REGION 4
ATLANTA, GA 30303



March 27, 2025



Mr. Matthew Baker, SRS Remedial Project Manager
Remediation and Deactivation & Decommissioning Division
U.S. Department of Energy
Savannah River Operations Office
P.O. Box A
Aiken, South Carolina 29802



**EPA Comments: EFFECTIVENESS MONITORING REPORT (EMR) FOR THE C-AREA GROUNDWATER (CAGW) OPERABLE UNIT (OU) REMOVAL ACTION (U) JULY 2023 THROUGH JUNE 2024 SEMS NUMBER: 82; SRNS-RP-2024-01334, REVISION 0 NOVEMBER 2024**

Dear Mr. Baker,

The U.S. Environmental Protection Agency, Region 4 (EPA), has reviewed the Effectiveness Monitoring Report (EMR) for the C-Area CAGW – July 2023 through June 2024, SEMS Number: 82, Revision 0, Nov 2024, dated Nov.25, 2024. EPA comments are attached.

If you have any questions or require additional information, please contact me at (404) 431-1340.

Sincerely,

JON RICHARDS Digitally signed by JON RICHARDS Date: 2025.03.27 10:30:42 -04'00'

Jon Richards
FFA Remedial Project Manager
Superfund & Emergency Managment Division

ec: C.L. Bergren, SRNS-ACP
Susan Fulmer, SCDHEC

## GENERAL COMMENT

1. The locations of the wells shown on Figure 2 (CAGW OU TCE Plume 4Q2023) and Figure 7 (CAGW OU Monitoring Stations) are not consistently and clearly labeled, such that several wells discussed in the EMR could not be located. For example, Section 3.4.2.1 (Trichloroethylene [TCE]) discusses monitoring well CRW021DR as a source area well, but this well is not identified in the TCE source area on Figure 2 (i.e., in the top right box). In addition, Figure 7 indicates well CRW021DR is the eastern source area well, but Figure 2 identifies the easternmost well as CRW020D. As another example, Section 3.4.2.2 (Tetrachloroethylene [PCE]) discusses monitoring well CRP 5C with the maximum concentrations of PCE, but this well is not identified on Figure 2. *Please revise Figures 2 and 7 to clearly and consistently label the locations of the wells discussed in the EMR.*

## SPECIFIC COMMENTS

*1.* **Section 3.2, Groundwater Elevation Measurements and Groundwater Flow Direction, Page 9 of 118, and Figure 9, Water Table Trends Near Castor Creek, Page 44 of 118:** The text identifies the June 2020 groundwater elevation for CSB 15D as 52.5 meters (172.36 feet) above mean sea level (amsl), but Figure 9 indicates the highest water elevation for CSB 15D in 2020 was over 175 ft amsl. *Please revise the text and Figure 9 to present consistent information for the groundwater elevation at CSB 15D.*

2. **Section 3.4.1.5, Ethylene, Pages 17 to 18 of 118, and Figure 17, Ethylene Groundwater Trends, Page 52 of 118:** The text reports concentrations for ethylene during the 4Q23 sampling period that are inconsistent with Appendix A (CAGW OU NTC RA Analytical Data 2023-2024). The text states that ethylene concentrations in the wells were between 0.92 micrograms/liter (µg/L) to 1.3 µg/L, but Appenidx A only reports one detection of ethylene (0.92 µg/L) in well CRW024C. The text also reports the highest ethylene concentration at seepline location CCSL-023R as 23.1 µg/L, but Appendix A reports an ethylene concentration of 7.5 µg/L at this location. In addition, Figure 17 presents misleading information for ethylene concentrations detected in groundwater, as the trend lines representing ethylene concentrations do not differentiate between the not detected (ND) and the detected results (e.g., using solid vs. open circles as symbols for each data point). Based on Figure 17, ethylene appears to increase in 2020 and then decrease in 2022; however, the text indicates the changes in concentration are due to elevated method detection limits (MDLs). *Please revise the discussion of ethylene concentrations in Section 3.4.1.5 to be consistent with Appendix A. Also, please revise Figure 17 to differentiate between the detected and not detected results.*

3. **Section 3.4.1.6, Methane, Page 18 of 118:** The text reports concentrations for methane during the fourth quarter 2023 (4Q23) sampling period that are inconsistent with Appendix A (CAGW OU NTC RA Analytical Data 2023-2024). The text states, "In 4Q23, wells CRW027C, CRW028C, CRW029C and CRW030C had detectable levels of methane between 4.40 ug/L and 4.50 ug/L." However, Appendix A reports methane as not detected in these wells in 4Q23. Instead, concentrations between 3.9 µg/L and 4.9 µg/L are reported for three of these wells (i.e., CRW027C, CRW028C, and CRW030C) in May 2024. *Please revise the discussion of methane in Section 3.4.1.6 to be consistent with Appendix A.*

4. **Section 3.4.1.7, Chloride, Nitrate and Sulfate, Page 20 of 118:** The text states that nitrate has been increasing since 2022 in CRW026C, but Figure 19 (CRW026C Post-RA Groundwater Trends) indicates nitrate concentrations decreased in 2024. *Please revise the text to indicate that nitrate concentrations decreased in well CRW026C in 2024.*

5. **Section 3.4.1.8, Total Organic Carbon (TOC), Page 21 of 118, and Appendix A, CAGW OU NTC RA Analytical Data 2023-2024, Page A-4 of A-6:** The last sentence states that concentrations of TOC in surface water stations CCT-01, CCT-02, and CCT-03 ranged from 1.65 milligrams/liter (mg/L) in CCT-01 to 3.33 mg/L in CCT-03, but this is inconsistent with Appendix A. The TOC results reported in Appendix A ranged from 1.34 µg/L (in CCT-01, November 2023) to 3.28 µg/L (in CCT-03, May 2024). It is also noted that the text indicates TOC results are reported as mg/L, while Appendix A indicates the TOC results are in µg/L. *Please revise Section 3.4.1.8 and Appendix A to present consistent results and units of measurement for TOC.*

6. **Section 3.4.1.9, BioTrap QuantArray-Chlor® Microbial Data, Page 22 of 118:** The text references microbial count charts in well CRW026C from November 2019 to June 2023 (i.e., Figures 23-34), but it is unclear why microbial count charts were not produced for the results collected during the current reporting period. Table 5 (BioTrap QuantArray® Data [4Q23 & 2Q24]) reports the microbial results collected in November 2023 and May 2024. *Please revise the EMR to include microbial count charts for the November 2023 and May 2024 results in well CRW026C.*

7. **Section 3.4.2.3, Cis-1,2-Dichloroethylene, Page 27 of 118, and Table 3, CAGW OU and CAGW OU NTC RA Maximum Concentrations, Page 88 of 118:** The maximum result for cis-1,2-dichloroethylene (DCE) is identified for the CAGW OU as 0.55 µg/L in well CRW020D, but Table 3 identifies a concentration of 0.4 µg/L in surface water station TL01 as the maximum cis-1,2-DCE concentration for CAGW OU. *Please revise the text and Table 3 to present consistent information for the maximum concentration of cis-1,2-DCE in the CAGW OU.*

8. **Section 4.2, Recommendations, Page 30 of 118:** The text recommends continued annual reporting of the CAGW OU TCE plume, but it is unclear if this includes monitoring of the non-time critical removal action (NTCRA) wells. Since TCE concentrations have been increasing in the NTCRA wells, and several wells have TCE concentrations that exceed baseline conditions, all wells should be sampled annually at a minimum. *Please revise this section to clarify that the NTCRA wells will have at a minimum continued annual monitoring.*

9. **Table 3, CAGW OU and CAGW OU NTC RA Maximum Concentrations, Page 96:** The fourth column is indicated to report maximum concentrations for July 2022 – June 2023, but the text indicates this table reports the maximum concentrations for the current reporting period of July 2023 – June 2024. For example, Section 3.4.1.1 (Trichloroethylene) references Table 3 in the discussion of the maximum TCE concentration in 2Q24. *Please revise Table 3 to indicate it reports the maximum concentrations in July 2023 – June 2024.*

10. **Appendix D, Figure D-1, November 2023 TCE Concentrations in the Upper Aquifer Zone - Middle Aquifer Zone (UAZ-MAZ) of the Upper Three Runs Aquifer, PDF Page 313:** It is unclear why the TCE plume is not shown to extend toward the west on this figure. Three wells are shown to have concentrations above 5 ug/L (i.e., the green dots) that are not included in the plume. Based on comparison with Figure 2 (CAGW OU TCE Plume 4Q2023), it appears these wells include CSB017D, an Upper Aquifer Zone well; however, without labels on the wells, it is difficult to identify the other two wells. Further, it appears that well CRW010CU is not included on this figure, and TCE was detected at 10.1 ug/L in November 2023. *Please revise Appendix D to include the wells with TCE concentrations greater than 5 ug/L in the plume. Also, please label the wells and include well CRW010CU on the figure of the UAZ-MAZ TCE plume.*