



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4  
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ATLANTA, GEORGIA 30303

November 4, 2019



Mr. Brian T. Hennessey  
SRS Remedial Project Manager  
Area Completion Project  
U. S. Department of Energy  
Savannah River Operations Office  
P.O. Box A  
Aiken, South Carolina 29802

Dear Mr. Hennessey:

**EPA Comments on the Dispute Resolution Agreement Supplemental Tank Closure Activity [STCA]; Evaluation of the Technical Feasibility & Economic Efficiency of TCCR Unit 1 [SRR-CWDA-2019-00089] Rev0, dated Sept 26, 2019**

EPA has reviewed this report as well, as we recognize SC has the lead for this subject. Our comments are attached.

If you have any questions, please contact Jon Richards at 404-562-8648 or richards.jon@epa.gov.

Sincerely,

A handwritten signature in cursive script that reads "Jon Richards".

Jon Richards, FFA RPM  
Restoration & Site Evaluation Branch  
Superfund & Emergency Response Division

cc: C.L. Bergren, SNRS-ACP (Signed Original)  
Susan Fulmer, SCDHEC

## Technical Comments

1. The Technical Feasibility and Economic Efficiency of Savannah River Site Tank Closure Cesium Removal Unit 1 To Process Salt Waste From At Least One Additional Tank, Revision 0, September 25, 2019 (the Evaluation) describes the supplemental tank closure activities including those using the tank closure cesium removal (TCCR) ion exchange technology, performed to comply with the Dispute Resolution Agreement for Alleged Violations of Class 3 Industrial Solid Waste Landfill Permit Facility, Facility ID #025500-1603 United States Department of Energy (DOE) Savannah River Site (Agreement). As part of the Agreement, DOE was required to demonstrate the technical feasibility and economic efficiency of the TCCR Unit 1 for the purpose of providing additional high level waste tank salt processing capacity in order to meet Federal Facility Agreement time deadlines for processing and disposing of such waste. The following items were noted in the Evaluation which may alter the assumptions and conclusions regarding the economic efficiency of the TCCR as currently proposed:
  - a. The Background Section on page 3 of the Evaluation states that additional ion exchange media (approximately 16 columns) and shield assemblies will be purchased to support the removal of waste from Tank 9 and processing through Tank 10 and the TCCR. However, the costs associated with the acquisition of the media and assemblies are not discussed in regards to the overall economic efficiency of employing such technology to expedite salt waste processing and disposal.
  - b. Text in Section 3 (TCCR Operational Evaluation) on page 3 states processing rates of dissolved saltcake from Tank 10 through the TCCR were sustained at 5 gallons per minute (gpm) with short duration runs at 8 and 10 gpm. Additionally, Section 3 also states that the TCCR Unit 1 has processed a total of 210,000 gallons representing approximately 700 hours of operation; however, this section does not describe whether a processing rate of 210,000 gallons over 700 hours (5 gallons per minute) is comparable to the current saltcake treatment rate or how it was determined this was economically efficient.
  - c. Section 3 (TCCR Operational Evaluation) states that qualification testing for the TCCR resulted in measured Cesium-137 (Cs-137) equilibrium loading lower than the projected loadings based on other chemical constituents competing for the same sorption sites on the ion exchange media, and slower reaction kinetics due to a larger manufactured particle size than previously studied. Further, the text indicates activities are in progress to understand current media performance issues and to identify ways to enhance media performance. However, the Evaluation does not indicate when these studies will be completed and how much additional funding will be needed. In addition, it is unclear if the funding needed to conduct process improvement studies was factored into the economic efficiency of using the TCCR.
  - d. Section 3 (TCCR Operational Evaluation) states that efforts are underway to improve the detection system for the decontaminated salt solution (DSS) in order to get a more accurate measurement of the decontamination factor (DF). However, the Evaluation does not explain when an improvement to the detection system may be completed or what additional costs may be associated with the instrumentation.

- e. Section 4 (Conclusions) states that the costs associated with processing salt waste through the TCCR are commensurate with the Salt Waste Processing Facility (SWPF). However, the Evaluation does not provide a comparison of projected costs for processing waste through the SWPF. As a result, the basis for this conclusion is not supported.

Please revise the Evaluation to provide additional explanation to address these issues.

- 2. According to Section 3.1 (Technical Feasibility), one factor considered in assessing the technical feasibility of the TCCR is the Cs-137 decontamination factor (DF). Section 3.1.1 (Decontamination Factor Achieved for Cs-137) states in the last paragraph of this section on page 6, that the Cs-137 concentration in the Tank 9 saltcake waste is uncertain and is anticipated to be much higher than that in Tank 10; therefore, the minimum DF of 1000 should be achieved. However, the text does not state the projected duration to process Tank 9 saltcake through the TCCR given the higher Cs-137 concentration in Tank 9 versus Tank 10. Additionally, it is not clear whether use of the TCCR for the higher concentration of Cs-137 will still be economically efficient given the longer processing times that occurred when the Tank 10 waste was processed through the TCCR. Please revise the Evaluation to address these issues.