



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

September 6, 2022

ENVIRONMENTAL COMPLIANCE &

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

SEP - 6 2022

AREA COMPLETION PROJECTS

RE: **EPA Comments on the TECHNICAL REVIEW OF THE EFFECTIVENESS MONITORING REPORT FOR THE MONITORED NATURAL ATTENUATION (MNA) AT THE CHEMICALS, METALS, AND PESTICIDES (CMP) PITS OPERABLE UNIT (OU) (U) APRIL 2021 THROUGH MARCH 2022 SEMS NUMBER: 24, SRNS-RP-2022-00342 REVISION 0 DATED JUNE 2022**

Dear Mr. Hennessey,

The U.S. Environmental Protection Agency, Region 4 (EPA), has reviewed the CMP MNA Report for 4/21 through 3/22 and has the attached comments:

If you have any questions or require additional information, please contact me at (404) 562-8648.

Sincerely,

JON
RICHARDS

Digitally signed by
JON RICHARDS
Date: 2022.09.06
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Jon Richards
FFA Remedial Project Manager
Superfund & Emergency Management
Division

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

GENERAL COMMENTS

1. In accordance with the EPA monitored natural attenuation (MNA) guidance document, "*Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action and Underground Storage Tank Sites*, Office of Solid Waste and Emergency Response (OSWER) Directive 9200.4-17P, April 1999 (EPA MNA Guidance), contingency measures should be implemented if unacceptable performance of the selected remedy should occur. While the EMR asserts MNA is performing as predicted, *it is noted that the CMP Pits OU groundwater remedy includes 4 of the 5 "trigger" criteria consistent with the EPA MNA Guidance, signaling unacceptable performance of the remedy, which generally include, but are not limited to, the following:*
 - ***Contaminant concentrations in soil or groundwater at specified locations exhibit an increasing trend not originally predicted during remedy selection.***
 - The EMR indicates modeling did not predict contamination to reach the Gordon Aquifer (GA) above maximum contaminant levels (MCLs). Results from CMP010A indicate that the GA is contaminated with tetrachloroethylene (PCE) and trichloroethylene (TCE) above MCLs; and
 - PCE and TCE has been increasing since 2013 in distal plume well CMP8B.
 - ***Near-source wells exhibit large concentration increases indicative of a new or renewed release.***
 - Recent data in the source area have shown the following:
 - PCE, TCE, and /or lindane in well CMP35D directly north of the CMP Pits have been increasing. Lindane has been increasing in concentration since 2013 in CMP35D, and PCE/TCE has been increasing since 2010;
 - PCE concentrations have been increasing in CMP10C since 2013, and TCE has been increasing since 2008;
 - PCE/TCE concentrations have been increasing in well CMP13B since 2001;
 - PCE concentrations have been increasing in well CMP13D since 2009;
 - Increasing trend in PCE/TCE concentrations are noted for well CMP32C since 2001;
 - Increasing trends in PCE/TCE concentrations are noted in well CMP34D since 2008;
 - An increasing trend in PCE concentration is noted for well CMP52C since 2002, and an increasing PCE/TCE concentration trends were observed in CMP52BU since 2005; and,
 - An increasing trend in PCE concentration is noted for well CMP058B since 2006.
 - ***Contaminants are identified in monitoring wells located outside of the original plume boundary.***
 - The EMR indicates that the modeling did not predict contamination to reach the GA above MCLs. However, analytical results from CMP010A indicate that the GA is contaminated above MCLs with PCE, TCE, and has concentrations of 1,4-dioxane above the USEPA tap water regional screening level (RSL). Also, lindane was detected in CMP010A at a concentration of 0.162 micrograms per liter (µg/L), which is less than the MCL of 0.2 µg/L.

- **Contaminant concentrations are not decreasing at a sufficiently rapid rate to meet the remediation objectives.**
 - The remedial timeframe estimates indicate groundwater contamination would remain above MCLs for up to another 100 years.

It is currently unclear if the estimated remedial timeframe of 100 years would be reduced if contingency measures are implemented to accelerate the restoration of groundwater to beneficial use within a reasonable timeframe. Considering the potential for monitoring the MNA remedy performance over the next 100 years, it may be beneficial to consider implementation of a contingency remedy. *Please revise the EMR to include a discussion of contingency remedy implementation to reduce the remedial timeframe and monitoring costs at the CMP Pits OU.*

2. It is uncertain whether the low permeability cap installed at the CMP Pits that may retard infiltration as indicated in the EMR was designed and engineered to meet infiltration/permeability specifications. For example, according to the Sixth Five-Year Remedy Review Report for Savannah River Site Operable Units with Groundwater Remedies (U) SEMS Number: 00 SRNS-RP-2019-00511, Revision 1, Aiken, South Carolina, July 2020, only a soil and vegetative cover is installed at the CMP Pits. To support development of the conceptual site model (CSM), *please revise the EMR to clarify whether a low permeability engineered cap has been installed over the CMP Pits.*

SPECIFIC COMMENTS

1. **Section 1.3, Observed Hydrostratigraphy at the CMP Pits OU, Page 5 of 106, and Figure 3: CMP Pits Groundwater OU Conceptual Site Model (CSM), Page 35 of 106:** The text states, “the confining units appear to slope towards the south in some areas at the main CMP Pits... although the TCCZ [tan clay confining zone] and the TCLC [tan clay lower confining] are depicted as continuous units in the cross-sections, aquifer behavior in this area shows various elevation heads and contaminant pathways that indicate the confining horizons are discontinuous and/or intermixed with sandy clays.” Figure 3: CMP Pits Groundwater OU CSM does not depict south-sloping confining units and TCCZ and TCLC are not shown as discontinuous and/or intermixed with sandy clays. *Please revise the EMR to address this discrepancy.*
2. **Section 1.4, Observed Hydrology at the CMP Pits OU, Page 8 of 106, and Figure 3: CMP Pits Groundwater OU Conceptual Site Model (CSM), Page 35 of 106:** The text states that the confining zones for the TCCZ and TCLC, “are not considered thick competent confining clays, but rather are hummocky, vary in thickness, and can be almost non-existent or leaky in areas.” This description is not consistent with the confining zones depicted in Figure 3: CMP Pits Groundwater OU CMP, which are shown as contiguous and of equal thickness throughout the site. *Please revise the EMR to address this discrepancy.*
3. **Section 2.0, Groundwater Sampling Results, Subsection 2.2.2.1, PCE and TCE, Gordon Aquifer, Page 17 of 106:** The text states, “The recent data collected at new monitoring well CMP010A is the first occurrence of MCL exceedances in the GA.” Please note that preceding text in Section 2.0, Groundwater Sampling Results, Subsection 2.2.2.1, Page 16 of 106 states, “CMP010A was the only GA monitoring well with PCE and TCE concentrations above MCLs, with concentrations of 106 µg/L for PCE and 43.9 µg/L for TCE. These concentrations have significantly decreased from 2020 concentrations.” Based on these

statements, it is unclear when PCE and/or TCE concentrations above MCLs were first observed within the GA at CMP010A. *Please revise the EMR to address this discrepancy.*

4. **Section 2.0, Groundwater Sampling Results, Subsection 2.2.2.2, Cis-1,2-Dichloroethylene (c-1,2-DCE), Page 17 of 106:** The text states, “C-1, 2-DCE was detected in six wells in 2021...all of the wells with c-1,2-DCE are located in the wetland area near Pen Branch.” For clarity, *please revise the EMR to include the names of the six affected monitoring wells.*
5. **Appendix C, Additional Sampling Efforts, Pages C-3, C-4 of C-30:** The text indicates no volatile organic compound (VOC) headspace sampling results were above the previous 60 milligrams per kilogram (mg/kg) [60,000 micrograms per kilogram ($\mu\text{g}/\text{kg}$)] threshold limit for dense non-aqueous phase liquid (DNAPL); however, it is unclear if the maximum VOC headspace soil sampling results for PCE and TCE of 1137.5 $\mu\text{g}/\text{kg}$ and 106.4 $\mu\text{g}/\text{kg}$, respectively, from 60 feet below ground surface (ft bgs) and 92 ft bgs, respectively, at CMP035B indicate the potential to impact groundwater in excess of respective MCLs. *Please revise the EMR to clarify if the maximum VOC headspace soil sampling results for PCE and TCE indicate the existence of a potential contaminant migration to groundwater issue.*