

ARF-022345



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

SEP 19 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: Removal Action Report for the 488-1D Ash Basin and 489-D Coal Pile Runoff Basin (U) (SRNS-RP-2018-01091, Revision 1, July 2019) (Redline Pages Only) and Savannah River Site's Responses to the Regulatory Comments on the Revision 0 Document, SEMS Number: 63

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. 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 May 6, 2019 and June 4, 2019, respectively. The Savannah River Site's responses to the regulatory comments are also enclosed. Please review the enclosures and provide your comments or 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, or the DOE Federal Project Director, Ms. Karen Adams, at (803) 952-7871.

Sincerely,

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

SEP 19 2019

Ms. Susan Fulmer
Mr. Jon Richards

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Enclosures:

1. Removal Action Report for the 488-1D Ash Basin and 489-D Coal Pile Runoff Basin (U) (SRNS-RP-2018-01091, Revision 1, July 2019) (Redline Pages Only) SEMS Number: 63
2. SRS Responses to the U.S. Environmental Protection Agency Comments on the Removal Action Report for the 488-1D Ash Basin and 489-D Coal Pile Runoff Basin (U) (SRNS-RP-2018-01091, Revision 0, January 2019), SEMS Number: 63
3. SRS Responses to the South Carolina Department of Health and Environmental Control Comments on the Removal Action Report for the 488-1D Ash Basin and 489-D Coal Pile Runoff Basin (U) (SRNS-RP-2018-01091, Revision 0, January 2019), SEMS Number: 63

cc w/o encl:

D. Scaturro, SCDHEC-Columbia
S. French, SCDHEC-Columbia
M. Reece, SCDHEC-Columbia
G. K. Taylor, SCDHEC-Columbia
T. Fuss, SCDHEC - Aiken Environmental Affairs Office
G. O'Quinn, SCDHEC - Aiken Environmental Affairs Office
B. Cameron, SCDHEC-Aiken Environmental Affairs Office
R. H. Pope, EPA-Atlanta

cc w/encl:

D. Lloyd, EPA-Atlanta
M. McRae, TechLaw, Inc.

SRS Responses to
U.S. ENVIRONMENTAL PROTECTION AGENCY
Comments on the
Removal Action Report for the 488-1D Ash Basin and 489-D Coal Pile Runoff Basin (U)
SEMS Number: 63, SRNS-RP-2018-01091, Revision 0, January 2019
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EPA COMMENTS:

1. Section 1.3.1 Removal Action Objectives 488-1D Ash Basin (Including inlet basins), Page 4 of 108

The text cites the SRNS 2016b reference for the removal site evaluation report/engineering evaluation/cost analysis (RSER/EE/CA) for the D-Area Ash Basin (488-1D) discussion of removal action objectives (RAOs). However, it is unclear why the text does not cite the decision document USDOE 2016a reference *Action Memorandum and Responsiveness Summary for the Non-Time Critical Removal Action for the D-Area Ash Basin 488-1D* for details regarding the RAOs. Revise the text in Section 1.3.1 to cite the decision document USDOE 2016a reference *Action Memorandum and Responsiveness Summary for the Non-Time Critical Removal Action for the D-Area Ash Basin 488-1D*, for details regarding the RAOs.

Response: Agree

The text in Section 1.3.1 will be revised to cite the decision document USDOE 2016a reference, *Action Memorandum and Responsiveness Summary for the Non-Time Critical Removal Action for the D-Area Ash Basin 488-1D*, for details regarding the RAOs as shown below.

“Per the ~~RSER/EE/CA for the D-Area Ash Basin (488-1D)~~ *Action Memorandum and Responsiveness Summary for the Non-Time Critical Removal Action for the D-Area Ash Basin 488-1D* (SRNS 2016a), the remedial removal action objectives (RAOs) for the D-Area Ash Basin (488-1D) subunit are as follows:”

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

2. Section 1.3.1 Removal Action Objectives 488-1D Ash Basin (Including inlet basins), Page 4 of 108

The text in the first sentence defines the D-Area Ash Basin (488-1D) RAOs abbreviation as remedial action objectives. However, the 488-1D cleanup action is being conducted under the CERCLA removal path and is consistent with the Action Memorandum. As such, revise the text to clearly indicate the RAOs abbreviation is defined as “removal action objectives.”

Response: Agree

As shown in the response to EPA Comment 1, the text in Section 1.3.1 will be revised to clearly indicate the RAO acronym represents “removal action objectives.” In addition, the List of Abbreviations and Acronyms section will be corrected to show that the RAO acronym represents “removal action objectives”.

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

3. Section 1.4.1 Selected Removal Action 488-1D Ash Basin, Page 5 of 108

The text cites the SRNS 2016b reference RSER/EE/CA for the D-Area Ash Basin (488-1D) for the discussion of the selected removal actions. However, it is unclear why the text does not cite the decision document USDOE 2016a reference *Action Memorandum and Responsiveness Summary for the Non-Time Critical Removal Action for the D-Area Ash Basin 488-1D* for details regarding the selected removal action. Revise the text in Section 1.4.1 to cite the decision document USDOE 2016a reference *Action Memorandum and Responsiveness Summary for the Non-Time Critical Removal Action for the D-Area Ash Basin 488-1D* for details regarding the selected removal actions.

Response: Agree

The text will be revised in Section 1.4.1 to cite the decision document USDOE 2016a reference, *Action Memorandum and Responsiveness Summary for the Non-Time Critical Removal Action for the D-Area Ash Basin 488-1D*, for details regarding the selected removal actions as shown below.

“Per the ~~RSER/EE/CA for the D-Area Ash Basin (488-1D) (SRNS 2016b)~~ Action Memorandum and Responsiveness Summary for the Non-Time Critical Removal Action for the D-Area Ash Basin 488-1D (SRNS 2016a), the selected removal action for the 488-1D Ash Basin subunit is as follows:”

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

4. Section 2.3 Removal Action Activities, Page 10 of 108

This section does not summarize the well abandonment and installation activities. Section 1.1 Purpose and Scope, states the abandonment and well installation project scope are included in the Removal Action Report for the 488-1D Ash Basin and 489-D Coal Pile Runoff Basin (U), SEMS Number: 63, SRNS-RP-2018-01091, Revision 0, dated January 2019 (RAR). While it is noted the well installation and abandonment activities are discussed in Section 6.2 Well Modifications, these activities should also be summarized in this section. Revise the RAR to address this issue.

Response: Agree

The well installation and abandonment activities will be added to the summary outline for Activities Common to all Segments of the Project in Section 2.3 as follows:

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“Activities Common to all Segments of the Project

- Mobilization
- Surveying
- Stormwater Pollution Prevention and Erosion Control
- Initial Land Disturbance
- Clearing and Grubbing
- Demolition
- Dewatering
- Well Installation
- Sampling
- Common Fill
- Compaction Requirements
- Top Soil
- Site Restoration (Final Vegetative Cover and Crushed Stone Surfacing)
- Rip Rap Aprons
- Demobilization
- Well Abandonment”

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

5. Section 2.5.4 Area East of the 488-1D Ash Landfill – Backfilling, Page 20 of 108

The first sentence states, “[U]pon receipt of acceptable results the area was regraded and backfilled with common fill and topsoil...” However, the text does not explain the meaning of “acceptable results.” Currently, the text in Sections 2.5.2 and 2.6.2 indicates acceptable sample results are “nonhazardous” as determined by laboratory analysis. Revise the RAR to address this issue.

Response: Agree

The text in Section 2.5.4 will be revised to state that the acceptable sample results meet the “confirmation sampling” as discussed in section 2.5.3.

“Upon receipt of acceptable confirmation sample results described in Section 2.5.3, the excavated area was regraded and backfilled with common fill and topsoil from the D-Area Borrow Site to achieve the final grade shown in the construction drawings (Photo 27).”

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

6. Section 2.6.4 489-D – CPRB Backfilling, Page 21 of 108

The text states that following the removal of the coal fines and soil from the 489-D coal pile runoff basin (CPRB), the surface of the basin bottom was regraded and backfilled with common fill from the D-Area Borrow Area. However, the text does not indicate that acceptable sample results (i.e., nonhazardous) were received prior to regrading and backfilling the basin bottom. As such, it is not clear whether the current condition of the basin bottom achieves the RAOs established for the 489-D CPRB. Revise the RAR to address this issue.

Response: Agree

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Section 2.6.4 will be revised to clarify that acceptable sample results meet the “confirmation sampling” results discussed in Section 2.6.3.

“Following the removal of coal fines and soil from the 489-D CPRB and receipt of acceptable confirmation sample results discussed in Section 2.6.3, the surface of the basin bottom was regraded and backfilled with common fill from the D-Area Borrow Area. Backfill was hauled by articulated haul trucks.....”

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

7. **Section 4.3.2 488-1D Ash Basin (including inlet basins) and Area East of the 488-4D Ash Landfill, Pages 41-42 of 108**

The text states, “[T]he *Human Health and Ecological Evaluation for Confirmation Sampling at the 488-1D Ash Basin and Inlet Basins* (SRNS 2019) concluded that the residual concentrations of all analytes, except hexavalent chromium, met the pre-established cleanup levels for unrestricted land use.” However, the RAR does not clearly state that only the inlet basins met the unrestricted land use designation based on the confirmation sampling results. Revise the text in this section to address this issue.

Response: Clarification

The remainder of the text for Section 4.3., including the discussion of the inlet basins, is located after Table 13. The text for the inlet basins correctly states that the residual concentrations of all analytes met the pre-established cleanup levels for unrestricted land use. No change to the text is proposed but the formatting of Section 4.3 text will be corrected to not truncate Section 4.3 text prior to Table 13.

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

SRS Responses to
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8. Section 8.0 Cost Projections, Page 49 of 108

The text indicates the final total actual costs of the project were \$36,767,276. However, neither the text nor Table 14 - Project Cost Comparison, presents the actual cost breakdown for the Phase 2 removal action 488-1D project or the 489- D CPRB project. Estimated costs are presented in Table 14 for the 488-1D and 489-D CPRB removal projects and the costs for Phase 2 should also be included in text section and in Table 14 to provide the actual costs breakdown for the Phase 2 488-1D and 489-D CPRB removal action projects.

Response: Agree

The text in Section 8.0 and Table 14 will be revised to provide the actual costs breakdown for the Phase 2 488-1D and 489-D CPRB removal action projects for comparison with the estimated costs presented in Table 14 for the 488-1D and 489-D CPRB removal projects and the costs for Phase 2.

“.....The final total actual cost associated with the removal action of Phase 2, 488-1D Ash Basin was \$33,515,706 and 489-D CPRB was \$3,229,113, for a total of the project cost of were ~~\$36,767,276~~ 36,744,819 as provided in Table 14. Approximately 1% under the estimated cost.”

Table 14. Project Cost Comparison

Project Cost Comparison 488-1D Ash Basin & 489-D CPRB						
Cost	488-1D Estimated Cost 2016 RSER/EE/CA (\$)	489-D CPRB Estimated Cost (Escalated) 2009 RSER/EE/CA (\$)	Total Project Estimated Cost 488-1D Actual Cost (\$)	489-D CPRB Actual Cost (\$)	Actual (\$)	Delta Cost (%)
Total Cost	\$27,735,175	\$9,413,101	\$37,148,276 <u>\$33,515,706</u>	<u>\$3,229,113</u>	\$36,767,276	1% 1%

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

**SRS Responses to
SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
Comments on:
Removal Action Report for the 488-1D Ash Basin and 489-D Coal Pile Runoff Basin (U)
SEMS Number: 63, SRNS-RP-2018-01091, Revision 0, January 2019**

Comments Received May 6, 2019

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GENERAL COMMENTS

1. The clean copy document and appendices need to be stamped and signed by an engineer in South Carolina to certify the closure certification in accordance with the Solid Waste Regulations.

Response: Agree

The final version of clean copy of the complete document including the appendices will be stamped and signed by a licensed professional engineer.

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

2. Please provide a hard copy of Appendix Q.8 for our files. The hard copy of the appendices did not include Appendix Q.8, just the cover page.

Response: Agree

A copy of Appendix Q.8, Cover Thickness Verification Data, is included as an attachment to these comment responses.

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

3. Section 1.2, last sentence, page 4; Section 2.7.3, 2nd paragraph, page 25; Section 2.7.5, 1st sentence, page 26; and Section 2.8, Table 8, page 35. Only ash-laden soils from the 488-1D "South" Inlet Basin were consolidated into the eastern end of the 488-1D Ash Basin and ash from the 488-1D "North" Inlet Basin was dispositioned at Three Rivers landfill. However, excavation, haul, and placement of ash from the inlet basins was not addressed as above in the document.

Response: Agree

The title of Section 2.7.2 will be revised as follows: “2.7.2 488-1D Ash Basin (including inlet basins) Dewatering”

The title of Section 2.7.3 will be revised as follows: “2.7.3 488-1D Ash Basin (including inlet basins) Excavation and Haul of Ash to the East End”

The following paragraph will be added to follow the second paragraph in Section 2.7.3:

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“All ash/contaminated soil was removed from the south inlet basin and a portion of the ash/contaminated soil was removed from the north inlet basin and placed in the 488-1D Ash Basin. Because the north inlet basin continued to function as a containment for any rain water that contacted ash, the removal of the remaining ash/contaminated soils contained in the bottom of the north inlet basin material was not completed until August 2018. This material was hauled to the Three Rivers Landfill and is documented in Table 11.”

The title of Section 2.7.5 will be revised as follows: **“2.7.5 488-1D Ash Basin (including inlet basins) Placement of Ash on the East End”**

The first sentence in the first paragraph of Section 2.7.5 will be revised as follows: **“Ash and contaminated soil from the area east of the 488-4D Ash Landfill, inlet basins, the west end of the 488-1D Ash Basin, and coal fines and contaminated soil...”**

Please also see SRS response to SCDHEC Specific Comment 2.

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

SPECIFIC COMMENTS

1. Section 4.3.2, 488-1D Ash Basin (including inlet basins) and Area East of the 488-4D Ash Landfill, page 42. The last sentence of this section indicates that the *Human Health and Ecological Evaluation for Confirmation Sampling at the 488-1D Ash Basin and Inlet Basins* recommended land use controls preventing unrestricted land use be implemented at 488-1D and Area East of 488-4D. The recommendation for unrestricted land use for the inlet basins in this report should be included with this statement as well, since the inlet basins are included in the title for this section.

Response: Clarification

The remainder of the text for Section 4.3., including the discussion of the inlet basins, is located after Table 13. The text for the inlet basins correctly states that the residual concentrations of all analytes met the pre-established cleanup levels for unrestricted land use. No change to the text is proposed but the formatting of Section 4.3 text will be corrected to not truncate Section 4.3 text prior to Table 13.

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

**SRS Responses to
SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
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2. Section 1.5, Table 1, page 7. Based on SRS weekly site visit reports by the STR, the excavation, haul, and placement of ash-contaminated soils from both inlet basin was completed in August 2018, which is different with the completion data of inlet basins in Table 1. Please clarify.

Response: Clarification

The April 30, 2018 in Table 1 was the last day any ash/contaminated soil from any area could be placed in the east end of the 488-1D Ash Basin. Subsequent rainfall and a finite point in time during the cover construction dictated that no additional material could be placed in the east end of the 488-1D Ash Basin without greatly impacting the completion of the cover system. The only ash/contaminated soils remaining at that point was in the north inlet basin. All ash/contaminated soil was removed from the south inlet basin and a portion of the ash/contaminated soil was removed from the north inlet basin and placed in the 488-1D Ash Basin. Because the north inlet basin continued to function as a containment for any rain water that contacted ash, the removal of the remaining ash/contaminated soils contained in the bottom of the north inlet basin material was not completed until August 8, 2018. This material was hauled to the Three Rivers Landfill and is documented in Table 11.

Changes to text are shown in SRS response to SCDHEC General Comment 3.

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

3. Section 2.3, 1st paragraph, page 11. Please add inlet basins in the major construction segment of 488-1D Ash Basin as "488-1D Ash Basin (including inlet basins)".

Response: Agree

The referenced text in Section 2.3, first paragraph/title will be revised to "488-1D Ash Basin (including inlet basins)".

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

4. Section 2.4.7, 2nd paragraph, page 15. Please include all segments in the confirmatory sampling activity as below: "Following removal of ash material from the area east of the 488-4D Ash Landfill, the western end of the 488-1D Ash Basin, Inlet Basins, and the 489-D CPRB, SRNS performed confirmatory sampling."

Response: Clarification

**SRS Responses to
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The referenced sentence in the 2nd paragraph of Section 2.4.7 will be revised as follows: **"Following removal of ash material from the area east of the 488-4D Ash Landfill, the west end of the 488-1D Ash Basin (including inlet basins), and the 489-D CPRB, SRNS performed confirmatory sampling."**

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

5. Section 2.5.3, 3rd sentence, page 20. The following text, "in Section 4.3.1", needs to be replaced by "in Section 4.3.2".

Response: Agree

The referenced text in Section 2.5.3 will be revised as follows: **"Confirmation sampling requirements and sample results are discussed in Section 4.3.1~~2~~."**

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

6. Section 2.7, page 23. Please add inlet basins in the section title as "488-1D Ash Basin (including inlet basins)".

Response: Agree

The Section 2.7 title be revised as follows: **"488-1D Ash Basin (including inlet basins)"**

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

7. Section 4.3.2, page 41. Please include the 8 samples that were collected from the 488-1D Inlet Basins in accordance with the Field Sampling Plan for the D-Area 488-1D Inlet Basins (SRNS 2014). A total of 29 samples were evaluated to demonstrate that the ash has been successfully removed from the areas of excavation.

Response: Clarification

See response to SCDHEC Specific Comment #1. The text prior to Table 13 was inadvertently truncated. No change to the text is proposed but the formatting of Section 4.3 will be corrected to not truncate Section 4.3 text prior to Table 13.

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