

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

OCT - 4 2017

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. Robert H. Pope
 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. Pope:

SUBJECT: Removal Action Report for the 488-2D Ash Basin and 488-4D Ash Landfill (U) (SRNS-RP-2017-00057, Revision 1 Redline, September 2017) (Redline Pages Only) and Savannah River Site's Responses to the Revision 0 Document, CERCLIS 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 25, 2017 and June 13, 2017, 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,

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

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

IACD-17-161

OCT - 4 2017

Mr. Van Keisler
Mr. Robert Pope

2

Enclosure:

1. Removal Action Report for the 488-2D Ash Basin and 488-4D Ash Landfill (U) (SRNS-RP-2017-00057, Revision 1 Redline, September 2017) (Redline Pages Only) CERCLIS Number: 63
2. SRS Responses to the U.S. Environmental Protection Agency Comments on: Removal Action Report for the 488-2D Ash Basin and 488-4D Ash Landfill (U), CERCLIS Number: 63 (SRNS-RP-2017-00057, Revision 0, March 2017)
3. SRS Responses to the South Carolina Department of Health and Environmental Control Comments on: Removal Action Report for the 488-2D Ash Basin and 488-4D Ash Landfill (U), CERCLIS Number: 63 (SRNS-RP-2017-00057, Revision 0, March 2017)

cc w/o encl:

D. Scaturo, SCDHEC-Columbia
S. French, SCDHEC-Columbia
M. D. Wilson, SCDHEC-Columbia
G. K. Taylor, SCDHEC-Columbia
T. Fuss, SCDHEC - Aiken Environmental Affairs Office

cc w/encl:

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

**SRS Responses to
U.S. Environment Protection Agency**

Comments on:

Removal Action Report for the 488-2D Ash Basin and 488-4D Ash Landfill (U)

CERCLIS Number: 63 (SRNS-RP-2017-00057, Revision 0, March 2017)

Received: April 2, 2017 / Comments Received: 6/13/2017

Page 1 of 13

EPA COMMENTS:

1) Table 7, Summary of Design Changes/Deviations (Note 1, Page 26 of 68)

This Table lists 14 deviations from the original design; however, only 3 of these deviations are noted as having been approved by the South Carolina Department of Health and Environmental Control. In addition, it is unclear whether these deviations were shared with and approved by EPA. Although reasoning was provided for each action the table also needs to reflect the status of regulatory notification/approval for each action that deviated from the previously approved original design. Please amend this table to reflect the status of regulatory notification/approval for each action undertaken in this table.

Response: Clarification

The Removal Action Design Plan (RADP) for the 488-4D Ash Landfill and 488-2D Ash Basin (U), SRNS-RP-2014-00459, Revision 1.1, Section 3.6, Removal Action Design Change Control, states "USDOE will notify USEPA and SCDHEC, within a reasonable time frame, when major problems arise with any aspect of the removal action process. In particular, major scheduling, implementability, and technical issues will be brought to the attention of the regulators as soon as they are identified. Minor changes during construction will be documented in accordance with SRNS Design Change Control. Notifications will follow established protocols."

As stated in the RAR, Section 3, "These design changes were all minor in nature and did not result in any major cost or schedule impact." SRNS did request approval of three minor modifications by the SCDHEC Mining and Solid Waste Permitting Section because these changes were associated with the existing Landfill Permit #025800-1602. For changes, Item 2 "Use of Drying Agents" (SCDHEC 2015a), Item 12 "Revised the North Side 488-4D Cover Termination and Tied into the Existing 488-D Cover" (SCDHEC 2014a), and Item 12 "Revised SSD Drain Details" (SCDHEC 2015a), the approval letters are provided in Appendix H. In addition, Items 12 and 13 were submitted to both EPA and SCDHEC (USDOE 2015). With respect to the RADP, all minor changes during construction were documented in accordance with SRNS Design Change Control and are included in Table 7.

The following document will be added to the Reference Section and included in the description Items 12 and 13 in Table 7.

(USDOE 2015) "Submittal of the Minor Design Change to the *Removal Action Design Plan RADP for the 488-4D Ash Landfill and 488-2D Ash Basin (U)*, SRNS-RP-2014-

**SRS Responses to
U.S. Environment Protection Agency**

Comments on:

Removal Action Report for the 488-2D Ash Basin and 488-4D Ash Landfill (U)

CERCLIS Number: 63 (SRNS-RP-2017-00057, Revision 0, March 2017)

Received: April 2, 2017 / Comments Received: 6/13/2017

Page 2 of 13

00459, Revision 1.1, March 2015, CERCLIS Number 63” will be added to the references.

Responsible Party: Frank Sappington, (803) 952-6430, frank.sappington@srs.gov

2) Table 1, Chronology of Events, Page 7 of 68

Table 1 summarizes the milestones and dates related to the activities included in the *Removal Action Report for the 488-2D Ash Basin and 488-4D Ash Landfill (U)*, CERCLIS Number 63, SRNS-RP-2017-00057, Revision 0, dated March 2017 (RAR); however, the submittal and approval of the Removal Site Evaluation Report for the D-Area Ash Basin (488-2D Ash Basin), the Removal Site Evaluation Report/Engineering Evaluation/Cost Analysis for the D-Area Ash Landfill 488-4D, and the Action Memorandum for each removal action are not included on the table. Revise Table 1 to include the submittal and approval dates for the documents listed above.

Response: Agree

Table 1 will be revised to include the submittal and approval dates as shown below.

Table 1. Chronology of Events

Description of Activity	Date
<u>Submittal of the RSER/EE/CA for the D-Area Ash Landfill 488-4D Rev. 1 (USDOE 2014e)</u>	<u>June 12, 2014</u>
<u>EPA Conditional Approval of the RSER/EE/CA for the D Area Ash Landfill 488-4D (USEPA 2014a)</u>	<u>July 14, 2014</u>
Submitted Action Memorandum and Responsiveness Summary 488-4D (Appendix A) (USDOE 2014a)	August 11, 2014
Removal Action Start 488-4D (Appendix B) (USDOE 2014c)	September 2, 2014
SRNS begins Field Activities as Described Removal Action Start 488-4D	September 2, 2014
Removal Action Start 488-2D (Appendix C) (USDOE 2014d)	October 14, 2014
SRNS begins Field Activities as Described Removal Action Start 488-2D	October 14, 2014
<u>SCDHEC Conditional Approval of the RSER for the D Area Ash Basin 488-2D (SCDHEC 2014c)</u>	<u>October 14, 2014</u>
<u>EPA Approval of the Action Memo and RSER for the D Area Ash Basin 488-2D (USEPA 2014b)</u>	<u>October 20, 2014</u>
Submitted Action Memorandum and RSER for the 488-2D, Rev. 1 (Appendix D) (USDOE 2014b)	October 28, 2014
Contract Award	February 6, 2015
Mobilize to Site	March 23, 2015

**SRS Responses to
U.S. Environment Protection Agency**

Comments on:

**Removal Action Report for the 488-2D Ash Basin and 488-4D Ash Landfill (U)
CERCLIS Number: 63 (SRNS-RP-2017-00057, Revision 0, March 2017)
Received: April 2, 2017 / Comments Received: 6/13/2017**

Page 3 of 13

Description of Activity	Date
Submitted RADP for the 488-4D and 488-2D, Rev. 1.1 (Appendix E) (SRNS 2014a)	April 1, 2015
<u>SCDHEC Approval of the RADP for the 488-4D and 488-2D, Rev. 1.1, (SCDHEC 2015a)</u>	<u>April 29, 2015</u>
Start 488-2D Ash Excavation	May 07, 2015
<u>EPA Approval of the RADP for the 488-4D and 488-2D, Rev. 1.1, (USEPA 2015)</u>	<u>May 10, 2015</u>
Complete 488-4D GCL/GDL Installation	July 28, 2016
Mechanical Completion of the 488-4D Ash Landfill	August 31, 2016
Mechanical Completion of the 488-2D Ash Basin	September 22, 2016
“November 2016 Completion Status of the D Area Ash Project”, Regulatory Concurrence of 488-4D and 488-2D Completion (Appendix F) (USDOE 2016)	November 3, 2016

The following documents will be added to the Reference Section:

(USEPA 2014a) EPA (Conditional) Approval of the Removal Site Evaluation Report / Engineering Evaluation / Cost Analysis RSER/EE/CA for the D Area Ash Landfill 488-4D, CERCLIS Number 63, SRNS-RP-2014-00001. Letter dated July 14, 2014.

(USEPA 2014b) EPA Approval of the Action Memo and Removal Site Evaluation Report (RSER) for the D Area Ash Basin 488-2D, Revision 1 Redline, CERCLIS Number 63, (SRNS-RP-2013-00825). Letter dated October 20, 2014.

(USEPA 2015) EPA Approval of Savannah River Site responses to EPA comments on the Removal Action Design Plan (RADP) for the 488-4D Ash Landfill and 488-2D Ash Basin, Redline Revision 1.1, CERCLIS Number 63, (SRNS-RP-2014-0045). Letter dated May 10, 2015.

(SCDHEC 2014a) SCDHEC Conditional Approval of the Removal Site Evaluation Report (RSER) for the D Area Ash Basin 488-2D, CERCLIS Number 63, (SRNS-RP-2013-00825, Revision 1 Redline, September 2014) Received September 16, 2014. Letter Dated, October 14, 2014.

(SCDHEC 2015a) SCDHEC Approval of Removal Action Design Plan (RADP) for the 488-4D Ash Landfill and 488-2D Ash Basin, CERCLIS Number 63, (SRNS-RP-2014-00459, Revision 1.1, March 2015) Received April 2 2015. Letter Dated April 29, 2015.

(USDOE 2014e) DOE Submittal of the Removal Site Evaluation Report/Engineering Evaluation/Cost Analysis (RSER/EE/CA) for the D Area Ash Landfill 488-4D (SRNS-RP-2014-00001 Revision 1 June 2014) (Clean Copy), Savannah River Sites Responses to

**SRS Responses to
U.S. Environment Protection Agency
Comments on:
Removal Action Report for the 488-2D Ash Basin and 488-4D Ash Landfill (U)
CERCLIS Number: 63 (SRNS-RP-2017-00057, Revision 0, March 2017)
Received: April 2, 2017 / Comments Received: 6/13/2017**

Page 4 of 13

**Regulatory Comments on the Revision 0 Document and Draft Action Memorandum,
CERCLIS Number 63. Letter dated June 12, 2014.**

Responsible Party: Frank Sappington, (803) 952-6430, frank.sappington@srs.gov

3) Section 2.6.1, Initial Land Disturbance, Page 12 of 68

The 9th bullet states, “[Demolish and Remove] D&R wood bridge, abandoned monitoring well and catch basin.” Well abandonment approvals are provided in Appendix T; however, the abandonment of the monitoring well is not listed in previous sections as a pre-construction activity prior to the removal action. Revise the RAR to state when the abandonment of this monitoring well occurred and the procedures used for the abandonment.

Response: Agree/Clarification.

The well modifications are discussed in Section 6.2; therefore, the second paragraph of Section 6.2 will be revised to provide the requested information as shown below.

"A total of 5 wells (DCB 16R, DCB 47C, DCB075, DCB076 and DCB 13R) were abandoned for the construction activities related to the Phase 1 (488-4D Ash Landfill and 488-2D Ash Basin) removal activities. The wells were abandoned on September 2, 2014, in accordance with SRS 3Q1 Manual, Environmental Requirements and Program Documents, Procedure 9010, Well Abandonments. Well Abandonment Reports for these wells are included in Appendix T.3 (SRNS 2014m and SRNS 2016b)."

Responsible Party: Frank Sappington, (803) 952-6430, frank.sappington@srs.gov

4) Section 2.6.3, Dewatering, Page 13 of 68

Section 2.6.3 states, “Prior to discharge, any water that had contacted ash was removed and managed in accordance with the current NPDES permit and/or transferred within the existing IWT permitted basin (i.e., 488-1D Ash Basin or associated inlet basins) and then sampled per existing NPDES requirements prior to discharge into the Discharge Canal (Figure 3 and Photos 22 and 23);” however, the rationale for when storm water was discharged either in accordance with the current National Pollutant Discharge Elimination System (NPDES) permit and/or transferred within the existing Industrial Wastewater Treatment (IWT) permitted basin is not provided. Revise Section 2.6.3 to provide detail for when storm water

**SRS Responses to
U.S. Environment Protection Agency**

Comments on:

Removal Action Report for the 488-2D Ash Basin and 488-4D Ash Landfill (U)

CERCLIS Number: 63 (SRNS-RP-2017-00057, Revision 0, March 2017)

Received: April 2, 2017 / Comments Received: 6/13/2017

Page 5 of 13

was discharged either in accordance with the current NPDES permit and/or when it water was transferred within the existing IWT permitted basin.

Response: Clarification/Agree

With respect to EPA Comments 4 and 5 and dewatering to the Beaver Dam Creek (aka Discharge Canal) following information is provided.

Dewatering to Beaver Dam Creek during 2013 and as late as August 2014 were part of the maintenance activities in preparation of the Removal Action Starts of the 488-4D Ash Landfill and Ash Basin 488-2D Ash Basin, which were September 2, 2014 and October 14, 2014 respectively. All discharges prior to these dates were not within the scope of Phase 1 project scope and are not included RAR. All subsequent discharges to Beaver Dam Creek beginning in 2016 were/are in support of the Phase 2 project scope (489-D CPRB and 488-1D Ash Basin) Removal Actions and will be included in the Phase II RAR. The Removal Action start date for the 489-D was September 28, 2015 and included vegetation removal (trees and brush) from the 488-1D Ash Basin. The 488-1D Ash Basin Removal Action start date was September 9, 2016.

Section 2.6.3 will be revised as follows:

“All stormwater was removed/managed in accordance with the SWPPP (SRNS 2014h). Prior to discharge, any water that had contacted ash was removed and managed in accordance with the current NPDES permit and/or transferred within the existing IWT permitted basin complex (i.e., 488-1D Ash Basin or associated inlet basins) and then sampled per existing NPDES requirements prior to discharge into the Discharge Canal(Figure 3 and Photos 22 and 23). Since there was sufficient storage capacity in the 488-1D Ash Basin and 488-1D inlet basins, NPDES permitted industrial wastewater (i.e. ash contaminated) was transferred to the existing Industrial Wastewater Treatment (IWT) permitted 488-1D basins without any ongoing discharge occurring as part of this removal action.”

Photos 22 and 23 will be deleted from the document and subsequent photos renumbered.

Also see SRS Response to EPA Comment 5.

Responsible Party: Frank Sappington, (803) 952-6430, frank.sappington@srs.gov

**SRS Responses to
U.S. Environment Protection Agency**

Comments on:

Removal Action Report for the 488-2D Ash Basin and 488-4D Ash Landfill (U)

CERCLIS Number: 63 (SRNS-RP-2017-00057, Revision 0, March 2017)

Received: April 2, 2017 / Comments Received: 6/13/2017

Page 6 of 13

5) Section 4.3, Confirmation Sampling (488-2D Basin and Area West of 488-4D), Page 29 of 68

Section 2.6.3 – Dewatering, states storm water was sampled per the existing NPDES requirements prior to discharge into the Discharge Canal; however, Section 4.3 does not contain the sampling requirements for the NPDES permit and laboratory analytical data from water samples collected. As such, to ensure that the requirements of the NPDES permit were met revise Section 2.6.3 to include the laboratory analytical data results and samples collected in conjunction with the NPDES permit.

Response: Agree/Clarification

No NPDES permitted industrial wastewater (i.e. ash contaminated) was directly discharged to surface water as part of this removal action. All ash contaminated industrial wastewater was transferred to 488-1D Ash Basin/Inlet Basins.

The following sentence will be added to Section 2.6.3:

“No NPDES permitted industrial wastewater (i.e. ash contaminated) was directly discharged to surface water as part of this removal action.”

Responsible Party: Frank Sappington, (803) 952-6430, frank.sappington@srs.gov

6) Appendix U, Data Usability Report for Confirmation Sampling at the 488-2D Ash Basin, Page U-46 of U-116

It should be noted, the Chain of Custody forms and raw laboratory results for total chromium and hexavalent chromium for confirmation soil samples are not included in this document. To address this data gap, revise the text to include a reference to the document where this information is included.

Response: Clarification.

The Chain of Custody forms and raw laboratory results are provided in the Brooks Applied Labs (BAL) reports referenced in Appendix U (see Table of Contents on pages U-20 and U-46). The complete BAL reports to include more than 800 pages of chain of custody forms and the analytical instrument outputs (e.g., chromatograms) for each sample run was purposely not included in Appendix U. Rather, pertinent information from the BAL reports is provided in Appendix U including: case narrative, report information, sample information, batch summary, accuracy and precision summary,

**SRS Responses to
U.S. Environment Protection Agency**

Comments on:

Removal Action Report for the 488-2D Ash Basin and 488-4D Ash Landfill (U)

CERCLIS Number: 63 (SRNS-RP-2017-00057, Revision 0, March 2017)

Received: April 2, 2017 / Comments Received: 6/13/2017

Page 7 of 13

method blanks and reporting limits, instrument calibration, sample containers and shipping containers.

Note that the two BAL reports were previously provided to EPA and SCDHEC in their entirety for an independent EPA review and have been placed into the Administrative Record File (ARF #020559).

To clarify, the portion of the box highlighted in yellow on page U-20 will be revised to read:

“Chain of Custody forms (pages 27-37) and ~~Raw Laboratory Results~~ Analytical Instrument Outputs (pages 38-529) from the BAL Report are not included in this ~~document~~ appendix.”

Similarly, the portion of the box highlighted in yellow on page U-46 will be revised to read:

“Chain of Custody forms (pages 23-28) and ~~Raw Laboratory Results~~ Analytical Instrument Outputs (pages 29-332) from the BAL Report are not included in this ~~document~~ appendix.”

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

- 7) Please amend the following and all sections of the Removal Action Report to include the information pertinent to the consolidation of additional ash located outside the boundary of 488-4D/2D. This should include the requests below and any other report sections, as appropriate
- a. Section 1.2 General Description and History of the Unit, page 4, first paragraph and Figure 3, D Area Project Site, page 41.
 - b. The additional removal areas should also be shown in Figures 3 and 4.
 - c. Please include pictures, if possible, of the additional ash areas located outside the boundary of the 488-4D/2D.

Response to 7a, 7b and 7c: Agree

The last paragraph in Section 1.2 will be revised as follows:

“Additional consolidation of materials included ash and contaminated soil from outside the western end of the 488-4D Ash Landfill ,as well as ash from outside the eastern end

**SRS Responses to
U.S. Environment Protection Agency**

Comments on:

Removal Action Report for the 488-2D Ash Basin and 488-4D Ash Landfill (U)

CERCLIS Number: 63 (SRNS-RP-2017-00057, Revision 0, March 2017)

Received: April 2, 2017 / Comments Received: 6/13/2017

Page 8 of 13

of 488-2D Ash Basin and surrounding roads identified as Areas 1 and 2 on Figures 3 Figure 4 and Photos 20, 24, 35, and 51. During Phase 1 construction activities, additional ash was found east of the 488-4D Ash Landfill (Area 3) and will be removed as part of Phase 2 construction.”

Figure 3 and 4 will be revised to include Areas 1, 2, and 3 in the RAR. Additional labels will be added to photos 20, 24, 35, and 51. The revised figures and photos are provided at the end of the comment responses.

Also see response to SCDHEC Specific Comment 1.

- d. Section 2.3, Removal Action Activities, page 9. Excavation of ash from surrounding roads or existing berm (i.e. Area 1 and Area 2) should be included with the Phase I removal action since ash removed from these areas was placed into the 488-4D Ash Landfill.

Response to 7d: Agree

The fourth sentence in the first paragraph of Section 2.3 will be revised as follows:

“The primary objectives of the Phase I (488-2D/488-4D) removal actions was the consolidation of ash from the outside the western boundary of the 488-4D Ash Landfill, ash from surrounding roads/berms (Areas 1 and 2), and ~~along with~~ ash from the 488-2D Ash Basin into the 488-4D Ash Landfill.”

For clarity, the sixth bullet in Section 2.3 will be revised as follows:

- **“Excavate ash outside the western boundary of the 488-4D Ash Landfill and ash from surrounding roads/berms (Areas 1 and 2), place and compact in 488-4D Ash Landfill”**

Also see response to SCDHEC Specific Comment 5.

- e. Section 2.7.3, Survey and Approval form SRNS of Ash Removal, page 16, second paragraph, and Table 3: Volumes of the additional consolidated materials from outside the western end of the 488-4D Ash Landfill and ash from surrounding roads/existing berms should be included in the table since ash/contaminated soil removed from these areas was placed into the 488-4D Ash Landfill. Total volume should be recalculated to include this volume of additional materials.

Response to 7e: Agree/Clarification

**SRS Responses to
U.S. Environment Protection Agency**

Comments on:

Removal Action Report for the 488-2D Ash Basin and 488-4D Ash Landfill (U)

CERCLIS Number: 63 (SRNS-RP-2017-00057, Revision 0, March 2017)

Received: April 2, 2017 / Comments Received: 6/13/2017

Page 9 of 13

The total volume of 76,000 yd³ identified in Table 3 for the 488-2D Ash Basin includes the ash from surrounding roads/berms (Areas 1 and 2). Table 3 will be revised as shown to include Areas 1 and 2.

Table 3. Ash Consolidation Quantities

Ash Consolidation Quantities		
Material (ash and contaminated soil) Moved from Location Identified Below to the 488-4D Ash Landfill	Volume (yd³)	Volume (m³)
488-2D Ash Basin and Areas 1 and 2	76,000	58,106
Area west of the 488-4D Ash Landfill	14,800	11,315
TOTAL	90,800	69,421

Also see response to SCDHEC Specific Comment 7.

- f. Any borrow material used in the additional areas (Area 1 and Area 2) should be included in the text and Table 4.

Response to 7f: Agree/Clarification

The total volume of 59,600 yd³ identified in Table 4 for the 488-2D Ash Basin Bottom and North Berm includes the fill required for Areas 1 and 2 (Figure 3). Table 4 will be revised as shown to include Areas 1 and 2.

Table 4. Bulk Common Fill Quantities

Bulk Quantities		
Common Fill	Volume (yd³)	Volume (m³)
488-2D Ash Basin Bottom, and North Berm, and Areas 1 and 2	59,600	45,567
Area west of the 488-4D Ash Landfill	11,200	8,563
Cover System 6 inch common fill layer	21,300	16,285
Cover System 20 inch common fill layer	59,100	45,185
TOTAL	151,200	115,600

Also see response to SCDHEC Specific Comment 8.

Responsible Party: Frank Sappington, (803) 952-6430, frank.sappington@srs.gov

SRS Responses to
U.S. Environment Protection Agency

Comments on:

Removal Action Report for the 488-2D Ash Basin and 488-4D Ash Landfill (U)

CERCLIS Number: 63 (SRNS-RP-2017-00057, Revision 0, March 2017)

Received: April 2, 2017 / Comments Received: 6/13/2017

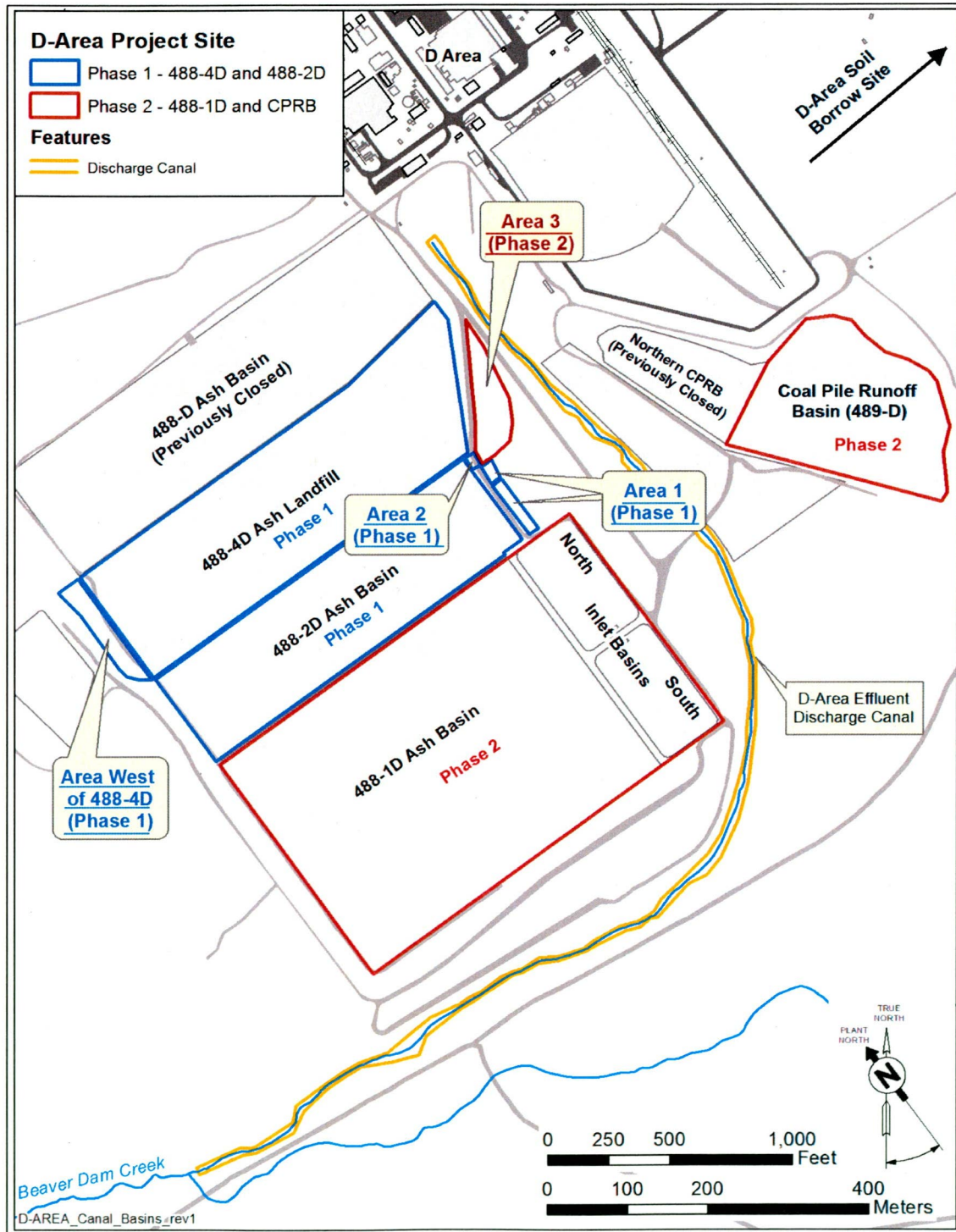


Figure 3. D Area Project Site

**SRS Responses to
U.S. Environment Protection Agency
Comments on:
Removal Action Report for the 488-2D Ash Basin and 488-4D Ash Landfill (U)
CERCLIS Number: 63 (SRNS-RP-2017-00057, Revision 0, March 2017)
Received: April 2, 2017 / Comments Received: 6/13/2017**

Page 11 of 13

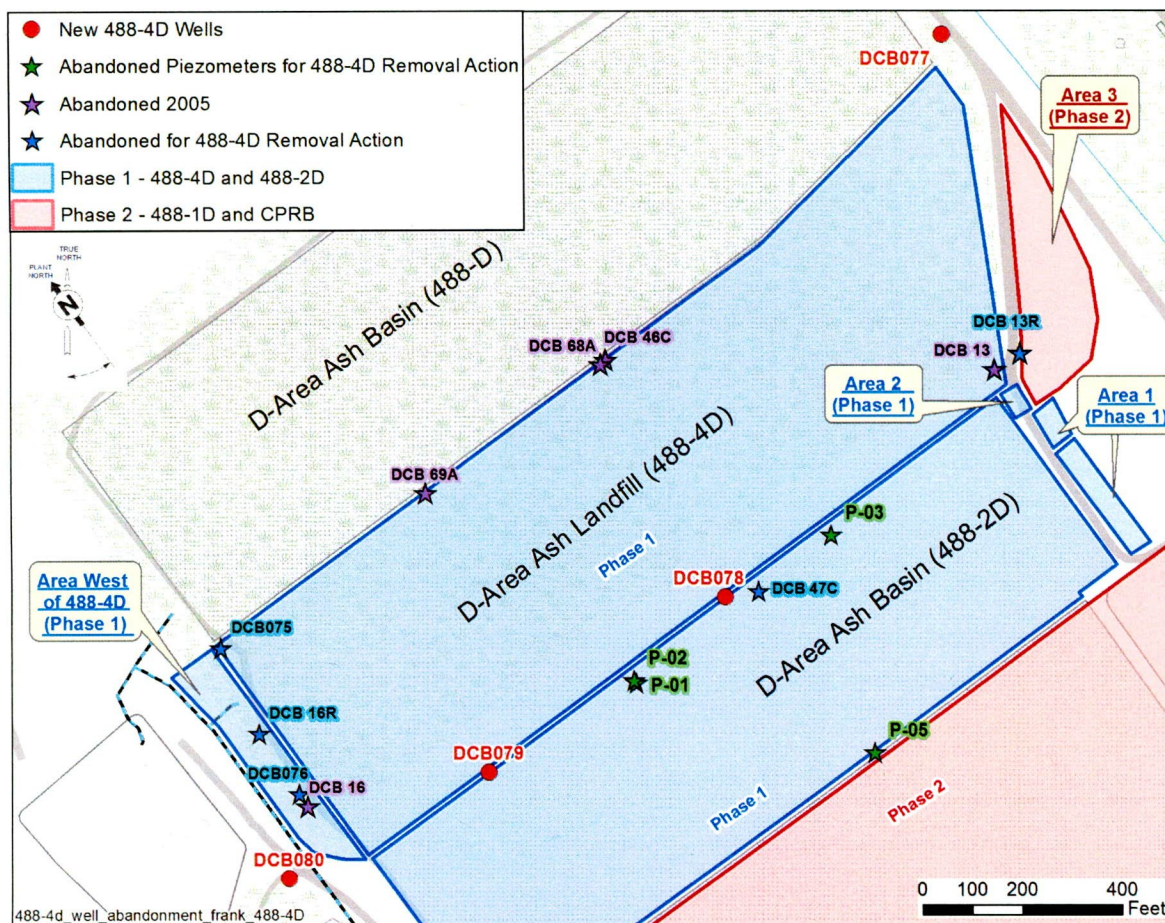


Figure 4. Location of New and Abandoned Wells

**SRS Responses to
U.S. Environment Protection Agency**

Comments on:

Removal Action Report for the 488-2D Ash Basin and 488-4D Ash Landfill (U)

CERCLIS Number: 63 (SRNS-RP-2017-00057, Revision 0, March 2017)

Received: April 2, 2017 / Comments Received: 6/13/2017



Photo 20. Start of Clearing and Grubbing 488-4D West End



Photo 24. Construction of Temporary Roads within 488-2D

SRS Responses to
U.S. Environment Protection Agency

Comments on:

Removal Action Report for the 488-2D Ash Basin and 488-4D Ash Landfill (U)

CERCLIS Number: 63 (SRNS-RP-2017-00057, Revision 0, March 2017)

Received: April 2, 2017 / Comments Received: 6/13/2017

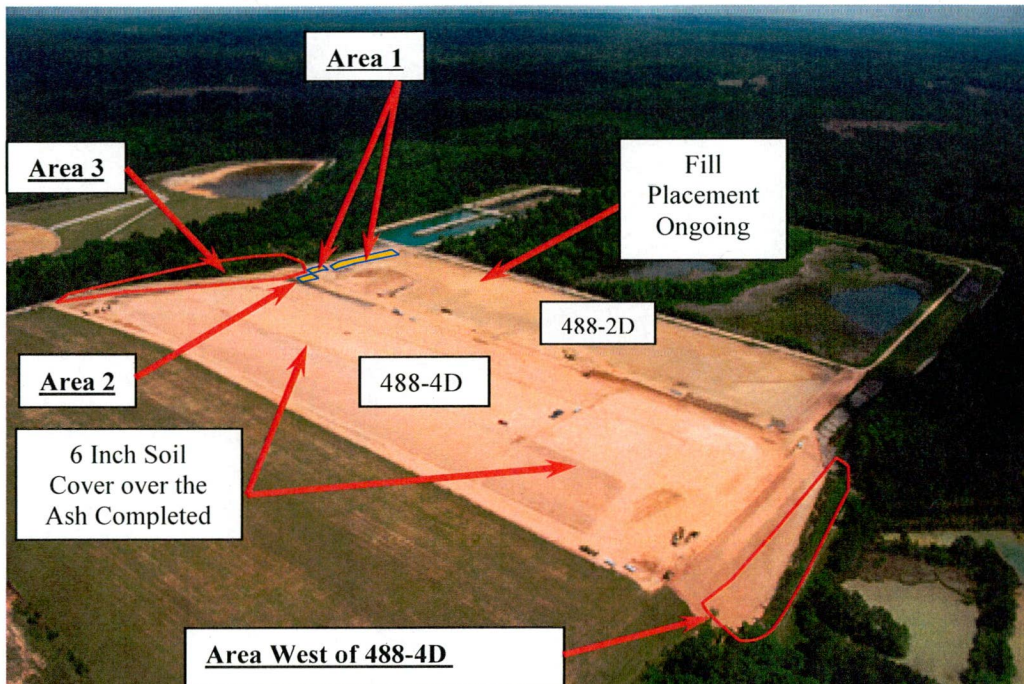


Photo 35. 488-4D/488-2D Fill Placement 6-Inch Soil Cover/488-4D

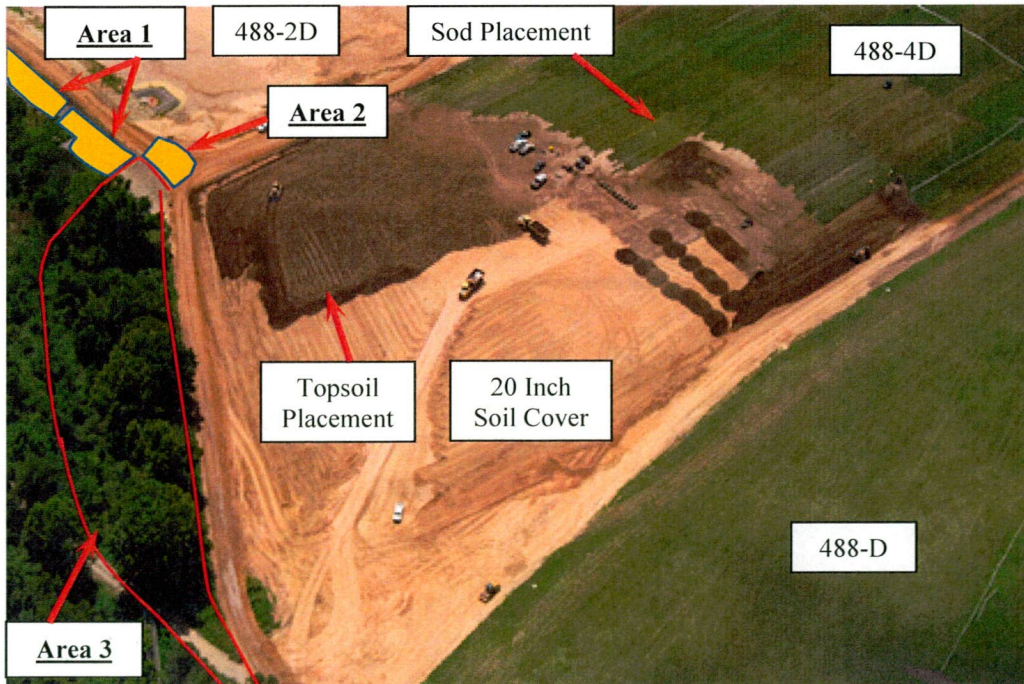


Photo 51. 488-4D Topsoil and Sod Placement Ongoing

**SRS Responses to
South Carolina Department of Health and Environmental Control
Comments on:
Removal Action Report for the 488-2D Ash Basin and 488-4D Ash Landfill (U),
CERCLIS Number: 63 (SRNS-RP-2017-00057, Revision 0, March 2017)
Received: April 2, 2017 / Comments Received: 5/25/2017**

Page 1 of 10

Specific Comments

1. Section 1.2 General Description and History of the Unit, page 4, first paragraph and Figure 3, D Area Project Site, page 41. The consolidation of ash found from outside the boundary of the 488-4D Ash Landfill or 488-2D Ash Basin and placed into the 488-4D Ash Landfill should be included with the Phase I removal actions. For example, the consolidation of ash from outside the western end of the 488-4D Ash Landfill and ash from surrounding roads/berms (i.e., Area 1 and Area 2) and ash found outside of the eastern end of the 488-2D Ash Basin and 488-4D Ash Landfill (i.e., Area 3) are included with the Phase I and Phase II removal actions, respectively. Also, these additional removal areas should be shown in Figure 3.

Response: Agree

The last paragraph in Section 1.2 will be revised as follows:

“Additional consolidation of materials included ash and contaminated soil from outside the western end of the 488-4D Ash Landfill as well as ash from outside the eastern end of 488-2D Ash Basin and surrounding roads identified as Areas 1 and 2 on Figure 3, Figure 4 and Photos 20, 24, 35, and 51. During Phase 1 construction activities, additional ash was found east of the 488-4D Ash Landfill (Area 3) and will be removed as part of Phase 2 construction.”

Figure 3 and 4 will be revised to include Areas 1, 2, and 3 in the RAR. Additional labels will be added to photos 20, 24, 35, and 51. The revised figures and photos are provided at the end of the comment responses.

Responsible Party: Frank Sappington, (803) 952-6430, frank.sappington@srs.gov

2. Section 1.3.4, Selected Removal Action 488-2D Ash Basin, Page 6, first paragraph. Please include NPDES permit number #SC0047431 after the statement regarding water management/removal in accordance with the NPDES permit.

Response: Agree

The last sentence in the first paragraph of Section 1.3.4 will be revised as follows: “...The water was removed/managed in accordance with the current National Pollutant Discharge Elimination System (NPDES) permit (#SC0047431) and/or transferred within the existing IWT permitted basin complex (i.e., 488-1D Ash Basin and associated inlet basins).”

**SRS Responses to
South Carolina Department of Health and Environmental Control
Comments on:
Removal Action Report for the 488-2D Ash Basin and 488-4D Ash Landfill (U),
CERCLIS Number: 63 (SRNS-RP-2017-00057, Revision 0, March 2017)
Received: April 2, 2017 / Comments Received: 5/25/2017**

Page 2 of 10

Responsible Party: Frank Sappington, (803) 952-6430, frank.sappington@srs.gov

3. Section 1.3.4 Selected Removal Action 488-2D Ash Basin, Page 6, second paragraph. Based on the RADP for 488-4D Ash Landfill and 488-2D Ash Basin, please add the following statement after the second paragraph: "And remaining ash material from the 488-2D Ash Basin is to be placed in the 488-1D Ash Basin."

Response: Agree/Clarification

There was no remaining ash material from the 488-2D Ash Basin. The only remaining ash from within the boundaries of the Phase 1 construction (i.e., 488-4D Ash Landfill and 488-2D Ash Basin) was Area 3 east of the 488-4D Ash Landfill. This material is planned to be removed during Phase 2 construction and will be documented in the RAR for the 488-1D Ash Landfill and 489-D Coal Pile Runoff Basin.

For clarity, the second paragraph in Section 1.3.4 will be revised as follows:

"The ash in the 488-2D Ash Basin, ash located outside the western end of the 488-4D Ash Landfill, and ash from surrounding roads/berms (Area 1 and Area 2) was removed and placed into the 488-4D Ash Landfill during Phase 1 construction activities. The additional ash found east of 488-4D Ash Landfill (Area 3) will be removed during Phase 2 construction activities for the 488-1D Ash Basin and the 489-D CPRB (Figure 3 and 4 and Photos 20, 24, 35, and 51)."

Responsible Party: Frank Sappington, (803) 952-6430, frank.sappington@srs.gov

4. Section 2.2, Equipment, Table 2, page 8. Please address whether all equipment and vehicles used for excavation, haul, and compaction of ash were cleaned after completion of closure, and, if so, how the cleaning water was managed.

Response: Agree.

The following text will be added to Section 2.2 following Table 2:

"Equipment or vehicles that were used for excavation, hauling, and/or compaction of ash were cleaned in areas of the work site to be remediated (i.e.488-1D Ash Basin). All cleaning water was allowed to runoff into this area."

SRS Responses to
South Carolina Department of Health and Environmental Control
Comments on:
Removal Action Report for the 488-2D Ash Basin and 488-4D Ash Landfill (U),
CERCLIS Number: 63 (SRNS-RP-2017-00057, Revision 0, March 2017)
Received: April 2, 2017 / Comments Received: 5/25/2017

Page 3 of 10

Responsible Party: Frank Sappington, (803) 952-6430, frank.sappington@srs.gov

5. Section 2.3, Removal Action Activities, page 9. For clarification, please change “the outside the boundary of the 488-4D Ash Landfill” to “the outside the western end of the 488-4D Ash Landfill”. Also, excavation of ash from surrounding roads or existing berm (i.e. Area 1 and Area 2) should be included with the Phase I removal action since ash removed from these areas was placed into the 488-4D Ash Landfill.

Response: Agree

The fourth sentence in the first paragraph of Section 2.3 will be revised as follows: “The primary objectives of the Phase I (488-2D/488-4D) removal actions was the consolidation of ash from the outside the western boundary of the 488-4D Ash Landfill, ash from surrounding roads/berms (Areas 1 and 2), and ~~along with~~ ash from the 488-2D Ash Basin into the 488-4D Ash Landfill.”

For clarity, the sixth bullet in Section 2.3 will be revised as follows:

- **“Excavate ash outside the western boundary of the 488-4D Ash Landfill and ash from surrounding roads/berms (Areas 1 and 2), place and compact in 488-4D Ash Landfill”**

Responsible Party: Frank Sappington, (803) 952-6430, frank.sappington@srs.gov

6. Section 2.7.2, Ash Placement, Conditioning, Grading and Compaction, page 14, last sentence. Please clarify, when there is heavy rainfall or a flood, such as the 1,000-year flood in October 2015, how the ash surface is managed and dried to the extent needed to successfully compact.

Response: Agree/Clarification

During any period of excess rain, work related to ash placement, conditioning, grading and/or compaction is essentially stopped until conditions become manageable. Work is redirected to other activities as appropriate or stopped completely. When the ash surface has dried sufficiently to allow for the operation of equipment, the ash surface is disked/harrowed and allowed to dry until it can be compacted.

The following text will be added to the end of the first paragraph in Section 2.7.2:

**SRS Responses to
South Carolina Department of Health and Environmental Control**

Comments on:

**Removal Action Report for the 488-2D Ash Basin and 488-4D Ash Landfill (U),
CERCLIS Number: 63 (SRNS-RP-2017-00057, Revision 0, March 2017)**

Received: April 2, 2017 / Comments Received: 5/25/2017

Page 4 of 10

“When rain was forecasted, the ash surface was sealed by compacting with a vibratory smooth drum compactor to minimize impacts of precipitation (Photos 26 and 27). During periods of heavy rainfall, work related to ash placement, conditioning, grading and/or compaction was essentially stopped until conditions become manageable. When the ash surface had dried sufficiently to allow for the operation of equipment, the ash surface was disked/harrowed and allowed to dry until it could be compacted.”

Responsible Party: Frank Sappington, (803) 952-6430, frank.sappington@srs.gov

7. Section 2.7.3, Survey and Approval form SRNS of Ash Removal, page 16, second paragraph, and Table 3, Ash Consolidation Quantities, page 16. In Table 3, "488-D Landfill" needs to be replaced by "488-4D Ash Landfill". Also, volumes of the additional consolidated materials from outside the western end of the 488-4D Ash Landfill and ash from surrounding roads/existing berms should be included in the table since ash/contaminated soil removed from these areas was placed into the 488-4D Ash Landfill. Total volume should be recalculated to include this volume of additional materials.

Response: Agree/Clarification

The total volume of 76,000 yd³ identified in Table 3 for the 488-2D Ash Basin includes the ash from surrounding roads/berms (Areas 1 and 2). Table 3 will be revised as shown to include Areas 1 and 2.

Table 3. Ash Consolidation Quantities

Ash Consolidation Quantities		
Material (ash and contaminated soil) Moved from Location Identified Below to the 488-4D Ash Landfill	Volume (yd ³)	Volume (m ³)
488-2D Ash Basin and Areas 1 and 2	76,000	58,106
Area west of the 488-4D Ash Landfill	14,800	11,315
TOTAL	90,800	69,421

Responsible Party: Frank Sappington, (803) 952-6430, frank.sappington@srs.gov

8. Section 2.8, Common Fill, page 16, and Table 4, Bulk Common Fill Quantities, page 16. In Table 4, “west of 488-D Landfill” needs to be replaced by “west of 488-4D Ash Landfill”. Also, any borrow material used in the additional areas (i.e. Area 1 and Area 2) should be included in the text and Table 4.

**SRS Responses to
South Carolina Department of Health and Environmental Control**

Comments on:

**Removal Action Report for the 488-2D Ash Basin and 488-4D Ash Landfill (U),
CERCLIS Number: 63 (SRNS-RP-2017-00057, Revision 0, March 2017)**

Received: April 2, 2017 / Comments Received: 5/25/2017

Page 5 of 10

Response: Agree/Clarification

The total volume of 59,600 yd³ identified in Table 4 for the 488-2D Ash Basin Bottom and North Berm includes the fill required for Areas 1 and 2 (Figure 3). Table 4 will be revised as shown to include Areas 1 and 2.

Table 4. Bulk Common Fill Quantities

Bulk Quantities		
Common Fill	Volume (yd³)	Volume (m³)
488-2D Ash Basin Bottom, and North Berm, <u>and Areas 1 and 2</u>	59,600	45,567
Area west of the 488-4D Ash Landfill	11,200	8,563
Cover System 6 inch common fill layer	21,300	16,285
Cover System 20 inch common fill layer	59,100	45,185
TOTAL	151,200	115,600

Responsible Party: Frank Sappington, (803) 952-6430, frank.sappington@srs.gov

9. Section 2.9.1, 6 Inch Common Fill Base Layer, page 18, third sentence. Please explain how the moisture content of common fill material was adjusted.

Response: Clarification

The moisture content for the 6 inch thick common fill layer is adjusted by disking or harrowing the material and applying water for low moisture conditions or allowing the material to dry for high moisture conditions before compacting. In process moisture content testing is performed in the field. No change to the document is proposed.

Responsible Party: Frank Sappington, (803) 952-6430, frank.sappington@srs.gov

10. Section 2.9.2, GCL and GDL Material Acceptance and Storage, page 18, second sentence. It is stated that the rolls were inspected for damage as the materials off loaded. Were any damaged GCL or GDL materials found? If so, please address how the damaged material was managed/repared.

Response: Agree

Section 2.9.2 will be revised to clarify that no rolls were damaged as follows: "...As the materials off loaded, the rolls were inspected for damage. No damaged GDL or GCL

**SRS Responses to
South Carolina Department of Health and Environmental Control
Comments on:
Removal Action Report for the 488-2D Ash Basin and 488-4D Ash Landfill (U),
CERCLIS Number: 63 (SRNS-RP-2017-00057, Revision 0, March 2017)
Received: April 2, 2017 / Comments Received: 5/25/2017**

Page 6 of 10

materials were found and ~~The rolls were unloaded and~~ placed into storage on appropriate dunnage with minimal handling.”

Responsible Party: Frank Sappington, (803) 952-6430, frank.sappington@srs.gov

11. Section 2.12.2, Sod Installation, page 23. Please address that Inlet Basin water was used for irrigation of the 488-4D cover system.

Response: Clarification.

Inlet Basin water was not used for irrigation of the 488-4D Ash Basin cover system during the Phase 1 (488-4D Ash Landfill or 488-2D Ash Basin) activities. SCDHEC provided concurrence on February 23, 2017 for the irrigation of the 488-D Ash Basin and 488-4D Ash Landfill using Inlet Basin water approximately four months after mechanical completion of Phase I. Therefore, it is not addressed in this document. Discussion on irrigation will be included in the RAR for the 488-1D Ash Basin and the 489-D Coal Pile Runoff Basin (CPRB). No change to this document is proposed.

Responsible Party: Frank Sappington, (803) 952-6430, frank.sappington@srs.gov

12. Section 5.2, Final Inspection, 488-2D Ash Basin, page 31, first bullet. Please remove the word “completely” from this sentence. Due to the uncertainties noted in Section 4.3 of this document and the conclusion that “results were indeterminate with regard to meeting acceptance criteria for unrestricted (residential) land use”, the statement should be revised.

Response: Agree

The first bullet under the heading “488-2D Ash Basin” in Section 5.2, Final Inspection will be revised as follows:

- **“Ash within the 488-2D Ash Basin bottom has been ~~completely~~ removed from the basin.”**

Responsible Party: Frank Sappington, (803) 952-6430, frank.sappington@srs.gov

SRS Responses to
South Carolina Department of Health and Environmental Control

Comments on:

Removal Action Report for the 488-2D Ash Basin and 488-4D Ash Landfill (U),
CERCLIS Number: 63 (SRNS-RP-2017-00057, Revision 0, March 2017)

Received: April 2, 2017 / Comments Received: 5/25/2017

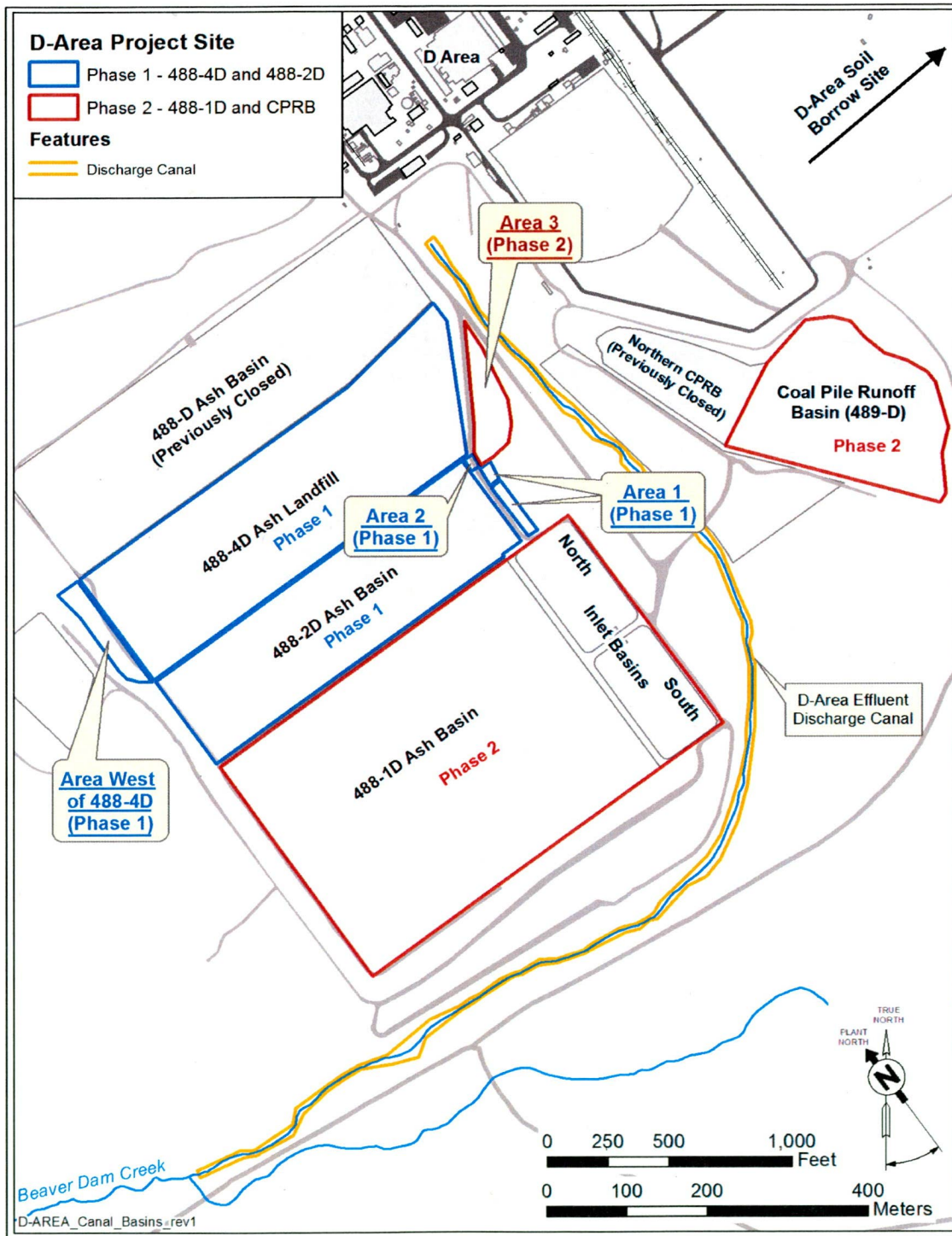


Figure 3. D Area Project Site

**SRS Responses to
South Carolina Department of Health and Environmental Control
Comments on:
Removal Action Report for the 488-2D Ash Basin and 488-4D Ash Landfill (U),
CERCLIS Number: 63 (SRNS-RP-2017-00057, Revision 0, March 2017)
Received: April 2, 2017 / Comments Received: 5/25/2017**

Page 8 of 10

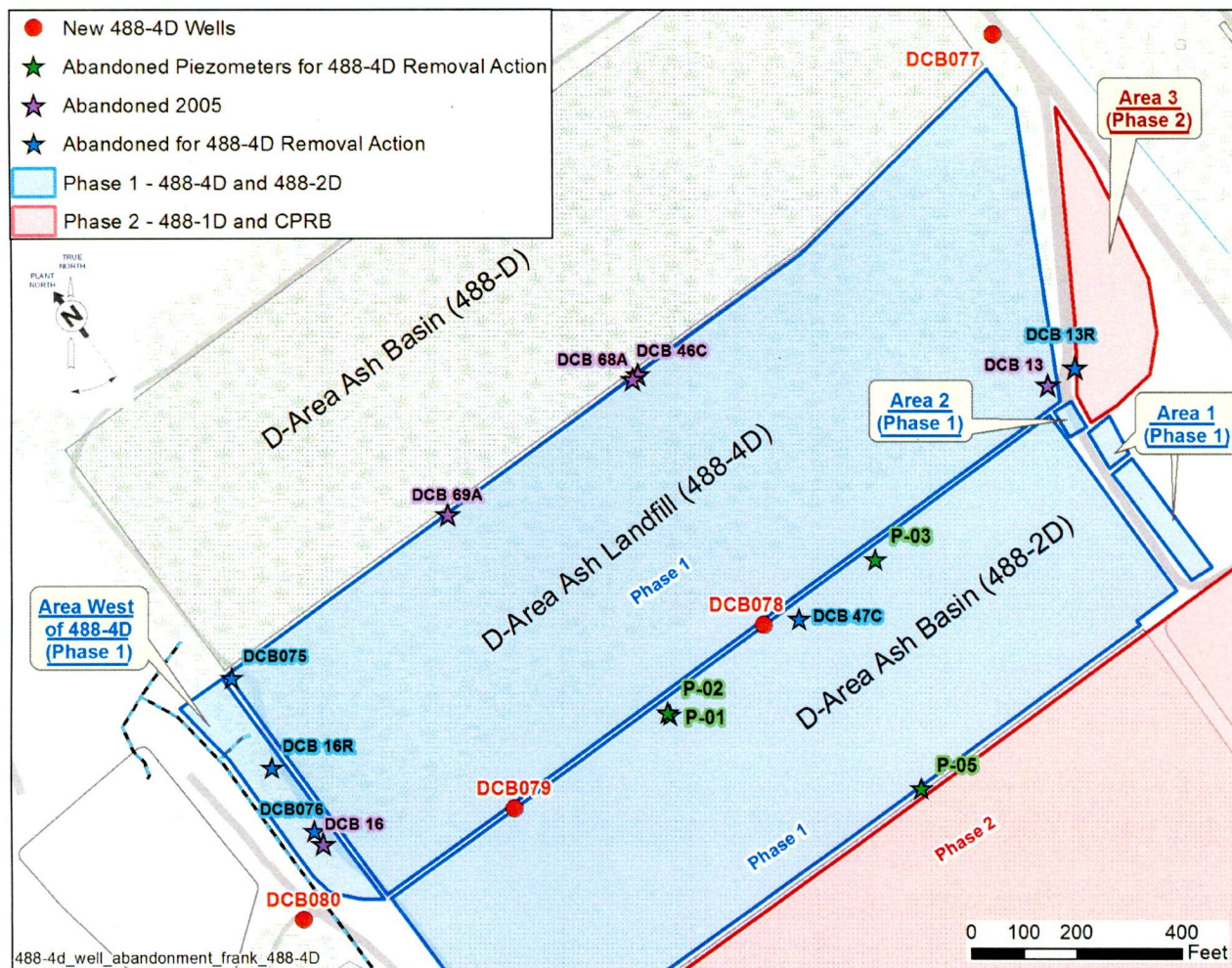


Figure 4. Location of New and Abandon Wells

**SRS Responses to
South Carolina Department of Health and Environmental Control**

Comments on:

**Removal Action Report for the 488-2D Ash Basin and 488-4D Ash Landfill (U),
CERCLIS Number: 63 (SRNS-RP-2017-00057, Revision 0, March 2017)**

Received: April 2, 2017 / Comments Received: 5/25/2017



Photo 20. Start of Clearing and Grubbing 488-4D West End

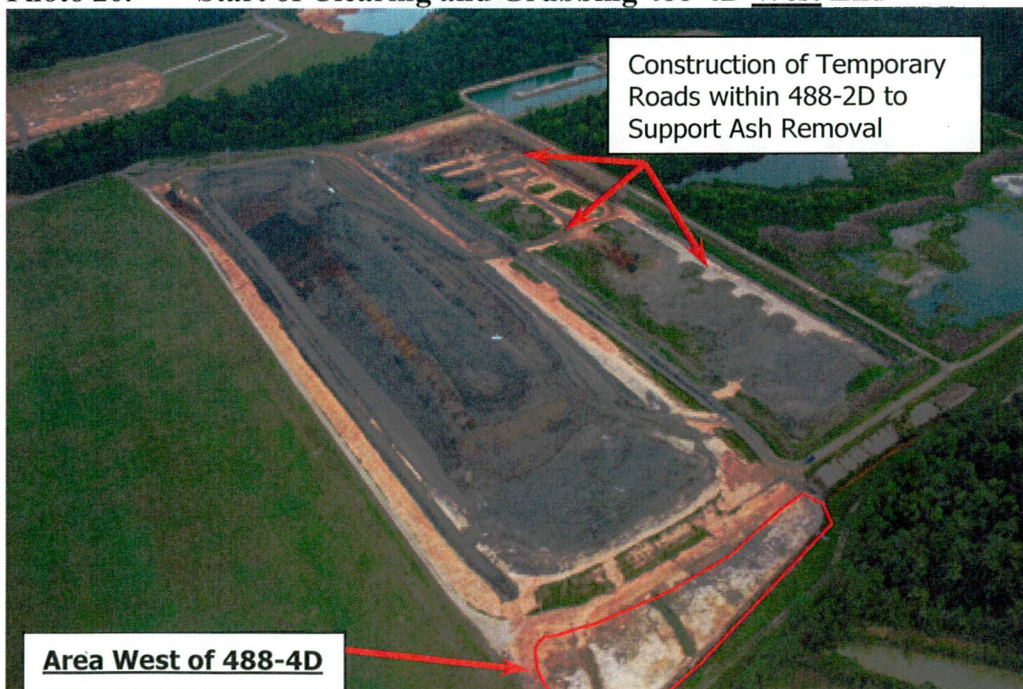


Photo 24. Construction of Temporary Roads within 488-2D

**SRS Responses to
South Carolina Department of Health and Environmental Control
Comments on:**

**Removal Action Report for the 488-2D Ash Basin and 488-4D Ash Landfill (U),
CERCLIS Number: 63 (SRNS-RP-2017-00057, Revision 0, March 2017)**

Received: April 2, 2017 / Comments Received: 5/25/2017

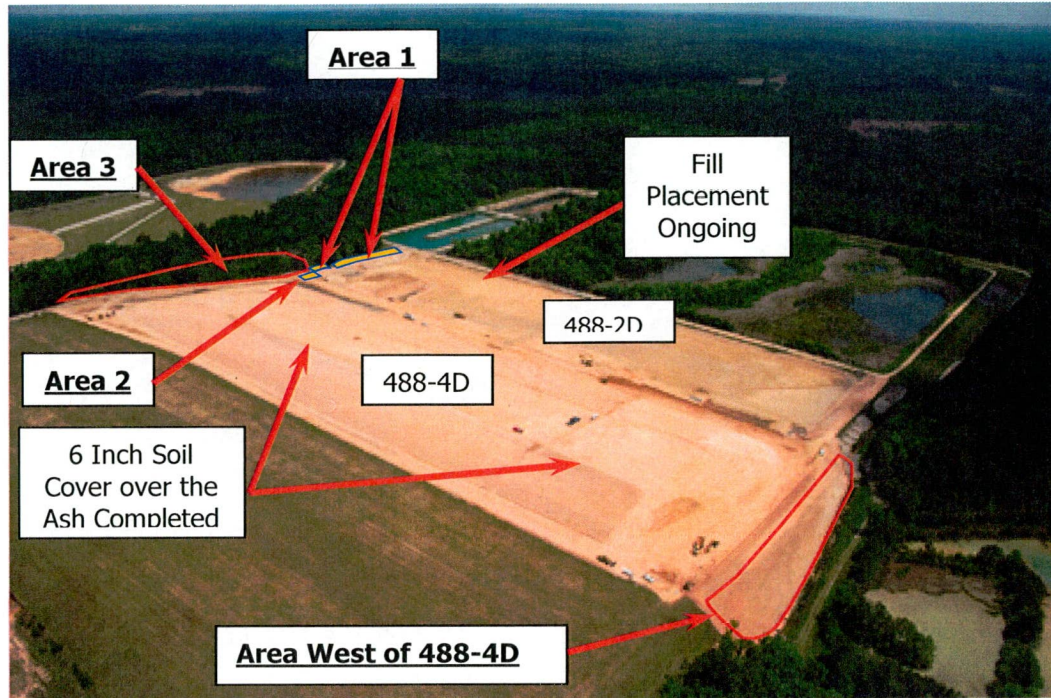


Photo 35. 488-4D/488-2D Fill Placement 6 Inch Soil Cover/488-4D

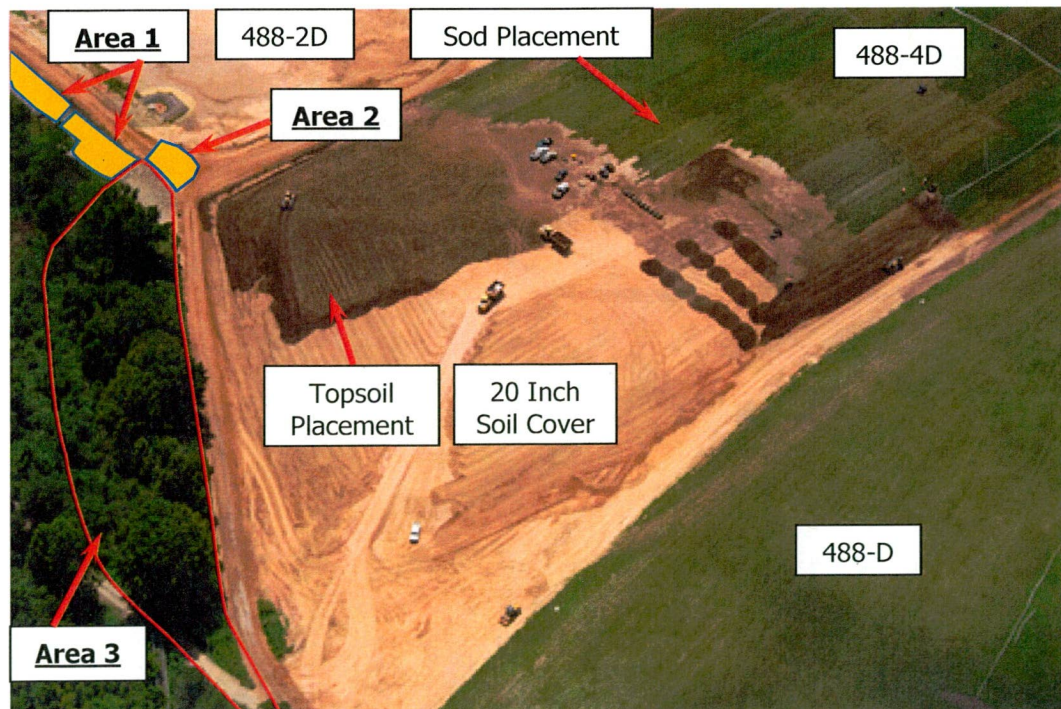


Photo 51. 488-4D Topsoil and Sod Placement Ongoing