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

## January 31, 2024

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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 Rule[1] (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 2023, 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 detection sampling event occurred June 27 for MW-3A and MW19-22. Seminole collected samples from MW-5A and MW-41AR on June 28. Confirmatory samples were collected on August 22 for monitoring wells 19-22.

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-20 |
| Sulfate | MW-19, MW-20, MW-21, MW-22 |
| Total Dissolved Solids | MW-19, MW-20, MW-21, MW-22 |
| pH | MW-22 |

The second sampling event occurred on October 11, 2023 for MW-3A, MW-5A, and MW-41AR. MW-19 – MW-22 were sampled October 12. Confirmatory results were collected November 14 for MW-19 and MW-20, and November 15 for MW-21 and MW-22.

Statistically significant increases over background were determined to have occurred as

[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

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, MW-20 |
| Sulfate | MW-19, MW-20, MW-21, MW-22 |
| Total Dissolved Solids | MW-19, MW-20, MW-21, MW-22 |
| pH | 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 is re-verified following collection of verification samples for each sampling event. Based on these findings, Seminole will continue to operate under the detection monitoring program in Section 257.94.

No wells were decommissioned or installed related to the CCR program in 2023. Seminole observed no issues with meeting the compliance requirements of the CCR Rule in 2023.

Key activities in 2024 include 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 I | 1.07 | 10 | 0.01 I | 4.59 | 7.7 | 78 |
| | 3/15/2018 | 40 I | 1.18 | 11.5 | 0.02U | 4.06 | 10 | 38 |
| | 7/31/2018 | 31 I | 1.08 | 11.9 | 0.02 U | 4.78 | 7.2 | 58 |
| | 2/11/2019 | 29 I | 1.3 | 110 | 0.13 I | 4.32 | 6.3 | 63 |
| | 8/13/2019 | 24 I | 1.1 | 11 | 0.076 I | 4.4 | 7.4 | 63 |
| | 4/19/2020 | 100 U | 1.5 | 9.8 | 0.05 U | 4.69 | 11 | 81 |
| | 10/5/2020 | 100 U | 1.1 | 9.2 | 0.20 U | 4.51 | 8.2 | 54 |
| | 3/23/2021 | 100 U | 1 | 9.8 | 0.20 U | 4.5 | 6.6 I | 23 |
| | 12/2/2021 | 100 U | 1.9 | 9.8 | 0.20 U | 4.35 | 5.0 I | 35 |
| | 6/21/2022 | 100 U | 1.1 | 5.2 | 0.050 U | 4.59 | 2.2 I | 38 |
| | 11/2/2022 | 100 U | 1.4 | 11 | 0.20 U | 4.46 | 5.6 I | 53 |
| | 6/27/2023 | 100 U | 2.6 | 9.4 | 0.20 U | 4.62 | 4.6 I | 50 |
| | 10/11/2023 | 100 U | 1.1 | 7.8 I | 0.20 U | 4.56 | 5.4 I | 33 |
| MW-5A | 10/13/2017 | 33 I | 8.88 | 17.9 | 0.08 I | 5.54 | 6.4 | 88 |
| | 3/15/2018 | 25 U | 7.72 | 17.3 | 0.05 I | 5.13 | 8.3 | 28 |
| | 7/31/2018 | 25 U | 8.73 | 19.5 | 0.08 I | 5.66 | 8.2 | 86 |
| | 2/11/2019 | 17 U | 7.4 | 110 | 0.077 I | 5.45 | 3.9 I | 76 |
| | 8/13/2019 | 20 U | 8 | 20 | 0.11 I | 5.58 | 5.8 | 96 |
| | 4/19/2020 | 100 U | 8.4 | 20 | 0.31 I | 5.6 | 7.2 | 83 |
| | 10/5/2020 | 100 U | 7.2 | 20 | 0.20 U | 5.48 | 6.8 I | 85 |
| | 3/23/2021 | 100 U | 6.8 | 19 | 0.20 U | 5.45 | 6.6 I | 65 |
| | 12/2/2021 | 100 U | 5.4 | 19 | 0.20 U | 5.37 | 6.3 I | 62 |
| | 6/21/2022 | 100 U | 6.0 | 9.7 | 0.050 U | 5.51 | 3.4 I | 63 |
| | 11/28/2022 | 100 U | 8.1 | 20 | 0.20 U | 5.39 | 6.9 I | 68 |
| | 6/27/2023 | 100 U | 6.8 | 21 | 0.20 U | 3.98 | 6.4 I | 85 |
| | 10/11/2023 | 100 U | 7.7 | 12 | 0.20 U | 5.59 | 8.1 | 69 |
| MW-41AR | 10/13/2017 | 77 | 7.43 | 6.6 | 0.03 I | 4.46 | 23.1 | 64 |
| | 2/23/2018 | 98 | 6.81 | 12.1 | 0.03 I | 4.23 | 28.5 | 55 |
| | 8/3/2018 | 97 | 5.8 | 13.9 | 0.03 I | 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 I | 6.2 | 8.8 | 0.11 I | 4.37 | 24 | 67 |
| | 4/19/2020 | 150 I | 23 | 22 | 0.091 I | 6.12 | 44 | 100 |
| | 10/5/2020 | 100 U | 10 | 8.3 | 0.20 U | 5.08 | 28 | 63 |
| | 3/23/2021 | 100 U | 6.5 | 8.2 | 0.20 U | 4.55 | 19 | 65 |
| | 12/2/2021 | 100 U | 7.2 | 13 | 0.20 U | 4.50 | 25 | 83 |
| | 6/21/2022 | 100 U | 5.5 | 5.7 | 0.050 U | 4.78 | 10 | 61 |
| | 11/28/2022 | 100 U | 11 | 13 | 0.20 U | 4.82 | 29 | 68 |
| | 6/27/2023 | 100 U | 6.8 | 9.9 | 0.20 U | 5.51 | 19 | 69 |
| | 10/11/2023 | 100 U | 9.2 | 15 | 0.20 U | 5.12 | 23 | 71 |

# 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-19 | 10/12/2017 | 1600 | 664 | 27.3 | 0.02 I | 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 I | 6.18 | 3.8 I | 2200 |
| | 4/4/2019 | 2500 | 520 | 59 | -- | 6.18 | -- | 1900 |
| | 8/12/2019 | 1500 | 250 | 43 | 0.34 I | 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 I | -- | 5.93 | 580 | 920 |
| | 4/2/2021 | 1600 | 290 | 64 | 1.0 U | 5.49 | 600 | 1100 |
| | 7/30/2021 | 740 | 280 | 16 | -- | 6.17 | 410 V | 840 |
| | 12/2/2021 | 2700 | 510 | 28 I | 2.0 U | 5.83 | 1100 | 1800 |
| | 1/11/2022 | 2700 I | 410 | 57 | -- | 5.48 | 990 | 1380 |
| | 6/27/2022 | 2100 | 280 | 47 | 1.0 U | 5.4 | 590 | 894 |
| | 8/30/2022 | 1100 | 180 | 29 I | -- | 6.21 | 330 | 664 |
| | 11/2/2022 | 1300 | 620 | 100 U | 10 U | 6.31 | 1400 | 2400 |
| | 11/30/2022 | 2100 | 540 | -- | -- | 6.24 | 1200 | 1800 |
| | 6/27/2023 | 1600 | 150 | 18 | 0.20 U | 5.61 | 180 | 640 |
| | 8/22/2023 | 1300 | 130 | 30 | 0.40 U | 5.96 | 290 | 590 |
| | 10/12/2023 | 1400 | 150 | 37 | 0.40 U | 5.48 | 360 | 620 |
| | 11/14/2023 | 1300 | 160 | 34 | -- | 5.63 | 390 | 670 |

# 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-20 | 10/12/2017 | 332 | 102 | 4.5 | 0.02 I | 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 I | 5.97 | 3.3 I | 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 |
| | 4/2/2021 | 1300 | 320 | 10 U | 1.0 U | 5.15 | 760 | 1100 |
| | 7/30/2021 | 450 | 150 | -- | -- | 5.79 | 390 | 570 |
| | 12/3/2021 | 1700 | 350 | 78 I | 2.0 U | 5.15 | 940 | 1260 |
| | 1/11/2022 | 2000 I | 470 | 84 | -- | 5.24 | 1000 | 2020 |
| | 6/27/2022 | 2600 | 460 | 130 | 2.0 U | 5.04 | 990 | 1550 |
| | 8/30/2022 | 640 | 160 | 17 | -- | 5.99 | 260 | 549 |
| | 10/31/2022 | 1200 | 400 | 20 U | 2.0 U | 5.91 | 850 | 1300 |
| | 11/30/2022 | 1200 | 520 | -- | -- | 5.96 | 910 | 1600 |
| | 6/27/2023 | 2400 | 200 | 140 | 2.0 U | 4.68 | 970 | 1700 |
| | 8/22/2023 | 2000 | 340 | 92 | 2.0 U | 5.38 | 920 | 1400 |
| | 10/12/2023 | 2100 | 410 | 92 | 2 U | 4.79 | 1100 | 1500 |
| | 11/14/2023 | 2000 | 430 | 57 I | -- | 5.19 | 1100 | 1500 |

# 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-21 | 10/12/2017 | 1570 | 254 | 4.4 I | 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 I | -- | 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 I | 1.4 I | 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 |
| | 4/2/2021 | 2700 | 390 | 10 U | 1.0 U | 5.96 | 690 | 1200 |
| | 7/30/2021 | 6100 | 540 | -- | -- | 5.78 | 1300 | 1600 |
| | 12/3/2021 | 360 I | 150 | 4.0 U | 0.40 U | 5.47 | 390 | 594 |
| | 1/11/2022 | 900 | 210 | -- | -- | 5.47 | 470 | 719 |
| | 6/28/2022 | 2600 | 350 | 10 U | 1.0 U | 5.71 | 840 | 1060 |
| | 8/23/2022 | 6200 | 350 | -- | -- | 6.05 | 960 | 1420 |
| | 10/31/2022 | 960 | 220 | 4.2 I | 0.40 U | 5.87 | 470 | 800 |
| | 12/31/2022 | 4700 | 410 | -- | -- | 5.90 | 860 | 1500 |
| | 6/27/2023 | 4700 | 410 | 20 U | 2.0 U | 5.53 | 1100 | 1600 |
| | 8/22/2023 | 4100 | 370 | 10 U | 1.0 U | 5.70 | 990 | 1500 |
| | 10/12/2023 | 5300 | 430 | 20 U | 2.0 U | 5.54 | 1200 | 1700 |
| | 11/15/2023 | 7600 | 490 | -- | -- | 5.67 | 1400 | 1700 |

# 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-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 I | -- | 5.89 | -- | 840 |
| | 8/12/2019 | 860 | 190 | 16 I | 0.25 U | 5.99 | 510 | 810 |
| | 10/25/2019 | 530 | 260 | -- | -- | 6.13 | 570 | 910 |
| | 4/19/2020 | 1300 | 350 | 7.1 I | 0.5 U | 5.13 | 910 | 1400 |
| | 8/7/2020 | 1100 | 290 | -- | -- | 6.24 | 730 | 1200 |
| | 10/5/2020 | 710 | 310 | 23 I | 2.0 U | 6.33 | 780 | 1200 |
| | 12/4/2020 | 920 | 200 | -- | -- | 6.43 | 480 | 780 |
| | 4/2/2021 | 820 | 270 | 17 I | 1.0 U | 6.4 | 640 | 1100 |
| | 7/30/2021 | 640 | 97 | -- | -- | 6.32 | 200 V | 370 |
| | 12/2/2021 | 1300 | 310 | 20 U | 2.0 U | 6.49 | 600 | 937 |
| | 1/11/2022 | 1000 | 170 | -- | -- | 6.52 | 470 | 842 |
| | 6/27/2022 | 1300 I | 370 | 20 U | 2.0 U | 6.59 | 780 | 1310 |
| | 8/23/2022 | 2100 | 110 | -- | -- | 6.73 | 190 | 464 |
| | 10/31/2022 | 580 | 170 | 18 | 0.40 U | 6.65 | 250 | 590 |
| | 12/31/2022 | 810 | 190 | -- | -- | 6.58 | 310 | 660 |
| | 6/27/2023 | 2100 | 430 | 20 U | 2.0 U | 6.59 | 1000 | 1700 |
| | 8/22/2023 | 580 | 240 | 14 I | 1.0 U | 6.77 | 470 | 800 |
| | 10/12/2023 | 970 | 320 | 15 I | 1.0 U | 6.80 | 690 | 1100 |
| | 11/15/2023 | 1100 | 360 | -- | -- | 6.85 | 750 | 1200 |

Notes:

mg/L - milligrams per liter

µg/L - micrograms per liter

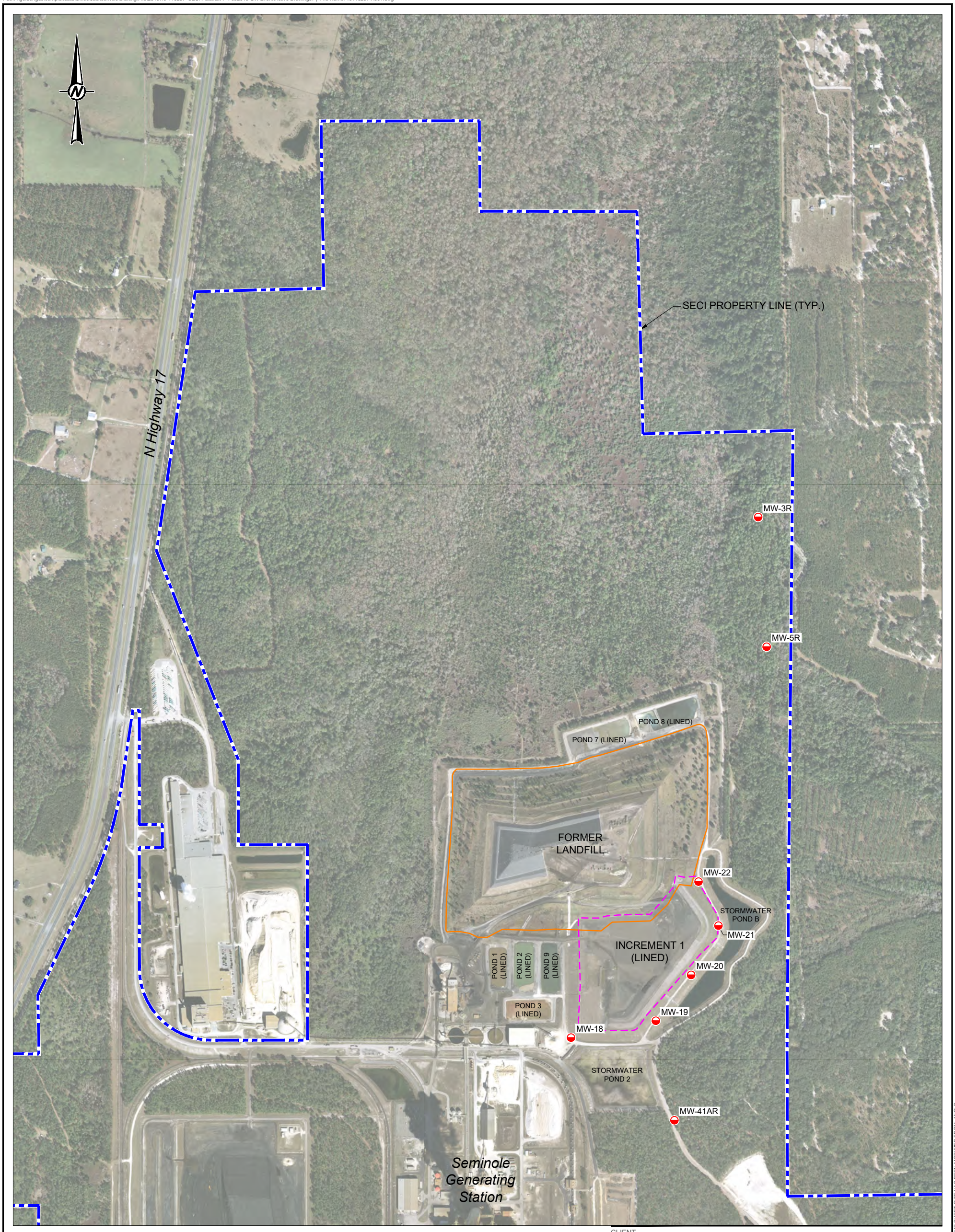
SU - standard units

U - Result less than method detection limit

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

V - Method blank contamination

# FIGURES




**LEGEND**

- SECI PROPERTY
- APPROXIMATE LIMIT OF FORMER LANDFILL (ORIGINAL BOUNDARY)
- APPROXIMATE LIMIT OF INCREMENT 1 (LINED)
- MONITORING WELL LOCATION

**REFERENCE(S)**

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 2017.

0 400 800
SCALE FEET

CLIENT
SEMINOLE ELECTRIC COOPERATIVE, INC.

CONSULTANT
wsp

| | |
|---|---|
| YYYY-MM-DD | 2019-05-09 |
| DESIGNED | SFS |
| PREPARED | BCL |
| REVIEWED | SFS |
| APPROVED | DG |

PROJECT
SEMINOLE GENERATING STATION
U.S. 17, PALATKA, FL

TITLE
**INCREMENT I GROUNDWATER MONITORING WELLS**

| PROJECT NO. | Control No. | REV. | FIGURE |
|---|---|---|---|
| 19-116257 | 19116257-A001 | ---- | 1 |