



Catherine E. Heigel, Director

*Promoting and protecting the health of the public and the environment*

December 16, 2015

Mr. James Shaffner  
U.S. Nuclear Regulatory Commission  
11545 Rockville Pike  
Rockville, MD 20852

RE: *Addendum to the Industrial Wastewater Closure Module for Liquid Waste Tank 12H H-Area Tank Farm, Savannah River Site, SRR-CWDA-2014-00086, Revision 0, May 2015, (SRR-CWDA-2015-00074, Revision 0, October 2015)*  
Savannah River Site  
Aiken County

Dear Mr. Shaffner:

This letter provides notice of the Department's conditional approval of the above-referenced *Addendum to the Industrial Wastewater Closure Module for Liquid Waste Tank 12H H-Area Tank Farm, Savannah River Site, SRR-CWDA-2014-00086, Revision 0, May 2015, (SRR-CWDA-2015-00074, Revision 0, October 2015)*. The decision of South Carolina Department of Health and Environmental Control becomes the final agency decision fifteen (15) calendar days from the mailing date of this letter unless a written request for final review accompanied by a filing fee in the amount of \$100 is filed in accordance with the enclosed copy of the South Carolina Board of Health and Environmental Control Guide to Board Review Pursuant to S.C. Code Section 44-1-60.

Attachment A presents the Department's responses to all comments received during the public comment period regarding the above-referenced Closure Module Addendum. The comments submitted to the Department are included as Attachment B. Attachment C is the Department's conditional approval letter of the above-referenced Closure Module Addendum.

If there are any questions, please contact Barry Mullinax by telephone at 803.898.4012 or by e-mail at [mullinbs@dhec.sc.gov](mailto:mullinbs@dhec.sc.gov).

Sincerely,

Jeffrey P. DeBessonnet, P.E., Director  
Water Facilities Permitting Division

cc via e-mail: Jennifer Hughes, Midlands Region BEHS, Aiken Office  
Shelly Wilson, Federal Facilities Coordinator  
Susan Fulmer, Federal Remediation Section  
Rob Pope, EPA R4

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**Attachment A – Comment Response Matrix**

**ADDENDUM TO THE INDUSTRIAL WASTEWATER CLOSURE MODULE FOR LIQUID WASTE TANK 12H H-AREA TANK FARM,  
SAVANNAH RIVER SITE, [SRR-CWDA-2014-00086], REVISION 0, MAY 2015 - Comment Response Matrix**

UNITED STATES DEPARTMENT OF ENERGY SAVANNAH RIVER SITE		Matrix Doc Number: SRR-CWDA-2015-00167
Document No., Revision, Title: SRR-CWDA-2015-00074, Revision 0, <i>Addendum to the Industrial Waste Water Closure Module for Liquid Waste Tank 12H H-Area Tank Farm, Savannah River Site, SRR-CWDA-2014-00086, Revision 0, May 2015</i>		Matrix Doc Rev: 1  Matrix Doc Date: December 14, 2015
Commenter(s): Nuclear Regulatory Commission		Contact: Joseph Pavletich — (803) 557-9355
No.	Comment	Comment Response
<b>NUCLEAR REGULATORY COMMISSION TANK 12H CLOSURE MODULE ADDENDUM COMMENTS</b>		
1	The SRR-CWDA-2015-00074 addendum to the Tank 12H Closure Module (SRR-CWDA-2014-00086, Rev. 0) includes updates to the inventory and risk estimates for Tank 12H. A significant change to the final volume estimate was associated with a mound located behind the Tank 12H valve house piping that led to an increase in the residual solids (increased from around 1000 to 1500 gallons). As a result of the updated volume estimates and waste sampling, the final inventory for I-129, Pa-231, Th-232, U-232, Zr-93, increased from earlier estimates presented in the Tank 16H Special Analysis. The NRC staff will review final inventory development and risk estimates for Tank 12H and present the results of its review in a technical review report.	Comment acknowledged.  The Nuclear Regulatory Commission (NRC) Technical Review Report (TRR) will be addressed under NRC's monitoring activities, in coordination with the South Carolina Department of Health and Environmental Control (SCDHEC) and the United States Environmental Protection Agency (EPA).

**ADDENDUM TO THE INDUSTRIAL WASTEWATER CLOSURE MODULE FOR LIQUID WASTE TANK 12H H-AREA TANK FARM,  
SAVANNAH RIVER SITE, [SRR-CWDA-2014-00086], REVISION 0, MAY 2015 - Comment Response Matrix**

<b>UNITED STATES DEPARTMENT OF ENERGY SAVANNAH RIVER SITE</b>		<b>Matrix Doc Number:</b> SRR-CWDA-2015-00167
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<b>Commenter(s):</b> Nuclear Regulatory Commission		<b>Matrix Doc Date:</b> December 14, 2015
		<b>Contact:</b> Joseph Pavletich — (803) 557-9355
<b>No.</b>	<b>Comment</b>	<b>Comment Response</b>
2	<p>The SRR-CWDA-2015-00074 addendum to the Tank 12H Closure Module (SRR-CWDA-2014-00086, Rev. 0) includes updated risk estimates based on the final inventory developed for Tank 12H. In previous performance assessment documentation, DOE used deterministic (PORFLOW) modeling to demonstrate compliance with the performance objectives in 10 CFR Part 61, Subpart C. Results from the Tank 12 Special Analysis (SRR-CWDA-2015-00073, Rev. 0) are reproduced in the Addendum. It appears that only GoldSim results are presented in Tank 12H Addendum. Because GoldSim was previously used to perform sensitivity analysis, this change appears to be a significant change. NRC staff will evaluate the change in approach and present the results of its review in a technical review report. However, to the extent that new information is presented in the Addendum that had not previously been presented, DOE should provide additional explanation of the results and a comparison of previously reported results.</p>	<p>The Tank 12H Closure Module Addendum (CMA) uses dose results from the Tank 12H Special Analysis (SA), which were calculated using the H-Area Tank Farm (HTF) GoldSim model. As discussed in Section 5.2 of the CMA, the HTF GoldSim model and HTF PORFLOW model have been benchmarked to ensure the validity of the GoldSim abstraction and provide confidence that the GoldSim results approximate the results of the HTF PORFLOW Model. The HTF GoldSim benchmarking results are documented in the GoldSim Model report prepared for, and referenced in the Tank 16H SA. [SRR-CWDA-2014-00060] The HTF GoldSim model was used previously in the HTF Performance Assessment and Tank 16 SA to provide validated, verified, and checked HTF fate and transport results. The HTF GoldSim model use to support the CMA risk estimates is appropriate considering:</p> <ol style="list-style-type: none"> <li>1) The pedigree of the HTF GoldSim model,</li> <li>2) That no changes were made to the HTF Integrated Conceptual Model (ICM), and</li> <li>3) That only five radionuclide and four chemical constituents had higher final Tank 12H inventories requiring evaluation (Table 1).</li> </ol> <p>The Tank 12H CMA does not include any different modeling information than in the Tank 12H Closure Module. The only new data are the potential impacts of the five radionuclide and four chemical constituents with higher final inventories. The results of the new data are detailed in the Tank 12H CMA.</p> <p>No change to the Tank 12H CMA Rev. 0 is planned.</p> <p>The NRC TRR will be addressed under NRC's monitoring activities, in coordination with SCDHEC and EPA.</p>

**ADDENDUM TO THE INDUSTRIAL WASTEWATER CLOSURE MODULE FOR LIQUID WASTE TANK 12H H-AREA TANK FARM,  
SAVANNAH RIVER SITE, [SRR-CWDA-2014-00086], REVISION 0, MAY 2015 - Comment Response Matrix**

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Commenter(s): Nuclear Regulatory Commission		Contact: Joseph Pavletich — (803) 557-9355
No.	Comment	Comment Response

**Table 1: Tank 12H Radionuclides and Chemicals with Final Inventories Higher Than the Forecasted Inventory  
Used in the Tank 16H Special Analysis**

Constituent with Increased Inventory Value	Forecasted Inventory Used in Tank 16H SA (2032 <sup>a</sup> )	Final Inventory in Tank 12H CMA (2032 <sup>a</sup> )
I-129	2.6E-02 Ci	3.8E-02 Ci
Pa-231	2.1E-03 Ci	1.5E-02 Ci
Th-232	5.5E-02 Ci	6.6E-02 Ci
U-232	2.1E-02 Ci	2.2E-02 Ci
Zr-93	4.0E-01 Ci	4.0E+00 Ci
Silver (Ag)	5.3E+00 kg	7.1E+00 kg
Cobalt (Co)	2.1E-01 kg	4.8E-01 kg
Mercury (Hg)	4.5E+03 kg	5.9E+03 kg
Selenium (Se)	1.1E-02 kg	1.8E-02 kg

<sup>a</sup> Radionuclide inventory decayed to 2032, the anticipated date of HTF closure

**Attachment C - SCDHEC Conditional Approval Letter**

**Attachment B** - NRC Tank 12 Closure Module Addendum Comments

**From:** Shaffner, James

**Sent:** Tuesday, November 17, 2015 4:47 PM

**To:** 'Wilson, Shelly' <WILSONMD@dhec.sc.gov>

**Cc:** 'sherri.ross@srs.gov' <sherri.ross@srs.gov>; 'linda.suttora@em.doe.gov' <linda.suttora@em.doe.gov>

**Subject:** Upon further review NRC does have two T12 CM addendum comments.. Sorry for my earlier premature response:

1. The SRR-CWDA-2015-00074 addendum to the Tank 12H Closure Module (SRR-CWDA-2014-00086, Rev. 0) includes updates to the inventory and risk estimates for Tank 12H. A significant change to the final volume estimate was associated with a mound located behind the Tank 12H valve house piping that led to an increase in the residual solids (increased from around 1000 to 1500 gallons). As a result of the updated volume estimates and waste sampling, the final inventory for I-129, Pa-231, Th-232, U-232, Zr-93, increased from earlier estimates presented in the Tank 16H Special Analysis. The NRC staff will review final inventory development and risk estimates for Tank 12H and present the results of its review in a technical review report.
2. The SRR-CWDA-2015-00074 addendum to the Tank 12H Closure Module (SRR-CWDA-2014-00086, Rev. 0) includes updated risk estimates based on the final inventory developed for Tank 12H. In previous performance assessment documentation, DOE used deterministic (PORFLOW) modeling to demonstrate compliance with the performance objectives in 10 CFR Part 61, Subpart C. Results from the Tank 12 Special Analysis (SRR-CWDA-2015-00073, Rev. 0) are reproduced in the Addendum. It appears that only GoldSim results are presented in Tank 12H Addendum. Because GoldSim was previously used to perform sensitivity analysis, this change appears to be a significant change. NRC staff will evaluate the change in approach and present the results of its review in a technical review report. However, to the extent that new information is presented in the Addendum that had not previously been presented, DOE should provide additional explanation of the results and a comparison of previously reported results.





Catherine E. Heigel, Director

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December 16, 2015

Mr. Victor Franklin, Waste Determinations Director  
Savannah River Remediation, LLC  
Savannah River Site  
Aiken, SC 29808

RE: *Addendum to the Industrial Wastewater Closure Module for Liquid Waste Tank 12H H-Area Tank Farm, Savannah River Site, SRR-CWDA-2014-00086, Revision 0, May 2015, (SRR-CWDA-2015-00074, Revision 0, October 2015)*

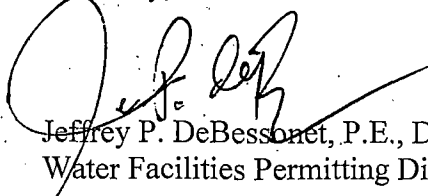
Dear Mr. Franklin:

The South Carolina Department of Health and Environmental Control (SCDHEC) has received the above referenced Revision 0 of the *Addendum to the Industrial Wastewater Closure Module for Liquid Waste Tank 12H H-Area Tank Farm, Savannah River Site, SRR-CWDA-2014-00086, Revision 0, May 2015* that was re-submitted on December 14, 2015. Based on our review, SCDHEC hereby conditionally approves the referenced Industrial Wastewater Closure Module Addendum, Revision 0, for the Liquid Waste Tank 12H as follows:

1. The use of an alternate grout for grouting Tank 12H will require prior approval by SCDHEC before the alternate grout is used. Note that notification of the request for Department approval of the alternate grout may be made by e-mail.
2. To the extent that SCDHEC has new information that has a bearing on the adequacy of closure, SCDHEC reserves the right to modify approval of this closure module in the future to address activities yet to be performed (e.g., cap installation).

If you have any questions, please contact Shelly Wilson at (803) 898-3138.

Sincerely,



Jeffrey P. DeBessonet, P.E., Director  
Water Facilities Permitting Division

cc: Shelly Wilson  
Jennifer Hughes  
Susan Fulmer  
Rob Pope, EPA R4

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