2019 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT CLASS 2 LANDFILL CROSS GENERATING STATION

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1. 40 CFR § 257.90 Applicability

1.1 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 § 257.99.

The Class 2 Landfill at Cross Generating Station (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 § 257.99. 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 June 30, 2016 per a plan approved by South Carolina Department of Health and Environmental Control (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 state groundwater monitoring program is in effect in accordance with the SC DHEC Post Closure Permit #08337-1601.

1.2 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 Report documents the activities completed in 2019 for the 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, at set forth in § 257.95, is provided in this report.

1.2.1 Status of the Groundwater Monitoring and Corrective Action Program

Statistically significant increases (SSI) of Appendix III constituents were identified downgradient of the Class 2 Landfill, and the notification was provided on January 15, 2018. An alternate source demonstration (ASD) was not conducted. As a result, an Assessment Monitoring program was initiated as required by § 257.94(e)(2). The notification was placed in the facility's operating record as required by § 257.106(h)(4).

As required by § 257.93(h)(2), the statistical evaluation of the Appendix IV constituents was conducted. Cobalt exceeded the groundwater protection standards set forth. Therefore, an assessment of

corrective measures and nature and extent was initiated per §257.95(g)(3). Due to inclement weather, limited accessibility of the testing area, and limited trained personnel, discussed in depth at 1.2.3, there was difficulty in scheduling and implementing the field work required for the assessment, so Santee Cooper utilized the 60-day extension allowed under § 257.95(a).

Santee Cooper initiated an evaluation of the horizontal and vertical nature and extent of the SSL (cobalt) downgradient of the Class 2 Landfill. This included installation and sampling of monitoring groundwater wells at the downgradient property boundary along with deeper wells near the landfill. Additionally, existing groundwater monitoring wells, which were part of the SC DHEC approved state monitoring program, were sampled for cobalt. **Groundwater sampling from the newly installed monitoring wells and the state wells showed that cobalt is confined to the uppermost aquifer and does not extend into the underlying bedrock unit (Santee Limestone).** Cobalt was detected in the shallow, unconsolidated aquifer at the downgradient property boundary, on the opposite side of the Bulltown Ditch from the Landfill. Haley & Aldrich (H & A) was hired to create the Corrective Measures Assessment (CMA) report considering the presence and distribution of cobalt in the uppermost aquifer, the configuration of the Cross Class 2 Landfill and closure, hydrogeologic setting, and the results of the evaluation of the nature and extent available at the time of the CMA. This CMA discussed both remedial alternatives and their threshold criteria provided in §257.97 (b), and then compared to the balancing criteria listed in §257.97(c)(1) of the CCR Rule. This CMA is filed in the Santee Cooper CCR operating Record and on the Santee Cooper CCR Rule public website. The associated tables of analytical results and figures of sampling locations are provided in the appendix of this report. A public meeting was held on December 3, 2019, to discuss five alternatives for remedy per § 257.96(e). The path forward will include selecting the final remedy, implementing the remedy, monitoring the progress, making any adjustments to the groundwater monitoring programs or remedy, if needed, and reporting the results.

1.2.2 Key Actions Completed

The following key actions were completed in 2019:

- Completed statistical evaluation to determine statistically significant exceedance of groundwater protection standards for Appendix IV constituents that were detected and initiated assessment of corrective measures for Class 2 Landfill § 257.95(g)(3).
- Prepared 2018 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)];
- Placed a notification of initiation of assessment of corrective measures for Class 2 Landfill in the operating record, as required by § 257.95(g)(5).
- Notification to the state and notice placed on public CCR website that assessment of corrective measures had been initiated, as required by § 257.106(h)(7)
- Scheduling challenges and difficulty due to scheduling appropriate certified well drillers, delays due to field accessibility, and unforeseen weather events, required utilization of the 60-day

extension per § 257.95(a) (Appendix A) for completion of the assessment of corrective measures per § 257.95(e)

- Initiated a characterization of the nature and extent of Appendix IV constituents identified at statistically significant levels above the GWPS in accordance with § 257.95(g)(1).
- Completed assessment of corrective measures and nature and extent per § 257.95(e) (Appendix B)
- Provided notification of completion of assessment of corrective measures and nature and extent to state; and place completed assessment on website per § 257.106(h)(8) and 257.107(h)(8)
- Collected and analyzed two rounds of groundwater monitoring (February and May) (Table 1) 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); and
- Completed statistical evaluation to determine statistically significant exceedance of GWPS for Appendix IV in accordance with § 257.93(h)(2) (Appendix C)
- Determined cobalt in the groundwater plume potentially migrated to the site property boundary. This was determined when analytical results from the groundwater monitoring well in the shallow aquifer (monitoring well CCMLF-1) showed intermittent results above the Regional Screening Level for cobalt. Notified SC DHEC and nearby residents and/or landowners that the CCR Rule groundwater protection standard for cobalt had been exceeded per 257.105(h)(8). Collected drinking water samples from area wells and taps and analyzed for cobalt. In the interim, offered unlimited bottled water. **Analytical results for all off-site wells showed cobalt was below detection and thus below EPA's Regional Screening Levels (RSL) in 100% of samples.** Property owners and SC DHEC were notified accordingly. Continued monitoring boundary wells for cobalt.
- Held a public meeting December 3, 2019 to discuss proposed alternatives for corrective measures § 257.96(e).

1.2.3 Problems Encountered

It was difficult to get qualified well drillers for the field work scheduled at the appropriate times because multiple utilities were implementing the CCR rule concurrently and there are a limited number of certified well drillers for South Carolina. There were also accessibility issues, as many parts of property boundaries and areas of investigation were heavily wooded with undergrowth which had to be cleared and surveyed. Lastly, unforeseen weather events prohibited field work during some phases. This led to the delays and multiple mobilizations.

To determine Nature and Extent as set out in the regulations, the plan was to use Geoprobe™ technology to grab water samples for analysis along a transect, radiating outward from the CCR unit. Since multiple groundwater samples were initially turbid, there were interferences. The initial results were not definitive or reproducible in path or distribution of the analytes, likely due to high turbidity. Therefore, prior to the second mobilization of field work, geochemists were consulted to add analytes to the sample list in an attempt to better define Nature and Extent.

Detection monitoring analyte Boron was inadvertently not analyzed for POZ-6 and 7.

1.2.4 Actions to Resolve Problems

In order to ensure no cobalt was in drinking water wells, Santee Cooper immediately implemented a sampling program, which verified no cobalt present in those wells. . Cobalt was not detected in the

drinking water of the residents near the property boundary on Viper Road (drinking water wells screened approximately 60 to 70 ft bls)

- Results from the shallow (10-15 ft bls) well (CCMLF-1) is intermittently above the RSL for cobalt
- Results from the intermediate (23-28 ft bls) well (CCMLF-1D) is below the RSL for cobalt and below detection.
- Results from the deep (55.5 ft bls) well (POZ-8) has been below detection
- Results from the deep well at Cross Generating Station was below detection

Santee Cooper implemented a temporary monthly sampling program of the boundary wells, a deep well at the Class 2 landfill, and the most impacted well at the boundary of the Class 2 landfill in order to verify earlier results, identify trends, and provide a database for statistical analyses.

Chains of custody, specific to each well have been compiled to ensure that all analytes are captured for each groundwater monitoring event.

1.2.5 Project Key Activities for Upcoming Year

Key activities to be completed in 2020 include the following:

- Respond to comments or questions brought up at the Public Meeting
- Consider the need for groundwater remedial interim measures and implement as appropriate § 257.98(e)(3)
- Select remedy and prepare Selection of Remedy Report (including schedules for implementing and completing remedial activities) § 257.97 (d)
- Initiate Groundwater Remedial Activities (within 90 days of selecting the remedy) which includes a reevaluation of the current groundwater monitoring plan § 257.98 (a)
- Collect additional Groundwater Remedy Engineering and Design Data as needed which may include additional borings and/or groundwater monitoring wells) § 257.98 (a)(1)
- Develop the Corrective Action Groundwater Monitoring Program (MNA Sampling Protocol) § 257.98 (a)(1)
- Field implementation of the remedy with any associated additional groundwater ASD or monitoring activities.
- Conduct semi-annual groundwater monitoring § 257.95(d)(1)
- Complete CMA Semi-Annual Progress Report § 257.97 (a), 257.105 (h)(12)
- Conduct additional nature and extent activities, as needed § 257.95(g)(1)
- Prepare the 2020 annual report; place it in the record as required by § 257.105(h)(1), notify the state [§ 257.106(d)]; and post to website [§ 257.107(d)].

1.3 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:

1.3.1 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. In addition, this information is presented in the CCR Groundwater Monitoring Plan, which was placed in the facility's operating record by 17 October 2017 as required by § 257.105(h)(2).

1.3.2 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;

Groundwater monitoring wells were installed in 2019, as part of the Corrective Measures Assessment and Nature and Extent. CCMLF-1 and CCML-1D are a pair of groundwater wells installed on Viper Road near the property boundary to monitor the shallow and intermediate aquifers. POZ-8 is a groundwater well installed near POZ-4, but screened deeper to monitor the Santee Limestone.

Geoprobe™ sampling for both soil and groundwater was conducted, mainly along a transect for Nature and Extent. These were temporary borings that were properly installed and abandoned by a South Carolina Certified Well Driller. The locations and analytical data from the CMA are included in Appendix B.

1.3.3 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 groundwater protection standards established under § 257.95(d)(2).

1.3.4 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

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 April 16, 2018.

The statistical analysis of Appendix IV constituents was completed, as required by § 257.93(h)(2), and it was determined that a statistically significant increase of cobalt was present. There is no maximum

contaminant level (MCL) for cobalt, however, the groundwater protection standard is the regional screening level (RSL). Since Cobalt exceeded the groundwater protection standards, an assessment of corrective measures and nature and extent was initiated per §257.95(g)(3) on January 14, 2019. Ultimately, the Corrective Measures Assessment (CMA) report was created considering the presence and distribution of cobalt in the uppermost aquifer, the configuration of the Cross Class 2 Landfill and closure, hydrogeologic setting, and the results of the evaluation of the nature and extent available at the time of the CMA. The sample concentrations from the downgradient wells for each of the detected Appendix IV constituents from the monitoring events of 2019 were compared to their respective background UTLs and GWPS (Appendix C). 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, and an SSL above GWPS was identified at the Class 2 Landfill for cobalt consistent with previous results.

1.3.5 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 an evaluation of alternate sources is discussed in preceding sections.

TABLES

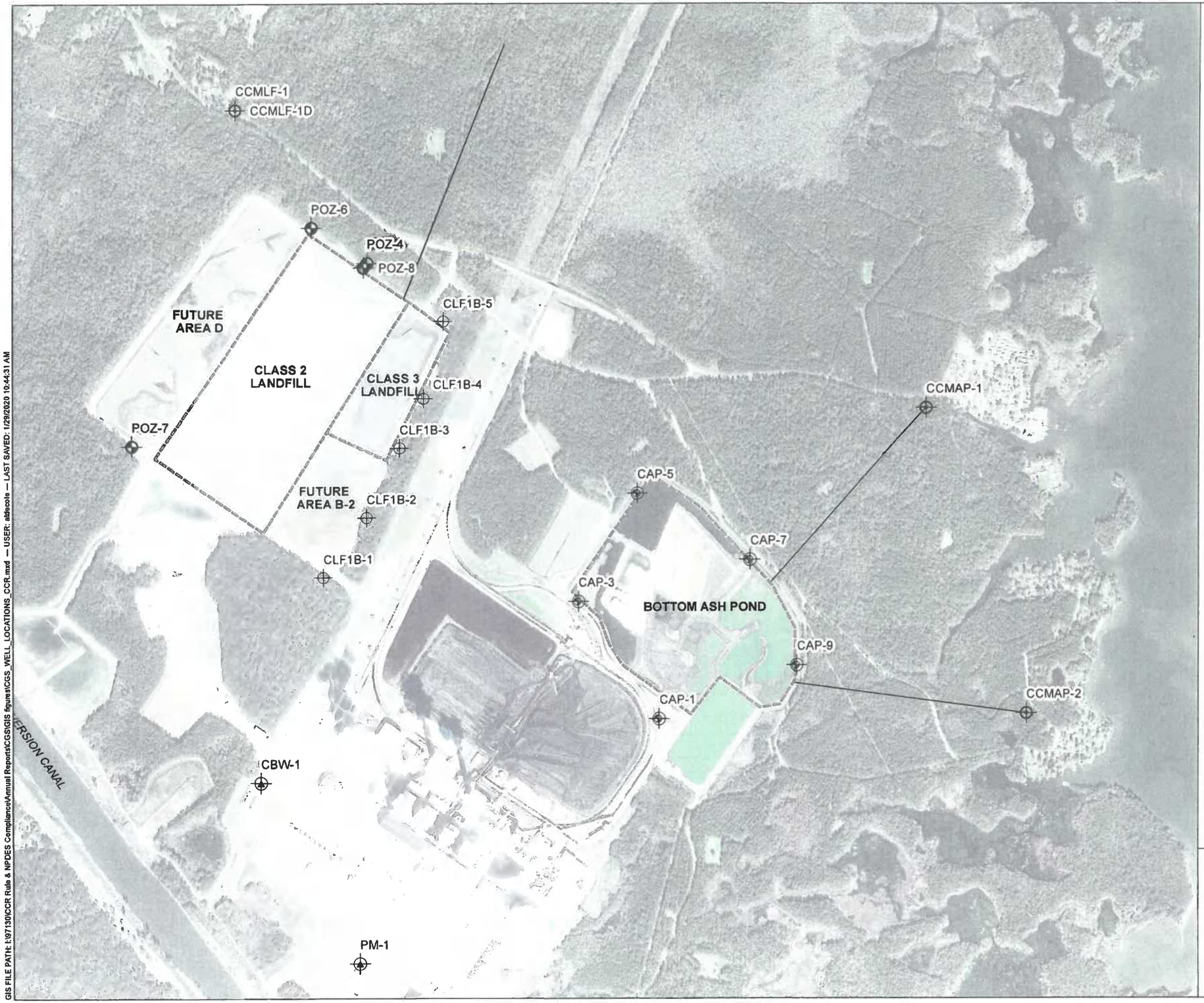
TABLE 1 - Summary of Analytical Results
Cross Generating Station Class 2 Landfill Assessment Monitoring

				Appendix III Constituents							Appendix IV Constituents																				Field Parameters							
Well ID	Purpose	Date of Sample Event		Boron	Calcium	Chloride	Fluoride	Sulfate	Total Dissolved Solids	pH	Antimony	Arsenic	Barium	Barium	Beryllium	Beryllium	Cadmium	Chromium	Cobalt	Cobalt	Cobalt	Fluoride	Lead	Lithium	Mercury	Molybdenum	Radium 226	Radium 228	Radium 228/Radium 228 Combined Calculation	Selenium	Thallium	Depth to Groundwater	Groundwater Elevation	pH	Specific Conductivity	Temperature	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	ug/L	ug/L	ug/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	pCi/L	pCi/L	mg/L	ug/L	ug/L	Feet (btoc)	Feet (msl)	SU	uS	C	mv	NTU	ppm
			Method	EPA 6020B	EPA 6020B	EPA 300.0	EPA 300.0	EPA 300.0	SM 2540C		EPA 6020B	EPA 6020B	EPA 6010D	EPA 6020B	EPA 6010D	EPA 6010D	EPA 6020B	EPA 6020B	EPA 6020B	EPA 200.7	EPA 6010D	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	2000	4	4	5	100	6	6	6	4	15	40	2	100	---	---	50	50	2	---	---	---	---	---	---	---	---
Site Background Wells																																							
PM-1	Background	2/12/2019			15.9	12.1	<0.10	8.98	136.2	5.47	<5.0	<5.0		81.7		<0.50	<0.50	<5.0				0.91	<0.10	<1.0	<10	<0.2	<10	<1.00	<3.00	0.585	<10.0	<1.0	7.32	75.92	5.47	191	17.02	78	9.4	0.92
PM-1	Background	5/20/2019			16.4	12.7		10.5	162.5	5.26						<0.50						0.91			<10								6.52	74.72	5.26	187	25.6	39	0	0.77
PM-1	Background	7/8/2019		<15	6	14.2	<0.10	4.2	90	4.47		<5.0		67.6		<0.50	<0.50	<5.0				0.98	<0.10	<1.0	<10			0.546	0.138	0.684	<10.0		7.56	75.86	4.47	96	24.24	61	0	0.42
PM-1	**total samples**			1	3	3	2	3	3	3	1	2	0	2	0	3	2	2	2	0	0	3	2	2	3	1	1	2	2	2	1	3	3	3	3	3	3	3	3
CBW-1	Background	2/12/2019		<15	24.4	2.68	0.18	69.1	135	4.5	<5.0	<5.0		42.7			<0.50	<5.0				0.84	0.18	2.5	<10	<0.20	<10	<1.00	<3.00	0.346	<10.0	<1.0	8.96	77.14	4.5	202	18.04	111	0.5	0.99
CBW-1	Background	5/20/2019			42.2	2.9		115	181.2	4.65						<0.50						0.79			<10								10.69	75.11	4.65	288	27.25	31	9.6	0.87
CBW-1	Background	7/8/2019		22	26	3.13	0.2	76.3	117.5	4.19		<5.0		45.8		<0.50	<0.50	<5.0				0.77	0.2	3	<10			0.485	1.28	1.76	<10.0		10.08	75.72	4.19	209	20.62	126	0.2	0.54
CBW-1	**total samples**			2	3	3	2	3	3	3	1	2	0	2		2	2	2	2	0	0	3	2	2	3	1	1	2	2	2	1	3	3	3	3	3	3	3	3
Class 2 Landfill Wells																																							
POZ-4	Assessment	2/13/2019				449	<0.10	110	1566	6.28	<5.0	<5.0		188		<0.50	<0.50	<5.0				45.1	<0.10	<1.0	<10	<0.2	<10	<1.00	<3.00	1.37	<10.0	<1.0	4.67	78.06	6.28	1880	16.08	95	0.2	1.23
POZ-4	CMA/NE	4/17/2019		21	413	696	0.1	216	2736	5.95			130		<4					150	158	0.1		20	<0.20								5.79	78.94	5.95	2760	18.24	39	0	0.49
POZ-4	Duplicate	4/17/2019		20	428	695	0.12	216	2922				120		<4					140	155	0.12		14	<0.20															
POZ-4	Cobalt	5/3/2019						156		5.75												3.8																		
POZ-4	CMA/NE	5/22/2019			468	705		225	1711	5.89												196																		
POZ-4	Cobalt	6/21/2019							1828	6.08												54																		
POZ-4	CMA/NE	7/17/2019							1128	6.13		<5.0		179			<0.50	<5.0	37.3					<1.0							<10.0			8.63	74.1	6.13	1260	28.74	-33	0	0.85
POZ-4	Cobalt	9/9/2019								6.22												47.2												8.73	74	6.22	1169	24.4	14.1	6.66	0.24
POZ-4	Duplicate	9/9/2019																				47.9																		
POZ-4	Cobalt	9/30/2019								6.17												72.2												10.38	72.35	6.17	1665	23	35.8	6.87	0.38
POZ-4	Duplicate	9/30/2019																				75																		
POZ-4	Cobalt	10/23/2019								6.05												113												10.35	72.28	6.05	1938	21.2	-59.5	5.16	0.38
POZ-4	Duplicate	10/23/2019																				108																		
POZ-4	Cobalt	11/25/2019								6.28												20.6												7.82	74.81	6.28	1275	21.3	48	4.98	0.57
POZ-4	Duplicate	11/25/2019																				19.9																		
POZ-4	**total samples**			2	3	4	3	5	6	10	1	2	2	2	0	1	2	2	1	2	14	8	2	3	3	1	1	1	1	2	1	10	10	10	10	10	10	10	10
POZ-6	Assessment	2/14/2019				243	<0.10	430	1520	6.67	<5.0	<5.0		45.2		<0.50	<0.50	<5.0				3.2	<0.10	<1.0	<10	<0.2	<10	<1.00	<3.00	1.31	<10.0	<1.0	0.1	77.74	6.67	2250	19.08	57	0	4.74
POZ-6	CMA/NE	5/21/2019			450	334		483	2128	6.39												8.2												9.84	74	6.39	2420	20.04	1	8.7	0.91
POZ-6	CMA/NE	7/17/2019							2152	6.49		<5.0		55.3			<0.50	<5.0	4.4			28		<1.0						<10.0			8.85	74.96	6.49	2260	28.15	-82	97.2	0.29
POZ-6	Cobalt	9/9/2019								6.57												5.1												10.11	73.73	6.57	1417	26.3	18.2	6.12	0.62
POZ-6	Cobalt	9/30/2019								6.56												4.3												11.06	71.88	6.56	2088	23.5	-80.6	5.83	0.24
POZ-6	Cobalt	10/23/2019								6.56												3.9												11.06	71.86	6.56	1711	22.6	-16.7	5.8	0.26
POZ-6	Cobalt	11/25/2019								6.47												3.5												9.03	74.81	6.47	2320	21.2	-64.6	6.19	0.29
POZ-6	**total samples**			0	1	2	1	2	3	7	1	2	0	2	0	1	2	2	1	0	6	1	2	1	1	1	1	1	1	2	1	7	7	7	7	7	7	7	7
POZ-7	Assessment	2/14/2019				80.3	<0.10	3.01	258.8	5.75	<5.0	<5.0		269		<0.50	<0.50	<5.0				<0.50	<0.10	<1.0	<10	<0.2	<10		1.2	<3.00	2.6	<10.0	<1.0	4.8	77.22	5.75	443	18.59	146	0	2.55
POZ-7	Duplicate	2/14/2019				80.2	<0.10	3.01	276		<5.0	<5.0		264		<0.50	<0.50	<5.0				<0.50	<0.10	<1.0	<10	<0.2	<10	<1.00	<3.00	1.59	<10.0	<1.0								
POZ-7	CMA/NE	5/20/2019			80.3	128		5.24	533.8	5.91		<5.0		352			<0.50	<5.0				1.1		<1.0						<10.0			7.57	74.45	5.91	547	20.76	96	0.6	2.11
POZ-7	Duplicate	5/20/2019			94.3	162		8.67	837.5													<0.50																		
POZ-7	**total samples**			0	2	4	2	4	4	2	2	3	0	3	0	2	3	3	0	0	4	2	3	2	2	2	1	2	2	3	2	3	3	3	3	3	3	3	3
POZ-8	CMA/NE	6/4/2019			110	111		<2.0	612.5	6.97												<1.00												10.42	72.71	6.97	755	20.38	-84	21.8	0.71
POZ-8	Duplicate	6/4/2019			117	102		<2.0	621.2													<1.00																		
POZ-8	Cobalt	6/21/2019							597.5	6.99												<0.50												7.88	75.25	6.99	641	22	-129	1.6	0.35
POZ-8	Cobalt	7/17/2019							595	6.96										<0.50														8.42	74.71	6.96	674	24.52	-139	0	0.4
POZ-8	Cobalt	9/9/2019								6.94												<0.50												9.6	73.53	6.94	697	23.2	-117	5.93	0.27
POZ-8	Cobalt	9/30/2019								7.04												<0.50												11.15	71.98	7.04	795	22.2	-109	5.89	0.36
POZ-8	Cobalt	10/23/2019								7.14												<0.50												11.1	72.03	7.14	679	19.8	-91.8	5.09	0.48
POZ-8	Cobalt	11/25/2019								6.9												<0.50												8.59	74.54	6.9	910	20.3	-100	5.09	0.51
POZ-8	**total samples**			0	2	2	0	4	4	8	0	0	0	0	0	0	0	0	1	0	7	0	0	0	0	0	0	0	0	0	0	7	7	7	7	7	7	7	7
CCMLF-1	CMA/NE	5/3/2019						14.6		5.54												5.7												5.6	75.26	5.54	145	19.98	85	0	0.75
CCMLF-1	Cobalt	5/22/2019			20.8	8		15.1	136.2	6.06												7.4												7.12	73.74	6.06	1630	22	88	1.9	0.61
CCMLF-1	Cobalt	6/21/2019							162.6	5.55												16												5.61	75.25	5.55	233	18.61	9	0.9	0.5
CCMLF-1	Cobalt	7/17/2019							107.5	5.71										7.9														6.25	74.61	5.71	173	20.17	-101	1.2	0.58
CCMLF-1	Cobalt	9/9/2019								6.13												4												8.37	72.49	6.13	153	27.3	-19.2	6.23	0.29
CCMLF-1	Cobalt	9/30/2019								6.02												7.1												9.5	71.36	6.02	185	28.3	25.3	5.82	0.24
CCMLF-1	Cobalt	10/23/2019								5.83												8.8												9.89	71.17	5.83	179	21.1	26.2	6.37	0.32
CCMLF-1	Cobalt	11/25/2019								6.32												5.1												7.81	73.25	6.32	169	17.3	59.2	6.93	0.37
CCMLF-1	**total samples**			0	1	1	0	2	3	8	0	0	0	0	0	0	0	0	1	0	7	0	0	0	0	0	0	0	0	0	0	8	8	8	8	8	8	8	8
CCMLF-1D	CMA/NE	5/3/2019						12.1		6.64												<0.50												5.36	75.29	6.64	317	21.53	24	0	0.51
CCMLF-1D	Cobalt	5/21/2019			56.4	6.13		5.43	262.5	7.16												<0.50												**6.77**	**73.88**	7.16	3110	29.02	-68	1.2	0.68
CCMLF-1D	Cobalt	6/21/2019							171.2	6.92												<0.50												5.56	75.09	6.92	290	18.92	-141	0.5	0.42
CCMLF-1D	Cobalt	7/17/2019							166.2	6.91										<0.50														6.04	74.61	6.91	295	21.04	-158	0	0.45
CCMLF-1D	Cobalt	9/9/2019								6.99												<0.50												8.21	72.44	6.99	297	24.2	-131	6.83	0.2
CCMLF-1D	Cobalt	9/30/2019								7.11												<0.50												9.38	71.27	7.11	290	26.1	-133	6.18	0.29
CCMLF-1D	Cobalt	10/23/2019								7.19												<0.50												9.49	71.16	7.19	297	21.9	-113	5.75	0.26
CCMLF-1D	Cobalt	11/25/2019								7.12												<0.50												7.45	73.2	7.12	284	18.6	-123	5.02	0.27
CCMLF-1D	**total samples**			0	1	1	0	2	3	8	0	0	0	0	0	0	0	0	1	0	4	0	0	0	0	0	0	0	0	0	0	8	8	8	8	8	8	8	8

All groundwater samples collected from the monitoring wells for Assessment Monitoring in 2019 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), Test America Laboratories Inc. Savannah (Certification # 98001), Test America Laboratories Inc. Pensacola (Certification #98026), Rogers & Callcot, Inc. (Certification # 23105001), and Pace Analytical Services LLC (Certification #99030).

Boron was inadvertently not analyzed for this sampling event.

FIGURES



LEGEND

- BACKGROUND WELL
- PROPERTY BOUNDARY WELL
- ASH POND WELL
- CLASS 3 LANDFILL AREA B WELL
- CLASS 2 LANDFILL WELL
- CCR BOUNDARY
- TRANSECT

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
CROSS, SOUTH CAROLINA

LOCATION OF GROUNDWATER MONITORING WELLS FOR CCR COMPLIANCE - 2019

JANUARY 2020

FIGURE 1

GIS FILE PATH: I:\97130\CCR Rule & NPDES Compliance\Annual Reports\CGS\GIS figures\CGS_WELL_LOCATIONS_CCR.mxd — USER: afdecola — LAST SAVED: 1/29/2020 10:44:31 AM

Appendix A – Corrective Measures Assessment 60-Day Extension

Cross Generating Station Class 2 Landfill

The South Carolina Public Service Authority (Santee Cooper) is implementing the April 17, 2015 U.S. EPA Federal Coal Combustion Residuals (CCR) Rule (40 CFR 257 and 261) for the Class 2 Landfill at Cross Generating Station, located in Berkeley County, South Carolina.

This Class 2 Landfill ceased operations by December 31, 2015 and closure was completed by June 30, 2016 per a plan approved by South Carolina Department of Health and Environmental Control (SC DHEC). The closure was certified complete by SC DHEC and a Post Closure Permit was received from SC DHEC on February 28, 2017. This closure remedy was under a state-approved plan, which includes groundwater monitoring and assessment. Details of the PE certified closure plan are included on the CCR Rule website per 257.107(i) Closure and Post Closure Care.

In accordance with 40 CFR 257.95 Santee Cooper initiated an Assessment of Corrective Measures (ACM) for the Class 2 Landfill. Cobalt exceeded the Regional Screening Level in one well (Well POZ-4) at the edge of landfill.

Pursuant to 40 CFR 257.96(a), Santee Cooper requires the deadline to complete the Assessment of Corrective Measures to be extended an additional 60 days, until June 12, 2019, due to site-specific conditions and circumstances.

The 60-day extension is required because activities are on-going to characterize the nature and extent of the cobalt and relevant site conditions. Evaluation of the site and success of the closure of the landfill is in progress in accordance with the CCR Rule. The collected data will be incorporated into the conceptual site model (CSM). A representative CSM is necessary for a complete evaluation of the corrective measures that have, and will be, undertaken to meet the requirements of 40 CFR 257.96(c). The need for the extension is also due to weather events impacting accessibility of the site, lack of availability of South Carolina certified well drillers, and a lack of availability of the appropriate drilling equipment for heavily wooded remote areas. The assessment is in progress as allowed under 40 CFR 257.96(a). An additional 60 days will enable the preparation of the ACM based on a more thorough evaluation of technical data to develop the most appropriate solutions for the protection of groundwater quality.

Certification:

I, Susan W. Jackson, being a Registered Professional Engineer licensed in the state of South Carolina, do herby certify to the best of my knowledge, information, and belief that the information provided above is accurate.

South Carolina Professional Licensed Engineer

No. 25476

Date: April 12, 2019

Appendix B – Corrective Measures Assessment Tables and Figures

TABLE 1
DETECTION MONITORING ANALYTICAL RESULTS
CROSS GENERATING STATION - CLASS 2 LANDFILL
SANTEE COOPER
CROSS, SOUTH CAROLINA

			Chemical Group	Detection Monitoring - EPA Appendix III Constituents						Field Parameters				
			Chemical Name	Boron, Total	Calcium, Total	Chloride	Fluoride	Sulfate	Total Dissolved Solids (TDS)	Dissolved Oxygen	ORP	pH	Temperature	Turbidity
			MCL/RSL	-	-	-	4	-	-	-	-	-	-	-
			Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mv	pH units	Deg C	NTU
Impound-ment	Location	Sample Date	Sample Name											
Background	CBW-1	10/19/2015	CBW-1-20151019	0.032	27	3.21	0.25	81.5	150	0.91	340	4.45	21.29	291
Background	CBW-1	01/26/2016	CBW-1-20160126	0.0218	27	2.95	0.3	88.2	120	0.8	346	4.12	17.01	7.9
Background	CBW-1	04/19/2016	CBW-1-20160419	0.0183	29.4	2.33	0.29	86	120	0.5	146	4.33	18.72	0
Background	CBW-1	07/18/2016	CBW-1-20160718	0.0217	28.7	2.95	0.27	90.1	132	0.84	64	4.38	22.89	0
Background	CBW-1	10/11/2016	CBW-1-20161011	0.0302	22.7	3	0.28	73.7	151.7	1.08	98	4.14	19.9	1.9
Background	CBW-1	01/23/2017	CBW-1-20170123	0.0249	26.2	2.45	0.25	77.7	148	0.81	150	4.32	16.58	1.3
Background	CBW-1	04/17/2017	CBW-1-20170417	0.018	25.6	2.96	0.22	71.2	62	0.72	248	4.26	22.55	2.8
Background	CBW-1	07/25/2017	CBW-1-20170725	0.022	-	2.61	-	73.3	92	3.52	75	4.21	24.41	0
Background	CBW-1	09/25/2017	CBW-1-20170925	0.024	21.9	2.51	0.23	74.5	< 40	0.76	142	4.32	25.07	41.3
Background	CBW-1	10/09/2017	CBW-1-20171009	0.023	23	2.73	0.22	76.8	115	0.83	111	4.25	25.04	0
Background	PM-1	01/26/2015	PM-1-012615	-	-	-	-	-	142.5	0.47	117	4.53	17.13	0
Background	PM-1	02/16/2015	PM-1-021615	-	-	-	-	-	106.2	-	74	4.68	14.88	26.5
Background	PM-1	06/16/2015	PM-1-061615	-	-	-	-	-	158	-	63	4.74	21.8	3.7
Background	PM-1	07/06/2015	PM-1-070615	-	-	-	-	-	151	-	-	5.25	23.05	0.4
Background	PM-1	10/19/2015	PM-1-20151019	0.0178	26	12.7	< 0.1	26.5	206	1.33	20	5.47	20.94	19
Background	PM-1	01/26/2016	PM-1-20160126	< 0.015	27	11.3	< 0.1	25.5	165	1.2	65	5.2	15.83	22.3
Background	PM-1	04/19/2016	PM-1-20160419	< 0.015	23.3	12.1	< 0.1	20.2	130	0.52	81	5.32	18.9	0
Background	PM-1	07/18/2016	PM-1-20160718	0.0163	18.8	13.2	< 0.1	16	124	0.97	61	5.2	24.19	0
Background	PM-1	10/11/2016	PM-1-20161011	0.0165	16.4	12.8	< 0.1	19.3	200	1.37	54	5.01	19.75	2.2
Background	PM-1	01/23/2017	PM-1-20170123	< 0.015	10.4	13.5	< 0.1	8.82	138	0.9	87	5.01	15.45	1.9
Background	PM-1	04/17/2017	PM-1-20170417	0.019	12.5	12.7	< 0.1	9.71	56	0.85	84	5.19	21.17	1.4
Background	PM-1	07/12/2017	PM-1-20170712	-	18.5	12.1	-	11.1	108	0.87	89	5.11	27.03	0
Background	PM-1	08/31/2017	PM-1-20170831-RS	< 0.015	-	-	-	-	-	0.8	96	5.17	25.04	1.1
Background	PM-1	09/25/2017	PM-1-20170925	0.018	15.4	13.3	< 0.1	8.03	< 40	0.92	92	5.27	24.37	0
Background	PM-1	10/09/2017	PM-1-20171009	0.021	17	12.6	< 0.1	8.77	80	1.13	66	5.21	24.3	1.6
C2_Landfill	POZ-4	02/16/2015	POZ-4-021615	-	-	-	-	-	1262	-	18	6.04	15.11	4.1
C2_Landfill	POZ-4	06/17/2015	POZ-4-061715	-	-	-	-	-	2480	-	59	5.53	29.52	0
C2_Landfill	POZ-4	10/22/2015	POZ-4-20151022	0.0222	420	644	0.13	233	2180	0.42	-9	5.94	22.9	0
C2_Landfill	POZ-4	01/27/2016	POZ-4-20160127	0.0151	260	325	0.17	105	1245	3.21	230	6.35	15.19	5.3
C2_Landfill	POZ-4	04/25/2016	POZ-4-20160425	0.0233	577	920	< 0.1	351	2750	0.54	87	5.63	20.96	0
C2_Landfill	POZ-4	07/18/2016	POZ-4-20160718	0.0193	431	646	< 0.1	226	1988	0.45	34	5.96	29.88	0
C2_Landfill	POZ-4	10/13/2016	POZ-4-20161013	0.0237	338	485	0.1	171	1798	0.63	20	6.04	22.46	0
C2_Landfill	POZ-4	01/24/2017	POZ-4-20170124	0.0201	457	598	< 0.1	199	2046	0.83	98	6.06	16.69	0
C2_Landfill	POZ-4	04/18/2017	POZ-4-20170418	0.023	614	872	< 0.1	303	2678	0.73	162	5.73	20.06	0
C2_Landfill	POZ-4	08/01/2017	POZ-4-20170801	< 0.015	-	455	-	128	1898	0.47	74	6.06	22.31	5
C2_Landfill	POZ-4	09/26/2017	POZ-4-20170926	0.019	387	620	< 0.1	164	2032	0.52	36	6.05	25.3	0
C2_Landfill	POZ-4	10/11/2017	POZ-4-20171011	0.025	520	826	< 0.1	278	2415	0.8	54	5.77	24.52	0
C2_Landfill	POZ-4	10/11/2017	POZ-4-20171011-FD	0.024	530	804	< 0.1	269	2322	-	-	-	-	-
C2_Landfill	POZ-5D	02/16/2015	POZ-5D-021615	-	-	-	-	-	2630	-	-37	6.39	15.57	76.9
C2_Landfill	POZ-5D	06/17/2015	POZ-5D-061715	-	-	-	-	-	2881	-	-74	6.26	26.51	3.3
C2_Landfill	POZ-6	10/22/2015	POZ-6-20151022	0.0732	520	474	0.15	524	2330	4.75	-76	6.79	24.75	39.3
C2_Landfill	POZ-6	10/22/2015	POZ-6-20151022-FD	0.0928	540	195	0.14	215	2198	-	-	-	-	-
C2_Landfill	POZ-6	01/26/2016	POZ-6-20160126	0.048	490	433	0.15	529	2305	2.1	34	6.72	19.35	27.2
C2_Landfill	POZ-6	04/25/2016	POZ-6-20160425	0.054	511	414	0.13	518	2415	0.56	-13	6.54	21.78	13
C2_Landfill	POZ-6	04/25/2016	POZ-6-20160425-FD	0.0618	521	434	< 0.1	519	2465	-	-	-	-	-
C2_Landfill	POZ-6	07/18/2016	POZ-6-20160718	0.0751	523	506	< 0.1	611	2362	0.81	-53	6.59	28.3	4.3
C2_Landfill	POZ-6	10/13/2016	POZ-6-20161013	0.0674	426	319	< 0.1	478	1883	1.05	-41	6.47	19.91	113
C2_Landfill	POZ-6	01/24/2017	POZ-6-20170124	0.0614	433	284	< 0.1	454	1848	2.26	85	6.62	15.78	49.9
C2_Landfill	POZ-6	04/18/2017	POZ-6-20170418	0.058	476	278	< 0.1	467	1756	0.89	136	6.58	26.39	7.4
C2_Landfill	POZ-6	07/27/2017	POZ-6-20170727	0.054	-	209	-	460	1590	0.68	-36	6.58	25.31	1
C2_Landfill	POZ-6	09/26/2017	POZ-6-20170926	0.068	413	233	< 0.1	459	1442	2.64	-28	6.53	24.79	3
C2_Landfill	POZ-6	10/11/2017	POZ-6-20171011	0.062	450	329	< 0.1	517	1808	2.7	-25	6.46	24.35	3.5
C2_Landfill	POZ-7	10/22/2015	POZ-7-20151022	0.0236	110	159	0.13	6.43	504	2.06	161	6.33	21.47	14.7
C2_Landfill	POZ-7	01/26/2016	POZ-7-20160126	< 0.015	59	90	0.12	3.39	388.3	2.43	232	5.81	17.82	6.6
C2_Landfill	POZ-7	01/26/2016	POZ-7-20160126-FD	< 0.015	63	97.7	0.13	3.68	426.7	-	-	-	-	-
C2_Landfill	POZ-7	04/25/2016	POZ-7-20160425	0.0197	138	184	< 0.1	6.77	775	1.7	80	6.42	23.03	0
C2_Landfill	POZ-7	07/18/2016	POZ-7-20160718	0.0152	45.1	90.9	< 0.1	2.53	270	2.31	137	5.83	25.17	0
C2_Landfill	POZ-7	07/18/2016	POZ-7-20160718-FD	0.017	62.2	103	< 0.1	2.89	330	-	-	-	-	-
C2_Landfill	POZ-7	10/12/2016	POZ-7-20161012	0.016	34.7	65.8	0.1	11.8	255	2.03	118	5.64	24.29	0
C2_Landfill	POZ-7	10/12/2016	POZ-7-20161012-FD	0.0154	38.7	70.1	0.11	13.2	296.7	-	-	-	-	-
C2_Landfill	POZ-7	01/24/2017	POZ-7-20170124	< 0.015	22.9	46.8	< 0.1	< 2	182	3.05	195	5.42	14.73	4.5
C2_Landfill	POZ-7	01/24/2017	POZ-7-20170124-FD	< 0.015	30.5	53.3	< 0.1	< 2	200	-	-	-	-	-
C2_Landfill	POZ-7	04/18/2017	POZ-7-20170418	< 0.015	46.9	70.9	< 0.1	< 2	230	2.59	110	5.88	20.49	0
C2_Landfill	POZ-7	04/18/2017	POZ-7-20170418-FD	< 0.015	49.1	77.5	< 0.1	2.27	248	-	-	-	-	-
C2_Landfill	POZ-7	07/27/2017	POZ-7-20170727	< 0.015	-	57	-	< 2	192	2.47	143	5.51	21.11	4.4
C2_Landfill	POZ-7	09/26/2017	POZ-7-20170926	< 0.015	41.4	69.2	0.1	< 2	122	2.11	145	5.81	24.82	0

TABLE 1
DETECTION MONITORING ANALYTICAL RESULTS
CROSS GENERATING STATION - CLASS 2 LANDFILL
SANTEE COOPER
CROSS, SOUTH CAROLINA

			Chemical Group	Detection Monitoring - EPA Appendix III Constituents						Field Parameters				
			Chemical Name	Boron, Total	Calcium, Total	Chloride	Fluoride	Sulfate	Total Dissolved Solids (TDS)	Dissolved Oxygen	ORP	pH	Temperature	Turbidity
			MCL/RSL	-	-	-	4	-	-	-	-	-	-	-
			Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mv	pH units	Deg C	NTU
Impound-ment	Location	Sample Date	Sample Name											
C2_Landfill	POZ-7	09/26/2017	POZ-7-20170926-FD	< 0.015	45.8	73.9	< 0.1	< 2	192	-	-	-	-	-
C2_Landfill	POZ-7	10/10/2017	POZ-7-20171010	0.018	74	118	0.12	4.42	513.3	1.63	87	6.02	23.66	0

ABBREVIATIONS AND NOTES:
mg/L: milligram per liter
mv: millivolt
NTU: Nephelometric Turbidity Units
< 0.015: Analyte not detected above detection limit
-: Not Analyzed
MCL/RSL: The applicable Maximum Contaminant Level (MCL) or Regional Screening Level (RSL) is shown. Dashed where a standard is not provided.
RS: Resample
FD: Field Duplicate

- Criteria used for cobalt, lithium, and molybdenum are RSL for Tapwater where THQ=1.0 (May 2018)
- USEPA. 2016. Final Rule: Disposal of Coal Combustion Residuals from Electric Utilities. July 26. 40 CFR Part 257. https://www.epa.gov/coalash/coal-ash-rule

TABLE 2
ASSESSMENT MONITORING ANALYTICAL RESULTS
CROSS GENERATING STATION - CLASS 2 LANDFILL
SANTEE COOPER
CROSS, SOUTH CAROLINA

			Chemical Group	Assessment Monitoring - EPA Appendix IV Constituents													Radiological				
			Chemical Name	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	Radium-226	Radium-228	Radium-226 & 228	Conductivity	Dissolved Oxygen
			MCL/RSL	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	-	-	5	-	-
			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	pCi/L	pCi/L	pCi/L	uS/cm	mg/L
Impound-ment	Location	Sample Date	Sample Name																			
Background	CBW-1	02/07/2018	CBW-1-20180207	< 0.005	< 0.005	0.0436	< 0.0005	< 0.0005	< 0.005	0.00088	0.19	0.0027	< 0.01	< 0.0002	< 0.01	< 0.01	< 0.001	1 U	3 U	4 U	199	0.93
Background	CBW-1	06/20/2018	CBW-1-20180620	< 0.025	< 0.005	0.043	< 0.0005	< 0.0005	< 0.005	0.001	0.2	0.003	< 0.01	< 0.0002	< 0.01	< 0.01	< 0.001	1 U	3 U	4 U	196	0.85
Background	CBW-1	10/01/2018	CBW-1-20181001	-	< 0.005	0.0428	< 0.0005	-	-	0.00076	0.19	0.0031	< 0.01	< 0.0002	-	< 0.01	-	2.11	3 U	5.11 J	196	0.92
Background	CBW-1	11/29/2018	CBW-1-20181129-RS	-	-	-	-	-	-	-	-	-	-	< 0.0002	-	-	-	-	-	-	-	-
Background	CBW-1	02/12/2019	CBW-1-021219	< 0.005	< 0.005	0.0427	-	< 0.0005	< 0.005	0.00084	0.18	0.0025	< 0.01	< 0.0002	< 0.01	< 0.01	< 0.001	1 U	3 U	0.348	202	0.98
Background	CBW-1	05/20/2019	CBW-1-052019	-	-	-	< 0.0005	-	-	0.00079	-	-	< 0.01	-	-	-	-	-	-	-	202	0.99
Background	PM-1	02/07/2018	PM-1-20180207	< 0.005	< 0.005	0.0756	< 0.0005	< 0.0005	< 0.005	0.00089	< 0.1	< 0.001	< 0.01	< 0.0002	< 0.01	< 0.01	< 0.001	1 U	3 U	4 U	188	1.09
Background	PM-1	06/20/2018	PM-1-20180620	< 0.025	< 0.005	0.103	< 0.0005	< 0.0005	< 0.005	0.001	< 0.1	< 0.001	< 0.01	< 0.0002	< 0.01	< 0.01	< 0.001	4.09	3 U	7.09 J	279	0.81
Background	PM-1	10/01/2018	PM-1-20181001	-	< 0.005	0.0769	< 0.0005	-	-	0.00084	< 0.1	< 0.001	< 0.01	< 0.0002	-	< 0.01	-	13.3	3 U	16.3 J	201	0.99
Background	PM-1	11/29/2018	PM-1-20181129-RS	-	-	-	-	-	-	-	-	-	-	< 0.0002	-	-	-	-	-	-	-	-
Background	PM-1	02/12/2019	PM-1-021219	< 0.005	< 0.005	0.0817	< 0.0005	< 0.0005	< 0.005	0.00091	< 0.1	< 0.001	< 0.01	< 0.0002	< 0.01	< 0.01	< 0.001	1 U	3 U	0.585	191	0.92
Background	PM-1	05/20/2019	PM-1-052019	-	-	-	< 0.0005	-	-	0.00091	-	-	< 0.01	-	-	-	-	-	-	-	187	0.77
C2_Landfill	POZ-4	02/07/2018	POZ-4-20180207	< 0.005	< 0.005	0.0702	< 0.0005	< 0.0005	< 0.005	0.0533	< 0.1	< 0.001	0.011	< 0.0002	< 0.01	< 0.01	< 0.001	1 U	3 U	4 U	2170	1.45
C2_Landfill	POZ-4	06/28/2018	POZ-4-20180628	< 0.025	< 0.005	0.09	0.001	< 0.0005	< 0.005	0.177	0.16	< 0.001	0.02	< 0.0002	< 0.01	< 0.01	< 0.001	3.29	3 U	6.29 J	2880	0.52
C2_Landfill	POZ-4	02/13/2019	POZ-4-021319	< 0.005	< 0.005	0.188	< 0.0005	< 0.0005	< 0.005	0.0451	< 0.1	< 0.001	< 0.01	< 0.0002	< 0.01	< 0.01	< 0.001	1 U	3 U	1.37	1880	1.23
C2_Landfill	POZ-4	04/17/2019	POZ-4-041719	-	-	-	-	-	-	0.158 / 0.15	-	-	-	-	-	-	-	-	-	-	2760	0.49
C2_Landfill	POZ-4	04/17/2019	POZ-4-041719-FD	-	-	-	-	-	-	0.155 / 0.14	-	-	-	-	-	-	-	-	-	-	-	-
C2_Landfill	POZ-4	05/03/2019	POZ-4-050319	-	-	-	-	-	-	0.0036	-	-	-	-	-	-	-	-	-	-	-	-
C2_Landfill	POZ-4	05/22/2019	POZ-4-052219	-	-	-	-	-	-	0.198	-	-	-	-	-	-	-	-	-	-	2780	0.59
C2_Landfill	POZ-5D	02/07/2018	POZ-5D-20180207	-	< 0.005	0.0807	-	< 0.0005	< 0.005	-	-	< 0.001	-	-	-	< 0.01	-	-	-	-	3950	1.85
C2_Landfill	POZ-5D	06/28/2018	POZ-5D-20180628	-	< 0.005	0.134	-	< 0.0005	< 0.005	-	-	< 0.001	-	-	-	< 0.01	-	-	-	-	5090	0.62
C2_Landfill	POZ-6	02/08/2018	POZ-6-20180208	< 0.005	< 0.005	0.0436	< 0.0005	< 0.0005	< 0.005	0.00099	< 0.1	< 0.001	< 0.01	< 0.0002	< 0.01	< 0.01	< 0.001	1 U	3 U	4 U	2190	2.53
C2_Landfill	POZ-6	06/28/2018	POZ-6-20180628	< 0.025	< 0.005	0.045	< 0.0005	< 0.0005	< 0.005	0.005	0.15	< 0.001	< 0.01	< 0.0002	< 0.01	< 0.01	< 0.001	1 U	3 U	4 U	2070	3.99
C2_Landfill	POZ-6	02/14/2019	POZ-6-021419	< 0.005	< 0.005	0.0452	< 0.0005	< 0.0005	< 0.005	0.0032	< 0.1	< 0.001	< 0.01	< 0.0002	< 0.01	< 0.01	< 0.001	1 U	3 U	1.31	2250	4.74
C2_Landfill	POZ-6	05/21/2019	POZ-6-052119	-	-	-	-	-	-	0.0082	-	-	-	-	-	-	-	-	-	-	2420	0.91
C2_Landfill	POZ-7	02/07/2018	POZ-7-20180207	< 0.005	< 0.005	0.235	0.00083	< 0.0005	< 0.005	0.0009	< 0.1	< 0.001	< 0.01	< 0.0002	< 0.01	< 0.01	< 0.001	1.14	3 U	4.14 J	226	3.18
C2_Landfill	POZ-7	02/07/2018	POZ-7-20180207-FD	< 0.005	< 0.005	0.272	0.00077	< 0.0005	< 0.005	0.00074	< 0.1	< 0.001	< 0.01	< 0.0002	< 0.01	< 0.01	< 0.001	1 U	3 U	4 U	-	-
C2_Landfill	POZ-7	06/27/2018	POZ-7-20180627	< 0.025	< 0.005	0.389	< 0.0005	< 0.0005	< 0.005	< 0.0005	0.13	< 0.001	0.02	0.00025	< 0.01	< 0.01	< 0.001	2.39	3 U	5.39 J	817	1.61
C2_Landfill	POZ-7	06/27/2018	POZ-7-20180627-FD	< 0.025	< 0.005	0.402	< 0.0005	< 0.0005	0.017	< 0.0005	0.13	< 0.001	0.022	0.0003	< 0.01	< 0.01	< 0.001	1.83	3 U	4.83 J	-	-
C2_Landfill	POZ-7	02/14/2019	POZ-7-021419	< 0.005	< 0.005	0.269	< 0.0005	< 0.0005	< 0.005	< 0.0005	< 0.1	< 0.001	< 0.01	< 0.0002	< 0.01	< 0.01	< 0.001	1.2	3 U	2.6	443	2.55
C2_Landfill	POZ-7	02/14/2019	POZ-7-021419-FD	< 0.005	< 0.005	0.264	< 0.0005	< 0.0005	< 0.005	< 0.0005	< 0.1	< 0.001	< 0.01	< 0.0002	< 0.01	< 0.01	< 0.001	1 U	3 U	1.53	-	-
C2_Landfill	POZ-7	05/20/2019	POZ-7-052019	-	-	-	-	-	-	0.0011	-	-	-	-	-	-	-	-	-	-	547	2.11
C2_Landfill	POZ-7	05/20/2019	POZ-7-052019-FD	-	-	-	-	-	-	< 0.0005	-	-	-	-	-	-	-	-	-	-	-	-

ABBREVIATIONS AND NOTES:
mg/L: milligram per liter
mS/cm: milliSiemen per centimeter
mv: millivolt
NTU: Nephelometric Turbidity Units
pCi/L: picoCurie per liter
U: Not detected, value is the laboratory reporting limit
<0.005: Analyte not detected above detection limit
-: Not Analyzed
MCL/RSL: The applicable Mximum Contaminant Level (MCL) or Regional Screening Level (RSL) is shown. Dashed where a standard is not provided.
RS: Resample
FD: Field Duplicate
Highlighted where result exceeds the applicable MCL/RSL

- Criteria used for cobalt, lithium, and molybdenum are RSL for Tapwater where THQ=1.0 (May 2018)
- USEPA. 2016. Final Rule: Disposal of Coal Combustion Residuals from Electric Utilities. July 26. 40 CFR Part 257. https://www.epa.gov/coalash/coal-ash-rule

TABLE 2
ASSESSMENT MONITORING ANALYTICAL RESULTS
CROSS GENERATING STATION - CLASS 2 LANDFILL
SANTEE COOPER
CROSS, SOUTH CAROLINA

			Chemical Group	Field Parameters			
			Chemical Name	ORP	pH	Temperature	Turbidity
			MCL/RSL	-	-	-	-
			Units	mv	pH units	Deg C	NTU
Impound-ment	Location	Sample Date	Sample Name				
Background	CBW-1	02/07/2018	CBW-1-20180207	138	4.42	19.15	0.9
Background	CBW-1	06/20/2018	CBW-1-20180620	105	4.32	22.69	1.9
Background	CBW-1	10/01/2018	CBW-1-20181001	127	4.09	23.78	0
Background	CBW-1	11/29/2018	CBW-1-20181129-RS	-	-	-	-
Background	CBW-1	02/12/2019	CBW-1-021219	111	4.5	18.04	0.5
Background	CBW-1	05/20/2019	CBW-1-052019	111	4.5	18.04	0.5
Background	PM-1	02/07/2018	PM-1-20180207	85	5.29	17.02	1
Background	PM-1	06/20/2018	PM-1-20180620	123	5.58	23.54	1.6
Background	PM-1	10/01/2018	PM-1-20181001	104	5.08	25.31	0
Background	PM-1	11/29/2018	PM-1-20181129-RS	-	-	-	-
Background	PM-1	02/12/2019	PM-1-021219	78	5.47	17.02	9.4
Background	PM-1	05/20/2019	PM-1-052019	39	5.26	25.6	0
C2_Landfill	POZ-4	02/07/2018	POZ-4-20180207	135	6.22	20.22	0
C2_Landfill	POZ-4	06/28/2018	POZ-4-20180628	68	5.78	22.88	0
C2_Landfill	POZ-4	02/13/2019	POZ-4-021319	95	6.28	16.06	0.2
C2_Landfill	POZ-4	04/17/2019	POZ-4-041719	39	5.95	18	0
C2_Landfill	POZ-4	04/17/2019	POZ-4-041719-FD	-	-	-	-
C2_Landfill	POZ-4	05/03/2019	POZ-4-050319	-	-	-	-
C2_Landfill	POZ-4	05/22/2019	POZ-4-052219	40	5.89	23.32	0
C2_Landfill	POZ-5D	02/07/2018	POZ-5D-20180207	-19	6.49	20.78	2.8
C2_Landfill	POZ-5D	06/28/2018	POZ-5D-20180628	10	6.23	23.16	0.6
C2_Landfill	POZ-6	02/08/2018	POZ-6-20180208	106	6.63	16.36	2.5
C2_Landfill	POZ-6	06/28/2018	POZ-6-20180628	3	6.7	27.41	0
C2_Landfill	POZ-6	02/14/2019	POZ-6-021419	57	6.67	19.08	0
C2_Landfill	POZ-6	05/21/2019	POZ-6-052119	1	6.39	20.04	6.7
C2_Landfill	POZ-7	02/07/2018	POZ-7-20180207	196	5.68	19.05	0
C2_Landfill	POZ-7	02/07/2018	POZ-7-20180207-FD	-	-	-	-
C2_Landfill	POZ-7	06/27/2018	POZ-7-20180627	153	6.11	23.85	0
C2_Landfill	POZ-7	06/27/2018	POZ-7-20180627-FD	-	-	-	-
C2_Landfill	POZ-7	02/14/2019	POZ-7-021419	146	5.75	16.59	0
C2_Landfill	POZ-7	02/14/2019	POZ-7-021419-FD	-	-	-	-
C2_Landfill	POZ-7	05/20/2019	POZ-7-052019	96	5.91	20.76	0.6
C2_Landfill	POZ-7	05/20/2019	POZ-7-052019-FD	-	-	-	-

ABBREVIATIONS AND NOTES:
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mv: millivolt
NTU: Nephelometric Turbidity Units
pCi/L: picoCurie per liter
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- Criteria used for cobalt, lithium, and molybdenum are RSL for Tapwater where THQ=1.0 (May 2018)
- USEPA. 2016. Final Rule: Disposal of Coal Combustion Residuals from Electric Utilities. July 26. 40 CFR Part 257. https://www.epa.gov/coalash/coal-ash-rule

TABLE 3
SUMMARY OF GROUNDWATER MEASUREMENTS
CROSS GENERATING STATION - CLASS 2 LANDFILL
SANTEE COOPER
CROSS, SOUTH CAROLINA

Location	Measurement Date	Depth to Water	Groundwater Elevation
CBW-1	10/19/2015	7.78	78.02
CBW-1	1/26/2016	8.11	77.69
CBW-1	4/19/2016	9.13	76.67
CBW-1	7/18/2016	10.67	75.13
CBW-1	10/11/2016	7.32	78.48
CBW-1	1/23/2017	8.33	77.47
CBW-1	4/17/2017	8.90	76.90
CBW-1	7/25/2017	8.99	76.81
CBW-1	9/25/2017	8.80	77.00
CBW-1	10/9/2017	9.73	76.07
CBW-1	2/7/2018	9.80	76.00
CBW-1	6/20/2018	10.35	75.45
CBW-1	10/1/2018	10.51	75.29
CBW-1	11/29/2018	9.79	76.01
CBW-1	2/12/2019	8.66	77.14
CBW-1	5/20/2019	8.66	77.14
PM-1	1/26/2015	7.25	75.99
PM-1	2/16/2015	7.60	75.64
PM-1	6/16/2015	7.92	75.32
PM-1	7/6/2015	8.45	74.79
PM-1	10/19/2015	7.42	75.82
PM-1	1/26/2016	7.03	76.21
PM-1	4/19/2016	7.62	75.62
PM-1	7/18/2016	8.36	74.88
PM-1	10/11/2016	7.10	76.14
PM-1	1/23/2017	7.16	76.08
PM-1	4/17/2017	7.48	75.76
PM-1	7/12/2017	7.58	75.66
PM-1	8/31/2017	7.11	76.13
PM-1	9/25/2017	7.81	75.43
PM-1	10/9/2017	8.42	74.82
PM-1	2/7/2018	7.91	75.33
PM-1	6/20/2018	8.88	74.36
PM-1	10/1/2018	8.01	75.23
PM-1	11/29/2018	7.55	75.69
PM-1	2/12/2019	7.32	75.92
PM-1	5/20/2019	8.52	74.72
CCMLF-1	4/18/2019	4.37	76.49
CCMLF-1	5/3/2019	5.60	75.26
CCMLF-1	5/22/2019	7.12	73.42
CCMLF-1	6/21/2019	5.61	75.25
CCMLF-1D	4/18/2019	4.22	76.43
CCMLF-1D	5/3/2019	5.36	75.29
CCMLF-1D	5/21/2019	6.77	73.88
CCMLF-1D	6/21/2019	5.56	75.09
POZ-4	2/16/2015	4.39	78.34
POZ-4	6/17/2015	7.03	75.70
POZ-4	10/22/2015	4.72	78.01
POZ-4	1/27/2016	4.01	78.72
POZ-4	4/25/2016	5.66	77.07
POZ-4	7/18/2016	8.75	73.98
POZ-4	10/13/2016	3.76	78.97
POZ-4	1/24/2017	3.95	78.78
POZ-4	2/2/2017	4.59	78.14
POZ-4	4/18/2017	5.19	77.54
POZ-4	8/1/2017	5.21	77.52
POZ-4	9/26/2017	5.25	77.48
POZ-4	10/11/2017	6.25	76.48
POZ-4	2/7/2018	4.65	78.08
POZ-4	6/28/2018	7.71	75.02
POZ-4	2/13/2019	4.67	78.06

TABLE 3
SUMMARY OF GROUNDWATER MEASUREMENTS
CROSS GENERATING STATION - CLASS 2 LANDFILL
SANTEE COOPER
CROSS, SOUTH CAROLINA

Location	Measurement Date	Depth to Water	Groundwater Elevation
POZ-4	4/17/2019	5.79	76.94
POZ-4	5/3/2019	7.06	75.67
POZ-4	5/22/2019	8.62	74.11
POZ-4	6/21/2019	7.01	75.72
POZ-5D	2/16/2015	4.54	77.95
POZ-5D	6/17/2015	7.22	75.27
POZ-5D	1/27/2016	4.22	78.27
POZ-5D	7/18/2016	8.96	73.53
POZ-5D	1/24/2017	4.14	78.35
POZ-5D	2/2/2017	4.76	77.73
POZ-5D	7/27/2017	5.55	76.94
POZ-5D	2/7/2018	4.85	77.64
POZ-5D	6/28/2018	7.91	74.58
POZ-5D	2/13/2019	4.84	77.65
POZ-5D	4/17/2019	5.96	76.53
POZ-5D	5/3/2019	7.25	75.24
POZ-5D	5/22/2019	8.76	73.73
POZ-6	10/22/2015	7.98	75.86
POZ-6	1/26/2016	5.40	78.44
POZ-6	4/25/2016	7.15	76.69
POZ-6	7/18/2016	10.21	73.63
POZ-6	10/13/2016	5.35	78.49
POZ-6	1/24/2017	5.41	78.43
POZ-6	2/1/2017	5.71	78.13
POZ-6	4/18/2017	77.21	6.63
POZ-6	7/27/2017	6.31	77.53
POZ-6	9/26/2017	6.80	77.04
POZ-6	10/11/2017	12.00	71.84
POZ-6	2/8/2018	5.85	77.99
POZ-6	6/28/2018	9.91	73.93
POZ-6	2/14/2019	6.10	77.74
POZ-6	5/21/2019	9.84	74.00
POZ-7	10/22/2015	5.70	76.32
POZ-7	1/26/2016	4.12	77.90
POZ-7	4/25/2016	5.42	76.60
POZ-7	7/18/2016	7.75	74.27
POZ-7	10/12/2016	3.47	78.55
POZ-7	1/24/2017	4.25	77.77
POZ-7	2/1/2017	4.78	77.24
POZ-7	4/18/2017	76.91	5.11
POZ-7	7/27/2017	5.68	76.34
POZ-7	9/26/2017	5.21	76.81
POZ-7	10/10/2017	6.31	75.71
POZ-7	2/7/2018	5.04	76.98
POZ-7	6/27/2018	7.48	74.54
POZ-7	2/14/2019	4.80	77.22
POZ-7	5/20/2019	7.57	74.45
POZ-8	6/4/2019	10.42	69.45
POZ-8	6/21/2019	7.88	75.25

Notes and Abbreviations:

TABLE 4
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR NATURE AND EXTENT
CROSS GENERATING STATION - CLASS 2 LANDFILL
SANTEE COOPER
CROSS, SOUTH CAROLINA

			Chemical Group								Field Parameters					
			Chemical Name	Calcium, Total	Chloride	Sulfate	Total Dissolved Solids (TDS)	Beryllium, Total	Cobalt, Total	Lithium, Total	Conductivity	Dissolved Oxygen	ORP	pH	Temperature	Turbidity
			MCL/RSL	-	-	-	-	0.004	0.006	0.04	-	-	-	-	-	-
			Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	uS/cm	mg/L	mv	pH units	Deg C	NTU
Impound-ment	Location	Sample Date	Sample Name													
Background	CBW-1	05/20/2019	CBW-1-052019	42.2	2.9	115	181.2	< 0.0005	0.00079	< 0.01	202	0.99	111	4.5	18.04	0.5
Background	PM-1	05/20/2019	PM-1-052019	16.4	12.7	10.5	162.5	< 0.0005	0.00091	< 0.01	187	0.77	39	5.26	25.6	0
C2_Landfill	CCMLF-1	05/22/2019	CCMLF-1-052219	20.8	8	15.1	136.2	-	0.0074	-	1630	0.91	66	6.06	22	1.9
C2_Landfill	CCMLF-1D	05/21/2019	CCMLF-1D-052119	56.4	6.13	5.43	262.5	-	< 0.0005	-	3110	0.68	-68	7.16	29.02	1.2
C2_Landfill	POZ-4	05/03/2019	POZ-4-050319	-	-	-	-	-	0.0036	-	-	-	-	-	-	-
C2_Landfill	POZ-4	05/22/2019	POZ-4-052219	468	705	225	1711	-	0.198	-	2780	0.59	40	5.89	23.32	0
C2_Landfill	POZ-5D	04/17/2019	POZ-5D-041719	-	-	-	4155	-	0.0131 / 0.012	-	3690	0.36	-123	6.69	21.91	0
C2_Landfill	POZ-5D	04/17/2019	POZ-5D-041719-FD	-	-	-	3952	-	0.0133 / 0.012	-	-	-	-	-	-	-
C2_Landfill	POZ-5D	05/03/2019	POZ-5D-050319	-	-	-	-	-	0.0233	-	-	-	-	-	-	-
C2_Landfill	POZ-5D	05/22/2019	POZ-5D-052219	738	840	619	3682	-	0.0284	-	3820	0.75	-36	6.41	22.59	48.1
C2_Landfill	POZ-6	05/21/2019	POZ-6-052119	450	334	483	2128	-	0.0082	-	2420	0.91	1	6.39	20.04	6.7
C2_Landfill	POZ-7	05/20/2019	POZ-7-052019	80.3	128	5.24	533.8	-	0.0011	-	547	2.11	96	5.91	20.76	0.6
C2_Landfill	POZ-7	05/20/2019	POZ-7-052019-FD	94.3	162	8.67	637.5	-	< 0.0005	-	-	-	-	-	-	-
C2_Landfill	POZ-8	06/04/2019	POZ-8-060419	110	111	< 2	612.5	-	< 0.001	-	-	-	-	-	-	-
C2_Landfill	POZ-8	06/04/2019	POZ-8-060419-FD	117	102	< 2	621.2	-	< 0.001	-	-	-	-	-	-	-

ABBREVIATIONS AND NOTES:
mg/L: milligram per liter
µS/cm: microSiemen per centimeter
mv: millivolt
NTU: Nephelometric Turbidity Units
< 0.005: Analyte not detected above detection limit
-: Not Analyzed
MCL/RSL: The applicable Mximum Contaminant Level (MCL) or Regional Screening Level (RSL) is shown. Dashed where a standard is not provided.
RS: Resample
FD: Field Duplicate
Highlighted where result exceeds the applicable MCL/RSL

- Criteria used for cobalt, lithium, and molybdenum are RSL for Tapwater where THQ=1.0 (May 2018)
- USEPA. 2016. Final Rule: Disposal of Coal Combustion Residuals from Electric Utilities. July 26. 40 CFR Part 257. https://www.epa.gov/coalash/coal-ash-rule

TABLE 4
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR NATURE AND
CROSS GENERATING STATION - CLASS 2 LANDFILL
SANTEE COOPER
CROSS, SOUTH CAROLINA

			Chemical Group	Dissolved Metals									Total Metals					Other				
			Chemical Name	Beryllium, Dissolved	Calcium, Dissolved	Cobalt, Dissolved	Iron, Dissolved	Lithium, Dissolved	Magnesium, Dissolved	Manganese, Dissolved	Potassium, Dissolved	Sodium, Dissolved	Iron, Total	Magnesium, Total	Manganese, Total	Potassium, Total	Sodium, Total	Alkalinity, Bicarbonate	Alkalinity, Total (as CaCO3)	Dissolved Organic Carbon (DOC)	Total Organic Carbon (TOC)	Sulfide
			MCL/RSL	0.004	-	0.006	-	0.04	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			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
Impound-ment	Location	Sample Date	Sample Name																			
Background	CBW-1	05/20/2019	CBW-1-052019	< 0.0005	41.1	0.00075	< 0.05	< 0.01	2.3	0.015	0.58	1.9	0.141	2.1	0.0147	0.57	1.8	19.7	**19.7**	3.21	**2.71**	< 0.1
Background	PM-1	05/20/2019	PM-1-052019	< 0.0005	15.8	0.00088	15.6	< 0.01	0.8	0.0135	0.57	5.5	16.9	0.75	0.0122	0.57	5.3	58.6	**58.6**	7.21	**6.72**	< 0.1
C2_Landfill	CCMLF-1	05/22/2019	CCMLF-1-052219	-	19.6	0.0067	**0.302**	-	1	1.56	1.3	6.3	0.323	1.1	1.63	1.4	6.9	51.7	**51.7**	< 1	< 1	< 0.1
C2_Landfill	CCMLF-1D	05/21/2019	CCMLF-1D-052119	-	58.4	< 0.0005	**0.186**	-	1.6	0.149	1.3	7	0.615	1.7	0.15	1.4	7.7	146	**146**	1.02	< 1	< 0.1
C2_Landfill	POZ-4	05/03/2019	POZ-4-050319	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2_Landfill	POZ-4	05/22/2019	POZ-4-052219	-	411	0.182	0.651	-	7.9	4.97	3.4	105	0.735	8840	5.27	3.8	118	158	**158**	1.8	**1.33**	< 0.1
C2_Landfill	POZ-5D	04/17/2019	POZ-5D-041719	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2_Landfill	POZ-5D	04/17/2019	POZ-5D-041719-FD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2_Landfill	POZ-5D	05/03/2019	POZ-5D-050319	-	-	0.0226	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C2_Landfill	POZ-5D	05/22/2019	POZ-5D-052219	-	835	0.0262	8.3	-	12.8	2.35	2.4	95.5	10.9	105	2.61	2.6	105	258	**258**	2.19	**1.5**	< 0.1
C2_Landfill	POZ-6	05/21/2019	POZ-6-052119	-	443	0.0075	5.6	-	7	0.903	1.1	61.9	7.53	7.6	1.15	1.2	62.5	309	**309**	**2.59**	**2.16**	< 0.1
C2_Landfill	POZ-7	05/20/2019	POZ-7-052019	-	76.4	< 0.0005	< 0.05	-	3.3	< 0.001	3.8	14	0.237	3	0.0118	3.6	13.3	60.6	**60.6**	< 1	< 1	< 0.1
C2_Landfill	POZ-7	05/20/2019	POZ-7-052019-FD	-	86.4	< 0.0005	< 0.05	-	3.4	< 0.001	3.7	14.7	0.0552	3.3	0.0034	3.8	15.1	111	**111**	< 1	< 1	< 0.1
C2_Landfill	POZ-8	06/04/2019	POZ-8-060419	-	95.5	< 0.001	**1.15**	-	4.29	0.0849	3.13	14.3	1.22	3.55	0.0717	2.66	12.7	195	-	1.12	**1.18**	< 0.1
C2_Landfill	POZ-8	06/04/2019	POZ-8-060419-FD	-	102	< 0.001	**1.05**	-	3.93	0.078	2.95	13	1.54	3.99	0.0819	2.96	12.1	199	-	1.11	**1.11**	< 0.1

ABBREVIATIONS AND NOTES:
mg/L: milligram per liter
µS/cm: microSiemen per centimeter
mv: millivolt
NTU: Nephelometric Turbidity Units
< 0.005: Analyte not detected above detection limit
-: Not Analyzed
MCL/RSL: The applicable Maximum Contaminant Level (MCL) or Regional Screeni
RS: Resample
FD: Field Duplicate
Highlighted where result exceeds the applicable MCL/RSL

- Criteria used for cobalt, lithium, and molybdenum are RSL for Tapwater where TI
- USEPA. 2016. Final Rule: Disposal of Coal Combustion Residuals from Electric Utilities. July 26. 40 CFR Part 257. https://www.epa.gov/coalash/coal-ash-rule

LEGEND

- CLASS 2 LANDFILL WELL
- BACKGROUND WELL

NOTES

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

N

0 1,000 2,000

SCALE IN FEET

HALEY ALDRICH

SANTEE COOPER
CROSS GENERATING STATION
CROSS, SOUTH CAROLINA

LOCATION OF GROUNDWATER MONITORING WELLS FOR CCR COMPLIANCE - 2019

JULY 2019

FIGURE 2

GIS FILE PATH: \\haleyaldrich.com\share\gm_common\131539 - Santee Cooper\GIS\Maps\2019_07\132892_004_0002_CROSS_EXPLORATIONS.mxd — USER: ajospe — LAST SAVED: 7/1/2019 2:52:02 PM

CCMLF-1

CCMLF-1D

POZ-6

POZ-4

POZ-8

POZ-5D

FUTURE AREA D

EXISTING CLASS 2 LANDFILL

EXISTING CLASS 3 LANDFILL AREA B-1

POZ-7

FUTURE AREA B

ASH POND

DIVERSION CANAL

CBW-1

PM-1

LEGEND

- CLASS 2 LANDFILL WELL
- BACKGROUND WELL
- LOCATION OF SSI

NOTES

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

N

0 1,000 2,000

SCALE IN FEET

HALEY ALDRICH

SANTEE COOPER
CROSS GENERATING STATION
CROSS, SOUTH CAROLINA

LOCATION OF APPENDIX III SSI

JULY 2019

FIGURE 3

GIS FILE PATH: \\haleyaldrich.com\shares\gis_common\131539 - Santee Cooper\GIS\Maps\2019_07\132852_004_0002_CROSS_EXPLORATIONS.mxd — USER: ajcapa — LAST SAVED: 7/1/2019 2:52:02 PM

CCMLF-1

CCMLF-1D

POZ-6

POZ-4

POZ-8

POZ-5D

FUTURE
AREA D

EXISTING CLASS 2
LANDFILL

EXISTING CLASS 3
LANDFILL
AREA B-1

POZ-7

FUTURE
AREA B

ASH POND

DIVERSION CANAL

CBW-1

PM-1

LEGEND

- CLASS 2 LANDFILL WELL
- BACKGROUND WELL
- LOCATION OF SSL

NOTES

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

N

0 1,000 2,000

SCALE IN FEET

HALEY ALDRICH

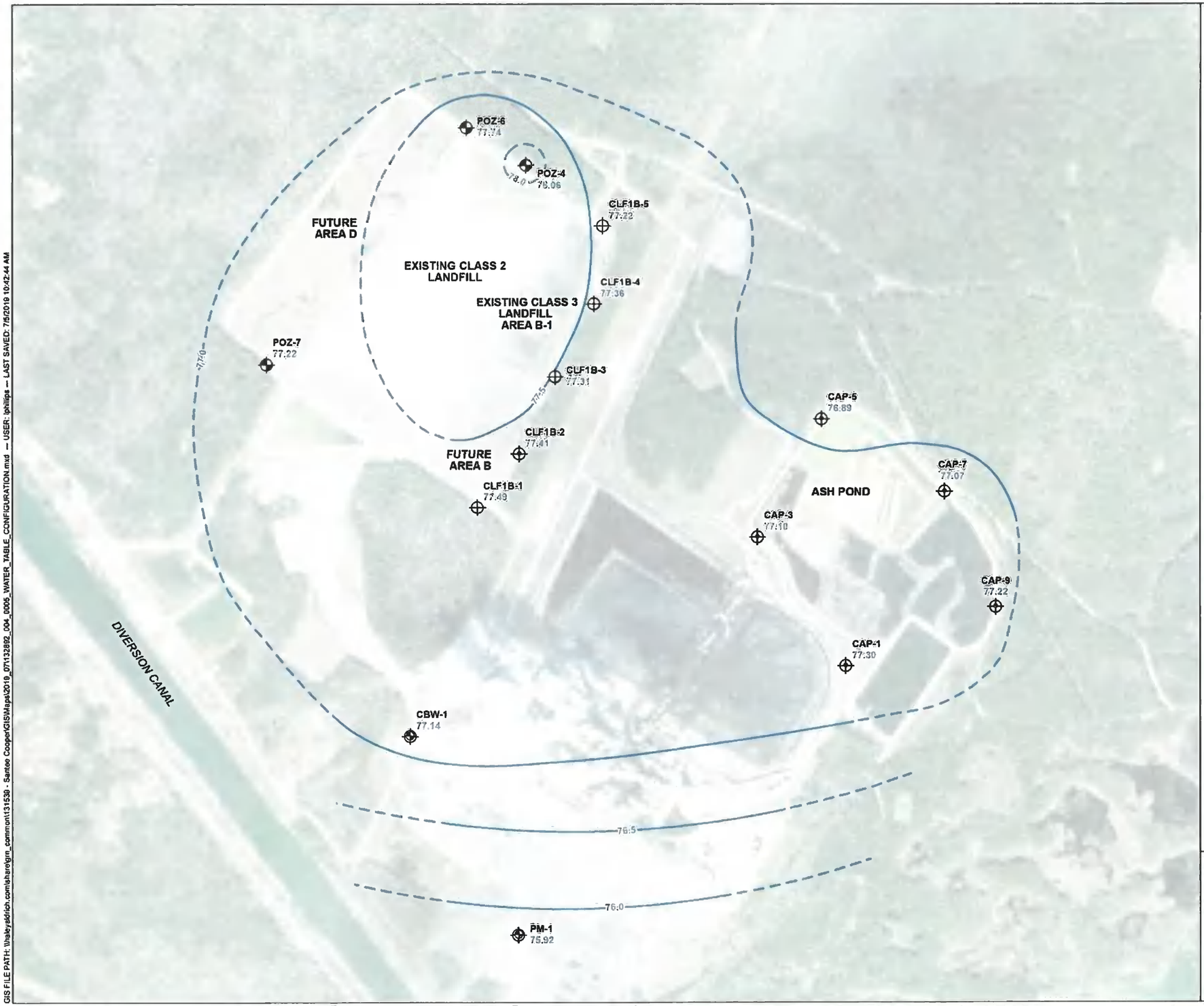
SANTEE COOPER
CROSS GENERATING STATION
CROSS, SOUTH CAROLINA

LOCATION OF APPENDIX IV SSL

JULY 2019

FIGURE 4

GIS FILE PATH: \\haleyaldrich.com\share\gm_common\131539 - Santee Cooper\GIS\Maps\2019_07\132892_004_0002_CROSS_EXPLORATIONS.mxd — USER: aicope — LAST SAVED: 7/1/2019 2:52:02 PM



LEGEND

- ASH POND WELL
- BACKGROUND WELL
- CLASS 2 LANDFILL WELL
- CLASS 3 LANDFILL AREA B WELL
- GROUNDWATER ELEVATION CONTOUR, IN FT (DASHED WHERE INFERRED)

NOTES

1. GROUNDWATER ELEVATION DATA COLLECTED IN FEBRUARY 2019.
2. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
3. AERIAL IMAGER SOURCE: ESRI

N

0 1,000 2,000

SCALE IN FEET

HALEY ALDRICH

SANTEE COOPER
CROSS GENERATING STATION
CROSS, SOUTH CAROLINA

WATER TABLE CONFIGURATION MAP

JULY 2019

FIGURE 5

GIS FILE PATH: \\haleyaldrich.com\sharelgrn_common\131538 - Santee Cooper\GIS\Maps\2019_07\132892_004_0005_WATER_TABLE_CONFIGURATION.mxd -- USER: ghilligs -- LAST SAVED: 7/5/2019 10:42:44 AM

Appendix C – Statistical Analysis

HALEY & ALDRICH, INC.
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Greenville, SC 29601
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TECHNICAL MEMORANDUM

January 30, 2020
File No. 132892-011

SUBJECT: 2019 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 2019 semi-annual assessment monitoring groundwater sampling events 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 concentrations that represent a statistically significant level (SSL) above background or upgradient wells consistent with the requirements in 40 CFR § 257.95.

Utilizing interwell evaluations, data from the groundwater sampling events for the downgradient monitoring wells were compared to the Groundwater Protection Standard (GWPS) established from the background dataset for the upgradient monitoring well (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, regional screening level, or background concentration. The Rule requires statistical evaluation of groundwater monitoring data to determine whether or not there is a statistically significant increase (SSI) above background values for each Appendix IV constituent and if one or more constituents are detected at SSLs above the GWPS. The results of the groundwater assessment monitoring statistical evaluation are discussed below and provided in Tables I and II.

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, tolerance limit (TL), was certified by Haley & Aldrich, Inc. on October 14, 2017. The TL method, as determined applicable for this sampling event, was used to evaluate potential SSLs above background. Background levels for each constituent listed in Appendix IV were computed as upper tolerance limits (UTL), and a minimum 95 percent confidence coefficient and 95 percent coverage. The most recent groundwater sampling event from each compliance well was compared to the corresponding background UTL to determine if a SSL existed.

STATISTICAL EVALUATION

An interwell evaluation was used to determine SSLs. Interwell evaluation compares the most recent values from downgradient compliance wells against 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 methods were 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 normalized data 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 semi-annual sampling events in 2019 were above the GWPS, the lower confidence limit (LCL) for the downgradient well constituent was used to evaluate if a SSL was present. The LCL is the lower end of the confident 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 location (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,* background concentrations were updated based on statistical evaluation of analytical results collected through 2018.

RESULTS OF APPENDIX IV DOWNGRADIENT STATISTICAL COMPARISONS

The sample concentrations from the downgradient wells for each of the detected Appendix IV constituents from the semi-annual assessment monitoring events of 2019 were compared to their respective background UTLs and GWPS (Tables I and II). 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 was identified at the Class 2 Landfill for cobalt consistent with previous results.

Tables:

Table I – Summary of Assessment Monitoring Statistical Evaluation – February 2019
Table II – Summary of Assessment Monitoring Statistical Evaluation – May 2019

TABLES

Cross Class 2 Landfill
Detection Monitoring Statistical Analysis Summary
Prepared: July 14, 2019

																		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*	February 2019 Concentrations	Upper Tolerance Limit	Upper Tolerance Limit	Background Limit (Higher of MCL/RSL or Upper Tolerance Limit)	Exceedance above Background at Individual Well	SSL
CCR Appendix-IV: Antimony, Total (mg/L)																									
CBW-1	0/11	100%	0.005-0.025	0.00582	0.005	0.015		0.00003636	0.00603	0.8844	0.006	mg/L	N	0	1						25.0	0.025	0.025		
PM-1	0/11	100%	0.005-0.025	0.00582	0.005	0.015		0.00003636	0.00603	0.8844	0.006	mg/L	N	0	1										
POZ-4	0/11	100%	0.005-0.025	0.00582	0.005	0.015		0.00003636	0.00603	0.8844	0.006	mg/L	N	0	1					0.005					FALSE
POZ-6	0/11	100%	0.005-0.025	0.00582	0.005	0.015		0.00003636	0.00603	0.8844	0.006	mg/L	N	0	1					0.005					FALSE
POZ-7	0/11	100%	0.005-0.025	0.00582	0.005	0.015		0.00003636	0.00603	0.8844	0.006	mg/L	N	0	1					0.005					FALSE
CCR Appendix-IV: Arsenic, Total (mg/L)																									
CBW-1	3/13	77%	0.005-0.005	0.00601	0.005	0.01042	0.016	0.000009241	0.00304	0.5062	0.01	mg/L	Y	1	0						16.0	0.016	0.016		
PM-1	2/13	85%	0.005-0.005	0.00482	0.005	0.005	0.0042	2.069E-07	0.0004549	0.09431	0.01	mg/L	N	0	0										
POZ-4	1/12	92%	0.003-0.005	0.00467	0.005	0.005	0.0031	5.766E-07	0.0007593	0.1624	0.01	mg/L	N	0	0					0.005					FALSE
POZ-6	1/12	92%	0.003-0.005	0.00474	0.005	0.005	0.0039	4.008E-07	0.0006331	0.1335	0.01	mg/L	N	0	0					0.005					FALSE
POZ-7	0/12	100%	0.003-0.005	0.00467	0.005	0.005		6.061E-07	0.0007785	0.1668	0.01	mg/L	N	0	0					0.005					FALSE
CCR Appendix-IV: Barium, Total (mg/L)																									
CBW-1	12/12	0%	--	0.0449	0.0433	0.05347	0.061	0.00002796	0.005288	0.1179	2	mg/L	N	0	0						103.0	0.103	2.000		
PM-1	12/12	0%	--	0.0829	0.08025	0.1014	0.103	0.00009914	0.009957	0.1201	2	mg/L	N	0	0										
POZ-4	11/11	0%	--	0.0995	0.083	0.1695	0.188	0.001376	0.03709	0.3726	2	mg/L	N	0	0					0.188					FALSE
POZ-6	11/11	0%	--	0.0532	0.0452	0.082	0.1	0.0003028	0.0174	0.327	2	mg/L	N	0	0					0.045					FALSE
POZ-7	11/11	0%	--	0.268	0.251	0.346	0.389	0.002308	0.04804	0.1793	2	mg/L	N	0	0					0.269					FALSE
CCR Appendix-IV: Beryllium, Total (mg/L)																									
CBW-1	1/11	91%	0.0005-0.0005	0.000512	0.0005	0.000565	0.00063	1.536E-09	0.0000392	0.07658	0.004	mg/L	N	0	0						0.6	0.00063	0.004		
PM-1	0/12	100%	0.0005-0.0005	0.0005	0.0005	0.0005		0	0	0	0.004	mg/L	N	0	0										
POZ-4	8/11	27%	0.0005-0.0005	0.00074	0.00054	0.001245	0.00139	9.579E-08	0.0003095	0.4181	0.004	mg/L	N	0	0					0.0005					FALSE
POZ-6	0/11	100%	0.0005-0.0005	0.0005	0.0005	0.0005		0	0	0	0.004	mg/L	N	0	0					0.0005					FALSE
POZ-7	7/11	36%	0.0005-0.0005	0.000675	0.00063	0.0009125	0.000935	3.173E-08	0.0001781	0.2639	0.004	mg/L	N	0	0					0.0005					FALSE
CCR Appendix-IV: Cadmium, Total (mg/L)																									
CBW-1	0/12	100%	0.0005-0.0005	0.0005	0.0005	0.0005		0	0	0	0.005	mg/L	N	0	0						0.5	0.0005	0.005		
PM-1	0/12	100%	0.0005-0.0005	0.0005	0.0005	0.0005		0	0	0	0.005	mg/L	N	0	0										
POZ-4	2/12	83%	0.0005-0.0005	0.000534	0.0005	0.0006945	0.00081	3.372E-09	0.0000915	0.1713	0.005	mg/L	N	0	0					0.0005					FALSE
POZ-6	0/12	100%	0.0005-0.0005	0.0005	0.0005	0.0005		0	0	0	0.005	mg/L	N	0	0					0.0005					FALSE
POZ-7	1/12	92%	0.0005-0.0005	0.000508	0.0005	0.000545	0.0006	8.333E-10	0.00002887	0.05679	0.005	mg/L	N	0	0					0.0005					FALSE
CCR Appendix-IV: Chromium, Total (mg/L)																									
CBW-1	1/12	92%	0.005-0.005	0.00575	0.005	0.00905	0.014	0.00000675	0.002598	0.4518	0.1	mg/L	N	0	0						14.0	0.0140	0.100		
PM-1	0/12	100%	0.005-0.005	0.005	0.005	0.005		1.478E-10	1.216E-10	2.432E-08	0.1	mg/L	N	0	0										
POZ-4	0/12	100%	0.005-0.005	0.005	0.005	0.005		1.478E-10	1.216E-10	2.432E-08	0.1	mg/L	N	0	0					0.005					FALSE
POZ-6	0/12	100%	0.005-0.005	0.005	0.005	0.005		1.478E-10	1.216E-10	2.432E-08	0.1	mg/L	N	0	0					0.005					FALSE
POZ-7	1/12	92%	0.005-0.005	0.00507	0.005	0.005405	0.0059	6.75E-08	0.0002598	0.05119	0.1	mg/L	N	0	0					0.005					FALSE
CCR Appendix-IV: Cobalt, Total (mg/L)																									
CBW-1	12/12	0%	--	0.00121	0.001045	0.002245	0.0034	4.996E-07	0.0007068	0.5834	0.006	mg/L	N	0	0						3.4	0.0034	0.006		
PM-1	12/12	0%	--	0.000904	0.000905	0.001	0.001	4.362E-09	0.00006605	0.07304	0.006	mg/L	N	0	0										
POZ-4	11/11	0%	--	0.0951	0.065	0.2035	0.21	0.004602	0.06784	0.7135	0.006	mg/L	Y	11	0					0.0451				Y	[redacted]
POZ-6	11/11	0%	--	0.00283	0.00314	0.00475	0.005	0.000001974	0.001405	0.4964	0.006	mg/L	N	0	0					0.0032					FALSE
POZ-7	6/11	45%	0.0005-0.0005	0.000979	0.0009	0.00215	0.0028	4.771E-07	0.0006907	0.7055	0.006	mg/L	N	0	0					0.0005					FALSE
CCR Appendix-IV: Fluoride (mg/L)																									
CBW-1	13/13	0%	--	0.236	0.23	0.294	0.3	0.001642	0.04053	0.1716	4	mg/L	N	0	0						300.0	0.300	4.00		
PM-1	0/13	100%	0.1-0.1	0.1	0.1	0.1		4.626E-18	2.151E-09	2.151E-08	4	mg/L	N	0	0										
POZ-4	4/12	67%	0.1-0.1	0.113	0.1	0.1645	0.17	0.0006606	0.0257	0.2268	4	mg/L	N	0	0					0.100					FALSE
POZ-6	4/12	67%	0.1-0.1	0.115	0.1	0.15	0.15	0.0005182	0.02276	0.1979	4	mg/L	N	0	0					0.100					FALSE
POZ-7	6/12	50%	0.1-0.1	0.108	0.1	0.13	0.13	0.0001606	0.01267	0.117	4	mg/L	N	0	0					0.100					FALSE
CCR Appendix-IV: Lead, Total (mg/L)																									
CBW-1	13/13	0%	--	0.00369	0.0031	0.00665	0.011	0.000004945	0.002224	0.6031	0.015	mg/L	N	0	0						11.0	0.0110	0.015		
PM-1	0/13	100%	0.001-0.0025	0.00123	0.001	0.0025		3.173E-07	0.0005633	0.4577	0.015	mg/L	N	0	0										
POZ-4	0/12	100%	0.001-0.0025	0.00125	0.001	0.0025		3.409E-07	0.0005839	0.4671	0.015	mg/L	N	0	0					0.001					FALSE
POZ-6	0/12	100%	0.001-0.0025	0.00125	0.001	0.0025		3.409E-07	0.0005839	0.4671	0.015	mg/L	N	0	0					0.001					FALSE
POZ-7	0/12	100%	0.001-0.0025	0.00125	0.001	0.0025		3.409E-07	0.0005839	0.4671	0.015	mg/L	N	0	0					0.001					FALSE
CCR Appendix-IV: Lithium, Total (mg/L)																									
CBW-1	0/12	100%	0.01-0.01	0.01	0.01	0.01		5.914E-10	2.432E-10	2.432E-08	0.04	mg/L	N	0	0						10.0	0.010	0.040		
PM-1	0/12	100%	0.01-0.01	0.01	0.01	0.01		5.914E-10	2.432E-10	2.432E-08	0.04	mg/L	N	0	0										
POZ-4	8/11	27%	0.01-0.01	0.0136	0.0117	0.0205	0.021	0.00001737	0.004168	0.3067	0.04	mg/L	N	0	0					0.010					FALSE
POZ-6	0/11	100%	0.01-0.01	0.01	0.01	0.01		4.337E-20	2.083E-10	2.083E-08	0.04	mg/L	N	0	0					0.010					FALSE
POZ-7	1/11	91%	0.01-0.01	0.0109	0.01	0.015	0.02	0.000009091	0.003015	0.2764	0.04	mg/L	N	0	0					0.010					FALSE
CCR Appendix-IV: Mercury, Total (mg/L)																									
CBW-1	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						1.0	0.0010	0.0020		
PM-1	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										
POZ-4	0/11	100%	0.0002-0.001	0.000273	0.0002	0.0006		5.816E-08	0.0002412	0.8844	0.002	mg/L	N	0	0					0.0001					FALSE
POZ-6	0/11	100%	0.0002-0.001	0.000273	0.0002	0.0006		5.816E-08	0.0002412	0.8844	0.002	mg/L	N	0	0					0.0002					FALSE
POZ-7	2/11	82%	0.0002-0.001	0.000293	0.0002	0.000689	0.000978	5.781E-08	0.0002404	0.8193	0.002	mg/L	N	0	0					0.0002					FALSE

Cross Class 2 Landfill
Detection Monitoring Statistical Analysis Summary
Prepared: July 14, 2019

CCR Appendix-IV: Molybdenum, Total (mg/L)																				
CBW-1	0/11	100%	0.01-0.01	0.01	0.01	0.01		4.337E-20	2.083E-10	2.083E-08	0.1	mg/L	N	0	0		10.0	0.010	0.10	
PM-1	0/11	100%	0.01-0.01	0.01	0.01	0.01		4.337E-20	2.083E-10	2.083E-08	0.1	mg/L	N	0	0					
POZ-4	0/11	100%	0.01-0.01	0.01	0.01	0.01		4.337E-20	2.083E-10	2.083E-08	0.1	mg/L	N	0	0	0.010				FALSE
POZ-6	0/11	100%	0.01-0.01	0.01	0.01	0.01		4.337E-20	2.083E-10	2.083E-08	0.1	mg/L	N	0	0	0.010				FALSE
POZ-7	0/11	100%	0.01-0.01	0.01	0.01	0.01		4.337E-20	2.083E-10	2.083E-08	0.1	mg/L	N	0	0	0.010				FALSE
CCR Appendix-IV: Radium-226 & 228 (pCi/L)																				
CBW-1	5/12	58%	4-4	4.13	4	5.773	6.34	1.979	1.407	0.3407	5	pCi/L	Y	3	0			7.1	7.1	
PM-1	6/12	50%	4-4	5.11	4	11.23	16.3	14.39	3.794	0.7418	5	pCi/L	Y	2	0					
POZ-4	4/11	64%	4-4	4.02	4	5.34	6.29	1.235	1.111	0.2762	5	pCi/L	Y	1	0	1.370				FALSE
POZ-6	3/11	73%	4-4	3.83	4	4.415	4.78	0.7532	0.8679	0.2266	5	pCi/L	N	0	0	1.310				FALSE
POZ-7	8/11	27%	4-4	4.19	4.14	5.135	5.39	0.4697	0.6854	0.1637	5	pCi/L	Y	1	0	2.600				FALSE
CCR Appendix-IV: Selenium, Total (mg/L)																				
CBW-1	0/13	100%	0.01-0.02	0.0115	0.01	0.02		0.0000141	0.003755	0.3255	0.05	mg/L	N	0	0		20.0	0.020	0.050	
PM-1	0/13	100%	0.01-0.02	0.0115	0.01	0.02		0.0000141	0.003755	0.3255	0.05	mg/L	N	0	0					
POZ-4	0/12	100%	0.01-0.02	0.0117	0.01	0.02		0.00001515	0.003892	0.3336	0.05	mg/L	N	0	0	0.010				FALSE
POZ-6	0/12	100%	0.01-0.02	0.0117	0.01	0.02		0.00001515	0.003892	0.3336	0.05	mg/L	N	0	0	0.010				FALSE
POZ-7	0/12	100%	0.01-0.02	0.0117	0.01	0.02		0.00001515	0.003892	0.3336	0.05	mg/L	N	0	0	0.010				FALSE
CCR Appendix-IV: Thallium, Total (mg/L)																				
CBW-1	0/11	100%	0.001-0.001	0.001	0.001	0.001		0	0	0	0.002	mg/L	N	0	0		1.0	0.001	0.002	
PM-1	0/11	100%	0.001-0.001	0.001	0.001	0.001		0	0	0	0.002	mg/L	N	0	0					
POZ-4	0/11	100%	0.001-0.001	0.001	0.001	0.001		0	0	0	0.002	mg/L	N	0	0	0.001				FALSE
POZ-6	0/11	100%	0.001-0.001	0.001	0.001	0.001		0	0	0	0.002	mg/L	N	0	0	0.001				FALSE
POZ-7	0/11	100%	0.001-0.001	0.001	0.001	0.001		0	0	0	0.002	mg/L	N	0	0	0.001				FALSE

Cross Class 2 Landfill

Detection Monitoring Statistical Analysis Summary

Prepared: January 29, 2020

																		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*	February 2019 / May 2019 Concentrations	Upper Tolerance Limit	Background Limit (Higher of MCL/RSL or Upper Tolerance Limit)	Exceedance above Background at Individual Well	SSL
CCR Appendix-IV: Antimony, Total (mg/L)																								
CBW-1	0/11	100%	0.005-0.025	0.00682	0.005	0.015		0.00003636	0.00603	0.8844	0.006	mg/L	N	0	1									
PM-1	0/11	100%	0.005-0.025	0.00682	0.005	0.015		0.00003636	0.00603	0.8844	0.006	mg/L	N	0	1						0.025	0.025		
POZ-4	0/11	100%	0.005-0.025	0.00682	0.005	0.015		0.00003636	0.00603	0.8844	0.006	mg/L	N	0	1					0.005				FALSE
POZ-6	0/11	100%	0.005-0.025	0.00682	0.005	0.015		0.00003636	0.00603	0.8844	0.006	mg/L	N	0	1					0.005				FALSE
POZ-7	0/11	100%	0.005-0.025	0.00682	0.005	0.015		0.00003636	0.00603	0.8844	0.006	mg/L	N	0	1					0.005				FALSE
CCR Appendix-IV: Arsenic, Total (mg/L)																								
CBW-1	3/13	77%	0.005-0.005	0.00601	0.005	0.01042	0.016	0.000009241	0.00304	0.5062	0.01	mg/L	Y	1	0									
PM-1	2/13	85%	0.005-0.005	0.00482	0.005	0.005	0.0042	2.069E-07	0.0004549	0.09431	0.01	mg/L	N	0	0						0.016	0.016		
POZ-4	1/12	92%	0.002-0.005	0.00467	0.005	0.005	0.0031	5.766E-07	0.0007593	0.1624	0.01	mg/L	N	0	0					0.005				FALSE
POZ-6	1/12	92%	0.003-0.005	0.00474	0.005	0.005	0.0039	4.008E-07	0.0006331	0.1335	0.01	mg/L	N	0	0					0.005				FALSE
POZ-7	0/12	100%	0.003-0.005	0.00467	0.005	0.005		6.061E-07	0.0007785	0.1668	0.01	mg/L	N	0	0					0.005				FALSE
CCR Appendix-IV: Barium, Total (mg/L)																								
CBW-1	12/12	0%		0.0449	0.0433	0.05347	0.061	0.00002796	0.005288	0.1179	2	mg/L	N	0	0						0.103	2.000		
PM-1	12/12	0%		0.0829	0.08025	0.1014	0.103	0.00009914	0.009957	0.1201	2	mg/L	N	0	0									
POZ-4	11/11	0%		0.0995	0.083	0.1695	0.188	0.001376	0.03709	0.3726	2	mg/L	N	0	0					0.168				FALSE
POZ-6	11/11	0%		0.0532	0.0452	0.082	0.1	0.0003028	0.0174	0.327	2	mg/L	N	0	0					0.049				FALSE
POZ-7	11/11	0%	-	0.268	0.251	0.346	0.389	0.002308	0.04804	0.1793	2	mg/L	N	0	0					0.269				FALSE
CCR Appendix-IV: Beryllium, Total (mg/L)																								
CBW-1	1/12	92%	0.0005-0.0005	0.000511	0.0005	0.0005585	0.00063	1.408E-09	0.00003753	0.07346	0.004	mg/L	N	0	0						0.00063	0.004		
PM-1	0/13	100%	0.0005-0.0005	0.0005	0.0005	0.0005		0	0	0	0.004	mg/L	N	0	0									
POZ-4	8/11	27%	0.0005-0.0005	0.00074	0.00054	0.001245	0.00139	9.579E-08	0.0003095	0.4181	0.004	mg/L	N	0	0					0.0005				FALSE
POZ-6	0/11	100%	0.0005-0.0005	0.0005	0.0005	0.0005		0	0	0	0.004	mg/L	N	0	0					0.0005				FALSE
POZ-7	7/11	36%	0.0005-0.0005	0.000675	0.00063	0.0009125	0.000935	3.173E-08	0.0001781	0.2639	0.004	mg/L	N	0	0					0.0005				FALSE
CCR Appendix-IV: Cadmium, Total (mg/L)																								
CBW-1	0/12	100%	0.0005-0.0005	0.0005	0.0005	0.0005		0	0	0	0.005	mg/L	N	0	0									
PM-1	0/12	100%	0.0005-0.0005	0.0005	0.0005	0.0005		0	0	0	0.005	mg/L	N	0	0						0.0005	0.005		
POZ-4	2/12	83%	0.0005-0.0005	0.000534	0.0005	0.0006845	0.00081	8.372E-09	0.0000915	0.1713	0.005	mg/L	N	0	0					0.0005				FALSE
POZ-6	0/12	100%	0.0005-0.0005	0.0005	0.0005	0.0005		0	0	0	0.005	mg/L	N	0	0					0.0005				FALSE
POZ-7	1/12	92%	0.0005-0.0005	0.000508	0.0005	0.000545	0.0006	8.333E-10	0.00002887	0.05679	0.005	mg/L	N	0	0					0.0005				FALSE
CCR Appendix-IV: Chromium, Total (mg/L)																								
CBW-1	1/12	92%	0.005-0.005	0.00575	0.005	0.00905	0.014	0.00000675	0.002598	0.4518	0.1	mg/L	N	0	0						0.0140	0.100		
PM-1	0/12	100%	0.005-0.005	0.005	0.005	0.005		1.478E-20	1.216E-10	2.432E-08	0.1	mg/L	N	0	0									
POZ-4	0/12	100%	0.005-0.005	0.005	0.005	0.005		1.478E-20	1.216E-10	2.432E-08	0.1	mg/L	N	0	0					0.005				FALSE
POZ-6	0/12	100%	0.005-0.005	0.005	0.005	0.005		1.478E-20	1.216E-10	2.432E-08	0.1	mg/L	N	0	0					0.005				FALSE
POZ-7	1/12	92%	0.005-0.005	0.00507	0.005	0.005405	0.0059	6.75E-08	0.0002598	0.05119	0.1	mg/L	N	0	0					0.005				FALSE
CCR Appendix-IV: Cobalt, Total (mg/L)																								
CBW-1	13/13	0%		0.00118	0.001	0.00214	0.0034	4.717E-07	0.0006868	0.5824	0.006	mg/L	N	0	0						0.0034	0.006		
PM-1	13/13	0%		0.000905	0.00091	0.001	0.001	4.001E-09	0.00006326	0.06992	0.006	mg/L	N	0	0									
POZ-4	14/14	0%		0.101	0.0744	0.2022	0.21	0.005271	0.0726	0.7217	0.006	mg/L	Y	13	0					0.1980			Y	111.8
POZ-6	12/12	0%		0.00328	0.00317	0.00664	0.0082	0.000004197	0.002048	0.6249	0.006	mg/L	Y	1	0					0.0082			Y	196.8
POZ-7	7/12	42%	0.0005-0.0005	0.000989	0.000925	0.002085	0.0028	0.000000435	0.0006595	0.6667	0.006	mg/L	N	0	0					0.0011				FALSE
CCR Appendix-IV: Fluoride (mg/L)																								
CBW-1	13/13	0%	-	0.236	0.23	0.294	0.3	0.001642	0.04053	0.1716	4	mg/L	N	0	0						0.300	4.00		
PM-1	0/13	100%	0.1-0.1	0.1	0.1	0.1		4.626E-18	2.151E-09	2.151E-08	4	mg/L	N	0	0									
POZ-4	4/12	67%	0.1-0.1	0.113	0.1	0.1645	0.17	0.0006606	0.0257	0.2268	4	mg/L	N	0	0					0.100				FALSE
POZ-6	4/12	67%	0.1-0.1	0.115	0.1	0.15	0.15	0.0005182	0.02276	0.1979	4	mg/L	N	0	0					0.100				FALSE
POZ-7	6/12	50%	0.1-0.1	0.108	0.1	0.13	0.13	0.0001606	0.01267	0.117	4	mg/L	N	0	0					0.100				FALSE
CCR Appendix-IV: Lead, Total (mg/L)																								
CBW-1	13/13	0%	-	0.00169	0.0031	0.00665	0.011	0.000004945	0.002224	0.6031	0.015	mg/L	N	0	0						0.0110	0.015		
PM-1	0/13	100%	0.001-0.0025	0.00123	0.001	0.0025		3.173E-07	0.0005633	0.4577	0.015	mg/L	N	0	0									
POZ-4	0/12	100%	0.001-0.0025	0.00125	0.001	0.0025		3.409E-07	0.0005839	0.4671	0.015	mg/L	N	0	0					0.001				FALSE
POZ-6	0/12	100%	0.001-0.0025	0.00125	0.001	0.0025		3.409E-07	0.0005839	0.4671	0.015	mg/L	N	0	0					0.001				FALSE
POZ-7	0/12	100%	0.001-0.0025	0.00125	0.001	0.0025		3.409E-07	0.0005839	0.4671	0.015	mg/L	N	0	0					0.001				FALSE
CCR Appendix-IV: Lithium, Total (mg/L)																								
CBW-1	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						0.010	0.040		
PM-1	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									
POZ-4	8/11	27%	0.01-0.01	0.0136	0.0117	0.0205	0.021	0.00001737	0.004168	0.3067	0.04	mg/L	N	0	0					0.010				FALSE
POZ-6	0/11	100%	0.01-0.01	0.01	0.01	0.01		4.337E-20	2.083E-10	2.083E-08	0.04	mg/L	N	0	0					0.010				FALSE
POZ-7	1/11	91%	0.01-0.01	0.0109	0.01	0.015	0.02	0.000009091	0.003015	0.2764	0.04	mg/L	N	0	0					0.010				FALSE
CCR Appendix-IV: Mercury, Total (mg/L)																								
CBW-1	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						0.0010	0.0020		
PM-1	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									
POZ-4	0/11	100%	0.0002-0.001	0.000273	0.0002	0.0006		5.818E-08	0.0002412	0.8844	0.002	mg/L	N	0	0					0.0002				FALSE
POZ-6	0/11	100%	0.0002-0.001	0.000273	0.0002	0.0006		5.818E-08	0.0002412	0.8844	0.002	mg/L	N	0	0					0.0002				FALSE
POZ-7	2/11	82%	0.0002-0.001	0.000293	0.0002	0.000689	0.000378	5.781E-08	0.0002404	0.8193	0.002	mg/L	N	0	0					0.0002				FALSE

Cross Class 2 Landfill

Detection Monitoring Statistical Analysis Summary

Prepared: January 29, 2020

CCR Appendix-IV: Molybdenum, Total (mg/L)																		
CBW-1	0/11	100%	0.01-0.01	0.01	0.01	0.01		4.337E-20	2.083E-10	2.083E-08	0.1	mg/L	N	0	0			
PM-1	0/11	100%	0.01-0.01	0.01	0.01	0.01		4.337E-20	2.083E-10	2.083E-08	0.1	mg/L	N	0	0		0.010	0.10
POZ-4	0/11	100%	0.01-0.01	0.01	0.01	0.01		4.337E-20	2.083E-10	2.083E-08	0.1	mg/L	N	0	0	0.010		FALSE
POZ-6	0/11	100%	0.01-0.01	0.01	0.01	0.01		4.337E-20	2.083E-10	2.083E-08	0.1	mg/L	N	0	0	0.010		FALSE
POZ-7	0/11	100%	0.01-0.01	0.01	0.01	0.01		4.337E-20	2.083E-10	2.083E-08	0.1	mg/L	N	0	0	0.010		FALSE
CCR Appendix-IV: Radium-226 & 228 (pCi/L)																		
CBW-1	5/12	58%	4-4	4.13	4	5.773	6.34	1.979	1.407	0.3407	5	pCi/L	Y	3	0		7.1	7.1
PM-1	6/12	50%	4-4	5.11	4	11.23	16.3	14.39	3.794	0.7416	5	pCi/L	Y	2	0			
POZ-4	4/11	64%	4-4	4.02	4	5.34	6.29	1.235	1.111	0.2762	5	pCi/L	Y	1	0	1.370		FALSE
POZ-6	3/11	73%	4-4	3.83	4	4.415	4.78	0.7532	0.8679	0.2266	5	pCi/L	N	0	0	1.310		FALSE
POZ-7	8/11	27%	4-4	4.19	4.14	5.125	5.39	0.4697	0.6854	0.1637	5	pCi/L	Y	1	0	2.600		FALSE
CCR Appendix-IV: Selenium, Total (mg/L)																		
CBW-1	0/13	100%	0.01-0.02	0.0115	0.01	0.02		0.0000141	0.003755	0.3255	0.05	mg/L	N	0	0		0.020	0.050
PM-1	0/13	100%	0.01-0.02	0.0115	0.01	0.02		0.0000141	0.003755	0.3255	0.05	mg/L	N	0	0			
POZ-4	0/12	100%	0.01-0.02	0.0117	0.01	0.02		0.00001515	0.003892	0.3336	0.05	mg/L	N	0	0	0.010		FALSE
POZ-6	0/12	100%	0.01-0.02	0.0117	0.01	0.02		0.00001515	0.003892	0.3336	0.05	mg/L	N	0	0	0.010		FALSE
POZ-7	0/12	100%	0.01-0.02	0.0117	0.01	0.02		0.00001515	0.003892	0.3336	0.05	mg/L	N	0	0	0.010		FALSE
CCR Appendix-IV: Thallium, Total (mg/L)																		
CBW-1	0/11	100%	0.001-0.001	0.001	0.001	0.001		0	0	0	0.002	mg/L	N	0	0		0.001	0.002
PM-1	0/11	100%	0.001-0.001	0.001	0.001	0.001		0	0	0	0.002	mg/L	N	0	0			
POZ-4	0/11	100%	0.001-0.001	0.001	0.001	0.001		0	0	0	0.002	mg/L	N	0	0	0.001		FALSE
POZ-6	0/11	100%	0.001-0.001	0.001	0.001	0.001		0	0	0	0.002	mg/L	N	0	0	0.001		FALSE
POZ-7	0/11	100%	0.001-0.001	0.001	0.001	0.001		0	0	0	0.002	mg/L	N	0	0	0.001		FALSE