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2020 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT CLOSED GYPSUM POND, CROSS GENERATING STATION CROSS, SOUTH CAROLINA

by
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Greenville, South Carolina

for
South Carolina Public Service Authority
Moncks Corner, South Carolina

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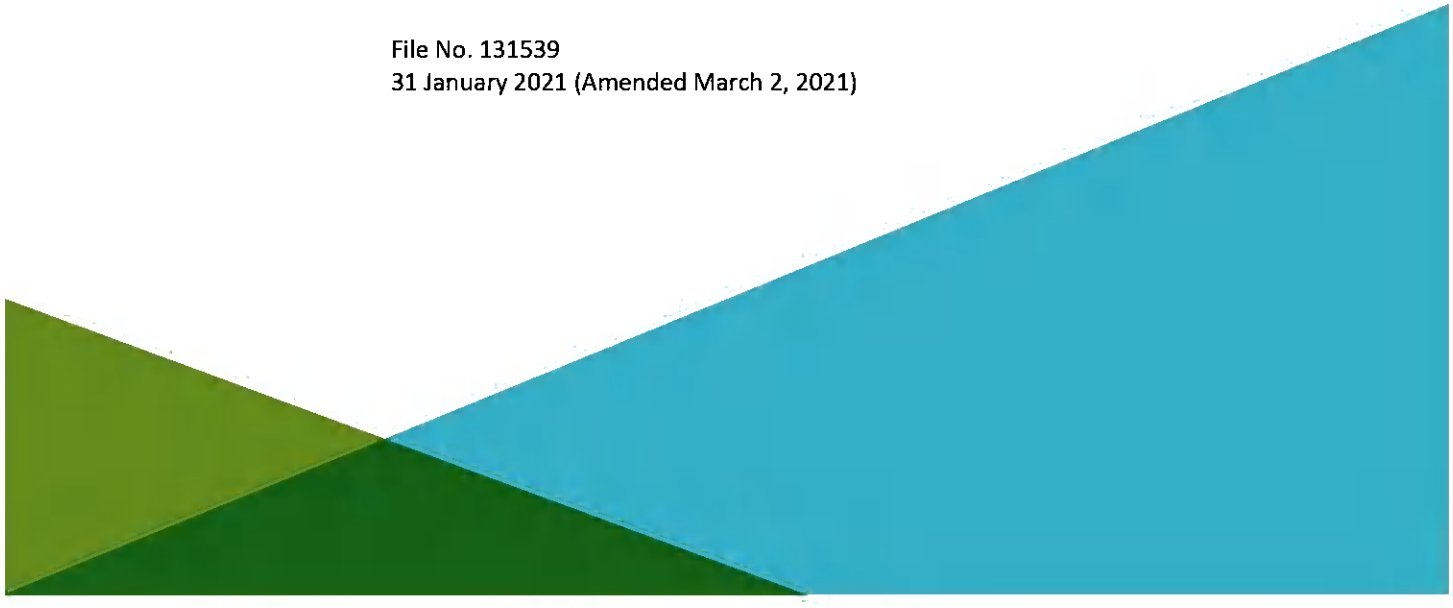

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1. Annual Groundwater Monitoring Report Summary

Haley & Aldrich, Inc. has prepared this 2020 Annual Groundwater Monitoring Corrective Action Report on behalf of the South Carolina Public Service Authority (Santee Cooper) for the Closed Gypsum Pond at the Cross Generating Station (CGS). This 2020 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 17 April 2015 (CCR Rule), specifically subsection § 257.90(e)(1) through (6).

Santee Cooper filed a Notice of Intent with the South Carolina Department of Health and Environmental Control (SCDHEC) on 10 March 2016 to initiate closure of the Gypsum Pond. The SCDHEC-approved closure plan met the requirements of § 257.102(b) and as of 17 October 2016, Santee Cooper had removed all CCR material from the Gypsum Pond. On 22 March 2017, SCDHEC formally certified the closure. As a result of the Gypsum Pond being closed by complete removal of CCR material, Santee Cooper concluded at that time the Gypsum Pond was not subject to the groundwater monitoring and corrective action requirements of the Federal CCR Rule.

Upon further evaluation of the Rule and in consultation with the United States Environmental Protection Agency, Santee Cooper has decided the groundwater monitoring and corrective action requirements of the Federal CCR Rule do apply to this unit even after closure by removal was completed. The Closed Gypsum Pond, which is located in a highly congested and active area of the generating station with multiple simultaneous ongoing operations, is proceeding on an accelerated schedule to bring the CCR unit into compliance with the schedule requirements in the Rule.

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:

- At the start of the current annual reporting period (1 January 2020), Santee Cooper was in the process of designing and installing a groundwater monitoring system to comply with § 257.91. At the time the groundwater monitoring system was installed little was known about the groundwater flow conditions in this portion of the site. Localized groundwater flow around the Closed Gypsum Pond was undefined because monitoring wells had not been installed in this area of CGS. To expedite the timeline to bring the Closed Gypsum Pond into compliance with the schedule requirements in the Rule, the groundwater flow direction was assumed to have an easterly flow component toward a wetland area and Lake Moultrie based on historical data collected for the site as a whole. However, a review of the groundwater monitoring results generated in 2020 indicated a primarily southerly flow component. As a result, two of the three monitoring wells (CGYP-2 and CGYP-3) were not located downgradient of the unit as originally believed but were instead located upgradient and side-gradient of the Closed Gypsum Pond.
- At the end of the current annual reporting period (31 December 2020), nine rounds of groundwater sampling had been completed at the Closed Gypsum Pond and the evaluation of the groundwater quality results was completed by December 2020. However, as stated above, two of the three monitoring wells were not actually downgradient from the Closed Gypsum Pond. Given this new finding, the existing monitoring network for the Closed Gypsum Pond is

being supplemented with two additional downgradient wells and one upgradient well to comply with § 257.91. Therefore, the Closed Gypsum Pond will remain in detection monitoring in 2021.

- Because the monitoring wells originally constructed to monitor potential releases from the Closed Gypsum Pond were not installed in downgradient locations as assumed, the statistical analysis performed on the 2020 detection monitoring results was not consistent with § 257.91(c) and § 257.93(e) and therefore was not included in this report.
- The statistical analysis to determine if statistically significant increases of one or more Appendix III constituents are present downgradient of the Closed Gypsum Pond will be completed in 2021 following the collection of eight rounds of baseline sampling from the newly installed downgradient monitoring wells.
- Since baseline and detection monitoring will continue in 2021, an assessment monitoring program, an assessment of corrective measures, a public meeting, remedy selection, and remedial activities were not required to be initiated or completed in 2020 for this unit.

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)

Except as provided for in § 257.100 for inactive CCR surface impoundments, 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.

As stated in Section 1, Santee Cooper is complying with the groundwater monitoring and corrective action requirements described under CFR Title 40 § 257.90 through § 257.98 of the CCR Rule for the Closed Gypsum Pond at CGS. This document addresses the requirements outlined in § 257.90(e) for the Owner/Operator to prepare an Annual Groundwater Monitoring and Corrective Action Report.

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 new CCR landfills, new CCR surface impoundments, and all lateral expansions of CCR units, the owner or operator must prepare the initial annual groundwater monitoring and corrective action report no later than January 31 of the year following the calendar year a groundwater monitoring system has been established for such CCR unit as required by this subpart, and annually thereafter. 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 Groundwater Monitoring and Corrective Action Report documents the activities completed in 2020 for the Closed Gypsum Pond as required by the CCR Rule. Following installation of what was assumed to be three downgradient wells, eight rounds of baseline and one round of detection monitoring groundwater sampling and analysis were completed per the requirements described in § 257.93. Baseline sampling for the existing background monitoring wells was completed prior to the installation of the new downgradient wells for the Closed Gypsum Pond.

2.2.1 Status of the Groundwater Monitoring Program

Following collection of eight rounds of baseline and one round of detection monitoring from the new downgradient wells, it was determined that two of the three monitoring wells (CGYP-2 and CGYP-3) were not installed at proper locations to correctly monitor potential releases from the Closed Gypsum Pond. Given this new finding, the existing monitoring network for the Closed Gypsum Pond is being supplemented with two additional downgradient wells and one upgradient well to comply with §

257.91. Therefore, baseline sampling will continue and the Closed Gypsum Pond will remain in detection monitoring in 2021.

2.2.2 Key Actions Completed

The following key actions were completed in 2020:

- In accordance with § 257.91, a groundwater monitoring network consisting of two existing upgradient wells and three new wells, assumed to be downgradient of the unit, was established.
- In accordance with § 257.94(b), a minimum of eight independent samples were collected from each monitoring well followed by one round of detection monitoring.
- While evaluating the groundwater monitoring results, it was determined that two additional downgradient wells and one upgradient well are needed to properly assess the potential for releases from the Closed Gypsum Pond and comply with the groundwater monitoring and corrective action requirements in the Rule.

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 CGS Closed Gypsum Pond in 2020. However, there was a delay in the mobilization of the monitoring well installation due to the COVID-19 pandemic. Due to precautions to protect the reliability of uninterrupted power generation, access to the station, including buildings and outlying areas, was heavily restricted to plant personnel only and corporate policy did not allow site access to contractors. Therefore, the start date of 13 April 2020, had to be postponed until health and safety precautions were implemented. The monitoring well installation was rescheduled to 11 May 2020. This compressed the timeline to conduct groundwater sampling and evaluate the monitoring results.

As previously stated, groundwater monitoring at the Closed Gypsum Pond was proceeding on an accelerated schedule with the groundwater monitoring network being designed with an assumed groundwater flow direction. However, after the monitoring results were evaluated, it was determined that the anticipated groundwater flow direction was not correct and that additional monitoring wells will be required to establish a compliant groundwater monitoring network.

2.2.4 Actions to Resolve Problems

Two additional downgradient wells and one upgradient well will be installed followed by eight rounds of baseline sampling and one round of detection monitoring.

2.2.5 Project Key Activities for Upcoming Year

Key activities to be completed in 2021, as necessary and appropriate, could include the following:

- Install additional monitoring well(s) to supplement the data generated from the initial monitoring array;
- Re-certify the groundwater monitoring network in accordance with § 257.91(f) after confirming localized groundwater flow direction in the vicinity of the Closed Gypsum Pond;

- Complete baseline sampling and detection monitoring for the newly established monitoring locations in accordance with § 257.94;

  Conduct a statistical analysis to determine if statistically significant increases of one or more Appendix III constituents are present downgradient of the Closed Gypsum Pond.

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 location of the Closed Gypsum Pond and associated upgradient and downgradient wells 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;

To comply with the requirements of § 257.91, the groundwater monitoring network installed in 2020 consisting of two existing upgradient and three new monitoring wells was established for the Closed Gypsum Pond. Details of the design and construction of the monitoring wells installed in 2020 are summarized in Table 1. None of these wells were decommissioned during the previous calendar year. However, as previously stated, the existing monitoring network is being expanded in 2021 with the installation of two additional downgradient wells and one upgradient well. The details of the design and construction of the new monitoring wells will be provided in the 2021 Annual Groundwater and Corrective Action Report that will be placed in the facilities operating record on January 31, 2022.

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 § 257.94(b), a minimum of eight independent baseline samples, followed by one round of detection monitoring samples were collected from each monitoring well. A summary of the groundwater monitoring program for the Closed Gypsum Pond, including the analytical results for Appendix III and Appendix IV constituents, is presented in Table 2.

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 statistical analysis of the detection monitoring results will be completed following the installation of the new monitoring wells, establishing baseline groundwater quality conditions, and performing detection monitoring, as required by § 257.91 and § 257.94.

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 the statistical analysis of the detection monitoring results will be documented in subsequent annual reports.

TABLES

TABLE 1
GROUNDWATER MONITORING WELL LOCATION AND CONSTRUCTION DETAILS
CROSS GENERATING STATION - CLOSED GYPSUM POND
SANTEE COOPER
CROSS, SOUTH CAROLINA

Well	CCR Unit[1]	Easting	Northing	Top of Pad Elevation (ft msl)	Top of Riser Elevation (ft msl)	Surface Grout (ft bgs)	Bentonite (ft bgs)	Sand Pack (ft bgs)	Screen Zone (ft bgs)	Screen Length (ft)	Well Radius (in)
Existing Wells											
CBW-1	Background[1]	2268633.71	560527.87	83.17	85.80	0.0 - 8.0	8.0 - 11.0	11.0 - 24.0	14.0 - 24.0	10	2.00
PM-1	Background[1]	2269801.59	558532.71	81.62	83.24	0.0 - 2.0	2.0 - 3.5	3.5 - 24.0	4.0 - 24.0	20	2.25
New Wells											
CGYP-1	Closed Gypsum Pond	2272412.89	559370.06	89.43	91.89	0.0 - 10.0	10.0 - 12.0	12.0 - 24.0	14.0 - 24.0	10	2.00
CGYP-2	Closed Gypsum Pond	2272449.67	559587.80	81.82	81.82	0.0 - 4.0	4.0 - 6.0	6.0 - 18.0	8.0 - 18.0	10	2.00
CGYP-3	Closed Gypsum Pond	2272355.06	559738.32	81.49	81.49	0.0 - 6.0	6.0 - 8.0	8.0 - 20.0	10.0 - 20.0	10	2.00

Notes:

1. Following collection of eight rounds of baseline and one round of detection monitoring from the new downgradient wells, it was determined that two of the three monitoring wells (CGYP-2 and CGYP-3) were not installed at proper locations to correctly monitor potential releases from the Closed Gypsum Pond. Given this new finding, the existing monitoring network for the Closed Gypsum Pond is being supplemented in 2021 with two additional downgradient wells and one upgradient well to comply with § 257.91. Therefore the validity of the monitoring results will be evaluated following the installation of the new monitoring wells, establishing baseline groundwater quality conditions, and performing detection monitoring, as required by § 257.91 and § 257.94.

bgs = below ground surface
ft = feet
in = inches
msl = mean sea level
Datum of Elevations in NAVD 88

TABLE 2
SUMMARY OF ANALYTICAL RESULTS - CLOSED GYPSUM POND
CROSS GENERATING STATION
SANTEE COOPER
CROSS, SOUTH CAROLINA

				Chemical Group	Detection Monitoring - EPA Appendix III Constituents						Assessment Monitoring - EPA Appendix IV Constituents												
				Chemical Name	Boron, Total	Calcium, Total	Chloride	Fluoride	Sulfate	Total Dissolved Solids (TDS)	Antimony, Total	Arsenic, Total	Barium, Total	Beryllium, Total	Cadmium, Total	Chromium, Total	Cobalt, Total	Fluoride	Lead, Total	Lithium, Total	Mercury, Total	Molybdenum, Total	Selenium, Total	Thallium, Total
				US EPA MCL/RSL (THQ=1.0)	-	-	-	4	-	-	0.006	0.01	2	0.004	0.005	0.1	0.006	4	0.015	0.04	0.002	0.1	0.05	0.002
				Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Location	**Sampling Round**	**Sample Date**	**Sample Type**	**Sample Name**																			
CBW-1	Background	06/22/2020	N	CBW-1-062220	0.018	28.4	3.44	0.2	79.9	147.5	< 0.005	< 0.005	0.0433	< 0.0005	< 0.0005	< 0.005	0.0008	0.2	0.0026	< 0.005	< 0.0002	< 0.01	< 0.01	< 0.001
CBW-1	**Total Samples**				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
PM-1	Background	06/22/2020	N	PM-1-062220	0.049	13.5	12.67	< 0.1	8.32	112.5	< 0.005	< 0.005	0.0766	< 0.0005	< 0.0005	< 0.005	0.001	< 0.1	< 0.001	< 0.005	< 0.0002	< 0.01	< 0.01	< 0.001
PM-1	**Total Samples**				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CGYP-1	Baseline	05/21/2020	N	CGYP-1-052120	8.6	204	600	0.58	364	1505	< 0.005	0.0171	0.0899	0.0058	< 0.0005	< 0.005	0.0448	0.58	0.035	0.015	< 0.0002	< 0.01	< 0.01	< 0.001
CGYP-1	Baseline	06/04/2020	N	CGYP-1-060420	10	290	644	0.96	544	1839	< 0.005	0.037	0.0447	0.0098	< 0.0005	< 0.005	0.0479	0.96	0.0191	0.027	< 0.0002	< 0.05	0.0166	< 0.001
CGYP-1	Baseline	06/18/2020	N	CGYP-1-061820	10	289	666	1.05	540	1964	< 0.005	0.0406	0.0403	0.0109	< 0.0005	< 0.005	0.0492	1.05	0.0201	0.028	< 0.0002	< 0.05	0.0143	< 0.001
CGYP-1	Baseline	07/01/2020	N	CGYP-1-070120	12	315	717	0.69	575	2650	< 0.005	0.0407	0.0426	0.011	< 0.0005	< 0.005	0.0548	0.69	0.0202	< 0.05	0.0002	< 0.05	0.0177	< 0.001
CGYP-1	Baseline	07/16/2020	N	CGYP-1-071620	8.3	204	694	0.72	338	1811	< 0.005	0.0165	0.0574	0.0045	< 0.0005	< 0.005	0.0353	0.72	0.0116	0.01	< 0.0002	< 0.01	< 0.01	< 0.001
CGYP-1	Baseline	07/30/2020	N	CGYP-1-073020	8.3	192	703	0.91	340	1541	< 0.005	0.014	0.0575	0.004	< 0.0005	< 0.005	0.032	0.91	0.005	< 0.01	< 0.0002	< 0.01	< 0.01	< 0.001
CGYP-1	Baseline	08/13/2020	N	CGYP-1-081320	9.1	224	647	1.04	391	1768	< 0.005	0.0175	0.0517	0.0061	< 0.0005	< 0.005	0.0371	1.04	0.0093	< 0.02	< 0.0002	< 0.02	< 0.01	< 0.001
CGYP-1	Baseline	08/27/2020	N	CGYP-1-082720	11	242	666	1.02	448	1772	< 0.005	0.0278	0.0447	0.009	< 0.0005	< 0.005	0.0467	1.02	0.0087	0.023	< 0.0002	< 0.02	< 0.01	< 0.001
CGYP-1	Detection	09/21/2020	N	CGYP-1-092120	10	252	699	1.29	460	1945	-	-	-	-	-	-	-	1.29	-	-	-	-	-	-
CGYP-1	**Total Samples**				9	9	9	9	9	9	8	8	8	8	8	8	8	9	8	8	8	8	8	8
CGYP-2	Baseline	05/21/2020	N	CGYP-2-052120	2	311	103	0.75	1000	1609	< 0.005	0.029	0.024	0.0053	< 0.0005	< 0.005	0.0506	0.75	0.02	0.015	< 0.0002	< 0.01	0.0113	< 0.001
CGYP-2	Baseline	05/21/2020	FD	CGYP-2-052120-DUP	1.9	311	102	0.71	996	1600	< 0.005	0.0284	0.025	0.0056	< 0.0005	< 0.005	0.051	0.71	0.0193	0.015	< 0.0002	< 0.01	0.0113	< 0.001
CGYP-2	Baseline	06/04/2020	N	CGYP-2-060420	1.7	298	117	0.75	968	1589	< 0.005	0.0167	0.0378	0.0034	< 0.0005	< 0.005	0.0199	0.75	0.0238	< 0.025	< 0.0002	< 0.05	0.0078	< 0.001
CGYP-2	Baseline	06/04/2020	FD	CGYP-2-060420-DUP	1.7	283	112	0.71	943	1596	< 0.005	0.0164	0.0412	0.0045	< 0.0005	< 0.005	0.021	0.71	0.0238	< 0.025	< 0.0002	< 0.05	0.0076	< 0.001
CGYP-2	Baseline	06/18/2020	N	CGYP-2-061820	1.6	299	127	0.62	932	1624	< 0.005	0.0197	0.0445	0.0034	< 0.0005	< 0.005	0.0229	0.62	0.0247	0.015	< 0.0002	< 0.02	< 0.01	< 0.001
CGYP-2	Baseline	06/18/2020	FD	CGYP-2-061820-DUP	1.5	302	119	0.5	928	1620	< 0.005	0.0198	0.0459	0.0035	< 0.0005	< 0.005	0.0228	0.5	0.0251	0.015	< 0.00029	< 0.02	< 0.01	< 0.001
CGYP-2	Baseline	07/02/2020	N	CGYP-2-070220	1.6	305	145	< 0.1	908	1634	< 0.005	0.0191	0.0439	0.0044	< 0.0005	< 0.005	0.025	< 0.1	0.026	0.015	< 0.0002	< 0.01	< 0.01	< 0.001
CGYP-2	Baseline	07/02/2020	FD	CGYP-2-070220-DUP	1.8	296	146	< 0.1	920	1624	< 0.005	0.019	0.0455	0.0042	< 0.0005	< 0.005	0.0256	< 0.1	0.0255	0.014	< 0.0002	< 0.01	< 0.01	< 0.001
CGYP-2	Baseline	07/16/2020	N	CGYP-2-071620	1.9	295	153	1.55	933	1512	< 0.005	0.0217	0.0274	0.0034	< 0.0005	< 0.005	0.027	1.55	0.0235	< 0.02	< 0.0002	< 0.02	< 0.01	< 0.001
CGYP-2	Baseline	07/16/2020	FD	CGYP-2-071620-DUP	1.7	285	143	1.54	906	1592	< 0.005	0.0212	0.0271	0.0033	< 0.0005	< 0.005	0.0276	1.54	0.0221	< 0.02	< 0.0002	< 0.02	< 0.01	< 0.001
CGYP-2	Baseline	07/30/2020	N	CGYP-2-073020	2	279	176	< 0.1	868	1515	< 0.005	0.0214	0.0316	0.0035	< 0.0005	< 0.005	0.028	< 0.1	0.0244	0.014	< 0.0002	< 0.01	< 0.01	< 0.001
CGYP-2	Baseline	07/30/2020	FD	CGYP-2-073020-DUP	2	277	165	< 0.1	888	1525	< 0.005	0.0208	0.0301	0.0034	< 0.0005	< 0.005	0.0276	< 0.1	0.0236	0.014	< 0.0002	< 0.01	< 0.01	< 0.001
CGYP-2	Baseline	08/13/2020	N	CGYP-2-081320	2.1	293	163	0.71	868	1599	< 0.005	0.0214	0.0289	0.0036	< 0.0005	< 0.005	0.0294	0.71	0.0247	< 0.02	< 0.0002	< 0.02	< 0.01	< 0.001
CGYP-2	Baseline	08/13/2020	FD	CGYP-2-081320-DUP	2	281	157	0.61	880	1570	< 0.005	0.0207	0.0277	0.0036	< 0.0005	< 0.005	0.0293	0.61	0.0228	< 0.02	< 0.0002	< 0.02	< 0.01	< 0.001
CGYP-2	Baseline	08/27/2020	N	CGYP-2-082720	1.9	272	146	0.54	885	1526	< 0.005	0.0204	0.0407	0.0034	< 0.0005	< 0.005	0.0244	0.54	0.0268	0.016	< 0.0002	< 0.01	< 0.01	< 0.001
CGYP-2	Baseline	08/27/2020	FD	CGYP-2-082720-DUP	1.8	295	136	0.16	922	1589	< 0.005	0.021	0.0365	0.0036	< 0.0005	< 0.005	0.0233	0.16	0.0274	0.016	< 0.0002	< 0.01	< 0.01	< 0.001
CGYP-2	Detection	09/21/2020	N	CGYP-2-092120	1.7	276	136	1.23	976	1515	-	-	-	-	-	-	-	1.23	-	-	-	-	-	-
CGYP-2	Detection	09/21/2020	FD	CGYP-2-092120-DUP	1.6	282	148	1.22	1010	1606	-	-	-	-	-	-	-	1.22	-	-	-	-	-	-
CGYP-2	**Total Samples**				9	9	9	9	9	9	8	8	8	8	8	8	8	9	8	8	8	8	8	8
CGYP-3	Baseline	05/21/2020	N	CGYP-3-052120	18	564	1030	0.65	978	3449	< 0.005	0.0169	0.0621	0.0283	0.00062	0.0058	0.115	0.65	0.0279	0.069	< 0.0002	< 0.01	< 0.01	< 0.001
CGYP-3	Baseline	06/04/2020	N	CGYP-3-060420	19	658	1140	2.89	911	3895	< 0.005	0.0138	0.0582	0.0367	0.0008	0.0067	0.13	2.89	0.019	0.09	< 0.0002	< 0.01	0.0067	< 0.001
CGYP-3	Baseline	06/18/2020	N	CGYP-3-061820	23	737	1340	2.82	946.1	4502	< 0.005	0.0215	0.0502	0.037	0.00074	0.0063	0.152	2.82	0.0236	0.11	0.00047	< 0.02	< 0.01	< 0.001
CGYP-3	Baseline	07/01/2020	N	CGYP-3-070120	23	759	1300	0.73	924	4120	< 0.005	0.0179	0.0547	0.0468	0.0009	0.0052	0.154	0.73	0.0236	0.11	0.00023	< 0.01	< 0.01	< 0.001
CGYP-3	Baseline	07/16/2020	N	CGYP-3-071620	19	587	1070	2.41	983	3700	< 0.005	0.017	0.0444	0.0252	0.00061	0.0053	0.113	2.41	0.0269	0.071	< 0.0002	< 0.02	< 0.01	< 0.001
CGYP-3	Baseline	07/30/2020	N	CGYP-3-073020	17	545	971	< 0.1	991	3138	< 0.005	0.0171	0.0437	0.022	< 0.0005	0.0055	0.0966	< 0.1	0.0295	0.06	< 0.0002	< 0.01	< 0.01	< 0.001
CGYP-3	Baseline	08/13/2020	N	CGYP-3-081320	17	556	1050	1	999	3102	< 0.005	0.0176	0.0431	0.022	< 0.0005	0.0056	0.0936	1	0.0355	0.063	< 0.0002	< 0.02	< 0.01	< 0.001
CGYP-3	Baseline	08/27/2020	N	CGYP-3-082720	18	579	998	4.57	913	3519	< 0.005	0.015	0.0459	0.0318	0.00076	0.0059	0.117	4.57	0.0193	0.093	< 0.0002	< 0.01	< 0.01	< 0.001
CGYP-3	Detection	09/21/2020	N	CGYP-3-092120	18	576	1060	1.77	995	3288	-	-	-	-	-	-	-	1.77	-	-	-	-	-	-
CGYP-3	**Total Samples**				9	9	9	9	9	9	8	8	8	8	8	8	8	9	8	8	8	8	8	8

Following collection of eight rounds of baseline and one round of detection monitoring from the new downgradient wells, it was determined that two of the three monitoring wells (CGYP-2 and CGYP-3) were not installed at proper locations to correctly monitor potential releases from the Closed Gypsum Pond. Given this new finding, the existing monitoring network for the Closed Gypsum Pond is being supplemented in 2021 with two additional downgradient wells and one upgradient well to comply with § 257.91. Therefore the validity of the monitoring results will be evaluated following the installation of the new monitoring wells, establishing baseline groundwater quality conditions, and performing detection monitoring, as required by § 257.91 and § 257.94.

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QUALIFIERS:
<: Nof detected, value is the laboratory reporting limit

TABLE 2
SUMMARY OF ANALYTICAL RESULTS - CLOSED GYPSUM POND
CROSS GENERATING STATION
SANTEE COOPER
CROSS, SOUTH CAROLINA

				Chemical Group	Radiological			Field Parameters					
				Chemical Name	Radium-226	Radium-228	Radium-226 & 228	Conductivity	Dissolved Oxygen	ORP	pH	Temperature	Turbidity
				US EPA MCL/RSL (THQ=1.0)	-	-	5	-	-	-	-	-	-
				Units	pCi/L	pCi/L	pCi/L	uS/cm	mg/L	mv	pH units	Deg C	NTU
Location	**Sampling Round**	**Sample Date**	**Sample Type**	**Sample Name**									
CBW-1	Background	06/22/2020	N	CBW-1-062220	0.493	0.647	1.14	218	0.74	324	4.48	25.75	0
CBW-1	**Total Samples**				1	1	1	1	1	1	1	1	1
PM-1	Background	06/22/2020	N	PM-1-062220	0.547	0.838	1.38	157	0.71	78	5.12	24.65	9.1
PM-1	**Total Samples**				1	1	1	1	1	1	1	1	1
CGYP-1	Baseline	05/21/2020	N	CGYP-1-052120	1.13	2.84	3.97	2670	0.78	306	3.58	20.7	0
CGYP-1	Baseline	06/04/2020	N	CGYP-1-060420	0.846	3.11	3.96	3150	0.71	218	3.98	21.04	3.2
CGYP-1	Baseline	06/18/2020	N	CGYP-1-061820	1.02	2.77	3.79	3020	0.71	201	3.89	20.69	0
CGYP-1	Baseline	07/01/2020	N	CGYP-1-070120	1.41	4.17	5.58	3370	0.75	230	4.06	23.03	0
CGYP-1	Baseline	07/16/2020	N	CGYP-1-071620	1.01	2.64	3.65	2610	0.7	178	4.48	22.82	3.3
CGYP-1	Baseline	07/30/2020	N	CGYP-1-073020	1.64	1.3	2.93	2820	0.75	171	4.22	23.8	3.1
CGYP-1	Baseline	08/13/2020	N	CGYP-1-081320	0.679	2.39	3.07	2790	0.51	229	3.92	23.99	1.9
CGYP-1	Baseline	08/27/2020	N	CGYP-1-082720	0.734	1.9	2.64	2840	2.64	254	3.98	26.14	0
CGYP-1	Detection	09/21/2020	N	CGYP-1-092120	-	-	-	2770	0.68	109	4.11	22.03	1.2
CGYP-1	**Total Samples**				8	8	8	9	9	9	9	9	9
CGYP-2	Baseline	05/21/2020	N	CGYP-2-052120	0.806	0.531	1.34	1850	1.2	293	3.82	23.64	2.8
CGYP-2	Baseline	05/21/2020	FD	CGYP-2-052120-DUP	0.677	2.84	3.52	-	-	-	-	-	-
CGYP-2	Baseline	06/04/2020	N	CGYP-2-060420	1.21	0.928	2.14	1940	0.64	264	3.86	24.71	9.4
CGYP-2	Baseline	06/04/2020	FD	CGYP-2-060420-DUP	0.728	1.7	2.43	-	-	-	-	-	-
CGYP-2	Baseline	06/18/2020	N	CGYP-2-061820	0.286	2.33	2.61	1880	0.77	270	3.69	23.18	8.1
CGYP-2	Baseline	06/18/2020	FD	CGYP-2-061820-DUP	0.698	2.17	2.86	-	-	-	-	-	-
CGYP-2	Baseline	07/02/2020	N	CGYP-2-070220	0.717	1.42	2.13	2020	0.8	255	3.79	23.27	2.3
CGYP-2	Baseline	07/02/2020	FD	CGYP-2-070220-DUP	1.25	2.21	3.46	-	-	-	-	-	-
CGYP-2	Baseline	07/16/2020	N	CGYP-2-071620	0.422	2.04	2.46	1790	0.62	254	4.06	26.76	0
CGYP-2	Baseline	07/16/2020	FD	CGYP-2-071620-DUP	2.41	1.51	3.92	-	-	-	-	-	-
CGYP-2	Baseline	07/30/2020	N	CGYP-2-073020	0.712	1.44	2.15	2060	0.66	260	3.72	25.09	0
CGYP-2	Baseline	07/30/2020	FD	CGYP-2-073020-DUP	0.995	1.52	2.52	-	-	-	-	-	-
CGYP-2	Baseline	08/13/2020	N	CGYP-2-081320	1.24	0.677	1.91	1860	0.35	272	3.59	25.75	3.2
CGYP-2	Baseline	08/13/2020	FD	CGYP-2-081320-DUP	0.0907	2.01	2.11	-	-	-	-	-	-
CGYP-2	Baseline	08/27/2020	N	CGYP-2-082720	0.708	0.591	1.3	1810	0.38	287	3.81	28.08	0
CGYP-2	Baseline	08/27/2020	FD	CGYP-2-082720-DUP	1.08	1.73	2.81	-	-	-	-	-	-
CGYP-2	Detection	09/21/2020	N	CGYP-2-092120	-	-	-	1770	0.66	276	3.79	24.4	0
CGYP-2	Detection	09/21/2020	FD	CGYP-2-092120-DUP	-	-	-	-	-	-	-	-	-
CGYP-2	**Total Samples**				8	8	8	9	9	9	9	9	9
CGYP-3	Baseline	05/21/2020	N	CGYP-3-052120	1.36	4.23	5.59	4100	1.67	295	3.66	24.82	1.3
CGYP-3	Baseline	06/04/2020	N	CGYP-3-060420	1.07	3.11	4.18	4430	0.57	181	3.99	26.25	3.5
CGYP-3	Baseline	06/18/2020	N	CGYP-3-061820	1.23	4.01	5.24	5190	0.78	218	3.63	23.55	0
CGYP-3	Baseline	07/01/2020	N	CGYP-3-070120	1.2	2.05	3.26	5150	0.65	216	3.96	26.64	7.7
CGYP-3	Baseline	07/16/2020	N	CGYP-3-071620	0.867	4.38	5.25	4230	0.56	218	3.93	26.46	4.9
CGYP-3	Baseline	07/30/2020	N	CGYP-3-073020	1.65	6.09	7.74	4390	0.54	230	3.63	25.94	1.1
CGYP-3	Baseline	08/13/2020	N	CGYP-3-081320	1.89	4.1	5.99	4280	0.35	240	3.4	23.96	0.6
CGYP-3	Baseline	08/27/2020	N	CGYP-3-082720	0.896	4.3	5.2	4120	0.33	253	3.81	28.68	0
CGYP-3	Detection	09/21/2020	N	CGYP-3-092120	-	-	-	4300	0.64	164	3.77	24.76	0.2
CGYP-3	**Total Samples**				8	8	8	9	9	9	9	9	9

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FIGURES

LEGEND

- CLOSED GYPSUM POND WELL
- BACKGROUND WELL
- CLOSED GYPSUM POND

NOTES

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

N

0 400 800
SCALE IN FEET

HALEY ALDRICH

SANTEE COOPER
CROSS GENERATING STATION
CROSS, SOUTH CAROLINA

GROUNDWATER MONITORING WELL LOCATIONS FOR COMPLIANCE WITH FEDERAL CCR RULE

MARCH 2021

FIGURE 1

GIS FILE PATH: C:\Users\hwachholz\Documents\working\131539_SANTEE_COOPER\Maps\2021_01\132892_004_0001_GROUNDWATER_MONITOR_MONITORING_WELLS_LOCATIONS_CCR.mxd — USER: hwachholz — LAST SAVED: 1/14/2021 10:09:11 AM