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

December 03, 2018

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
Mr. Brian Hennessey, 730-B
SRS Remedial Project Manager
Area Completion Projects
Savannah River Operations Office
P.O. Box A
Aiken, South Carolina 29802

Dear Mr. Hennessey:

The U.S. Environmental Protection Agency (EPA) has reviewed the Effectiveness Monitoring Report for the Monitored Natural Attenuation at the Chemicals, Metals, and Pesticides Pits Operable Unit, March 2017 through March 2018, Revision 0 dated June 2018.

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

Sincerely,

Diedre Lloyd
Remedial Project Manager
Restoration and Sustainability Branch
Region 4, Superfund Division
61 Forsyth Street, S.W.
Atlanta, Georgia 30303

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

EPA COMMENTS on the EFFECTIVENESS MONTORING REPORT
For the MONITORED NATURAL ATTENUATION (MNA)
At the CHEMICAL, METALS, AND PESTICIDES (CMP) OPERABLE UNIT
SEMS NUMBER: 24
MARCH 2017 – MARCH 2018
REVISION 0, DATED JUNE 2018

EPA COMMENTS:

1. EPA provided conditional approval in a letter dated April 17, 2018 for the previous CMP reporting effort with the understanding that 1,4-Dioxane sample quantitation limits would meet the RSL of 0.46 µg/L in future sampling events.
    a. EPA notes again in this reporting event: 1,4-Dioxane sample quantitation limits are still above the regional screening level (RSL) for 1,4-Dioxane of 0.46 µg/L. Please provide assurance that this RSL will be met in future CMP sampling events.

2. EPA also provided conditional approval in a letter dated April 17, 2018 for the previous CMP reporting effort with the understanding that future core team discussions may be required to discuss efficacy for the chosen MNA remedy at CMP. It has been noted in the previous reporting effort and in this reporting effort that the chosen MNA remedy is not consistent with MNA guidance noted below (please see comment # 3 below and previous comments in the April 17, 2018 comment letter).

3. The updated groundwater model predictions and results presented in the Effectiveness Monitoring Report for the MNA at the CMP Pits OU are inconsistent with the EPA guidance *Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites*, OSWER Directive Number 9200.4-17P, dated April 21, 1999 (MNA Guidance). For example, the EMR states the following modeling predictions and results:
    - Unstable and/or expanding plume behavior, vertical and horizontal migration;
    - Chlorinated Volatile Organic Compounds (CVOCs) Plume(s) discharges above maximum contaminant levels (MCLs) to a surface water body (e.g., Pen Branch);
    - Advection and dispersion are the dominant attenuation mechanisms; minor degradation and destruction of contaminants;
    - Unreasonable cleanup timeframes as compared to active remediation, 91 years for tetrachloroethylene (PCE) and 48 years for trichloroethylene (TCE) to reach MCLs.

    Currently, the EMR monitoring data indicate the MNA remedy is not occurring at a rate that prevents cross-media transfer of contaminants discharging from the middle aquifer zone (MAZ) and lower aquifer zone (LAZ) to surface waters of Pen Branch. Please revise the EMR to address this issue to ensure the appropriateness of the MNA remedy in attaining remedial goals within a reasonable timeframe as compared with active remediation.

4. The text in the first paragraph in Section Gordon Aquifer, Page 14 of 104 states "The GA screened wells are in place to confirm contamination has not migrated farther downward than expected as described in the EMP (WSRC 2006b)." Currently, only 4 monitoring wells are screened within the Gordon Aquifer (GA) to monitor plume migration. As seen in Figure 7, 2017 Potentiometric Surface for the LAZ and GA, Page 39 of 104, no GA wells are installed north of CMP 12A and west of CMP 8A and this concern could represent a potential data gap(s) in the GA monitoring well network. For example, the text in Section Lower Aquifer Zone, Page 13 of 104 is summarized as follows:
    - PCE and TCE both increased at well CMP 32C;

- Concentrations at seven wells (CMP 8B, CMP 10B, CMP 13B, CMP 32C, CMP 52BU, CMP 54C, and CMP058B) display increasing trends over the last nine years;
- The majority of these wells are located in the upper portion of the LAZ;
- Contamination in the LAZ is limited to the upper half portion of the aquifer.

As such, based on the LAZ data, it is uncertain whether the current GA monitoring well network is adequate to monitor potential plume migration occurring in the GA north of CMP 12A and west of CMP 8A. Revise the EMR and suggest future actions as appropriate to ensure the GA is adequately monitored to detect potential plume migration.

5. In Section 2.2.4, Additional Data from Independent Analysis, Page 20 of 104, the text states the South Carolina State University (SCSU) reported that PCE and TCE were detected in groundwater samples at a maximum concentration of 91 micrograms per liter (µg/L) and 55 µg/L, respectively. As seen in Figure 32, Independent Pen Brach Sampling Area and Summary of 2017 Results for PCE, Page 89 of 104, the SCSU sample locations where PCE was detected exceeding the MCL are 5D1B and 5DB. As such, it is recommended that the CMP Pits surface water monitoring station CMP-SW-07 currently located downstream be relocated upstream in the general area of SCSU locations 5D1B and 5DB to ensure representative surface water samples are collected near these "hot spot" areas of Pen Branch.

6. The text in Section 3.0, Updated Groundwater Model, Page 22 of 104 indicates Lindane and 1,4-dioxane were modeled and are not expected to exceed maximum contaminant levels (MCLs) or regional screening levels (RSLs) at discharge locations. However, a cleanup timeframe estimate for Lindane and 1,4-dioxane contamination to be reduced to below respective MCLs or RSLs was not presented in the EMR. To ensure the cleanup of the Lindane and 1,4-dioxane contamination is progressing in a timely manner and will achieve MCLs or RSLs within a reasonable timeframe, revise the text to address this issue.

7. The potentiometric surface of the LAZ depicted in Figure 7, 2017 Potentiometric Surface for the LAZ and GA, Page 39 of 104, appears to be contoured incorrectly. As such, the flow directions depicted in the figure are uncertain based on the current interpretation of the LAZ potentiometric surface. For example, as seen in Figure 7 the 194.0 feet (ft) mean sea level (msl) iso-contour drawn around the CMP Pits waste units produces a LAZ flow direction generally from east to west. However, the monitoring wells with groundwater elevations greater than 194.0 ft msl [i.e., CMP058B (195.4 ft msl), CMP52BL (195.33 ft msl), CMP 52BU (194.98 ft msl), CMP 33D (195.19 ft msl) and CMP 54C (194.71 ft msl), were not used to construct the LAZ potentiometric surface map. The groundwater elevations in wells not used to construct the LAZ potentiometric map indicate a radial flow direction at the CMP Pits waste units. A northerly component of LAZ groundwater flow direction explains the current geometry of the PCE and TCE plumes located in the LAZ. Revise the figure to address this issue to ensure certainty in the LAZ groundwater flow direction(s).

8. In Figure 7, 2017 Potentiometric Surface for the LAZ and GA, Page 39 of 104 three groundwater flow paths are depicted in the figure. In the figure one flow path arrow is bounded by the letters A - A' the second is bounded by letters B - B' and the third is bounded by letter C – C'. However, the figure legend does not define or explain the use of the A – A', B – B' or C- C' notations. For clarity, revise the figure to address this issue.