COMMENT RESPONSE MATRIX FOR COMMENTS ON SAVANNAH RIVER REMEDIATION (SRR) *INDUSTRIAL WASTEWATER CLOSURE MODULE FOR F-AREA DIVERSION BOXES 5 AND 6 F-AREA TANK FARM, SAVANNAH RIVER SITE,* SRR-CWDA-2020-00011, REVISION 0A.

UNITED STATES DEPARTMENT OF ENERGY SAVANNAH RIVER SITE	SRR-CWDA-2021-00013, Revision 0	February 22, 2021
Document Reviewed: SRR-CWDA-2020-00011, *Industrial Wastewater Closure Module for F-Area Diversion Boxes 5 and 6 F-Area Tank Farm, Savannah River Site*	**Rev.:** 0A	**Doc. Date:** December 15, 2020
Commenter(s): South Carolina Department of Health and Environmental Control (SCDHEC), U.S. Environmental Protection Agency (EPA), U.S. Department of Energy (DOE)	**Contact:** Joseph Pavletich	

No.	Comment	Comment Response
SCDHEC and EPA comments received via email January 22, 2021; "*Industrial Wastewater Closure Module for F-Area Diversion Boxes 5 and 6, F-Area Tank Farm, Savannah River Site, SRR-CWDA-2020-00011 Draft Revision 0A received via email on 12/15/2020.*"		
General Comments		
	None. Editorial comments regarding spelling, grammar and punctuation have been verbally conveyed to Mr. Joe Pavletich (SRR) and are not submitted as part of these comments.	*Comments have been discussed with Mr. Barry Mullinax (SCDHEC) and will be incorporated into the Closure Module and Inventory Assignment document, SRR-CWDA-2020-00029.*
Specific SCDHEC Comments		
1	Section 1.0, Introduction, page 12, "**Performance Evaluation** (Section 5.0) - Presents the FDB-6 and FDB-6 SA results..." should read "FDB-5 and FDB-6..."	*The Closure Module text will be corrected as noted.*
2	Section 2.8, FDB-6 Inspections, page 32. A "small globule of shiny black material" was noted in FDB-6 and is suggested to be a glue-like material or mastic. The Closure Module notes that the FTF PA methodology assumed the transfer line surface contains residual material in three forms: diffused into the metal, an oxide film coating, and residue film remaining after a transfer and flush. Given that the shiny black material has different properties than metal, would this material be more likely to retain radiological or chemical contaminants and was this possibility considered in the inventory calculations?	It is unknown how the retention properties of this material would compare to those of a metal surface. It is also unknown if this material was ever contacted by the water from either the nozzle hydrotesting leakage or rainwater intrusion that occurred in 1979. Whether this material could have retained any radionuclides or chemicals was not specifically considered. What was considered, was that even if this material was actual waste, which is not suggested by its appearance, the FDB-6 assigned inventory volume of approximately five gallons of sludge, would bound that possibility. *The second sentence in the third paragraph of Closure Module Section 4.1 will be modified to read:* "While not directly analogous, the approach would also include (bound) the small globule of shiny black material, and the small deposit of material seen near Nozzle 3 on the FDB-6 floor during the visual inspection by assuming the vault floor and sump floor have the same residue." (Comment Response continued on next page)

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No.	Comment	Comment Response
2		(Continued from previous page) *In addition, the second sentence in the second paragraph of Closure Module Section 4.3 will be modified to read:* "The dry sludge volume calculated for the affected FDB-6 area is assumed to conservatively bound the 0.3 gallons of visible waste on the floor beneath Nozzle 4 and the small globule of shiny black material near the sump screen."
3	Section 4.1.2, Dry Sludge Concentrations Used for Inventory Calculation, page 40 and Inventory Assignment at Closure for FDB-5 and FDB-6, Section 4.3 Conservatisms in Assigned Inventory, page 17. Please provide some explanation as to how the FDB assignments of 4.07E-02 Ci/ft^2 for Sr-90 and 2.38E-04 Ci/ft^2 for Pu-238 were determined	The full explanation for the basis of the ancillary structure inventory calculation is presented in Section 3.3.3 of the Performance Assessment (PA) for the F-Tank Farm at the Savannah River Site (SRS-REG-2007-00002). In summary, the residual surface area concentration (Ci/ft^2 or kg/ft^2) of the material remaining in the transfer lines (and jumpers) can be calculated by: $C_{\text{per unit area}} = 0.156\ C\ d$ Where C is the concentration in Ci/gal or kg/gal and d is the pipe diameter in inches. Using the theoretical sludge slurry concentrations and a 4-inch I.D. pipe produces (along with an additional 58 radionuclides shown on FTF PA page 229, Table 3.3-11) a Pu-238 value of 2.38E-04 Ci/ft^2 and a Sr-90 value of 4.07E-02 Ci/ft^2. The Pu-238, a primary alpha emitter, and Sr-90, a primary beta-gamma emitter, concentrations were cited for comparison to show that if they were present at the calculated concentrations, the survey readings would have been much higher. (Comment Response continued on next page)

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No.	Comment	Comment Response
3		(Continued from previous page) *The last paragraph in Closure Module Section 4.1.2 will be modified to read:* "… The maximum radioactivity during the two surveys correlated to 5.0E-04 Ci/ft^2 beta-gamma and 2.5E-08 Ci/ft^2 alpha. For comparison, the FDB-5 inventory assignment based on the transfer line concentrations calculated in the FTF PA (Table 3.3-11) had 4.07E-02 Ci/ft^2 for Sr-90 (the primary beta-gamma source) and 2.38E-04 Ci/ft^2 for Pu-238 (the primary alpha source). [SRS-REG-2007-00002] The survey readings would be much higher if the assigned inventory were actually present." *In addition, the last bullet in Closure Module Section 4.4 and Section 4.3 of the Inventory Assignment document, SRR-CWDA-2020-00029, will be modified to read:* "…The maximum radioactivity during the two surveys correlated to 5.0E-04 Ci/ft^2 beta-gamma and 2.5E-08 Ci/ft^2 alpha. For comparison, the FDB-5 inventory assignment based on the transfer line concentrations calculated in the FTF PA (Table 3.3-11) had 4.07E-02 Ci/ft^2 for Sr-90 (the primary beta-gamma source) and 2.38E-04 Ci/ft^2 for Pu-238 (the primary alpha source). [SRS-REG-2007-00002] The survey readings would be much higher if the assigned inventory were actually present."

COMMENT RESPONSE MATRIX FOR COMMENTS ON SAVANNAH RIVER REMEDIATION (SRR)
***INDUSTRIAL WASTEWATER CLOSURE MODULE FOR F-AREA DIVERSION BOXES 5 AND 6 F-AREA TANK FARM, SAVANNAH RIVER SITE,* SRR-CWDA-2020-00011, REVISION 0A.**

UNITED STATES DEPARTMENT OF ENERGY SAVANNAH RIVER SITE	SRR-CWDA-2021-00013, Revision 0	February 22, 2021	
Document Reviewed: SRR-CWDA-2020-00011, *Industrial Wastewater Closure Module for F-Area Diversion Boxes 5 and 6 F-Area Tank Farm, Savannah River Site*		**Rev.:** 0A	**Doc. Date:** December 15, 2020
Commenter(s): South Carolina Department of Health and Environmental Control (SCDHEC), U.S. Environmental Protection Agency (EPA), U.S. Department of Energy (DOE)		**Contact:** Joseph Pavletich	

No.	Comment	Comment Response
Specific EPA Comments[a]		
1	Section 2.7.1 (FDB-6 Leakage and Decontamination History) of the Industrial Wastewater Closure Module for F-Area Diversion Boxes 5 and 6, F-Area Tank Farm, Savannah River Site, TBD [Closure Module] states in March of 1979 contaminated water measured at 1,236 disintegrations per minute per milliliter (d/m/ml) beta-gamma was found in the F-Area Diversion Box (FDB)-6 sump, the source of which appeared to be leakage from a dummy Hanford connector inside the vault. The vault was decontaminated and the sump was drained of water, however the text does not state whether any subsurface areas immediately surrounding the sump/vault, including the subsurface soils were surveyed for contamination. *For completeness in documenting the end-state of the F-Area Diversion Box, please provide a response and/or text revisions to confirm whether subsurface soils surrounding the sump were surveyed for contamination*.	The leakage was inside the FDB-6 stainless-steel vault liner at the wall nozzle and was collected in the sump as designed. Any leakage between the liner and wall would have drained to the leak collection grid system in the concrete pad beneath the stainless-steel liner and would have triggered the leak detection box alarm system. There are no records that the leak detection box alarm was activated, indicating that all leakage was contained inside the vault. There are no records that the surrounding soils were surveyed for contamination. However, based on the FDB-6 system performing as designed and no indication of liquid getting beyond the liner, there would have been no reason to survey the surrounding subsurface soils. *The following text will be added to the end of the first paragraph in Closure Module Section 2.7.1:* "…*The installed FDB-6 leak detection system performed as designed and there was no indication by the system of any liquid getting beyond the stainless steel liner. Therefore, there would have been no reason to believe any material reached the surrounding soil.*"

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No.	Comment	Comment Response
2	The last bulleted item in Section 4.4 (Assigned Inventory Conservatisms) of the Closure Module states radiological inventory for the FDB-5 transfer line was assigned based on radiological surveys showing 4.07E-02 Curies (Ci) per square foot (ft2) beta-gamma based on Strontium-90 (Sr-90) and 2.38E-04 Ci/ft2 alpha, based on an assignment of Plutonium-238 (Pu-238). However, the text does not state how many feet of transfer line were estimated to be present and this impacts the known total affected surface area. *Please revise the Closure Module to include the estimated length of transfer lines for both the FDB-5 and FDB-6.*	The values of 4.07E-02 Ci/ft^2 beta-gamma based on Strontium-90 (Sr-90) and 2.38E-04 Ci/ft^2 alpha based on Pu-238 were taken from the assigned inventory values as explained in SCDHEC Comment Response #3 above. They were not based on any survey results. *The following text will be added to the end of the second paragraph of Closure Module Section 4.1.1:* "The four jumpers in FDB-5 total 60.4 linear feet of pipe. The four jumpers in FDB-6 total 75 linear feet of pipe." *The text in the second paragraph of Closure Module Section 4.1.1 will also be modified to read:* "…A 4-inch I.D. transfer line surface concentration was chosen as the most conservative ~~surface~~ for the ~~jumper~~ surface area calculation. Because the FTF transfer lines are predominantly 2-inch I.D., the use of a 4-inch I.D. ~~lines~~ line surface concentration increases the inventory…"
3	Figure 5.3-1 FTF 1-meter and 100-meter PORFLOW Model Evaluation Sectors of the Closure Module does not include a figure legend to define all the elements (e.g., symbols, lines, colors) depicted in the figure. It is noted the same figure is presented as Figure 6.3-1 in the FDB-5 and FDB-6 Special Analysis for the Performance Assessment for the F-Tank Farm at the Savannah River Site. Figure 6.3-1 also does not include a figure legend but does include a note at the bottom of the figure that states "The individual sectors are indicated by unique diamond colors*." Please revise Figure 5.3-1 of the Closure Module to include a legend defining all the elements (e.g., symbols, lines, colors) depicted in the figure.*	*A legend will be added to Closure Module Figure 5.3-1 as shown in Attachment A of this comment response matrix.*

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No.	Comment	Comment Response
4	The text in Section 7.3.2 Grout functions, Requirements and Formulation of the Closure Module states a low-slump concrete will be used to fill and seal the diversion box (DB) sumps and sump overflow drain lines prior to filling the vaults with controlled low-strength material (CLSM). The text does not indicate if the low-slump concrete is self-leveling or if mechanical vibration will be required. *Please revise the text to indicate if mechanical vibration will be required for the low-slump concrete.*	The use of low-slump concrete is intended to produce a mound approximately 2-feet high (approximately 6 inches above the sump) that will effectively seal off the sump drain, and sump overflow pipe openings. The preference is that the low-slump concrete does not self-level and spread across the entire floor of the diversion boxes before reaching the sump overflow pipe opening, but instead remain within the vicinity of the sump. Therefore, it is not anticipated that mechanical vibration will be used. However, if during placement it is determined that mechanical vibration will aid in the desired placement, it would be utilized. *The following sentence will be added to the end of the third paragraph of Closure Module Section 7.3.2:* "…Because a mound is desired to reach, and effectively seal the drain and sump overflow line openings, no mechanical vibration will be used unless it becomes necessary for desired concrete placement."
5	The F Area Diversion Box #6 Final Volume Determination and Uncertainty Estimate (FDB 6 Volume Determination) Attachment 2 – FDB-6 Photos, Figures 4-8 depicting foreign material on the FDB-6 Floor (i.e., floor Areas B, C and D) includes photographs which do not include any identification of where the identified foreign material is located in the picture. *It is recommended the photos in Figures 4-8 in Attachment 2 be revised to include some demarcation (an arrow, or circle, or other such mark) indicating where the foreign material is located.*	*Arrows will be added to Figures 4-8 of Attachment 2 to the FDB-6 volume report, U-ESR-F-00092, as shown in Attachment B of this comment response matrix. In addition, the following change will be made to the text at the beginning of Attachment 2 to the FDB-6 volume report:* "Figures 2, 3, 4, 5, 6, 7, and 8 show photographs of Areas A, B, C, and D with foreign material. Only the accumulation in Area A is considered a waste accumulation. Foreign material in Figures 4 – 8 are identified with arrows…" *Additional text will also be added to this same paragraph as noted in EPA Comment Response #6 below.* *Note: The reference information for U-ESR-F-00092 will be updated in the Closure Module references to reflect Revision 1 of the document.*

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Document Reviewed: SRR-CWDA-2020-00011, *Industrial Wastewater Closure Module for F-Area Diversion Boxes 5 and 6 F-Area Tank Farm, Savannah River Site*		**Rev.:** 0A	**Doc. Date:** December 15, 2020
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No.	Comment	Comment Response
6	Attachment 3 – Residual Waste Volume Calculations, of the FDB 6 Volume Determination provides the formulas and calculations used to identify the total volume of the accumulated waste material, however, it is unclear how the thickness of 0.875 inches was calculated. For instance, the thickness or measured height of the waste accumulation could not be determined and was not listed. *Please revise this section as appropriate to include this information explaining how the waste accumulation thickness was calculated.*	*The following additional clarification will be added to the end of the first paragraph in Section 6 of the FDB-6 volume report, U-ESR-F-00092:* "…The stainless sheet is shown in Attachment 2, Figure 3. The 11-gauge stainless sheet is 0.125 inches thick (Attachment 5, and Attachment 6, Figure 12)." *In addition, the following text will be added to the third paragraph in Section 6: "…*This is seven times the thickness of the 0.125-inch-thick stainless sheet landmark comparison…" *In addition, an arrow and note will be added to Figure 3 of Attachment 2 to the FDB-6 volume report, U-ESR-F-00092, as shown in Attachment C of this comment response matrix.* *Finally, the following change will be made to the text at the beginning of Attachment 2 to the FDB-6 volume report:* "Figures 2, 3, 4, 5, 6, 7, and 8 show photographs of Areas A, B, C, and D with foreign material. Only the accumulation in Area A is considered a waste accumulation. Foreign material in Figures 4 – 8 are identified with arrows. The 0.125-inch-thick stainless sheet used as a landmark to determine the thickness of the accumulated waste material under Nozzle 4 is shown in Figure 3." *Note: The reference information for U-ESR-F-00092 will be updated in the Closure Module references to reflect Revision 1 of the document.*

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No.	Comment	Comment Response
7	Attachment 1 – FDB-5 Interior Photos with Plan View Drawing Showing Locations, Figure 1: Interior of FDB-5 of the F Area Diversion Box #5 Final Volume Determination and Uncertainty Estimate (FDB 5 Volume Determination) appears to depict multiple bright dotted objects in the bottom middle right side of the photo which are not identified. *Please provide an explanation of the bright dotted objects in the photo of the Interior of FDB-5.*	The "bright objects" are the camera lights reflecting off water in the sump area. The water was introduced during the coring of the FDB-5 cell covers for camera insertion. *The following note will be added to Figure 1 in Attachment 1 to the FDB-5 volume report, U-ESR-F-00094, as shown in Attachment D of this comment response matrix:* "Bright dotted objects are reflections of the camera light." *Note: The reference information for U-ESR-F-00094 will be updated in the Closure Module references to reflect Revision 1 of the document*
8	Figure 1.5-3: View of FDB-5 Sump Area (February 5, 2020) of the F-Area Diversion Box Sample Location Determination Report, December 2020 states radiation monitoring measured a 1 millirem (mrem) per hour extremity dose and no skin, or whole-body dose over the open core hole. However, the text does not state what type of radiation monitoring equipment was used or how the dose was calculated. *Please provide an explanation and/or text revisions to provide this information.*	The dose rates were direct measurements using portable, ion chamber survey instruments. *The last sentence of Closure Module Section 2.4 will be changed to read:* "Radiation monitoring using portable, direct reading, ion chamber survey instruments during the coring and inspection measured a 1 mrem/hr dose and no skin, or whole-body dose over the open core hole."

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No.	Comment	Comment Response
Additional changes based on continued DOE-SR and SRR Review of the draft Industrial Wastewater Closure Module for F-Area Diversion Boxes 5 and 6 and supporting documents		
N/A	The Special Analysis *FDB-5 and FDB-6 Special Analysis for the Performance Assessment for the F-Tank Farm at the Savannah River Site*, SRR-CWDA-2020-00055, will be revised to incorporate DOE-SR review observations.	*The following text will be added ahead of the last sentence in the first paragraph of the Special Analysis Executive Summary:* "This Special Analysis is being created to support operational closure of F-Area Diversion Box (FDB)-5 and FDB-6, which are no longer needed in support of FTF operations." *The following sentence will be added to the beginning of the first paragraph of Section 1.0 of the Special Analysis:* "This Special Analysis is being created to support operational closure of diversion boxes FDB-5 and FDB-6, which are no longer needed in support of FTF operations." *In addition, the first sentence of the last paragraph in Section 5.0 of the Special Analysis will be revised to read:* "~~Table~~ Tables 5.0-1 and 5.0-2 also display ~~displays~~ the Tank 5 and Tank 6 radionuclide and chemical inventories for comparison." *Table 5.0-1 of the Special Analysis will be revised as shown in Attachment E of this comment response matrix.* *The last sentence of the second paragraph in Section 6.2.3 of the Special Analysis will be revised to read:* "Based on the extremely low inventories and associated low doses, no FTF probabilistic modeling for this Special Analysis was performed using the GoldSim model (i.e., the GoldSim model was used only for deterministic modeling)." *The Special Analysis will be revised as noted above, in addition to the revisions noted in the following comment, and re-issued as Revision 1.*

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Document Reviewed: SRR-CWDA-2020-00011, *Industrial Wastewater Closure Module for F-Area Diversion Boxes 5 and 6 F-Area Tank Farm, Savannah River Site*	**Rev.:** 0A	**Doc. Date:** December 15, 2020
Commenter(s): South Carolina Department of Health and Environmental Control (SCDHEC), U.S. Environmental Protection Agency (EPA), U.S. Department of Energy (DOE)	**Contact:** Joseph Pavletich	

No.	Comment	Comment Response
N/A	Transposition errors were noted in Table 6.3-1 of the *FDB-5 and FDB-6 Special Analysis for the Performance Assessment for the F-Tank Farm at the Savannah River Site*, SRR-CWDA-2020-00055, and likewise in Table 5.3-1 of the Closure Module.	*Table 6.3-1 of the Special Analysis and Table 5.3-1 of the Closure Module will be revised to reflect the values shown in Attachment F of this comment response matrix.* *The second paragraph following Table 5.3-1 in the Closure Module will be revised as follows: "*The highest FDB-5 associated peak-groundwater pathway dose within 1,000 years is approximately ~~0.005~~ 0.006 mrem/yr in Sector C at year ~~724~~ 720 and Sector B at year 722 (Table 5.3-1). The highest FDB-6 associated peak-groundwater pathway dose within 1,000 years is approximately 0.01 mrem/yr in Sector D at year 720 (Table 5.3-1). Figure 5.3-2 shows…" *The Special Analysis will be revised as noted above, in addition to revisions noted in the previous comment, and re-issued as Revision 1.* *Note: The reference information for SRR-CWDA-2020-00055 will be updated in the Closure Module references to reflect Revision 1 of the document.*
N/A	The Inventory Assignment document *Inventory Assignment at Closure for FDB-5 and FDB-6,* SRR-CWDA-2020-00029, will be revised to include editorial clarifications.	*The end of the second paragraph in Section 2.4 of the Inventory Assignment document will be revised as follows: "*The FDB-5 total floor surface area (floor plus sump) is approximately 150 square feet (13 feet long by 11.25 feet wide). [SRR-CWDA-2018-00064, U-ESR-F-00092] The four FDB-5 jumpers contribute an additional 32 square feet of surface area (assuming 60.4 linear feet of 2-inch pipe). [W702452, SRR-CWDA-2018-00064] The total assigned inventory surface area for FDB-5 is 182 square feet." (Comment Response continued on next page)

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No.	Comment	Comment Response
		(Continued from previous page) *The end of the fourth paragraph in Section 2.4 of the Inventory Assignment document will be revised as follows: "*The FDB-6 total floor surface area (floor plus sump) is approximately 170 square feet (15 feet long by 11 feet wide). [SRR-CWDA-2018-00064] The four FDB-6 jumpers contribute an additional 39 square feet of surface area (assuming 75 linear feet of 2-inch pipe). [W702275, SRR-CWDA-2018-00064] The total assigned inventory surface area for FDB-6 is 209 square feet." *The text in Section 4.0 of the Inventory Assignment document will be revised as follows: "*…The FTF PA 4-inch core pipe size concentration is the most conservative ~~calculated~~ radiological surface concentration calculated (i.e., approximately thirty percent more Curies per square foot than the FTF PA 3-inch core pipe size concentration) and represents a reasonably bounding floor and jumper coating after flushing ~~(the Tank Farm transfer lines are mainly 2-inch diameter such that using the 4-inches greatly increases the inventory)~~. The DB jumpers were all assumed to be 2-inch inner diameter (even though FDB-6 contains 3-inch core pipe) so using the 4-inch core pipe size concentration accounts for any jumper size variability within the DBs. Using the 4-inch…" *The Inventory Assignment document will be revised as noted above, in addition to revisions noted in SCDHEC Comment Response #3, and re-issued as Revision 1.*

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Document Reviewed: SRR-CWDA-2020-00011, *Industrial Wastewater Closure Module for F-Area Diversion Boxes 5 and 6 F-Area Tank Farm, Savannah River Site*		**Rev.:** 0A	**Doc. Date:** December 15, 2020
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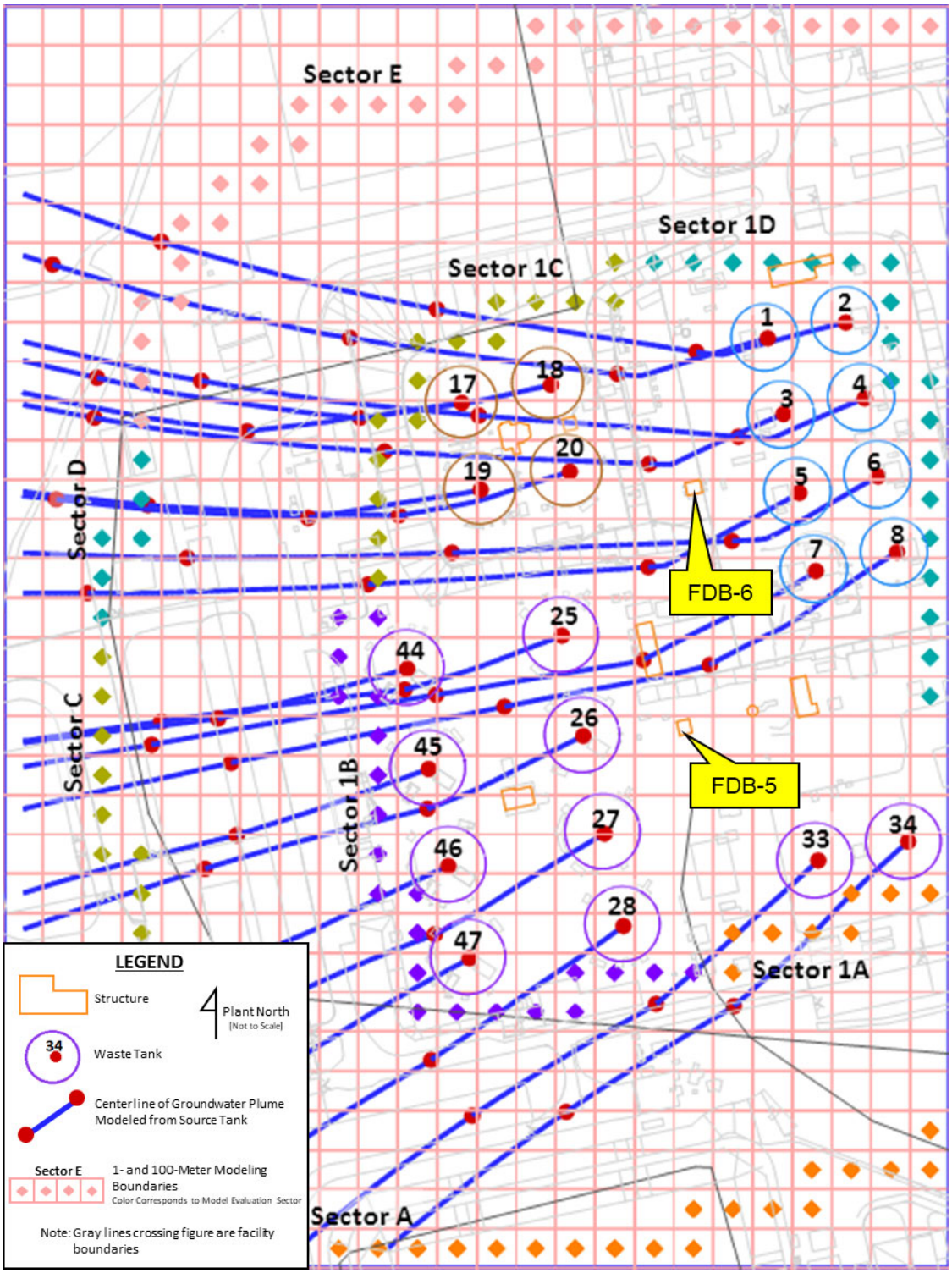
No.	Comment	Comment Response
N/A	The fourth paragraph in Section 7.3.2 of the Closure Module has a placeholder pending response from SCDHEC on the DOE request for the use of alternate fill material. SRR-CWDA-2021-00010, *Request for Approval to use Alternate Fill Materials for Operational Closure of Tank Farm Ancillary Structures at the Savannah River Site, Aiken, South Carolina*, was submitted to SCDHEC on February 3, 2021.	*The fourth paragraph of Section 7.3.2 of the Closure Module and the reference section of the Closure Module will be updated appropriately pending SCDHEC's decision on the request.*

[a] The EPA comments were also received on January 20, 2021 vis letter from Jon Richards, U.S. Environmental Protection Agency, Federal Facilities Agreement Remedial Project Manager to Brian Hennessey, U.S. Department of Energy, SRS Remedial Project Manager as; *EPA Comments on the REVIEW OF THE INDUSTRIAL WASTEWATER CLOSURE MODULE FOR F-AREA DIVERSION BOXES 5 AND 6 F-AREA TANK FARM, SAVANNAH RIVER SITE [SRR-CWDA-2020-00011], DRAFT REVISION 0A, TBD; F-AREA DIVERSION BOX #6 FINAL VOLUME DETERMINATION AND NCERTAINTY ESTIMATE, [U-ESR-F-00092], REVISION 0, MAY 14, 2020; F-AREA DIVERSION BOX #5 FINAL VOLUME DETERMINATION AND UNCERTAINTY ESTIMATE, [U-ESR-F-00094], REVISION 0, MAY 27, 2020; F-AREA DIVERSION BOX 5 SAMPLE LOCATION DETERMINATION REPORT, [SRR-CWDA-2020-00024], REVISION 0 DECEMBER 2020; INVENTORY ASSIGNMENT AT CLOSURE FOR FDB-5 AND FDB-6, [SRR-CWDA-2020-00029], REVISION 0, OCTOBER 14, 2020; F-AREA DIVERSION BOX 6 SAMPLE LOCATION DETERMINATION REPORT, [SRR-CWDA-2020-00033], REVISION 0, DECEMBER 2020; AND, FDB-5 AND FDB-6 SPECIAL ANALYSIS FOR THE PERFORMANCE ASSESSMENT FOR THE F-TANK FARM AT THE SAVANNAH RIVER SITE, [SRR-CWDA-2020-00055], REVISION 0, DECEMBER 2020*

Attachment A:

Revised FDB-5 and 6 Closure Module Figure 5.3-1



Attachment B:

Revised FDB-6 Final Volume Determination and Uncertainty Estimate, Attachment 2, Figures 4 through 8

Figure 4: Foreign material on FDB-6 floor Area B

Figure 5: Foreign material on FDB-6 floor Area B

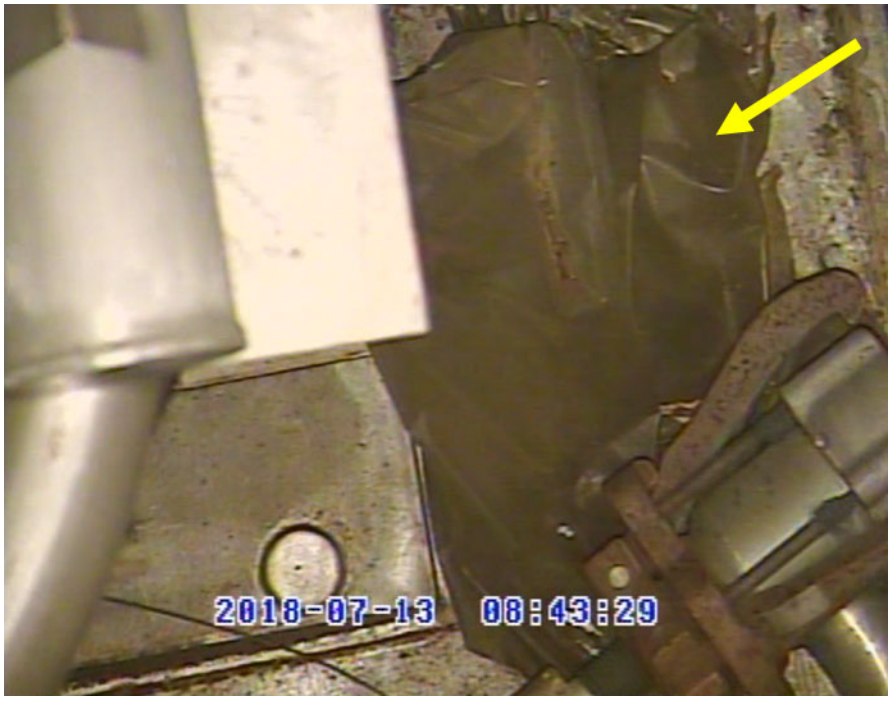


Figure 6: Foreign material on FDB-6 floor Area C

Figure 7: Foreign material on FDB-6 floor Area C

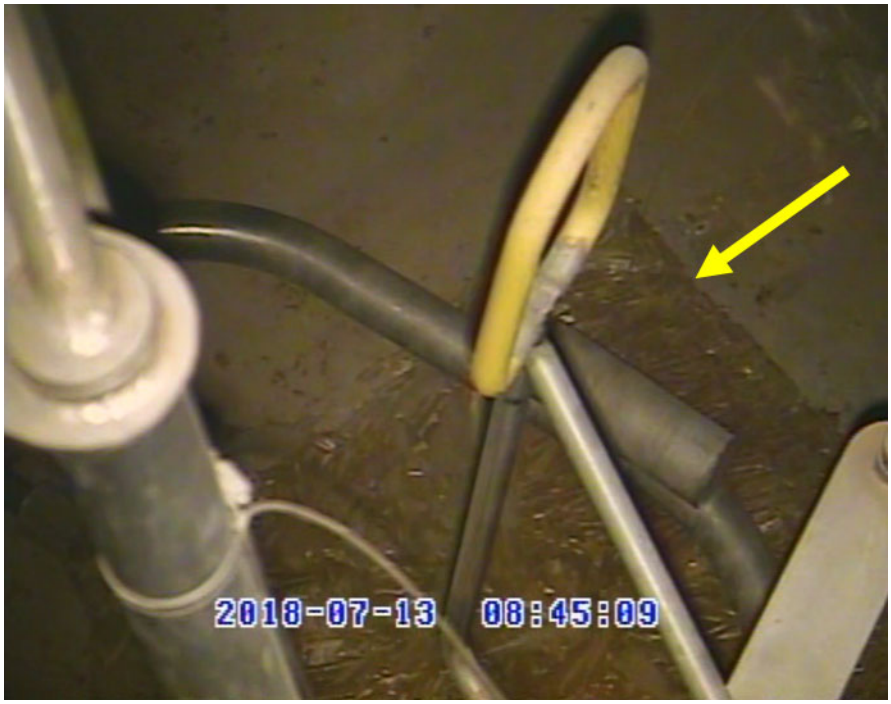
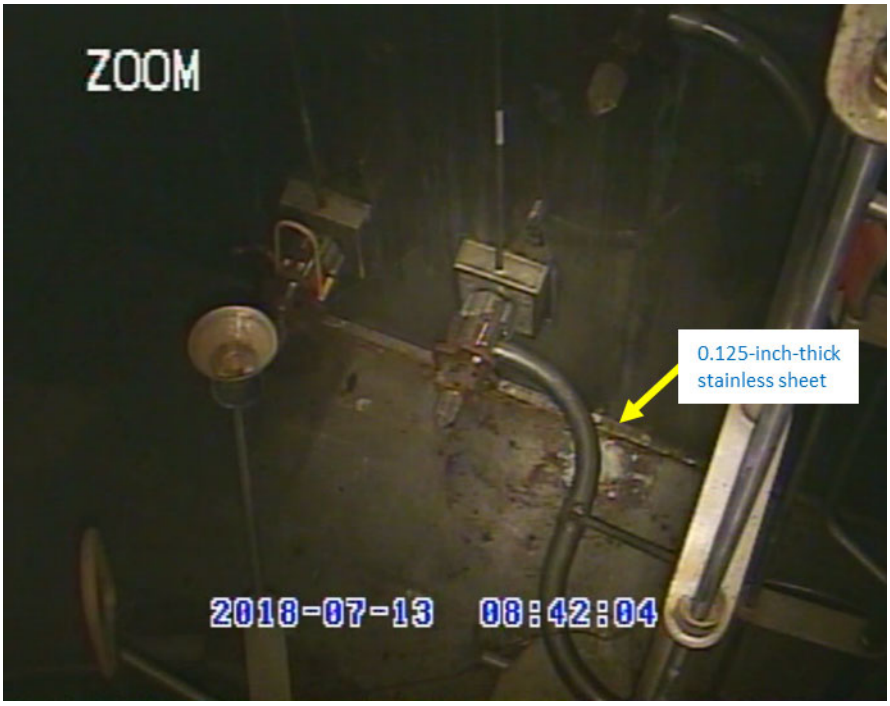


Figure 8: Foreign material on FDB-6 floor near sump Area D

Attachment C:

Revised FDB-6 Final Volume Determination and Uncertainty Estimate, Attachment 2, Figure 3

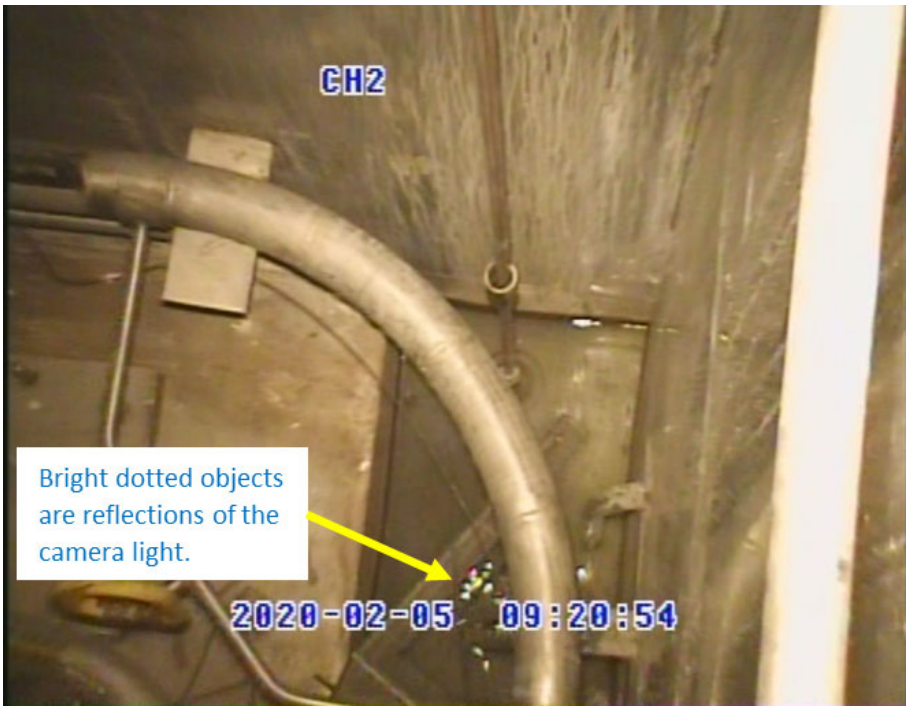
Figure 3: Accumulation of waste material Area A



Attachment D:

Revised FDB-5 Final Volume Determination and Uncertainty Estimate, Attachment 1, Figure 1

Figure 1: Interior of FDB-5



Attachment E:

Revised Special Analysis Table 5.0-1

Table 5.0-1: FDB-5 and FDB-6 Radionuclide Inventories (Ci) (ND = Not determined)

Radionuclide	FDB-5	Tank 5 Actual	FDB-6	Tank 6 Actual
Ac-227	1.81E-10	6.9E-04	2.08E-10	8.1E-05
Al-26	1.76E-06	1.2E-01	2.03E-06	ND
Am-241	1.38E-01	6.9E+02	1.59E-01	1.3E+03
Am-242m	1.98E-04	1.7E+00	2.28E-04	1.8E+00
Am-243	2.26E-05	5.3E+00	2.59E-05	3.0E+01
Ba-137m	1.29E+00	3.3E+03	1.48E+00	6.3E+03
Bk-249	5.21E-31	ND	5.98E-31	ND
C-14	1.01E-05	7.1E-03	1.16E-05	3.1E-01
Ce-144	4.51E-10	7.0E-02	5.18E-10	6.4E-02
Cf-249	1.91E-22	2.8E-02	2.19E-22	ND
Cm-242	5.70E-22	ND	6.54E-22	ND
Cm-243	3.33E-06	4.5E-01	3.82E-06	6.2E+00
Cm-244	6.39E-03	2.2E+01	7.34E-03	7.3E+02
Cm-245	8.19E-08	5.4E-03	9.41E-08	1.0E-01
Cm-247	3.06E-20	9.7E-07	3.51E-20	2.4E-06
Cm-248	7.04E-21	1.3E-04	8.09E-21	1.2E-04
Co-60	5.51E-03	2.2E+01	6.33E-03	4.2E+01
Cs-134	3.06E-06	ND	3.51E-06	ND
Cs-135	3.88E-06	2.2E-02	4.45E-06	4.2E-02
Cs-137	1.38E+00	3.5E+03	1.59E+00	6.7E+03
Eu-152	1.57E-03	9.0E-01	1.80E-03	1.4E+00
Eu-154	1.71E-02	1.5E+02	1.96E-02	1.6E+02
Eu-155	1.52E-02	ND	1.75E-02	ND
H-3	1.93E-04	4.9E-02	2.22E-04	1.8E-01
I-129	1.68E-08	2.2E-03	1.93E-08	3.0E-03
Na-22	2.77E-06	ND	3.18E-06	ND
Nb-94	8.92E-06	1.1E-02	1.02E-05	1.5E-02
Ni-59	3.97E-04	6.0E+01	4.56E-04	7.5E+01
Ni-63	3.29E-02	3.1E+03	3.78E-02	5.2E+03
Np-237	1.87E-05	2.6E-01	2.15E-05	4.7E-01
Pa-231	7.39E-09	1.4E-03	8.49E-09	6.0E-03
Pm-147	1.48E-02	ND	1.69E-02	ND
Pr-144	4.51E-10	ND	5.18E-10	ND
Pu-238	4.33E-02	2.5E+01	4.97E-02	4.8E+01
Pu-239	1.70E-02	8.5E+01	1.96E-02	4.5E+01
Pu-240	6.26E-03	2.0E+01	7.19E-03	2.8E+01
Pu-241	2.95E-02	5.3E+01	3.39E-02	6.8E+01
Pu-242	5.15E-05	3.9E-03	5.91E-05	3.3E-02
Pu-244	2.42E-08	7.1E-06	2.78E-08	8.5E-06
Ra-226	3.40E-05	6.5E-03	3.91E-05	3.8E-02
Rh-106	3.51E-08	ND	4.03E-08	ND
Ru-106	3.51E-08	ND	4.03E-08	ND
Sb-125	9.66E-04	ND	1.11E-03	ND
Sb-126	5.28E-05	ND	6.06E-05	ND
Sb-126m	3.77E-04	ND	4.33E-04	ND
Se-79	2.00E-04	1.3E-01	2.30E-04	3.0E-01
Sm-151	5.84E-01	7.3E+03	6.71E-01	2.9E+03
Sn-126	3.77E-04	7.7E+00	4.33E-04	9.3E+00
Sr-90	7.41E+00	9.7E+04	8.51E+00	2.0E+05
Tc-99	3.55E-03	1.0E-01	4.08E-03	1.7E+00
Te-125m	2.37E-04	ND	2.72E-04	ND
Th-229	1.19E-05	2.9E-04	1.36E-05	1.5E-03
Th-230	3.39E-05	2.2E-02	3.89E-05	1.5E-02
U-232	1.76E-07	4.1E-05	2.02E-07	1.1E-03
U-233	8.81E-05	2.2E-03	1.01E-04	5.2E-02
U-234	5.66E-05	4.5E-02	6.50E-05	1.5E-01
U-235	6.70E-07	2.0E-03	7.69E-07	6.8E-03
U-236	1.08E-06	2.5E-03	1.24E-06	8.3E-03
U-238	3.31E-05	4.7E-02	3.80E-05	2.5E-01
Y-90	7.41E+00	9.7E+04	8.51E+00	2.0E+05

Attachment F:

Revised Values for Special Analysis Table 6.3-1 and Closure Module Table 5.3-1:

(Note: Changed values are in highlighted cells)

Sector	FTF Highest Peak Dose in 1,000 Years	FDB-5 Highest Peak Dose in 1,000 Years	FDB-6 Highest Peak Dose in 1,000 Years	FTF Highest Peak Dose in 10,000 Years	FDB-5 Highest Peak Dose in 10,000 Years	FDB-6 Highest Peak Dose in 10,000 Years
A	0.1 mrem/yr (year 752)	0.001 mrem/yr (year 724)	<0.001 mrem/yr	0.1 mrem/yr (year 752)	0.001 mrem/yr (year 724)	<0.001 mrem/yr
B	0.1 mrem/yr (year 754)	0.006 mrem/yr (year 722)	<0.001 mrem/yr	0.1 mrem/yr (year 754)	0.006 mrem/yr (year 722)	<0.001 mrem/yr
C	0.1 mrem/yr (year 740)	0.006 mrem/yr (year 720)	0.005 mrem/yr (year 724)	0.2 mrem/yr (year 4,306)	0.006 mrem/yr (year 720)	0.005 mrem/yr (year 724)
D	0.3 mrem/yr (year 704)	<0.001 mrem/yr	0.01 mrem/yr (year 720)	1.8 mrem/yr (year 6,056)	<0.001 mrem/yr	0.01 mrem/yr (year 720)
E	0.4 mrem/yr (year 704)	<0.001 mrem/yr	0.004 mrem/yr (year 720)	3.3 mrem/yr (year 10,000)	<0.001 mrem/yr	0.004 mrem/yr (year 720)

Note: Dose values are shown to two significant figures to illustrate changes/trends. The use of two significant figures is not meant to imply this level of precision for these dose projections.