



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

December 13, 2017

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 Removal Site Evaluation Report / Engineering Evaluation / Cost Analysis for Trichloroethylene Plumes Discharging to Steel Creek in P-Area Groundwater Operable Unit (NBU), CERCLIS Number: 81, SRNS-RP-2017-00372, Revision 0, October 2017, Savannah River Site, South Carolina**

Dear Mr. Hennessey,

The U.S. Environmental Protection Agency, Region 4 (EPA), has reviewed the Removal Site Evaluation Report / Engineering Evaluation / Cost Analysis for Trichloroethylene Plumes Discharging to Steel Creek in P-Area Groundwater Operable Unit (NBU), CERCLIS Number: 81, SRNS-RP-2017-00372, Revision 0. EPA comments are attached.

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

Sincerely,

JENNIFER TUFTS

Digitally signed by JENNIFER  
TUFTS  
Date: 2017.12.13 14:53:37 -05'00'

Jennifer Tufts  
Remedial Project Manager  
Superfund Division

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

**EPA Comments on the Removal Site Evaluation Report / Engineering Evaluation / Cost Analysis for Trichloroethylene Plumes Discharging to Steel Creek in P-Area Groundwater Operable Unit (NBU), CERCLIS Number: 81, SRNS-RP-2017-00372, Revision 0, October 2017, Savannah River Site, South Carolina**

**I. GENERAL COMMENTS**

1. The last paragraph in Section 5.2, Identification of Applicable or Relevant and Appropriate Requirements (ARARs), on Page 19 of 58 of the Removal Site Evaluation Report/Engineering Evaluation/Cost Analysis for the P-Area Groundwater Operable Unit (RSER/EE/CA) states "Implementation of the proposed removal action would have a negligible impact on Savannah River Site (SRS) archeological, cultural, historical, or natural resources." Although implementation of Alternatives 2 or 3 would reduce concentrations of chlorinated volatile organic compounds (cVOCs) including tetrachloroethylene (PCE), trichloroethylene (TCE), and cis-1,2 dichloroethylene (DCE) in groundwater at the area of application, the cVOC plumes downgradient of the treatment will continue to discharge to Steel Creek. It is unclear from the RSER/EE/CA the amount of cVOCs mass remaining in groundwater, the mass that will be treated for each alternative, and additionally, the mass of cVOCs that will be allowed to continue to discharge to Steel Creek in exceedance of the maximum contaminant levels (MCL). The impact of the continued discharge of cVOCs above the MCL to Steel Creek is not evaluated in the RSER/EE/CA under the alternatives. As such, it is not clear how the basis of the assertion that an 80 percent (%) or greater TCE mass flux reduction should achieve the MCL in Steel Creek was determined. For clarity and completeness, revise the RSER/EE/CA to address this issue.
2. The text in the last paragraph in Section 6.0, Preferred Removal Action Alternative, on Page 27 of 58, states that "The field application and effectiveness of the preferred action could be evaluated to consider applying this technology at a much larger scale at the elbow portion of the distal area of the plumes at a later time, subsequent to additional characterization of that area." During our May 2017 scoping meeting, the FFA parties agreed that before the neck or elbow source area is selected for treatment, the nature and extent of groundwater contamination in the elbow area would be determined. The investigation will provide information regarding the magnitude and extent of TCE mass and proximity to Steel Creek. The additional information will be used by the FFA parties to determine which area should be treated first as part of this action, and which area will be treated as part of a subsequent action. Please include language in the RSER/EE/CA that indicates the nature and extent of groundwater contamination in the elbow area will be characterized, and the FFA parties will review investigation results before the treatment area location is selected.
3. The text in the first paragraph in Section 6.0, Preferred Removal Action Alternative, on Page 28 of 58, indicates the permeable reactive barrier (PRB) alternative is preferred over the in situ chemical oxidation (ISCO) technology because of its proven success at other waste sites outside of SRS and minimal operations and maintenance (O&M) activities (sampling and reporting) and associated costs. The text further indicates the O&M for ISCO would be much higher as multiple injections with continued procurement of chemicals and injection equipment would be required. As such, the PRB remedy alternative assumes only a single pass of zero valent iron (ZVI) injections will be required. However, although the success of the PRB technology has been proven at other waste sites outside of SRS, no additional site

**EPA Comments on the Removal Site Evaluation Report / Engineering Evaluation / Cost Analysis for Trichloroethylene Plumes Discharging to Steel Creek in P-Area Groundwater Operable Unit (NBU), CERCLIS Number: 81, SRNS-RP-2017-00372, Revision 0, October 2017, Savannah River Site, South Carolina**

specific data or information is presented to support the assertion that only a single pass of ZVI would be sufficient. As such, the overall impacts to remedy effectiveness and costs would be negative if post injection performance monitoring indicates additional ZVI injections are necessary. Revise the RESER/EE/CA to address this issue.

**SPECIFIC COMMENTS**

1. **Section 5.5, Comparison of Removal Action Alternatives, Page 25 of 58:** Section 5.5 states, "While the effectiveness of Alternative 2B was considered to be high, there is greater uncertainty associated with the conceptual design due to lack of characterization data in this area"; however, it is unclear if associated costs for additional characterization data required in the elbow portion of the distal area are included in the cost estimates for both Alternative 2B and 3B as found in Appendix B – Detailed Cost Estimates. Revise the RSER/EE/CA to address this issue.
2. **Figure 5, UAZ Potentiometric Surface at the PAGW OU and Figure 6, LAZ Potentiometric Surface at the PAGW OU, Pages 38 and 39 of 58:** Figures 5 and 6 depict the potentiometric surfaces of the upper aquifer zone (UAZ) and lower aquifer zone (LAZ), respectively; however, the data used to construct the potentiometric surfaces is not included on the figures. Revise Figures 5 and 6 to include the groundwater elevation data and well nomenclature for each well location used to develop the potentiometric surface for the UAZ and LAZ. Additionally, the data used to construct the figures is from 2010. Revise the Figures 5 and 6 using more recent data, if available to reflect the most current understanding of the site.
3. **Appendix B, Detailed Cost Estimates, Pages B-2 through B-6:** The direct operation and maintenance (O&M) costs for Alternatives 2 and 3 are provided; however, it is unclear what sampling frequency is proposed with these associated costs. Revise the RSER/EE/CA to include the groundwater sampling frequency for each alternative with direct O&M costs.

**MINOR COMMENTS**

1. The titles of Figures 17, 18, 19, and 20 are different than what is listed in the Table of Contents. For example, Figure 17 is entitled "Principal Areas within the TCE Groundwater Plumes"; however, the table of contents indicates the title of Figure 17 is "Principal Areas within the cVOC Groundwater Plumes". Furthermore, Figure 18 is entitled "Alternative 2A: PRB in the Neck Area of the TCE Plumes"; however, the Table of Contents lists the title of this figure as "Alternative 2A: PRB in the Neck Area of the Plumes". For clarity and completeness, revise the RSER/EE/CA to address these issues.
2. Appendix B, Cost Estimates: The abbreviation "CPT" is used within the text of the cost estimates for Alternatives 2 and 3; however, it is not defined in the text, or in the "List of Abbreviations and Acronyms." Revise the RSER/EE/CA to include "CPT" in the List of Abbreviations and Acronyms.