



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

December 04, 2020

Mr. Brian Hennessey, 730-B
SRS Remedial Project Manager
Savannah River Operations Office
Area Completion Projects
Post Office Box A
Aiken, South Carolina 29802



Dear Mr. Hennessey:

The U.S. Environmental Protection Agency (EPA) has reviewed the Department of Energy, Savannah River Site (DOE-SRS) the 2019 Groundwater Mixing Zone Report for the D-Area Oil Seepage Basin (631-G), SEMS Number 27, dated July, 2020.

EPA cannot provide approval for this report until the below comments are addressed. If you have any concerns or questions, please contact me at (404) 229 -9500.

Sincerely,

A handwritten signature in cursive script that reads "Diedre Lloyd".

Diedre Lloyd
Remedial Project Manager
Restoration and Sustainability Branch
Superfund & Emergency Management Division
61 Forsyth Street, Region 4
Atlanta, GA 30303

cc: Angelia Holmes, DOE-SRS; Phil Prater, DOE-SRS; Karen Adams, DOE-SRS; C. L. Bergren, SRNS-ACP (Signed Original); Susan Fulmer, SCDHEC

**EPA COMMENTS ON THE
2019 GROUNDWATER MIXING ZONE REPORT FOR THE
D AREA OIL SEEPAGE BASIN OPERABLE UNIT**

SEMS NUMBER: 27

JULY 2020

**SAVANNAH RIVER SITE
AIKEN, SOUTH CAROLINA**

EPA COMMENTS:

1. The Executive Summary of the 2019 Groundwater Mixing Zone Report for the D-Area Oil Seepage Basin Operable Unit (631-G), SEMS Number: 27; SRNS-RP-2020-00362, Revision 0, dated July 2020 (the Report) states the contaminant plumes continue to shrink and the concentrations of tetrachloroethylene (PCE), trichloroethylene (TCE), cis-1,2-dichloroethylene (DCE) and chloroethene (vinyl chloride) (VC) are decreasing compared to previous years, indicating plumes are shrinking and the natural attenuation remedy is effective. However, the following plume compliance wells had volatile organic compound (VOC) results above respective Maximum Contaminant Levels (MCLs) in the source zone at the D-Area Oil Seepage Basin (DOSB) Operable Unit (OU):
 - DOB15: VC at 19.1 micrograms per Liter ($\mu\text{g/L}$) [MCL of 2 $\mu\text{g/L}$]; cis-1,2-DCE at 107 $\mu\text{g/L}$ [MCL of 70 $\mu\text{g/L}$]; and TCE at 18 $\mu\text{g/L}$ [MCL of 5 $\mu\text{g/L}$]
 - DOB15A: TCE at 14.4 $\mu\text{g/L}$ [MCL of 5 $\mu\text{g/L}$]
 - DOB16: VC at 2.22 $\mu\text{g/L}$ [MCL of 2 $\mu\text{g/L}$]
 - DOL2: TCE at 6.65 $\mu\text{g/L}$ [MCL of 5 $\mu\text{g/L}$]
 - a) In addition, steady contaminant concentrations greater than MCLs were noted for TCE in plume compliance well DOB15, variable and greater than MCLs at DOB15A, and variable to increasing at DOB15D. These TCE trends indicate longer than anticipated clean-up timeframes for aquifer restoration.
 - b) Additionally, VC concentrations in plume compliance wells DOB15 and DOB16 are stable but greater than MCLs suggesting the projected cleanup timeframe for aquifer restoration to beneficial use is uncertain and potentially longer than anticipated. With over 22 years of groundwater monitoring data, it is of concern that the noted steady contaminant concentration trends greater than respective maximum contaminant levels (MCLs) and represent a potential problem warranting action at the source area.
 - c) Natural attenuation (NA) parameters indicate that current groundwater conditions at the site are not favorable for reductive dechlorination processes; therefore, NA relies primarily on physical processes such as dispersion and dilution. Furthermore, it is noted in the Calendar Year 2018 D-Area Oil Seepage Basin Operable Unit (631-G) Groundwater Mixing Zone Letter Report, SEMS Number: 27, dated July 25, 2019 (2018 Groundwater Mixing Zone [GWMZ] Letter Report) that with respect to the dispersion/dissolution of VOCs, “it is speculated that VOCs are being retarded by the aquitard and clayey zones and/or restricted groundwater flow zones through tighter aquifer zones.” As such, it is unclear if the NA/GWMZ remedy is effective and performing as designed to achieve aquifer restoration within a reasonable timeframe as compared to active remediation.

- d) Finally, Section 6.0 (Conclusions) states, “As agreed to in the comment response for the DOSB OU letter report submitted in 2019, a Core Team meeting will be held in 2020 to discuss the trends in the DOSB OU plumes, the overall effectiveness of the NA/GWMZ remedy, and whether or not conditions at the DOSB OU warrant future action.” As such, please provide proposed dates for further discussion regarding site conditions and a proposed path forward for the DOSB OU.
2. Section 4.4.6 (Trend Analysis) states “Contaminant levels in wells downgradient of well cluster DOB 15 (wells DOB 19 and DOB 19A) display decreasing trends (Appendix D). Modeling indicated that an increase in VC may occur around 2016; however, due to trends shown in DOB 15, it appears that contaminant transport has more retardation than modeling indicated. Additionally, further downgradient boundary compliance wells (well clusters DOB 20, DOB 21, and DOB 22) and surface water concentrations continue to be below MCLs or remain non-detect; therefore, the DOSB OU GWMZ is performing adequately.” While this statement is acknowledged as having merit on the basis of the contaminant transport observations, plume compliance wells DOB15, DOB15A, DOB16, and DOL2 continue to exhibit VOC concentrations that remain steady and which exceed MCLs for one or more VOCs. Please provide proposed dates for further discussion with the core team, as stated in the Report.