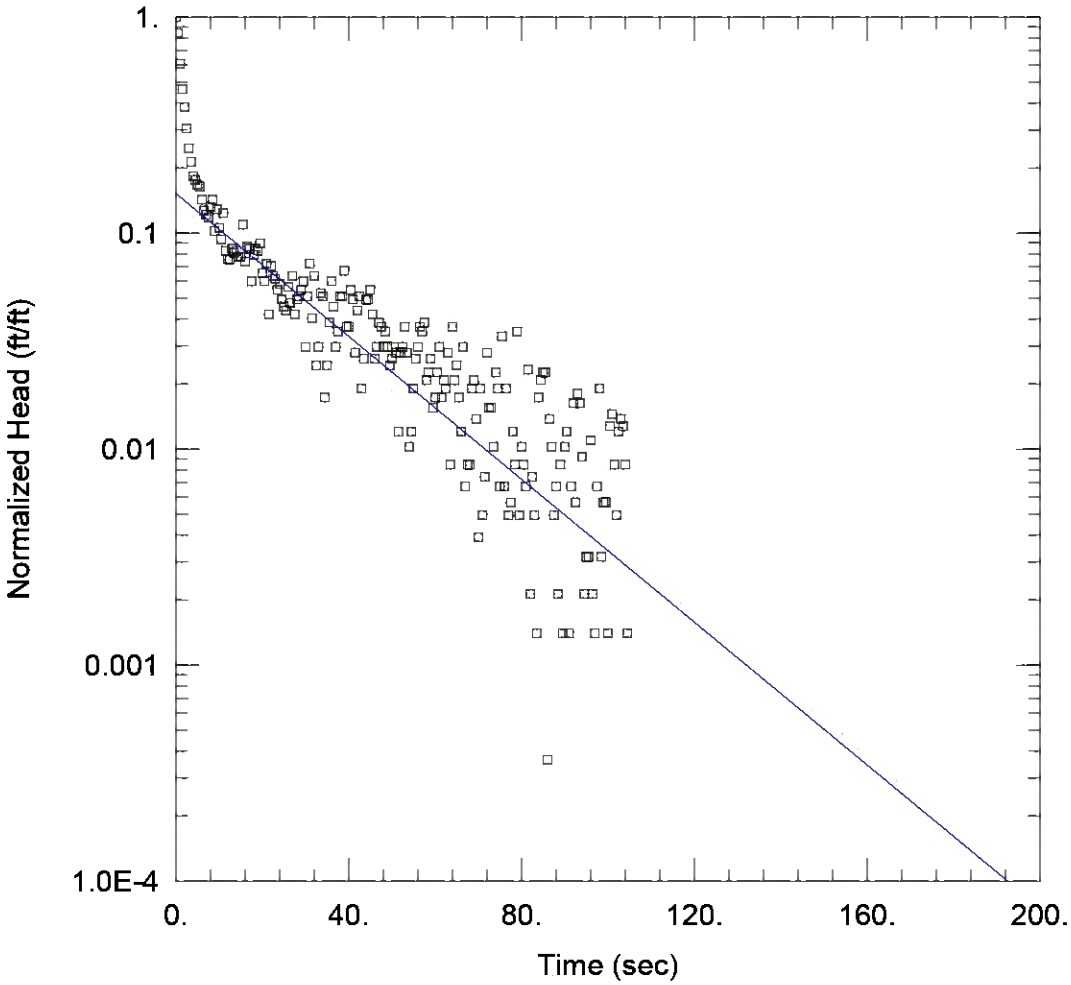
Saturated Thickness: 9.33 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (CGYP-1)

Initial Displacement: 1.022 ft
Total Well Penetration Depth: 9.32 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 9.32 ft
Screen Length: 9.32 ft
Well Radius: 0.3438 ft
Gravel Pack Porosity: 0.2

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.004105 cm/sec
y0 = 0.08324 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CGYP-1 Slug out 3.aqt
Date: 11/09/21 Time: 12:27:39

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CGYP-1

AQUIFER DATA

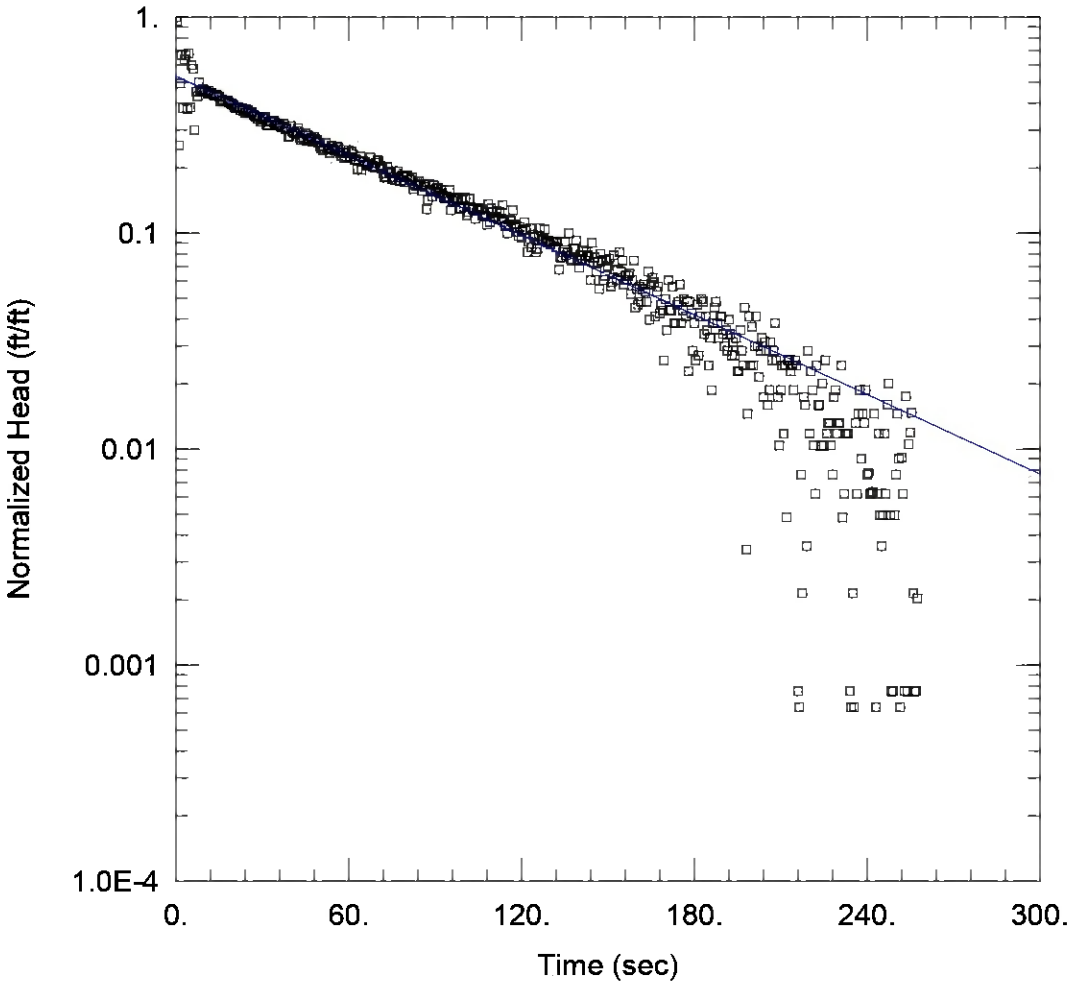
Saturated Thickness: 9.33 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (CGYP-1)

Initial Displacement: 0.5648 ft
Total Well Penetration Depth: 9.32 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 9.32 ft
Screen Length: 9.32 ft
Well Radius: 0.3438 ft
Gravel Pack Porosity: 0.2

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.004904 cm/sec
y0 = 0.08604 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CGYP-2 slug in 1.aqt
Date: 11/09/21 Time: 12:40:30

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CGYP-2

AQUIFER DATA

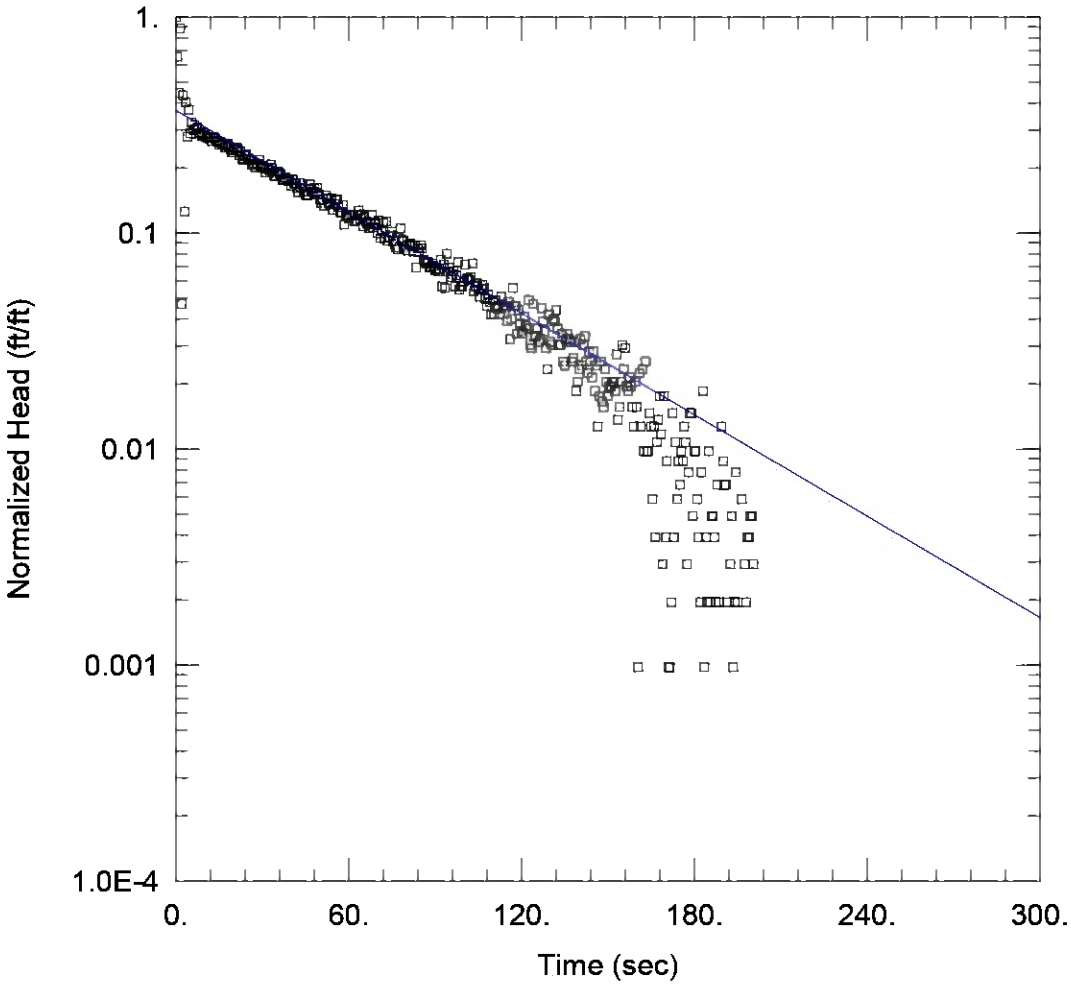
Saturated Thickness: 10.83 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (CGYP-2)

Initial Displacement: 0.7165 ft Static Water Column Height: 10.83 ft
Total Well Penetration Depth: 10.83 ft Screen Length: 10. ft
Casing Radius: 0.08333 ft Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.0003882 cm/sec y0 = 0.382 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CGYP-2 slug in 2.aqt
Date: 11/09/21 Time: 12:52:59

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CGYP-2

AQUIFER DATA

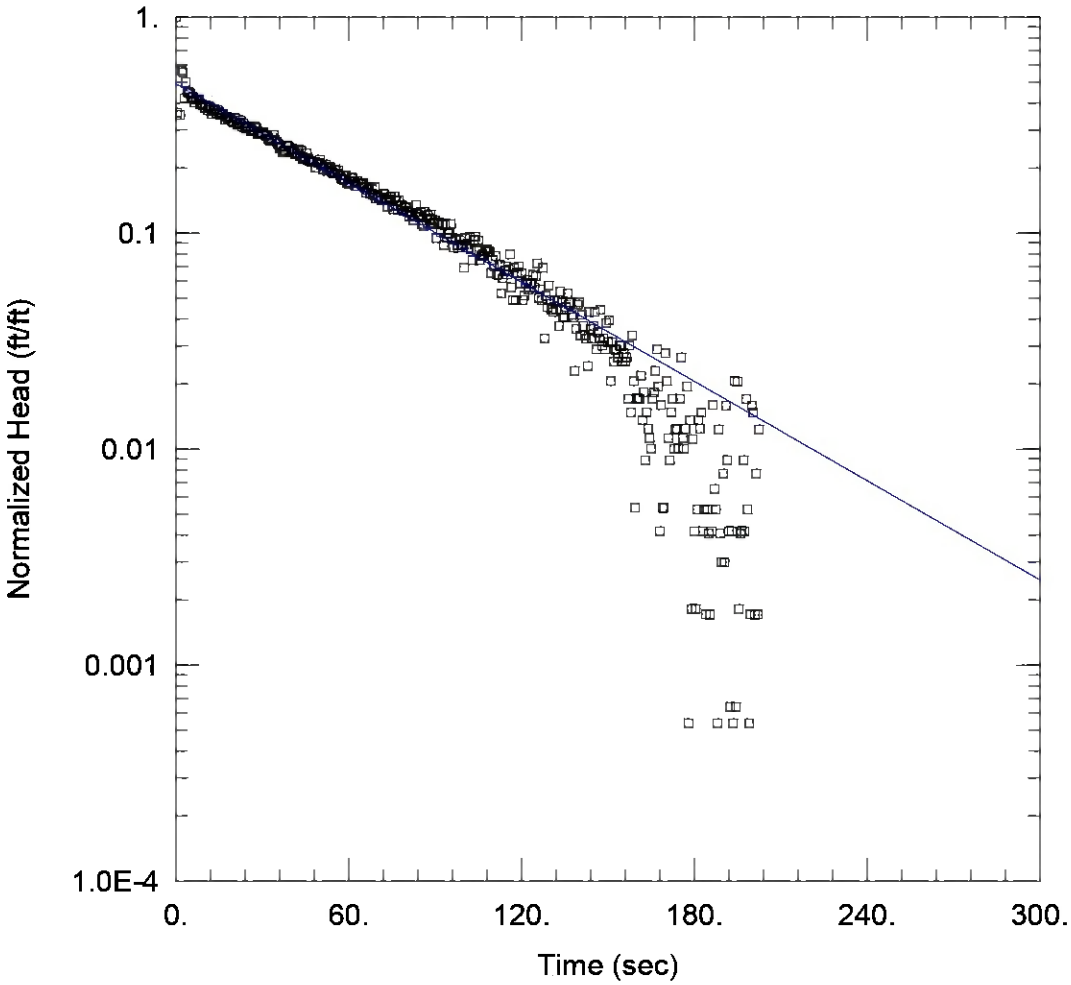
Saturated Thickness: 10.83 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (CGYP-2)

Initial Displacement: 1.023 ft Static Water Column Height: 10.83 ft
Total Well Penetration Depth: 10.83 ft Screen Length: 10. ft
Casing Radius: 0.08333 ft Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.0004948 cm/sec y0 = 0.3788 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CGYP-2 slug out 1.aqt
Date: 11/09/21 Time: 12:48:20

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CGYP-2

AQUIFER DATA

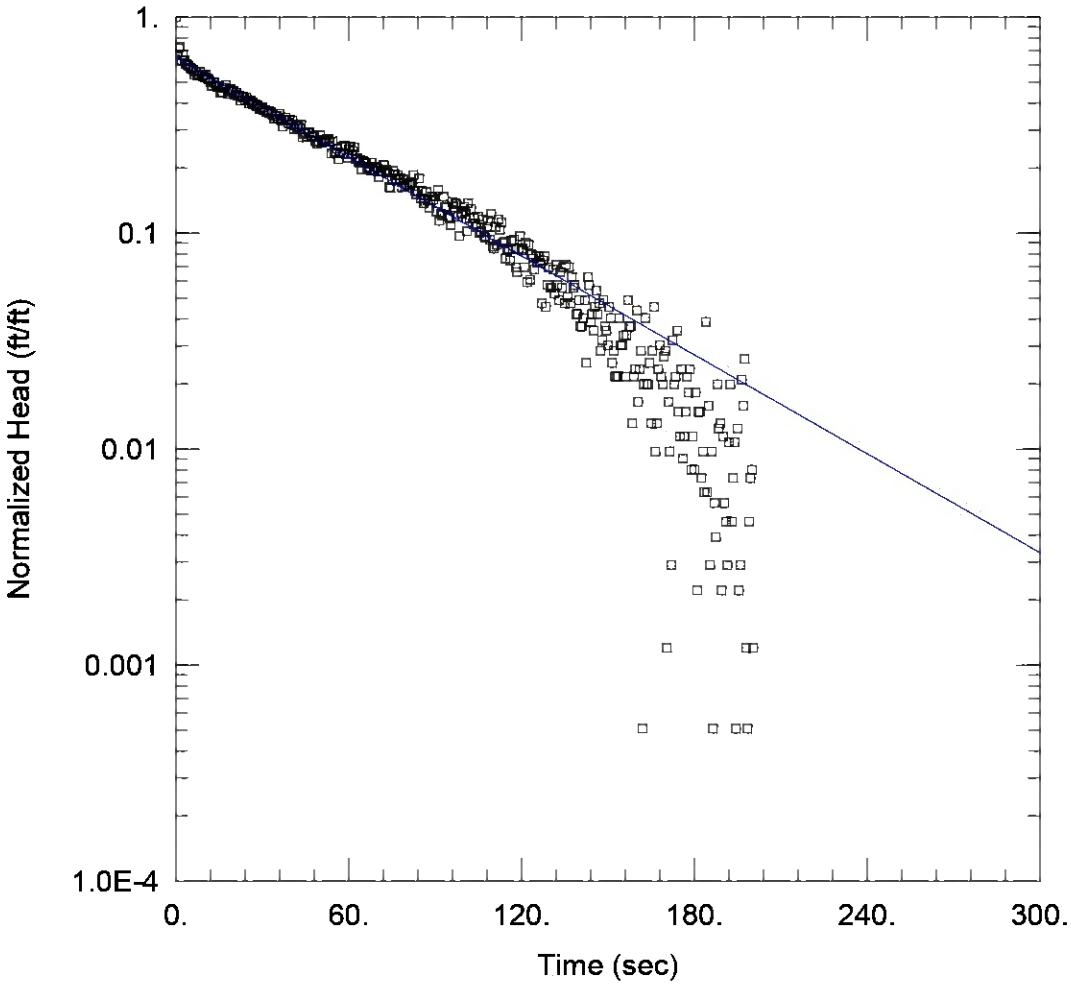
Saturated Thickness: 10.83 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (CGYP-2)

Initial Displacement: 0.8485 ft Static Water Column Height: 10.83 ft
Total Well Penetration Depth: 10.83 ft Screen Length: 10. ft
Casing Radius: 0.08333 ft Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.000484 cm/sec y0 = 0.4172 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CGYP-2 slug out 2.aqt
Date: 11/09/21 Time: 13:16:15

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CGYP-2

AQUIFER DATA

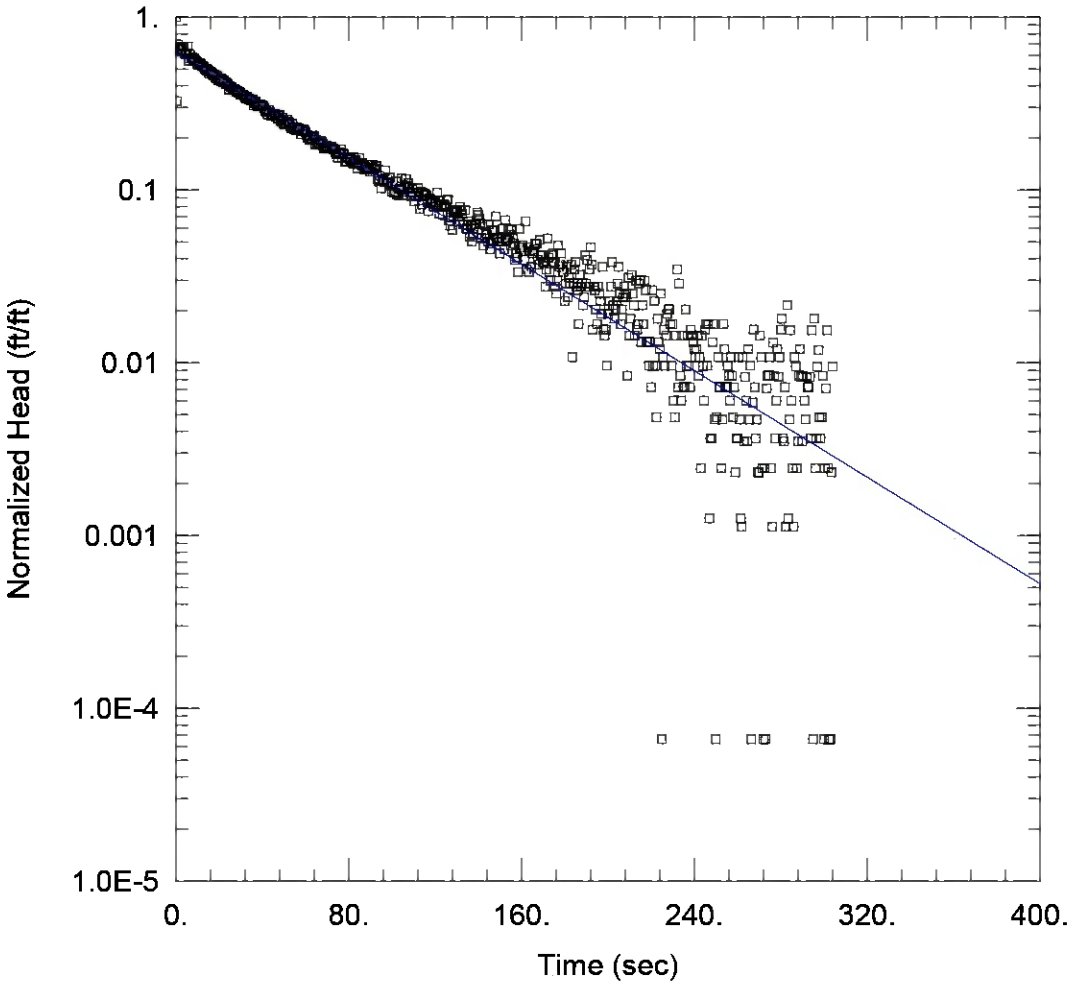
Saturated Thickness: 10.83 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (CGYP-2)

Initial Displacement: 0.5857 ft Static Water Column Height: 10.83 ft
Total Well Penetration Depth: 10.83 ft Screen Length: 10. ft
Casing Radius: 0.08333 ft Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.0004822 cm/sec y0 = 0.3778 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CGYP-3 slug in 1.aqt
Date: 11/09/21 Time: 16:18:17

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CGYP-3

AQUIFER DATA

Saturated Thickness: 13.71 ft Anisotropy Ratio (Kz/Kr): 1.

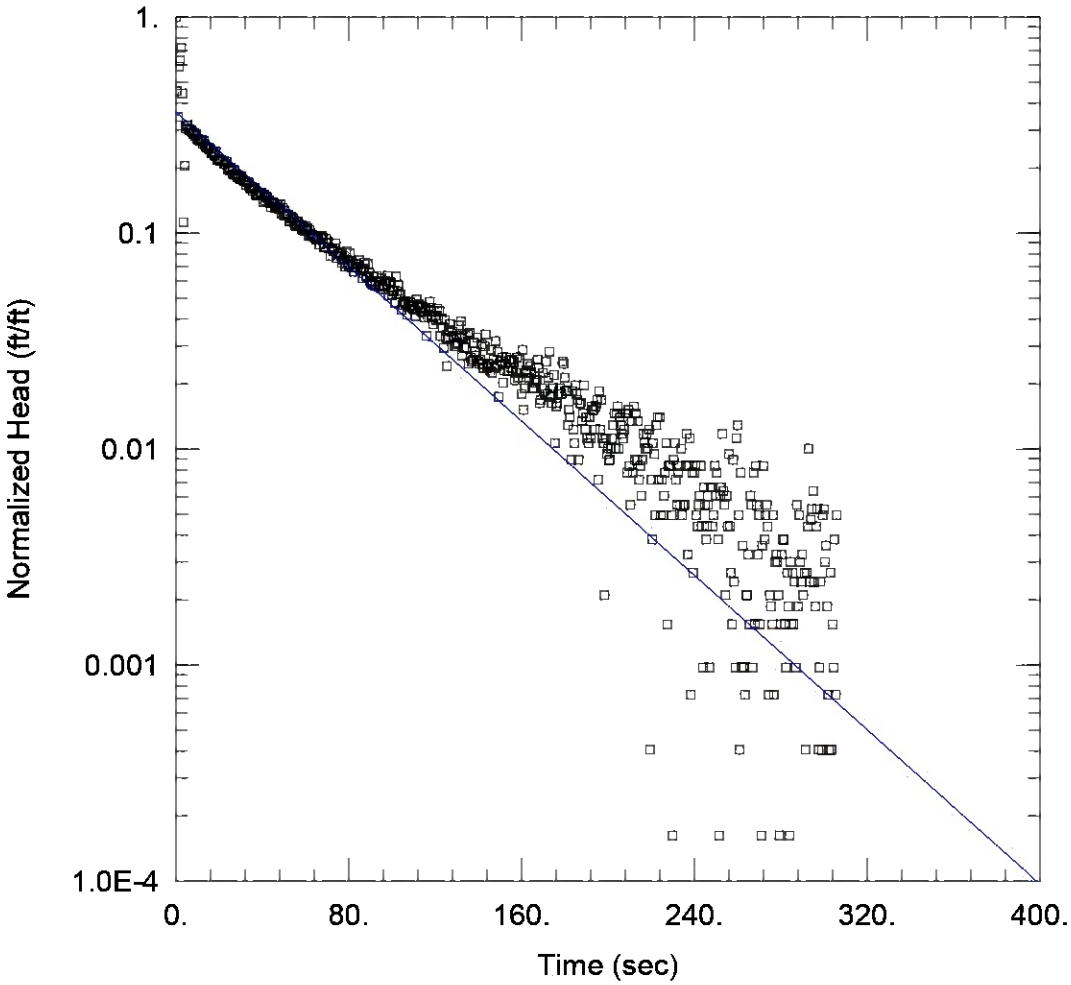
WELL DATA (CGYP-3)

Initial Displacement: 0.8391 ft
Total Well Penetration Depth: 13.71 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 13.71 ft
Screen Length: 10. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0005141 cm/sec y0 = 0.5324 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CGYP-3 slug in 2.aqt
Date: 11/09/21 Time: 16:36:50

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CGYP-3

AQUIFER DATA

Saturated Thickness: 13.71 ft Anisotropy Ratio (Kz/Kr): 1.

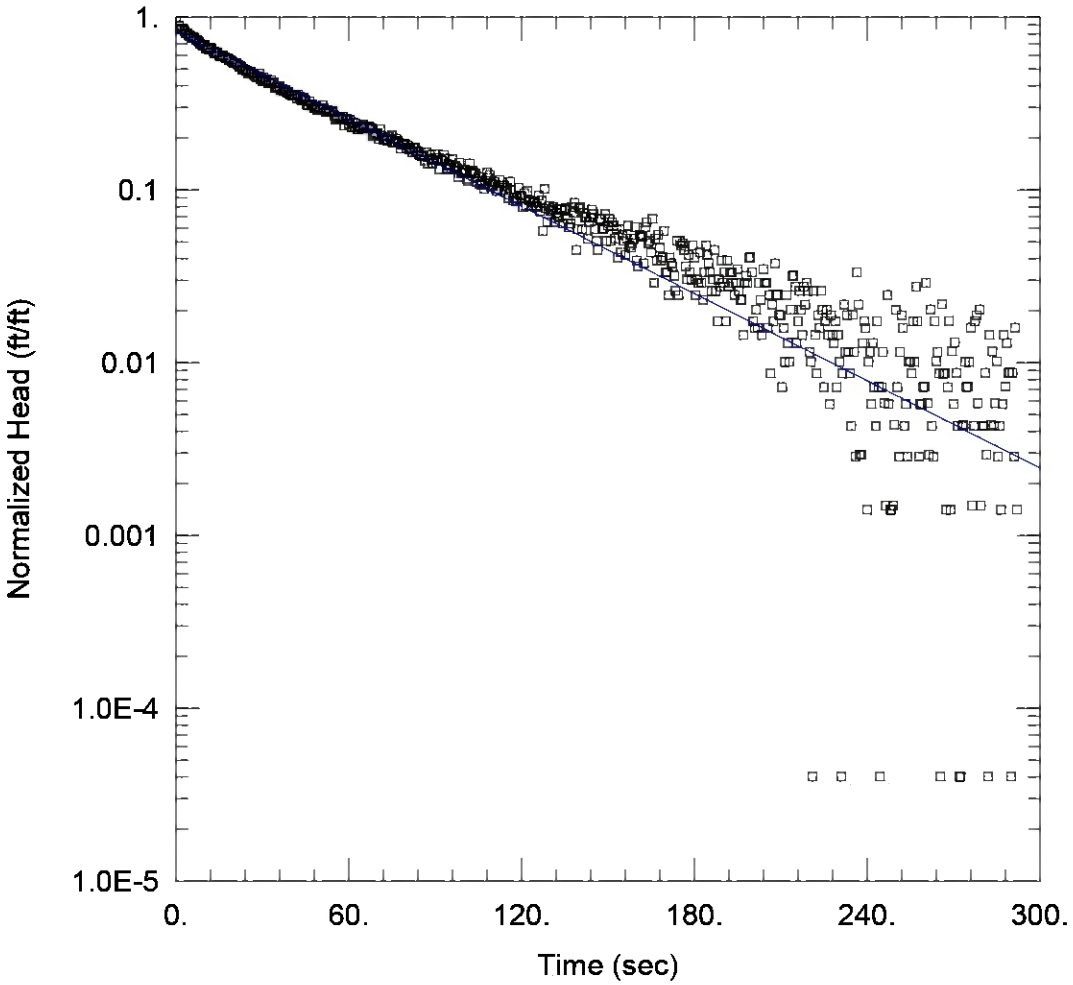
WELL DATA (CGYP-3)

Initial Displacement: 1.76 ft
Total Well Penetration Depth: 13.71 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 13.71 ft
Screen Length: 10. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0005961 cm/sec y0 = 0.6374 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CGYP-3 slug out 1.aqt
Date: 11/09/21 Time: 16:32:26

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CGYP-3

AQUIFER DATA

Saturated Thickness: 13.71 ft Anisotropy Ratio (Kz/Kr): 1.

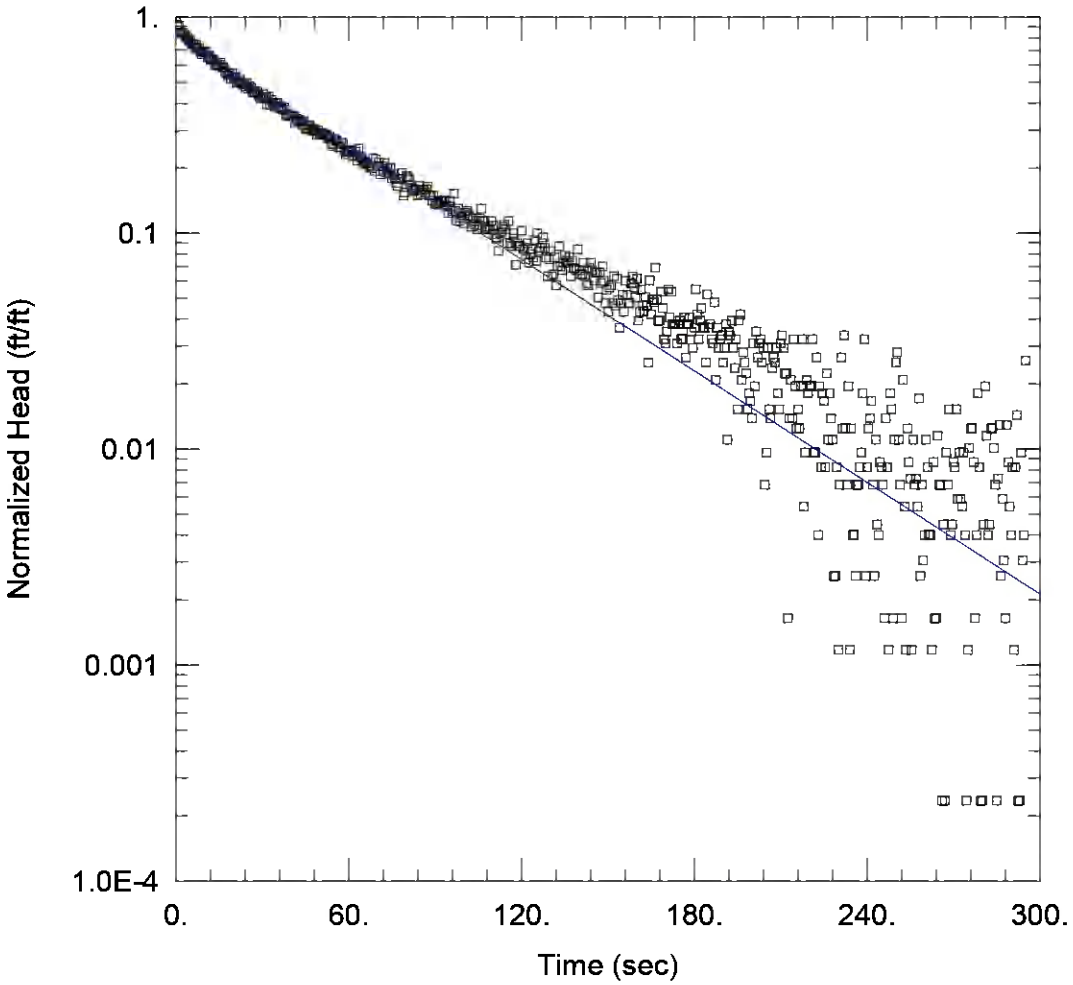
WELL DATA (CGYP-3)

Initial Displacement: 0.69 ft
Total Well Penetration Depth: 13.71 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 13.71 ft
Screen Length: 10. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0005617 cm/sec y0 = 0.5682 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CGYP-3 slug out 2.aqt
Date: 11/09/21 Time: 16:45:48

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CGYP-3

AQUIFER DATA

Saturated Thickness: 13.71 ft Anisotropy Ratio (Kz/Kr): 1.

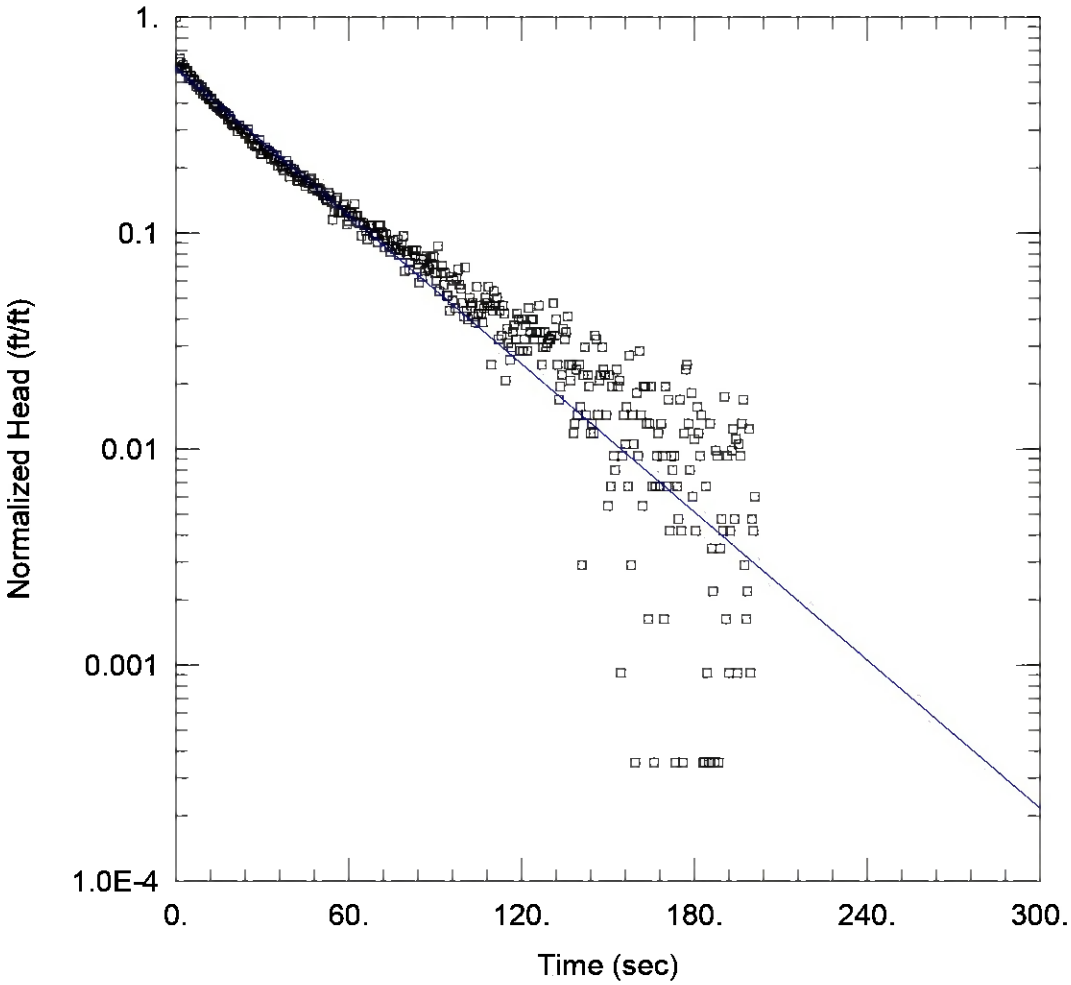
WELL DATA (CGYP-3)

Initial Displacement: 0.7078 ft
Total Well Penetration Depth: 13.71 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 13.71 ft
Screen Length: 10. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0005746 cm/sec y0 = 0.578 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CGYP4 Slug Out 1.aqt
Date: 11/08/21 Time: 10:52:34

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CGYP-4

AQUIFER DATA

Saturated Thickness: 14.7 ft Anisotropy Ratio (Kz/Kr): 1.

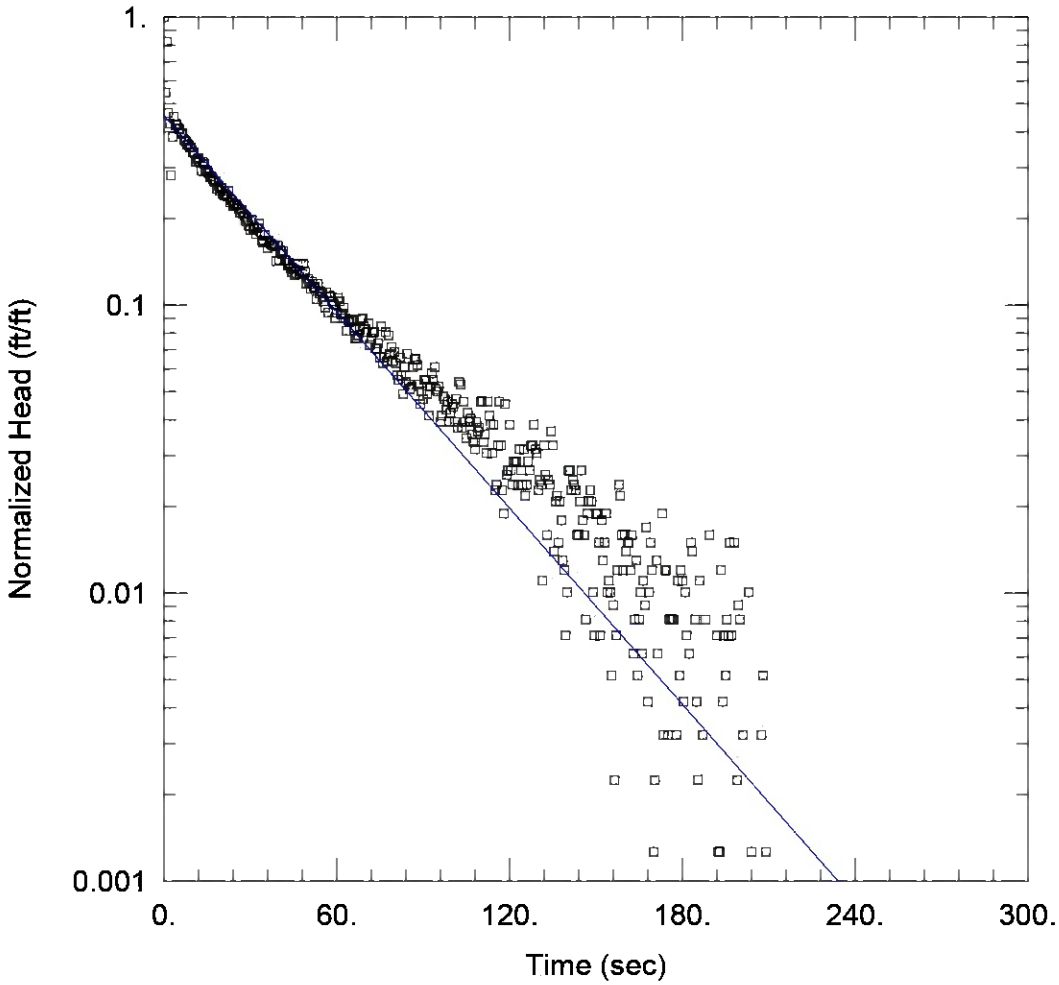
WELL DATA (CGYP-4)

Initial Displacement: 0.7843 ft
Total Well Penetration Depth: 14.7 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 14.7 ft
Screen Length: 10. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0007741 cm/sec y0 = 0.4567 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CGYP4 Slug In 1.aqt
Date: 11/08/21 Time: 10:52:03

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CGYP-4

AQUIFER DATA

Saturated Thickness: 14.7 ft Anisotropy Ratio (Kz/Kr): 1.

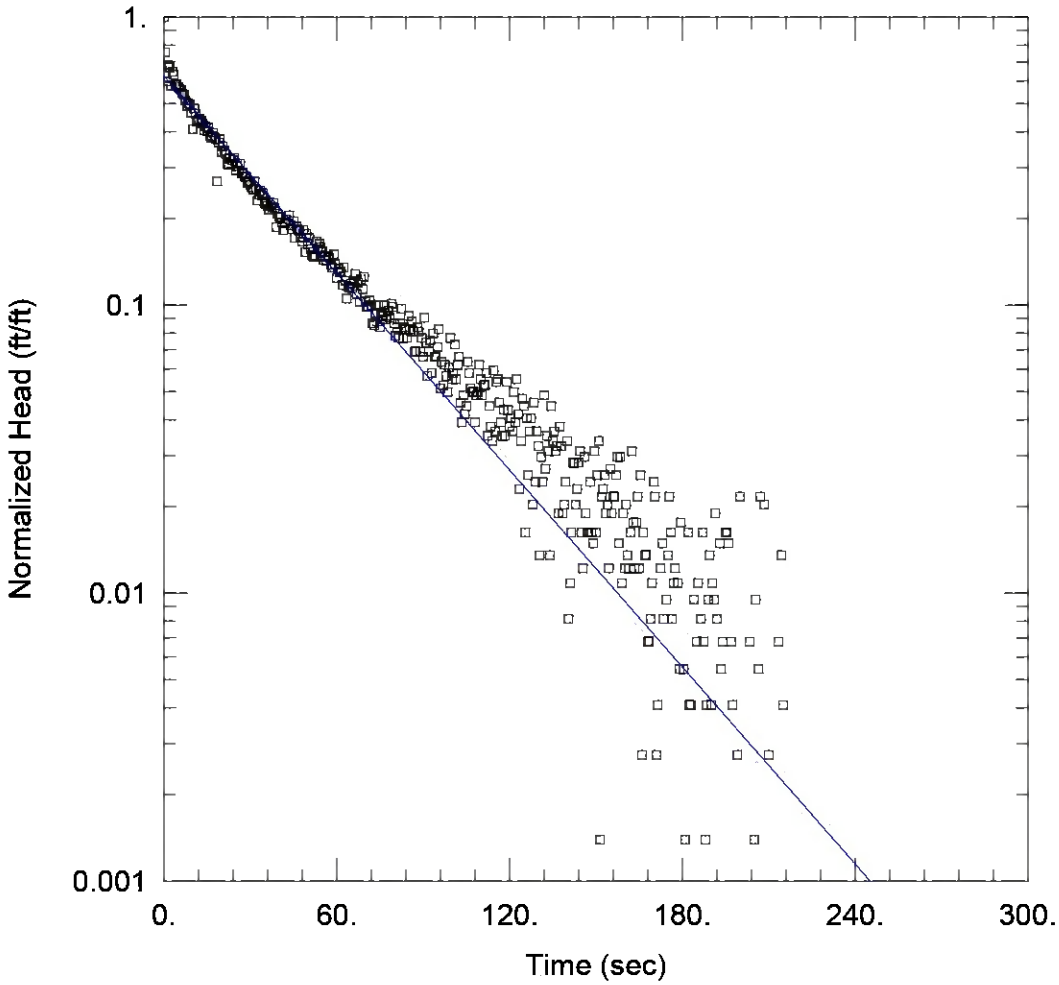
WELL DATA (CGYP-4)

Initial Displacement: 1.023 ft
Total Well Penetration Depth: 14.7 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 14.7 ft
Screen Length: 10. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0007695 cm/sec y0 = 0.4651 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CGYP4 Slug In 2.aqt
Date: 11/08/21 Time: 10:53:20

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CGYP-4

AQUIFER DATA

Saturated Thickness: 14.7 ft Anisotropy Ratio (Kz/Kr): 1.

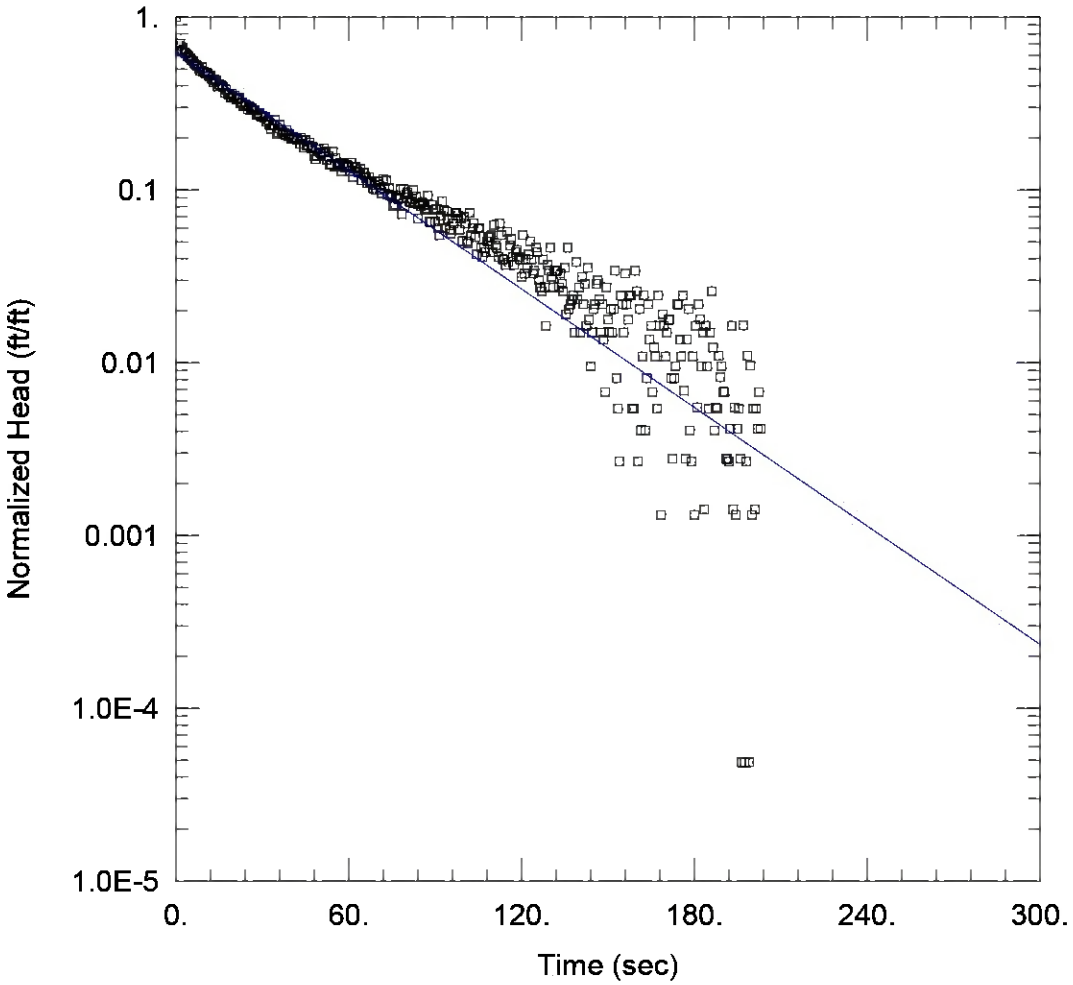
WELL DATA (CGYP-4)

Initial Displacement: 0.741 ft
Total Well Penetration Depth: 14.7 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 14.7 ft
Screen Length: 10. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0007724 cm/sec y0 = 0.4623 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CGYP4 Slug Out 2.aqt
Date: 11/08/21 Time: 10:53:38

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CGYP-4

AQUIFER DATA

Saturated Thickness: 14.7 ft Anisotropy Ratio (Kz/Kr): 1.

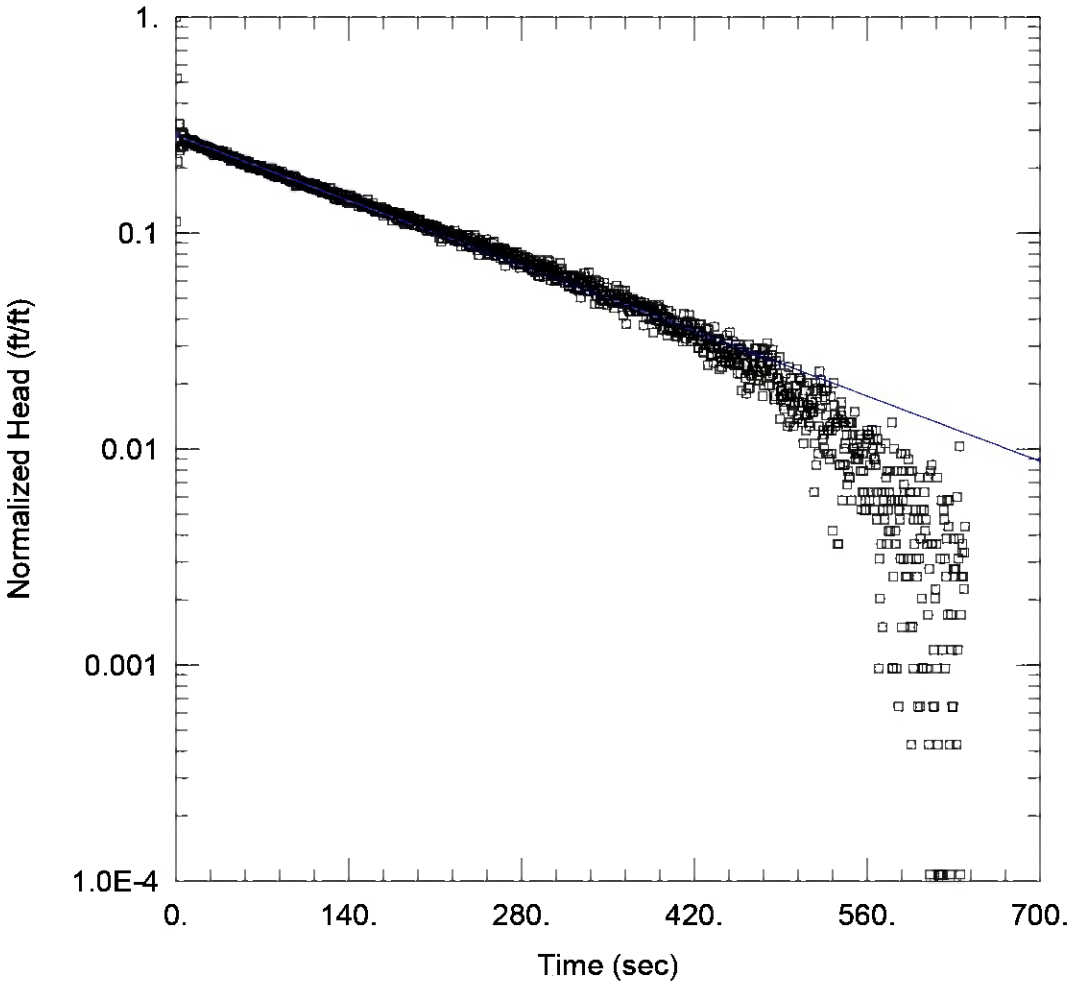
WELL DATA (CGYP-4)

Initial Displacement: 0.732 ft
Total Well Penetration Depth: 14.7 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 14.7 ft
Screen Length: 10. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0007743 cm/sec y0 = 0.4594 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CGYP-5 slug in 1.aqt
Date: 11/09/21 Time: 13:37:30

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CGYP-5

AQUIFER DATA

Saturated Thickness: 13.76 ft Anisotropy Ratio (Kz/Kr): 1.

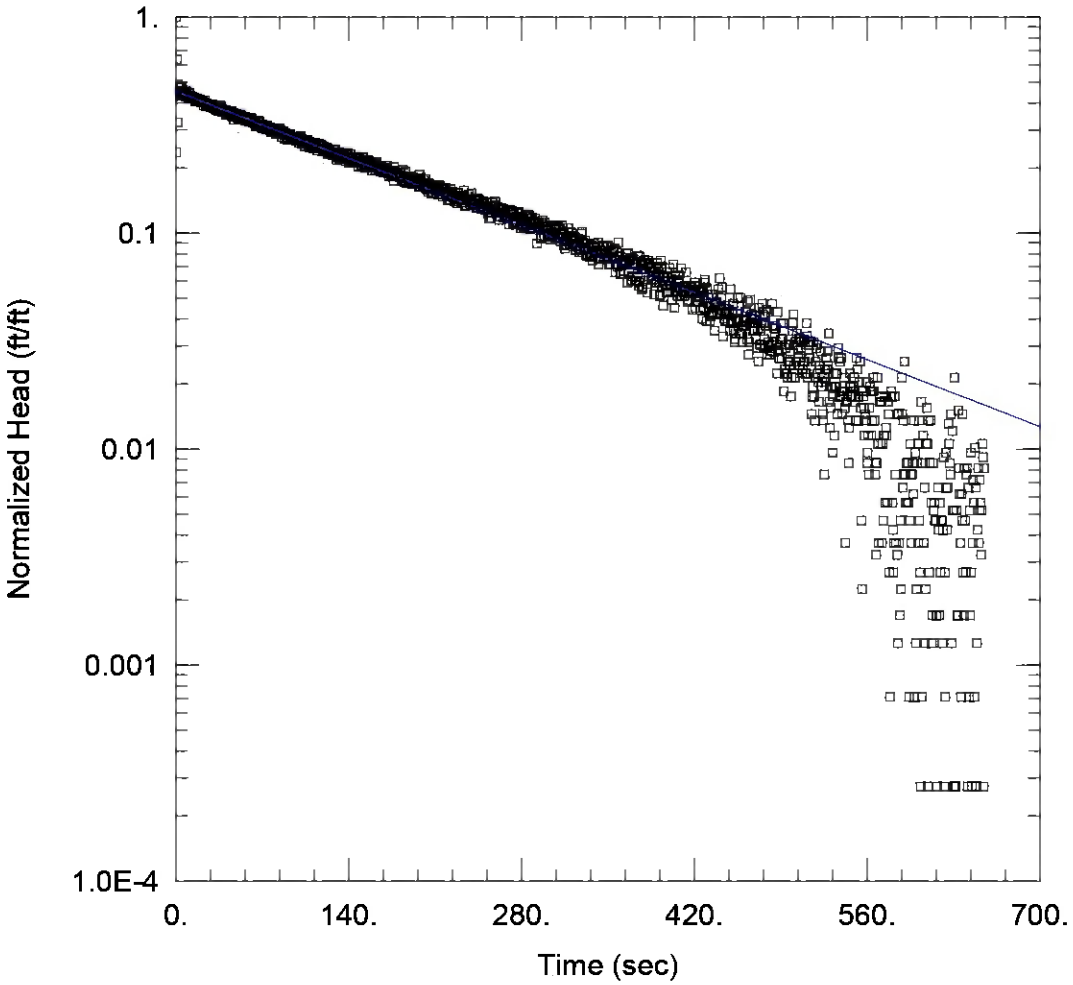
WELL DATA (CGYP-5)

Initial Displacement: 1.868 ft
Total Well Penetration Depth: 13.76 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 13.76 ft
Screen Length: 10. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0001439 cm/sec y0 = 0.5285 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CGYP-5 slug in 2.aqt
Date: 11/09/21 Time: 14:07:54

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CGYP-5

AQUIFER DATA

Saturated Thickness: 13.76 ft Anisotropy Ratio (Kz/Kr): 1.

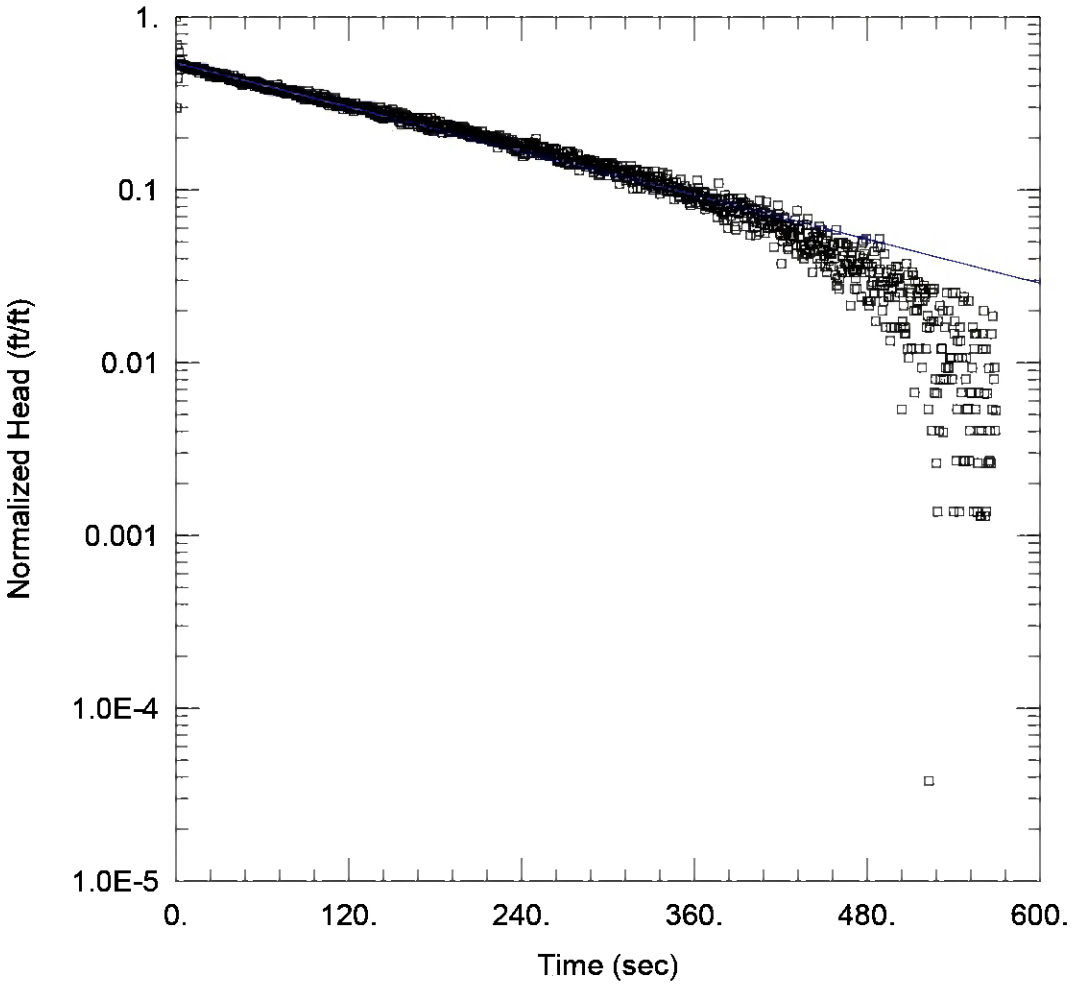
WELL DATA (CGYP-5)

Initial Displacement: 1.013 ft
Total Well Penetration Depth: 13.76 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 13.76 ft
Screen Length: 10. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0001481 cm/sec y0 = 0.4592 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CGYP-5 slug out 1.aqt
Date: 11/09/21 Time: 14:01:56

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CGYP-5

AQUIFER DATA

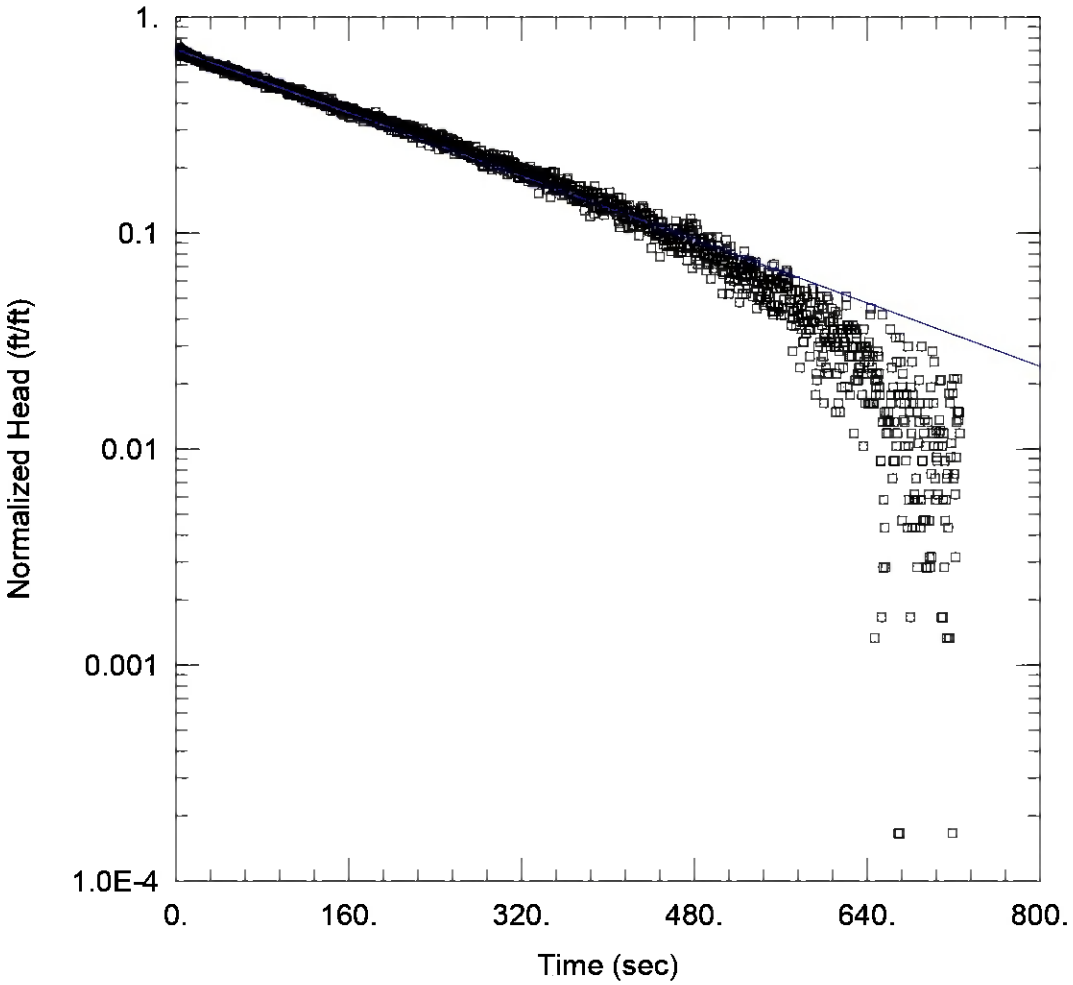
Saturated Thickness: 13.76 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (CGYP-5)

Initial Displacement: 0.75 ft Static Water Column Height: 13.76 ft
Total Well Penetration Depth: 13.76 ft Screen Length: 10. ft
Casing Radius: 0.08333 ft Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.0001419 cm/sec y0 = 0.4073 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CGYP-5 slug out 2.aqt
Date: 11/09/21 Time: 14:52:44

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CGYP-5

AQUIFER DATA

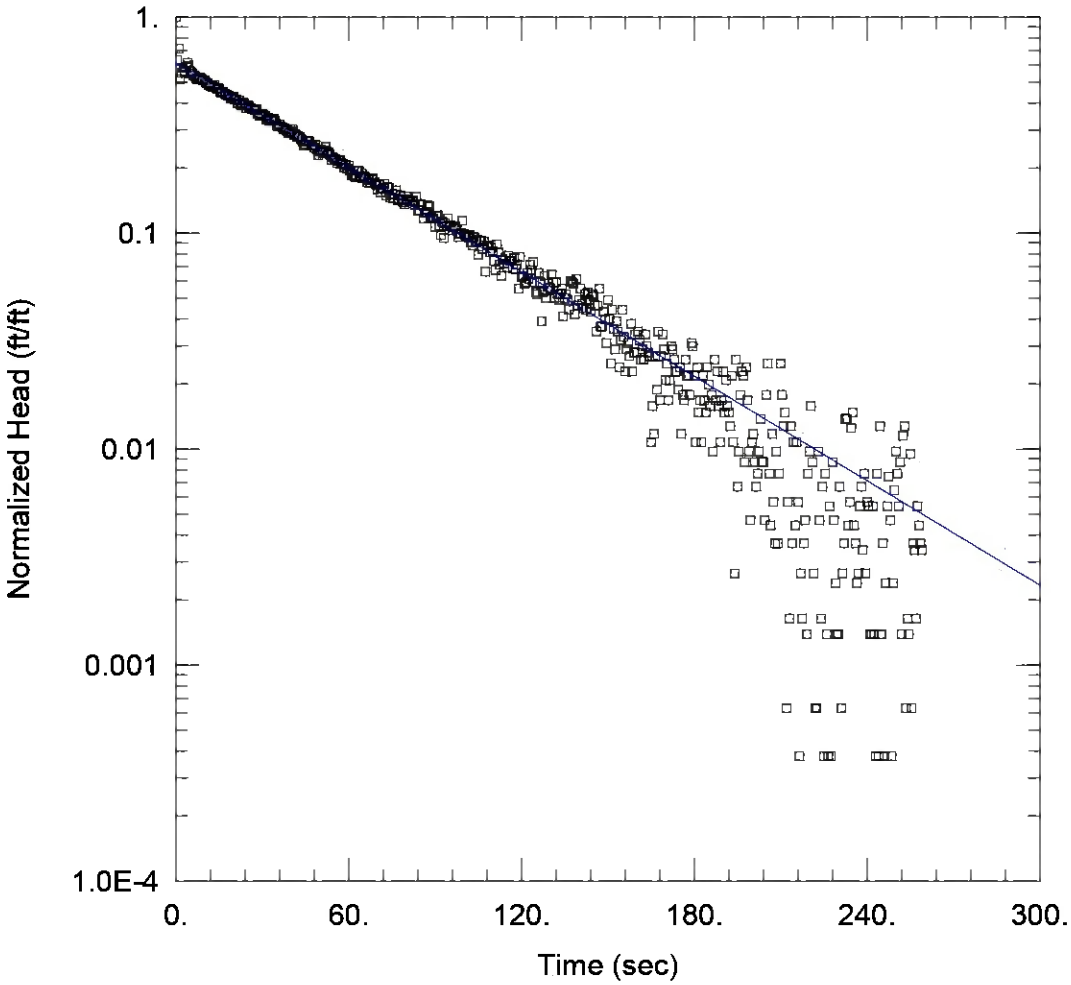
Saturated Thickness: 13.76 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (CGYP-5)

Initial Displacement: 0.6669 ft Static Water Column Height: 13.76 ft
Total Well Penetration Depth: 13.76 ft Screen Length: 10. ft
Casing Radius: 0.08333 ft Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.0001225 cm/sec y0 = 0.4725 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CGYP-6 slug in 1.aqt
Date: 11/09/21 Time: 15:07:12

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CGYP-6

AQUIFER DATA

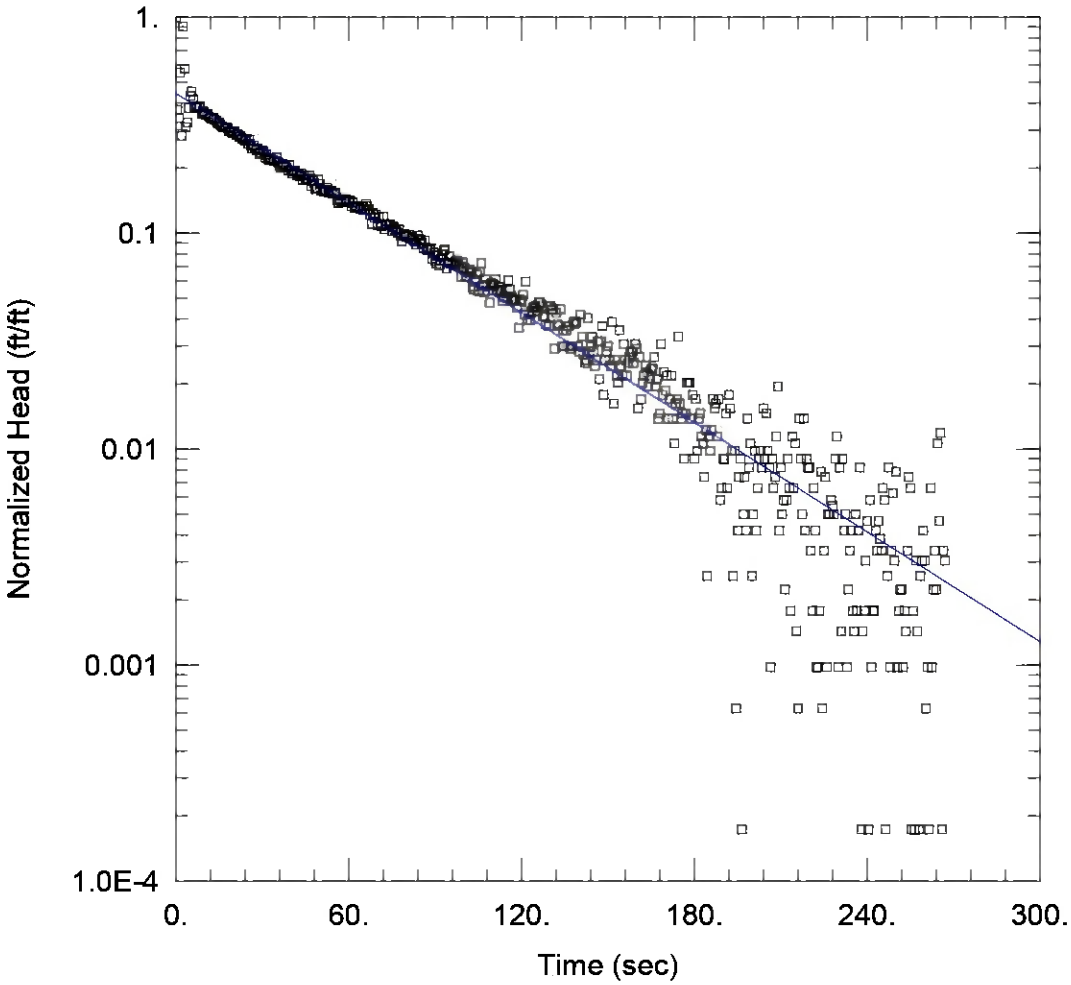
Saturated Thickness: 13.37 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (CGYP-6)

Initial Displacement: 0.9886 ft Static Water Column Height: 13.37 ft
Total Well Penetration Depth: 13.37 ft Screen Length: 10. ft
Casing Radius: 0.08333 ft Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.0005347 cm/sec y0 = 0.6054 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CGYP-6 slug in 2.aqt
Date: 11/09/21 Time: 15:16:47

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CGYP-6

AQUIFER DATA

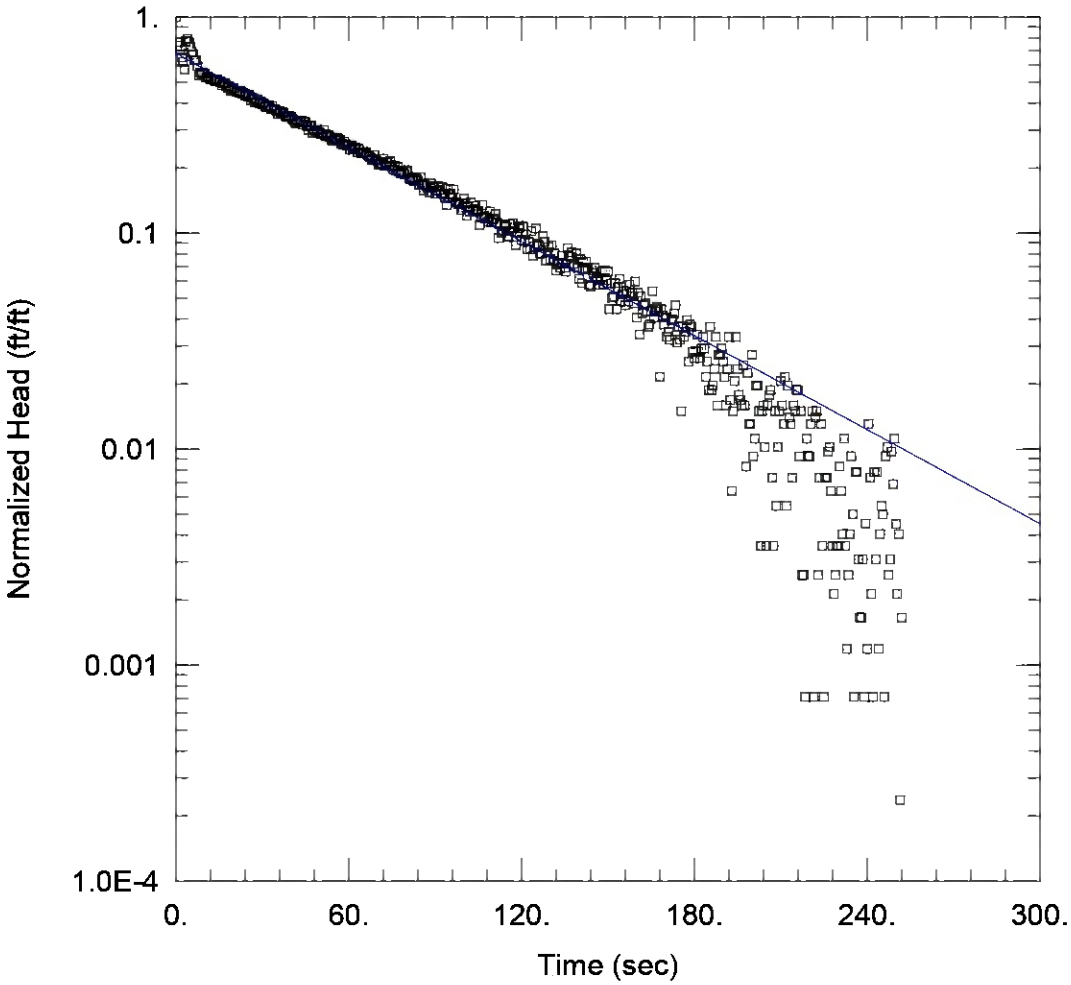
Saturated Thickness: 13.37 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (CGYP-6)

Initial Displacement: 1.244 ft
Total Well Penetration Depth: 13.37 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 13.37 ft
Screen Length: 10. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0005616 cm/sec
y0 = 0.5522 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CGYP-6 slug out 1.aqt
Date: 11/09/21 Time: 15:13:09

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CGYP-6

AQUIFER DATA

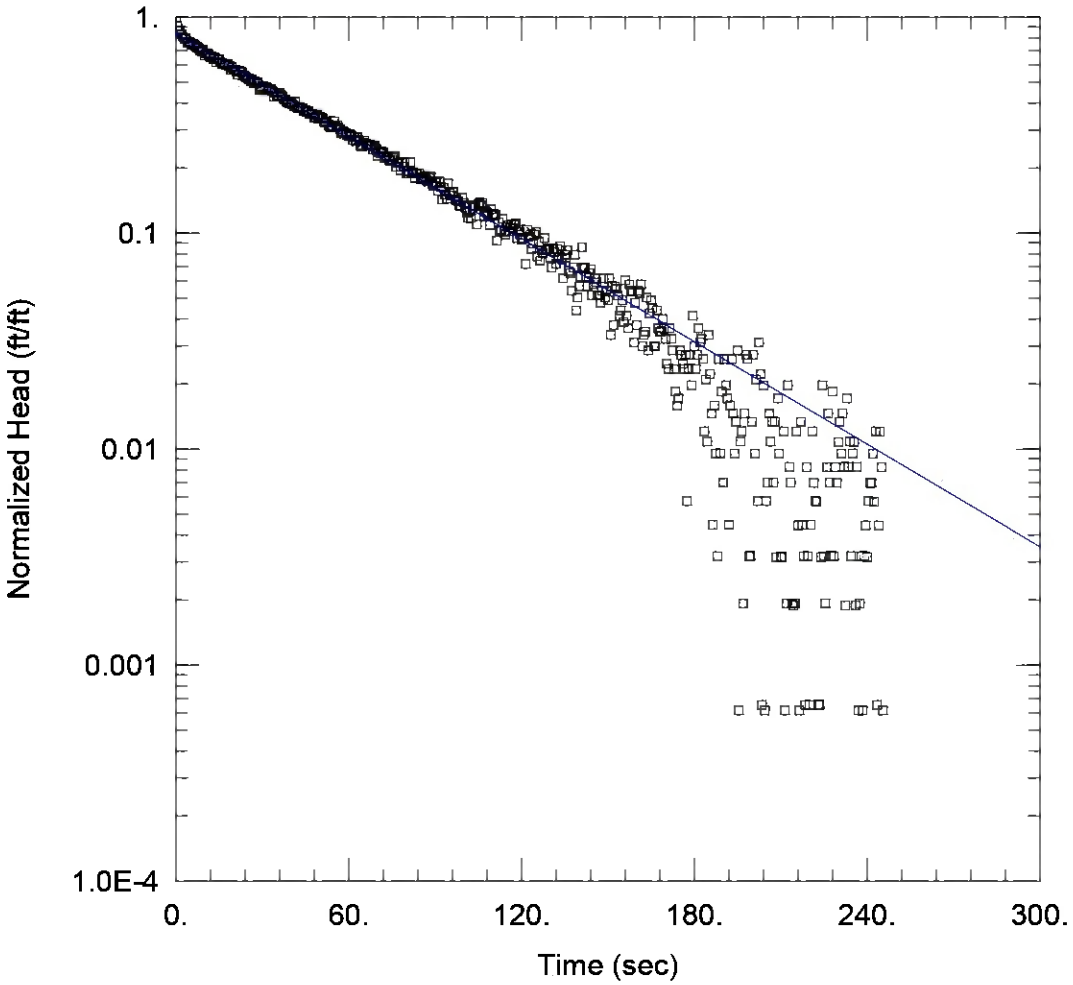
Saturated Thickness: 13.37 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (CGYP-6)

Initial Displacement: 1.053 ft Static Water Column Height: 13.37 ft
Total Well Penetration Depth: 13.37 ft Screen Length: 10. ft
Casing Radius: 0.08333 ft Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.0004815 cm/sec y0 = 0.7143 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\CGYP-6 slug out 2.aqt
Date: 11/09/21 Time: 15:21:42

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: CGYP-6

AQUIFER DATA

Saturated Thickness: 13.37 ft Anisotropy Ratio (Kz/Kr): 1.

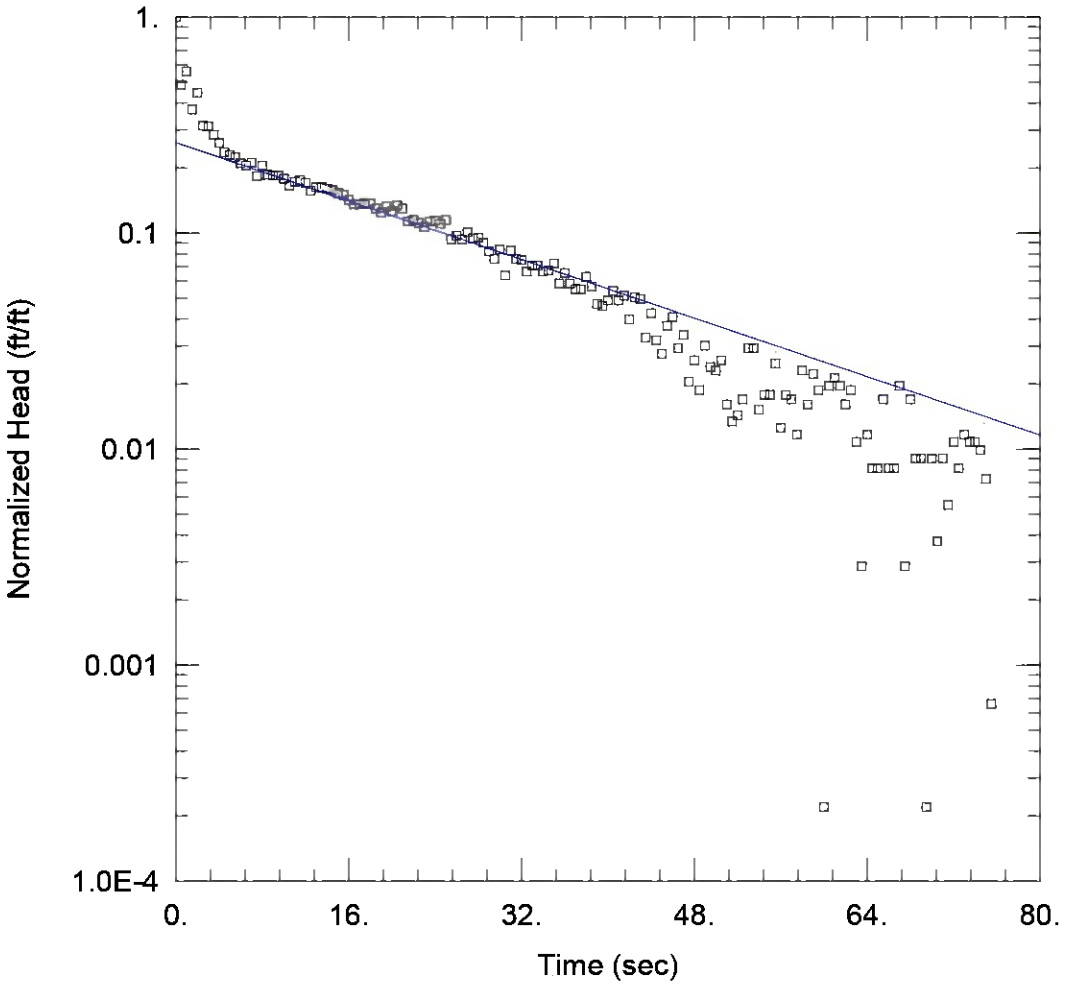
WELL DATA (CGYP-6)

Initial Displacement: 0.7865 ft
Total Well Penetration Depth: 13.37 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 13.37 ft
Screen Length: 10. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0005252 cm/sec y0 = 0.6574 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\PM-1 slug in 1.aqt
Date: 11/10/21 Time: 15:48:50

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: PM-1

AQUIFER DATA

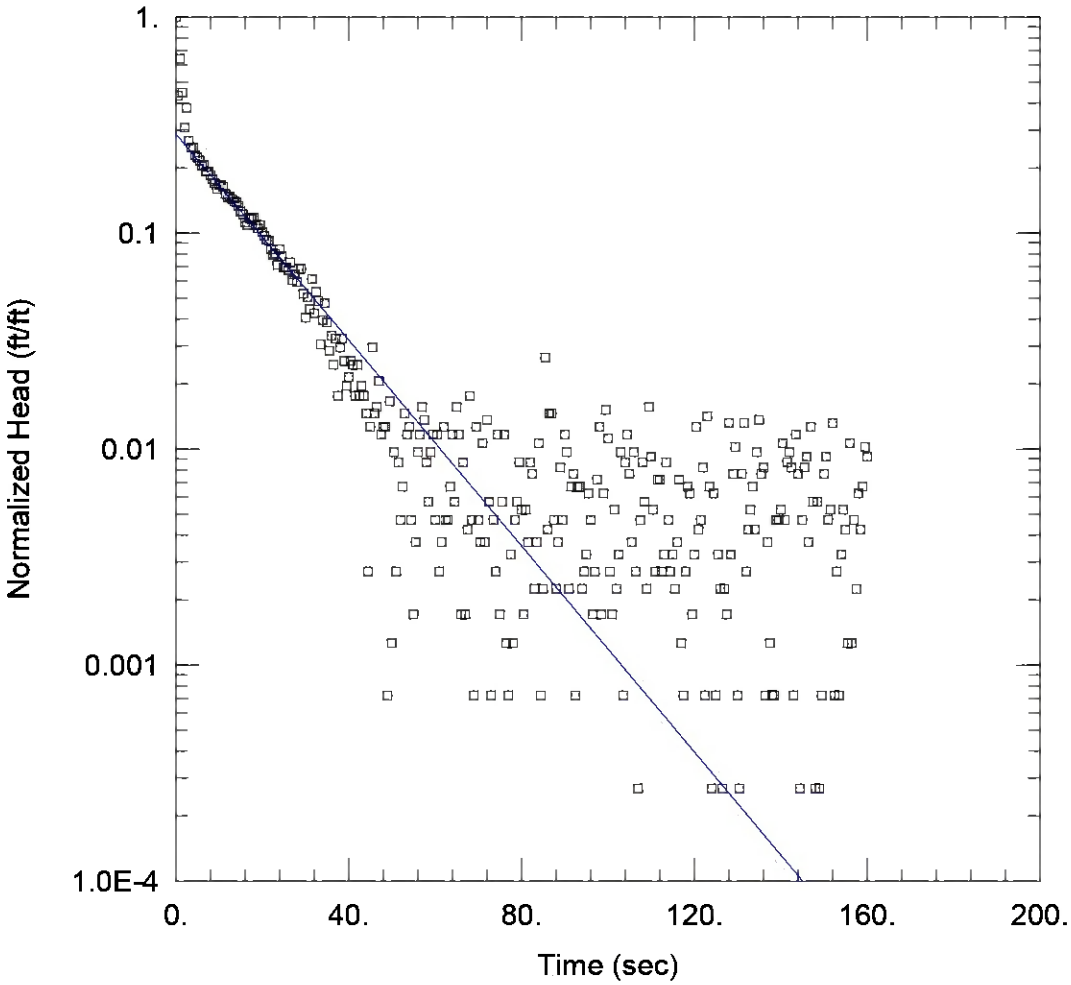
Saturated Thickness: 17.1 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PM-1)

Initial Displacement: 1.134 ft
Total Well Penetration Depth: 17.1 ft
Casing Radius: 0.1042 ft
Static Water Column Height: 17.1 ft
Screen Length: 17.1 ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.2

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.002385 cm/sec
y0 = 0.2976 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\PM-1 slug in 2.aqt
Date: 11/10/21 Time: 15:49:56

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: PM-1

AQUIFER DATA

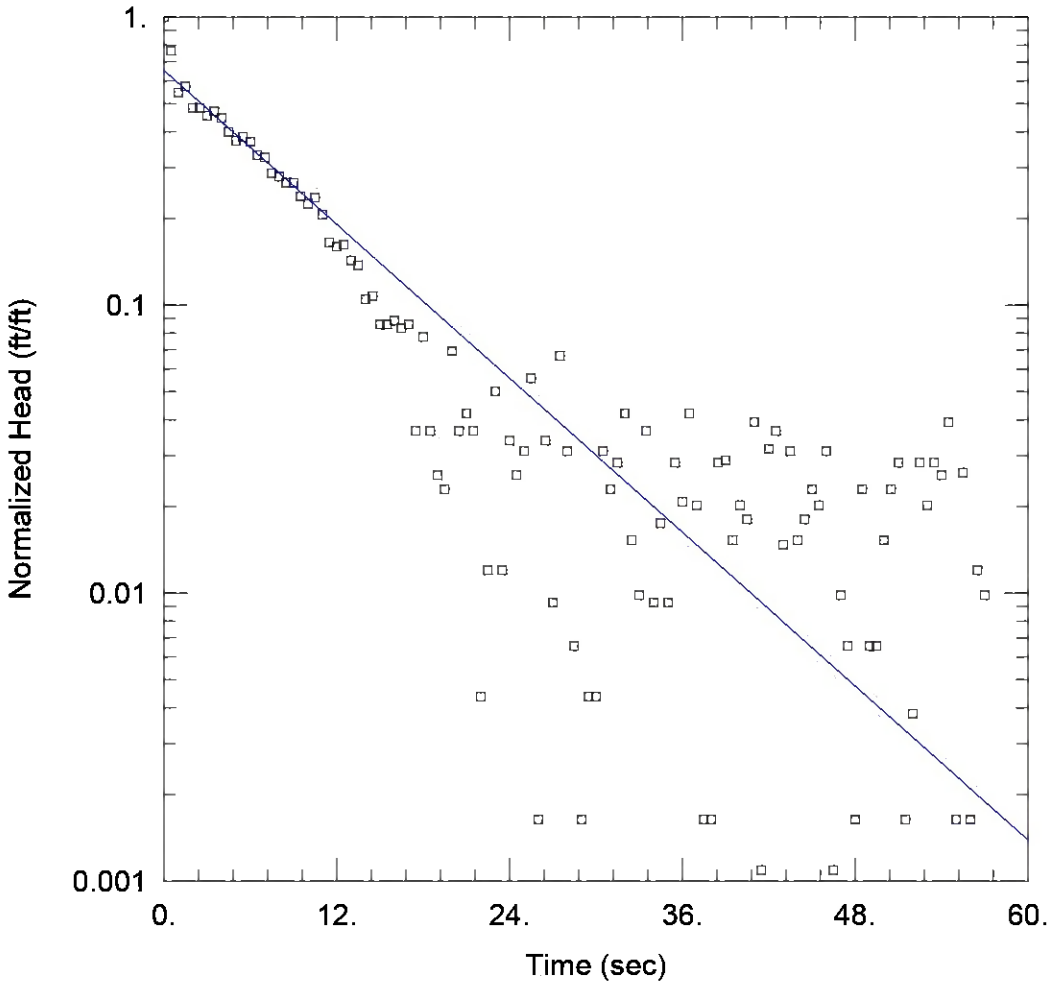
Saturated Thickness: 17.1 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PM-1)

Initial Displacement: 1.006 ft
Total Well Penetration Depth: 17.1 ft
Casing Radius: 0.1042 ft
Static Water Column Height: 17.1 ft
Screen Length: 17.1 ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.2

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.003361 cm/sec
y0 = 0.2893 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\PM-1 slug in 3.aqt
Date: 11/10/21 Time: 15:50:38

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: PM-1

AQUIFER DATA

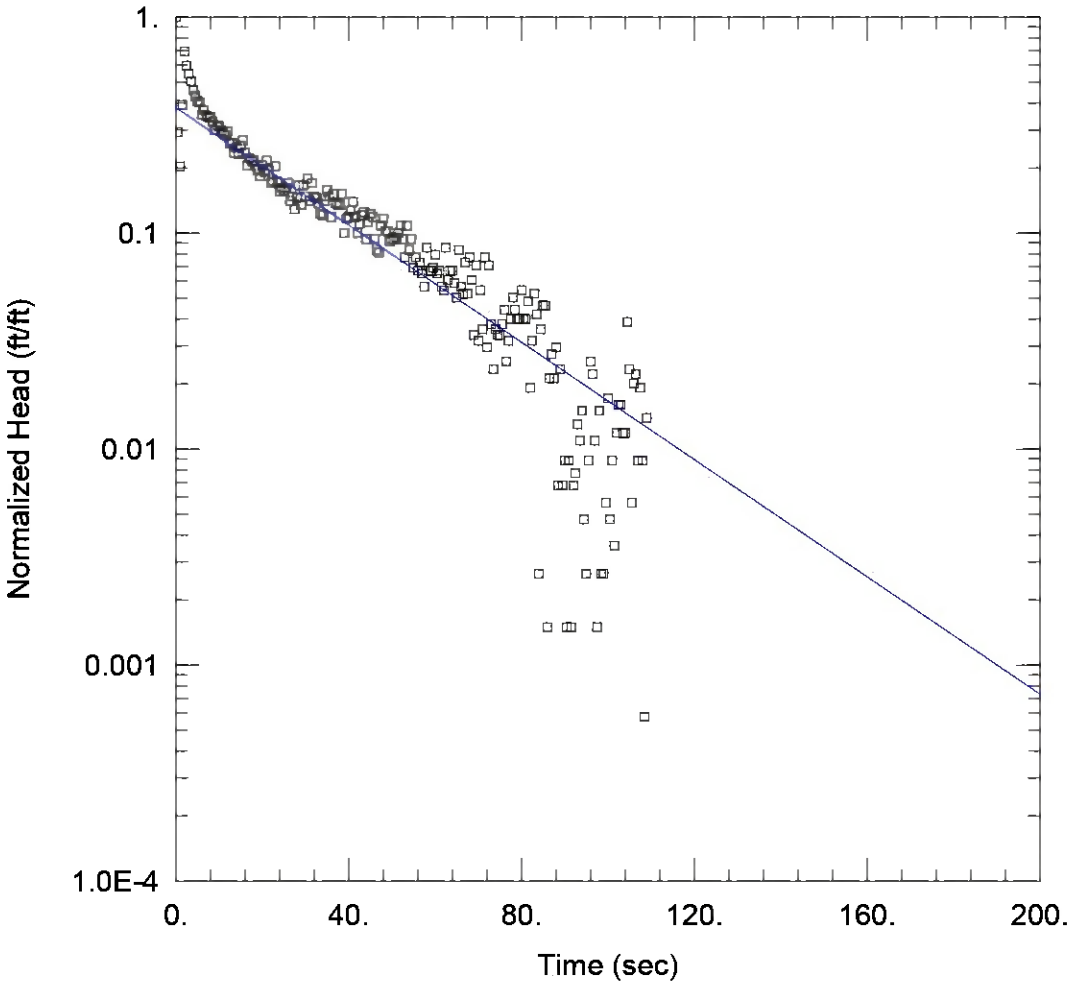
Saturated Thickness: 17.1 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PM-1)

Initial Displacement: 0.3664 ft
Total Well Penetration Depth: 17.1 ft
Casing Radius: 0.1042 ft
Static Water Column Height: 17.1 ft
Screen Length: 17.1 ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.2

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.006277 cm/sec
y0 = 0.2392 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\PM-1 slug out 1.aqt
Date: 11/10/21 Time: 15:51:32

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: PM-1

AQUIFER DATA

Saturated Thickness: 17.1 ft Anisotropy Ratio (Kz/Kr): 1.

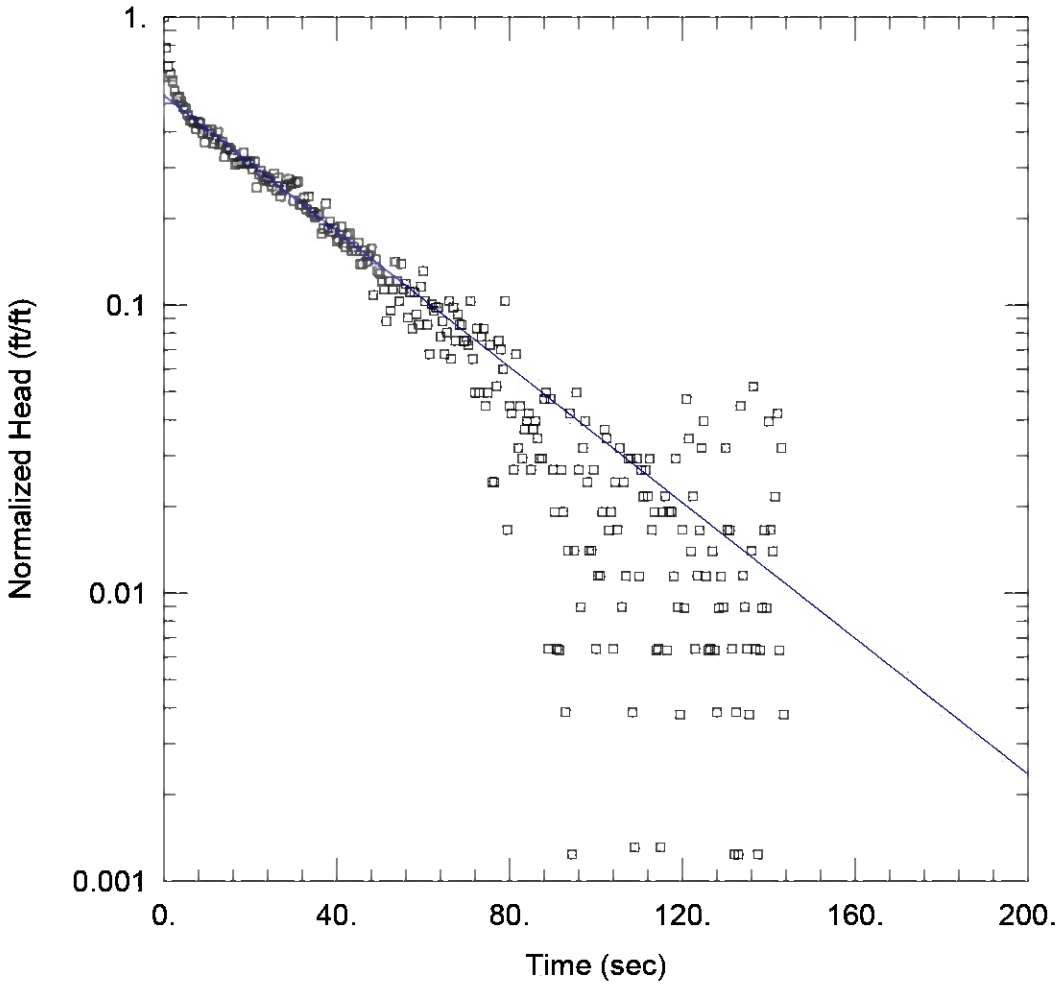
WELL DATA (PM-1)

Initial Displacement: 0.4823 ft
Total Well Penetration Depth: 17.1 ft
Casing Radius: 0.1042 ft
Static Water Column Height: 17.1 ft
Screen Length: 17.1 ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.2

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.001913 cm/sec y0 = 0.1835 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\PM-1 slug out 2.aqt
Date: 11/10/21 Time: 15:52:36

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: PM-1

AQUIFER DATA

Saturated Thickness: 17.1 ft Anisotropy Ratio (Kz/Kr): 1.

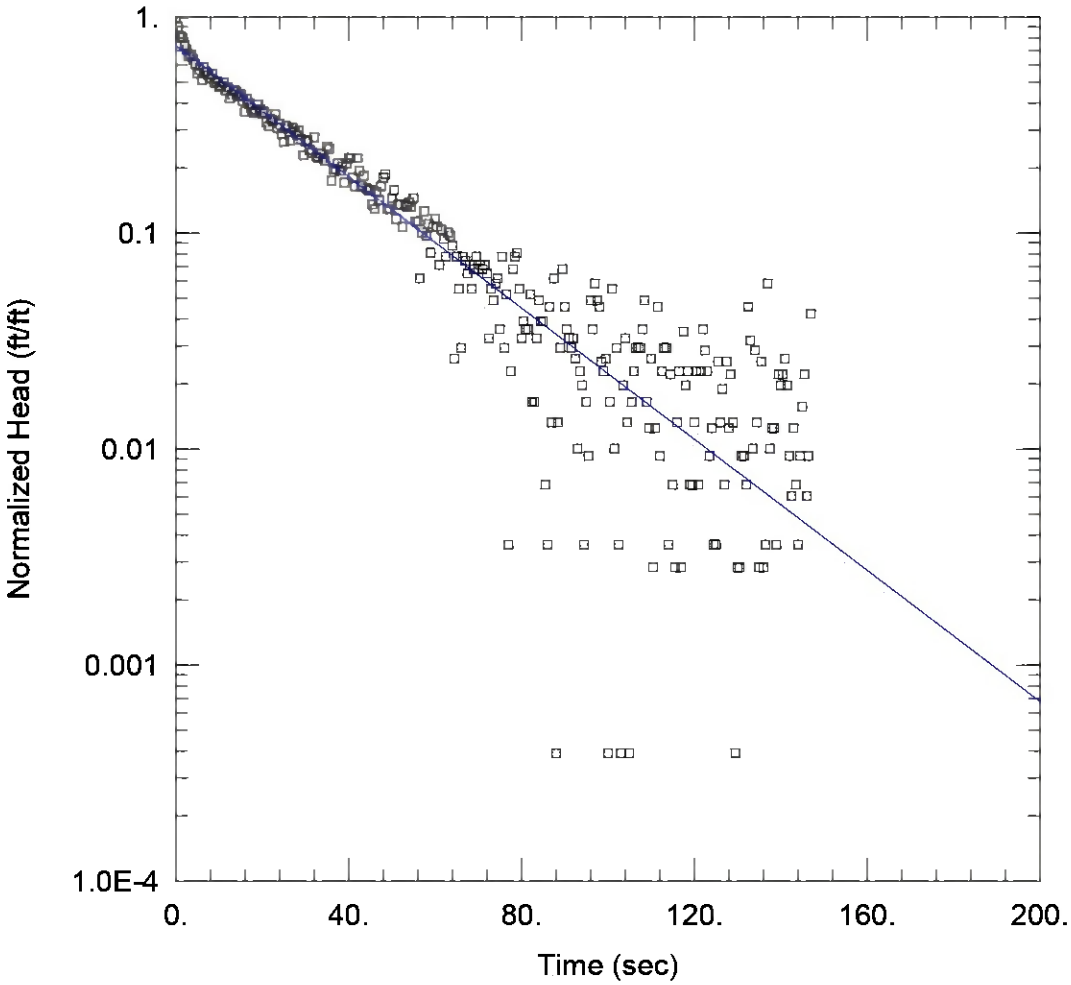
WELL DATA (PM-1)

Initial Displacement: 0.3925 ft
Total Well Penetration Depth: 17.1 ft
Casing Radius: 0.1042 ft
Static Water Column Height: 17.1 ft
Screen Length: 17.1 ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.2

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.00166 cm/sec y0 = 0.2096 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\PM-1 slug out 3.aqt
Date: 11/10/21 Time: 15:55:51

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: PM-1

AQUIFER DATA

Saturated Thickness: 17.1 ft Anisotropy Ratio (Kz/Kr): 1.

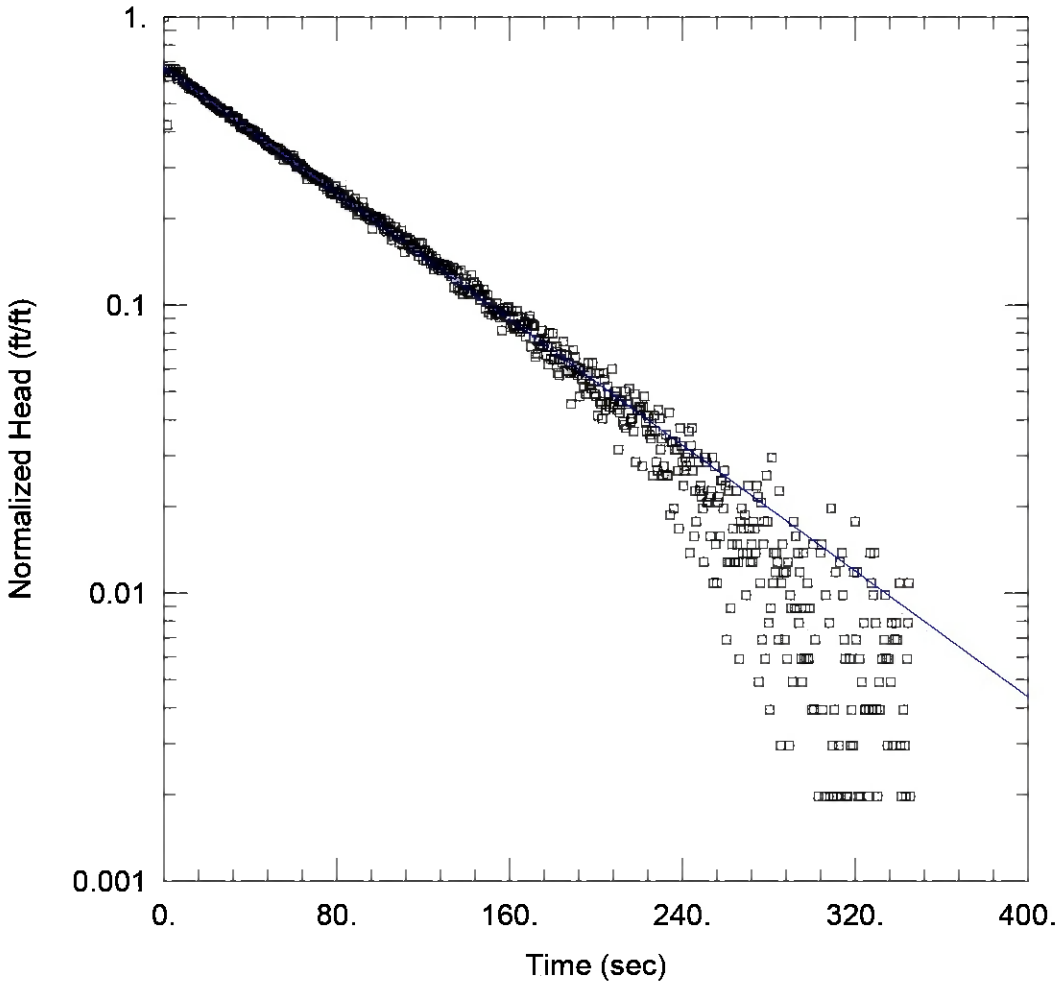
WELL DATA (PM-1)

Initial Displacement: 0.3101 ft
Total Well Penetration Depth: 17.1 ft
Casing Radius: 0.1042 ft
Static Water Column Height: 17.1 ft
Screen Length: 17.1 ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.2

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.00214 cm/sec y0 = 0.2286 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\POZ-4 slug in 1.aqt
Date: 11/10/21 Time: 15:43:54

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: POZ-4

AQUIFER DATA

Saturated Thickness: 8.66 ft Anisotropy Ratio (Kz/Kr): 1.

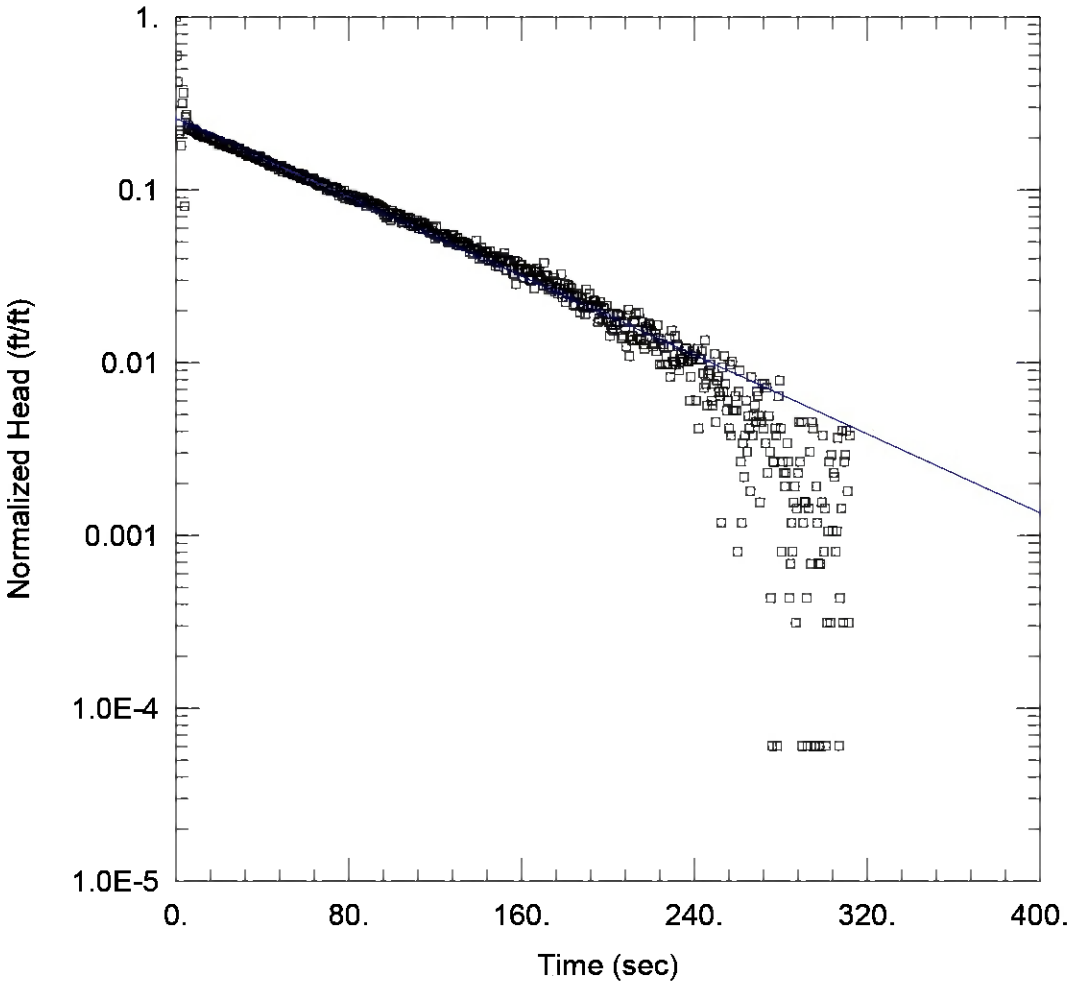
WELL DATA (POZ-4)

Initial Displacement: 1.016 ft
Total Well Penetration Depth: 8.66 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 8.66 ft
Screen Length: 5. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0006012 cm/sec y0 = 0.6789 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\POZ-4 slug in 2.aqt
Date: 11/10/21 Time: 16:13:56

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: POZ-4

AQUIFER DATA

Saturated Thickness: 8.66 ft Anisotropy Ratio (Kz/Kr): 1.

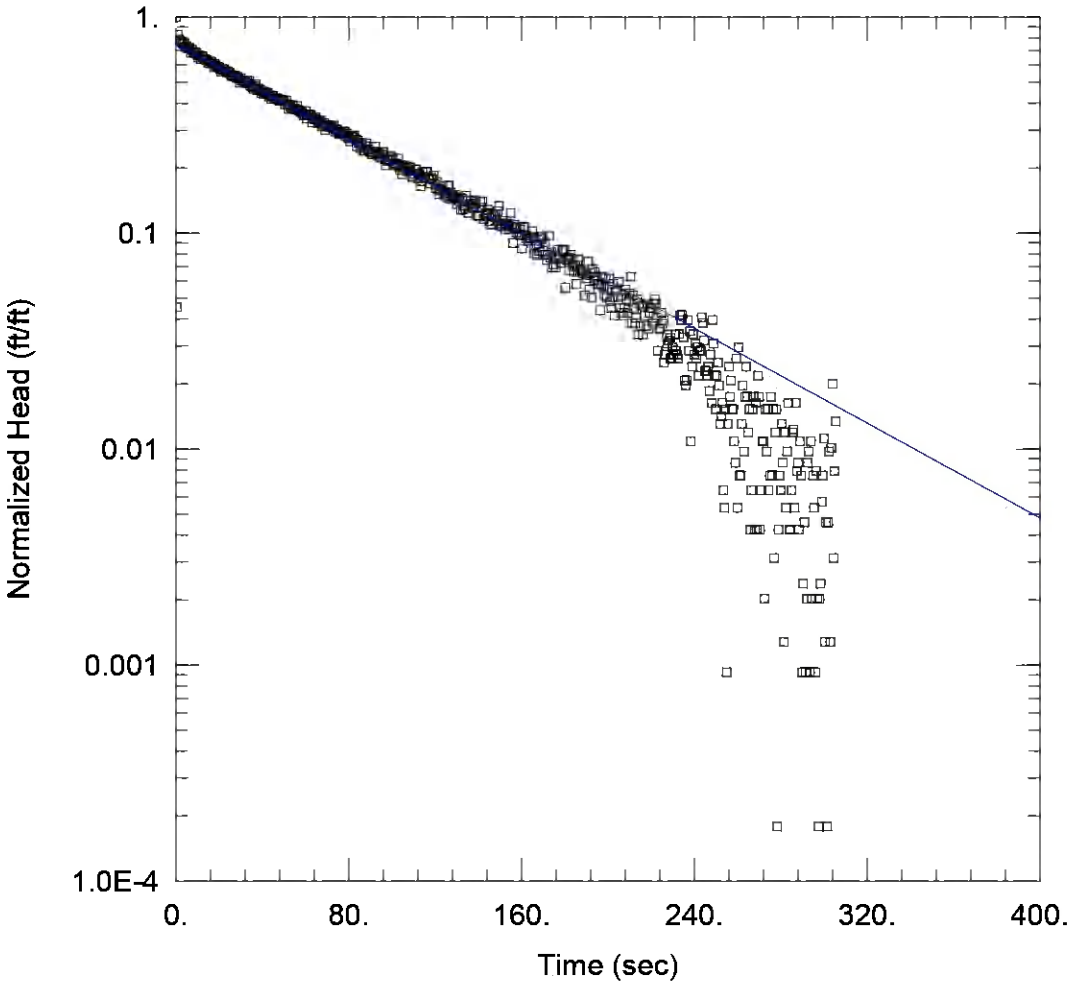
WELL DATA (POZ-4)

Initial Displacement: 2.677 ft
Total Well Penetration Depth: 8.66 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 8.66 ft
Screen Length: 5. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.000628 cm/sec y0 = 0.6943 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\POZ-4 slug out 1.aqt
Date: 11/10/21 Time: 16:01:28

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: POZ-4

AQUIFER DATA

Saturated Thickness: 8.66 ft Anisotropy Ratio (Kz/Kr): 1.

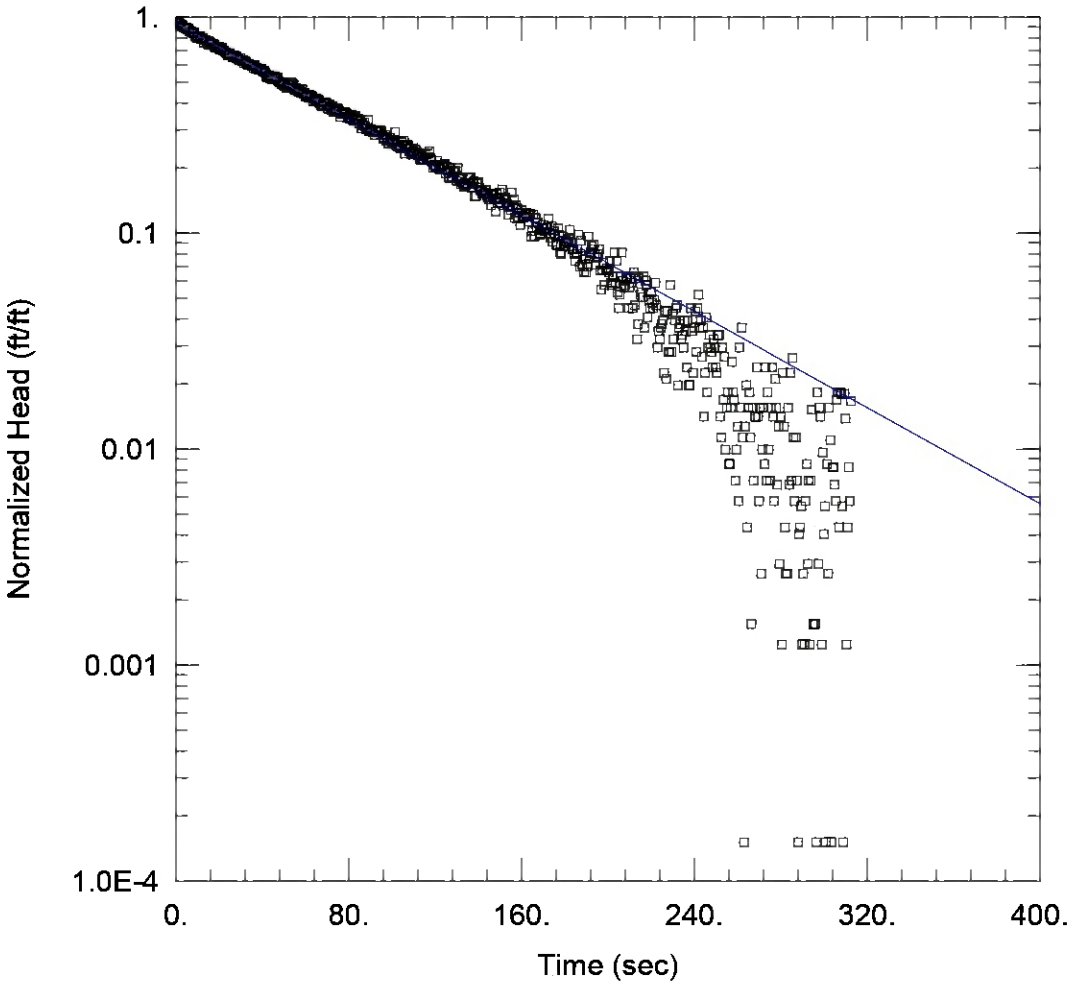
WELL DATA (POZ-4)

Initial Displacement: 0.9062 ft
Total Well Penetration Depth: 8.66 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 8.66 ft
Screen Length: 5. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0006036 cm/sec y0 = 0.6804 ft



WELL TEST ANALYSIS

Data Set: C:\Users\nschaffer\Documents\SCC slug working\POZ-4 slug out 2.aqt
Date: 11/10/21 Time: 16:32:06

PROJECT INFORMATION

Company: Haley & Aldrich
Client: Santee Cooper
Project: 131539
Location: Cross, SC
Test Well: POZ-4

AQUIFER DATA

Saturated Thickness: 8.66 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (POZ-4)

Initial Displacement: 0.7151 ft
Total Well Penetration Depth: 8.66 ft
Casing Radius: 0.08333 ft
Static Water Column Height: 8.66 ft
Screen Length: 5. ft
Well Radius: 0.3438 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0006124 cm/sec y0 = 0.6719 ft