



SEMINOLE GENERATING STATION INCREMENT ONE LANDFILL ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

January 31, 2022

Seminole Electric Cooperative, Inc. (Seminole) operates the Increment One landfill (Increment One) at its Seminole Generating Station in Palatka, Florida. Seminole monitors four downgradient and three background groundwater monitoring wells pursuant to the Coal Combustion Residuals Rule¹ (CCR Rule); specifically, the groundwater monitoring program requirements of 40 CFR Sections 257.90-257.98. This report has been prepared in accordance with Section 257.90(e).

In 2021, Seminole operated the CCR unit groundwater monitoring under the detection monitoring program in Section 257.94. Per the program requirements, Seminole collected and analyzed groundwater samples taken during two separate detection monitoring events.

The first sampling event occurred on March 23 for MW-3A, MW-5A, and MW-41AR. Seminole collected samples from MW-19-22 on April 2. Confirmatory samples were collected on August 30, 2021 for monitoring wells MW-19, MW-20, MW-21, and MW-22.

Statistically significant increases over background were determined to have occurred as outlined in the table below:

Boron	MW-19, MW-20, MW-21, MW-22
Calcium	MW-19, MW-20, MW-21, MW-22
Chloride	MW-19
Sulfate	MW-19, MW-20, MW-21, MW-22
Total Dissolved Solids	MW-19, MW-20, MW-21, MW-22

The second sampling event occurred on December 2, 2021 for MW-3A, MW-5A, MW-41AR, MW-18, MW-19 and MW-22 and December 3, 2021 for MW-20 and MW-21. Confirmatory results were collected January 11, 2022 but the analysis was not ready for review at the time of this report.

¹ Title 40 Code of Federal Regulations Part 257 (40 CFR 257), Subpart D – Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments.

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Boron	MW-19, MW-20, MW-22
Calcium	MW-19, MW-20, MW-21, MW-22
Chloride	MW-19, MW-20
Sulfate	MW-19, MW-20, MW-21, MW-22
Total Dissolved Solids	MW-19, MW-20, MW-21, MW-22

A table containing the monitoring data obtained during all detection monitoring events is attached.

An Alternate Source Demonstration was completed on April 13, 2018. The Alternate Source Demonstration concluded that “there are multiple lines of evidence that alternate sources are the reason for constituents in groundwater above SSIs at Increment 1.” The Alternate Source Demonstration was re-verified following the first sample event in 2021. Based on these findings, Seminole will continue to operate under the detection monitoring program in Section 257.94. Similarly, Seminole will complete a re-verification of the Alternate Source Demonstration upon receipt of the verification sampling results for the second sample event for 2021.

No wells were decommissioned or installed related to the CCR program in 2021. Seminole observed no issues with meeting the compliance requirements of the CCR Rule in 2021.

Key activities in 2022 include collection of verification samples for the second sampling event in 2021 and collection of two separate detection monitoring events in accordance with 40 CFR Section 257.94(b).

TABLES

TABLE 1
DETECTION MONITORING ANALYTICAL RESULTS
Increment 1 - Seminole Generating Station

Monitoring Well	Sampling Date	Boron µg/L	Calcium mg/L	Chloride mg/L	Fluoride mg/L	pH SU	Sulfate mg/L	Total Dissolved Solids mg/L
MW-3A	10/13/2017	44 l	1.07	10	0.01 l	4.59	7.7	78
	3/15/2018	40 l	1.18	11.5	0.02U	4.06	10	38
	7/31/2018	31 l	1.08	11.9	0.02 U	4.78	7.2	58
	2/11/2019	29 l	1.3	110	0.13 l	4.32	6.3	63
	8/13/2019	24 l	1.1	11	0.076 l	4.4	7.4	63
	4/19/2020	100 U	1.5	9.8	0.05 U	4.29	11	81
	10/5/2020	100 U	1.1	9.2	0.20 U	4.51	8.2	54
	03/23/2021	100 U	1.0	9.8	0.20 U	4.50	6.6 l	23
	12/02/2021	100 U	1.9	9.8	0.20 U	4.35	5.0 l	35
MW-5A	10/13/2017	33 l	8.88	17.9	0.08 l	5.54	6.4	88
	3/15/2018	25 U	7.72	17.3	0.05 l	5.13	8.3	28
	7/31/2018	25 U	8.73	19.5	0.08 l	5.66	8.2	86
	2/11/2019	17 U	7.4	110	0.077 l	5.45	3.9 l	76
	8/13/2019	20 U	8	20	0.11 l	5.58	5.8	96
	4/19/2020	100 U	8.4	20	0.31 l	5.6	7.2	83
	10/5/2020	100 U	7.2	20	0.20 U	5.48	6.8 l	85
	03/23/2021	100 U	6.8	19	0.20 U	5.45	6.6 l	65
	12/02/2021	100 U	5.4	19	0.20 U	5.37	6.3 l	62
MW-41AR	10/13/2017	77	7.43	6.6	0.03 l	4.46	23.1	64
	2/23/2018	98	6.81	12.1	0.03 l	4.23	28.5	55
	8/3/2018	97	5.8	13.9	0.03 l	4.33	25.3	46
	2/11/2019	69	5.7	0.50 U	0.050 U	4.17	0.50 U	74
	8/13/2019	52 l	6.2	8.8	0.11 l	4.37	24	67
	4/19/2020	150 l	23	22	0.091 l	6.12	44	100
	10/5/2020	100 U	10	8.3	0.20 U	5.08	28	63
	03/23/2021	100 U	6.5	8.2	0.20 U	4.55	19	45
	12/02/2021	100 U	7.2	13.0	0.20 U	4.50	25	83
MW-19	10/12/2017	1600	664	27.3	0.02 l	6.09	1450	2640
	11/27/2017	7230	464	165	--	5.74	1080	1900
	3/13/2018	1610	259	77	0.06U	6.34	440	848
	5/4/2018	1910	375	79.1	--	6.47	830	1360
	7/27/2018	3270	249	51.9	0.06 U	5.34	595	1060
	9/14/2018	2340	214	31.9	--	5.93	455	782
	2/8/2019	1500	610	120	0.21 l	6.18	3.8 l	2200
	4/4/2019	2500	520	59	--	6.18	--	1900
	8/12/2019	1500	250	43	0.34 l	5.73	570	970
	10/25/2019	1500	220	40	0.25 U	5.45	490	840
	4/19/2020	1100	170	63	0.1 U	5.33	370	660
	8/7/2020	920	130	38	--	6.02	260	600
	10/5/2020	930	180	30	0.40 U	6.26	300	660
	12/4/2020	820	240	24 l	--	5.93	580	920
	04/02/2021	1600	290	64	1.0 U	5.49	600	1100
07/30/2021	740	280	16	--	6.17	410	840	
12/02/2021	2700	510	28 l	2.0 U	5.80	1100	1800	

Monitoring Well	Sampling Date	Boron µg/L	Calcium mg/L	Chloride mg/L	Fluoride mg/L	pH SU	Sulfate mg/L	Total Dissolved Solids mg/L
MW-20	10/12/2017	332	102	4.5	0.02 l	6.08	115	344
	12/1/2017	2680	442	--	--	6.12	949	1600
	3/13/2018	2820	591	17	0.2U	6.03	1420	1910
	5/4/2018	2610	491	--	--	4.81	1320	1820
	7/27/2018	3180	440	152	0.06 U	4.53	1050	1870
	9/14/2018	3050	408	107	--	5.21	938	1600
	2/8/2019	1500	310	87	0.24 l	5.97	3.3 l	1100
	4/4/2019	1800	500	47	--	5.73	--	1800
	8/12/2019	2300	420	65	0.50 U	5.26	960	1500
	10/25/2019	1900	380	54	--	4.89	1100	1700
	4/19/2020	2500	500	110	1 U	5.28	1100	1700
	8/7/2020	2500	360	89	--	4.85	890	1600
	10/5/2020	1100	230	10 U	1.0 U	5.83	480	900
	12/4/2020	1600	290	--	--	5.49	760	1100
	04/02/2021	1300	320	10 U	1.0 U	5.15	760	1200
07/30/2021	450	150	--	--	5.79	390	570	
12/03/2021	1700	350	78 l	2.0 U	5.15	940	1260	
MW-21	10/12/2017	1570	254	4.4 l	0.02 U	6.20	475	896
	12/1/2017	962	228	--	--	5.94	501	855
	3/13/2018	4410	340	37.5	0.06U	6.01	812	1220
	5/4/2018	3610	281	14.5	--	5.94	720	1030
	7/31/2018	4210	351	29.3	0.06 U	5.7	909	1430
	9/14/2018	3690	278	16.8	NA	5.53	662	1040
	2/8/2019	6000	410	92	0.050 U	5.94	18	1500
	4/4/2019	4000	340	8.6 l	--	5.96	--	1300
	8/12/2019	3400	430	5.0 U	0.50 U	5.91	970	1500
	10/25/2019	4900	530	--	--	5.57	1300	1900
	4/19/2020	2800	490	11 l	1.4 l	4.81	1300	1800
	8/7/2020	4300	460	--	2.0 U	5.39	1300	2000
	10/5/2020	6200	460	40 U	4.0 U	5.69	1200	2000
	12/4/2020	6000	440	--	--	6.04	1200	1700
	04/02/2021	2700	390	10 U	1.0 U	5.96	690	1200
07/30/2021	610	540	--	--	5.78	1300	1600	
12/03/2021	360 l	150	4.0 U	0.40 U	5.47	390	594	

Monitoring Well	Sampling Date	Boron µg/L	Calcium mg/L	Chloride mg/L	Fluoride mg/L	pH SU	Sulfate mg/L	Total Dissolved Solids mg/L
MW-22	10/12/2017	3650	411	19.6	0.02 U	5.31	960	1590
	12/1/2017	932	222	--	--	5.88	550	858
	3/13/2018	1000	307	24	0.06U	5.97	772	1090
	5/4/2018	4780	533	18.9	--	6.47	1190	1880
	7/31/2018	1860	275	26.3	0.06 U	5.64	696	1100
	9/14/2028	3190	486	17.2	--	6.11	1090	1750
	2/8/2019	1600	300	67	0.050 U	6.12	34	1100
	4/4/2019	1000	220	17 l	--	5.89	--	840
	8/12/2019	860	190	16 l	0.25 U	5.99	510	810
	10/25/2019	530	260	--	--	6.13	570	910
	4/19/2020	1300	350	7.1 l	0.5 U	5.13	910	1400
	8/7/2020	1100	290	--	--	6.24	730	1200
	10/5/2020	710	310	23 l	2.0 U	6.33	780	1200
	12/4/2020	920	200	--	--	6.43	480	780
	04/02/2021	820	270	17 l	1.0 U	6.40	640	1100
	07/30/2021	540	97	--	--	6.32	200	370
	12/03/2021	1300	310	20 U	2.0 U	6.49	600	937

Notes:

mg/L - milligrams per liter

µg/L - micrograms per liter SU - standard units

U - Result less than method detection limit

l - Reported value is between method detection limit and practical quantification limit

FIGURES



LEGEND

- SECI PROPERTY
- LIMIT OF FORMER LANDFILL (ORIGINAL BOUNDARY)
- LIMIT OF INCREMENT 1 (LINED)
- CCR MONITORING WELL, SHALLOW SURFICIAL AQUIFER



REFERENCE

BASE MAP DERIVED FROM HIGH-RESOLUTION IMAGERY, GRID CELLS 131657, 131658, 131659, 131957, 131958, 131959, 132257, 132258, & 132259; COURTESY OF FDEP LAND BOUNDARY INFORMATION SYSTEM (LABINS), www.labins.org, PHOTO DATE 2014.

CLIENT

SEMINOLE ELECTRIC COOPERATIVE, INC.

PROJECT

SEMINOLE GENERATING STATION INCREMENT 1
 CCR GROUNDWATER MONITORING NETWORK CERTIFICATION

TITLE

INCREMENT 1 CCR GROUNDWATER MONITORING NETWORK

CONSULTANT



YYYY-MM-DD	2017-9-19
DESIGNED	SFS
PREPARED	SDA
REVIEWED	SFS
APPROVED	DG

PROJECT NO.

PHASE

REV.

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FIGURE

1