



REGION 4

ATLANTA, GA 30303

December 12, 2024

ENVIRONMENTAL COMPLIANCE &

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SRNS-OS-00514

AREA COMPLETION PROJECTS

Ms. Avery Hammett
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: 2024 Effectiveness Monitoring Report (EMR) for Monitored Natural Attenuation (MNA) at the L-Area Southern Groundwater (LASG) Operable Unit (OU) (U), Data from 2022 through 2023, SEMS Number: 77, SRNS-RP-2024-00998, Revision 0, dated August 29, 2024

Dear Ms. Hammett:

The U.S. Environmental Protection Agency, Region 4 (EPA) has reviewed 2024 Effectiveness Monitoring Report (EMR) for Monitored Natural Attenuation (MNA) at the L-Area Southern Groundwater (LASG) Operable Unit (OU) (U), Data from 2022 through 2023, SEMS Number: 77, SRNS-RP-2024-00998, Revision 0, dated August 29, 2024. EPA has generated comments on this report which are included below.

If you have any questions or require additional information, please contact Brianne Martin at (678) 906-8075.

Sincerely,

BRIANNE MARTIN

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MARTIN

Date: 2024.12.12 10:50:27 -05'00'

Brianne Martin, RPM
Federal Facilities Branch
Superfund and Emergency Management Division

cc: C.L. Bergren, SRNS-ACP
Susan Fulmer, SCDES

GENERAL COMMENTS

1. The required frequency of the groundwater sampling performed for the monitoring well network is inconsistently presented in the EMR. According to Section 1.0 (Introduction) and Section 4.3 (Groundwater and Surface Water Results), only key source zone (KSZ) wells and wells that exceeded maximum contaminant levels (MCLs) for volatile organic compounds (VOCs) are sampled annually. However, Table 1 (LASG OU MNA Monitoring Network) indicates that wells with a detection of VOCs in the previous odd year should be sampled in the even year (i.e., sampled annually). Based on Appendix C (Time-Series Plots), this would indicate that additional wells should have been sampled in the even years based on detections of tetrachloroethene (PCE) in odd years, such as wells LSW026DL, LSW031DL, and LSW 2DL. In addition, it is unclear what sampling frequency is required for samples collected for tritium analyses. Please revise the EMR to consistently present the required sampling frequency for groundwater samples to be analyzed for VOCs and tritium.
2. Section 5.0 (Conclusions) notes the overall decreasing trends in groundwater and surface water concentrations, but the EMR should also mention the one well where concentrations of PCE are not decreasing. As noted in Section 4.3.2 (Tetrachloroethylene [PCE]), PCE concentrations at well LSW 25DL have not decreased or increased since monitoring began in 2004, and this well currently has the highest PCE concentrations. Therefore, this well is currently not meeting data quality objective (DQO) #3 for decreasing concentrations as groundwater approaches L Lake (see Section 4.0, Monitoring and Reporting). Please revise the EMR conclusions to note that the PCE concentrations at well LSW 25DL remain steady and will be monitored closely to ensure DQO #3 can be met.
3. It is unclear whether biodegradation is occurring generating transformation daughter products (i.e., cis-1,2-dichloroethene [DCE], vinyl chloride) at concentrations that exceed respective MCLs. The text states that the contaminant concentrations will be reduced below remedial goals by natural attenuation processes including dispersion, dilution, and radioactive decay; however, the EMR does not report sample results for cis-1,2-DCE or vinyl chloride. It is noted that one of the remedial action objectives (RAOs) for the LASG OU is to prevent human exposure to groundwater above MCLs. As such, it appears that groundwater monitoring and reporting for cis-1,2-DCE and vinyl chloride concentrations will be necessary to demonstrate that the RAO has been achieved. Please revise the EMR to discuss how the potential presence of degradation products at concentrations above MCLs will be addressed by the LASG OU monitoring program.

SPECIFIC COMMENTS

1. **Section 4.1, Groundwater Elevation Measurements and Groundwater Flow Direction, Page 5 of 38:** A minimum elevation measurement for Pen Branch is identified as 57.95 meters (178 feet), but it is unclear when and where this measurement was taken. Figure 5 (Potentiometric Surface of the Upper Aquifer Zone [4Q2023]) does not include a monitoring location within Pen Branch. Please revise the text to clarify when and where the elevation of the Pen Branch was measured for this comparison of the elevation of the stream and LASG OU groundwater.
2. **Section 4.1, Groundwater Elevation Measurements and Groundwater Flow Direction, Page 5 of 38:** This section discusses vertical gradients in the LASG OU groundwater, but the calculations of the vertical gradient based on the most recent groundwater elevation data are not provided. For example, the text indicates there is little difference between hydraulic head measurements in the Upper Three Runs aquifer (UTRA) between the Upper Aquifer Zone (UAZ) and the Lower Aquifer Zone (LAZ) (i.e., average of 0.2 meters/0.6 feet); however, based on Appendix B, Table B-1 (L-Area Southern Groundwater OU MNA Monitoring Results, 2022 – 2023), differences in the

groundwater elevations between the UAZ and LAZ ranged from 0.38 feet (wells LSW 12C to LSW 12DL) to 2.3 feet (wells LSW 8C and LSW 8DL) in October 2023. It is unclear how the average was determined. Further, based on these differences in water elevation, a potentiometric map of the LAZ should be provided to show the groundwater flow direction in the LAZ and support evaluation of the LAZ monitoring well network. Please revise Section 4.1 to discuss the differences in groundwater elevations for the October 2023 data and include any calculations for the vertical gradients (e.g., in a table). Please also include a figure showing the potentiometric surface for the LAZ groundwater.

3. **Section 4.3.2, Tetrachloroethylene (PCE), Page 8 of 38:** The text states that all KSZ monitoring wells were below the MCL of 5 micrograms per liter ($\mu\text{g/L}$), but the text also states that KSZ well LAC 8DL exceeded the MCL in 2023 with a concentration of 5.43 $\mu\text{g/L}$. Please revise the text to present consistent information for the PCE concentrations and exceedances of the MCL in the KSZ wells.
4. **Section 4.3.2, Tetrachloroethylene (PCE), Page 9 of 38, and Appendix B, Table B-1, L-Area Southern Groundwater OU MNA Monitoring Results, 2022 – 2023:** The text states that PCE was not detected at Station LSW029DL during 2022 or 2023, but Table B-1 reports results from 2023 only for this well. Based on Table 1 (LASG OU MNA Monitoring Network), well LSW029DL should only be sampled in even years if VOCs are detected in the previous odd year. Please revise Section 4.3.2 and Table B-1 to consistently present the sampling performed at well LSW029DL in 2022 and 2023.