



Department of Energy
Savannah River Operations Office
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JUL 11 2022

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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

Mr. Jon Richards
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: Sixth Five-Year Remedy Review Report for Savannah River Site Operable Units with Geosynthetic or Stabilization/Solidification Cover Systems (U) Aiken, South Carolina (SRNS-RP-2021-04229, Revision 1, July 2022) (Redline Pages) and Savannah River Site's Responses to the Regulatory Comments on the Revision 0 Document, SEMS Number: 00

In accordance with the terms of the Federal Facility Agreement, the U.S. Department of Energy is submitting the subject information for your review. The Savannah River Site (SRS) submitted the Sixth Five-Year Remedy Review Report for SRS Operable Units with Geosynthetic or Stabilization/Solidification Cover Systems (SRNS-RP-2021-04229, Revision 0, December 2021) and supporting documentation to the regulators for review on December 15, 2021. The South Carolina Department of Health and Environmental Control's (SCDHEC) and U. S. Environmental Protection Agency's (EPA) comments were received on March 14, 2022 and March 15, 2022, respectively. The final SRS responses to the regulatory comments on the Revision 0 report were incorporated into the Redline Revision 1 pages.

Please review the enclosed information and provide your response within forty-five (45) days of receipt. The effort and time that the SCDHEC and EPA have given on the subject report are greatly appreciated.

Ms. Susan Fulmer
Mr. Jon Richards

2

JUL 11 2022

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

Sincerely,

Brian T. Hennessey Digitally signed by Brian T. Hennessey
Date: 2022.07.07 15:52:33 -04'00'

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

IACD-22-156

Enclosures:

1. Sixth Five-Year Remedy Review Report for Savannah River Site Operable Units with Geosynthetic or Stabilization/Solidification Cover Systems (U) Aiken, South Carolina (SRNS-RP-2021-04229, Revision 1, July 2022) (Redline Pages)
2. SRS Responses to South Carolina Department of Health and Environmental Control Comments on the Sixth Five-Year Remedy Review Report for Savannah River Site Operable Units with Geosynthetic or Stabilization/Solidification Cover Systems (U) Aiken, South Carolina (SRNS-RP-2021-04229, Revision 0, December 2021)
3. SRS Responses to U.S. Environmental Protection Agency Comments on the Sixth Five-Year Remedy Review Report for Savannah River Site Operable Units with Geosynthetic or Stabilization/Solidification Cover Systems (U) Aiken, South Carolina (SRNS-RP-2021-04229, Revision 0, December 2021)

cc w/o encl:

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R. H. Pope, EPA-Atlanta
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GENERAL COMMENTS

1. The Sixth Five-Year Remedy Review Report for Savannah River Site Operable Units with Geosynthetic or Stabilization/Solidification Cover Systems (U) does not adequately address, for several Operable Units (OUs), whether the remedial action objectives (RAOs) of preventing/mitigating further migration of contaminants to the groundwater are being achieved to ensure the in-situ stabilization/solidification remedy is protective of groundwater. According to the Sixth 5YR Report, RAOs were developed not only to prevent physical exposure to contaminants but to also prevent/mitigate further migration of contaminants from impacting groundwater. Examples include, but are not limited to, the following OUs evaluated in this Sixth 5YR Report:

- Appendix D, C-Area Reactor Seepage Basins (904-066G and 904-68G) Operable Unit;
- Appendix E, D-Area Expanded Operable Unit (U);
- Appendix I, General Separations Area Consolidation Unit;
- Appendix K, K-Area Reactor Seepage Basin Operable Unit; and,
- Appendix P, P-Area Reactor Seepage Basins (904-61G, 904-62G, and 904-63G) (PRSB) Operable Unit.

The Sixth 5YR Report should discuss whether the RAO for in-situ stabilization/solidification remedial action at the respective OUs are being met to ensure the protectiveness of groundwater. *Please revise the Sixth 5YR Report to include additional discussion and lines of evidence (e.g., groundwater monitoring data, flow directions) to confirm that further migration of contaminants to groundwater is being prevented/mitigated to ensure RAOs at these OUs are being met.*

Response: Clarification

The following paragraphs discuss whether it is necessary to include additional discussion and lines-of-evidence (e.g., groundwater monitoring data, flow directions) to support that the RAO of preventing the release of contaminants to groundwater is being met for various operable units.

Appendix D, CRSB OU:

The Plug-In Remedy was applied for the CRSB OU, which presents a common remedy for high risk radioactively contaminated waste units with similar histories of use, contaminants, risk, and location in current industrial areas. For radiologically contaminated soil that represents PTSM, in situ stabilization was selected as the common remedy for open reactor seepage basin candidates (WSRC 1999b). In order to show that the plug-in remedy is the appropriate response action for CRSB, plug-in criteria were used to evaluate whether the waste unit matches the conditions that the plug-in remedy has been designed to address. The four conditions are: 1) Is the unit radiologically contaminated? 2) Is the unit located in a

current industrial use area (with buffer) adjacent to a nuclear facility? 3) Does the unit contain PTSM? 4) Is PTSM not in direct contact with groundwater or immediately adjacent to surface water. Because the CRSB OU met all four plug-in criteria with the answer of “YES”, the plug-in remedy was selected.

The generic RAOs for the CRSBs are 1) prevent human exposure to contaminated basin soils (PTSM [cesium-137]) by performing stabilization treatment, 2) prevent the release of COCs in soil to groundwater beneath the unit above MCLs, and 3) protect the ecological receptors indigenous to the area. However, no CM COCs were identified, therefore, the generic RAO of preventing the release of COCs to groundwater beneath the unit above MCLs is not relevant to the CRSB OU.

Per the ESD for the Plug-In ROD (WSRC 2000), the remedy for CRSB is the final remedy for this OU. Groundwater contamination associated with this basin is being addressed in conjunction with the C-Area Groundwater OU.

No changes to Appendix D are proposed.

Appendix E, DEXOU:

The RAO for D-Area Rubble Pit (DRP) subunit concerning protectiveness of groundwater is to prevent generation of low pH and beryllium from leaching to groundwater above its MCL. For the 488-D Ash Basin, the RAO is to prevent or minimize contaminants leaching to groundwater above MCLs/RGs. Both of these RAOs were achieved with implementation of the remedial action. Consolidating the coal rejects from the DRP into the 488-D Ash Basin and installing a low permeability geosynthetic cover prevents the contaminants (metals/radionuclides) from leaching to groundwater.

To evaluate the long-term effectiveness of the remedy, groundwater monitoring will be performed until contaminants present in the groundwater downgradient of DEXOU are below MCLs. Provisions for groundwater monitoring as stated in the DEX OU ROD, will be provided as part of the Monitoring Work Plan for the D-Area Groundwater OU (WSRC-RP-2003-4150, Revision 1, June 2004). The monitoring well data indicates increasing pH and decreasing beryllium concentrations which suggests beryllium is not a future threat to groundwater without a significant source of low pH leachate to mobilize the contaminants.

The RAO for the 488-D Ash Basin is to prevent or minimize contaminants leaching to groundwater above MCLs/RGs. In the 488-D Ash Basin, CM RCOCs were determined to be arsenic, barium, beryllium, iron, mercury, selenium, thallium, radium-226, radium-228, uranium-234, uranium-235, and uranium-238. In addition, arsenic and beryllium were identified as PTSM based on their mobility and these constituents are present in the groundwater. The low permeability cover system was designed to prevent contaminant migration and the remedy included groundwater monitoring to evaluate the long-term effectiveness of the remedy. Provision for groundwater monitoring, as stated in the DEXOU ROD, will be provided as part of the Monitoring Work Plan for D-Area Groundwater OU. Since groundwater was already impacted by low pH and metals contamination at the time

the ROD was implemented and is also impacted from upgradient sources (e.g., the Coal Pile Runoff Basin), it is difficult to determine the source of current elevated levels of contaminants.

Monitoring well data from selected wells downgradient from the rubble pile and ash basin will be included in the data review portion in Section VI, Five-Year Review Process of Appendix E and considered in Section VII, Technical Assessment of Appendix E.

Appendix I, GSACU OU:

As stated in the ROD for GSACU, the RAO pertaining to groundwater is “control migration and leaching of strontium-90 that could result in groundwater contamination in excess of MCLs beneath each unit by removing the soil above RGs, to the extent practical; and reduce infiltration through any residual contamination above RGs”. The selected remedy of consolidating PTSM-contaminated media at the Old Radiological Waste Burial Ground (ORWBG) and installing low permeability geosynthetic covers controls the migration of contaminants to the groundwater. Implementation of the remedy did not include OU-specific groundwater monitoring.

Groundwater is not included as a subunit of GSACU. Groundwater beneath the ORWBG has been contaminated by numerous sources within the Burial Ground Complex. This groundwater is being evaluated separately under the RCRA Permit Renewal for the Mixed Waste Management Facility in accordance with the Second Amendment to Settlement Agreement 87-52-SW that DOE-SR entered into with SCDHEC and which became effective on 10/9/1995. Under that permit, land use controls are required for as long as groundwater remediation is required, which is anticipated to be 170 years. Groundwater beneath the H-Area Retention Basin, HP-52 Ponds, and Warner’s Pond has been contaminated by numerous sources in H Area. This groundwater is being evaluated by the General Separations Area Eastern Groundwater Operable Unit.

No changes to Appendix I are proposed.

Appendix K, KRBSB OU:

As described earlier for the KRBSB OU, the Plug-In Remedy was also applied for the KRBSB OU.

The RAOs for the KRBSB OU are 1) prevent human exposure to contaminated basin soils (PTSM) by performing stabilization treatment, 2) prevent the release of COCs in soil to groundwater beneath the unit above MCLs, and 3) protect the ecological receptors indigenous to the area. Strontium-90 and carbon-14 were predicted to leach to groundwater at KRBSB OU in less than 1,000 years at concentrations above the MCL. The basin soil was stabilized, including the location where the highest concentrations of strontium-90 and carbon-14 were detected. Per the Unit-Specific Plug-In TER for the KRBSB OU (WSRC-RP-99-4205, 1999), it was concluded that the primary purpose of the low permeability cover is to reduce the infiltration rate through the contaminated zone and thus reduce contaminant migration, which will prevent the release of groundwater contaminants to groundwater

beneath the unit above MCLs. Therefore, the RAO of preventing the release of COCs to groundwater beneath the unit above MCLs is being met.

Per the ESD for the Plug-In ROD (WSRC 2002), the remedy for KRSB OU did not require groundwater monitoring as part of the selected remedy in order to meet the RAOs. Groundwater is not part of the KRSB OU and will be investigated under the K-Area Groundwater OU. The reference to monitoring associated with the groundwater operable unit will be removed.

Appendix M, LRSB OU and CRSB Basin 2:

The Plug-In Remedy was also applied to the LRSB OU and CRSB OU Basin 2.

The generic RAOs for the LRSB OU and CRSB OU Basin 2 are 1) prevent human exposure to contaminated basin soils (PTSM) (LRSB [cobalt-60]; CRSB OU Basin 2 [cesium-137]) by performing stabilization treatment, 2) prevent the release of COCs in soil to groundwater beneath the unit above MCLs, and 3) protect the ecological receptors indigenous to the area. Strontium-90 was predicted to leach to groundwater at LRSB OU in less than 1,000 years at concentrations above the MCL. No CM COCs were identified for CRSB OU.

Per the ESD for the Plug-In ROD (WSRC 2002), periodic groundwater monitoring to confirm the soil cover effectiveness for the LRSB OU is addressed as part of the L-Area Southern Groundwater OU.

Discussion pertaining to the groundwater monitoring data is included in the data review portion of Section VI and Technical Assessment (Section VII).

No changes to Appendix M are proposed.

Appendix P, PRSB OU:

The Plug-In Remedy was applied at the PRSB OU.

The RAOs for the PRSB OU are 1) prevent human exposure to contaminated basin soils (PTSM) by performing stabilization treatment, 2) prevent the release of COCs in soil to groundwater beneath the unit above MCLs, and 3) protect the ecological receptors indigenous to the area. Strontium-90 and arsenic were predicted to leach to groundwater at PRSB OU Basin 1 in less than 1,000 years at concentrations above the MCL. Per the Unit-Specific Plug-In TER for the PRSB OU (WSRC-RP-2002-4082, 2003), it was concluded that the primary purpose of the low permeability cover is to reduce the infiltration rate through the contaminated zone and thus reduce contaminant migration, which will prevent the release of groundwater contaminants to groundwater beneath the unit above MCLs. Therefore, the RAO of preventing the release of COCs to groundwater beneath the unit above MCLs is being met.

Per the ESD for the Plug-In ROD (WSRC 2003), the remedy for PRSB OU is the final remedy for this OU since the groundwater contamination associated with this basin is being addressed in conjunction with the P-Area Groundwater OU. No groundwater monitoring specific to this remedy was required.

No changes to Appendix P are proposed.

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

2. The evaluation of emerging contaminants presented in Section VII (Technical Assessment) for each of the OUs is unclear. For example, the Sixth 5YR Report does not list the emergent contaminants that were evaluated as part of the Technical Assessment or provide the rationale to substantiate the assertion that the emerging contaminants are not applicable to the OUs. In addition, it is unclear what fact sheets provided on the United States Environmental Protection Agency (USEPA) webpage were reviewed during the evaluation. *Please revise the Sixth 5YR Report to clarify which emerging contaminants were evaluated, provide the rationale to substantiate why the emerging contaminants are not applicable to the subject OU, and include a reference or link to the specific fact sheets that were reviewed in the evaluation.*

Response: Agree.

The third paragraph of Section VII. Technical Assessment, Are Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives still Valid?, will be revised to provide the link to USEPA's *Emerging Contaminants and Federal Facility Contaminants of Concern* website and a list of the specific contaminant fact sheets (13 total) that were reviewed for each OU as follows:

"...Fact Sheets provided on the USEPA webpage (<https://www.epa.gov/fedfac/emerging-contaminants-and-federal-facility-contaminants-concern>) regarding emerging contaminants were reviewed for applicability to this site. This webpage provides a link to specific fact sheets for each of the following contaminants: 1,2,3-trichloropropane (TCP), 1,4-dioxane, 2,4,6-trinitrotoluene (TNT), dinitrotoluene (DNT), hexahydro-1,3,5-tri-nitro-1,3,5-triazine (RDX), nanomaterials, N-nitroso-dimethylamine (NDMA), perchlorate, perfluorooctane sulfonic acid (PFOS), perfluroroctanoic acid (PFOS) and other per- and polyfluoroalkyl substances (PFAS), polybrominated biphenyls, polybrominated diphenyl ethers (PBDEs) and tungsten. None of the listed emerging contaminants were identified as applicable to this OU."

1,4-dioxane is currently a groundwater contaminant for TAOU, therefore, 1,4-dioxane will not be included in the new text added to TAOU. PFAS have been detected in the groundwater at D Area, but they are not associated with the surface units that constitute the DEXOU. Additionally, since E-Area Low-Level Waste Facility, F-Area Tank Farm, and H-Area Tank Farm are interim remedies, the emerging contaminants have not been reviewed. Once the remedies for these units are final, emerging contaminants will be reviewed.

Responsible Party: Doug Martinson, (803)952-6043, doug.martinson@srs.gov

3. Multiple OU site figures presented in the Sixth 5 YR Report do not include relative monitoring well locations, groundwater elevations and/or show the direction of groundwater
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flow. This issue impacts the evaluation of the RAOs developed for several OUs to prevent/mitigate further migration of contaminants from impacting groundwater. Examples include the following OUs:

- Appendix C, Figure C-5, Layout of Groundwater Sampling Wells at heavy water components test reactor (HWCTR), Page C-19 of C-34;
- Appendix D, Figure D-2, Location of the C-Area Reactor Seepage Basins OU in C Area, Page D-14 of D-26;
- Appendix E, Figure E-2, Layout of the D-Area expanded operable unit (DEXOU) within D Area, Page E-18 of E-36;
- Appendix G, Figure G-2, Location of the F-Area Retention Basin OU within the F-Area at SRS (the basin and monitoring wells are located within the green box), Page G-16 of G-30;
- Appendix H, Figure H-2, Layout of the General Separations Area, Page H-18 of H-32;
- Appendix I, Figure I-2, General Separation Area Consolidation Unit Four Primary Subunits, Page I-18 of I-34;
- Appendix J, Figure J-2, Layout of the General Separations Area, Page J-16 of J-30
- Appendix K, Figure K-2, Site Layout for K-Area Reactor Seepage Basin, Page K-14 of K-26;
- Appendix M, Figure M-2, Layout of LRSB OU, Page M-18 of M-32;
- Appendix O, Figure O-5, Location of Groundwater Wells Monitoring the P-Reactor Building (105-P), Page O-25 of O-42;
- Appendix P, Figure P-2, Plan View of P-Area Reactor Seepage Basins, Page P-14 of P-28.

Please revise the Sixth 5YR Report to include the groundwater flow directions for the noted OUs to facilitate adequate assessment of whether the RAOs developed to prevent/mitigate further migration of contaminants from impacting groundwater are being met.

Response: Agree with Clarification

The following text discuss whether the groundwater data needs to be added to the appendices listed above.

Appendix C (B-Area Operable Unit) – The RAO listed in the ROD concerning groundwater is listed as, “Although groundwater is not part of the BAOU, periodic groundwater monitoring will be conducted to confirm that there is no future impact to groundwater should an unacceptable degradation of the stabilization materials (i.e., in situ grout and surface concrete cover) occur. The groundwater monitoring consists of sampling the uppermost aquifer at HWCTR using the existing network of four wells (Figure C-5). Groundwater samples will be collected every five years to support the five-year remedy reviews for the HWCTR facility end-state.” Based on this text, the RAO is satisfied by

monitoring the existing four well network, and no unacceptable degradation of the stabilization materials (i.e., in situ grout and surface concrete cover) has occurred. No additional information is required. No change to the appendix is proposed.

Appendix D (C-Area Reactor Seepage Basin OU) – See text included for CRSB OU in General Comment #1.

Appendix E (D-Area Expanded Operable Unit) – See text included for DEXOU in General Comment #1.

Appendix G (F-Area Retention Basin Operable Unit) – Groundwater monitoring is not required. Per Section IV, Remedy Implementation, results of the groundwater modeling indicated the FRB-associated groundwater posed no risk to human health or the environment. No COCs were identified for the groundwater and no remedial action was required per the ROD for FRB OU (WSRC 1998). No change to the appendix is proposed. Table 2 will be revised by removing “Groundwater Monitoring,” from the Remedial Action column for FRB OU.

Appendix H (F-Area Tank Farm OU) – The RAO developed for FTF OU per the Interim ROD is to conduct annual visible engineered barriers inspections and maintenance of the waste tanks that have been operationally closed and removed from service. Groundwater will be addressed in the final ROD for the FTF OU. No change to the appendix is proposed.

Appendix I (General Separations Area Consolidation Unit OU) – See text included for GSACU OU in General Comment #1.

Appendix J (H-Area Tank Farm OU) – The RAO developed for HTF OU per the Interim ROD is to conduct annual visible engineered barriers inspections and maintenance of the waste tanks that have been operationally closed and removed from service. Groundwater will be addressed in the final ROD for the HTF OU. No change to the appendix is proposed.

Appendix K (K-Area Reactor Seepage Basin OU) - See text included for KRBSB OU in General Comment #1.

Appendix M (L-Area Reactor Seepage Basin OU) - See text included for LRBSB OU in General Comment #1. Appendix M includes a figure with monitoring well (LSB 4) located on the map.

Appendix O (P-Area Operable Unit) – The ISD remedy includes groundwater monitoring as a component of the remedy. Figure O-5 includes locations of the eight wells sampled. No change to the appendix is proposed.

Appendix P (P-Area Reactor Seepage Basin OU) - See text included for PRBSB OU in General Comment #1.

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

4. For several OUs, the Sixth 5YR Report does not include photo documentation or cite references to where this information can be found. As such, current site conditions are not documented and confirmation that the deficiencies identified were adequately addressed is uncertain. Examples include, but are not limited to, the following OUs:
 - a. Appendix C, B-Area Operable Unit, Attachment C-1, Five-Year Review Site Inspection Checklist – B-Area Operable Unit (continued), Page C-30 of C-34: Under VII. Landfill Cover/Containment, the text includes a statement that there is hairline cracking evident throughout the concrete cover; however, photos were not provided of the inspection to document the cracks of the concrete cover. Therefore, it is unclear if the widths of the cracks require corrective action.
 - b. Appendix D, C-Area Reactor Seepage Basins (904-66G and 904-68G) Operable Unit, Attachment D-1, Five-Year Review Site Inspection Checklist – C-Area Reactor Seepage Basins (904-66G and 904-68G), Section VI, General Permit, Subsection B, Other Site Conditions, Page D-24 of D-26: The checklist states, “Site inspections conducted during FY [Fiscal Year] 2017 through FY2021 identified signs that needed to be replaced, active ant mounds, overgrown vegetation, and hog damage. These findings were resolved soon after discovery.” However, photos were not provided, to document site conditions and confirm the findings were addressed and repaired.
 - c. Appendix F, E-Area Low Level Waste Facility (643-26E) Operable Unit, Attachment F-1, Five-Year Review Site Inspection Checklist – E-Area Low Level Waste Facility (643-26E) (Slit Trench Disposal Units 1 - 5), Section I, Perimeter Ditches/Offsite Discharge, Subsection 4, Discharge Structure, Page F-36 of F-38: The checklist states, “Small cracks were observed in the concrete drainage channels on the perimeter of the covers. The cracks were repaired with a concrete epoxy.” However, photos were not provided to document site conditions and confirm the cracks were repaired.
 - d. Appendix G, F-Area Retention Basin (281-3F) Operable Unit, Attachment G-1, Five-Year Review Site Inspection Checklist – F-Area Retention Basin (281-3F) OU, Section VI, General Site Conditions, Subsection B, Other Site Conditions, Page G-28 of G-30: The checklist states, “Scheduled annual site inspections performed from FY2017 through FY2021 identified active ant mounds, and a non-visible concrete marker in the southwest corner. These findings were resolved by O&M [Operation and Maintenance] staff soon after discovery.” However, photos were not provided to document site conditions and confirm the findings were resolved by the O&M staff soon after discovery.
 - e. Appendix H, F-Area Tank Farm Operable Unit, Attachment H-1, Five-Year Review Site Inspection Checklist – FTF OU (Waste Tanks 5, 6, 17, 18, 19, and 20), Section XI,
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Comments received 03/15/2022

Overall Observations, Subsection B, Adequacy of O&M, Page H-32 of H-32: The checklist states, “Site inspections indicate that the conditions discussed in Section VI. Five-Year Review Process, Summary of Inspections and Interviews, are satisfactory, but they are being monitored to verify that the conditions do not worsen to an extent that would compromise the stabilization and containment of residual waste in the tanks.” However, photos were not provided to document site conditions and confirm that the degradation of the engineered barriers of the F-Area Tank Farm (FTF) waste tanks is being monitored and maintained to meet the satisfactory requirement.

- f. Appendix I, General Separation Area Consolidation Unit, Attachment I-1, Five-Year Review Site Inspection Checklist - General Separation Area Consolidation Unit (GSACU) OU including Old Radioactive Waste Burial Ground (643-E) and Old Solvent Tanks (650-1E through 650-22E), Section VI, General Site Conditions, Subsection B, Other Site Conditions, Page I-30 of I-34: The checklist states, “Site inspections for the HRB (H-Area Retention Basin), ORWBG [Old Radioactive Waste Burial Ground (643-E)], HP-52 Ponds, and Warner’s Pond conducted from FY2017 through FY2021 identified active ant mounds, evidence of hog damage, overgrown vegetation, thinning vegetation on slope, erosion around the drainage channel on the north and south side and a few downed trees as issues. These findings for all these units were resolved soon after discovery.” However, photos were not provided to document site conditions and confirm the findings were resolved soon after discovery.

Please revise the Sixth 5YR Report to include photo documentation of site conditions and the noted repairs or, at a minimum, provide a reference to where this information can be found.

Response: Clarification

Inspections of the individual units and necessary repairs are documented on the inspection checklists listed in the Section XII. Documents Reviewed of each OU-specific appendix. In addition, a regulatory field inspection meeting with USDOE, USEPA, and SCDHEC was held on March 28, 2022. During this meeting, the participants viewed drone video of each OU and were provided an opportunity to walk down the individual OUs. The USEPA and SCDHEC elected not to walk down the OUs because the drone video provided them better views of the OUs. Appendices C through R will be revised to document the March 28, 2022 regulatory field inspection video drone footage.

Inspections of the individual OUs listed above are discussed in more detail below.

- a. **Appendix C – BAOU**. Attachment C-1, Section VII. Landfill Cover/Containment, Item 2 states that the width of the cracks are less than 5 mm and therefore do not require any corrective action. In addition, the hairline cracks in the concrete cover and the concrete epoxy placed on top of the cracks were discussed during the March 28, 2022 regulatory field inspection meeting. For clarity, a reference to the annual Inspection Data Sheets will be provided in Section VI. Five-Year Review Process, Summary of
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Inspections and Interviews, second paragraph, as follows: “Annual site inspections conducted since 2011 have documented the presence of small cracks in the surface of the concrete cover on the inspection checklists. The inspections conducted during this remedy review cycle are listed in the Section XII.”

- b. **Appendix D – CRSB** – During the March 28, 2022 regulatory field inspection meeting, drone video showing the current state of the unit was shown. Site conditions and findings that were addressed and repaired are documented on the inspection checklists. For clarity, a reference to the annual Inspection Data Sheets will be provided in Section VI. Five-Year Review Process, Summary of Inspections and Interviews, last paragraph, last sentence as follows: “These findings were documented on the field inspection checklists, listed in Section XII, and were resolved soon after discovery.”
 - c. **Appendix F – ELLWF** – During the March 28, 2022 regulatory field inspection meeting, drone video showing the small cracks observed in the concrete drainage channels on the perimeter of the covers was shown and the sealant placed on top of the cracks was discussed. For clarity, a reference to the annual Inspection Data Sheets will be provided in Section VI. Five-Year Review Process, Summary of Inspections and Interviews, last paragraph, last sentence as follows: “These findings were documented on the field inspection checklists listed in Section XII.”
 - d. **Appendix G – FRB** – During the March 28, 2022 regulatory field inspection meeting, drone video showing the current state of the unit was shown. Site conditions and findings that were addressed and repaired are documented on the inspection checklists. For clarity, a reference to the annual Inspection Data Sheets will be provided in Section VI. Five-Year Review Process, Summary of Inspections and Interviews, last paragraph, last sentence as follows: “These findings were documented on the field inspection checklists, listed in Section XII, and resolved soon after discovery.”
 - e. **Appendix H – FTF** - During the March 28, 2022 regulatory field inspection meeting, drone video showing the current state of the unit was shown. Site conditions and findings that were addressed and repaired are documented on the inspection checklists. For clarity, a reference to the annual Inspection Data Sheets will be provided in Section VI. Five-Year Review Process, Summary of Inspections and Interviews, 2nd paragraph, 6th sentence as follows: “These conditions were documented on the field inspection forms, listed in Section XII and are deemed satisfactory but are being monitored to verify that the conditions do not worsen to an extent that would compromise the stabilization and containment of residual waste in the tanks.”
 - f. **Appendix I – GSACU** - During the March 28, 2022 regulatory field inspection meeting, drone video showing the current state of the unit was shown. Site conditions and findings that were addressed and repaired are documented on the inspection
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checklists. For clarity, a reference to the annual Inspection Data Sheets will be provided in Section VI. Five-Year Review Process, Summary of Inspections and Interviews, last paragraph, last sentence as follows: “These findings were documented for all these units on the field inspection checklist, listed in Section XII, and resolved soon after discovery.”

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

SPECIFIC COMMENTS

1. **Section II, Response Action Summary, Page 7 of 42:** It is unclear whether the environmental database that is used to track sampling and analysis is available for public access via a web link. The text states, “Technical and administrative protocols have been established to promote the consistent implementation of USEPA guidance at OUs across SRS. An environmental database is used to track sampling, analysis, and results of environmental characterization and monitoring.” However, no discussion was presented regarding public access to the environmental database. *Please revise Section II to discuss whether the public has access to the environmental database or whether the access is limited (e.g., only available to the Department of Energy [DOE] and/or their contractors).*

Response: Agree with Clarification.

The database is an internal tracking system not available to the public. However, sampling results are included and discussed in regulatory required post-ROD groundwater monitoring or effectiveness monitoring reports, which are maintained in the Administrative Record File and are available to the public. For clarity, the text in Section II, Response Action Summary, Initial Response, 3rd paragraph, 3rd sentence will be revised as follows: “An internal SRS environmental database is used to track sampling, analysis, and results of environmental characterization and monitoring.”

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

2. **Table 4, Operation and Maintenance Cost Comparison for SRS OUs with Geosynthetic or S/S Cover Systems (continued), Page 34 of 42:** It is unclear why the actual costs for maintaining the covers is not available for the H-Area Tank Farms Operable Unit as noted in Table 4. *Please revise Table 4 to provide a footnote at the end of the table explaining why the costs are not available.*

Response: Agree with Clarification

The actual O&M costs for HTF is captured for the closed and operating portions of the OU and does not differentiate between the two portions. The actual costs shown are associated with preparation of the five-year remedy review documents.

The comments column will be modified to say, “Actual costs for maintaining the covers are not available. Actual costs (document preparation) are for closed and operating portions of the OU and does not differentiate between the two because both are part of the same OU. Since no significant repairs have been performed, estimated costs are considered representative of expected actual costs.”

For consistency and accuracy, the comment column for FTF and E-Area LLWF will be rewritten with the same statement.

The actual costs for the FY2017 costs of document preparation for FTF OU is incorrect. The correct cost is \$8,107, which results in a five-year total actual cost of \$10,623. The numbers will be updated in the front matter and Appendix H of Revision 1 of this document.

Responsible Party: Eric Schiefer, (803)952-6273, eric.schiefer@srs.gov

3. **Appendix C, B-Area Operable Unit, Section VI, Five-Year Review Process, Data Review, Page C-9 of C-34:** The text does not provide the turbidity levels recorded for the associated wells to support the assertions in the text. The text states, “The gross alpha results obtained since 2009 correlate with elevated turbidity in the wells;” however, the turbidity levels were not presented and an assessment of the correlation between elevated turbidity and elevated gross alpha results could not be adequately assessed. *Please revise this section to include the turbidity level measurements for the associated wells so that an adequate assessment can be made regarding the assertion that there is a correlation between elevated turbidity and elevated gross alpha results in groundwater.*

Response: Agree with Clarification

Table C-3 will be revised to include turbidity results. The revised Table C-3 is included at the end of these comment responses.

The text in Section VI, Five-Year Review Process, Data Review, 2nd paragraph will be rewritten as:

“The gross alpha results obtained since 2009 correlate with elevated turbidity in the wells. There is no elevated tritium or iodine-129 in groundwater. Therefore, there were no contaminant migration concerns from review of the groundwater data and no significant changes from 2016 to 2021 that would call into question the effectiveness of the in situ S/S and cover system remedy at HWCTR.

Redevelopment of the BMW wells was inadvertently delayed but will be conducted in January 2022 and low flow bladder pumps were installed to reduce turbidity in the samples. The wells were resampled in February 2022 and all results were below detection limits or less than the respective MCLs (Table C-3). Turbidity was significantly lower at BMW002D and generally lower at BMW001D, BMW003D, and BMW004D when compared to the 3Q2021 sampling event. Since the MCL for gross alpha was not exceeded, filtering of future samples and speciation for the individual alpha emitting radionuclides are not recommended

~~during the next sampling event in 2026. 4Q2021 and sampling results reported in Revision 1 of this document. The redevelopment of these wells should help to reduce the turbidity. If the turbidity does not improve after redevelopment, the samples will be filtered and speciated, as needed, for individual gross alpha radionuclides.”~~

Responsible Party: Branden Kramer, (803)952-6378, branden.kramer@srs.gov

4. **Appendix C, B-Area Operable Unit, Section VIII, Issues, Page C-12 of C-34:** It is unclear why the text states that there are no active issues associated with the protectiveness of this OU when Table C-4 (Recommendations and Follow-up Actions for the B-Area Operable Unit) includes the elevated gross alpha concentrations in groundwater samples as an issue. *Please revise Section VIII to clarify whether the elevated gross alpha concentrations are not an issue, due to the apparent discrepancy with the information presented in Table C-4.*

Response: Clarification

The turbidity concerns with the well are not associated with the protectiveness of the remedy. As stated in Section VI, Data Review, the gross alpha results obtained since 2009 correlate with elevated turbidity in the wells. There is no elevated tritium or iodine-129 in groundwater. Therefore, there were no contaminant migration concerns from review of the groundwater data and no significant changes from 2016 to 2021 that would call into question the effectiveness of the in situ S/S and cover system remedy at HWCTR. The non-time critical removal action (implementation of a concrete cover, access control signs) has reduced human health risk by eliminating the exposure pathway. The remedial action is still intact and protective; therefore, there is no issue with the protectiveness of this OU.

No change to the text is proposed.

Responsible Party: Branden Kramer, (803)952-6378, branden.kramer@srs.gov

5. **Appendix I, General Separations Area Consolidation Unit, Section VII, Technical Assessment, Is the Remedy Functioning as Intended by the Decision Document?, Page I-12 of I-34:** This section does not include monitoring data or a reference citation to support the assertions in the text that the low permeability cap has greatly reduced the tritium migration and appears to have impacted other plumes to a lesser extent. For example, the text states, “The low permeability cap has significantly reduced the tritium migration from the ORWBG vadose zone to the Southwest Plume of the MWMF [Mixed Waste Management Facility]. This has resulted in a tritium reduction within the plume of approximately 40%. The low permeability cap appears to have impacted the other plumes associated with the ORWBG (Northwest and Southeast Plumes) to a lesser extent.” However, monitoring data, or a reference citation to where this information is located, was not provided as a supporting line of evidence regarding cap performance. *Please revise Section VII to provide monitoring data or reference where this information can be found (e.g., Resource Conservation and*
-

Recovery Act MWMF groundwater monitoring reports] to support assertions in the text regarding the cap performance.

Response: Agree

A reference to the Annual Corrective Action Report for the F-Area Hazardous Waste Management Facility, the H-Area Hazardous Waste Management Facility, and the Mixed Waste Management Facility (SRNS-RP-2021-00513, April 2021) will be added to Section VII, Technical Assessment, Is the Remedy Functioning As Intended, 4th Bullet, 2nd sentence. The referenced report will also be added to Section XII. Document Reviewed.

Responsible Party: Jeff Thibault, (803)952-5911, jeffrey.thibault@srs.gov

6. Appendix K, Section VI, Five-Year Review Process, Data Review, Page K-7 of K-26:

The text does not present the results of the annual sampling for known groundwater contaminants at the six wells and seven surface water locations discussed in the text. Additionally, since K-Area Reactor Seepage Basin (KRSB) OU groundwater is being investigated under the K-Area Groundwater (KAGW) OU, it is unclear whether the annual sample results for the six wells and seven surface water locations are also reported in the KAGW OU monitoring reports. *Please revise Section VI to include a discussion of the most recent sample results at the six wells and seven surface water locations and include a reference citation to the most recent annual groundwater data report where this information is located.*

Response: Clarification

The regulatory approved KRSB plug-in decision document (WSRC 1999c) did not require groundwater monitoring as part of the selected remedy in order to meet the remedial action objectives. Therefore, no groundwater data is available specific to the remedy effectiveness. As stated in the appendix, groundwater will be addressed as part of the K-Area Groundwater OU. Ongoing monitoring as part of the K-Area Groundwater OU as agreed to by the three parties is focused on existing groundwater contaminants and is not relevant to the KRSB CMCOs.

For clarity, the Data Review paragraph will be deleted from Section VI, Five-Year Review Process. Additionally, the following text will be added as the last paragraph to Section IV, Remedial Actions, Remedy Selection: “The regulatory approved KRSB plug-in decision document (WSRC 1999c) did not require groundwater monitoring as part of the selected remedy in order to meet the RAOs. Groundwater is not part of the KRSB OU and will be investigated under the K-Area Groundwater OU.”

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

7. Appendix L, Section VI, Technical Assessment, Page L-8 of L-28: It is unclear what groundwater data was used to support the technical evaluation conducted to substantiate that the well abandonment and soil stabilization are preventing the migration and leaching of

COCs to the groundwater. For example, the text states, “The technical evaluation of the groundwater data indicates that the well abandonment and soil stabilization in LAOCB [L-Area Oil and Chemical Basin] are preventing the migration and leaching of COCs [Contaminants of Concern] to the groundwater (SRNS 2010, SRNS 2012);” however, it is unclear what groundwater data was used to support the technical evaluation. *Please revise Section VI to discuss what groundwater data was used to determine that the migration and leaching of COCs to the groundwater at the LAOCB is being prevented due to well abandonment and soil stabilization in LAOCB.*

Response: Clarification

The comment inadvertently lists Technical Assessment as Section VI. The Technical Assessment is Section VII.

The groundwater data is discussed in Section VI, Five-Year Review Process, Data Review, and states that carbon-14, cobalt-60, strontium-90, tritium, nonvolatile beta, and gross alpha were analyzed for in wells LCO 2DL and LCO 6DL. The data is included in Table L-4 and shows that the results were either non-detect or below MCLs/PRGs and are consistent with historical levels.

No change to the text is proposed.

Responsible Party: Eric Schiefer, (803)952-6273, eric.schiefer@srs.gov

8. **Appendix M, Section VI, Five-Year Review Process, Page M-9 of M-32:** This section does not include a reference citation to where the groundwater results can be found to support the assertions in the text regarding cover system performance. For example, the text states, “Groundwater monitoring well LSB-4 is sampled once every five years for strontium-90 to assess the effectiveness of the LRSB cover system in preventing contaminants from migrating to the groundwater above MCLs [Maximum Contaminant Limit]. LSB-4 was sampled and analyzed for strontium-90 in the fourth quarter of 2020. The strontium-90 result was below the detection limit.” However, there is no reference citation to the 2020 analytical results for LSB-4. *Please revise Sections VI to cite a reference to where the 2020 analytical results can be found and include a table of the 2020 analytical results to confirm that strontium-90 was below the detection limit.*

Response: Agree

Groundwater monitoring data for strontium-90 in well LSB-4 is reported in this five-year remedy review report and is not included in a separate report. Table M-4 will be added to include the data collected from LSB-4 for strontium-90. The other tables will be renumbered accordingly.

Comments received 03/15/2022

Table M-4. LRSB Groundwater Monitoring Data

<u>Well Name</u>	<u>Strontium-90</u>	
	<u>2016</u>	<u>2020</u>
<u>LSB-4</u>	<u>ND</u>	<u>ND</u>

ND = Non-detect

The text in Section VI, Five-Year Review Process, Data Review, will be revised as shown:

“Groundwater monitoring well LSB-4 is sampled once every five years for strontium-90 to access the effectiveness of the LRSB cover system in preventing contaminants from migrating to groundwater above MCLs. The strontium-90 data is reported in this five-year remedy review report. LSB-4 was sampled and analyzed for strontium-90 in the fourth quarter of 2016 and 2020 and the results are presented in Table M-4. The strontium-90 result...”

Responsible Party: Eric Schiefer, (803)952-6273, eric.schiefer@srs.gov

9. **Appendix O, P-Area Operable Unit, Section VII, Technical Assessment, ISD of the P-Reactor Building (105-P) Complex, Page O-16 of O-42:** It is unclear how increases in tritium over time are correlated with a rise in rainfall and water table rises. The text indicates sampling results, since 2017, are shown to have concentration increases for tritium, due to the potential rise in rainfall present in the unsaturated zone that has also increased the water table levels. However, no rainfall or water table level data is presented to support the assertions in the text. *Please revise Section VII to provide the rainfall and water table level data to support the assertion that increased tritium concentrations are correlated with increased rainfall.*

Response: Clarification

The groundwater wells being monitored as part of the P-Area Operable Unit (PAOU) Effectiveness Monitoring Plan (EMP), particularly related to the P-Reactor Building (105-P) Complex, are completed in the shallow, unconfined Upper Aquifer Zone (UAZ) (e.g., water table). The primary recharge to this aquifer is from rainfall infiltration. Observed increase and decrease in rainfall amounts have a long-term effect on the overall measured water levels of the UAZ surface. These observed changes are illustrated in the graph below.

Comments received 03/15/2022

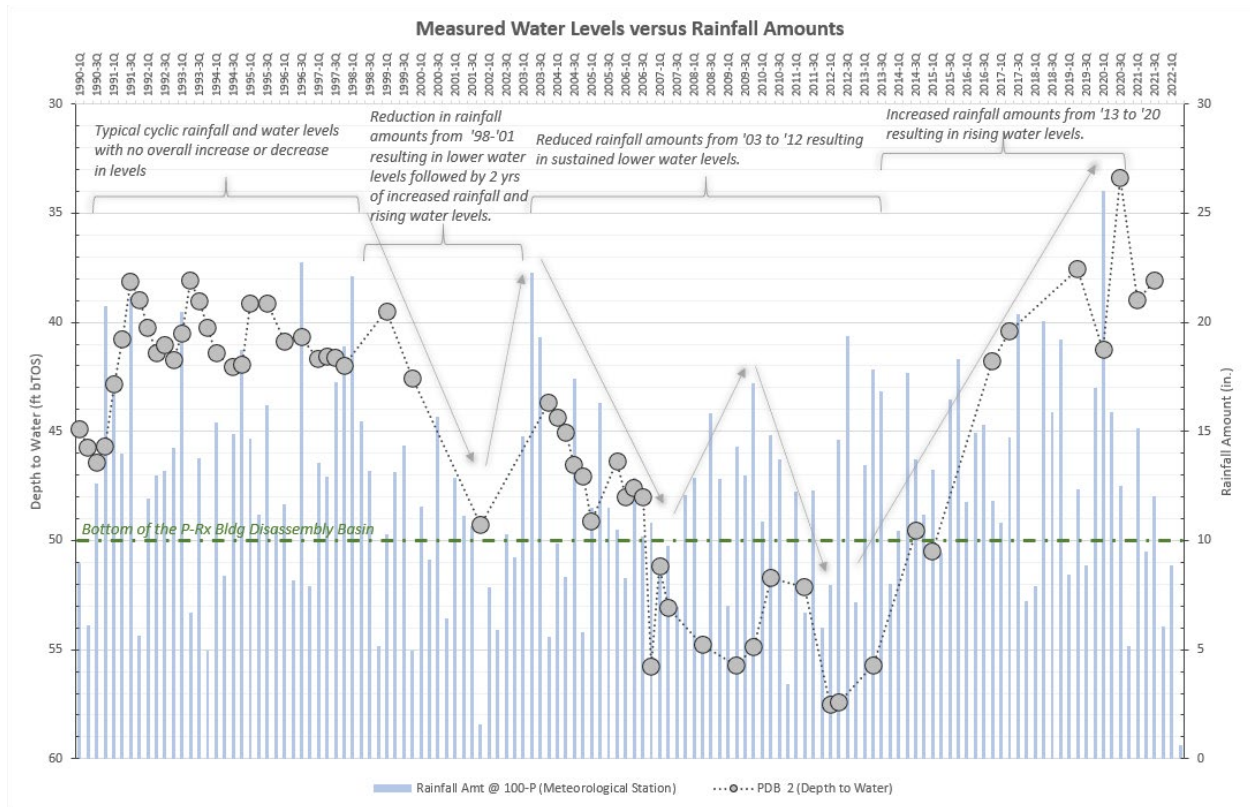


Figure 1: Observed Water Levels and Rainfall near P-Reactor Building (105-P) Complex

The data shown in the Figure 1 are from well PDB 2, which is within 20 ft of the P-Reactor Building Disassembly Basin (P-Rx DAB) and included in the PAOU EMP. As illustrated on the figure, changes in cumulative quarterly rainfall have an apparent effect on observed water levels suggesting a strong correlation. This is further supported by a strong correlation between cumulative rainfall with water levels over the last 10 years where an increase in tritium concentrations have been observed (Figure 2).

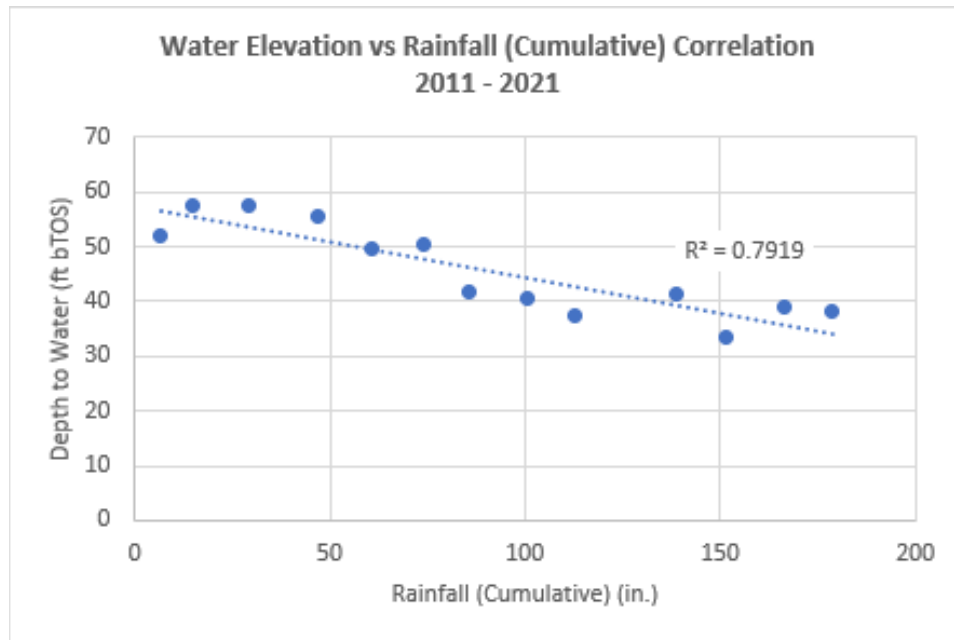


Figure 2: Correlation between Rainfall and Water Levels

From 1990 through 2006, observed water levels were shallower than the bottom depth of the P-Rx DAB (Figure 1). The P-Rx DAB is a segmented deep pool with depths ranging from 17 to 50 ft and a total capacity of 4.6 million gallons of water. The water was used as shielding when the irradiated fuel and target assemblies were cooling and being readied for disassembly. Over the course of reactor operations, water from the P-Rx DAB was purged to site streams and the P-Reactor Seepage Basins to maintain clarity. The water would contain radionuclides (e.g., cesium-137, strontium-90, and tritium). Known releases to the environment from process sewer lines have been documented that were associated with operations and maintenance. Additionally, within the P-Rx Building, observed saturation and buildup of leached lime on the concrete walls between the P-Rx DAB and Process Area was known to occur and contained radionuclides similar to the contents within the DAB. It is likely that the same leaching of material was occurring through the P-Rx DAB bottom impacting the subsurface beneath the facility.

Figure 3 illustrates impact to groundwater near the P-Rx DAB with changes in water levels. Of the wells monitoring shallow groundwater as part of the PAOU EMP, this well is the only one that has shown a recent increase in tritium concentrations in the last 6 years. This is primarily due to the increased rainfall and subsequent observed rising water levels. Because it is likely that leached material containing tritium is still present in the subsurface beneath the P-Rx DAB, as water levels rise in the area that was previously dry for nearly 10 years (2006-2016), this area is now re-saturated allowing for tritium to move with groundwater. Previously, because of the lower water levels, these contaminants were not able to migrate.

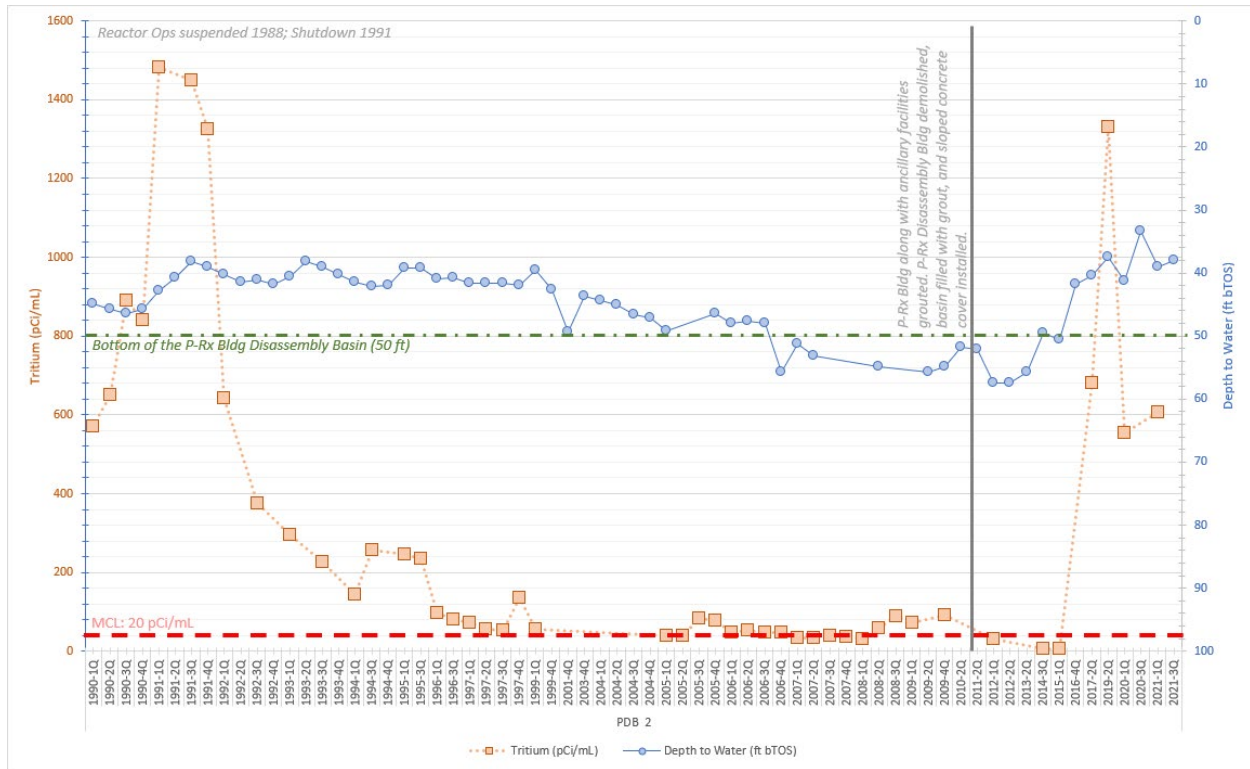


Figure 3: Tritium Time-Trend and Observed Water Levels

No changes to the document are proposed.

Responsible Party: Mark Amidon, (803)645-0878, mark.amidon@srs.gov

ORC comments

ORC Comment #1: Table 7 – E-Area Low Level Waste Facility contains issues/recommendations carried forwarded from previous five-year review. A milestone date is recommended to timely address the recommendation and to ensure future remedy protectiveness or performance is not impacted.

Response: Clarification

As documented in Section VIII. Issues, visual inspections confirm that the covers are intact with no fatigue issues above the depressions. The observed subsidence has not compromised the integrity of the covers. No new slit trench disposal units have been operationally closed since 2010. SRS will continue to perform quarterly inspections and schedule further discussions with USEPA and SCDHEC when corrective actions are deemed necessary.

No changes to the text are proposed.

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

ORC Comment #2: Table 8 – Short-term protectiveness statements listed for E-Area Low Level Waste Facility, H-Area Tank Farm, and F-Area Tank Farm should be revised to include actions needed to ensure long-term protectiveness. EPA’s guidance OSWER Directive 9200.2-111 “Clarifying the Use of Protectiveness Determinations for [CERCLA] Five Year Reviews,” Sept. 13, 2012, recommends the following format for short-term protectiveness statements:

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.

Response: Agree with Clarification

For E-Area LLWF, FTF and HTF, the Protective Determination will be revised to “Protective” in Table 8 because long-term protectiveness is achieved by including the OUs and the SRS facility security and administrative controls that restrict unauthorized access in the Federal Facility Agreement (FFA) Annual Progress Report. This report is required by the FFA and includes annual certification by the USDOE Savannah River Site Manager that the listed OUs are in compliance with land use requirements.

Unit-specific LUCs were not part of the interim remedies at the E-Area Low-Level Waste Facility (LLWF) (Slit Trench Disposal Units 1 to 5) Operable Unit OU and the F-Area Tank Farm (FTF) OU (Waste Tanks 5, 6, and 17 to 20). The E-Area LLWF and the FTF OU are currently in the operational phase, and OU-specific LUCs are deferred until final closure of the entire E-Area LLWF and FTF OUs. SRS facility security and administrative controls that restrict unauthorized access to these operating facilities were not previously recognized as part of the interim remedies. In the *Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units with Geosynthetic or Stabilization/Solidification Cover Systems* (SRNS-RP-2016-00610, Revision 1.1, December 2017), USDOE recommended revising the FFA Annual Progress Report list of LUC Units to include closed portions of these OUs to recognize SRS facility security and administrative controls that restrict unauthorized access and provide for long-term protection of human health and the environment.

The H-Area Tank Farm (HTF) OU (Waste Tank 16) Interim ROD (IROD) was issued in August 2016. The HTF OU (Waste Tank 12) Explanation of Significant Difference to the IROD was issued in April 2017. A remedy evaluation was premature for inclusion in the *Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units with Geosynthetic or Stabilization/Solidification Cover Systems* (SRNS-RP-2016-00610, Revision 1.1, December 2017). However, the same conditions apply the operation HTF OU as to the

E-Area LLWF and FTF OUs. Therefore, the closed portions of these OUs are included in the FFA Annual Progress Report to certify long-term protectiveness through compliance with the SRS facility security and administrative controls. Additional slit trench disposal units and waste tanks closed in the future will be added to the list of LUCs OUs in the FFA Annual Progress Report as interim remedies are implemented.

Responsible Party: Shelia McFalls, (803)952-6819, shelia.mcfalls@srs.gov

ORC Comment #3: Protectiveness determinations cannot be fully evaluated by EPA for each OU in the absence of sufficient discussion and inclusion of needed groundwater lines of evidence (see General comment #1) in the Five-Year Review Report to determine whether the RAO of preventing/mitigating further migration of contaminants to the groundwater for each applicable OU with this RAO have been met or are being met.

Response: Clarification

Please reference the responses to USEPA General Comment #1 and General Comment #3.

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

5. The Sixth Five-Year Remedy Review Report for Savannah River Site Operable Units with Geosynthetic or Stabilization/Solidification Cover Systems (U) SRNS-RP-2021-04229, Revision 0, dated December 2021 (Sixth 5YR Report) does not adequately address, for several Operable Units (OUs), whether the remedial action objectives (RAOs) of preventing/mitigating further migration of contaminants to the groundwater are being achieved to ensure the in-situ stabilization/solidification remedy is protective of groundwater. According to the Sixth 5YR Report, RAOs were developed not only to prevent physical exposure to contaminants but to also prevent/mitigate further migration of contaminants from impacting groundwater. Examples include, but are not limited to, the following OUs evaluated in this Sixth 5YR Report:

- Appendix D, C-Area Reactor Seepage Basins (904-066G and 904-68G) Operable Unit;
- Appendix E, D-Area Expanded Operable Unit (U);
- Appendix I, General Separations Area Consolidation Unit;
- Appendix K, K-Area Reactor Seepage Basin Operable Unit; and,
- Appendix P, P-Area Reactor Seepage Basins (904-61G, 904-62G, and 904-63G) (PRSB) Operable Unit.

The Sixth 5YR Report should discuss whether the RAO for in-situ stabilization/solidification remedial action at the respective OUs are being met to ensure the protectiveness of groundwater. Please revise the Sixth 5YR Report to include additional discussion and lines of evidence (e.g., groundwater monitoring data, flow directions) to confirm that further migration of contaminants to groundwater is being prevented/mitigated to ensure RAOs at these OUs are

SRS Responses to U.S. Environmental Protection Agency Comments on the
Sixth Five-Year Remedy Review Report for Savannah River Site Operable Units with
Geosynthetic or Stabilization/Solidification Cover System (U)
SRNS-RP-2021-04229, Revision 0, December 2021, SEMS No: 00

Comments received 03/15/2022

being met.

Response: Clarification.

Please reference the responses to USEPA General Comment #1 and General Comment #3.

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

EPA HQ comments:

#	Page	Comment	Category 1
1	28	<p>"SRS recommended reevaluation of the installation and maintenance activities for stormwater runoff covers for the E-Area Low-Level Waste Facility (LLWF). Interim stormwater runoff covers at the E-Area LLWF slit trench disposal units are showing signs of wear that are likely to result in higher than anticipated maintenance costs and installation modifications for new covers in the future. Continued discussion with the USEPA and SCDHEC of how these activities impact future covers is needed and the recommendation was carried forward to the Sixth Five-Year Remedy Review Report." Has a schedule been set for these discussions between USEPA and SCDHEC? What is the anticipated solution?</p> <p>Response: Clarification</p> <p>As documented in Section VIII. Issues, visual inspections confirm that the covers are intact with no fatigue issues above the depressions. The observed subsidence has not compromised the integrity of the covers. No new slit trench disposal units have been operationally closed since 2010. SRS will continue to perform quarterly inspections and schedule further discussions with USEPA and SCDHEC when corrective actions are deemed necessary.</p> <p>No changes to the text are proposed.</p> <p>Responsible Party: Sadika O’Quinn, (803)952-6697, sadika.o’quinn@srs.gov</p>	Ground Water
2	28	Response: No comment provided in this row.	

SRS Responses to U.S. Environmental Protection Agency Comments on the
Sixth Five-Year Remedy Review Report for Savannah River Site Operable Units with
Geosynthetic or Stabilization/Solidification Cover System (U)
SRNS-RP-2021-04229, Revision 0, December 2021, SEMS No: 00

Comments received 03/15/2022

#	Page	Comment	Category 1
3	28	<p>No community interviews were listed in the document. Confirm if community representatives were included in the interviews. If no community representatives were interviewed, they should be considered for the next five-year review.</p> <p>Response: Clarification</p> <p>Community input occurred during the public comment periods for the Statement of Basis/Proposed Plans, Proposed Plans, Interim Action Proposed Plans, etc. for each individual OU. In addition, after USDOE, SCDHEC, and USEPA signed the Record of Decisions or Explanation of Significant Differences for each OU, the public was notified of its availability. As discussed in Section IV. Five-Year Remedy Review Process, Community Notification and Involvement, the public was notified that the review process was starting and a notice of availability of this Five-Year Remedy Review Report will be published in local newspapers and announced in The Savannah River Site Environmental Bulletin which is sent to the SRS mailing list. The report will be made available to the public at four information repositories.</p> <p>Responsible Party: Sadika O’Quinn, (803)952-6697, sadika.o’quinn@srs.gov</p>	Community involvement and Interviews
4	31	<p>"SRS recommends redeveloping the BMW wells at BAOU prior to the next sampling event in order to decrease the turbidity in the wells and provide more accurate groundwater measurements, followed by filtering of samples and speciation as needed for radionuclides." What is the timeline for redeveloping the BMW wells?</p> <p>Response: Clarification</p> <p>The wells were redeveloped in December 2021. Sampling occurred February 1, 2022. The data has been reviewed and the results will be included in Revision 1 of this document.</p> <p>Responsible Party: Sadika O’Quinn, (803)952-6697, sadika.o’quinn@srs.gov</p>	Ground Water

SRS Responses to U.S. Environmental Protection Agency Comments on the
Sixth Five-Year Remedy Review Report for Savannah River Site Operable Units with
Geosynthetic or Stabilization/Solidification Cover System (U)
SRNS-RP-2021-04229, Revision 0, December 2021, SEMS No: 00

Comments received 03/15/2022

#	Page	Comment	Category 1
5	31	<p>"Interim stormwater runoff covers at the E-Area LLWF slit trench disposal units are showing signs of wear that are likely to result in higher than anticipated maintenance costs and installation modifications for new covers in the future. Continued discussion with USEPA and SCDHEC of how these activities impact future covers is needed." Has a schedule been set for these discussions between USEPA and SCDHEC?</p> <p>Response: Clarification</p> <p>As documented in Section VIII. Issues, visual inspections confirm that the covers are intact with no fatigue issues above the depressions. The observed subsidence has not compromised the integrity of the covers. No new slit trench disposal units have been operationally closed since 2010. SRS will continue to perform quarterly inspections and schedule further discussions with USEPA and SCDHEC when corrective actions are deemed necessary. No changes to the text are proposed.</p> <p>Responsible Party: Shelia McFalls, (803)952-6819, shelia.mcfalls@srs.gov</p>	Ground Water

SRS Responses to U.S. Environmental Protection Agency Comments on the
Sixth Five-Year Remedy Review Report for Savannah River Site Operable Units with
Geosynthetic or Stabilization/Solidification Cover System (U)
SRNS-RP-2021-04229, Revision 0, December 2021, SEMS No: 00

Comments received 03/15/2022

6	31	<p>The document states that the geosynthetic covers are not expected to meet 25 year design. Is there an estimate for the life expectancy? Is the protectiveness impacted by the reduced life-expectancy of the cover? Consider the effectiveness and protectiveness of this remedy if the erosion issues persist.</p> <p>Response: Clarification</p> <p>As documented in Section VIII. Issues, visual inspections confirm the covers are intact with no fatigue issues above the depressions. The observed subsidence has not compromised the integrity of the covers. No new slit trench disposal units have been operationally closed since 2010. An estimate for life expectancy of the geosynthetic covers has not been determined. The protectiveness is not impacted by the reduced life expectancy of the covers. SRS will continue to perform quarterly inspections and schedule further discussions with USEPA and SCDHEC when corrective actions are deemed necessary. No changes to the text are proposed.</p> <p>Responsible Party: Eric Schiefer, (803)952-6273, eric.schiefer@srs.gov</p>	Protectiveness Statement
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SRS Responses to U.S. Environmental Protection Agency Comments on the
Sixth Five-Year Remedy Review Report for Savannah River Site Operable Units with
Geosynthetic or Stabilization/Solidification Cover System (U)
SRNS-RP-2021-04229, Revision 0, December 2021, SEMS No: 00

Page 26 of 34

Comments received 03/15/2022

#	Page	Comment	Category 1
7	57	<p>F-Area Tank Farm- The “Short-term protectiveness” appears to be related to the interim remedy and the LUCIP being deferred until the final closure, correct? Do you have an anticipated timeframe you can add?</p> <p>Response: Clarification</p> <p>The FTF OU is currently in the operational phase and OU-specific LUCs have been deferred until final closure of the entire FTF OU. The interim remedy is protective in the short-term and the long-term as discussed in the response to ORC Comment #2. The Federal Facility Agreement for the SRS currently lists the remedial action start date for final closure of the FTF as April 2041.</p> <p>Responsible Party: Shelia McFalls, (803)952-6819, shelia.mcfalls@srs.gov</p>	Protectiveness Statement
8	108	<p>"Well development, as required by the fifth five-year remedy review (SRNS 2018), was inadvertently delayed until after submittal of the Revision 0 of this document. Once redevelopment is completed, new groundwater samples will be collected, and the Revision 1 document will be updated accordingly. The current remedy is functioning as intended." Is there a plan in place to share the results of the planned post-well redevelopment groundwater sampling with EPA?</p> <p>Response: Clarification</p> <p>The wells were redeveloped in December 2021. Sampling data has been reviewed and the results will be included in Revision 1 of this document.</p> <p>Responsible Party: Branden Kramer, (803)952-6378, branden.kramer@srs.gov</p>	Ground Water

SRS Responses to U.S. Environmental Protection Agency Comments on the
Sixth Five-Year Remedy Review Report for Savannah River Site Operable Units with
Geosynthetic or Stabilization/Solidification Cover System (U)
SRNS-RP-2021-04229, Revision 0, December 2021, SEMS No: 00

Page 27 of 34

Comments received 03/15/2022

#	Page	Comment	Category 1
9	108	<p>Regarding the B-Area OU, we suggest reviewing the site related contaminants once the wells are redeveloped. If the data holds up following redevelopment, according to figure C-5, the plume would not be delineated below the MCL and concentrations are generally increasing in 003D.</p> <p>Response: Clarification</p> <p>The wells were redeveloped in December 2021. Sampling data has been reviewed and the results will be included in Revision 1 of this document. There are no exceedances of MCLs.</p> <p>Responsible Party: Branden Kramer, (803)952-6378, branden.kramer@srs.gov</p>	Ground Water
10	Figure C-5	<p>Recommend overlaying the GW monitoring well locations on groundwater contours (if available)</p> <p>Response: Clarification</p> <p>For the BAOU, groundwater contours are not available at this time. Currently the data shows no contamination exceeding MCLs. If future sampling results indicate contamination concentrations exceeding MCLs, groundwater contours may be developed.</p> <p>Responsible Party: Branden Kramer, (803)952-6378, branden.kramer@srs.gov</p>	Ground Water
11	Figure O-5	<p>Recommend overlaying the GW monitoring well locations on groundwater contours (if available)</p> <p>Response: Agree</p> <p>For the PAGW OU groundwater contours will be added to in Figure O-5.</p> <p>Responsible Party: Terry Killeen, (803)952-6850, terry.killeen@srs.gov</p>	Ground Water
12	Multiple	Response: No comment provided in this row.	

SRS Responses to U.S. Environmental Protection Agency Comments on the
Sixth Five-Year Remedy Review Report for Savannah River Site Operable Units with
Geosynthetic or Stabilization/Solidification Cover System (U)
SRNS-RP-2021-04229, Revision 0, December 2021, SEMS No: 00

Page 28 of 34

Comments received 03/15/2022

5YR Coordinator comments:

<p>General SEMS OUs: 16, 17, 23 (FRB), 32, 43, 48, 55, 60, 65, 66, 67, 94 and 96.</p>	<p>In accordance with the <i>Recommended Evaluation of Institutional Controls: Supplement to the 'Comprehensive Five-Year Review Guidance'</i>, the Institutional Controls (ICs) Review Section should include the IC Summary Table, the status of the ICs and ICs Overlay Map(s) (may use current figures). SRS did a good job with including most of this information. However, ICs Overlay Maps should be included prior to finalizing the Report. Specifically, ICs Overlay Maps (depicting the boundaries of the land use controls) for each of the following SEMS OUs: 16, 17, 23 (FRB), 32, 43, 48, 55, 60, 65, 66, 67, 94 and 96.</p> <p>You may access this FYR guidance document and review examples of the IC Maps at the following website: http://semspub.epa.gov/src/document/HQ/175441</p> <p>Response: Agree</p> <p>Maps for BAOU (SEMS 48), CRSB (SEMS 60), DEXOU (SEMS 67), FRB (SEMS 23), GSACU (SEMS 32), KRSB (SEMS 55), LAOCB (SEMS 17), LRSB (SEMS 65), OFASB (SEMS 16), PAOU (SEMS 94), PRSB (SEMS 66), RBRP (SEMS 43), and TAOU (SEMS 96) with LUC boundaries will be included in Revision 1 of this document.</p> <p>Responsible Party: Sadika O’Quinn, (803)952-6697, sadika.o’quinn@srs.gov</p>	<p>ICs Evaluation in FYRs</p>
<p>Table 5 and Table 8</p>	<p>The format of the Protectiveness Statements should follow the format provided in the <i>Clarifying the Use of Protectiveness Determinations for Comprehensive Environmental Response, Compensation, and Liability Act Five-Year Reviews Guidance</i>. Although I would like to review the revised Report prior to concurring on the current Protectiveness Determinations and Statements, Appendices C – R, Section X of each SEMS OU includes an appropriate format for the Protectiveness Statement. Please use this information when revising Tables 5 and 8.</p> <p>You may access this FYR guidance document at the following website: https://semspub.epa.gov/work/HQ/174829.pdf</p> <p>Response: Agree with Clarification</p> <p>For Table 5, the Protectiveness Statements written for the</p>	<p>Selecting the Protectiveness Determination and Preparing the Protectiveness Statement</p>

	<p>OU's are correct as written and follow the FYR guidance referenced above. Please refer to footnote "a" in Table 5 for HTF OU. The "N/A" is appropriate in the protectiveness determination column for HTF OU because this unit was not discussed in the Fifth Five-Year Remedy Review Report for SRS OUs with Geosynthetic or Stabilization/Solidification Systems. No changes are proposed for Table 5. As noted in the response to ORC Comment #2, the Protectiveness Statements for the E-Area LLWF, FTF, and HTF will be revised to "Protective" in Table 8. No other changes will be made to the Protectiveness Statements in Table 8.</p> <p>SRS Responses to EPA Comments on the Fifth Five-Year Remedy Review for SRS OUs with Geosynthetic or Stabilization/Solidification Systems addressed a similar comment by stating that in accordance 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 recommended 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 changes to Appendix A of the FFA Annual Progress Report were made as agreed. Due to similar conditions at the HTF OU, it was also added to Appendix A of the FFA Annual Progress Report.</p> <p>The 3rd paragraph in Appendix F, Section X, will be revised as follows: "SRS facility security and administrative controls that restrict unauthorized access to the E-Area LLWF are not part of the interim remedy and therefore are not recognized as long-term protective. SRS included the E-Area LLWF in the FFA Annual Progress Report to demonstrate long-term protectiveness through the SRS facility security and administrative controls. The FFA Annual Progress Report list of LUC Units includes the closed portions of the E-Area LLWF to recognize the long-term protectiveness provided through</p>	
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	<p><u>the SRS facility security and administrative controls that restrict unauthorized access to the OU. The report is required by the FFA and includes annual certification by the USDOE SRS Manager that the listed OUs are in compliance with land use requirements.”</u></p> <p>The 4th paragraph in Appendix H, Section X, will be revised as follows: “SRS facility security and administrative controls that restrict unauthorized access to the FTF OU are not part of the interim remedy and therefore are not recognized as long term protective. SRS included the FTF OU in the FFA Annual Progress Report to demonstrate long term protectiveness through the SRS facility security and administrative controls. <u>The FFA Annual Progress Report list of LUC Units includes the closed portions of the FTF OU to recognize the long-term protectiveness provided through the SRS facility security and administrative controls that restrict unauthorized access to the OU. The report is required by the FFA and includes annual certification by the USDOE SRS Manager that the listed OUs are in compliance with land use requirements.”</u></p> <p>The 4th paragraph in Appendix J, Section X, will be revised as follows: “SRS facility security and administrative controls that restrict unauthorized access to the HTF OU are not part of the interim remedy and therefore are not recognized as long term protective. SRS included the HTF OU in the FFA Annual Progress Report to demonstrate long term protectiveness through the SRS facility security and administrative controls. <u>The FFA Annual Progress Report list of LUC Units includes the closed portions of the HTF OU to recognize the long-term protectiveness provided through the SRS facility security and administrative controls that restrict unauthorized access to the OU. The report is required by the FFA and includes annual certification by the USDOE SRS Manager that the listed OUs are in compliance with land use requirements.”</u></p> <p>Responsible Party: Sadika O’Quinn, (803)952-6697, sadika.o’quinn@srs.gov</p>	
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SRS Responses to U.S. Environmental Protection Agency Comments on the
Sixth Five-Year Remedy Review Report for Savannah River Site Operable Units with
Geosynthetic or Stabilization/Solidification Cover System (U)
SRNS-RP-2021-04229, Revision 0, December 2021, SEMS No: 00

Comments received 03/15/2022

<p style="text-align: center;">Table 6</p>	<p>This Table “OU(s) without Issues/Recommendations Identified in the Five-Year Review” should include all SEMS OUs that <i>do not</i> have Issues/Recommendations that affect ‘current’ or ‘future’ protectiveness. As an example, if all of the SEMS OUs captured in the final Report are <u>Protective</u> (indicating that there are no Issues/Recommendations that affect ‘current’ or ‘future’ protectiveness), all of the SEMS OUS should be listed in this Table.</p> <p>Please access the <i>Clarifying the Use of Protectiveness Determinations for Comprehensive Environmental Response, Compensation, and Liability Act Five-Year Reviews Guidance</i> to evaluate and select the <i>Protectiveness Determination</i></p> <p>Response: Clarification</p> <p>Table 6 correctly includes all the SEMS OU Numbers that do not have Issues/Recommendations that affect ‘current’ or ‘future’ protectiveness for those OUs with Geosynthetic or Stabilization/Solidification Cover Systems. SEMS OU Numbers 23 and 60 are used twice for OUs located in the same area that have different remedial decision documents. However, the SEMS OU Numbers were not listed twice in Table 6. No change to the document is proposed.</p> <p>Responsible Party: Sadika O’Quinn, (803)952-6697, sadika.o’quinn@srs.gov</p>	<p style="text-align: center;">Identifying SEMS OUs to include in Table 6</p>
<p>General SEMS OUs: 23, 48, 55, 60 and 86.</p>	<p>In accordance with 2016 FYR Template (Five-Year Review Recommended Template, OLEM Directive 9200.0-89), the RAOs and the components of the Remedy should be listed in the final Report. SRS did a good job with doing this for most of the SEMS OUs. However, SRS should list the Remedy components for the following SEMS OUs: 23, 48, 55, 60 and 86.</p> <p>Response: Clarification</p> <p>For SEMS 23 (FTF), the interim remedy components as discussed in the IROD are listed in Appendix H of this remedy review, Section IV, Remedial Actions, Remedy Implementation. The interim remedial alternative includes inspections and performing maintenance activities as needed. Portions of the FTF are still operational.</p> <p>For SEMS 48 (BAOU), the remedy components as discussed in the ROD are listed in Appendix C of this</p>	<p style="text-align: center;">Including the ROD Components</p>

Comments received 03/15/2022

	<p>remedy review, Section IV, Remedial Actions, Remedy Implementation. The remedial alternative incorporated LUCs from the non-time critical removal action as part of the final remedial action.</p> <p>For SEMS 55 (KRSB), the remedy components as discussed in the Plug-In ROD are listed in Appendix K of this remedy review, Section IV, Remedial Actions, Remedy Implementation. The remedial alternative included in situ grouting, low permeability soil cover system and LUCs.</p> <p>For SEMS 60 (CRSB), the remedy components as discussed in the Plug-In ROD are listed in Appendix D of this remedy review, Section IV, Remedial Actions, Remedy Implementation. The remedial alternative included in situ grouting, low permeability soil cover system and LUCs.</p> <p>For SEMS 86 (E-Area LLWF), the interim remedy components as discussed in the IROD are listed in Appendix F of this remedy review, Section IV, Remedial Actions, Remedy Implementation. The interim remedial alternative includes enhancing stormwater runoff during E-Area LLWF operational period. Portions of the E-Area LLWF are still operational.</p> <p>No changes to the text are proposed.</p> <p>Responsible Party: Sadika O’Quinn, (803)952-6697, sadika.o’quinn@srs.gov</p>	
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SRS Responses to U.S. Environmental Protection Agency Comments on the Sixth Five-Year Remedy Review Report for Savannah River Site Operable Units with Geosynthetic or Stabilization/Solidification Cover System (U) SRNS-RP-2021-04229, Revision 0, December 2021, SEMS No: 00

Page 33 of 34

Comments received 03/15/2022

General	<p>Issues and Recommendations that <i>do not</i> affect 'current' or 'future' protectiveness should be included in the 'Other Findings' Section. This group of Issues and Recommendations will not be tracked in SEMS. However, it would be helpful to all parties (EPA, SCDHEC, DOE) to have mutual deadlines for completion of each Recommendation documented. Please refer to Page 10 of the 2016 FYR Template for more information.</p> <p>Response: Clarification</p> <p>Other findings, which are recommendations that may improve performance of the remedy, reduce costs, improve management of O&M, accelerate site closure, conserve energy, promote sustainability, etc., were considered for each of the OUs. No Other Findings were determined to be necessary. Per the 2016 FYR Template, since no Other Findings were identified, the section was not included in the document. Therefore, no change to the document is proposed.</p> <p>Responsible Party: Sadika O'Quinn, (803)952-6697, sadika.o'quinn@srs.gov</p>	Information for the 'Other Findings' Section
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SRS Responses to U.S. Environmental Protection Agency Comments on the
Sixth Five-Year Remedy Review Report for Savannah River Site Operable Units with
Geosynthetic or Stabilization/Solidification Cover System (U)
SRNS-RP-2021-04229, Revision 0, December 2021, SEMS No: 00

Comments received 03/15/2022

Table C-3. BAOU Groundwater Sampling Results, 2021/2022 Compared to 2010 and 2016

Contaminant	MCL/RSL	Well	2010 Results	2016 Max Results	2021 Results	2022 Results	Unit
Aroclor 1254	7.8E-03	BMW001D	ND	ND	ND	<u>ND</u>	µg/L
		BMW002D	ND	ND	ND	<u>ND</u>	µg/L
		BMW003D	ND	ND	ND	<u>ND</u>	µg/L
		BMW004D	ND	ND	ND	<u>ND</u>	µg/L
Aroclor 1260	7.8E-03	BMW001D	ND	ND	ND	<u>ND</u>	µg/L
		BMW002D	ND	ND	ND	<u>ND</u>	µg/L
		BMW003D	ND	ND	ND	<u>ND</u>	µg/L
		BMW004D	ND	ND	ND	<u>ND</u>	µg/L
Lead	1.5E+01	BMW001D	ND	1.6E+00	5.0E-01	<u>8.9E-01</u>	µg/L
		BMW002D	1.9E+01	1.4E+01	1.2E+00	<u>ND</u>	µg/L
		BMW003D	5.9E+00	3.4E+00	2.5E+00	<u>7.4E-01</u>	µg/L
		BMW004D	3.6E+01	8.8E+00	7.0E+00	<u>1.6E+00</u>	µg/L
Iodine-129	2.3E-01	BMW001D	ND	ND	ND	<u>ND</u>	ρCi/L
		BMW002D	ND	ND	ND	<u>ND</u>	ρCi/L
		BMW003D	ND	ND	ND	<u>ND</u>	ρCi/L
		BMW004D	ND	ND	ND	<u>ND</u>	ρCi/L
Tritium	2.0E+01	BMW001D	5.9E-01	5.7E-01	ND	<u>ND</u>	ρCi/mL
		BMW002D	8.6E-01	6.6E-01	6.2E-01	<u>ND</u>	ρCi/mL
		BMW003D	1.1E+00	5.2E-01	ND	<u>ND</u>	ρCi/mL
		BMW004D	1.1E+00	7.4E-01	5.6E-01	<u>ND</u>	ρCi/mL
Gross Alpha	1.5E+01	BMW001D	8.5E+00	5.9E+00	2.6E+00	<u>5.6E+00</u>	ρCi/L
		BMW002D	2.5E+01	1.0E+02	2.6E+01	<u>2.2E+00</u>	ρCi/L
		BMW003D	1.7E+01	2.2E+02	7.6E+01	<u>4.8E+00</u>	ρCi/L
		BMW004D	5.3E+01	6.9E+01	6.9E+01	<u>9.5E+00</u>	ρCi/L
Nonvolatile Beta	5.0E+01	BMW001D	6.5E+00	5.3E+00	2.4E+00	<u>3.3E+00</u>	ρCi/L
		BMW002D	2.5E+01	5.3E+01	3.3E+01	<u>2.5E+00</u>	ρCi/L
		BMW003D	1.4E+01	6.1E+01	3.1E+01	<u>3.9E+00</u>	ρCi/L
		BMW004D	4.4E+01	2.8E+01	1.2E+01	<u>7.6E+00</u>	ρCi/L
Turbidity	N/A	BMW001D	<u>57.7</u>	<u>56</u>	<u>2.2</u>	<u>1.2</u>	<u>NTU</u>
		BMW002D	<u>1000</u>	<u>1000</u>	<u>421</u>	<u>54.9</u>	<u>NTU</u>
		BMW003D	<u>119</u>	<u>161</u>	<u>124</u>	<u>103</u>	<u>NTU</u>
		BMW004D	<u>1000</u>	<u>451</u>	<u>62.9</u>	<u>28.3</u>	<u>NTU</u>

* Well development, as required by the fifth five-year remedy review (SRNS 2018), was inadvertently delayed until after submittal of the Revision 0 of this document. Once redevelopment is completed, new groundwater samples will be collected.

Shading indicates concentration is greater than the MCL/RSL.

ND = non-detect; NTU = nephelometric turbidity unit

General Comments

1. The report carries forward two recommendations from the Fifth Five-Year Remedy Review Report to this report: the redevelopment of the BMW wells at B Area Operable Unit and the regulatory discussions regarding the cover systems at E-Area Low Level Waste Facility. Further explanation should be provided as to why these recommendations were not completed prior to the submittal of the Sixth Five-Year Remedy Review Report.

Response: Clarification

For B-Area Operable Unit, an administrative issue caused an inadvertent scheduling delay in the redevelopment of the wells. Redevelopment of the wells occurred in 4Q2021 and the sampling results will be included in the Redline Revision 1 document.

For E-Area Low-Level Waste Facility, visual inspections confirm that the covers are intact with no fatigue issues above the depressions. The observed subsidence has not compromised the integrity of the covers. No new slit trench disposal units have been operationally closed since 2010. SRS will continue to perform quarterly inspections and schedule further discussions with USEPA and SCDHEC when corrective actions are deemed necessary.

No change to the document is required.

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

2. There are a few discrepancies between Table 2 (SRS OUs with Geosynthetic or S/S Cover Systems) and Table 3 (LUC Summary Table) in the Savannah River Site Summary at the beginning of the document. For all OUs covered in the document, Table 3 lists "Yes" under "LUCs Needed" and "LUCs Called for in the Decision Documents"; however, LUCs are not listed under "Remedial Action" in Table 2 for OUs in Appendices G, H and J. LUCs for these OUs are discussed in their respective appendices as being deferred until final closure, and therefore should be included in Table 2 as well. Section I in each of the OU-specific attachments should be revised to indicate LUCs as well under the "Remedy Includes" subsection.

Response: Agree with Clarification

The SCDHEC comment states that LUCs are not listed as part of the remedial action for OUs in Appendices G (F-Area Retention Basin), H (F-Area Tank Farm), and J (H-Area Tank Farm). However, based on a review of Table 2, SRS believes the intended appendices were F (E-Area Low-Level Waste Facility), H (F-Area tank Farm), and J (H-Area Tank Farm) and has responded to the comment accordingly. Table 3 will be modified by changing "Yes" in the "LUCs Needed" column and the "LUCS called for in the Decision Document" column to "Deferred" for the closed

portions of E-Area Low-Level Waste Facility, F-Area Tank Farm, and H-Area Tank Farm.

No changes are required in Table 2 (SRS OUs with Geosynthetic or S/S Cover System) and Section I of the OU-specific appendices.

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

Specific Comments

1. Table A-3, Summary of Remedial Actions without Operating Equipment at SRS, pages A-11 through A-13. The FTF and HTF OUs are not listed in this table. Please include.

Response: Agree

FTF and HTF will be added to Table A-3 under the *Asphalt/Concrete* headings.

Responsible Party: Eric Schiefer, (803)952-6273, eric.schiefer@srs.gov

2. Table A-5, Chronological Listing of SRS Issued Decision Documents, page A-23. H-Area Tank Farm (Waste Tank 16) IROD and H-Area Tank Farm (Waste Tank 12) ESD to the IROD should be shaded identifying these units as SRS OUs being evaluated in this report. Please correct.

Response: Agree

Table A-5 will be revised to shade the two H-Area Tank Farm documents.

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

3. Appendix E, Attachment E-1, Section III, Onsite Documents and Records Verified, page E-29. For Subsection 7, Groundwater Monitoring Records, the "N/A" box is checked; however, page E-10 discusses groundwater monitoring that is being performed as part of DAOU to evaluate effectiveness of the remedial action for this OU. Please revise this subsection accordingly.

Response: Clarification

Groundwater beneath the DEXOU is being monitored as part of the D-Area Groundwater OU. Therefore, the "N/A" box for DEXOU in Attachment E-1 is checked correctly.

No change to the document is required.

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

4. Appendix L, Figure L-3 Photograph of the Remediated LAOCB OU (2021), page L-15. This photograph shows fencing directly behind a warning sign; however, there is no discussion of OU-specific fencing throughout Appendix L. Furthermore, Section V Access and Institutional Controls in Attachment L-1 on page L-22 specifically states that OU-specific perimeter fencing is not required. Please explain.

Response: Agree with Clarification

OU-specific perimeter fencing is not a component of the selected remedy for the LAOCB. The fencing shown in the photo is hog fencing that was installed under a maintenance action in 2015. Text will be added to Section VI, Five-Year Review Process, Summary of Inspections as follows: “Hog fencing, which is not part of the selected remedy, was installed in 2015 as a SRS maintenance action (i.e., OU-specific fencing is not required per the ROD or other FFA regulatory documents) and has been successful in reducing/minimizing the damage caused by feral hogs.”

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

5. Appendix M, Attachment M-1. The title for this attachment lists LRSB; CRSB is not included and does not have a separate inspection checklist. One reason this is significant is because groundwater monitoring is discussed in Appendix M for LRSB and is not required for CRSB. Additionally, Section III Onsite Documents and Records Verified in Attachment M-1 shows “N/A” as checked for Subsection 7, Groundwater Monitoring Records. Please correct these discrepancies.

Response: Agree with Clarification

Groundwater monitoring with respect to the monitoring of the cover system for LRSB OU is collected as part of the L-Area Southern Groundwater Operable Unit monitoring. Therefore, the “N/A” box for LRSB OU in Attachment M-1 is checked correctly.

For clarity, the following text will be added to the Remarks note in Attachment M-1, Section III, Subsection 7: “Groundwater monitoring to confirm the soil cover effectiveness for the LRSB is addressed as part of the L-Area Southern Groundwater OU. Review of groundwater monitoring records for the L-Area Southern Groundwater OU are reported in the Five-Year Remedy Review Report for SRS OUs with Groundwater Remedies.”

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

6. Appendix N, Figure N-4, Tritium Plume Map for the Western GSA Groundwater OU – 2020 (SRNS 2021), page N-18. Although one can determine the location of the waste unit by reading preceding information, it would be helpful to label the Old F-Area Seepage Basin on the figure.

Response: Agree

Figure N-4 will be revised to label the OFASB.

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

7. Appendix R, Attachment R-1, Section III, Onsite Documents and Records Verified, page R-29. For Subsection 7, Groundwater Monitoring Records, the "N/A" box is checked; however, a groundwater monitoring program for evaluating effectiveness of the remedial actions for this OU is discussed on page R-8. Also, the Monitoring Wells subsection of Section VII in Attachment R-1 on page R-33 has several items checked. Please correct.

Response: Agree with Clarification

There are no groundwater monitoring records associated with TAOU. Groundwater monitoring to evaluate the effectiveness of both the low-permeability geosynthetic cover in the industrial portion of TAOU and the soil amendments that were implemented in the Outfall Delta/ Inner Swamp to prevent contaminants from leaching to groundwater above MCLs is evaluated through the groundwater monitoring conducted for the TNX-Area Groundwater Operable Unit (TNX OU). Therefore, the "N/A" box for TAOU in Attachment R-1 is checked correctly.

For clarity, the following text will be added to the Remarks note in Attachment R-1, Section III, Subsection 7: "Groundwater monitoring to confirm the soil cover effectiveness for the TAOU is addressed as part of the TNX OU. Review of groundwater monitoring records under the TNX OU are reported in the Five-Year Remedy Review Report for SRS OUs with Operating Equipment."

The Monitoring Well subsection of Section VII, Subsection D, Subsection 3 Monitoring Wells in Attachment R-1 will remain checked "Properly secured/locked", "Functioning", "Routinely sampled", and "Good Condition" and the following text will be added to the Remarks note: "All monitoring wells penetrating the TAOU cover are associated with the TNX OU. Review of groundwater monitoring records under the TNX OU are reported in the Five-Year Remedy Review Report for SRS OUs with Operating Equipment."

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

8. Appendix R, Attachment R-1, Section VII, Landfill Cover/Containment, page R-34. Subsection E, Cover Penetrations, of Attachment R-1 on page R-34 repeats everything verbatim listed on page R-33 for Subsection D Cover Penetrations. Please correct.

Response: Agree

Subsection D, Cover Penetrations, of Section VII Landfill Cover/Containment will be deleted since it is duplicated. All subsequent subsections will be renumbered as needed.

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