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

January 12, 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 Calendar Year 2018 D-Area Oil Seepage Basin Operable Unit, Groundwater Mixing Zone Letter Report, SEMS Number 27, dated July 25, 2019.

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,

Diedre Lloyd
Remedial Project Manager
Restoration and Sustainability Branch
Superfund Division

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
2018 GROUNDWATER MIXING ZONE REPORT

For the D AREA OIL SEEPAGE BASIN OPERABLE UNIT

SEMS NUMBER: 27

JULY 2019

SAVANNAH RIVER SITE
AIKEN, SOUTH CAROLINA

EPA COMMENTS:

1. Based on the steady contaminant trends noted in some monitoring wells, slow progress has been made towards restoring the groundwater aquifer to beneficial use since the removal action was conducted in 1996. This issue was also noted in EPA comments during the previous reporting interval (2017 DOSB OU). For example, the steady contaminant concentrations of tetrachloroethylene (PCE), trichloroethylene (TCE), cis-1,2-Dichloroethylene (cDCE) and vinyl chloride (VC) noted for well DOB 15 and depicted on Figure 7 (Time Series Plots of TCE, PCE, cDCE, and VC at Plume Compliance Wells DOB 19A and DOB 19 at the DOSB OU), suggest the projected cleanup timeframe for aquifer restoration to beneficial use remains uncertain. With over 22 years of groundwater monitoring data, it seems to indicate that the noted steady contaminant concentration trends greater than respective maximum contaminant levels (MCLs) represent a potential problem warranting future action.

   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 in respect to the dispersion/dissolution of volatile organic compounds (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, the data indicate that the NA/GWMZ remedy is not effective nor is it performing as designed to achieve aquifer restoration within a reasonable timeframe as compared to active remediation.

   The 2018 GWMZ Letter Report states, "…a Core Team meeting or conference call is proposed in the Fall 2019 timeframe to discuss the trends in the DOSB plumes and the overall effectiveness of the Natural Attenuation/GWMZ remedy." It is recommended that the Core Team update the groundwater model to more accurately depict current site conditions and anticipated timeframe to achieve MCLs, and propose several potential response actions to address steady contaminant trends greater than respective MCLs.

   EPA suggests that a core team meeting be held sometime in 2020, at a mutually agreeable time for all core team members to discuss future actions at the DOSB OU.

2. Figures 3 through 8 are incorrectly numbered as Figures 2 through 7 (Figure 2 is duplicated). Revise the 2018 GWMZ Letter Report to address this issue.

3. Potentiometric surface maps based on groundwater elevations were not prepared for the various aquifer units identified for the D-Are Oil Seepage Basin Operable Unit (i.e., Aquifers 1, 2, 3 and Gordon Aquifer). As such, the flow directions in each of the respective aquifer units as documented in the text could not be verified. Currently, methylene chloride was detected in background well DOL 1 at a concentration of 3.4 micrograms per liter (µg/L). Absent groundwater elevation data, it could not be confirmed well DOL 1 is a background well as designated. Revise the 2018 GWMZ Letter Report to address this issue to ensure the potentiometric surface and flow direction for each of the aquifer units is clearly understood and documented. EPA requests that at least one map of the potentiometric surface be included in the future DOSB letter report

4. The third paragraph on Page 5 states the fluctuations of VOCs in additional wells and plume compliance wells may indicate effects of increased/decreased rainfall, and periods of high water levels may correlated with increased contaminant concentrations. As such, it is recommended a figure graph depicting times series plots of VOCs in wells versus rainfall data recorded over the same period is prepared. The figure can provide an additional line of evidence demonstrating whether a direct correlation exists between contaminant concentrations and rainfall events. Revise the 2018 GWMZ Letter Report to address this issue.