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

JUN 14 2021

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

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 Engineered Cover Systems (U) Aiken, South Carolina (SRNS-RP-2020-00420, Redline Revision 1, June 2021) (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 Savannah River Site Operable Units with Engineered Cover Systems (U) Aiken, South Carolina (SRNS-RP-2020-00420, Revision 0, December 2020) and supporting documentation to the regulators on December 17, 2020. The South Carolina Department of Health and Environmental Control (SCDHEC) and U. S. Environmental Protection Agency (EPA) provided comments on the Revision 0 document on March 17, 2021 and March 24, 2021, respectively. The final SRS responses to the SCDHEC's and EPA's comments on the Revision 0 report were incorporated into the Redline Revision 1 page changes for the report.

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.

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: 2021.06.14 09:25:23 -04'00'

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

IACD-21-145

Enclosures:
1. Sixth Five-Year Remedy Review Report for Savannah River Site Operable Units with Engineered Cover Systems (U) Aiken, South Carolina (SRNS-RP-2020-00420, Redline Revision 1, June 2021) SEMS Number: 00
2. SRS Responses to the South Carolina Department of Health and Environmental Control's Comments on the Sixth Five-Year Remedy Review Report for Savannah River Site Operable Units with Engineered Cover Systems (U) Aiken, South Carolina (SRNS-RP-2020-00420, Revision 0, December 2020) SEMS Number: 00
3. SRS Responses to the U. S. Environmental Protection Agency's Comments on the Sixth Five-Year Remedy Review Report for Savannah River Site Operable Units with Engineered Cover Systems (U) Aiken, South Carolina (SRNS-RP-2020-00420, Revision 0, December 2020) SEMS Number: 00

cc w/o encl:
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SRS Responses to South Carolina Department of Health and Environmental Control Comments on the Sixth Five-Year Remedy Review Report for SRS Operable Units with Engineered Cover Systems (U) – Aiken, South Carolina
SRNS-RP-2020-00420, Revision 0, December 2020, SEMS Number: 00
Savannah River Site NPL Site, South Carolina
Comments received March 17, 2021

Specific Comments

Central Shops Burning/Rubble Pits (631-1G/631-3G)

1. Appendix C, Figure C-5, Water Level Measurements from CSR 14PZ and CSR 17PZ (2016-2020), page C-16. Please include a notation for the significance of the orange/yellow line (i.e., bottom of the basin) in this figure, similar to the one provided in the previous Five-Year Review Report.

Response: Agree.

A notation defining the orange/yellow line as the "Basin Bottom" will be included in the figure.

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

K-Area Burning/Rubble Pit (131-K) and K-Area Rubble Pile (631-25G)

1. Appendix H, Attachment H-1, Section III Onsite Documents & Records Verified, page H-25. Item 7, Groundwater Monitoring Results, is checked as "N/A", although MNA is part of the remedy for this OU. Please correct.

Response: Agree.

The "N/A" box in Attachment H-1, Section III, Onsite Documents & Records Verified, Item 7, Groundwater Monitoring Records, will be unchecked. The boxes "Readily Available" and "Up to Date" will be checked.

Responsible Party: Justin Steadman, (803) 952-7346, justin.steadman@srs.gov

Mixed Waste Management Facility

1. Appendix K, Remedy Implementation, page K-5. The last paragraph of this section states that "Later in 1994, portions of the RCRA LLRWDF 5.3-hectare (13-acre) geosynthetic cover system was tied into the MWMF cover system." The specific portions of the LLRWDF that is tied into the MWMF cover system needs to be identified. Changes in either facility could impact the other.

Response: Agree.

In Section IV, Remedial Actions, the third bullet under Remedy Implementation will be revised as shown below.

"....Later in 1994, portions of the RCRA LLRWDF 5.3-hectare (13-acre) geosynthetic cover system was tied into the MWMF cover system. The LLRWDF closure consisted of twelve discrete areas (i.e., ELLT-2, ELLT-3, ELLT-4, and Trench Areas 1 to 9 [Figure K-2]). The MWMF small cap was covered by the ELLT-2 and Trench Area 7 cover system. ELLT-3 and Trench Areas 1, 3 to 6, and 8 were integrated into the MWMF cover system (WSRC 1999b)."

Figure K-2 (attached) will be updated to show the location of the twelve LLRWDF closure areas. Section XII, Documents Reviewed, will be updated to add the WSRC 1999b reference.

"WSRC, 1999b. *Mixed Waste Management Facility Closure Plan (LLRWDF), Volume II (U)*, Q-CLP-E-00001, Revision 4, Westinghouse Savannah River Company, Savannah River Site, Aiken, SC"

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

SRL Seepage Basins (904-53G1, 904-53G2, 904-54G, 904-55G)

1. Appendix L, Attachment L-1, Section V Access and Institutional Controls, page L-22. Item A for this section, Fencing, is checked as "N/A" and the comment provided states that "OU-specific perimeter fencing is not required by the remedial action." This statement contradicts discussion and figures elsewhere in Appendix L that clearly indicate fencing is present at this OU. Please correct.

Response: Agree with Clarification.

While it is correct that fencing is present at the SRL Seepage Basin, the fencing is not in place because it is required by the remedial action. The fencing is in place to separate the waste unit from road traffic. Additionally, the hog fencing was added to the three remaining sides of the waste unit as a maintenance action to keep the hogs off the cover.

The word "fencing" will be deleted from Attachment L-1, Section XI, Overall Observations, B, Adequacy of O&M as follows: "..and site maintenance (repair of erosion damage, cover system, ~~feneing~~, and warning signs)..."

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

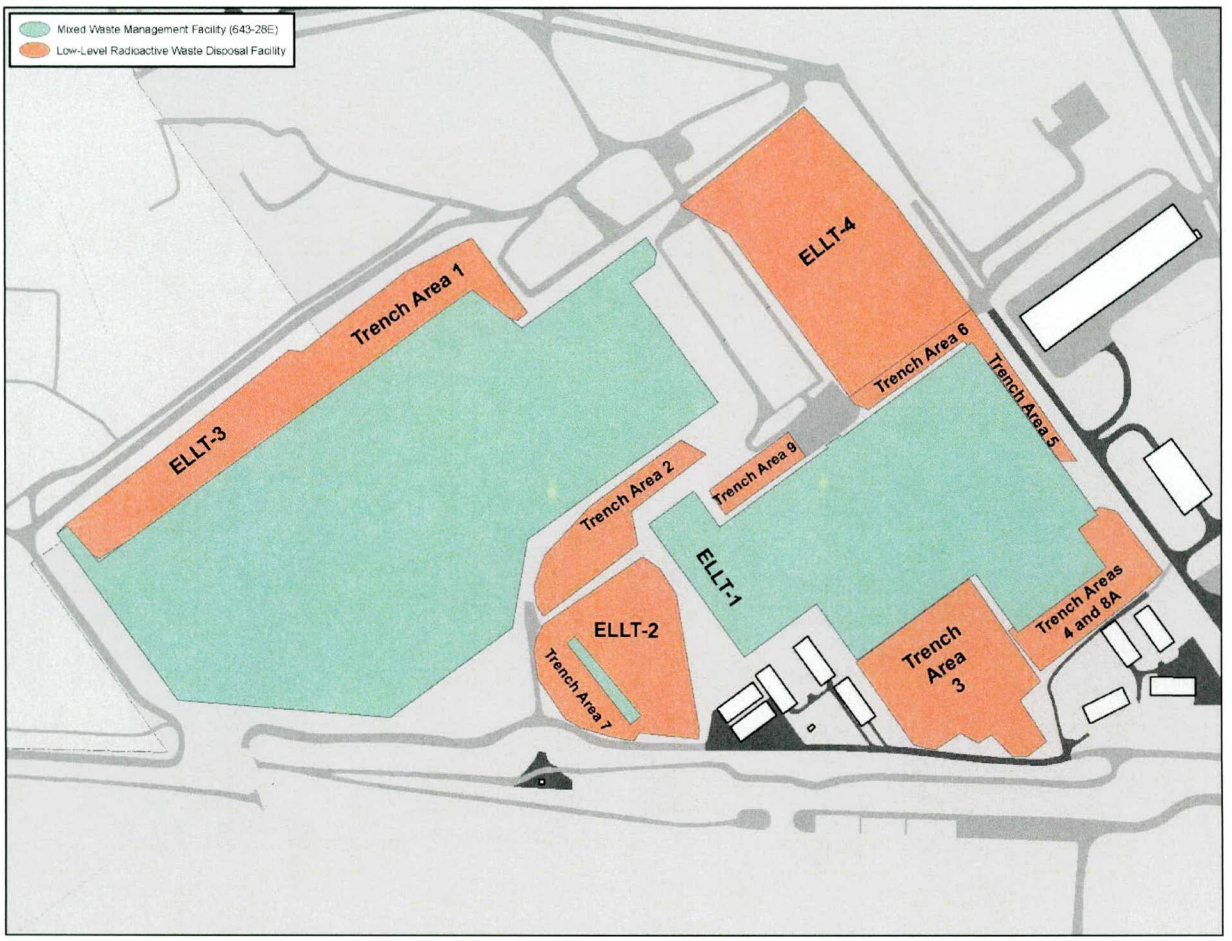

Figure K-2. LLRWDF Units in Relation to MWMF Units

COMMENTS:

1. The selected remedy included LUCs and/or specific LUC objectives for each of the following OUs: D-Area Burning/Rubble Pits (431-D and 431-1D), F-Area HWMF (904-41G, 904-42G, 904-43G), Ford Building Seepage Basin (904-91G), H-Area HWMF (904-44G, 904-45G, 904-46G, 904-56G), M-Area HWMF (904-51G, 904-112G), Metallurgical Laboratory HWMF (904-110G), and the Mixed Waste Management Facility (643-28E). However, the FYR appendix for each of these OUs does not discuss whether a unit-specific Land Use Control Implementation Plan (LUCIP), or other appropriate unit-specific post-ROD document, containing the federal facility LUC checklist items (*including the checklist statement regarding required CERCLA 120(h) deed notices/restrictions) has been prepared for each of the OUs. *Please indicate in the remedy technical assessment section whether a unit-specific LUCIP governing the specific details of LUC implementation, maintenance, monitoring and enforcement has been prepared. If not, please indicate when a LUCIP, or other appropriate unit-specific post-ROD LUC implementation document, will be prepared for each of these OUs. If a unit-specific LUCIP has not been prepared, the FYR should include this requirement in the recommendations section.*

   * See, e.g., LUC Checklist items, including Property transfer language regarding deed restrictions: "Each transfer of fee title from the United States will include a CERCLA 120(h)(3) covenant which will have a description of the residual contamination on the property and the environmental use restrictions, expressly prohibiting activities inconsistent with the performance measure goals and objectives.

Response: Clarification.

In Section VII, Technical Assessment in each of the Appendices C, D, F, H, and L, the text discusses and references the unit-specific LUCIP governing the specific details of the LUC implementation, maintenance, monitoring and enforcement. No change to the text is required.

For Appendices E, G, I, J, and K, the text states, "The LUC requirements are discussed and approved as part of the closure/post-closure/permit application process and are governed by the RCRA Permit Renewal for SRS (SCDHEC 2014). Therefore, a Land Use Control Implementation Plan is not required for this OU. The LUCs that are in place include physical access controls to prevent unauthorized contact, removal or excavation of subsurface soils, and restrictions to prevent disturbance…". In response to EPA Legal Comment #5, the text in Appendices E, G, I, J, and K will be revised to reference the

respective permit renewal application that describes the OU-specific post-closure care requirements.

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

2. **Page A-3, first full paragraph**. On 5/01/2017 the EPA transmitted the following general comment #3:

> *"As noted during the walk downs of the Operable Units, EPA is of the opinion that many of the covers could be re-evaluated for the planting of flowering species of plants to enhance pollinator species of insects in the area. While EPA is aware limited budgets exist for the effort, EPA proposes that DOE examine options such as limiting pesticide application and reducing mowing schedules and repurpose any savings into the acquiring and planting of species that will not damage covers and are attractive to pollinator species. In addition, reduction of mowing schedules will move these older remedies in a more "green remediation" direction. It should be noted that almost all the caps inspected show signs of wind deposited flowering species of various kinds, both native and invasive indicating that the caps are good candidates for such an effort. EPA requests further discussion of the options during comment resolution meetings for this Five Year Review."*

Land Management and Ecosystems Protection should be considered in all phases "green" remediation, according to the SPIM (https://semspub.epa.gov/work/HQ/100002576.pdf) . Although subsequent meetings may have addressed the above topic, it should be noted that there are several native and non-native low-growing pollinator plants (e.g. micro-clover, crown vetch, etc.) that would not be destroyed during the mowing process. Please add additional text, where appropriate, to describe what is being done to further commit the *flora* to "green remediation" for the applicable OU's in this FYR.

Response: Agree.

Existing waste cover systems will not be modified because they are required to be mowed four times a year annually to allow inspection of the cover systems and to prevent woody growth from developing. Less frequent mowing would harm the vegetative cover by burying it with the cut vegetation.

Since there is ample acreage on the SRS suitable for establishing pollinator habitats, a change in the approved cover system design is not necessary. To support the beneficial reuse of these brownfield locations, the U.S. Department of Agriculture Forest Service-Savannah River (USFS-SR), in 2019, began establishing pollinator habitats within the

boundaries of previously closed waste units (M-, P-, R-, and T-Areas) where they will not interfere with existing cover systems or land use controls. Additionally, the USFS-SR also plants 100 acres of pollinator habitat annually at SRS, primarily along powerline rights-of-way. Other USFS-SR practices include adjusted planting practices to encourage a more diverse plant population, and thinning of 3,500 acres of forest annually, which creates conditions more conducive to pollinator habitat.

Text will be added as the last paragraph in Section II, Systems Operation and Maintenance, as follows:

"In support of the beneficial reuse of brownfield locations, the U.S. Department of Agriculture Forest Service-Savannah River (USFS-SR) began establishing pollinator habitats in 2019 within the boundaries of previously closed waste units located in M-Area, P-Area, R-Area, and T-Area where they will not interfere with existing cover systems or land use controls. Additionally, the USFS-SR also plants 100 acres of pollinator habitat annually at SRS, primarily along powerline rights-of-way. Other USFS-SR practices include adjusted planting practices to encourage a more diverse plant population, and thinning of 3,500 acres of forest annually, which creates conditions more conducive to pollinator habitat."

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

3. The general Land Use Control (LUCs) Objectives presented as the last four bullets in Section II. Remedial Action Summary, Response Actions, Page 8 of 34, does not include the LUC objective to "maintain the integrity of the soil cover". The text states the type of LUCs and their implementation are described in Section VII of the OU-specific appendices. It is noted that each of the OUs evaluated includes a statement in Section VII. Technical Assessment, that indicates periodic site inspections and site maintenance have been effective in maintaining the integrity of the soil cover. As the maintenance of the soil cover is necessary to ensure remedy performance, please *revise the Sixth 5YR Report to include maintenance of the soil cover a separate LUC objective bullet item in this section to ensure remedy integrity.*

   Response: Agree.

   The following text will be added to Section II, Response Action Summary, Remedial Actions, 2nd set of bullets as the 5th bullet: "Maintain the integrity of the soil cover."

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

4. The third bullet in Section IV. Five-Year Remedy Review Process on Page 10 of 34 discusses notifying the public citizens of South Carolina and Georgia that are on an extensive mailing list including landowners adjacent to the Savannah River Site (SRS). The text states the public was notified on October 8, 2020 that the United State Department of Energy

(USDOE) is conducting the Sixth Five-Year Remedy Review in phases. However, the text does not state how frequent the SRS mailing list is updated or if it was recently updated just prior to the October 8, 2020 notice. *Please revise the text to ensure the most recent changes in land ownership was documented and the mailing list updated accordingly.*

Response: Agree.

The second bullet Section IV, Five-Year Remedy Review Process, will be revised as follows: "...The public was notified through mailings of *The Savannah River Site Environmental Bulletin*, a newsletter sent to citizens in South Carolina and Georgia on an extensive mailing list, including land owners adjacent to SRS, which is updated annually in July, and through notices in..."

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

5. Remedial action objectives (RAOs) were developed to prevent physical exposure to contaminants and to mitigate further migration of contamination to groundwater for the following OUs evaluated in this Sixth 5YR Report:

   - Appendix E, F-Area Hazardous Waste Management Facility (F-Area Seepage Basins [904-41G, 904-42G, 904-43G];
   - Appendix G, H-Area Hazardous Waste Management Facility (H-Area Seepage Basins [904-44G, 904-45G, 904-46G, 904-56G];
   - Appendix I, M-Area Hazardous Waste Management Facility (Lost Lake [904-51G] and M-Area Settling Basin [904-112G];
   - Appendix J, Metallurgical Laboratory Hazardous Waste Management Facility (904-110G); and
   - Appendix K, Mixed Waste Management Facility (643-28E).

   However, the Sixth 5YR Report does not address whether the RAO of mitigating further migration of contaminants to the groundwater is being achieved to ensure the in-situ stabilization/solidification remedy is protective of groundwater. It appears groundwater will be discussed in the 5 Year Remedy Reviews prepared for the individual groundwater OUs associated with the OUs noted above. However, the Sixth 5YR Report should discuss whether the RAO for in-situ stabilization/solidification remedial action is being met to ensure the protectiveness of groundwater at the respective OUs. Additional discussion and lines of evidence (e.g., groundwater monitoring data) will be required to confirm that further migration of contamination to groundwater is being mitigated to satisfy the RAOs and ensure long-term protectiveness of groundwater at these OUs. *Please revise the Sixth 5YR Report to address this issue.*

Response: Agree with Clarification.

The cover systems for the operable units (OUs) listed above meet the remedial action objective to mitigate further migration of contaminants to the groundwater by minimizing a liquid medium pathway (rainwater percolation) for transport. CERCLA decision documents were issued for groundwater remedies associated with F-Area HWMF, H-Area HWMF, and A/M Area Groundwater (M-Area and Met Lab HWMFs) The groundwater remedies are discussed in the five-year remedy review reports for SRS OUs with operating equipment. Sections III, IV, VI, VII and X, as applicable, will be revised as shown below to state that the RAOs are being met and to specify where the groundwater remedies are discussed.

Appendix E, F-Area Hazardous Waste Management Facility

The second paragraph in Section III, Background, will be revised as follows:

"The groundwater is being addressed by the F-Area Groundwater OU and will be discussed in the five-year remedy review reports for SRS OUs with operating equipment. Groundwater corrective actions are performed under the RCRA Hazardous and Mixed Waste Permit Renewal for SRS."

The first paragraph in Section VII, Technical Assessment, Is the Remedy Functioning as Intended by the Decision Document?, will be revised as follows:

"The remedy, in situ stabilization/solidification… in preventing exposure to contaminant risk above 1E-06 risk levels and mitigating further migration of contaminants to groundwater and is functioning as intended."

The second paragraph in Section VII, Technical Assessment, Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives Still Valid?, will be revised as follows:

"…Groundwater is being addressed by the F-Area Groundwater OU and will be discussed in the five-year remedy reviews reports for SRS OUs with operating equipment ~~the F-Area Groundwater OU~~."

The first sentence in the second paragraph in Section X, Protectiveness Statement(s), will be revised as follows:

"Exposure pathways that could result…ingestion of contaminated soil media and mitigating further migration of contaminants to groundwater."

Appendix G, H-Area Hazardous Waste Management Facility

The second paragraph in Section III, Background, will be revised as follows:

"The groundwater is being addressed by the H-Area Groundwater OU and will be discussed in the five-year remedy review reports for SRS OUs with operating equipment. Groundwater corrective actions are performed under the RCRA Hazardous and Mixed Waste Permit Renewal for SRS."

The first paragraph in Section VII, Technical Assessment, Is the Remedy Functioning as Intended by the Decision Document?, will be revised as follows:

"The remedy, in situ stabilization/solidification… in preventing exposure to contaminant risk above 1E-06 risk levels and mitigating further migration of contaminants to groundwater and is functioning as intended."

The second paragraph in Section VII, Technical Assessment, Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives Still Valid?, will be revised as follows:

"…Groundwater is being addressed by the H-Area Groundwater OU and will be discussed in the five-year remedy reviews reports for SRS OUs with operating equipment ~~the H-Area Groundwater OU~~."

The first sentence in the second paragraph in Section X, Protectiveness Statement(s), will be revised as follows:

"Exposure pathways that could result…ingestion of contaminated soil media and mitigating further migration of contaminants to groundwater."

Appendix I, M-Area Hazardous Waste Management Facility

Section III, Background will be revised as follows:

"…Groundwater is not addressed under this OU. Per the Interim Action Record of Decision (IROD) (WSRC 1992), the MHWMF groundwater is being addressed under the A/M-Area Groundwater OU and will be discussed in the five-year remedy review reports for SRS OUs with operating equipment. Groundwater corrective actions are performed under the RCRA Hazardous and Mixed Waste Permit Renewal for SRS."

The first paragraph in Section IV, Remedial Actions, Remedy Selection, will be revised as follows:

"...minimizing a liquid medium pathway (rainwater percolation) for transport. The MHWMF RCRA preventative action of stabilization and placement of all contaminated materials under a low-permeability cap satisfied both RAOs."

The first paragraph in Section VII, Technical Assessment, Is the Remedy Functioning as Intended by the Decision Document?, will be revised as follows:

"The remedy, in situ stabilization/solidification... in preventing exposure to contaminant risk above 1E-06 risk levels and mitigating further migration of contaminants to groundwater and is functioning as intended."

The first sentence in the second paragraph in Section X, Protectiveness Statement(s), will be revised as follows:

"Exposure pathways that could result...ingestion of contaminated soil media and mitigating further migration of contaminants to groundwater."

Appendix J, Metallurgical Laboratory Hazardous Waste Management Facility

The first paragraph in Section III, Background, will be revised as follows:

"...Groundwater is not addressed under this OU. Per the Interim Action Record of Decision (IROD) (WSRC 1992), the Met Lab HWMF groundwater is being addressed under the A/M-Area Groundwater OU and will be discussed in the five-year remedy review reports for SRS OUs with operating equipment. Groundwater corrective actions are performed under the RCRA Hazardous and Mixed Waste Permit Renewal for SRS."

The third paragraph in Section III, Background, Initial Response, will be revised as follows:

"The Met Lab HWMF underlying groundwater is being addressed under the A/M-Area Groundwater OU and is not included in this review. A/M-Area Groundwater OU will be discussed in the five-year remedy review reports for SRS OUs with operating equipment. Groundwater corrective actions are performed under the RCRA Hazardous and Mixed Waste Permit Renewal for SRS."

The second paragraph in Section IV, Remedial Actions, Remedy Selection, will be revised as follows:

"...minimizing a liquid medium pathway (rainwater percolation) for transport. The selected interim action remedy...and no action for the Carolina Bay. The Met Lab HWMF RCRA preventative action of stabilization and placement of all contaminated

materials under a low-permeability cap satisfied both RAOs. Since the preventative action..."

The first paragraph in Section VII, Technical Assessment, Is the Remedy Functioning as Intended by the Decision Document?, will be revised as follows:

"The remedy, in situ stabilization/solidification... in preventing exposure to contaminant risk above 1E-06 risk levels and mitigating further migration of contaminants to groundwater and is functioning as intended."

The first sentence in the second paragraph in Section X, Protectiveness Statement(s), will be revised as follows:

"Exposure pathways that could result...ingestion of contaminated soil media and mitigating further migration of contaminants to groundwater."

Appendix K, Mixed Waste Management Facility

The second paragraph in Section III, Background, will be revised as follows:

"The groundwater is being addressed by the MWMF Groundwater OU. Groundwater corrective actions are performed under the RCRA Hazardous and Mixed Waste Permit Renewal for SRS."

The first paragraph in Section VII, Technical Assessment, Is the Remedy Functioning as Intended by the Decision Document?, will be revised as follows:

"The remedy, in situ stabilization/solidification... in preventing exposure to contaminant risk above 1E-06 risk levels and mitigating further migration of contaminants to groundwater and is functioning as intended."

The second paragraph in Section VII, Technical Assessment, Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives Still Valid?, will be revised as follows:

"...All standards and to-be-considered...will be addressed by the MWMF Groundwater OU. Groundwater corrective actions are performed under the RCRA Hazardous and Mixed Waste Permit Renewal for SRS."

The first sentence in the second paragraph in Section X, Protectiveness Statement(s), will be revised as follows:

"Exposure pathways that could result...ingestion of contaminated soil media and mitigating further migration of contaminants to groundwater."

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

SPECIFIC COMMENTS

1. **Table 3 LUC Summary Table, Page 25 of 34:** The table identifies both soils and groundwater medium as areas that do not support unlimited use/unrestricted exposure (UU/UE) based on current conditions at the Central Shops Burning/Rubble Pits (CSBRP) OU and the Ford Building Seepage Basin (FSB) OU. However, the information in the table is inconsistent with the information presented for these same OUs in their respective Appendices C and F, respectively. For example, the information in Appendix C, CSBRP OU, states the CSBRP OU has not contributed to groundwater contamination. Additionally, the first bullet on Page C-5 of C-28 indicates groundwater use restrictions established as LUCs. Furthermore, in Appendix F, FSB OU it appears RAOs were only developed to address surface and subsurface soil contamination. *Please revise the table to address this discrepancy.*

   Response: Agree.

   Appendix C (CSBRP) – As stated in Section III, Background, 2nd paragraph, 3rd sentence, "However, the conclusion of the evaluation was that the CSBRP OU has not contributed to groundwater contamination." Therefore, "groundwater" will be deleted from Table 3, LUC Summary Table, Column 2 for the CSBRP OU.

   Appendix F (FBSB) – As stated in Section III, Background, 3rd sentence, "However, the results of the groundwater investigation contained the RCRA Facility Investigation (RFI)/Remedial Investigation (RI) with Baseline Risk Assessment (BRA) for the FBSB OU (WSRC 2000), which included a collection of groundwater samples and analyses, revealed that the groundwater associated with FBSB OU is not contaminated." Therefore, "groundwater" will be deleted from Table 3, LUC Summary Table, Column 2 for the FBSB OU.

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

2. **Appendix B, Evaluation of Changes in Standards and Toxicity, Pages B-1 through B-8:** Appendix B presents a comparison of the 2020 Regional Screening Levels (RSLs) and Preliminary Remediation Goals (PRGs) to their 2016 versions; however, the significance of

any changes, and if the changes may implicate issues with the protectiveness of the remedy, is not evaluated. It is acknowledged that the text states that "the information in Appendix B is not standalone, but must be considered in context with the information and selected remedy presented in the OU [operable unit]-specific reviews located in Appendix C through Appendix L;" and, that "the impact that more stringent RSLs or PRGs have on protectiveness must be considered with respect to the OU-specific remedy." However, review of Appendices C through L indicates that these appendices do not assess if risk-based cleanup goals for applicable contaminants warrant revision as a result of changes to toxicity criteria that resulted in changes to RSLs or PRGs. In all instances, Appendices C through L simply state, "The USEPA standards and toxicity values have been updated since the last five-year remedy review as shown in Appendix B. The changes to the values for COCs [contaminants of concern]…were not significant." *Revise Appendix B to evaluate if risk-based cleanup goals for applicable contaminants at applicable OUs warrant revision as a result of the changes to the associated RSLs or PRGs shown in the tables of Appendix B.*

Response: Agree with clarification.

Please see the response to Specific Comment #7 that highlights the changes to the RSLs/PRGs (2016 vs 2020) presented in Table B-1, Comparison of Non-Radiological Standards in Soil Media, and Table B-2, Comparison of Radiological Standards in Soil Media for this Five-Year Remedy Review Report.

In June 2017, the RSLs for polycyclic aromatic hydrocarbons (PAHs) were revised due to toxicity value changes based on a new Integrated Risk Information System (IRIS) profile. This update was applicable to benzo(a)pyrene and five other PAHs with associated relative potency factors evaluated in this review. Both the residential and industrial worker soil values increased by almost a full order of magnitude (i.e., less stringent). These PAHs were identified as constituents of concern (COCs) for the following OUs: Central Shops Burning/Rubble Pits (631-1G/631-3G), D-Area Burning/Rubble Pit (431-D/431-1D), and K-Area Burning/Rubble Pit (131-K) and K-Area Rubble Pile (631-20G). The remedial action for the three OUs includes an engineered soil cover and land use controls (LUCs). Not only was the revision to the PAH toxicity values less stringent, but the cover system and LUC remedy remains effective in eliminating the exposure pathways of concern. Therefore, an update to the risk-based cleanup goals is not warranted and would have no impact on the remedial actions selected for these OUs.

In December 2016, a revision to the methodology for calculating PRGs was announced by USEPA. The primary change was that the plus daughter (+D) isotopes designation was removed, and the secular equilibrium PRG calculation was identified as the preferred (i.e., default) value. This update was applicable to radium-226, radium-228, thorium-228, uranium-235, uranium-238, cesium-137, and strontium-90 in this report as

shown in Table B-2. The slight change to the cesium-137 and strontium-90 PRGs are due to implementation of updated soil gamma shielding factors. These radionuclides were identified as COCs for the following OUs: F-Area Hazardous Waste Management Facility (F-Area Seepage Basins [904-41G, 904-42G, 904-43G]), Ford Building Seepage Basin (904-91G), H-Area Hazardous Waste Management Facility (H-Area Seepage Basins [904-44G, 904-45G, 904-46G, 904-56G]), M-Area Hazardous Waste Management Facility (Lost Lake [904-51G] and M-Area Settling Basin [904-112G]), Metallurgical Laboratory Hazardous Waste Management Facility (904-110G), Mixed Waste Management Facility (643-28E), and SRL Seepage Basins (904-53G1, 904-53G2, 904-54G, and 904-55G). The remedial action for these OUs includes either excavation or in-situ stabilization/solidification of contaminants, an engineered cover system, and LUCs. The change in the PRGs for these OUs is insignificant because the analyte(s) may no longer be present (i.e., excavation and offsite disposal) or stabilized/solidified in-situ, and the engineered cover systems and LUCs remains effective in eliminating the exposure pathways of concern. Therefore, an update to the risk-based cleanup goals is not warranted and would have no impact on the remedial actions selected for these OUs.

For clarity, the text in Appendix B will be expanded to explain that risk-based cleanup goals do not warrant revision as a result of the changes to toxicity criteria (i.e., RSLs/PRGs) because the remedy effectively eliminates the exposure pathway of concern, regardless of the RSL/PRG thresholds.

In addition, proposed text revisions to Appendix B resulting from USEPA Comments 3, 4, 5 and 6 are addressed in this response for completeness:

"...Changes to a standard or toxicity factor are unique to each analyte and are often related to revisions in exposure assumptions, reference doses, cancer potency factors, and exposure pathways used to calculate the value. For the reasons explained in the previous paragraph, the impact that more stringent RSLs or PRGs have on protectiveness must be considered with respect to the OU-specific remedy. In most cases, a change in a standard or toxicity value is irrelevant because the analyte(s) may no longer be present or is (are) significantly reduced if the selected remedy also included excavation and offsite disposal. In addition, exposure to contaminants ~~may be~~ is controlled by an engineered cover system and land use controls. Therefore, risk-based cleanup goals for each OU do not warrant revision as a result of changes to toxicity criteria, RSLs/PRGs, exposure factors/assumptions, or risk methodology, because the engineered cover system remedy is effective in eliminating the exposure pathways of concern. In addition, there are no changes in land use, including zoning changes, routes of exposure or receptors, or changes in the physical site conditions that would compromise the protectiveness of the remedy."

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

3. **Appendix B, Evaluation of Changes in Standards and Toxicity, Pages B-1 through B-8:** While Appendix B presents a comparison of the 2020 RSLs and PRGs to their 2016 versions, it does not present a comparison of the toxicity criteria employed in the original human health risk assessments (HHRAs) to current toxicity criteria for each COC. As such, it is unclear whether any of the risk-based cleanup goals warrant revision. *Revise Appendix B to evaluate if risk-based cleanup goals should be revised due to changes in toxicity criteria since the time of the original HHRAs or on the basis that improved approaches are available for calculating new/current cleanup standards.*

   Response: Clarification.

   A five-year remedy review has been previously completed four times for two of the OUs evaluated in this review, five times for three of the OUs evaluated, and six times for the remaining five OUs evaluated. Each five-year remedy review includes a review of changes in toxicity data and emerging constituents with respect to the effectiveness of the selected remedies. There have been no significant changes in the toxicity values for the COCs evaluated for the OUs in this review or previous reviews that would warrant a change to the risk-based cleanup goals. In addition, the selected remedies (engineered covered systems and LUCs) effectively eliminate all exposure pathways to contaminants that remain in place at the OUs evaluated in this review. Please see the response to Specific Comment #2 for the proposed clarifying text that will be added to Appendix B to address this concern.

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

4. **Appendix B, Evaluation of Changes in Standards and Toxicity, Pages B-1 through B-8:** Appendix B does not evaluate if risk-based screening levels and toxicity criteria have been established for any detected compounds that were not evaluated in the original HHRAs due to the absence of toxicity information at that time. *Revise Appendix B to document those compounds, if applicable, and indicate whether inclusion of the additional detected compounds potentially impacts the protectiveness of the remedy. In addition, clarify if such compounds should be added to the list of current COCs on the basis of new toxicity information. Finally, if new compounds are included, demonstrate that the remedy remains protective, even when the additional compounds are considered.*

   Response: Clarification.

   See response to Specific Comment #2. A thorough review of emerging contaminants and changes in toxicity values for RSL and PRGs are considered during five-year remedy reviews. Inclusion of additional compounds or re-evaluation of current COCs would not result in a change to the selected remedies (engineered covered systems and LUCs) that effectively eliminates all exposure pathways. Please see the response to Specific Comment

#2 for the proposed clarifying text that will be added to Appendix B to address this concern.

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

5. **Appendix B, Evaluation of Changes in Standards and Toxicity, Pages B-1 through B-8:** Review of Appendices C through L indicates that HHRAs for many of the OUs are dated (circa 1990s). However, Appendix B does not include an evaluation of updates to risk assessment methodologies since the time of the original HHRAs. *For completeness, review the most current risk assessment guidance and provide a discussion regarding whether the updated risk assessment methodologies have the potential to materially affect the conclusions of the original HHRAs. Specifically, address whether changes in the methodologies could lead to concerns regarding the protectiveness of the remedy. Updates could be addressed via scaling exercises or re-generation of risk estimates, if changes are determined to be significant.*

   Response: Clarification.

   See response to Specific Comment #2. Changes to risk assessment methodology does not have the potential to significantly affect the conclusions of the original HHRAs and impact the protectiveness of the remedy (engineered covered system and LUCs). Please see the response to Specific Comment #2 for the proposed clarifying text that will be added to Appendix B to address this concern.

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

6. **Appendix B, Evaluation of Changes in Standards and Toxicity, Pages B-1 through B-8:** Appendix B does not discuss the sources of the exposure factors used in the original HHRAs. It is noted that U.S. EPA has published several resources with more current exposure factors since the time of the original HHRAs. Appendix B should clarify if any of the exposure factors used in the original HHRAs have changed, and if so, if the changes necessitate re-calculation of risk and hazard. In evaluating exposure assumptions, U.S. EPA's Comprehensive Five-Year Review Guidance (EPA 540-R-01-007, June 2001) also states that the evaluation should include "whether there are changed or new land uses, including zoning changes, changed or new routes of exposure or receptors, changed physical site conditions that may affect the protectiveness of the remedy, new contaminants, or a new understanding of geological conditions." *Revise Appendix B to include an evaluation of changes in exposure factors and exposure assumptions since the time of the original HHRAs, including exposure pathways and receptors, and clarify if any of these changes affect the protectiveness of the remedy.*

   Response: Clarification.

See responses to Specific Comments #2 - #5 with respect to changes in toxicity values and risk methodologies. In addition, there have been no changes in land use, including zoning changes, routes of exposure or receptors, or changes in the physical site conditions, as confirmed by the virtual regulatory field visit conducted on March 16, 2021, that would call into question the protectiveness of the selected remedies. The selected remedies (engineered covered systems and LUCs) effectively eliminates all exposure pathways. Please see the response to Specific Comment #2 for the proposed clarifying text that will be added to Appendix B to address this concern.

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

7. **Appendix B, Evaluation of Changes in Standards and Toxicity, Pages B-1 through B-8, Tables B-1, B-2 and B-3:** There is no indication on the tables to highlight which COCs have revised RSLs/PRGs (2020 vs. 2016). Adding bold type or shading would be helpful to guide the reader to those entries that have changed. *Revise Tables B-1, B-2, and B-3 accordingly.*

   Response: Agree.

   Changes to revised RSLs/PRGs (2016 vs 2020) in Table B-1, Comparison of Non-Radiological Standards in Soil Media, and Table B-2, Comparison of Radiological Standards in Soil Media will be identified using orange highlighting. In addition, associated text will be revised to acknowledge the changes. There were no changes to Table B-3, Non-Radiological Standards in Groundwater Media (MCLs).

   Table B-1. Comparison of Non-Radiological Standards in Soil Media

Analyte[a]	2016 RSLs[b]		2020 RSLs[c]		SEMS Number(s)[d]
	Residential Soil (mg/kg)	Industrial Worker Soil (mg/kg)	Residential Soil (mg/kg)	Industrial Worker Soil (mg/kg)	
Polycyclic Aromatic Hydrocarbons (PAHs)					
~Benzo[a]anthracene	1.6E-01	2.9E+00	1.1E+00	2.1E+01	40, 50
~Benzo[b]fluoranthene	1.6E-01	2.9E+00	1.1E+00	2.1E+01	40, 50
~Benzo[a]pyrene	1.6E-02	2.9E-01	1.1E-01	2.1E+00	15, 40, 50
~Benzo[k]fluoranthene	1.6E+00	2.9E+01	1.1E+01	2.1E+02	40
~Dibenzo[a,h]anthracene	1.6E-02	2.9E-01	1.1E-01	2.1E+00	40, 50
~Indeno[1,2,3-cd]pyrene	1.6E-01	2.9E+00	1.1E+00	2.1E+01	40, 50

"In June 2017, the RSLs for polycyclic aromatic hydrocarbons (PAHs) were revised due to toxicity value changes based on a new Integrated Risk Information System (IRIS) profile. These include benzo(a)pyrene and chemicals with associated relative potency factors. Both the residential and industrial worker soil values increased by almost a full

order of magnitude (i.e., less stringent). The revised RSLs are highlighted in orange in Table B-1."

Table B-2. Comparison of Radiological Standards in Soil Media

Analyte[a]	2016 PRGs[b]		2020 PRGs[c]		SEMS Number(s)[d]
	Residential Soil (pCi/g)	Industrial Worker Soil (pCi/g)	Residential Soil (pCi/g)	Industrial Worker Soil (pCi/g)	
Cesium-137(+D)	6.05E-02	9.1E-02	2.5E+01 (4.6E-02)	5.7E+01 (6.9E-02)	6, 47, 58
Radium-226(+D)	1.38E-02	2.1E-02	1.0E+00 (1.3E-02)	3.1E+00 (2.0E-02)	6, 7, 15
Radium-228(+D)	8.82E-02	1.3E-01	1.5E+00 (9.9E-03)	7.5E+00 (1.5E-02)	6, 7, 15, 47
Strontium-90(+D)	4.20E+00	9.0E+00	1.3E+01 (3.1E+00)	3.8E+01 (6.8E+00)	6, 7, 47
Thorium-228(+D)	2.80E+01[e]	1.1E+02[e]	2.8E+01 (1.6E-02)	1.1E+02 (2.4E-02)	47
Uranium-235(+D)	1.94E-01	3.0E-01	2.0E-01 (4.6E-02)	3.2E-01 (7.3E-02)	33, 47
Uranium-238(+D)	7.98E-01	1.4E+00	6.5E+00 (1.2E-02)	3.1E+01 (2.0E-02)	1, 6, 33

"In December 2016, a major revision to the approach for calculating PRGs was announced by USEPA. The primary change was that the plus daughter (+D) isotopes designation was removed, and the secular equilibrium PRG calculation was identified as the preferred (i.e., default) value. The PRGs for each daughter are combined with the parent on a fractional basis to produce a single PRG for the parent, and the resulting PRG is based on secular equilibrium of the full chain regardless of half-life. By comparison, the PRG (+D) values available in May 2016 only included daughter products with a half-life of six months or less. For this reason, the difference in the criteria for inclusion of the daughter products must be considered when comparing the 2016 and 2020 PRG values.

There are two entries for the 2020 PRGs in Table B-2. For each constituent, the top entry is the PRG for the individual radionuclide (i.e., no daughter products). The bottom entry (in parentheses) is the default secular equilibrium PRG that includes the subsequent daughter products from the entire decay chain. Differences between the 2016 and the 2020 PRGs for the +D analytes (radium-226, radium-248, thorium-228, uranium-235 and uranium-238) are primarily due to the daughter products considered in the calculation as described in the previous paragraph (6 month half-life vs. entire decay chain). Additionally, the change to the cesium-137 and strontium-90 PRGs include implementation of updated soil gamma shielding factors."

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

8. **Attachment C-1. Five-Year Review Site Inspection Checklist – Central Shops Burning Rubble Pits (631-1G/631-3G), Page C-24 of C-28:** In the checklist under Section VII. Landfill Cover/Containment, subsection 5. Vegetative Cover: the box next to "Grass" is empty and not checked suggesting no grass cover. However, Figure C-4. Current Photo of CSBRP OU (2020), Page C-15 of C-28 shows a grass cover exists over the CSBRP OU. *Please revise the checklist to address this discrepancy.*

   Response: Agree.

   The "Grass" box in Section VII, Landfill Cover/Containment, Subsection A, Landfill Surface, Subsection 5, Vegetative Cover will be checked.

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

9. **Appendix F, Ford Building Seepage Basin (904-91G) Operable Unit, Pages F-5 and F-7 of F-26:** The cover system remedy installed at the Ford Building Seepage Basin has been described as a common fill layer covered by a vegetative cover. Additionally, it has also been described as a low permeability cover. It is noted a common fill layer typically has a higher conductivity as compared to a low permeability cover. *Please revise the text to provide a consistent description of the cover system remedy installed at the Ford Building Seepage Basin OU.*

   Response: Agree.

   The description provided in Appendix F, Section IV, Remedial Actions, Remedy Implementation, is accurate. The text in the first paragraph of Section VII, Technical Assessment, Is the Remedy Functioning as Intended by the Decision Document?, will be revised as follows:

   "The remedy, excavation, consolidation, ~~low permeability~~ common fill cover with LUCs, is effective in preventing exposure to contaminants above 1E-06 risk level and is functioning as intended."

   The text in Attachment F-1, Section XI, Overall Observations, Subsection A, Implementation of the Remedy, will be modified as follows:

   "The selected remedy for the FBSB OU was excavation, consolidation, backfilling, ~~vegetative~~ common fill cover, and institutional controls (i.e., LUCs) to protect future industrial workers and terrestrial ecological receptors from exposure."

Additionally, the remedy description for the FBSB OU in the upfront Section IV, Five-Year Remedy Review Process, Table 2. SRS OUs with Engineered Cover Systems and Table 4. Operation and Maintenance Cost Comparison for SRS OUs with Engineered Cover Systems, will be modified as follows: "Excavation, Consolidation, ~~Low Permeability~~ Soil Cover, LUCs."

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

10. Appendix H, Page H-6, bullet 1. The text states:

> *"In 2006, the USEPA, SCDHEC and USDOE agreed to reduce the sampling frequency from semiannual to quarterly due to steady or declining...."*

Please revise text to state "...reduce the sampling frequency from quarterly to semiannual...."

Response: Agree.

The text will be revised as suggested.

Responsible Party: Justin Steadman, (803) 952-7346, justin.steadman@srs.gov

11. Page H-16, Figure H-2, LAZ. Please explain why there is not a potentiometric surface for the LAZ portion of this figure, or add the potentiometric surface.

Response: Agree with clarification.

Sampling of the four wells screened in the LAZ is currently suspended, including the water levels, denoted by the "SS" acronym in the figure. For clarification text will be added to the last bullet of Section IV, Remedial Actions, Remedy Implementation, as shown below.

"...Sampling of the four Lower Aquifer Zone (LAZ) wells and three Transmissive Zone (TZ) wells was also suspended due to contamination remaining in one or two upper aquifer zone (UAZ) wells. <u>It was also agreed that water levels will continue to be collected from the three suspended TZ wells to provide data for mapping the potentiometric surface of the TZ. Sampling of water levels in the LAZ wells will remain suspended (SRNS 2012a)."</u>

The following reference will also be added to the reference section of Appendix H.

"SRNS, 2012a. *K-Area Burning/Rubble Pit and Rubble Pile (131-K and 631-20G) (KBRP), L-Area Burning/Rubble Pit and Rubble Pile (131-L, 131-3L, and 131-2L) (LBRP), and P-Area Burning/Rubble Pit (131-P) (PBRP) Operable Units (OUs) Detailed Combined*

***Groundwater Monitoring Report (U)*, SRNS-RP-2012-00200, Revision 1, December 2012, Savannah River Site, Aiken, SC "**

Responsible Party: Justin Steadman, (803) 952-7346, justin.steadman@srs.gov

Legal Comments:

1. Page 32. Tables 6 and 7. Please clarify whether the issues/recommendations identified in these tables summarizes those carried over from the Fifth FYR or are these tables referring only to issues/recommendations assessment for this 6th FYR.

Response: Clarification.

There were no issues or recommendations identified in the Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units with Engineered Cover Systems (SRNS-RP-2016-00609, Revision 1.1, November 2017). Tables 6 and 7 pertain to the Sixth Five-Year Remedy Review Report. For clarity, the titles of the tables will be revised as shown below.

Table 6. Operable Units without Issues and Recommendations in the Sixth Five-Year Remedy Review Report

Table 7. Issues and Recommendations Identified in the Sixth Five-Year Remedy Review Report.

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

2. Page C-6, Data Review. The section states that stormwater management has been "moderately effective" and "has been working as designed" in CSBRP OU Pit 631-3G. In order to evaluate remedy effectiveness, the FYR should identify the design's expected performance standard (e.g. expected post-remedy implementation depth to groundwater) and compare to observed water levels. Significant weather events resulted in high perched water levels (10 ft above basin bottom) within the pit. The data summarized in this section only discusses levels during significant storm events, which seem to indicate stormwater is not effectively diverted and significant infiltration is occurring.

Response: Clarification.

The PCR/CMIR/FRR for the CSBRP (February 2005) did not explicitly identify a performance standard for expected water levels (Section 4.1, Performance Requirements/Standards). Rather, as described in Section 7.1, Five Year Remedy

Review, three consecutive years of decreasing water levels in Pit 631-3G was identified as a review condition. The original construction included pressure transducers to measure water levels. Two (CSR 14PZ and CSR 17PZ) of six pressure transducers functioned for seven months, indicating that the water levels dropped, and the stormwater management plan was successful. After malfunctioning, these transducers were replaced with manually monitored 1-inch piezometers. The complete history of water level data for these two piezometers are shown in Figure 1 (attached). Review of this data indicates that over the first three years (November 2004 – November 2007), water levels declined and remained below the basin bottom. Subsequently and consistent with Figure C-5, the data from CSR 17PZ has always been below the bottom of the trench, whereas data from CSR 14PZ shows intermittent water levels above the basin bottom related to high rainfall episodes. Occasional increase in water levels above the basin bottom are not of concern for the effectiveness of the remedy since the levels are temporary and the PAHs are not miscible in water. Text in Appendix C, Section VI, Five-Year Review Process, Data Review, will be revised as follows:

"The improved stormwater management has been moderately effective in reducing the water levels in Pit 631-3G. Generally, reduction of the water elevation in Pit 631-3G since the stormwater management improvements were made indicate that the improvements have been working as designed. Data from two... Piezometer CSR 17PZ has no water elevation measurements above the bottom of the basin. The increases in rainfall caused the water level increase of perched water in portions of Pit 631-3G. The increase..."

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

3. Page C-8, first full paragraph. Correct text to read "to prevent **un**authorized contact. . ." Please clarify what type(s)of physical access controls are in place and location, e.g. fencing around closed pits. Asbestos containing material (ACM) was formerly buried in one or more pits at CSBRP. ARARs for closure of areas that received ACM include warning sign location and interval requirements, fencing requirements, and deed notice requirements (in addition to those required in CERCLA Sect. 120(h)). The FYR Sect VII (Technical Assessment) should include an evaluation of whether the remedy complies with the following ARARs to ensure the remedy is protective. The text of the FYR does not indicate whether the following ARARs were identified in the ROD or LUCIP. Recommendations to correct deficiencies, if any, should be included.

Capping Asbestos Waste In-Place			
Action	***Requirements***	***Prerequisite***	***Citation***
Warning signs for disposal site	Display warning signs at all entrances and at intervals of 100m (328 feet) or less along the property line of the site or along the perimeter of the sections of the site where asbestos-containing waste material was deposited.	Closure of an area that received asbestos-containing waste materials that does not include a natural barrier to adequately deter access by the general public – **relevant and appropriate**	40 CFR § 61.151(b)(1)
Warning signs for disposal site *cont'd*	The warning signs must: (i) Be posted in such a manner and location that a person can easily read the legend; and (ii) Conform to the requirements for (20"x14") upright format signs specified in 29 CFR 1910.145(d)(4) and this paragraph; and (iii) Display the legend as prescribed in § 61.151(b)(1)(iii) located in the lower panel with letter sizes and styles of visibility at least equal to those specified in § 61.151(b)(1)(iii).	Closure of an area that received asbestos-containing waste materials that does not include a natural barrier to adequately deter access by the general public – **relevant and appropriate**	40 CFR § 61.151(b)(1)(i)-(iii)
Fence for disposal site	Fence the perimeter of the site in a manner adequate to deter access by the general public.		40 CFR § 61.151(b)(2)
Deed notice for asbestos waste disposal site	Record, in accordance with State law, a notation on the deed to the facility property and on any other instrument that would normally be examined during a title search; this notation will in perpetuity notify any potential purchaser of the property that: • The land has been used for disposal of asbestos-containing waste material; and • The survey plat and record of the location and quantity of asbestos containing waste disposed of within the disposal site required in § 61.154(f) have been filed with the Administrator; and • The site is subject to 40 CFR part 61, Subpart M.	Closure of an inactive disposal area that received asbestos containing waste materials – **relevant and appropriate**	40 CFR § 61.151(e)(1)-(3)

Response: Agree with Clarification.

The text in Section VII, Technical Assessment, Is the Remedy Functioning as Intended by the Decision Document?, 4th paragraph, 2nd sentence will be corrected as follows: "The LUCs that are in place include physical access controls to prevent unauthorized contact, removal..."

The ARARs listed above were not identified in the ROD or LUCIP. The selected remedy did not include OU-specific fencing because the public does not have access to SRS. Access to SRS is controlled by SRS facility security. As required by the ROD and LUCIP, warning signs are posted around the OU (see Figure C-4 for an example of the warning signs). Administrative controls include the SRS Site Use / Site Clearance program, site inspections, groundwater restrictions, etc. As stated in the ROD and LUCIP, if the property is ever transferred to non-federal ownership, the U.S. Government will create a deed notification disclosing former waste management and disposal activities as well as remedial actions taken at the OU. The deed notification shall, in perpetuity, notify any potential purchaser that the property has been used for the management and disposal of waste. These deed restrictions will include information concerning the asbestos-containing material. The current LUCs satisfy the ROD requirements and SRS also believes the LUCs meet the intent of 40 CFR 61.151 listed above. No deficiencies in the selected remedial action are noted, and no change to the document is proposed.

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

4. Page D-3 (Basis for Taking Action). Summary of soil sampling data at 431-D/431-1D indicate that Aroclor-1260 presents risk in top two-foot layer of soils at maximum observed concentration of 3.39 mg/kg, which exceeds the high-occupancy standard of 1 ppm. In addition to the requirements in CERCLA Sect. 120(h) (identified in the last bullet on page D-5) that must be met upon future transfer of the property, the following deed notice requirements are relevant and appropriate. The text of the FYR does not specify whether these ARARs were identified in the ROD and/or LUCIP and are in compliance. Recommendations to correct deficiencies, if any, should be included.

Action	*Requirements*	*Prerequisite*	*Citation*
Deed restrictions for caps, fences and low occupancy areas	Record, in accordance with State law, a notation on the deed to the property, or on some other instrument which is normally examined during a title search, that will in perpetuity notify any potential purchaser of the property: • that land has been used for PCB remediation waste disposal and is restricted to use as a low occupancy area as defined in 40 CFR 761.3. • of existence of the fence or cap and the requirements to maintain the fence or cap. • the applicable cleanup levels left at the site, inside the fence, and/or under the cap.	Use of a cap or fence at low occupancy PCB remediation waste cleanup site – **relevant and appropriate**	40 CFR 761.61(a)(8)(i)(A)(1)-(3)

Response: Clarification.

To-be-considered guidance for PCB soil action levels of 1.0 mg/kg for residential use and 10-25 mg/kg for industrial use are discussed in the ROD under the No Action and Institutional Controls remedial alternatives, respectively. The selected remedy, Institutional Controls, to maintain the integrity of the soil cover and restrict land use did not include OU-specific fencing. Administrative controls include the SRS Site Use / Site Clearance program, site inspections, etc. As stated in the ROD and LUCIP, if the property is ever transferred to non-federal ownership, the U.S. Government will create a deed notification disclosing former waste management and disposal activities, groundwater monitoring results, and remedial actions taken at the OU. The deed notification shall, in perpetuity, notify any potential purchaser that the property has been used for the management and disposal of waste. These deed restrictions will include information concerning PCBs. The current LUCs satisfy the ROD requirements and SRS also believes the LUCs meet the intent of 40 CFR 761.61 listed above. No deficiencies in the selected remedial action are noted, and no change to the document is proposed.

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

5. Pages E-7, G-7, I-8, J-7, K-8 (Technical Assessments). The text in the technical assessments for F-Area, H-Area, M-Area, Metallurgical Lab HWMF, and Mixed Waste Management Facility OUs notes that a LUCIP is not required; rather, the text states "LUC requirements are discussed and approved as part of the closure/post-closure permit application process governed by the RCRA Permit renewal." Please identify what regulatory document, e.g., RCRA permit, RCRA post-closure document, or CERCLA document, lists the LUC objectives and LUC implementation, maintenance, monitoring, reporting and enforcement requirements. Additionally, the substantive requirements of CERCLA Sect. 120(h) for notifications within the deed upon any future transfer of property must be met. Please clarify what document identifies and requires compliance with the 120(h) requirements. Recommendations to correct deficiencies in documentation, if any, should be included.

Response: Agree with Clarification. The F-Area HWMF, H-Area HWMF, M-Area HWMF, Met Lab HWMF, and MWMF were closed under RCRA and are subject to post-closure under South Carolina Hazardous Waste Management Regulations and not a Land Use Control Implementation Plan. The post-closure care requirements are discussed as part of the closure/post-closure permit application process governed by the RCRA Hazardous and Mixed Waste Permit Renewal for SRS. These requirements are consistent with the substantive requirements of CERCLA 120(h) for deed notifications.

Appendices E, G, I, J, and K will be revised to reference the respective permit renewal application for each OU where the post-closure care requirements are described.

Appendix E, F-Area Hazardous Waste Management Facility

The third paragraph of Section VII, Technical Assessment, will be revised as follows:

"The LUC requirements are discussed...by the RCRA Permit Renewal for the SRS (SCDHEC 2014). <u>The closure/post-closure requirements are discussed in the RCRA Permit Renewal Application for the F-Area Hazardous Waste Management Facility (F-Area HWMF) Postclosure (SRNS 2016).</u> Therefore, a Land Use...".

Appendix G, H-Area Hazardous Waste Management Facility

The third paragraph of Section VII, Technical Assessment, will be revised as follows:

"The LUC requirements are discussed...by the RCRA Permit Renewal for the SRS (SCDHEC 2014). <u>The closure/post-closure requirements are discussed in the RCRA Permit Renewal Application for the H-Area Hazardous Waste Management Facility (H-Area HWMF) Postclosure (SRNS 2016).</u> Therefore, a Land Use...".

Appendix I, M-Area Hazardous Waste Management Facility

The third paragraph of Section VII, Technical Assessment, will be revised as follows:

"The LUC requirements are discussed...by the RCRA Permit Renewal for the SRS (SCDHEC 2014). The closure/post-closure requirements are discussed in the RCRA Permit Renewal Application for the M-Area and Metallurgical Laboratory Hazardous Waste Management Facilities (M-Area and Met Lab HWMF) Postclosure (SRNS 2020). Therefore, a Land Use...".

Section XII, Documents Reviewed, will be revised to delete SRNS 2000 and add SRNS 2020. The change in the reference will also be made elsewhere in the appendix as needed.

"SRNS, 2020. *2013 RCRA Permit Renewal Application (U), Volume III, M-Area and Metallurgical Laboratory Hazardous Waste Management Facilities (M-Area and Met Lab HWMFs) Postclosure*, SRNS-IM-2012-00002, latest revision, Savannah River Nuclear Solutions, LLC, Savannah River Site, Aiken, SC"

Appendix J, Metallurgical Laboratory Hazardous Waste Management Facility

The third paragraph of Section VII, Technical Assessment, will be revised as follows:

"The LUC requirements are discussed...by the RCRA Permit Renewal for the SRS (SCDHEC 2014). The closure/post-closure requirements are discussed in the RCRA Permit Renewal Application for the M-Area and Metallurgical Laboratory Hazardous Waste Management Facilities (M-Area and Met Lab HWMF) Postclosure (SRNS 2020). Therefore, a Land Use...".

Section XII, Documents Reviewed, will be revised to add SRNS 2020.

"SRNS, 2020. *2013 RCRA Permit Renewal Application (U), Volume III, M-Area and Metallurgical Laboratory Hazardous Waste Management Facilities (M-Area and Met Lab HWMFs) Postclosure*, SRNS-IM-2012-00002, latest revision, Savannah River Nuclear Solutions, LLC, Savannah River Site, Aiken, SC"

Appendix K, Mixed Waste Management Facility

The third paragraph of Section VII, Technical Assessment, will be revised as follows:

"The LUC requirements are discussed...by the RCRA Permit Renewal for the SRS (SCDHEC 2014). The closure/post-closure requirements are discussed in the RCRA Permit Renewal Application for the Mixed Waste Management Facility (MWMF) Postclosure (SRNS 2015). Therefore, a Land Use...".

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

6. Page F-7, H-10, J-7, K-8 (Technical Assessment). Specify what type(s) of physical access controls are in place to prevent access to or disturbance of the covered waste units and/or basins in the FBSB, K-Area, Metallurgical Lab HWMF, and Mixed Waste Management Facility OUs.

Response: Clarification.

Statements defining the physical access controls that are in place are included in Section X, Protectiveness Statement(s) for all waste units discussed in the document. No change to text is proposed.

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

7. Page I-3 (Initial Response). Identify the specific RCRA or other regulatory document under which the 1988 closure of MHWMF OU was conducted.

Response: Agree.

The second paragraph of Section III, Background, Initial Response, will be revised as follows:

"The MHWMF was ~~certified~~ closed in accordance with the *Closure Plan for the M-Area Settling Basin and Vicinity at the Savannah River Plant* (DPSPU-84-11-11, July 1990) and was certified closed in 1990 and was accepted by…with RCRA requirements."

Section XII, Documents Reviewed, will be revised to add the reference for the closure plan.

Du Pont, 1990. *Closure Plan for the M-Area Settling Basin and Vicinity at the Savannah River Plan*, DPSPU 94-11-11, E.I. du Pont de Nemours & Company, Savannah River Plant, Aiken, SC

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

8. Page I-6 (Progress Since Last Five Year Review). Text states "[e]levated VOC concentrations are persistent in the vadose zone and groundwater outside of the target zone near the MASB, which will require additional corrective action to be taken under the direction of the RCRA Hazardous and Mixed Waste Permit Renewal (SCDHEC

2014)." Identify what additional actions are recommended or are being taken under RCRA corrective.

Response: Agree.

The following text will be added to the end of the second paragraph of Section V, Progress Since Last Review:

"...Elevated VOC concentrations are persistent in the vadose zone and groundwater outside of the target zone near the MASB. To address the vadose zone contamination, eight MicroBlowers™ and two BaroBalls™ were installed along the M-Area Abandoned Process Sewer Line in 2020. Additional characterization of the vadose zone in this area will also be conducted to determine the full extent of contamination. A new recovery well was installed southeast of the MASB to capture a high concentration VOC groundwater plume. The new recovery well became operational in 2020. Both of these corrective actions were ~~which will require additional corrective action to be~~ taken under the direction of the RCRA Hazardous and Mixed Waste Permit Renewal (SCDHEC 2014). The corrective actions are discussed as part of the A/M-Area Groundwater OU in the five-year remedy review reports for SRS OUs with operating equipment."

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

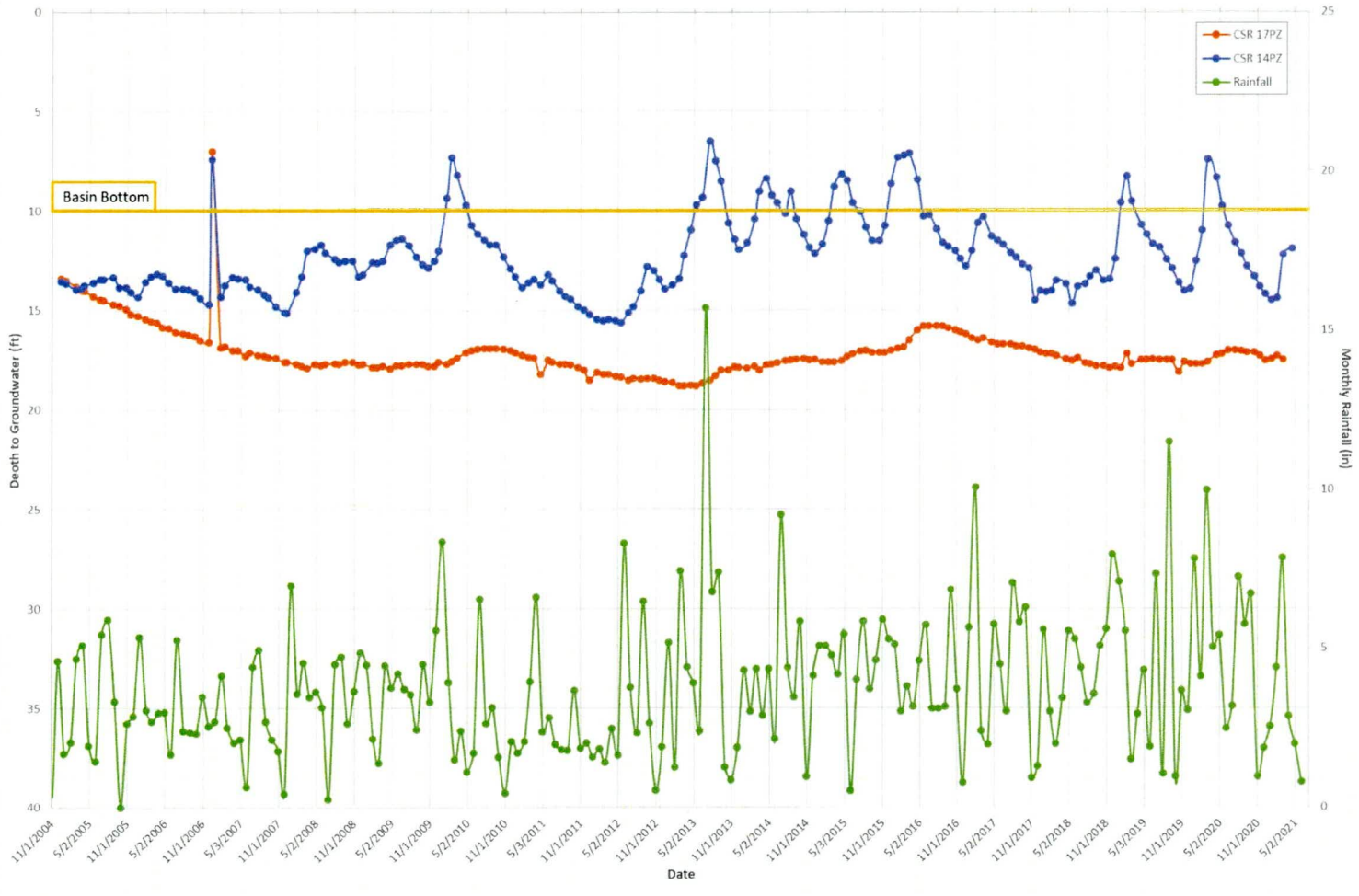

Figure 1. Water Level vs. Rainfall for Wells CSR 14PZ and CSR 17PZ