



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

OCT 10 2018

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: Statement of Basis/Proposed Plan for the G-Area Oil Seepage Basin (GOSB) (761-13G) Operable Unit (OU) (U) (SRNS-RP-2018-00460, Revision 1 Redline, October 2018), Revised Public Notice Information, 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 information for your review and approval. The South Carolina Department of Health and Environmental Control (SCDHEC) and U. S. Environmental Protection Agency (EPA) provided comments on the Revision 0 Statement of Basis/Proposed Plan (SB/PP) on August 2, 2018 and August 15, 2018, respectively. This submittal also includes the revised draft Resource Conservation and Recovery Act permit modification as well as the Savannah River Site's responses to the EPA's and SCDHEC's comments on the Revision 0 SB/PP. Please review the enclosures and provide your approval within thirty (30) days of receipt.

The effort and time that the SCDHEC and the 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 blue ink, appearing to read "B. Hennessey", with a long horizontal flourish extending to the right.

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

IACD-19-101

OCT 10 2018

Ms. Susan Fulmer
Mr. Jon Richards

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Enclosures:

1. Statement of Basis/Proposed Plan for the G-Area Oil Seepage Basin (GOSB) (761-13G) Operable Unit (OU) (U) (SRNS-RP-2018-00460, Revision 1 Redline, October 2018) SEMS Number: 93
2. Revised Public Notice Information: RCRA Permit Modification
3. SRS Responses to the South Carolina Department of Health and Environmental Control Comments on: Statement of Basis/Proposed Plan for the G-Area Oil Seepage Basin (GOSB) (761-13G) Operable Unit (OU) (U) (SRNS-RP-2018-00460, Revision 0, June 2018)
4. SRS Responses to EPA Comments on: Statement of Basis/Proposed Plan for the G-Area Oil Seepage Basin (GOSB) (761-13G) Operable Unit (OU) (U) (SRNS-RP-2018-00460, Revision 0, June 2018)

cc w/o encl:

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

cc w/encl:

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

SRS Responses to South Carolina Department of Health and Environmental Control

Comments on:

Statement of Basis/Proposed Plan for the G-Area Oil Seepage Basin (GOSB) (U)

CERCLIS Number: 93

(SRNS-RP-2018-00460, Revision 0, June 2018)

Comments received August 2, 2018

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General Comments

1. The document as a whole should be revised to clearly indicate the purpose and intended effectiveness of the selected remedy regarding human and ecological exposure to contaminated media. Specifically, the fifth paragraph of Section I on page 1 and the first paragraph of Section IX on page 15 state that the selected remedy Alternative A-4 "...is effective in reducing exposure of contaminated media to human and ecological receptors..." Elsewhere in the document, the discussion for Alternative A-4 on page 11 and the second paragraph for Section IX on page 15 state the selected remedy "...will prevent exposure to pesticides buried at depth", and the first complete paragraph of page 14 states that the selected remedy "will ensure that exposure to contaminated sediments will be eliminated..." Within these sections, the discussion also uses the word "mitigated" regarding residual risks. Use of the words "reducing" and "mitigated" along with "prevent" and "eliminated" is confusing. The intent of the remedy regarding potential exposure to contaminated media should be stated more clearly and consistently throughout the document.

Response: Agree.

Generally, the term "prevent" is appropriate when referring to exposure while the terms "reduce or reducing" are appropriate when referring to risk. The term mitigate will only be used when describing control of settlement and erosion. The document will be revised to more clearly state the intent of the remedy regarding potential exposure as shown below.

Section 1, fifth paragraph will be revised as follows: "The preferred remedial alternative for the GOSB OU is to backfill the basin and manage surface water (Alternative A-4), because it is effective in ~~reducing~~ preventing exposure of contaminated media to human and ecological receptors."

Section IX, first paragraph will be revised as follows: "Alternative A-4, Backfill Basin and Manage Surface Water, was identified as the preferred alternative because the remedy is effective in ~~reducing~~ preventing exposure of contaminated media to human and ecological receptors, and does not require LUCs or a five-year remedy review."

Section VIII, Long-Term Effectiveness and Permanence, third paragraph will be revised as follows: "Residual risks will be ~~mitigated~~ reduced by the placement of a clean soil layer ranging in thickness from ~3.05 m to 4.90 m (10 ft to 16 ft). The thickness of the clean fill layer will ensure that exposure to contaminated sediments will be ~~eliminated~~ prevented with no requirement to monitor and maintain."

Responsible Party: Mary Baird, (803) 952-8738, mary.baird@srs.gov

SRS Responses to South Carolina Department of Health and Environmental Control

Comments on:

Statement of Basis/Proposed Plan for the G-Area Oil Seepage Basin (GOSB) (U)

CERCLIS Number: 93

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Specific Comments

1. Section IX, Preferred Alternative, page 16. The second paragraph states that the preferred alternative "... provides the best balance of tradeoffs among the other alternatives with respect to the evaluation criteria." Table 4, Comparison of Alternatives against the CERCLA Evaluation Criteria, shows that the Alternatives A-3, A-4 and A-5 are fairly similar in comparison except some of the Long-Term Effectiveness, Cost, and State Support/Agency Acceptance. The tradeoffs and the "Not acceptable" designations in Table 4 are not clearly defined or explained in this document. Clarification needs to be provided.

Response: Agree.

The second paragraph on page 16 will be revised to state the following:

"Based on information currently available, the lead agency believes that backfilling the basin to the natural grade and surface water management provides the best balance of tradeoffs among the other alternatives with respect to the evaluation criteria. The selected remedy has the highest short-term effectiveness of all the alternatives. It ranks similarly to the other alternatives with respect to long-term effectiveness and cost. (Table 4)" Additionally, the "not acceptable" designations in Table 4 will be revised to state "not preferred".

Responsible Party: Mary Baird, (803) 952-8738, mary.baird@srs.gov

2. Draft Appendix VIII-A. Changes to the remedy selection are submitted to be more consistent with existing permit language. See Below.

SRS Responses to South Carolina Department of Health and Environmental Control

Comments on:

Statement of Basis/Proposed Plan for the G-Area Oil Seepage Basin (GOSB) (U)

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Solid Waste Management Unit	Remedy Selection
G-Area Oil Seepage Basin (GOSB) (761-13G) Operable Unit	The Basin Interior subunit of the G-Area Oil Seepage Basin (GOSB) Operable Unit (OU) shall be remediated by dewatering, backfilling the basin to natural grade with clean soil, establishing a vegetative cover and managing the surface water. The remaining three subunits require no action. The Permittee shall remediate the GOSB as documented in the approved Statement of Basis/Proposed Plan (SRNS-RP-2018-00460 Rev. X, Month 2018) and the effective Record of Decision for the GOSB OU (insert revision number and date).

Response: Agree with clarification. Suggested details will be incorporated into the remedy section description shown in Appendix VIII A of the RCRA permit. The revised section will be as follows.

Solid Waste Management Unit	Remedy Selection
G-Area Oil Seepage Basin (GOSB) (761-13G) Operable Unit	The G-Area Oil Seepage Basin (GOSB) Operable Unit (OU) shall be remediated by dewatering the basin, backfilling the basin to natural grade with clean soil, and establishing a vegetative cover over the basin. Following backfill of the basin, the future land use for the entire GOSB OU will be unrestricted. The Permittee shall remediate the GOSB as documented in the approved Statement of Basis/Proposed Plan (SRNS-RP-2018-00460 Rev. X, Month 2018) and the effective Record of Decision for the GOSB OU (insert revision number and date).

Responsible Party: Joe Burch, (803) 952-6660, joseph.burch@srs.gov

SRS Responses to EPA Comments on:

Statement of Basis/Proposed Plan for the G-Area Oil Seepage Basin (GOSB) (761-13G)
Operable Unit (OU) (U) SEMS Number: 93, SRNS-RP-2017-00460, Revision 0, June 2018,
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I. GENERAL COMMENTS

1. CERCLA places an emphasis on evaluating long-term effectiveness and related considerations for each of the alternative remedial actions including the potential threat to human health and the environment associated with, among other things, redispersion (e.g., in the present case, disposal on the land via spray irrigation of untreated wastewater). [*Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA*, EPA/OSWER Directive 9355.3-01, October 1988, p. 6-3]. The analysis of each alternative with respect to overall protection of human health and the environment should provide a summary evaluation of how the alternative reduces the risk from potential exposure pathways through treatment, engineering, or institutional controls. This evaluation also examines whether alternatives pose any unacceptable short term or cross-media impacts. [*Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA*, EPA/OSWER Directive 9355.3-01, October 1988, p. 6-6].

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

2. The selected ARARs in the Proposed Plan list SCDEHC Regulations for Land Application permits and contain conditions for specific categories of land application, which for the alternatives evaluated in this Proposed Plan is the regulation category of “irrigation of treated wastewater.” The SC regulations for land application do not specify any numeric standards of control regarding the levels of COCs that may be present in the wastewater at the point of irrigation/disposal onto the land. Risk-based, protective levels for the COCs in the wastewater at the point of land application need to be established in accordance with EPA’s acceptable risk range and included in the decision document to confirm that the remedy is protective of human health and the environment.

Response: Agree.

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Risk-based, protective levels for the refined constituents of concern (RCOCs) in the surface water (alpha- and gamma-chlordane, and silver) at the point of land application will be derived and included in the document as part of Appendix B that is referenced in the response to General Comment #1. The concentrations of RCOCs in surface water (prior to land application) that would be protective of human and terrestrial ecological receptors are much higher than the maximum detected concentration in the GOSB Interior Subunit surface water. The evaluation is provided as Attachment 1 to these comment responses.

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

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.

Text will be added to Section VIII. Evaluation of Alternatives, Overall Protection of Human Health and the Environment as shown in the response to General Comment #1.

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

II. SPECIFIC COMMENTS

3. Page 14, Implementability Section, states that a “non-discharge permit for the land application of the basin water is needed.” CERCLA does not require permit(s) for on-site actions; however, the substantive requirements contained in the state regulations for land application may be considered relevant and appropriate ARARs for the particular action.

Response: Agree.

A land application permit is not required for Alternatives A-3, A-4, or A-5 and the Implementability Section will be revised to remove references to a non-discharge permit for land application. The State-substantive requirements associated with the land application will continue to be relevant and appropriate as reflected in the revised ARAR table (Attachment 2 to these comment responses). Refer to the response to Specific Comment #6 for additional discussion regarding the ARAR table.

Responsible Party: Joe Burch, (803) 952-6660, joseph.burch@srs.gov

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4. Page 15, Preferred Alternative Section, last paragraph, states that “disturbance of the fill material and vegetative cover at the GOSB OU will be prevented by existing administrative site use procedures that prohibit unauthorized excavation at SRS.” The sentence indicates that LUCs are a required as part of the remedy, however, LUCs are not required. EPA recommends deleting the sentence or reword to state, “disturbance of the fill material and vegetative cover at the GOSB OU will not occur as long as administrative site use procedures that prohibit unauthorized excavation at SRS are in place.”

Response: Agree.

The sentence will be revised as follows: “Disturbance of the fill material and vegetative cover at the GOSB OU will be ~~prevented by existing~~ not occur as long as administrative site use procedures that prohibit unauthorized excavations at SRS are in place.”

In addition, the Post-ROD Schedule in Section X incorrectly lists a Land Use Control Implementation Plan (LUCIP) as a deliverable. The reference to a LUCIP will be removed from the schedule in the revised document.

Responsible Party: Mary Baird, (803) 952-8738, mary.baird@srs.gov

5. Figure 5. The Key lists a symbol for “GOSB Interior, Sediment, 2009” data points but it appears these specific data points were not included on the figure itself.

Response: Agree.

The 2009 sediment and surface water sample locations were collocated and therefore overlap on Figure 5. The Figure 5 key will be revised to show that 2009 sediment and surface water samples are collocated. The revised figure is provided as Attachment 3 to these comment responses.

Responsible Party: Mary Baird, (803) 952-8738, mary.baird@srs.gov

6. Table 2. Potential ARARs for the Preferred Remedial Alternative. The preferred alternative includes Dewatering and Land Application/Irrigation of the basin water into the adjacent forest. The preferred alternative does not involve a point source discharge to surface water, however, Row 1 of Table 2 contains the following:

S.C. R. 61-9 122.1(a)(1) regarding the coverage of Part 122 (the NPDES Program). Section 122.1(b) states that the “Scope” of the (1) The NPDES program requires permits for the discharge of “pollutants” from any “point source” into “waters of the State” and into “waters of the United States.” The terms “pollutant,” “point source,” “waters of the State,” and “waters of the United States” are defined in

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section 122.2. (2) The permit program established under this part also applies to owners or operators of any treatment works treating domestic sewage, whether or not the treatment works is otherwise required to obtain an NPDES permit, unless all requirements implementing section 405(d) of the CWA applicable to the treatment works treating domestic sewage are included in a permit issued under the appropriate provisions of subtitle C of the Solid Waste Disposal Act, Part C of the Safe Drinking Water Act, the Marine Protection, Research, and Sanctuaries Act of 1972, or the Clean Air Act, or under a Land Application or State permit issued by the Department under R.61-9.505, as adequate to assure compliance with section 405 of the CWA.

The above regulation is not applicable to the preferred alternative, and should be deleted from Table 2.

Response: Agree.

The ARARs associated with point source discharge to a surface water are not applicable and will be removed from Table 2 since the remedy will not result in a point source discharge to a water of the State. The State-substantive requirements associated with the land application will continue to be relevant and appropriate as reflected in the revised ARAR table (Attachment 2 to these comment responses). These SCDHEC substantive requirements are associated with the design of the selected remedy that will be presented in the Corrective Measures Implementation / Remedial Action Implementation Plan (CMI/RAIP).

Note that several of the State specific citations from SC R. 61-9 were deleted in Attachment 2 because they are neither relevant nor appropriate to the GOSB remedial action and should not have been included in the Revision 0 document. The common reason that the citations are neither relevant nor appropriate is that it is a one-time discharge and it is a significant distance to any surface water bodies (waters of the State). Applied water will not reach surface water, due to known water quantity (one-time application), surface topography, distance, and heavy vegetative coverage in the application area. The application area is approximately 1500 feet to the nearest intermittent stream, and approximately 6400 feet to Pen Branch.

Responsible Party: Joe Burch, (803) 952-6660, joseph.burch@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

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

SRS Responses to EPA Comments on:

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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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Table 1. Spray Irrigation Evaluation: Projected Soil Concentrations Compared to Human Health and Ecological Threshold Levels

Analyte	Maximum Result Surface Water ¹ (µg/L)	Maximum Result Surface Water Conversion ² (mg/L)	Projected Soil Concentration ³ (mg/kg)	Human Health Residential RSL ⁴ (mg/kg)	Projected Soil Concentration > HH RSL?	Ecological RSV ⁵ (mg/kg)	Projected Soil Concentration > ECO RSV?
<i>Inorganics</i>							
Aluminum	3.32E+04	3.32E+01	3.32E+01	7.70E+04	no	NA	no
Antimony	3.62E+00	3.62E-03	3.62E-03	3.10E+01	no	2.40E+01	no
Barium	3.05E+02	3.05E-01	3.05E-01	1.50E+04	no	2.60E+02	no
Beryllium	1.40E+00	1.40E-03	1.40E-03	1.60E+02	no	2.50E+01	no
Cadmium	2.31E+01	2.31E-02	2.31E-02	7.10E+01	no	2.70E+00	no
Calcium	1.35E+04	1.35E+01	1.35E+01	NA ⁶	no	NA ⁶	no
Chromium	1.47E+02	1.47E-01	1.47E-01	3.00E-01	no	2.80E+02	no
Cobalt	1.36E+01	1.36E-02	1.36E-02	2.30E+01	no	1.30E+02	no
Copper	8.05E+02	8.05E-01	8.05E-01	3.10E+03	no	4.60E+01	no
Cyanide	5.27E+00	5.27E-03	5.27E-03	2.30E+01	no	1.00E+00	no
Iron	2.55E+04	2.55E+01	2.55E+01	5.50E+04	no	NA	no
Lead	1.31E+02	1.31E-01	1.31E-01	4.00E+02	no	2.80E+01	no
Magnesium	2.08E+03	2.08E+00	2.08E+00	NA ⁶	no	NA ⁶	no
Manganese	3.40E+02	3.40E-01	3.40E-01	1.80E+03	no	1.10E+03	no
Mercury	2.37E-01	2.37E-04	2.37E-04	1.10E+01	no	3.50E-03	no
Nickel	1.28E+02	1.28E-01	1.28E-01	8.20E+02	no	1.90E+01	no
Potassium	5.53E+03	5.53E+00	5.53E+00	NA ⁶	no	NA ⁶	no
Silver	2.99E+02	2.99E-01	2.99E-01	3.90E+02	no	2.60E+01	no
Sodium	8.70E+03	8.70E+00	8.70E+00	NA ⁶	no	NA ⁶	no
Vanadium	6.88E+01	6.88E-02	6.88E-02	3.90E+02	no	NA ⁶	no
Zinc	3.80E+03	3.80E+00	3.80E+00	2.30E+04	no	4.80E+02	no
<i>Organics</i>							
Acetone	4.02E+00	4.02E-03	4.02E-03	6.10E+04	no	6.30E+00	no
Caprolactam	3.64E+01	3.64E-02	3.64E-02	3.10E+04	no	NA ⁶	no
Toluene	5.06E+00	5.06E-03	5.06E-03	4.90E+03	no	2.30E+02	no
<i>Pesticides/PCBs</i>							
Alpha-Chlordane	2.22E-01	2.22E-04	2.22E-04	1.70E+00	no	2.70E+00	no
Alpha-Benzene Hexachloride	1.23E-02	1.23E-05	1.23E-05	2.10E-01	no	5.80E+02	no
Beta-Benzene Hexachloride	3.48E-02	3.48E-05	3.48E-05	2.10E-01	no	1.30E+00	no
DDD	4.08E-02	4.08E-05	4.08E-05	1.90E+00	no	3.30E-02	no
DDE	8.04E-02	8.04E-05	8.04E-05	2.00E+00	no	5.50E-01	no
DDT	2.28E-02	2.28E-05	2.28E-05	1.90E+00	no	2.20E-01	no
Dieldrin	1.16E-02	1.16E-05	1.16E-05	3.40E-02	no	9.00E-03	no
Gamma-Chlordane	2.34E-01	2.34E-04	2.34E-04	1.70E+00	no	2.20E+01	no

1 - Maximum detected concentration in GOSB Interior Subunit, surface water media

2 - Surface water conversion from ug/L to mg/L

3 - Projected soil concentration, assumes 1 mg/L (ppm) water = 1 mg/kg (ppm) soil

4 - HH residential RSL for soil media from USEPA Regional Screening Levels table, May 2018

5 - ECO refinement screening value (RSV) for soil media from Appendix D of the RFI/RI/BRA/CMS/FS for the GOSB OU (SRNS-RP-2017-00218) April 2018

6 - NA = not available; a screening threshold level is not available for this constituent

SRS Responses to EPA Comments on:

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Table 2. Protective Levels for RCOCs in Surface Water

RCOC¹	HH RSL² (mg/kg)	ECO RSV³ (mg/kg)	Lesser of RSL/RSV (mg/kg)	Surface Water Threshold⁴ (mg/L)
alpha-Chlordane	1.70E+00	2.70E+00	1.70E+00	1.70E+00
gamma-Chlordane	1.70E+00	2.20E+01	1.70E+00	1.70E+00
Silver	3.90E+02	2.60E+01	2.60E+01	2.60E+01

1 - Surface water RCOCs identified in RFI/RI/BRA/CMS/FS for the GOSB OU

2 - Human health (residential) regional screening level for soil media (USEPA 2018)

3 - Ecological refinement screening value for soil media (SRNS 2018)

4 - Surface water threshold assumes concentration in surface water (mg/L) = concentration in soil (mg/kg)

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Comment Response Attachment 2

Table 2. Potential ARARs for the Preferred Remedial Alternative for the GOSB OU

Action	Requirements	Prerequisite	Citation
<i>General Construction Standards — All Land-disturbing Activities (i.e., excavation, clearing, grading, etc.)</i>			
Managing storm water runoff from land-disturbing activities	Must comply with the substantive requirements for stormwater management and sediment control of <i>NPDES General Permit No. SCR100000</i> .	Large and small construction activities (as defined in R. 61-9) of more than 1 acre of land – applicable	S.C. R. 61-9.122.26(c) NPDES General Permit No. SCR100000
	The requirements of R.72-305 and R.72-307 will apply.	For land disturbing activities involving two (2) acres or less of actual land disturbance – applicable	S.C. R. 72-305.B.(1)
	The stormwater management and sediment control plan shall contain at a minimum the information provided in the following subsections:	Land disturbance activities involving two (2) acres or less which are not part of a larger common plan of development or sale – applicable	S.C. R. 72-307 H – <i>South Carolina Storm Water Management and Sediment Reduction Regulations</i>
	A sketched plan to accompany the narrative which shall contain: a) A site location drawing of the proposed project, indicating the location of the proposed project in relation to roadways, jurisdictional boundaries, streams and rivers; b) The boundary lines of the site on which the work is to be performed; c) The location of temporary & permanent vegetative & structural stormwater management and sediment control measures.		S.C. R. 72-307 H.(5)(a) S.C. R. 72-307 H.(5)(b) S.C. R. 72-307 H.(5)(d)
Managing fugitive dust emissions from land disturbing activities	Emissions of fugitive particulate matter shall be controlled in such a manner and to the degree that it does not create an undesirable level of air pollution.	Activities that will generate fugitive particulate matter (Statewide) – applicable	S.C. R. 61-62.6 Section III(a)- <i>Control of Fugitive Particulate Matter Statewide</i>
<i>Disposal of Wastes (e.g. trees, bushes, etc.)</i>			
Disposal of <i>solid waste</i> off--SRS	Disposal of solid waste at facilities and/or sites permitted or registered by the Department for processing or disposal of that waste stream. Waste must meet state classification system for the permitted facilities NOTE: All waste generated from this remedial action will be managed as non-hazardous, due to the known characteristics of the operable unit.	Generation of solid waste intended for off- SRS disposal – applicable	SCDHEC R. 61-107.15

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Table 2. Potential ARARs for the Preferred Remedial Alternative for the GOSB OU (Continued)

Action	Requirements	Prerequisite	Citation
<i>Dewatering/Irrigation of G-Area Oil Seepage Basin Contained Stormwater</i>			
On-site Land Application	The regulatory provisions contained in R.61-9.122 and 124 implement the National Pollutant Discharge Elimination System (NPDES) Program under sections 318, 402, and 405 of the Clean Water Act (CWA) (Public Law 92-500, as amended by Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483, Pub. L. 97-117, and Pub. L. 100-4; 33 U.S.C. 1251 et seq.) and the South Carolina Pollution Control Act, S.C. Code Ann. 48-1-10, et seq.	Land application of pollutants (including toxic substances) in the State of South Carolina – relevant and appropriate	S.C. R. 61-9 122.1(a)(1)
	The Land Application permit and State permit program requires permits for the discharge of pollutants from any source directly or indirectly into groundwaters of the State and to the land of the State. The terms “Land Application permit,” “State permit,” “pollutant,” “source,” “groundwaters of the State,” and the “land of the State” are defined in section 505.2.	Section 48-1-90(a), S.C. Code of Laws (1976), provides that “it shall be unlawful for any person, directly or indirectly, to throw, drain, run, allow to seep, or otherwise discharge into the environment of the State organic or inorganic matter, including sewage, industrial wastes and other wastes, except as in compliance with a permit issued by the Department. –relevant and appropriate	S.C. R. 61-9 505.1(b)(1) S.C. R. 61-9 505.1(g)(1)
	Information Requirements: 1) Provide location of the WWTP and land disposal sites: Provide a map or maps showing the location of the WWTP and land disposal site(s). 2) Provide description of waste to be land applied: Provide a description of the wastewater or sludge to be land applied. State whether the waste is domestic and/or industrial wastewater. If the wastewater is not strictly domestic, give a detailed characterization of the wastewater. 3) Provide volume and quantity of waste to be land applied: Provide the volume in gallons per day and the quantity in pounds per day of the waste to be land applied to each disposal site. 4) Provide frequency of application: Provide the proposed frequency application in times per day, week or other period for each disposal site. 5) Provide site application rate(s): Provide the proposed application rate in inches per week, pounds per acre per day (use annual rates for crop uptake) for sludge disposal, or other units as appropriate for each disposal site, whichever is the limiting factor.		S.C. R. 61-9 505.21(f)(9) S.C. R. 61-9 505.21(f)(10) S.C. R. 61-9 505.21(f)(11) S.C. R. 61-9 505.21(f)(12) S.C. R. 61-9 505.21(f)(13) S.C. R. 61-9 505.21(f)(16)

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Action	Requirements	Prerequisite	Citation
<i>Dewatering/Irrigation of G-Area Oil Seepage Basin Contained Stormwater – cont'd</i>			
	6) Provide hazardous substances: Identify whether or not the discharge contains a substance that could be considered hazardous as defined under section 101(14) of CERCLA. Provide the substance name, concentration and source.		
	Irrigation of treated wastewater including methods of surface application, including but not limited to, fixed gun application, travelling or mobile gun application, or center pivot application.	Additional conditions applicable to specified categories of Land Application permits and State permits for irrigation of treated wastewater. relevant and appropriate	S.C. R. 61-9 505.42(b)
	Spray field slopes shall not exceed 10 percent unless approved by the Department. The Department may require that slopes be less than 10% based on site conditions.	Slope of irrigation area is a heavily vegetated area with an approximate 3% grade. Relevant and Appropriate.	S.C. R. 61-9 505.42(b)(1)
	Effluent distribution systems shall be designed so that the distribution pattern maximizes uniform application.	Neither Relevant nor Appropriate: This is a one-time discharge and a uniform application is not necessary since the normal water pumping to application area will not reach surface water.	S.C. R. 61-9 505.42(b)(2)
	The application rate may be limited based on pollutant loading including any pollutant required for monitoring under effluent guidelines (40 CFR Part 136; Subchapter N (40 CFR Parts 400 through 402 and 404 through 471)).	Neither Relevant nor Appropriate: This is a one-time discharge and the water will not reach surface water. As a result, no effluent monitoring or application rate limitations are appropriate under the effluent guidelines.	S.C. R. 61-9 505.42(b)(4)(iv)
	The new or expanding spray field shall be at least 200 feet from surface waters of the State, occupied buildings and potable water wells. The new or expanding spray field shall be at least 100 feet from the property boundary.	Though this is not a defined spray field, the application area is approximately 1500 feet to the nearest intermittent stream, and approximately 6400 feet to Pen Branch. Relevant and Appropriate.	S.C. R. 61-9 505.42(b)(8)
	A dike or berm around the perimeter of the spray field may be required as necessary to prevent potential surface runoff from entering or leaving the spray site. The Department may consider alternate methods of runoff controls that may be proposed by the applicant.	Neither Relevant nor Appropriate: This is a one-time discharge and a dike is not necessary. The water will not reach surface water, due to known water quantity, surface topography, distances, and heavy vegetative coverage in application area.	S.C. R. 61-9 505.42(b)(9)
	Additional parameters may be required in the initial background groundwater analysis and subsequent monitoring thereafter, but such needs will be assessed on an individual project basis. Any pollutant required for monitoring under effluent guidelines (40 CFR Part 136; Subchapter N (40 CFR Parts 400 through 402 and 404 through 471)) may be required (in a permit) to be monitored in groundwater.	Neither Relevant nor Appropriate: This is a one-time discharge and water will not reach surface water, due to known water quantity, surface topography, distances, and heavy vegetative coverage in application area. The application area is approximately 1500 feet to the nearest intermittent stream, and approximately 6400 feet to Pen Branch. In addition, the GOSB water does not and will not impact groundwater as documented in the Baseline Risk Assessment.	S.C. R. 61-9 505.42(b)(12)

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Table 2. Potential ARARs for the Preferred Remedial Alternative for the GOSB OU (Continued/End)

Action	Requirements	Prerequisite	Citation
<i>Location-Specific Requirements</i>			
Protection of Migratory Birds	No person may take, possess, import, export, transport, sell, purchaser, barter or offer for sale, purchase or barter, any migratory bird, or the parts, nests, or eggs of such bird except as under the terms of a valid permit.	Migratory bird populations may be present in the vicinity – applicable	16 USC 703-704 – <i>Migratory Bird Treaty Act</i>

- ARAR = applicable or relevant and appropriate requirement
- CFR = *Code of Federal Regulations*
- CWA = Clean Water Act of 1972
- EPA = U.S. Environmental Protection Agency
- NPDES = National Pollutant Discharge Elimination System
- RCRA = Resource Conservation and Recovery Act of 1976
- S.C. = South Carolina Department of Health and Environmental Control

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Comment Response Attachment 3

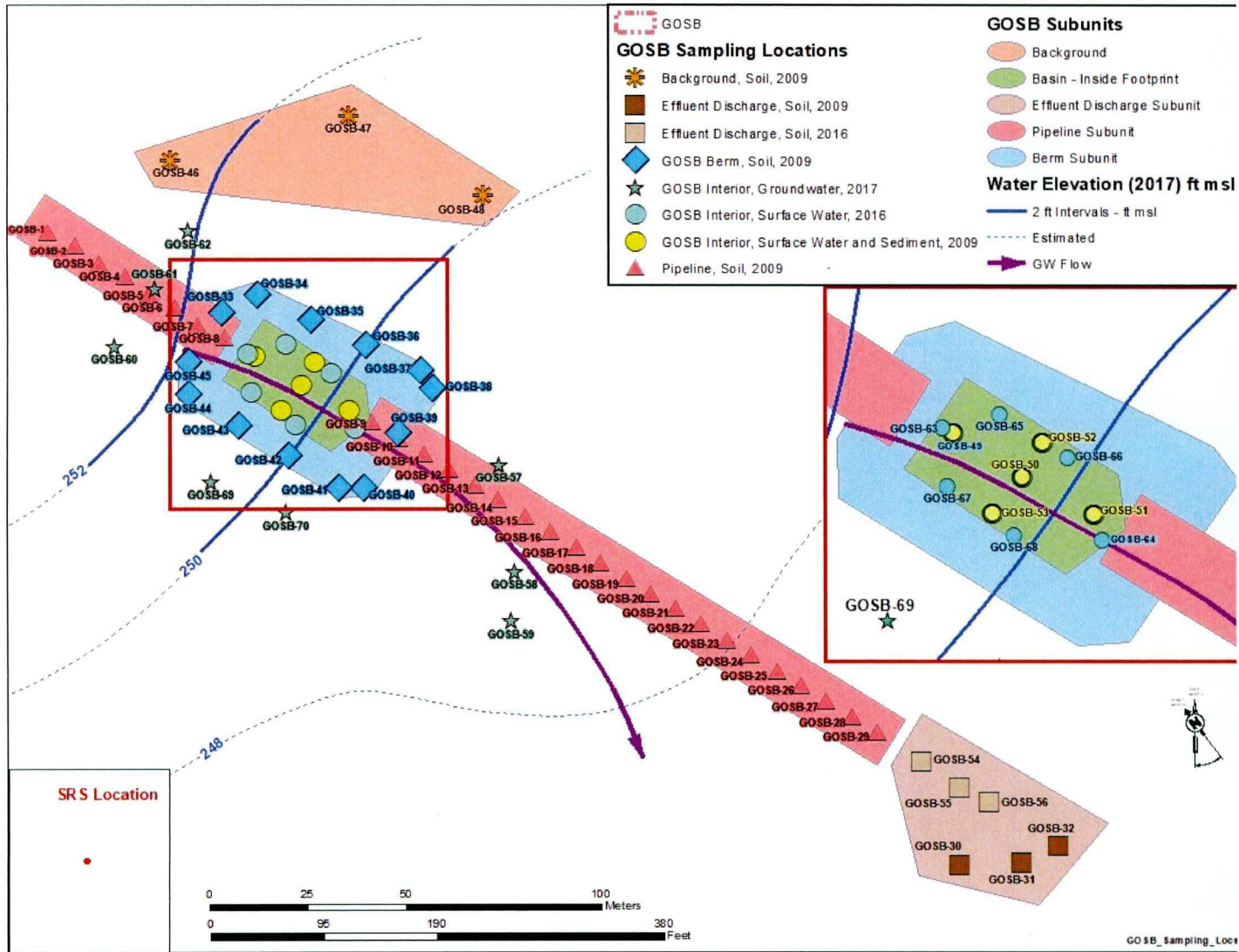


Figure 5. GOSB Subunits and Sampling Locations

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APPENDIX VIII-A
SOLID WASTE MANAGEMENT UNIT REMEDY SELECTION

Solid Waste Management Unit	Remedy Selection
G-Area Oil Seepage Basin Operable Unit	The G-Area Oil Seepage Basin (GOSB) Operable Unit (OU) shall be remediated by dewatering the basin, backfilling the basin to natural grade with clean soil, and establishing a vegetative cover over the basin. Following backfill of the basin, the future land use for the entire GOSB OU will be unrestricted. The Permittee shall remediate the GOSB as documented in the approved Statement of Basis/Proposed Plan (SRNS-RP-2018-00460 Rev. X , Month 2018) and the effective Record of Decision for the GOSB OU (insert revision number and date).