



October 22, 2019

Mr. James L. Folk, Jr.
Assistant Manager, Waste Disposition
U. S. Department of Energy
Savannah River Operations Office
Post Office Box A
Aiken, South Carolina 29802

Re: Dispute Resolution Agreement Supplemental Tank Closure Activity (STCA): Evaluation of the Technical Feasibility and Economic Efficiency of Savannah River Site Tank Closure Cesium Removal (TCCR) Unit 1 to Process Salt Waste from at Least One Additional Tank (SRR-CWDA-2019-00089) Revision 0 dated September 26, 2019

Dear Mr. Folk:

The Department has completed its review of the above referenced document pursuant to the October 31, 2016 Dispute Resolution Agreement for Alleged Violations of Class 3 Industrial Waste Landfill Permit Facility, Facility ID #025500-1603. The attached comments were generated as a result of this review. These comments must be addressed prior to final approval of the above referenced document. The appropriate technical staff will be available to participate in a joint comment resolution meeting to discuss these comments, if necessary.

If you have any questions, please contact me at (803) 898-0900.

Sincerely,

Van Keisler, P.G., Director
Compliance and Enforcement Division
Bureau of Land and Waste Management

Attachment

cc: Aaron White, DOE-SR Waste Disposition Programs Division (email copy)
Marty Lindler, BLWM, Solid and Hazardous Waste Compliance (email copy)
Susan Fulmer, P.G., BLWM, Federal Remediation Section (email copy)
Juli Blalock, BLWM, Solid Waste Permitting and Monitoring Section (email copy)
Crystal Rippy, BOW, Industrial Wastewater Permitting Section (email copy)
Barry Mullinax, P.E., BOW, Industrial Wastewater Permitting Section (email copy)

Attachment

1. Section 2, Background, Page 2, second paragraph: This section stated that it is not necessary to remove additional saltcake from Tank 10 to begin processing dissolved salt solution from Tank 9. That is physically true. However, Construction Permit No. 20,150-IW, Special Condition #3, addresses what information shall be provided to SCDHEC for each deployment of the TCCR unit. Please note that Item g for this special condition requires SCDHEC approval prior to making changes for the next deployment.
2. Section 2, Background, Page 2, second paragraph: This section indicates that the use of TCCR for Tank 9 will generate 2.4 million gallons of dissolved salt waste. The use of TCCR for Tank 9 is also expected to require approximately 16 ion exchange columns. TCCR was expected to process approximately 625,000 gallons of salt solution. This is about one-fourth of the salt solution that TCCR will process for Tank 9. Does this mean that only four ion exchange columns will be required to process Tank 10 salt solution?
3. Section 3, TCCR Operational Evaluation, Page 3, fourth paragraph: The last sentence states that activities are in progress to understand current media performance issues and to enhance future media performance. Will updates be provided regarding these activities?
4. Section 3, TCCR Operational Evaluation, Page 4, first paragraph: This section mentions that activities are in progress to enhance the ability to more readily retrieve archived process data to simplify and improve the capability for detailed process evaluations. Will updates be provided regarding these activities?
5. Section 3, TCCR Operational Evaluation, Page 4, first paragraph: This section mentions that the ability of the ventilation system to maintain enclosure temperature during cold ambient temperatures was marginal. Are there any plans to evaluate modifications to improve this system's performance? Will updates be provided regarding these activities?
6. Section 3.1, Technical Feasibility, Page 4: There was no discussion in this section regarding how many curies of Cesium-137 would be removed by the ion exchange column. SCDHEC understood that an ion exchange column was expected to remove 25,000 curies of Cesium-137.
7. Section 3.1.1, Decontamination Factor for Cs-137, Pages 4 -6: This section discusses the DF for Cs-137. There were no DFs given for the VERSE-LC process modeling software compared to radiation detection DFs. There was no discussion on the DFs for each batch nor a method for "weighting" the batch DFs to obtain a bulk volume DF for Tank 10 waste processing.
8. Section 3.1.1, Decontamination Factor for Cs-137, Page 5, third paragraph: This section discusses the problem of the location of the downstream detector not having sufficient distance to allow for Cs-137 and Ba-137m to achieve secular equilibrium. Would processing at a lower processing rate yield more accurate results for DFs? What other options are being considered to improve the radiation detection capability for the DSS stream to better quantify the associated ion exchange column's DF?
9. Section 3.1.2, Worker and Public Safety, Page 6, second paragraph: This section states that DOE is considering the use of slightly smaller diameter ion exchange columns which would improve

heat transfer out of the columns and potentially allow for increased loading of the columns. Does this mean that the loading would be increased over the entire ion exchange column or that the loading would be a more uniform loading?

10. Section 3.1.2, Worker and Public Safety, Page 6, third paragraph: This section indicates that a revision to the Designated Safety Analysis (DSA) will be required to process Tank 9 dissolved salt solution. Will a copy of the revised DSA be provided to SCHEC?

11. Section 3.1.3, Compliance with Applicable Regulations, Page 7, second paragraph: This section states that a revision to Construction Permit No. 20,150-IW is not required. However, Special Condition #3 addresses what information shall be provided to SCDHEC for each deployment of the TCCR unit. Please note that Item g for this special condition requires SCDHEC approval prior to making changes for the next deployment.

12. Section 4, Conclusions, Page 10: It seems that the technical feasibility of TCCR should address the amount of curies removed by an ion exchange column and how many ion exchange columns are expected to be required by TCCR to process a tank's dissolved salt solution.