



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 REGION 4
 ATLANTA FEDERAL CENTER
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 ATLANTA, GEORGIA 30303-8960

ENVIRONMENTAL COMPLIANCE &

December 2, 2022

Mr. Brian T. Hennessey, SRS Remedial Project Manager
 Infrastructure and Area Completion Division
 U.S. Department of Energy
 Savannah River Operations Office
 P.O. Box A
 Aiken, South Carolina 29802

DEC - 2 2022

AREA COMPLETION PROJECTS

**EPA Comments on the TECHNICAL REVIEW OF THE EFFECTIVENESS
 MONITORING REPORT (EMR) FOR THE C-AREA GROUNDWATER (CAGW)
 OPERABLE UNIT REMOVAL ACTION (U) JULY 2021 THROUGH JUNE 2022
 SEMS NUMBER: 82; SRNS-RP-2022-00530, REVISION 0 SEPTEMBER 2022**

Dear Mr. Hennessey,

The U.S. Environmental Protection Agency, Region 4 (EPA), has reviewed the Effectiveness Monitoring Report (EMR) for the C-Area Groundwater (CAGW) Operable Unit Removal Action (U) – July 2021 through June 2022, SEMS Number: 82, SRNS-RP-2022-00530, Revision 0, September 2022). EPA comments are attached.

If you have any questions or require additional information, please contact me at (404) 562-8648.

Sincerely,

**JON
 RICHARDS**

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 JON RICHARDS
 Date: 2022.12.02
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Jon Richards
 FFA Remedial Project Manager
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ec: C.L. Bergren, SRNS-ACP
 Susan Fulmer, SCDHEC

GENERAL COMMENTS

1. The EMR does not discuss the mass of trichloroethylene (TCE) present in the plume or the amount that this mass has been reduced since the 2019 baseline conditions. According to Section 2.1 (Removal Action Characterization, Objectives, and Implementation; Page 3 of 110), the remedial action objective (RAO) for the non-time critical removal action (NTC RA) is to protect human health and the environment by reducing the mass of TCE in groundwater. While the EMR discusses the average TCE concentrations within the plume, an estimate of the mass of TCE present before and after the NTC RA is not discussed. *Please revise the EMR to discuss the mass of TCE present in groundwater and how the reduction of TCE mass in groundwater will be evaluated to determine that the RAO has been met.*
2. The EMR notes that groundwater concentrations of TCE at downgradient wells CRW027C and CRW028C are increasing; however, the EMR does not discuss why TCE may be increasing at these wells or if additional wells in this area may be necessary. For example, it is unclear if injections in the first transect may have pushed the plume downgradient. Also, since downgradient wells CRW027C and CRW028C are located on the southeastern edge of the plume, it is unclear if additional monitoring wells would be useful for determining if the TCE plume is migrating. *Please revise the EMR to discuss potential reasons for increasing concentrations of TCE at downgradient wells CRW027C and CRW028C and if any additional actions may be necessary.*
3. The surface water stations at the unnamed tributary (i.e., CCT-01, CCT-02, and CCT-03) and Castor Creek (i.e., CC-06, CC-07, CC-08) are shown in different locations in the EMR figures. For example, Figure 3 (CAGW OU NTC RA Areas [2019 Baseline Conditions]; Page 35 of 110) shows the location of CCT-03 as across the unnamed tributary from monitoring well CRW028C, while Figure 4 (CAGW OU NTC RA Areas [4Q21]) shows CCT-03 as located on the same side of the tributary and closer to monitoring well CRW027C. Surface water stations CCT-01 and CCT-02 exhibit similar inconsistencies in location between Figures 3 and 4. As such, it is unclear if these samples were collected from different locations in the 2019 baseline and current sampling period. *Please revise the EMR to clarify if these surface water samples were collected at the same locations and if so, ensure the figures are consistent.*
4. The concentrations of methane over time in monitoring well CRW023C are not consistently presented in the ERM. The text of Section 4.4.1.6 (Methane; Page 17 of 110) indicates there was an increase in methane concentrations at CRW023C; however, Appendix A (CAGW OU NTC RA Data) reports the concentrations of methane in CRW023C as not-detected below the sample quantitation limit (SQL) of 25 micrograms/liter ($\mu\text{g/L}$) in 4Q21 and detected at 23 $\mu\text{g/L}$ in 2Q22, which is below the SQL. Further, Figure 15 (CRW023C Post-RA Groundwater Trends) indicates concentrations of methane were 10 $\mu\text{g/L}$ since June of 2020, and two data points are included for the June 2022 sample, even though only one result is reported for this sampling event in Appendix A. *Please revise the EMR to consistently present the concentrations of methane measured in monitoring well CRW023C.*

SPECIFIC COMMENTS

1. **Section 4.4.1.1, Trichloroethylene, Pages 12 to 13 of 110:** The second paragraph of Section 4.4.1.1 discusses the highest concentrations of TCE measured in 18 effectiveness monitoring stations in 4Q21 and 2Q22; however, the text later notes there are 20 monitoring stations for the 2021-2022 sampling period (third paragraph of Section 4.4.1.1). In addition,

the text states that 12 of the 20 monitoring stations had concentrations of TCE that exceeded the maximum contaminant level (MCL), but according to the data presented in Appendix A (CAGW OU NTC RA Data), TCE concentrations exceeded the MCL at 13 stations during the 4Q21 and 2Q22 sampling events. *Please revise the text to confirm the number of effectiveness monitoring stations and exceedances of the TCE MCL measured in 4Q21 and 2Q22.*

2. **Section 4.4.1.6, Methane, Page 18 of 110:** The text discusses trends in concentrations of methane in site media, but trend graphs are not provided for all wells. For example, the text states, “An increase in methane concentrations is observed in the post-RA samples, up to 126 µg/L at CCT-01 in 2Q22.” However, methane concentrations with time are shown for only two monitoring wells (i.e., CRW023C and CRW026C; see Figures 15 and 16) and time-series plots for methane are not included in Appendix C (Time-Series Plots). *Please revise the EMR to include trend graphs for the methane concentrations discussed in this section.*
3. **Figure 11, TCE Trends Near CAGW OU RA, Page 44 of 110:** The note at the bottom right appears to discuss non-detected results but the text has been cut off. As such, it is unclear how non-detected results are shown in the trend graph. *Please revise this figure to include the full note for how non-detected results are shown on the trend graph.*
4. **Table 2, MCLs for Groundwater Constituents, Page 79 of 110:** An asterisk is noted for 1,2-dichloroethylene in the table; however, this notation is not defined. *Please revise Table 2 to define this asterisk for 1,2-dichloroethylene.*
5. **Appendix A, CAGW OU NTC RA Analytical Data 2021-2022, Pages A-3 to A-5 of A-6:** The table does not identify all concentrations that exceed the MCLs. For example, the TCE result for monitoring well CRW023C collected June 13, 2022 (6.16 µg/L) is not highlighted red to indicate an exceedance of the MCL (5 µg/L). Instead, this result is indicated to be an estimated value; however, an estimated result is useable and should be identified as an exceedance. *Please revise this table to identify all exceedances of the MCLs.*