



March 19, 2018

Mr. Brian T. Hennessey, SRS Remedial Project Manager
Infrastructure and Area Completion Division
U. S. Department of Energy
Savannah River Operations Office
Post Office Box A
Aiken, South Carolina 29802



Re: Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units with Operating Equipment (U) – Aiken, South Carolina (SRNS-RP-2017-00567, Revision 0, December 2017) received December 27, 2017.

Dear Mr. Hennessey:

The Department has completed its review of the above referenced document pursuant to the Savannah River Site Federal Facility Agreement. The attached comments were generated as a result of this review. These comments must be addressed prior to final approval of the above referenced document. As specified in Section XXII, Review/Comment on Documents, the appropriate technical staff will be available to participate in a joint DOE/EPA/DHEC comment resolution meeting to discuss these comments, if necessary.

To schedule a meeting to resolve the attached comments or to obtain further information, please contact me at (803) 898-4331.

Sincerely,

Susan B. Fulmer, P.G., Manager
Federal Remediation Section
Division of Site Assessment, Remediation, Revitalization
Bureau of Land and Waste Management

cc: C. L. Bergren, SRNS-ACP (Signed Original)
Travis Fuss, Aiken Environmental Affairs Office (via email)
Jon Richards, EPA Region IV
Heather Cathcart, BLWM

**South Carolina Department of Health and Environmental Control Comments on:
Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units with Operating
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General Comments

1. The RCOC tables in each OU-specific appendix (Tables C-2, D-2, etc.) should be consistent throughout the document in specifying which type of RCOC each constituent is (HH, CM, ecological, etc.) and if it is a HH RCOC, which receptor scenario (residential, industrial/future worker). Specifically, Table E-2 should include a column clearly listing the RCOC type for each constituent, and Table L-2 should designate the type of HH RCOC (residential/industrial/future worker) for the RCOCs listed in the "Soil-PAHs" portion of the table. Additionally, Appendix K does not include a RCOC table for MIPSL (CM RCOCs TCE and PCE). Please revise/include these tables to be more consistent with the others throughout the document.

Specific Comments

1. Section II, Site Chronology, page 4. This section is more of a regulatory chain of events than a true site chronology (as the section heading suggests). An introductory sentence explaining that would be helpful.
2. Section III, Background, page 5. Please include an introductory sentence that clearly explains that SRS was constructed in the early 1950s to produce the basic materials used in the fabrication of nuclear weapons in support of the nation's defense programs.
3. Section III, Land and Resource Use, page 6. The second paragraph of this subsection reads "residential uses of SRS land *should be prohibited*" (emphasis added) but doesn't clearly state that it *will be prohibited*. Please clarify if this can be added without compromising the integrity of the document.
4. Section III, Land and Resource Use, page 6. The third paragraph of this subsection discusses the sources of the water supply at SRS ("Virtually all site process and drinking water is pumped from the deeper Crouch Branch and McQueen Branch aquifers."). Please reword or include where other site process and drinking water is pumped from.
5. Section III, Land and Resource Use, page 6. The last sentence of the third paragraph of this subsection states that surface water and shallow aquifer groundwater will not be used as a drinking water source at the SRS. Please clarify if these sources (surface water and/or shallow groundwater) could be used for other purposes, i.e. process water.
6. Section III, History of Contamination, page 6. Please expand this section and discuss in slightly more detail "past disposal practices."
7. Section IV, Remedial Actions, page 8. Please clarify if surface water should be included in the first two bullets of the list of remedial action objectives (RAOs).

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**Appendix C – A-AREA BURNING/RUBBLE PITS (731-A, -1A) AND RUBBLE PIT (731-2A) MISCELLANEOUS
 CHEMICAL BASIN/METALS BURNING PIT (731-4A/731-5A) OPERABLE UNIT**

1. Table C-2, Summary of Remedial Action Objectives and Remedial Goals for Soil, page C-36. K-40 is listed as a RCOC, but there is no "X" for any of the COC categories.

Appendix B - EVALUATION OF CHANGES IN STANDARDS AND TOXICITY.

1. Page B-2. The discussion concerning the change to the "plus daughters" (+D) isotopes in the second paragraph on page B-2 [*"Noteworthy changes in the RSLs and PRGs are a result of implementing revised exposure parameters from the 2011 Exposure Factors Handbook in 2014. In 2016, the "plus daughters" (+D) isotopes were removed from the radionuclide selection list and the secular equilibrium PRG calculation was identified as the preferred (i.e., default) value."*] should be expanded to make the change more easily understood. Footnote "d" to Table B-2. Comparison of Radiological Standards in Soil Media begins to explain the change a bit more clearly.

Appendix D – A/M-AREA GROUNDWATER OPERABLE UNIT

1. Section IV, Remedial Actions, Remedy Implementation – A/M Area Groundwater OU, page D-10. Please clarify whether the air strippers are actively operating or if pumped groundwater is simply circulating through. As written, it isn't clear. (*"Both the M-1 and A-2 Air Strippers currently comply with their air emissions permit without treatment."*)
2. Section IV, Remedial Actions, Remedy Implementation – A/M Area Groundwater OU, page D-10. The end of the first paragraph states that the strippers "comply with their air emissions permit without treatment." For clarity, please revise the sentence to show that it is without additional treatment or treatment for the exhaust/vent.
3. Section IV, Remedial Actions, Remedy Implementation – A/M Area Groundwater OU, page D-10. Please discuss how the process water from wells PW 20A and PW 53A are "operated to provide mass removal and plume control" (page D-10). Include how the water is treated and/or used and if discharged after use, where it is discharged.
4. Section IV, Remedial Actions, Remedy Implementation – A/M Area Groundwater OU, page D-10. The last paragraph refers to twelve recirculation wells of which only four are operating. Please correct the second sentence to reflect this. For example, "The plume,...is being treated by a series of ~~twelve~~ in situ air stripping wells... Due to high contaminant concentrations...aerators were installed in **four of the twelve** wells, SSR009..."
5. Section IV, Remedial Actions, Remedy Implementation – MCB/MBP Subunit, page D-11. The first bullet makes reference to a predicted 90% reduction in contaminant concentration by the airlift recirculation wells (ARWs). In the second bullet, it simply states that they were shutdown. Clarification as to why the ARWs were shutdowns needs to be included.
6. Section IV, Remedial Actions, Remedy Implementation – MCB/MBP Subunit, page D-11. Please describe the criteria used to shut down the eleven airlift recirculation wells (ARWs).

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7. Section IV, Remedial Actions, Remedy Implementation – *ABRP Subunit*, page D-13. Please clarify when the 1,4-dioxane plume was identified, and if it was after the last five-year review.
 8. Section VII, Technical Assessment, page D-21. Are the LUC requirements discussed at the top of page D-21 relevant only to the ABRP Subunit? If they are, please revise this paragraph to make that clear.
 9. Figures D-4 through D-9 (Historic Photographs). Please include the date (at least the year) that the photographs were taken.
 10. Attachment D-1, Five-Year Review Site Inspection Checklist – A/M Area Groundwater, page D-38. Section V.B. for “Signs” at the bottom of this page shows an “X” for the N/A Box, yet the “Remark” portion states “Signs are in good condition.” Please correct this discrepancy.

Appendix E – A-AREA MISCELLANEOUS RUBBLE PILE (731-6A) OPERABLE UNIT

1. Section III, Background, Basis for Taking Action, page E-4. The first full paragraph of this page list both arsenic and benzo[a]pyrene as HH RCOCs at the Ash Area subunit. Table E-2 lists only arsenic. Please correct.

Appendix F – C-AREA BURNING/RUBBLE PIT OPERABLE UNIT (131-C) AND OLD C-AREA BURNING/RUBBLE PIT (NBN)

1. Figure F-2, CBRP OU LUC Boundary and Monitoring Stations, page F-16. This figure, which shows the LUC boundary of CBRP, contains “SVE Well” in the legend, but the scope of the figure does not allow the locations of the four operating MicroBlower™ SVE well to be clearly seen. Please include an additional figure showing the locations of the wells, similar to Figure L-3 in Appendix L.

Appendix H – F-AREA GROUNDWATER OPERABLE UNIT

1. Section IV, Remedial Actions, Remedy Implementation – *Active Treatment with Pump – Treat – ReInjection*, page H-5. Please provide a very brief explanation of why operation of the pump and treat system was suspended.
2. Section IV, Remedial Actions, Remedy Implementation – *Passive Control of Water Table Gradients and pH Treatment*, page H-6. Please provide a description of the “subsurface barrier and gate system” constructed. Include figures, if relevant.
3. Section V, Progress since Last Review, page H-8. Please revise the second bullet on page H-8 to make clear that the additional silver chloride injections were done.
4. Section V, Progress since Last Review, page H-8. Please revise the third bullet to clarify the information to be conveyed.

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Appendix I – H-AREA GROUNDWATER OPERABLE UNIT

1. Section IV, Remedial Actions, Remedy Implementation – *Passive Treatment with Subsurface Barrier System*, page I-5. Please provide a description of the “groundwater barriers” constructed. Include figures, if relevant.

Appendix L – P-AREA BURNING/RUBBLE PIT (131-P) (PBRP) OPERABLE UNIT

1. Section III, Background, Basis for Taking Action, page L-4. This section discusses the CM and GW RCOCs, but does not discuss the HH RCOCs that are mentioned in Section IV and Table L-2. Please include these in the RCOC discussion in this section.
2. Section IV, Remedial Actions, Remedy Selection, page L-5. The second bullet of this page for protection of future industrial workers include six of the ten HH RCOCs listed in the top portion of Table L-2. Chrysene, fluoranthene, phenanthrene, and pyrene are not included. Please include.