



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

**APR 12 2019**

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

Dear Ms. Fulmer and Mr. Richards:

**SUBJECT:** Record of Decision Remedial Alternative Selection for the G-Area Oil Seepage Basin (761-13G) Operable Unit (U) (SRNS-RP-2018-01050, Revision 1 Redline, April 2019) and Savannah River Site's Responses to the Regulatory Comments on the Revision 0 Document, SEMS Number: 93

In accordance with the terms of the Federal Facility Agreement, the U.S. Department of Energy (DOE) is submitting the subject document for your review and approval. The South Carolina Department of Health and Environmental Control (SCDHEC) approved the Revision 0 document on March 28, 2019 and U.S. Environmental Protection Agency (EPA) provided comments on the Revision 0 document on March 25, 2019. This submittal includes the Savannah River Site's responses to the EPA's comments on the Revision 0 report and the incorporation of the responses into the Revision 1 Redline document.

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

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

Sincerely,

A handwritten signature in black ink, appearing to read "BTH", with a long horizontal flourish extending to the right.

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

Ms. Susan Fulmer  
Mr. Jon Richards

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Enclosures:

1. Record of Decision Remedial Alternative Selection for the G-Area Oil Seepage Basin (761-13G) Operable Unit (U) (SRNS-RP-2018-01050, Revision 1 Redline, April 2019) SEMS Number: 93
2. SRS Responses to U.S. Environmental Protection Agency Comments on the Record of Decision Remedial Alternative Selection for the G-Area Oil Seepage Basin (761-13G) Operable Unit (U) (SRNS-RP-2018-01050, Revision 0, January 2019) SEMS Number: 93

cc w/o encl:

D. Scaturo, SCDHEC-Columbia  
S. French, SCDHEC-Columbia  
M. Reece, SCDHEC-Columbia  
G. K. Taylor, SCDHEC-Columbia  
G. O'Quinn, SCDHEC-Aiken Environmental Affairs Office  
B. Cameron, SCDHEC-Aiken Environmental Affairs Office  
R. H. Pope, EPA-Atlanta

cc w/encl:

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

**SRS Responses to U.S. EPA Comments on:**  
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**COMMENTS**

- 1. Section III. Highlights of Community Participation, Page 6, last paragraph.** Please clarify that no public comments were received.

**Response: Agree.** The last paragraph in Section III. Highlights of Community Participation will be revised as follows:

**“...A Responsiveness Summary, prepared to address any comments received during the public comment period, is provided in Appendix A of this ROD. No comments were received from the public. A Responsiveness Summary...”**

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

- 2. Section V. Operable Unit Characteristics, GOSB Berm Subunit, Page 10.** The text states that: “In 2009, 39 soil samples were collected from 13 locations along the basin perimeter at 15-m (50-ft) *depth* intervals.” Please modify to “...along the basin perimeter, which were spaced 15-m(50ft) apart.”

**Response: Agree.** The text in Section V. Operable Unit Characteristics, GOSB Berm Subunit, will be revised as follows:

**“In 2009, 39 soil samples were collected from 13 locations along the basin perimeter ~~at 15-m (50-ft) depth intervals~~ which were spaced 15-m (50-ft) apart. At each sampling location...”**

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

- 3. Section V. Operable Unit Characteristics, GOSB Berm Subunit, Pages 14-15, GOSB Berm Subunit, Pipeline Subunit, Groundwater.** Please include a summary of sampling results with the contaminants detected and range of concentrations. Also, include reference to the document containing the sampling results.

**Response: Clarification.** Reference to the document that contains the sampling results are provided in the Media Assessment section (page 9) as follows:

**“The overall approach that was implemented during various facets of the GOSB OU**

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investigation is described in the *Resource Conservation and Recovery Act Facility Investigation/Remedial Investigation Report with Baseline Risk Assessment and Corrective Measures Study/Feasibility Study for the G-Area Oil Seepage Basin (GOSB) (U)* (SRNS 2018a).”

The reference is also provided in the Media Assessment Results section (page 11) as follows:

“The characterization data was used to perform a human health risk assessment (HHRA) and ecological risk assessment (ERA), a principal threat source material (PTSM) evaluation, and contaminant migration to groundwater analysis (SRNS 2018a). Table 1 summarizes the results of these evaluations and identifies refined constituents of concern (RCOCs) for the subunit that requires remedial action.”

For clarification, the text for the GOSB Berm Subunit, Pipeline Subunit, and Effluent Discharge Subunit (3 separate paragraphs, same text) in the Media Assessment Results section will be revised to include the reference to the RFI/RI/BRA/CMS/FS where the sampling results can be found as follows:

“There was no human health, ecological, or contaminant migration problem warranting action identified at this subunit (SRNS 2018a).”

In addition, the Groundwater portion of Section V. will be revised to include the reference to the RFI/RI/BRA/CMS/FS as follows:

“...Based on this evaluation of the groundwater sampling results, it was concluded that the GOSB OU is not a source of groundwater contamination in the area (SRNS 2018a).”

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4. **Section X. Comparative Analysis of Alternatives, Compliance with ARARs, Page 32.**  
Please add text noting whether the removed sediments or debris are expected to be managed as RCRA solid or hazardous wastes, and include the type of characterization data that was or will be obtained to determine proper off-site disposal at the Subtitle D or Subtitle C facility.

**Response: Clarification.** The list of ARARs for the selected remedy (Alternative 4, Backfill Basin and Manage Surface Water) is provided in Table 9. A description of the ARARs for disposal of solid waste to an off-unit landfill (Alternative 5, Excavate and Manage Surface Water) is not warranted since this alternative was not selected. No change to the document

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is proposed.

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- 5. Section IX. Description of Alternatives, Alternative A-3, Place 0.6-m (2ft) Clean-Fill Layer and Manage Surface Water, Alternative A-4, Backfill Basin and Manage Surface Water, Alternative A-5, Excavate and manage Surface Water, Pages 28-29.** For alternatives involving the spray irrigation of surface water, please include in the ROD the same language developed by DOE in response to EPA's August 2018 comments on the Proposed Plan. Specifically, include the underlined text copied below that DOE prepared for inclusion in the Proposed Plan regarding evaluation of risk from spray irrigation, and also attach to the ROD "APPENDIX B – Spray Irrigation to Land Surface Risk Evaluation" from DOE's Comment Response Attachment 1 below.

**Response: Agree.**

**Text will be added to Section VIII. Evaluation of Alternatives, Overall Protection of Human Health and the Environment, to explain how each alternative reduces the risk from potential exposure pathways through treatment, engineering or institutional controls. An additional evaluation that examines the risk posed by any unacceptable short-term or cross-media impacts due to spray irrigation of water within the GOSB Basin Interior Subunit to the land surface will be provided in the document as Appendix B. The conservative evaluation concludes that land application of the GOSB surface water does not pose a threat to human or terrestrial ecological receptors. The evaluation is provided as Attachment 1 to these comment responses. In addition, a reference to Appendix B will be added to Section VIII, Evaluation of Alternatives (page 14), as a part of the land application discussion of Alternatives A-3, A-4, and A-5.**

**Section VIII. Evaluation of Alternatives, Overall Protection of Human Health and the Environment will be revised as follows:**

**Alternative A-3 — "Place 0.6-m (2-ft) Clean Fill Layer and Manage Surface Water) provides protection of human health and the environment and would achieve RAOs in a short period (several months) of time. This alternative consists of placing 0.6-m (2-ft) of clean fill over the impacted basin-bottom sediments to break the direct exposure pathway to human and ecological receptors. Prior to placing the fill, the surface water within the basin will be spray irrigated to the land surface; an additional evaluation that examines the risk posed by any short-term or cross-media impacts due to spray irrigation of water to the land surface is provided in Appendix B. In addition, risk-based, protective levels for the RCOCs in the surface water at the point of land application are derived in Appendix B. The conservative**

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evaluation concludes that land application of the GOSB surface water does not pose a threat to human or terrestrial ecological receptors.

Alternative A-4 — Backfill Basin and Manage Surface Water provides protection of human health and the environment and would achieve RAOs in a short period (several months) of time. This alternative entails backfilling of the basin by a controlled compaction method with clean fill and construction of a vegetative cover to break the direct exposure pathway to human and ecological receptors. Prior to backfilling the basin, the surface water within the basin will be spray irrigated to the land surface; an additional evaluation that examines the risk posed by any short-term or cross-media impacts due to spray irrigation of water to the land surface is provided in Appendix B. In addition, risk-based, protective levels for the RCOCs in the surface water at the point of land application are derived in Appendix B. The conservative evaluation concludes that land application of the GOSB surface water does not pose a threat to human or terrestrial ecological receptors.

Alternative A-5 — Excavate and Manage Surface Water physically removes the source of contamination and provides protection of human health and the environment and would achieve RAOs in a short period (several months) of time. This alternative consists of excavation of the contaminated sediments in the basin to break the direct exposure pathway to human and ecological receptors. Prior to excavation, the surface water within the basin will be spray irrigated to the land surface; an additional evaluation that examines the risk posed by any short-term or cross-media impacts due to spray irrigation of water to the land surface is provided in Appendix B. In addition, risk-based, protective levels for the RCOCs in the surface water at the point of land application are derived in Appendix B. The conservative evaluation concludes that land application of the GOSB surface water does not pose a threat to human or terrestrial ecological receptors.”

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

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**Comment Response Attachment 1**

**APPENDIX B**

**Spray Irrigation to Land Surface Risk Evaluation**

The RFI/RI/BRA/CMS/FS (SRNS 2018) identified only ecological refined constituents of concern (RCOCs) in the surface water media within the Basin Interior subunit of the GOSB. Based on a comparison to maximum contaminant levels (MCLs), no human health (HH) RCOCs for surface water nor contaminant migration to groundwater concerns were identified. Therefore, land application of the GOSB surface water does not pose a contaminant migration to groundwater concern.

Ecological (ECO) RCOCs were identified in surface water media due to an unacceptable risk potential to aquatic organisms. Since land application of the surface water media will be conducted in such a manner as to prevent any surface runoff from entering or leaving the spray irrigation site, the threshold levels to protect aquatic organisms are no longer applicable (i.e., will not impact another surface water body). However, application of the surface water to the land surface introduces a potential risk concern to both human and terrestrial ecological receptors based on direct exposure to the soil media that needs to be evaluated. Table 1, as explained below, presents the Spray Irrigation Evaluation: Projected Soil Concentrations Compared to Human Health and Ecological Threshold Levels.

The evaluation employs a very conservative approach. The maximum detected concentration of each constituent in the GOSB surface water is used to estimate constituent concentrations in the soil media following land application of the water. The evaluation assumes that the concentration measured in the water would be found in the soil media (i.e., mg/L [ppm] water = mg/kg [ppm] soil). This is considered a conservative, worst-case scenario since any concentration adjustments in the soil media due to chemical or physical processes are not considered.

For the HH evaluation, the projected soil concentrations are compared to the residential Regional Screening Levels (RSLs) for soil media (USEPA 2018). No constituent concentrations exceeded the residential RSL. For the ECO evaluation, the projected soil concentrations are compared to the ecological refinement screening values (RSVs) for soil media from Appendix D, Ecological Risk Assessment, presented in the RFI/RI/BRA/CMS/FS for the GOSB OU (SRNS 2018). No constituents exceeded the ecological RSV for terrestrial receptors. Therefore, land application of the GOSB surface water does not pose a threat to human or ecological receptors. The concentrations of the RCOCs in surface water (prior to land application) that would be protective of human and ecological receptors for soil media after land application are derived in Table 2 and summarized below:

Protective concentration of alpha-chlordane = 1.7 mg/L (ppm); maximum detect in surface water = 0.000222 mg/L

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Protective concentration of gamma-chlordane = 1.7 mg/L (ppm); maximum detect in surface water = 0.000234 mg/L

Protective concentration of silver = 26 mg/L (ppm); maximum detect in surface water = 0.299 mg/L

SRNS 2018. *Resource Conservation and Recovery Act Facility Investigation/Remedial Investigation Report with Baseline Risk Assessment and Corrective Measures Study for the G-Area Oil Seepage Basin (GOSB) (U)*, Rev. 1, SRNS-RP-2017-00281, Savannah River Nuclear Solutions, LLC, Savannah River Site, Aiken, SC

USEPA 2018. *USEPA Regional Screening Levels*, U.S. Environmental Protection Agency, May 2018 <https://www.epa.gov/risk/regional-screening-levels-rsls>

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**Response: Agree. The Spray Irrigation to Land Surface Risk Evaluation will be included as Appendix B to the ROD. In addition, the text in Section IX. Description of Alternatives and Section X. Comparative Analysis of Alternatives (6 separate paragraphs, same text) will be revised to reference Appendix B as follows:**

**“The land application of the GOSB surface water does not pose a threat to human or terrestrial ecological receptors (SRNS 2018b). The evaluation that examines the risk posed by any short-term or cross media impacts due to spray irrigation of water to the land surface is provided in Appendix B.”**

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