



Department of Energy
Savannah River Operations Office
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Aiken South Carolina 29802

DEC - 6 2022

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
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 484-17D Coal Storage Area (U) (SRNS-RP-2022-00071, Revision 1, November 2022) (Redline and Clean Copies) and Savannah River Site's Responses to the Regulatory Comments on the Revision 0 Document, SEMS Number: 63

The U. S. Department of Energy is submitting the subject document 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 Document on August 25, 2022, and September 28, 2022, 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.

Sincerely,

Brian T. Hennessey Digitally signed by Brian T. Hennessey
Date: 2022.12.05 13:19:18 -05'00'

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

IACD-23-108

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Ms. Susan Fulmer
Mr. Jon Richards

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Enclosures:

1. Removal Action Report for the 484-17D Coal Storage Area (U) (SRNS-RP-2022-00071, Revision 1, November 2022) (Redline and Clean Copies) SEMS Number: 63
2. SRS Responses to the U.S. Environmental Protection Agency Comments on the Removal Action Report (RAR) for the D-Area Coal Storage Area (484-17D) (U) (SRNS-RP-2022-00071, Revision 0, June 2022) SEMS Number: 63
3. SRS Responses to the South Carolina Department of Health and Environmental Control Comments on the Removal Action Report (RAR) for the D-Area Coal Storage Area (484-17D) (U) (SRNS-RP-2022-00071, Revision 0, June 2022) SEMS Number: 63

cc w/o encl:

J. Blalock, SCDHEC-Columbia
S. French, SCDHEC-Columbia
M. Reece, SCDHEC-Columbia
G. K. Taylor, SCDHEC-Columbia
G. Stewart, SCDHEC-Columbia
T. R. Fuss, SCDHEC-Aiken Environmental Affairs Office
G. O'Quinn, SCDHEC-Aiken Environmental Affairs Office
B. A. Cameron, SCDHEC-Aiken Environmental Affairs Office
K. L. Beatty, SCDHEC-Aiken Environmental Affairs Office
H. L. Herlong, SCDHEC-Aiken Environmental Affairs Office
R. H. Pope, EPA-Atlanta

cc w/ encl:

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

**SRS Responses to EPA Comments on the
Removal Action Report for the 484-17-D Coal Storage Area
SEMS #63, SRNS-RP-2022-00071, Revision 0, June 2022
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EPA COMMENTS:

1. The Removal Action Report for the 484-17D Coal Storage Area (U) (the RAR) indicates the representative soil samples collected after removal of coal confirmed no coal-related hazardous constituents remain at the northern 484-17D D-Area Coal Storage Area (DCSA) exceeding residential risk levels and/or SRS background. The text notes the coal fragments that remain below the topsoil and sod in the southern 484-17D DCSA represents a possible further source of acidity; however, it is unclear if the layer of coal will also pose a contaminant migration issue to groundwater. Please revise the RAR to address the issue of whether the remaining coal fragment layer will pose a contaminant migration issue to groundwater.

Response: Agree

The layer of coal, less than 1-ft deep, has been mixed with the lime calcium carbonate neutralization amendment in the surface soils to a depth of 1.2 m (4 ft), and a 5.1 cm (2 in) thick layer of #4 limestone gravel cover over the surface soil. Overall, the calcium carbonate amendment and limestone cover are expected to raise the soil pH to about 5.5. As shown in Figure 8, the pH for the three locations (6, 7, and 8) in the southern portion of the coal yard all had a pH of greater than 6 in the 1-4 foot mixed interval, and pH increases in all deeper intervals. The increased soil pH will reduce metal contaminant migration risk to the groundwater. For further details, refer to SRS Responses to United States Environmental Protection Agency (US EPA) General Comment #2 and South Carolina Department of Health and Environmental Control (SCDHEC) Specific Comment #2 on the Removal Site Evaluation Report / Engineered Evaluation / Cost Analysis (RSER/EE/CA) for the D-Area Coal Storage Area (484-17D), June 6, 2019.

Section 2.4.10, paragraph 4, will be modified to add an additional sentence as follows: “...The pooled water near the crusher house (pH 7.48) indicates the pH of rainwater that has interacted with gravel cover and infiltrates into the subsurface. The increase in soil pH will reduce metal contaminant migration risk to groundwater.”

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

2. Please consider future limited soil sampling to monitor the long-term efficacy of this removal action and determine if the above-mentioned coal layer/fragments present further source.

Response: Clarification

This non-time critical removal action is not the final action for the 484-17D Coal Storage Area (DCSA). The DAOU ROD will specify the final remedial action for the 484-17D DCSA, which may include additional sampling. The following text will be added to the end of Section 2.4.10, *Sampling of the Coal Yard Soils*:

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“No additional sampling is planned as part of this NTC RA as it is not the final action for the 484-17D DCSA. The DAOU Final ROD will specify the final remedial action for the 484-17D DCSA, which may include additional sampling.”

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

3. **Table 8, Project Cost Comparison, Page 35 of 42:** Table 8 does not provide a breakdown of the indirect capital costs for comparative purposes. It would be beneficial to have costs separated into equipment and non-equipment categories. Please revise Table 8 in the RAR to provide the appropriate cost breakdowns to ensure a comparative evaluation between estimated and incurred costs can be performed.

Response: Agree

Table 8 will be revised to include additional breakdowns of the costs, as indicated in the attached revised Table 8.

Project Cost Comparison for 484-17D DCSA					
Cost	484-17D Estimated Capital Cost 2019 RSER/EE/CA (\$)	484-17D Estimated O&M Cost 2019 RSER/EE/CA (\$)	484-17D Actual Capital Cost (\$)	484-17D Actual O&M Cost (\$)	Delta Cost (%)
Construction Activities					
Material (Lime)	<u>\$308,934</u>		<u>\$578,259</u>		
Equipment	<u>\$201,000</u>		<u>\$339,306</u>		
Performance	<u>\$753,098</u>		<u>\$815,471</u>		
Margin	<u>\$37,891</u>		<u>\$0</u>		
Direct	\$1,300,923	\$215,275	\$1,733,036	N/A	
Engineering & Design, Health & Safety	<u>\$260,185</u>		<u>\$591,482</u>		
Project/Construction Management	<u>\$ 325,231</u>		<u>\$841,735</u>		
Overhead	<u>\$ 390,277</u>		<u>\$0</u>		
Contingency	<u>\$260,185</u>		<u>\$0</u>		
Indirect	\$1,235,878	\$1,189,396	\$1,433,217	N/A	
Total	\$2,536,801	\$1,404,671	\$3,166,253	N/A	25%

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- **Direct actual capital cost: Construction activities are broken down to the lowest level possible due to cost processing constraints.**
- **Indirect actual capital cost: Engineering and design is combined with H&S due to cost processing constraints.**

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

4. **Figure 6. June 2018 and May 2022 Soil Sampling Locations within the 484-17D DCSA:**
Please ensure that the figure legend outline color (purple) for the Coal Pile Storage Area (484-17D) matches the figure outline for referenced area (red in figure).

Response: Agree

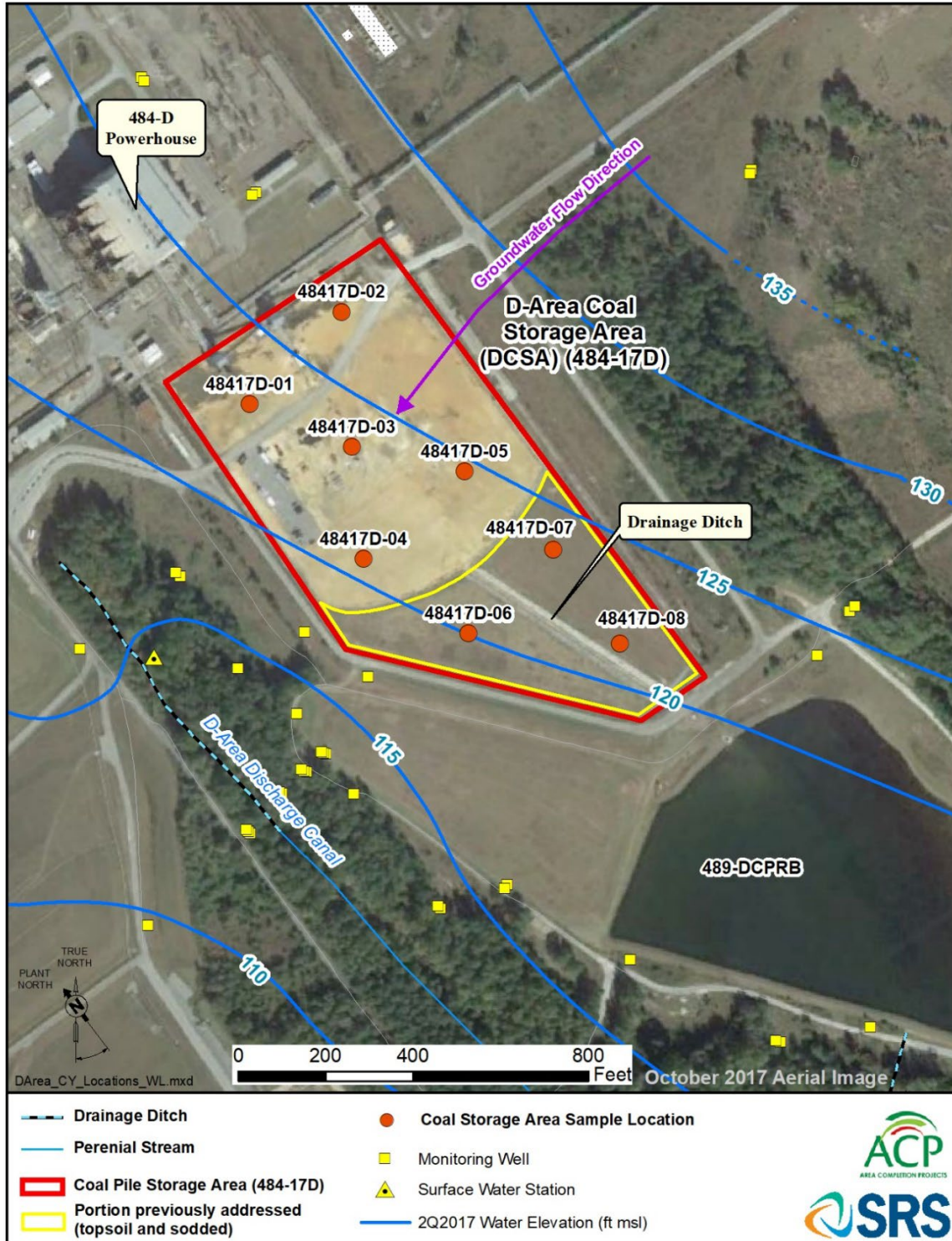
Figure 6 will be revised so the legend and figure both show the Coal Pile Storage Area (484-17D) in a red outline, as indicated by the attached revised Figure 6.

Responsible Party: Ashley Shull, (803) 952-7090, Ashley.Shull@srs.gov

**SRS Responses to EPA Comments on the
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Revised Figure 6

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

1. List of Abbreviations and Acronyms, pages vii and viii. Please add the abbreviations for Megagrams (Mg) and tons (tn) to the list.

Response: Agree

The List of Abbreviations and Acronyms will be revised to add Megagrams (Mg) and tons (tn).

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

2. Section 1.2, General Description and History of the Subunit, page 2. The second paragraph states, “representative soil samples were collected after excavation to support visual inspection. The samples confirmed there were no coal-related hazardous constituents remaining at the 484-17D DCSA at levels exceeding a residential risk >1E-06 and/or SRS background, whichever is greater.”

This statement is confusing and appears to imply that samples were visually inspected to determine that there were no concentrations of coal-related constituents above the referenced risk threshold and/or background. Please clarify this statement since this would be impossible to evaluate without laboratory analysis.

Response: Agree/Clarification

The statement about soil samples under a Field Sampling Plan were included erroneously. During 2013 a maintenance action was performed which removed the remaining visible coal from the surface of the 484-17D DCSA. Samples of soil were not collected at the 484-17D DCSA in 2013. The statement about a Field Sampling Plan and soil sampling will be removed from section 1.2 and the SRNS 2013 reference will be deleted.

The text of Section 1.2, second paragraph will be revised as follows:

“...In 2013, the coal was removed from the northern 4.0 hectare (ha [10 acres {ac}]) of the 484-17D DCSA (Figure 4). ~~Per a Field Sampling Plan (FSP) (SRNS 2013), representative soil samples were collected after excavation to support visual inspection. The samples confirmed there were no coal-related hazardous constituents remaining at the 484-17D DCSA at levels exceeding a residential risk >1E-06 and/or SRS background, whichever is greater.~~”

Section 9.0 will be revised to remove the SRNS, 2013 reference.

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

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3. Section 2.1, Removal Action Summary, page 4. The last sentence of the first paragraph of this section states: “The amendments were of sufficient quantity to raise the pH level of the 484-17D DCSA vadose zone soils from a pH of <4 to the target pH of 5.5 or higher (not to exceed pH of 7).” Data presented in Section 2.4.10, as well as Tables 6 and 7, indicate exceedances of a pH of 7 across all sampling locations. Please discuss these results with respect to this statement and address any potential concerns or expectations.

Response: Agree/Clarification

The target soil pH listed to “not to exceed pH of 7” was incorrectly made. This previously only applied to the pH ranges for topsoil if a vegetative grass cover was to be used as the grass type preferred a pH of 5 to 7. This did not apply to the amended soils. Since the cover type was switched to a limestone gravel cover, topsoil was not used, and the pH requirement was not needed. A pH >7 of the amended surface and subsurface soils does not pose any environmental threat and is beneficial as rainwater leaches through the soils to the underlying unamended soils and groundwater. To clarify the text of Section 2.1, the last sentence of the first paragraph will be revised as follows:

“...The amendments were of sufficient quantity to raise the pH level of the 484-17D DCSA vadose zone soils from a pH <4 to the target pH of 5.5 or higher (~~not to exceed pH of 7~~).”

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

4. Section 9.0, References, page 20. The first reference listed on this page, SRNS 2022, does not appear to be referenced anywhere in the document. Does this refer to the third round of sampling performed in May as described on page 12 as well as the Post-RA Sampling Plan for the 484-17D DCSA listed in Appendix A of the RAR? Please clarify.

Response: Agree

The FY22 D-Area Sampling Plan (SRNS 2022) consists of two subtasks in support of the D-Area Groundwater Operable Unit (DAG OU) Work Plan Characterization, and the shallow soil investigations within the D-Area Coal Storage Area (DCSA), respectively. The subtasks include: 1) drilling a total of six (6) locations (two soil borings, four monitoring wells) for the DAG OU; and 2) drilling eight (8) soil borings for the DCSA. The text of Section 2.4.10, fifth paragraph will be revised as follows:

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“A third sampling of the coal yard soils was performed per the Post-RA Sampling Plan (Appendix A) in May 2022 to confirm the pH of the vadose zone soils was successfully raised to natural background levels (approximate pH of 5.5) (Figure 8 and Table 7).”

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

5. Table 1, Chronology of Events, page 31. Please add the May 2022 final soil pH sampling event to the table.

Response: Agree

Table 1 will be revised as follows:

Table 1. Chronology of Events

Description of Activity	Date
Sampling of the coal yard soils performed for the RSER/EE/CA.	June 2018
Core Team agreed to the RAOs and RAs to be evaluated in the RSER/EE/CA.	August 2018
USDOE Submittal of the RSER/EE/CA Revision 1	June 6, 2019
SCDHEC Conditional Approval of draft Action Memorandum and Responsiveness Summary for the Non-Time Critical Removal Action for the D-Area Coal Storage Area (484-17D)	July 2, 2019
USDOE Submittal of the Action Memorandum and Responsiveness Summary for the Non-Time Critical Removal Action for the D-Area Coal Storage Area (484-17D) (USDOE 2019) – See Appendix B	July 24, 2019
USEPA Concurrence of Removal Action Memorandum and Responsiveness Summary for the Non-Time Critical Removal Action for the D-Area Coal Storage Area (484-17D)	August 15, 2019
Pre-Job Briefing	March 5, 2020
SWPPP walkdown for DCSA (484-17D)	March 9, 2020
Removal Action start for DCSA (484-17D)	May 5, 2020
USDOE Submittal of the Notification of the Removal Action Start of the D-Area Coal Storage Area (484-17D) (USDOE 2020) – See Appendix C	May 7, 2020
Soil pH Process Efficacy Sampling During Amendment Addition	May 13&14, 2020
Mechanical Completion of the 484-17D DCSA	November 24, 2020
Soil pH Sampling After Amendment Addition	December 2, 2020
FAI-51 Walkdown of the 484-17D DCSA	December 3, 2020
Physical Completion of the 484-17D DCSA	December 15, 2020

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Second FAI-51 Walkdown of the 484-17D DCSA	January 14, 2021
USDOE Submittal of Notification of the Completion of Construction Activities for the Non-Time Critical Removal Action for the D-Area Coal Storage Area (484-17D) (USDOE 2021) – See Appendix D	February 3, 2021
<u>Soil pH sampling post-RA.</u>	<u>May 2022</u>

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

6. Appendix E-1, 072720 Topographical As-built Drawing of 484-17D DCSA Northern Portion, September 15, 2020, page E-3. Please add a north arrow and scale bar to the figure.

Response: Agree

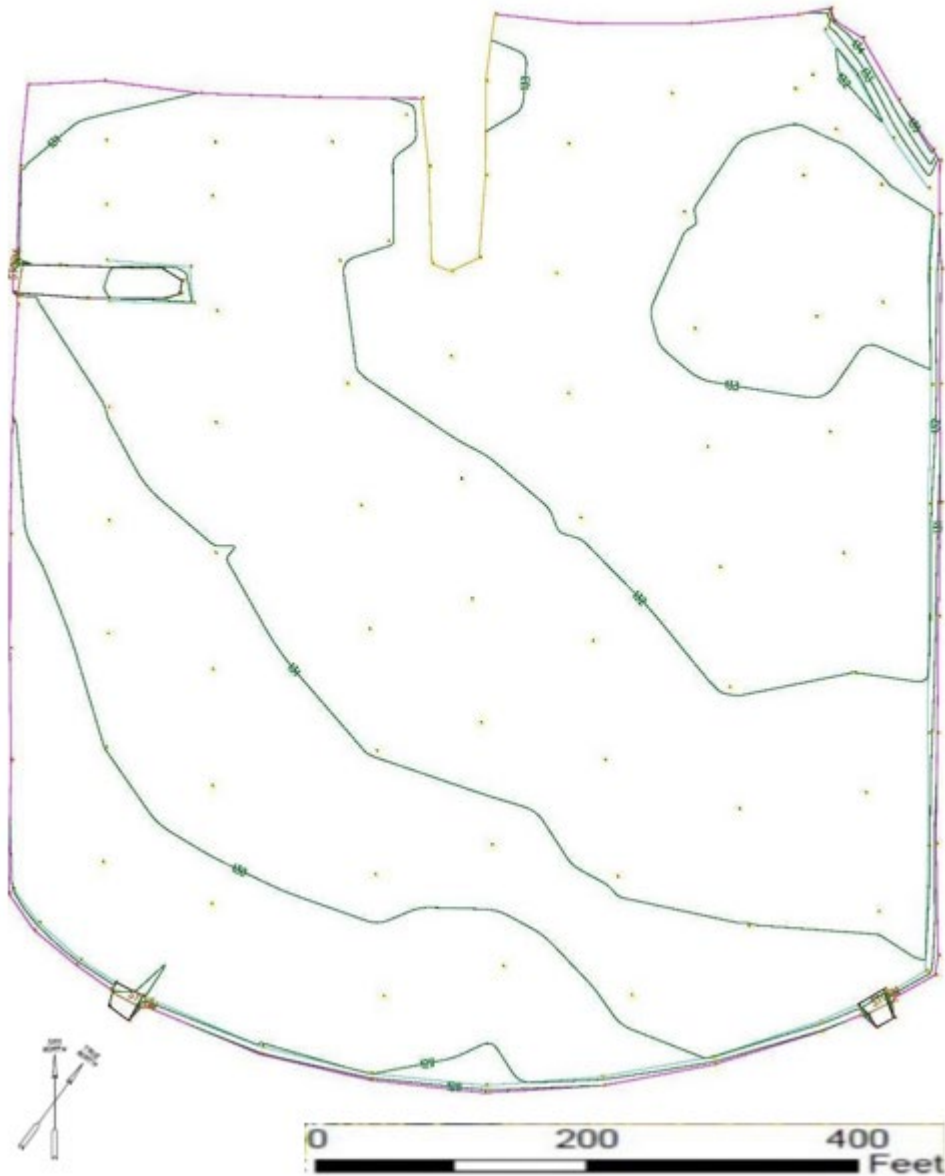
Appendix E-1, 072720 Topographical As-built Drawing of 484-17D DCSA Northern Portion will be revised to include a north arrow and scale as follows:

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**APPENDIX E-1.
072720 Topographical As-built Drawing of 484-17D DCSA Northern Portion
September 15, 2020**



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

7. Appendix E-1, 093520 Topographical As-built Drawing of 484-17D DCSA Southern Portion October 1, 2020. Please add a scale bar to the figure.
-

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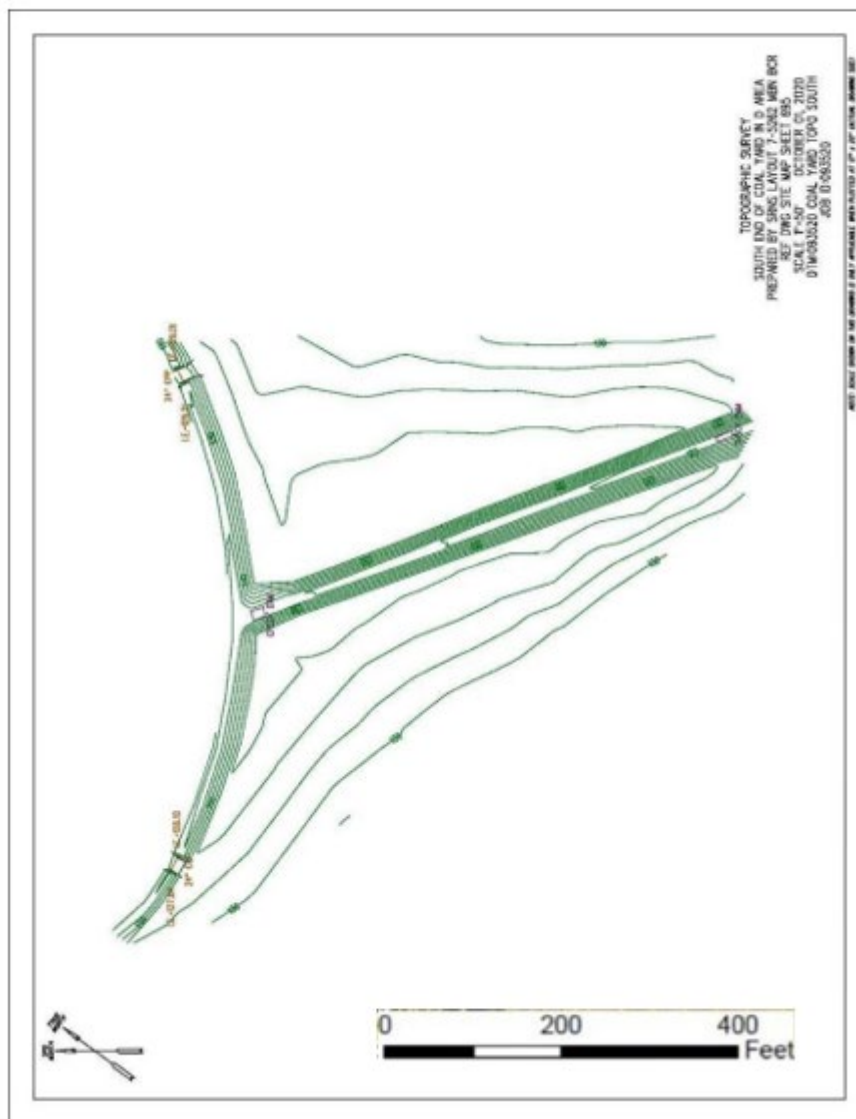
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Response: Agree

Appendix E-1, 093520 Topographical As-built Drawing of 484-17D DCSA Southern Portion will be revised to include a scale as follows:

**APPENDIX E-2.
093520 Topographical As-built Drawing of 484-17D DCSA Southern Portion
October 1, 2020**



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