



Department of Energy
Savannah River Operations Office
P.O. Box A
Aiken, South Carolina 29802

Ms. Susan B. Fulmer, P. G., Manager
Federal Remediation Section
Division of Site Assessment, Remediation and Revitalization
Bureau of Land and Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

JAN - 2 2018

Mr. Jon Richards
Acting Savannah River Site Remedial Project Manager
Superfund Division
U. S. Environmental Protection Agency, Region 4
61 Forsyth Street, SW
Atlanta, Georgia 30303

Dear Ms. Fulmer and Mr. Richards:

SUBJECT: Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units with Geosynthetic or Stabilization/Solidification Cover Systems (U) Aiken, South Carolina (SRNS-RP-2016-00610, Revision 1.1, December 2017) (Redline Pages), Savannah River Site Fifth Five-Year Remedy Review Report for SRS Operable Units with Geosynthetic or Stabilization/Solidification Cover Systems Fact Sheet (ERD-EN-2016-0050, December 2017) (Redline Pages), and Savannah River Site's Responses to the Regulatory Comments on the Revision 1 Document

The U.S. Department of Energy is submitting the subject information for your review. The redline pages for the Revision 1 Remedy Review Report and Fact Sheet and Savannah River Site's (SRS) responses to the regulatory comments on the Revision 0 document were submitted to the South Carolina Department of Health and Environmental Control (SCDHEC) and U. S. Environmental Protection Agency (EPA) on August 29, 2017. The SCDHEC's and EPA's comments were received on October 12, 2017 and October 16, 2017, respectively. The SRS' responses to the SCDHEC's and EPA's comments are enclosed. These responses are reflected in the redline pages for the Revision 1.1 Remedy Review Report and Fact Sheet.

Please review the enclosures and provide your responses within thirty (30) days of receipt. The effort and time that the SCDHEC and EPA have given on the subject report are greatly appreciated.

Ms. Susan B. Fulmer
Mr. Jon Richards

2

JAN - 2 2018

Questions from you or your staff may be directed to me at (803) 952-8365.

Sincerely,



Brian T. Hennessey
SRS Remedial Project Manager
Infrastructure and Area Completion Division

IACD-18-118

Enclosures:

1. Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units with Geosynthetic or Stabilization/Solidification Cover Systems (U) Aiken, South Carolina (SRNS-RP-2016-00610, Revision 1.1, December 2017) (Redline Pages)
2. Savannah River Site Fifth Five-Year Remedy Review Report for SRS Operable Units with Geosynthetic or Stabilization/Solidification Cover Systems Fact Sheet (ERD-EN-2016-0050, December 2017) (Redline Pages)
3. SRS Responses to South Carolina Department of Health and Environmental Control Comments on Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units with Geosynthetic or Stabilization/Solidification Cover Systems (U) Aiken, South Carolina (SRNS-RP-2016-00610, Revision 1, August 2017 (Redline Pages))
4. SRS Responses to United States Environmental Protection Agency Comments on Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units with Geosynthetic or Stabilization/Solidification Cover Systems (U) Aiken, South Carolina (SRNS-RP-2016-00610, Revision 1, August 2017 (Redline Pages))

cc w/o encl:

G. K. Taylor, SCDHEC – Columbia
D. Scaturro, SCDHEC - Columbia
S. French, SCDHEC - Columbia
M. D. Wilson, SCDHEC - Columbia
T. Fuss, SCDHEC – Aiken Environmental Affairs Office
R. Pope, EPA-Atlanta

cc w/encl:

D. Lloyd, EPA-Atlanta
J. Tufts, EPA-Atlanta
M. McRae, TechLaw, Inc.

**SRS Responses to South Carolina Department of Health and Environmental Control
Comments on:
Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units
with Geosynthetic or Stabilization/Solidification Systems (U), Aiken, South Carolina
(SRNS-RP-2016-00610, Revision 1, August 2017 (Redline Pages)) received August 30, 2017**

Page 1 of 1

Comments Received 10/12/2017

Specific Comments

1. Appendix E, Attachment E-1, Section V, page 30. The "Gates secured" checked box in Section V was deleted and replaced with another checked box instead of an empty one. Please correct.

Response: Agree. The box for "Gates Secured" will be shown as unchecked.

Responsible Party: Sadika O'Quinn, (803)952-6697, sadika.oquinn@srs.gov

2. Appendix I, Section IV, Remedial Actions. According to Attachment I-1, Section V, the GSACU OU including Old Radioactive Waste Burial Ground and Old Solvent Tanks requires OU-specific fencing. Section IV, Remedial Action, should be revised to include language regarding the OU-specific fencing consistent with Appendix D and L. Please correct.

Response: Agree. Section IV, Remedial Actions, and Section X, Protectiveness Statement(s) have been modified to include language regarding the OU-specific fencing.

Responsible Party: Sadika O'Quinn, (803)952-6697, sadika.oquinn@srs.gov

3. Appendix L, Attachment L-1, Section V, page L-28. The "N/A" box under Fencing Damage should be unchecked as OU-specific fencing is required for this OU. Please correct.

Response: Agree. Appendix L, Attachment L-1, Section V, was modified to show the box for "N/A" as unchecked.

Responsible Party: Sadika O'Quinn, (803)952-6697, sadika.oquinn@srs.gov

**SRS Responses to United States Environmental Protection Agency
Comments on:
Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units
with Geosynthetic or Stabilization/Solidification Systems (U), Aiken, South Carolina
(SRNS-RP-2016-00610, Revision 1, August 2017 (Redline Pages))**

Page 1 of 16

Comments Received 10/16/2017

GENERAL COMMENT:

1. LUC objectives are listed in the remedial activities sections for each of the following OUs: D-Area Expanded Operable Unit (Appendix E), F-Area Retention Basin (Appendix G), K-Area Reactor Seepage Basin (Appendix J), L-Area Oil and Chemical Basin (Appendix K), and Old F-Area Seepage Basin (Appendix M). However, the FYR appendix for each of these OUs does not discuss whether a LUCIP, or other appropriate post-ROD document, containing the federal facility LUC checklist items (including checklist statement regarding required 120(h) deed notices/restrictions) been prepared for each of the OUs? *Please indicate in the remedy technical assessment section whether a LUCIP governing LUC implementation, maintenance, monitoring and enforcement has been prepared. If not, please indicate when a LUCIP, or other appropriate post-ROD LUC implementation document, will be prepared for each of these OUs.*

Response: Agree with clarification.

A LUCIP has been approved for each OU with the exception of the E-Area LLWF OU (Appendix F) and the FTF OU (Appendix H) which are currently in the operational phase. In many cases, the OU-specific LUCIP is located in a Post-Construction Report (PCR) already referenced in the Five-Year Remedy Review Report.

For consistency, Section VII. Technical Assessment, *Is the Remedy Functioning as Intended by the Decision Document?* will be revised for the BAOU (Appendix C), DEXOU (Appendix E), FRB OU (Appendix G), KRSB OU (Appendix J), LAOCB and LAACB OU (Appendix K), LRSB OU (Appendix L), and OFASB OU (Appendix M) to identify the location and purpose of the OU-specific LUCIP document. The reference to the OU-specific LUCIP document will be added to Section XII. *Documents Reviewed* if not previously included.

In addition, text will be added Section VII for the E-Area LLWF (Appendix F) and FTF OU (Appendix H) as shown below to explain that LUCs have been deferred until final closure of the respective facility.

No changes were needed for the CRSB OU (Appendix D), GSACU OU (Appendix I), PAOU (Appendix N), PRSB OU (Appendix O), RBRP/RRP OU (Appendix P), and TAOU (Appendix Q).

**SRS Responses to United States Environmental Protection Agency
Comments on:
Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units
with Geosynthetic or Stabilization/Solidification Systems (U), Aiken, South Carolina
(SRNS-RP-2016-00610, Revision 1, August 2017 (Redline Pages))**

Page 2 of 16

Comments Received 10/16/2017

Text as shown below will be added to the OU appendices as follows:

(a) BAOU (Appendix C)

Section VII. Technical Assessment: “The Land Use Control Implementation Plan for the BAOU governs LUC implementation, maintenance, monitoring, reporting, and enforcement (SRNS 2014). All LUC objectives are being met.”

Section XII: Documents Reviewed: “SRNS, 2014. *Land Use Control Implementation Plan (LUCIP) for the B-Area Operable Unit*, SRNS-RP-2013-00113, Revision 1, Savannah River Site Nuclear Solutions, LLC, Savannah River Site, Aiken, SC”

(b) DEXOU (Appendix E)

Section VII. Technical Assessment: “The Land Use Control Implementation Plan for the DEXOU governs LUC implementation, maintenance, monitoring, reporting, and enforcement (WSRC 2005). All LUC objectives are being met.”

Section XII: Documents Reviewed: “WSRC, 2005. *Land Use Control Implementation Plan (LUCIP) for the D-Area Expanded Operable Unit (DEXOU)(U)*, WSRC-RP-2004-4065, Revision 1, Westinghouse Savannah River Company LLC, Savannah River Site, Aiken, SC”

(c) E-Area LLWF (Appendix F)

Section VII. Technical Assessment: “The E-Area LLWF is currently in the operational phase and access is controlled by SRS facility security and administrative controls. OU-specific LUCs have been deferred until final closure of the entire E-Area LLWF.”

(d) FRB OU (Appendix G)

Section VII. Technical Assessment: “The Land Use Control Implementation Plan for the FRB OU is located in Appendix A of the CMIR/PCR/FRR and governs LUC implementation, maintenance, monitoring, reporting, and enforcement (WSRC 2001). All LUC objectives are being met.”

**SRS Responses to United States Environmental Protection Agency
Comments on:
Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units
with Geosynthetic or Stabilization/Solidification Systems (U), Aiken, South Carolina
(SRNS-RP-2016-00610, Revision 1, August 2017 (Redline Pages))**

Page 3 of 16

Comments Received 10/16/2017

(e) FTF OU (Appendix H)

Section VII. Technical Assessment: “The FTF OU is currently in the operational phase and access is controlled by SRS facility security and administrative controls. OU-specific LUCs have been deferred until final closure of the entire FTF OU.”

(f) KRSB OU (Appendix J)

Section VII. Technical Assessment: “The Land Use Control Implementation Plan for the KRSB OU is located in Appendix A of the PCR/FRR and governs LUC implementation, maintenance, monitoring, reporting, and enforcement (WSRC 2002). All LUC objectives are being met.”

(g) LAOCB and LAACB OU (Appendix K)

The text in Section VII. Technical Assessment will be modified as follows: “The Land Use Control Implementation Plan for LAOCB OU is located in Appendix A of the PCR/FRR and governs LUC implementation, maintenance, monitoring, reporting, and enforcement of LUCs (WSRC 2001). All LUC objectives are being met.”

(h) LRSB OU (Appendix L)

The text in Section VII. Technical Assessment will be modified as follows: “The Land Use Control Implementation Plans (LUCIP) for LRSB OU is located in Appendix A of the PCR/FRR for the LRSB OU (WSRC 2004), and the LUCIP for the CRSB Basin 2 govern is located in Appendix A of the PCR/FRR for the CRSB OU (WSRC 2003). Both LUCIPs govern LUC implementation, maintenance, monitoring, reporting, and enforcement of LUCs (WSRC 2004 and WSRC 2003, respectively). All LUC objectives are being met.”

(i) OFASB OU (Appendix M)

The text in Section VII. Technical Assessment will be modified as follows: “The Land Use Control Implementation Plan for the OFASB OU is located in Appendix A of the Post-Construction Report and governs LUC implementation, maintenance, monitoring, reporting, and enforcement (WSRC 2001). All LUC objectives are being met.”

Responsible Party: Sadika O’Quinn, (803)952-6697, sadika.oquinn@srs.gov

**SRS Responses to United States Environmental Protection Agency
Comments on:
Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units
with Geosynthetic or Stabilization/Solidification Systems (U), Aiken, South Carolina
(SRNS-RP-2016-00610, Revision 1, August 2017 (Redline Pages))**

Page 4 of 16

Comments Received 10/16/2017

SPECIFIC COMMENTS

2. **Table A-3 (page A-15, Rev.1 redline).** As indicated in footnote “a”, shaded text in the table identifies SRS OUs evaluated in this report. H-Area Tank Farm (Waste Tank 16) IROD and H-Area Tank Farm (Waste Tank 12) ESD to the IROD *should not be highlighted in the table* as these were not evaluated in this FYR report (as indicated in footnote “d” in Table A-2).

Response: Agree. The entry for the H-Area Tank Farm (Waste Tank 16) IROD and H-Area Tank Farm (Waste Tank 12) ESD to the IROD will be modified as suggested.

Responsible Party: Sadika O’Quinn, (803)952-6697, sadika.oquinn@srs.gov

3. **Appendix D, C-Area Reactor Seepage Basin, Section IV (Remedy Selection) (page D-6, Rev.1 redline), Fifth bullet** states that LUCs will include “evaluation of the need for deed notification/restrictions if the property is ever transferred to non-federal ownership.” The applicable post-ROD document, e.g., LUCIP or post construction report, should contain an evaluation of the need for use restrictions and specified necessary restrictions, i.e., restrictions on uses other than industrial, prohibition on digging in solidification/capped areas, etc. In addition, the LUCIP for C-Area Reactor Seepage Basin should contain a statement regarding the statutorily required deed notice statement as indicated in the LUC Checklist for federal facilities: “Each transfer of fee title from the United States will include a CERCLA 120(h)(3) covenant which will have a description of the residual contamination on the property and the environmental use restrictions, expressly prohibiting activities inconsistent with the performance measure goals and objectives.” IF LUC objectives have not been fully evaluated and all LUC checklist items (including checklist statement regarding required 120(h) deed notices/restrictions) have not been included in the appropriate post-ROD document, e.g., LUCIP, *please include recommendation in FYR that this evaluation occur to ensure remedy is CERCLA compliant and is fully protective in the long-term.*

Response: Clarification. LUC objectives were fully evaluated and the requirements of CERCLA 120(h) for deed notices/restrictions were documented in Appendix A (LUCIP for the C-Area Reactor Seepage Basin OU) of the *Post-Construction Report (PCR)/Final Remediation Report (FRR) for the C-Area Reactor Seepage Basin (904-66G, -67G, -68G) Operable Unit (WSRC-RP-2002-4149, Revision 1).*

To clarify that LUCs will include deed notification/restrictions if the property is ever transferred to non-federal ownership, the fifth bullet will be revised as follows:

~~“Evaluation of the need for d~~Deed notification/restrictions if the property is ever transferred to non-federal ownership.”

**SRS Responses to United States Environmental Protection Agency
Comments on:
Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units
with Geosynthetic or Stabilization/Solidification Systems (U), Aiken, South Carolina
(SRNS-RP-2016-00610, Revision 1, August 2017 (Redline Pages))**

Page 5 of 16

Comments Received 10/16/2017

Responsible Party: Sadika O'Quinn, (803)952-6697, sadika.oquinn@srs.gov

4. Appendix D, C-Area Reactor Seepage Basin, Section VI (Data Review) (page D-7, Rev.1 redline). First sentence in Data Review section states that the "Post Construction Report (PCR) (WSRC 2003) documents that contaminated soils associated with the CRSB OU were excavated and placed within the basin. The consolidation minimized the lateral extent of contaminated soils." However, under Section IV (Remedy Implementation) (page D-5 of Rev. 1 redline), the first bullet states that consolidation of contaminated soils outside the basin "was *not* performed because the contaminated soil outside the basins did not exceed PTSM criteria, leachability RGs or surficial exposure RGs." *Please revise the FYR to rectify these two contradictory statements.*

Response: Agree. The following text in the Data Review under Section VI (Five-Year Review Process) will be deleted:

~~"The Post Construction Report (PCR) (WSRC 2003) documents that contaminated soils associated with the CRSB OU were excavated and placed within the basins. The consolidation minimized the lateral extent of contaminated soils. The soil stabilization within Basins 1 and 3 followed by placement of a low permeability cover resulted in eliminating the exposure pathway for humans or ecological receptors."~~

Responsible Party: Sadika O'Quinn, (803)952-6697, sadika.oquinn@srs.gov

5. Appendix E, D-Area Expanded Operable Unit, Section IV (Remedial Actions, 488-D Ash Basin) (page E-7, Rev.0), states that the remedy to address "low-level threat source material with elevated metals and Aroclor 1254" included "consolidating excavated soils and waste material from DRP to the 488-DAB." However, the subsequent "Remedy Implementation" (page E-8 in Rev.0) section states that "remedial activities for the DRP" included "removing 56.6 m³ of PCB-contaminated soil at a concentration greater than 1 mg/kg" to an off-site disposal facility. *Please clarify whether ROD required all PCB-contaminated soils be disposed off-site or whether any PCB-contaminated soils from DRP were consolidated in 488-D, for example, if characterized at levels below 1 mg/kg.*

Response: Agree with clarification. The remedy selected in the ROD for DRP included placement of the PCB contaminated soil under the 488-DAB geosynthetic cover rather than off-site disposal. The first bullet under Remedy Implementation will be revised consistent with the PCR/CMIR/RACR (WSRC 2008) as follows:

~~"Removing approximately 56.6 m³ (2,000 ft³) of PCB-contaminated soil at a concentration greater than 1 mg/kg by excavating, packing and shipping to an~~

SRS Responses to United States Environmental Protection Agency

Comments on:

**Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units
with Geosynthetic or Stabilization/Solidification Systems (U), Aiken, South Carolina
(SRNS-RP-2016-00610, Revision 1, August 2017 (Redline Pages))**

Page 6 of 16

Comments Received 10/16/2017

~~approved off SRS disposal facility and transporting to 488-DAB.~~ The area was sampled for confirmation that PCBs were removed to meet the RG.”

Responsible Party: Sadika O’Quinn, (803)952-6697, sadika.oquinn@srs.gov

6. Appendix F, E-Area LLWF, Section III (Background)(page F-1 of Rev.0). As currently written in paragraph one, the first sentence and last sentence appear contradictory. EPA *recommends clarifying by reordering and revising paragraph one to read as follows (added text in underline)*: “The E-Area LLWF was not part of the 1993 FFA because the U.S. Department of Energy (USDOE) operates and maintains the facility under the authority of the Atomic Energy Act (AEA) and in accordance with USDOE Order 435.1, Radioactive Waste Management. However, the EPA, DOE and SCDHEC reached agreement in 2007 to include the E-Area LLWF listed as a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) regulated unit listed in Appendix C of the Federal Facility Agreement (FFA) for Savannah River Site (SRS) (FFA 1993). The E-Area LLWF is not identified as a Solid Waste Management Unit under the Resource Conservation and Recovery Act (RCRA). Therefore, an SRS RCRA permit modification was not required.”

Response: Agree. The paragraph will be rewritten as follow: “~~The E-Area LLWF is listed as a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) regulated unit in Appendix C of the Federal Facility Agreement (FFA) for Savannah River Site (SRS) (FFA 1993). The E-Area LLWF is not identified as a Solid Waste Management Unit under the Resource Conservation and Recovery Act (RCRA). Therefore, an SRS RCRA Permit modification was not required.~~ The E-Area LLWF was not part of the 1993 Federal Facility Agreement (FFA) for Savannah River Site (SRS) (FFA 1993) because the U.S. Department of Energy (USDOE) operates and maintains the facility under the authority of the Atomic Energy Act (AEA) and in accordance with USDOE Order 435.1, *Radioactive Waste Management*. However, the U.S. Environmental Protection Agency (USEPA), South Carolina Department of Health and Environmental Control (SCDHEC), and USDOE reached agreement in 2007 to include the E-Area LLWF as a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)-regulated unit listed in Appendix C of the FFA. The E-Area LLWF is not identified as a Solid Waste Management Unit under the Resource Conservation and Recovery Act (RCRA). Therefore, an SRS RCRA permit modification was not required.”

Responsible Party: Sadika O’Quinn, (803)952-6697, sadika.oquinn@srs.gov

**SRS Responses to United States Environmental Protection Agency
Comments on:
Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units
with Geosynthetic or Stabilization/Solidification Systems (U), Aiken, South Carolina
(SRNS-RP-2016-00610, Revision 1, August 2017 (Redline Pages))**

Page 7 of 16

Comments Received 10/16/2017

7. **Appendix F, E-Area LLWF, Section X (Protectiveness Statement) (page F-14, Rev.0).** ORC recommends revising the protectiveness statement from “protective” to “short-term protective” due to issues and recommendations raised regarding engineering performance issues, e.g., stormwater runoff covers not expected to meet anticipated life and observed areas of subsidence, and because, as stated in this FYR, that “unit specific land use controls have been deferred.” *A short-term protective statement should be developed in accordance with EPA’s September 13, 2012 guidance titled “Clarifying the Use of Protectiveness Determinations for Comprehensive Environmental Response, Compensation, and Liability Act Five-Year Reviews,” OSWER 9200.2-111. See excerpt from guidance below.*

Response: Clarification.

The E-Area LLWF is currently in the operational phase and OU-specific LUCs have been deferred until final closure of the entire E-Area LLWF. No exposure is occurring but SRS facility security and administrative controls that restrict unauthorized access to the E-Area LLWF are not part of the interim remedy and therefore not recognized as long-term protective. For this five-year remedy review report, the protectiveness statement in Appendix F, Section X will be revised from “protective” to “short-term protective”.

In accordance with the with the terms of the Land Use Control Assurance Plan, the USDOE Savannah River Site Manager annually certifies that USDOE complies with all OU-specific LUCs. This certification, including text and a list of the OUs in tabular format, is contained in Appendix A of the FFA Annual Progress Report. To ensure restricted access to the E-Area LLWF during the operational phase, SRS recommends that Appendix A of the FFA Annual Progress Report be revised to include the E-Area LLWF to demonstrate long term protectiveness through the SRS facility security and administrative controls. The protectiveness statement in Section X will be revised as follows:

“The interim remedy at the E-Area LLWF (Slit Trench Disposal Units 1 – 5) is currently protective of human health and the environment because access is controlled by SRS facility security and administrative controls.

The interim remedy enhances the current protective measures required by USDOE Order 435.1 and reduces stormwater infiltration through the Slit Trench Disposal Units 1 – 5. Because the E-Area LLWF is currently in the operational phase, unit specific ~~land use controls~~ LUCs have been deferred until final closure of the entire E-Area LLWF. The final ROD for the E-Area LLWF is scheduled for issuance in March 2063. ~~However, access is controlled by SRS facility security and administrative controls.~~

**SRS Responses to United States Environmental Protection Agency
Comments on:
Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units
with Geosynthetic or Stabilization/Solidification Systems (U), Aiken, South Carolina
(SRNS-RP-2016-00610, Revision 1, August 2017 (Redline Pages))**

Page 8 of 16

Comments Received 10/16/2017

Long-term protectiveness will be achieved by including the E-Area LLWF and the SRS facility security and administrative controls that restrict unauthorized access in the FFA Annual Progress Report. The report is required by the FFA and includes an annual certification by the USDOE Savannah River Site Manager that the listed OUs are in compliance with land use requirements.

Appendix F, Section VIII. Issues and Section IX. Recommendations and Follow-Up Actions, will also be revised to include the E-Area LLWF and SRS facility security and administrative controls in the FFA Annual Progress Report as shown below.

Section VIII will be revised to include the following new issue:

“The E-Area LLWF is currently in the operational phase and access is controlled by SRS facility security and administrative controls. OU-specific LUCs have been deferred until final closure of the entire E-Area LLWF. Since the SRS facility security and administrative controls that restrict unauthorized access to the E-Area LLWF were not recognized as part of the interim remedy, the interim remedy was not considered as long-term protective in previous five-year remedy reviews.”

Section IX will be revised to include the following recommendation:

“Additionally, the USDOE recommends revising the FFA Annual Progress Report to include the E-Area LLWF to recognize SRS facility security and administrative controls that restrict access as long-term protective. The USDOE Savannah River Site Manager will certify USDOE compliance with these controls. Further discussion is needed with USEPA and SCDHEC to reach agreement on the revised text and table in the FFA Annual Progress Report.”

The Recommendations and Follow-up Actions table (Table F-3) will be revised to add an additional issue/recommendation as shown below:

**SRS Responses to United States Environmental Protection Agency
Comments on:
Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units
with Geosynthetic or Stabilization/Solidification Systems (U), Aiken, South Carolina
(SRNS-RP-2016-00610, Revision 1, August 2017 (Redline Pages))**

Page 9 of 16

Comments Received 10/16/2017

Table F-3. Recommendations and Follow-up Actions for the E-Area LLWF (Slit Trench Disposal Units 1 – 5)

Issues	Recommendations / Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Follow-up Actions: Affects Protectiveness (Y/N)	
					Current	Future
Reevaluation of the installation and maintenance activities (for stormwater runoff covers). The current geosynthetic covers are not expected to meet the original project life of 25 years, and therefore carry anticipated high maintenance and replacement costs.	Further discussion of how these issues impact future covers is needed with USEPA/SCDHEC.	USDOE	USEPA/SCDHEC	Not Applicable	N	N
<u>Unit specific LUCs for the E-Area LLWF (Slit Trench Disposal Units 1-5) have been deferred until final closure of the entire E-Area LLWF. SRS facility security and administrative controls that restrict unauthorized access to the E-Area LLWF were not previously recognized as part of the interim remedy. Therefore, the interim remedy was not considered as long-term protective.</u>	<u>Revise the FFA Annual Progress Report to include the E-Area LLWF (Slit Trench Disposal Units 1-5) to recognize SRS facility security and administrative controls that restrict access as long-term protective. The USDOE Savannah River Site Manager will certify USDOE compliance with these controls. Further discussion is needed with USEPA/SCDHEC to reach agreement on the revised text and table in the FFA Annual Progress Report.</u>	<u>USDOE</u>	<u>USEPA/SCDHEC</u>	<u>September 2018</u>	N	N

The Executive Summary will be revised to add the recommendation to include the E-Area LLWF and the FTF OUs in Appendix A of the SRS FFA Annual Progress Report to demonstrate long term protectiveness through the SRS facility security and administrative controls.

**SRS Responses to United States Environmental Protection Agency
Comments on:
Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units
with Geosynthetic or Stabilization/Solidification Systems (U), Aiken, South Carolina
(SRNS-RP-2016-00610, Revision 1, August 2017 (Redline Pages))**

Page 10 of 16

Comments Received 10/16/2017

The Five Year Summary Review Form in the Executive Summary will be revised to change the Protectiveness Determination to “Short-term Protective” for the E-Area LLWF and the FTF OU, and the issue/recommendation discussed above for each OU will be added to the summary form.

Section VIII. Issues and Section IX. Recommendations and Follow-Up Actions in the Savannah River Site Summary chapter will be revised to add the issues/recommendations for the E-Area LLWF and FTF OU.

The third paragraph in Section X. Protectiveness Statement(s) in the Savannah River Site Summary chapter will be revised as follows:

“LUCs are not part of the interim remedial actions at the E-Area LLWF and the F-Area Tank Farm (FTF) OUs. Because the E-Area LLWF and FTF OUs are currently in the operational phase, unit specific LUCs have been deferred until final closure of these OUs. However, access is controlled by SRS facility security and administrative controls. The interim remedial actions at the E-Area LLWF and FTF OUs are currently protective of human health and the environment because access is controlled by SRS facility security and administrative controls. Long-term protectiveness will be achieved by revising the FFA Annual Progress Report to include the E-Area LLWF and FTF OUs and the SRS facility security and administrative controls that restrict unauthorized access. The report is required by the FFA and includes an annual certification by the USDOE Savannah River Site Manager that the listed OUs are in compliance with land use requirements.”

Finally, the Savannah River Site Fact Sheet Fifth Five-Year Remedy Review Report for SRS Operable Units with Geosynthetic or Stabilization/Solidification Cover Systems, ERD-EN-2016-0050, will be revised to add the following to the Issues and Recommendations section as follows:

“The E-Area LLWF and FTF OUs are currently in the operational phase and OU-specific LUCs have been deferred until final closure of the entire facilities. SRS facility security and administrative controls that restrict unauthorized access to the E-Area LLWF and FTF OUs are not part of the interim remedies and therefore not recognized as long-term protective. SRS recommends that Appendix A of the FFA Annual Progress Report be revised to include the E-Area LLWF and FTF OUs to demonstrate long term protectiveness through the SRS facility security and administrative controls. The report is required by the FFA and includes an annual certification by the USDOE Savannah River Site Manager that the listed OUs are in compliance with land use requirements.”

**SRS Responses to United States Environmental Protection Agency
Comments on:
Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units
with Geosynthetic or Stabilization/Solidification Systems (U), Aiken, South Carolina
(SRNS-RP-2016-00610, Revision 1, August 2017 (Redline Pages))**

Page 11 of 16

Comments Received 10/16/2017

The Fact Sheet Protectiveness Summary will be revised as follows:

“All fifteen remedies were determined to be protective of human health and the environment. The E-Area LLWF and F-Area Tank Farm OUs are currently in the operational phase and unit specific LUCs have been deferred until final closure of these OUs. The interim remedies are currently protective because access is controlled by SRS facility security and administrative controls. SRS geosynthetic and S/S cover systems and related activities are functioning as intended.”

Responsible Party: Sadika O’Quinn, (803)952-6697, sadika.oquinn@srs.gov

Short-Term Protective

A protectiveness determination of “short-term protective” may be appropriate for remedies where:

- Construction activities are complete and remedy is operating; or
- Construction activities are complete, remedial action objectives have been achieved, and operation and maintenance activities are occurring.

A protective determination of “short-term protective” is typically used when the answers to Questions A, B and C provide sufficient data and documentation to conclude that the human and ecological exposures are currently under control and no unacceptable risks are occurring. However, the data and/or documentation review also raise issues that could impact future protectiveness or remedy performance but not current protectiveness. Examples of scenarios that may result in a short-term protectiveness determination may include:

- No exposure is occurring but institutional controls have not been fully implemented;
- Future land use assumptions may have changed;
- Engineering performance issues related to the operation of the remedy; or
- Monitoring data indicates that remedy will not achieve goals in the anticipated time frame

Recommended Language for a Protectiveness Determination of “Short-Term Protective”

“The remedy at OU X currently protects human health and the environment because (describe the elements of the remedy that protect human health and the environment in the short-term). However, in order for the remedy to be protective in the long-term, the following actions need to be taken (describe the actions needed) to ensure protectiveness.

8. Appendix G, F-Area Retention Basin, Section VII (Technical Assessment) (page G-9, Rev.1 redline). Please clarify statement made at end of first paragraph that: “No results were returned for well FRB 3 and well FRB 4.” Were the wells not sampled? Sampled but resulted in a non-detect?
-

**SRS Responses to United States Environmental Protection Agency
Comments on:
Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units
with Geosynthetic or Stabilization/Solidification Systems (U), Aiken, South Carolina
(SRNS-RP-2016-00610, Revision 1, August 2017 (Redline Pages))**

Page 12 of 16

Comments Received 10/16/2017

Response: Clarification. The sample results for wells FRB 3 and FRB 4 were non-detect, as shown in Table G-6. The sentence will be modified as follows: “~~No~~ The results were returned for well FRB 3 and well FRB 4 were non-detect.”

Responsible Party: Sadika O’Quinn, (803)952-6697, sadika.oquinn@srs.gov

9. Appendix H, F-Area Tank Farm (Rev.0). Page H-3 states that “land use controls (LUCs) are not part of the interim remedial action. . . [and] the Land Use Control Implementation Plan (LUCIP) will be deferred until final closure of the entire FTF OU.” Thus, EPA recommends revising the protectiveness statement in Section IX (page H-12, Rev.0) from “protective” to “short-term protective” in accordance with OSWER Directive 9200.2-111 above (no exposure occurring but institutional controls have not been fully implemented).

Response: Agree

The FTF OU is currently in the operational phase and OU-specific LUCs have been deferred until final closure of the entire FTF OU. No exposure is occurring but SRS facility security and administrative controls that restrict unauthorized access to the FTF OU are not part of the interim remedy and therefore not recognized as long-term protective. For this five-year remedy review report, the protectiveness statement in Appendix H, Section X will be revised from “protective” to “short-term protective”.

In accordance with the with the terms of the Land Use Control Assurance Plan, the USDOE Savannah River Site Manager annually certifies that USDOE complies with all OU-specific LUCs. This certification, including text and a list of the OUs in tabular format, is contained in Appendix A of the FFA Annual Progress Report. To ensure restricted access to the FTF OU during the operational phase, SRS recommends that Appendix A of the FFA Annual Progress Report be revised to include the FTF OU to demonstrate long term protectiveness through the SRS facility security and administrative controls. The protectiveness statement in Section X will be revised as follows:

“The interim remedy at the FTF Waste Tanks 5, 6, 17, 18, 19, and 20 is currently protective of human health and the environment because access is controlled by SRS facility security and administrative controls.”

Waste tanks and ancillary structures removed from service are cleaned and stabilized with grout to reduce the risk of a leak to the environment and to provide a stable waste form. Currently, annual visible inspections are conducted to ensure that the integrity of the stabilization actions for the closed tanks is protected from significant

**SRS Responses to United States Environmental Protection Agency
Comments on:
Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units
with Geosynthetic or Stabilization/Solidification Systems (U), Aiken, South Carolina
(SRNS-RP-2016-00610, Revision 1, August 2017 (Redline Pages))**

Page 13 of 16

Comments Received 10/16/2017

damage or deterioration during the interim period. The FTF PA (SRR 2010) determined that exposure to stabilized residual material in the waste tanks is unlikely during the interim period from the time the individual waste tanks are removed from service until final closure of the entire FTF OU under a final ROD. The final ROD for the FTF OU is scheduled for issuance in January 2042.

The land use for the FTF is industrial with USDOE maintaining control of the land. The FTF is currently in the operational phase and ~~access is controlled by SRS facility security and administrative controls.~~ unit-specific LUCs are not part of the interim action. A LUCIP will be deferred until final closure of the entire FTF OU.

Long-term protectiveness will be achieved by including the FTF OU and the SRS facility security and administrative controls that restrict unauthorized access in the FFA Annual Progress Report. The report is required by the FFA and includes an annual certification by the USDOE Savannah River Site Manager that the listed OUs are in compliance with land use requirements."

Appendix H, Section VIII. Issues and Section IX. Recommendations and Follow-Up Actions, will also be revised as to include the FTF OU and SRS facility security and administrative controls in the FFA Annual Progress Report as shown below.

Section VIII will be revised to include the following new issue:

"The following issue has been identified during this remedy review:

- The FTF OU is currently in the operational phase and access is controlled by SRS facility security and administrative controls. OU-specific LUCs have been deferred until final closure of the entire FTF OU. Since the SRS facility security and administrative controls that restrict unauthorized access to the FTF OU were not recognized as part of the interim remedy, the interim remedy was not considered as long-term protective in previous five-year remedy reviews. There are no issues related to current site conditions that prevent the interim remedy for the FTF Waste Tanks 5, 6, 17, 18, 19, and 20 from being protective."

Section IX will be revised to include the following recommendation:

"Table H-3 presents the recommendation for the FTF OU. The USDOE recommends revising the FFA Annual Progress Report to include the FTF OU to recognize SRS facility security and administrative controls that restrict access as long-term protective. The USDOE Savannah River Site Manager will certify USDOE

SRS Responses to United States Environmental Protection Agency

Comments on:

Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units with Geosynthetic or Stabilization/Solidification Systems (U), Aiken, South Carolina (SRNS-RP-2016-00610, Revision 1, August 2017 (Redline Pages))

Page 14 of 16

Comments Received 10/16/2017

compliance with these controls. Further discussion is needed with USEPA and SCDHEC to reach agreement on the revised text and table in the FFA Annual Progress Report. There are no recommendations or follow-up actions for FTF Waste Tanks 5, 6, 17, 18, 19, and 20.

A Recommendations and Follow-Up Actions table will be added to Appendix H and labeled Table H-3 as shown below:

Table H-3. Recommendations and Follow-up Actions for the FTF OU (Waste Tanks 5,6,7,17,18,19, and 20)

Issues	Recommendations / Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Follow-up Actions: Affects Protectiveness (Y/N)	
					Current	Future
<p><u>Unit specific LUCs for the FTF OU (Waste Tanks 5, 6, 7, 17, 18, 19, and 20) have been deferred until final closure of the entire FTF OU. SRS facility security and administrative controls that restrict unauthorized access to the FTF OU were not previously recognized as part of the interim remedy. Therefore, the interim remedy was not considered as long-term protective.</u></p>	<p><u>Revise the FFA Annual Progress Report to include the FTF OU (Waste Tanks 5, 6, 7, 17, 18, 19, and 20) to recognize SRS facility security and administrative controls that restrict access as long-term protective. The USDOE Savannah River Site Manager will certify USDOE compliance with these controls. Further discussion is needed with USEPA/SCDHEC to reach agreement on the revised text and table in the FFA Annual Progress Report.</u></p>	<p><u>USDOE</u></p>	<p><u>USEPA/SCDHEC</u></p>	<p><u>September 2018</u></p>	<p><u>N</u></p>	<p><u>N</u></p>

The Executive Summary will be revised to add the recommendation to include the E-Area LLWF and the FTF OUs in Appendix A of the SRS FFA Annual Progress Report to demonstrate long term protectiveness through the SRS facility security and administrative controls.

**SRS Responses to United States Environmental Protection Agency
Comments on:
Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units
with Geosynthetic or Stabilization/Solidification Systems (U), Aiken, South Carolina
(SRNS-RP-2016-00610, Revision 1, August 2017 (Redline Pages))**

Page 15 of 16

Comments Received 10/16/2017

The Five Year Summary Review Form in the Executive Summary will be revised to change the Protectiveness Determination to "Short-term Protective" for the E-Area LLWF and the FTF OU, and the issue/recommendation discussed above for each OU will be added to the summary form.

Section VIII. Issues and Section IX. Recommendations and Follow-Up Actions in the Savannah River Site Summary chapter will be revised to add the issues/recommendations for the E-Area LLWF and FTF OU.

The third paragraph in Section X. Protectiveness Statement(s) in the Savannah River Site Summary chapter will be revised as follows:

"LUCs are not part of the interim remedial actions at the E-Area LLWF and the F-Area Tank Farm (FTF) OUs. Because the E-Area LLWF and FTF OUs are currently in the operational phase, unit specific LUCs have been deferred until final closure of these OUs. However, access is controlled by SRS facility security and administrative controls. The interim remedial actions at the E-Area LLWF and FTF OUs are currently protective of human health and the environment because access is controlled by SRS facility security and administrative controls. Long-term protectiveness will be achieved by revising the FFA Annual Progress Report to include the E-Area LLWF and FTF OUs and the SRS facility security and administrative controls that restrict unauthorized access. The report is required by the FFA and includes an annual certification by the USDOE Savannah River Site Manager that the listed OUs are in compliance with land use requirements."

Finally, the Savannah River Site Fact Sheet Fifth Five-Year Remedy Review Report for SRS Operable Units with Geosynthetic or Stabilization/Solidification Cover Systems, ERD-EN-2016-0050, will be revised to add the following to the Issues and Recommendations section as follows:

"● The E-Area LLWF and FTF OUs are currently in the operational phase and OU-specific LUCs have been deferred until final closure of the entire facilities. SRS facility security and administrative controls that restrict unauthorized access to the E-Area LLWF and FTF OU are not part of the interim remedies and therefore not recognized as long-term protective. SRS recommends that Appendix A of the FFA Annual Progress Report be revised to include the E-Area LLWF and FTF OU to demonstrate long term protectiveness through the SRS facility security and administrative controls. The report is required by the FFA and includes an annual certification by the USDOE Savannah River Site Manager that the listed OUs are in compliance with land use requirements."

**SRS Responses to United States Environmental Protection Agency
Comments on:
Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units
with Geosynthetic or Stabilization/Solidification Systems (U), Aiken, South Carolina
(SRNS-RP-2016-00610, Revision 1, August 2017 (Redline Pages))**

Page 16 of 16

Comments Received 10/16/2017

The Fact Sheet Protectiveness Summary will be revised as follows:

“All fifteen remedies were determined to be protective of human health and the environment. The E-Area LLWF and F-Area Tank Farm OUs are currently in the operational phase and unit specific LUCs have been deferred until final closure of these OUs. The interim remedies are currently protective because access is controlled by SRS facility security and administrative controls. SRS geosynthetic and S/S cover systems and related activities are functioning as intended.”

Responsible Party: Sadika O’Quinn, (803)952-6697, sadika.oquinn@srs.gov

10. **Appendix J, K-Area Reactor Seepage Basin, Rev.1.** *Correct page heading to read “Basin” not “Bain.”*

Response: Agree. The heading will be modified as requested.

Responsible Party: Sadika O’Quinn, (803)952-6697, sadika.oquinn@srs.gov

11. **Appendix J, K-Area Reactor Seepage Basin, Section IV (Remedy Selection) (page J-4, Rev.0).** Document states that the selected remedy of in situ stabilization with a low permeability “*membrane* cover system” was selected. However, page J-5 (Remedy Implementation) outlines components of a “soil cover system” and does not appear to include a membrane. *Please clarify and note whether selected remedy as contained in the plug-in ROD was modified to no longer require a membrane cover system and if so in what document (AROD, ESD, etc.) was the modification memorialized.*

Response: Agree with Clarification. The remedy selected in the plug-in ROD was described as a low permeability cover system (WSRC-RP-98-4099, Revision 0). The word “membrane” will be replaced with “soil” in the first sentence of the fourth paragraph under Remedy Selection as follows:

“Because the KRSB OU meets the plug-in ROD criteria the remedy of in situ stabilization with a low permeability membrane soil cover system was the selected remedy for the KRSB OU.”

Responsible Party: Sadika O’Quinn, (803)952-6697, sadika.oquinn@srs.gov
