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

October 30, 2019

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

RE: EPA Comments on the Biennial Effectiveness Monitoring Report (EMR) for Monitored Natural Attenuation (MNA) at the C-Area Burning/Rubble Pit (131-C) and Old C-Area Burning/Rubble Pit (NBN) Operable Unit (U), January 2017 through December 2018, SEMS Number: 31, SRNS-RP-2019-00327, Revision 0, June 2019, Savannah River Site, Aiken, South Carolina

Dear Mr. Hennessey,

The U.S. Environmental Protection Agency, Region 4 (EPA), has reviewed the Biennial Effectiveness Monitoring Report (EMR) for Monitored Natural Attenuation (MNA) at the C-Area Burning/Rubble Pit (131-C) and Old C-Area Burning/Rubble Pit (NBN) Operable Unit (U), January 2017 through December 2018, SEMS Number: 31, SRNS-RP-2019-00327, Revision 0, June 2019. EPA comments are attached.

If you have any questions or require additional information, please contact me at (404) 562-8513.

Sincerely,

JENNIFER TUFTS
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Date: 2019.10.30 10:02:10 -04'00'

Jennifer Tufts
Remedial Project Manager
Superfund Division

ec: C.L. Bergren, SRNS-ACP
Susan Fulmer, SCDHEC

EPA Comments on the Biennial Effectiveness Monitoring Report (EMR) for Monitored Natural Attenuation (MNA) at the C-Area Burning/Rubble Pit (131-C) and Old C-Area Burning/Rubble Pit (NBN) Operable Unit (U), January 2017 through December 2018, SEMS Number: 31, SRNS-RP-2019-00327, Revision 0, June 2019, Savannah River Site, Aiken, South Carolina

COMMENTS

1. The conclusions regarding the effectiveness of the remedy provided in Biennial Effectiveness Monitoring Report (EMR) for Monitored Natural Attenuation (MNA) at the C-Area Burning/Rubble Pit (131-C) and Old C-Area Burning/Rubble Pit (NBN) Operable Unit (U), January 2017 through December 2018, SEMS Number: 31, SRNS-RP-2019-00327, Revision 0, June 2019 (Biennial Report) are not fully supported. In Section 5.0, Summary, the text on Page 18 of 32 states that during the 2017-2018 sampling period, overall VOC concentrations continued to decrease in most monitoring wells. A statistically significant demonstration of the data is not provided to support such a statement. For example, although time-series plots are provided, best-fit trend lines showing an increase or decrease of concentrations over time are not presented. In addition, statements regarding trend should be supported by a statistical analysis of the data per EPA guidance (i.e., Data Quality Assessment: Statistical Methods for Practitioners, EPA QA/G-9S, U.S. EPA 2006). Revise the Biennial Report to include best-fit trend lines on time-series plots and identify statistically significant trends using methods (e.g., Mann-Kendall) per the guidance referenced above.

2. Section 5.0, Summary, the text on Page 18 of 32 states the increasing trend of degradation products cis-1,2-dichloroethene (c-1,2-DCE) and vinyl chloride (VC) are evidence that the portion of the plume with elevated trichloroethene (TCE) is moving through the CRP 50 well cluster. It is noted the degradation products listed above are more soluble and therefore more mobile in groundwater, indicating that the source of the TCE degradation products is upgradient of the CRP 50 well cluster. In addition, Figure 8, CBRP Plume Cross Section, Fourth Quarter 2018 illustrates the highest TCE concentrations detected in 2018 are located at the CRP 20 well cluster and not the CRP-50 well cluster. Revise the Biennial Report to state that the increasing trend of cis-1,2-DCE and VC seen at the CRP 50 well cluster is evidence of degradation of TCE upgradient of this location.

3. The Biennial Report indicates the data yield a time estimate of 41 years for all areas of the VOC plume to be below the respective MCLs. This estimate is based on the 2018 maximum TCE concentration for the plume of 2,600 µg/L. While it is noted the time estimate of 41 years is based upon a simplistic evaluation using the current data, the time-series plots for several wells demonstrate contaminant concentration trends are stable and greater than the respective MCLs, indicating that attainment of MCLs would take longer than 41 years. For example, the TCE detection of 2,600 µg/L was measured in well CRP 20CU in 2018. As seen in the time-series plot presented in Figure C-108, Appendix C, Page C-110 of C-128, the trend of TCE concentrations has been upward over time. The time-series plot in Figure C-102 does not illustrate trending that would indicate MCLs will be achieved within 41 years. A similar issue is noted with CRP 5C where the trend

of PCE concentrations has been stable above the MCL since 1996 as seen in Figure C-70, Appendix Page C-72 of C-128. Also, the trend of TCE concentrations in monitoring well CRP 18C have remained relatively stable above the MCL since 2000. Finally, the trend of vinyl chloride concentrations in MNA well CRP-50B has been greater than the MCL since 2000 and has an increasing trend as seen in Figure C-28, Page Appendix C-30 of C-128. Currently, it is uncertain whether all areas of the VOC plume will be below their respective MCLs within 41 years, or whether the estimated timeframe will be reasonable based on future monitoring data. As such, revise the Biennial Report to include additional text discussing how the long-term stable and/or increasing contaminant trends impact the reasonableness of the overall cleanup timeframe estimates.

4. It is noted the Biennial Report does not include the analysis of many common MNA parameters or follow or reference appropriate MNA guidance documents (e.g., U.S. EPA Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater, September 1998; U.S. EPA Ground Water Issue – Calculation and Use of First-Order Rate Constants for Monitored Natural Attenuation Studies, 2002). Currently, it is uncertain whether all areas of the VOC plume will be below their respective MCLs within 41 years, or whether the estimated timeframe will be reasonable based on future monitoring data. As such, the evaluation and discussion of MNA efficacy per the listed EPA guidance could provide additional lines of evidence that either support the reasonableness of the overall cleanup timeframe estimates, or that indicate an issue due to the long-term stable and/or increasing contaminant trends noted. Revise the Biennial Report to address this issue.

5. The potentiometric surface maps prepared for the 2017 and 2018 monitoring events depict flow lines indicating the relative flow direction based on the potentiometric surface. However, it appears the flow lines shown are based on the particle tracking Figure 5, CBRP OU Groundwater Model Particle Tracks (WSRC-TR-2001-00298), and are not drawn perpendicular to the groundwater elevation contours. For example, Figures E-1 through E-4 in Appendix E incorrectly indicates groundwater flows around Twin Lakes and not towards it as the groundwater elevation contours indicate. Revise the potentiometric surface figures to accurately display groundwater flow direction perpendicular to the groundwater elevation contours based on data obtained in 2017 and 2018.