Department of Energy
Savannah River Operations Office
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MAY 2 2 2025

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 Environmental Services
2600 Bull Street
Columbia, South Carolina 29201

Mr. Jon Richards
Savannah River Site Remedial Project Manager
Superfund and Emergency Management Division
U. S. Environmental Protection Agency, Region 4
61 Forsyth Street, SW
Atlanta, Georgia 30303

Dear Ms. Fulmer and Mr. Richards:

SUBJECT: Focused Corrective Measures Study/Feasibility Study for D-Area Ash Basin Wetlands (NBN) in Support of the Savannah River and Floodplain Swamp Integrator Operable Unit (U) (SRNS-RP-2024-01034, Revision 1, May 2025) (Redline Pages) and Savannah River Site's Responses to the Regulatory Comments on the Revision 0 Document SEMS Number: 69

In accordance with the terms of the Federal Facility Agreement (FFA), the U. S. Department of Energy (DOE) is submitting the subject information for your review. The *Focused Corrective Measures Study/Feasibility Study for D-Area Ash Basin Wetlands (NBN) in Support of the Savannah River Floodplain Swamp Integrator Operable Unit (U)* (SRNS-RP-2024-01034, Revision 0, October 2024) was submitted to the South Carolina Department of Environmental Services (SCDES) and U.S. Environmental Protection Agency (EPA) for review on October 29, 2024. The EPA's and SCDES' comments on the Revision 0 report were received on January 13, 2025, and January 24, 2025, respectively. The draft responses to the regulatory comments were submitted for review via email on May 7, 2025. The EPA and SCDES stated that the draft responses were acceptable via their respective emails dated May 13, 2025. The final responses were incorporated into the Redline Revision 1 pages.

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

MAY 2 2 2025

Ms. Susan Fulmer
Mr. Jon Richards 2

Questions from you or your staff may be directed to me at (803) 952-6211, or the DOE Program Manager, Khari Bell, at (803) 679-7086.

Sincerely,

MATTHEW BAKER
Digitally signed by MATTHEW BAKER
Date: 2025.05.22 08:13:20 -04'00'

Matthew R. Baker
Acting FFA Remedial Project Manager
DOE-Savannah River Operations Office
Remediation, Deactivation, and Decommissioning Division

RDDD-25-136

Enclosures:
1. SRS Responses to the U.S. Environmental Protection Agency's Comments on the Focused Corrective Measures Study/Feasibility Study for D-Area Ash Basin Wetlands (NBN) in Support of the Savannah River Floodplain Swamp Integrator Operable Unit (U) (SRNS-RP-2024-01034, Revision 0, October 2024) SEMS Number: 69
2. SRS Responses to the South Carolina Department of Environmental Services' Comments on the Focused Corrective Measures Study/Feasibility Study for D-Area Ash Basin Wetlands (NBN) in Support of the Savannah River Floodplain Swamp Integrator Operable Unit (U) (SRNS-RP-2024-01034, Revision 0, October 2024) SEMS Number: 69
3. Focused Corrective Measures Study/Feasibility Study for D-Area Ash Basin Wetlands (NBN) in Support of the Savannah River Floodplain Swamp Integrator Operable Unit (U) (SRNS-RP-2024-01034, Revision 1, May 2025) (Redline Pages) SEMS Number: 69

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cc w/o encl:
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SRS Responses to USEPA Comments on the Focused Early Action Corrective Measures Study/Feasibility Study for the D-Area Ash Basin Wetlands (NBN)in Support of the Savannah River and Floodplain Swamp Integrator Operable Unit,
SEMS Number: 69, SRNS RP-2024-01034,
Revision 0, Dated October 2024
Savannah River Site, Aiken, South Carolina

Comments Received January 13, 2025

GENERAL COMMENTS

1. The CMS/FS does not consistently describe the extent of the coal ash at the D-Area Ash Basin Wetlands (DABW). Section 1.2.2 (Nature and Extent of Contamination) states that the ash deposition area is considered the boundary of the wetland, but the red area shown on Figure 2 (Layout of the D-Area Ash Basin Wetlands) does not line up with the wetlands shown in the figure (e.g., the marsh/swamp is not in the northern area and extends further south than the DABW area). Further, based on Figure 10 (Arsenic and Potassium-40 Levels in Sediment/Soil within the 0-1 ft and 0-4 ft Depth Intervals) and Figure 11 (Thorium-232 and Uranium-238 Levels in Sediment/Soil within the 0-1 ft and 0-4 ft Depth Intervals), elevated concentrations of contaminants of concern (COCs) above the preliminary remediation goals (PRGs) are found outside the DABW boundary (i.e., uranium-238 at DAB-37, arsenic at DAB-37 and DAB-39, and potassium-40 at DAB-37, DAB-39, DAB-56, DAB-57, and DAB-58). As such, it is unclear if ash is found at these locations. *Please revise the CMS/FS to clarify the locations and extent of ash found at the DABW and how the extent of ash was determined based on the results presented on Figures 10 and 11.*

   Response: Agree.

   The area identified as the D-Area Ash Basin Wetland (DABW) on Figure 2 was determined in 2002 based on a review of historical aerial photographs, field observations, and the characterization events outlined in Section 2.3 of the DEXOU RFI/RI/BRA (WSRC 2002a). This area was historically known as the ash plume or deposition area in the RFI/RI/BRA and *Ecological Sampling and Analysis Plan for the D-Area Wetlands Operable Unit (WSRC 2002b)*. The wetland layer (e.g., marsh/swamp) depicted in Figure 2 does not represent the ash deposition area or ash boundary.

   Section 1.2.2 will be revised to provide a more thorough description of the DABW boundary as follows:

   > **"The DABW ~~ash deposition area is considered as the boundary of the wetland~~is <u>represented by the ash deposition area shown in (</u>Figure 2~~)~~<u>). This area was referred to as the ash plume or ash deposition area in earlier documentation. The extent of ash was determined in 2002 based on a review of historical aerial photographs, field observations (i.e., visual verification of ash and field measurements of ash depth), and analytical sampling collected as part of the DEXOU RFI/RI/BRA characterization (WSRC 2002a).</u> The area of ash is ~36 ha (90 ac). The approximate volume of soil/ash within the boundary is 565,006 m^3 (739,000 yds^3). Field measurements from the *Ecological Sampling and Analysis Plan for the D-Area Wetlands Operable Unit* indicate an ash depth up to ~1.3 m (4.3 ft) in portions of the DABW (WSRC 2002b)."**

   Although ash may not have been visually observed beyond the ash deposition area, the presence of ash-related constituents above PRGs was identified at some sampling locations (Figures 10 and 11) and will be addressed as part of the selected remedial action.

Additionally, Figures 10 and 11 inadvertently did not include all sample locations used in the risk evaluations and will be corrected in the Revision 1 document as shown in Figures CR-1 and CR-2.

Responsible Party: Justin Steadman, (803) 952-7346, justin.steadman@srs.gov

2. The COCs in sediment/soil that exceed PRGs have not been delineated as shown by the red sample locations on Figure 10 (Arsenic and Potassium-40 Levels in Sediment/Soil within the 0-1 ft and 0-4 ft Depth Intervals) and Figure 11 (Thorium-232 and Uranium-238 Levels in Sediment/Soil within the 0-1 ft and 0-4 ft Depth Intervals). For example, all potassium-40 sample results exceed the PRG [though its noted that K40 is always natural background and not site-related], and all of the results for the northern sample locations exceed the arsenic PRG. Therefore, it is unclear if the extent of the proposed land use controls (LUCs) boundary in Alternative A-2 (see Figure 12, Proposed Land Use Control Boundary Based on Ash Extent [represented by As and background cleanup level of 8.2 mg/kg]) and the estimated volume of contaminated media to be excavated under Alternative A-3 are sufficient to meet the remedial action objective (RAO). The CMS/FS should discuss whether additional delineation or a buffer zone outside the LUC boundary will be considered to address the areas outside the LUC boundary where sediment/soil exceeds PRGs. *Please revise the CMS/FS to discuss the delineation of the COCs in the sediment/soil at the DABW.*

Response: Agree.

For the purposes of LUCs, the LUC boundary will include a buffer area to address the extent of contamination. The buffer zone was determined based on sample locations below the SRS Background 95th percentile concentration for arsenic or approximately 100 feet outside of the ash plume. Figure 12 did not originally contain all the sampling locations used in the risk evaluation and has been revised, as shown in Figure CR-3, to include all sampling locations and the buffer zone.

The second paragraph of Section 3.1.2 will be revised to indicate the proposed buffer zone outside the LUC boundary as follows:

> **"…Five-year remedy reviews would be required under this alternative. Proposed LUC boundaries are provided in Figure 12. <u>A buffer zone to either the nearest sample location below the SRS Background 95th percentile for arsenic or 100 feet outside the ash deposition area was used to bound the extent.</u>"**

For the excavation remedial alternative, additional delineation would be considered during implementation of the excavation alternative to further define the extent of contamination. Section 3.1.3 will be revised to indicate the need for additional delineation as follows:

"Alternative A-3 would include excavation of all ash to an average depth of 5 ft with an estimated volume of ~739,000 yd^3 (565,006 cubic meters [m^3]). Prior to excavation activities, additional delineation would be required to bound the extent of contamination that exists outside of the estimated ash plume. ~~The~~After excavating, the ash would ~~then~~ be dried to meet the acceptance criteria of the receiving permitted receiving disposal facility. The ash would then be hauled to disposal facility. Excavation work would be performed in accordance with an approved stormwater pollution prevention plan (SWPPP). Verification sampling would be performed per an approved sampling and analysis plan (SAP) to ensure all ash is removed…"

Responsible Party: Justin Steadman, (803) 952-7346, justin.steadman@srs.gov

3. The CMS/FS does not indicate that coal ash samples were analyzed for dioxins and furans (D/Fs) or per- and polyfluoroalkyl substances (PFAS). It is unknown if D/Fs may be potential constituents of concern in environmental media at the DABW based on the presence of coal ash. In addition, it is unknown in PFAS may be present. As such, a screening evaluation of the coal ash should include sampling and analysis of D/Fs and PFAS to assess if there is unacceptable risk to human health or the environment. *Please revise the CMS/FS to discuss the potential for D/Fs and PFAS to be present at the DABW and include additional sampling for these constituents as necessary to address the apparent data gap in site characterization and nature of contamination.*

   Response: Clarification.

   Based on site investigations at SRS, dibenzofuran detections are typically 1,000 times higher than the results for the other dioxin and furan congeners As documented in the DEXOU RFI/RI/BRA, analysis for dibenzofuran was included for the DEXOU (WSRC 2002). The analytical data show there were 111 analytical records for dibenzofuran for the DEXOU with four results reported as J-qualitied (estimated) and 107 non-detects. No refined COCs were identified for dibenzofuran, and no additional sampling at the DABW for dioxins/furans is warranted.

   Regarding PFAS, Savannah River Nuclear Solutions, LLC (SRNS) conducted a screening for historical PFAS substances used at waste units using the *Guide for Investigating Historical and Current Uses of Per- and Polyfluoroalkyl Substances at Department of Energy Sites* (Department of Energy [DOE] 2023). Appendix C of the guidance provides a standardized list of common uses at DOE sites that have the potential for a PFAS release. Based on historical records and the known uses of the ash units, PFAS are not expected to be present at the DABW.

   Source: DOE 2023. *Guide for Investigating Historical and Current Uses of Per- and Polyfluoroalkyl Substances at Department of Energy Sites*. February 16.

https://www.energy.gov/pfas/articles/guide-investigating-historical-and-current-uses-and-polyfluoroalkyl-substances

No change to the document is proposed.

Responsible Party: Susan Blas, (803) 952-6904, susan.blas@srs.gov

4. The human health risk assessment (HHRA) in Appendix B does not contain an uncertainty analysis. This is important for risk managers to place the results of the risk assessment in the proper context and is a required component of an EPA risk assessment. *Please revise Appendix B to include an uncertainty analysis.*

   Response: Clarification.

   The uncertainty analysis is provided in Section B.2.2.2. No change to the document is proposed.

   Responsible Party: Justin Steadman, (803) 952-7346, justin.steadman@srs.gov

5. The output from ProUCL analyses that was the basis for the exposure point concentrations used in the HHRA was not provided in the document; *please revise Appendix B to include the results of the ProUCL analyses.*

   Response: Agree.

   The output files for the data are not included in the report due to the volume of files that are generated for each individual analyte. Rather, the results from the ProUCL software are summarized in the data table in Appendix A. To clarify, the last sentence of the last full paragraph in Appendix A will be revised as follows:

   > **"Non-detected constituent concentrations were processed in accordance with the ProUCL User's Guide. Rather than including the output from the ProUCL software (v 5.2) in this appendix due to volume of files generated for each analyte, the results are summarized in Table A-1."**

   Responsible Party: Susan Blas, (803) 952-6904, susan.blas@srs.gov

SPECIFIC COMMENTS

1. **Section 1.2.1, Unit Description, Unit History, Page 1-6 of 1-14:** The text states that the ash is believed to have been deposited in the DABW via an upgradient drainage ditch, but further discussion of this ditch is not provided. It is unclear if the location of the ditch is known and if it has been characterized for ash COCs. It is also unclear whether this ditch is included in the DABW

or if it will be addressed under a different remedial action. Finally, the location of the ditch is not shown on Figure 2 (Layout of the D-Area Ash Basin Wetlands). *Please revise the CMS/FS to discuss the location of the drainage ditch and how it will be addressed. Please also include this drainage ditch on Figure 2.*

Response: Agree.

To clarify, the first paragraph of the Unit History subsection of Section 1.2.1 (Unit Description) will be revised as follows:

> **"The DABW is the result of ash overflow from the D Area ash basins. ~~Ash is believed to have been deposited in the DABW via an upgradient drainage ditch.~~ The D Area ash basins received ash from the coal fired D-Area Powerhouse via a wet sluice line. Ash is believed to have been deposited in the DABW via an upgradient drainage ditch. The upgradient ditch, identified as the 488-D Drainage, was addressed in the remedial action for the DEXOU where ash was excavated for inclusion under a geosynthetic cover. The area no longer presents a source to the DABW. The location of the former drainage ditch is shown on Figure 2. The D-Area Powerhouse was the longest running coal fired powerhouse, operating from 1952 until 2012."**

Figure 2 will be revised as shown in Figure CR-4 to identify the location of the former drainage ditch.

Responsible Party: Susan Blas, (803) 952-6904, susan.blas@srs.gov

2. **Section 1.2.1, Unit Description, Data Evaluation, Page 1-8 of 1-14, and Figure 5, D-Area Ash Basin Wetlands Sampling Locations, Page 6-7 of 6-38:** The data used to support the CMS/FS are not consistently identified in the text and Figure 5. The text lists 28 total sediment/soil samples, but Figure 5 includes only 24 DABW sampling locations. In addition, the depths at which the listed samples were collected are not always specified and it is unclear if some locations were sampled at multiple depths. It is also unclear if the sampling locations shown on Figure 5 include surface water samples, as 39 surface water samples were collected in the 1997 pre-characterization and 23 surface water samples are specified for the later investigations. Further, it is noted that the number and types of samples collected during the 2001 D-Area Expanded Operable Unit (DEXOU) Phase II sampling are not specified in Section 1.2.1. Please revise the text to clarify the locations and depths of the different types of samples used in the data evaluation for the CMS/FS and describe the samples collected during the 2001 Phase II investigation (i.e., the number and types of samples collected). *Please also revise Figure 5 to clarify the sampling locations shown and ensure it is consistent with the description in the text.*

Response: Agree.

Comments Received January 13, 2025

The text in Section 1.2.1, Unit Description, Data Evaluation, refers to all data used to support the DEXOU RFI/RI/BRA. In support of the DABW FCMS/FS, the conclusions of the DEXOU RFI/RI/BRA for the wetlands subunit (i.e., 488-D Wetland) were verified, as appropriate, through implementation of the approved technical protocols documented in the EC&ACP Regulatory Document Handbook. The DEXOU data that were used to support the DABW FCMS/FS included sediment/soil data from the 0 to 1 ft interval at the following locations: DAB-31, DAB-33 through-38, DAB-50 through-62, DAB-74, -75, -76, BGSM-01 and BGSM-02. Sampling locations DAB-88, -89, -90, -91 were not used in the risk evaluations but were used to define the extent of contamination on the western side of the ash plume.

To more accurately define the data used from the DEXOU RFI/RI/BRA to support the DABW FCMS/FS, Section 1.2.1, Unit Description, Data Evaluation, will be revised as follows:

"~~Data supporting the FCMS/FS for the DABW~~Data used to support the risk evaluations for the DEXOU wetlands subunit (i.e., 488-D Wetland) is presented in the 2002 RFI/RI/BRA ~~for the DEXOU (as noted in Table 1,~~(WSRC 2002a) and includes the following:

- **1997 pre-characterization data consisting of surface water sampling and a wetland survey consisting of 44~~39~~ water samples (DSW1 through 18, DSW21 through 42, DSW46, DSW47, and DSW49) along with pH and conductivity readings,**
- **DEXOU Phase I sampling conducted from 1998-1999 resulting in eight (8) sediment/soil samples (DAB-31 through -38) from 0.0 to 0.3 m (0 to 1 ft) and seven (7) surface water samples (DAB-32 through -38); two (2) background samples (BGSM-1 and BGSM-2) were also taken from 0.0 to 0.3 m (0 to 1 ft) and later determined to be used as part of the DABW risk evaluation,**
- **DEXOU Phase II sampling conducted in 2001, a Work Plan Addendum for DEXOU that resulted in 16 paired sediment/soil (DAB-50 through -62, DAB-74, DAB-75, and DAB-76) from 0.0 to 0.3 m (0 to 1 ft), 0.3 to 0.6 m (1 to 2 ft), 0.6 to 0.9 m (2 to 3 ft), and 0.9 to 1.2 m (3 to 4 ft) and 13 surface water samples (DAB-50 through -62), and**
- ~~**a Work Plan Addendum for DEXOU that resulted in 16 paired sediment/soil and surface water samples, and**~~
- **~~June~~Summer 2002 field sampling conducted resulting in four (4) sediment/soil samples (DAB-88 through -91) to identify the 0.0 to 0.3 m (0 to 1 ft) extent of contamination ~~and collection of four (4) sediment/soil samples~~.**

Data from the DEXOU used to support the risk evaluations in the FCMS/FS for the DABW included 25 sediment/soil samples (DAB-31, DAB-33 through DAB-38, DAB-50 through 62, DAB-74, -75, and -76, BGSM-1, and BGSM-2) from the 0.0 to 0.3 m (0 to 1 ft) interval (Table 1). Locations DAB-88 through -91 were not used in the risk evaluation and only used to define the extent of ash.

Figure 5 shows the sampling locations ~~associated with~~used to support the DABW FCMS/FS."

Figure 5 will also be revised as shown in Figure CR-5 to show all sample locations specific to the DABW investigation in support of the FCMS/FS.

A footnote will be added to Table 1 as shown below.

"Samples from locations DAB-88 through -91 were taken as part of a characterization effort in 2002 to define the extent of ash. Analytical results from these locations were not evaluated as part of the risk assessments."

Responsible Party: Susan Blas, (803) 952-6904, susan.blas@srs.gov

3. **Section 1.2.2, Nature and Extent of Contamination, Page 1-8 of 1-14:** The CMS/FS should include a cross section of the DABW as indicated in Section 1.2.3 (Nature and Extent of Contamination) of Format F-4 in the Environmental Compliance and Area Completion Projects Regulatory Document Handbook, dated June 2023 (the EC&ACP Regulatory Document Handbook). *Please revise the CMS/FS to include a cross section of the DABW, including the depth of known ash within the wetlands.*

Response: Clarification.

Although a cross-section figure is typically provided delineating the vertical extent of the contamination, the unique environmental setting did not provide the opportunity to collect traditional subsurface borings, which would support development of such a figure. The depth of contamination was estimated based on field measurements from the *Ecological Sampling and Analysis Plan for the D- Area Wetlands Operable Unit* (WSRC 2002b) and is considered adequate for the purposes of decision making. Cross sectional diagrams are not necessary to support the establishment of the proposed LUC boundary for the DABW.

No changes to the current document are proposed.

Responsible Party: Susan Blas, (803) 952-6904, susan.blas@srs.gov

4. **Section 1.2.4.3, Summary of Contaminant Fate and Transport and Principal Threat Source Material Evaluations, Page 1-12 of 1-14:** The discussion of the groundwater results in the DABW indicates that arsenic did not exceed the maximum contaminant level (MCL) of 10 micrograms/liter (ug/L) in the second quarter 2023 results, but the sensitivity of the data is not discussed. Based on Figure 8 (D-Area Ash Basin Arsenic Results for Groundwater [2Q23]), the reporting limit for arsenic is 30 ug/L, which exceeds the MCL. *Please revise the text to discuss the sensitivity and uncertainty in the non-detected results with reporting limits that exceed the MCL.*

   Response: Agree.

   Sensitivity of the D-Area Groundwater Operable Unit arsenic data was not discussed in the report. For the second quarter of 2023 (2Q23) sampling event, practical quantitation limit for arsenic was 30 ug/L and the method detection limit (MDL) was 5 ug/L. The MDL is below the MCL of 10 ug/L. All 2Q23 were non-detect or estimated results and estimated results were below the MCL. The text in Section 1.2.4.3 will be revised as follows:

   > **"…The groundwater results from the second quarter of 2023 showed no exceedances of the arsenic maximum contaminant level (MCL) (10 micrograms per liter [ug/L]) in the seven shallow wells (Figure 8). <u>For the second quarter of 2023 sampling event, the practical quantitation limit for arsenic was 30 ug/L and the method detection limit (MDL) was 5 ug/L. The MDL is below the MCL for arsenic.</u> Table 2 provides a summary of groundwater data collected to support the DAG OU monitoring at the seven DABW shallow wells. . ."**

   Responsible Party: Adam Willey, (803) 646-4944, adam.willey@srs.gov

5. **Section 1.2.5, Problems Warranting Action, Page 1-13 of 1-14:** The text states that the LUC boundary is based on exceedances of two times the average background concentration for arsenic (i.e., 8.2 milligrams per kilogram [mg/kg]), but this value is identified as the 95th percentile background in Table 4 (Summary of the D-Area Ash Basin Wetlands PRGs). It is also unclear why the LUC boundary considers arsenic exceedances and not the other COCs. *Please revise this section to clarify the arsenic value used for the LUC boundary and discuss why data for all COCs were not used.*

   Response: Agree.

   The LUC boundary was based on exceedances of Arsenic greater than the SRS Background 95th percentile. As agreed by the Core Team during project scoping, arsenic was used to determine the LUC boundary due to the robust data set and because it is a significant contaminant associated with ash. The radiological COCs carried forward from the DEXOU project are

naturally occurring and comparable to SRS background levels making it difficult to distinguish between natural background and process related contamination.

Section 1.2.5 will be revised as follows:

"…the likely cleanup level for the constituent shown. A proposed LUC boundary is depicted in Figure 12 based on the ash extent and HH RCOC concentrations above ~~2x average SRS background~~ the SRS Background 95th percentile, represented by As (8.2 mg/kg). Arsenic was used to determine the LUC boundary due to its robust data set and because it is a significant contaminant associated with ash. Other radiological COCs are naturally occurring and comparable to SRS background levels making it difficult to distinguish between natural background and process related contamination. There are no ecological, CM, or PTSM RCOCs for the DABW."

Responsible Party: Justin Steadman, (803) 952-7346, justin.steadman@srs.gov

6. **Section 2.2, General Response Actions, Pages 2-5 to 2-7 of 2-10:** This section should include a description of the estimated area or volume where treatment, containment, or exposure technologies may be applied as indicated in Section 2.2 (General Response Actions) of Format F-4 in the EC&ACP Regulatory Document Handbook. *Please revise this section to discuss the estimated area or volume of soil/sediment to which each of the general response actions may be applied.*

Response: Agree.

The level of detail added with the estimated areas and volumes are more appropriate for inclusion in Section 3.1, Development of Alternatives, rather than as indicated in the template (Section 2.2, General Response Actions).

The second paragraph in Section *3.1.2, Alternative A-2: LUCs*, will be revised as follows:

"…The LUCs will be described in detail in a Land Use Control Implementation Plan (LUCIP). Five-year remedy reviews would be required under this alternative. LUCs would be applied to the entire area of contaminated media, ~36 ha (90 ac). Proposed LUC boundaries are provided in Figure 12."

The extent to which excavation will be applied is currently provided in Section *3.1.3, Alternative A-3: Excavation and Disposal* and will be revised as follows:

"Alternative A-3 would include excavation of all ash to an average depth of 5 ft with an estimated volume of ~~739,000 yd^3 (565,006 cubic meters [m^3])~~565,006 m^3 (739,000 yd^3)."

SRS Responses to Environmental Protection Agency Comments on the Focused Early Action Corrective Measures Study/Feasibility Study for D-Area Ash Basin Wetlands (NBN) in Support of the Savannah River and Floodplain Swamp Integrator Operable Unit, (SRNS-RP-2024-10134, Revision 0, October 2024)
Savannah River Site, Aiken, South Carolina

Comments Received January 13, 2025

Responsible Party: Erin McCormick, (839) 746-1578, erin.mccormick@srs.gov

7. **Figure 7, D-Area Ash Basin Wetland Topography and Water Table Contours, Page 6-10 of 6-38:** The water table contours from 2018 are shown on this figure, but the groundwater elevations relative to mean sea level are not provided to support the contours. It is also unclear if these are the most recent water levels measured, as arsenic results from 2023 are provided on Figure 8 (D-Area Ash Basin Arsenic Results for Groundwater [2Q23]). *Please revise Figure 7 to include the most recent groundwater elevation measurements to support the water table contours and groundwater flow direction.*

   Response: Agree.

   Figure 7 depicts the potentiometric surface for the second quarter of 2022 (2Q22) but the legend was not updated. Figure 7 will be revised to correctly label the potentiometric surface, as well as to present the 2Q22 water elevation data to support the presented potentiometric contours and groundwater flow direction. The revised Figure 7 is included in these responses to comments as Figure CR-6.

   Responsible Party: Adam Willey, (803) 646-4944, adam.willey@srs.gov

8. **Figure 9, Refined CSM for the D-Area Ash Basin Wetlands, Page 6-12 of 6-38:** There are no volatile constituents of concern in sediment/soil investigated in the HHRA; therefore, the boxes for inhalation of vapors (resident and industrial worker) should contain dashes to indicate an incomplete exposure pathway. *Please revise the conceptual site model figure accordingly*.

   Response: Clarification.

   Volatile constituents were evaluated in the HHRA; however, none were identified as RCOCs. Therefore, the human health receptor boxes for inhalation of air vapor should be revised to indicate no RCOCs were identified. The Refined CSM will be revised as shown in Figure CR-7.

   Responsible Party: Justin Steadman, (803) 952-7346, justin.steadman@srs.gov

9. **Table 4, Summary of the D-Area Ash Basin Wetlands PRGs, Page 6-20 of 6-38:** The footnote (3) indicates the most likely PRG is the lesser of the risk-based levels and the 95th percentile background concentration, but the background concentrations exceed the risk based levels. Based on Section 2.1.3 (Most Restrictive and Most Likely PRGs), the most likely PRG defaults to the SRS background concentration to be technically practical to achieve. *Please revise the footnote to clarify how the most likely PRG is selected.*

   Response: Agree.

The Footnote 3 in Table 4 will be revised as follow:

"[3] Most likely PRG is the lesser of the risk-based levels ~~and~~or the SRS 95th percentile background concentration if it is greater than the PRG. Source of the most likely cleanup level is identified in italics."

Responsible Party: Justin Steadman, (803) 952-7346, justin.steadman@srs.gov

10. **Appendix B, Human Health Risk Assessment, Attachment B-1, USEPA Regional Screening Levels Table (RSLs) for Default Resident and Default Industrial Worker Scenarios Page B-25 of B-42:** The date of the RSLs used herein should be included on the table; *please revise the table to provide the release date of the RSLs.*

Response: Agree.

A note will be added to the USEPA Regional Screening Levels Table (RSLs) for Default Resident and Default Industrial Worker Scenarios as shown below.

"Note This table was generated from the May 2024 Regional Screening Level Summary Table found on the USEPA RSL website (USEPA 2024a)."

Responsible Party: Justin Steadman, (803) 952-7346, justin.steadman@srs.gov

SRS Responses to Environmental Protection Agency Comments on the Focused Early Action Corrective Measures Study/Feasibility Study for D-Area Ash Basin Wetlands (NBN) in Support of the Savannah River and Floodplain Swamp Integrator Operable Unit, (SRNS-RP-2024-10134, Revision 0, October 2024)
Savannah River Site, Aiken, South Carolina

Comments Received January 13, 2025

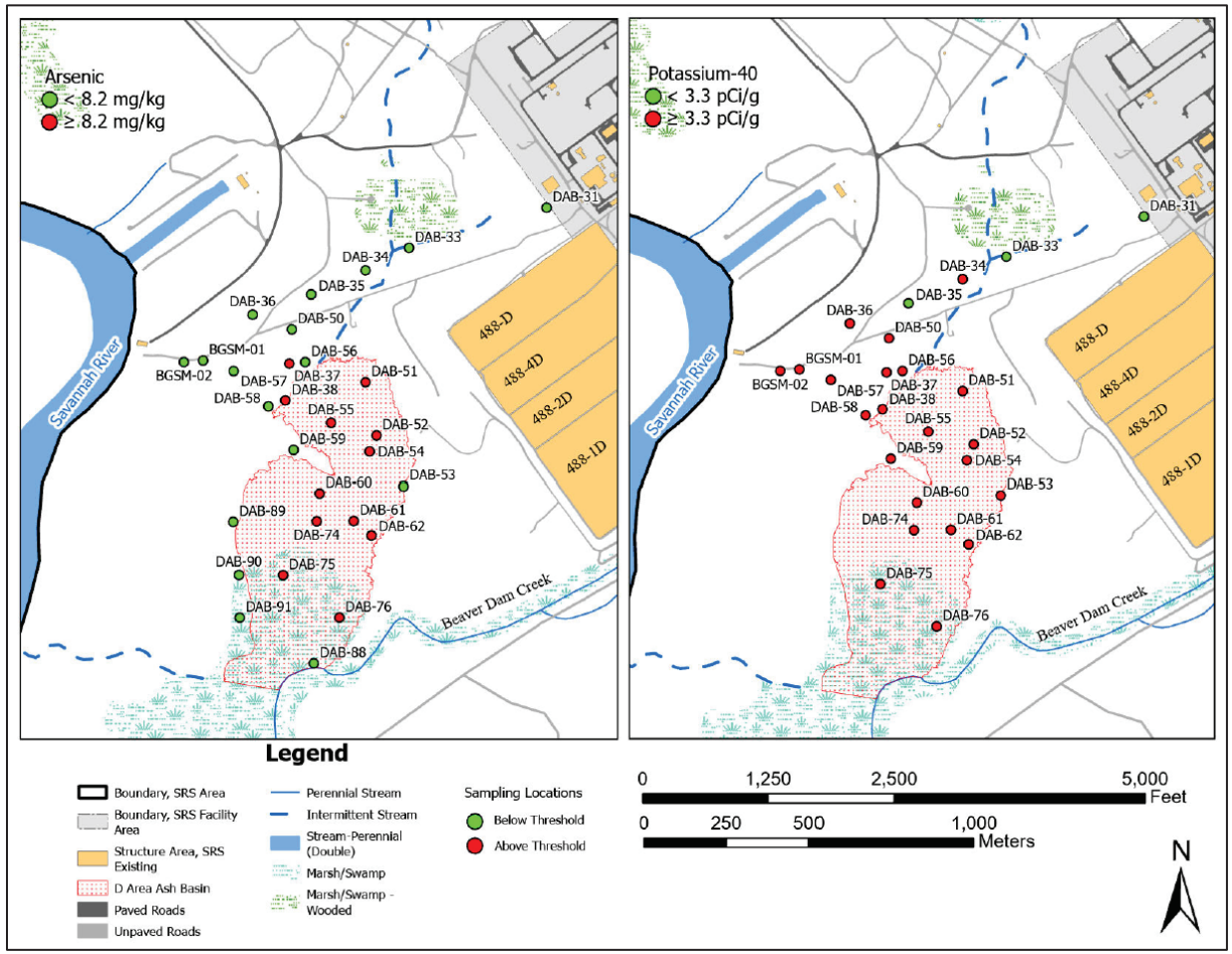

Figure CR-1. Arsenic and Potassium-40 Levels in Sediment/Soil Within the 0-1 ft ~~and 0-4 ft~~ Depth Intervals

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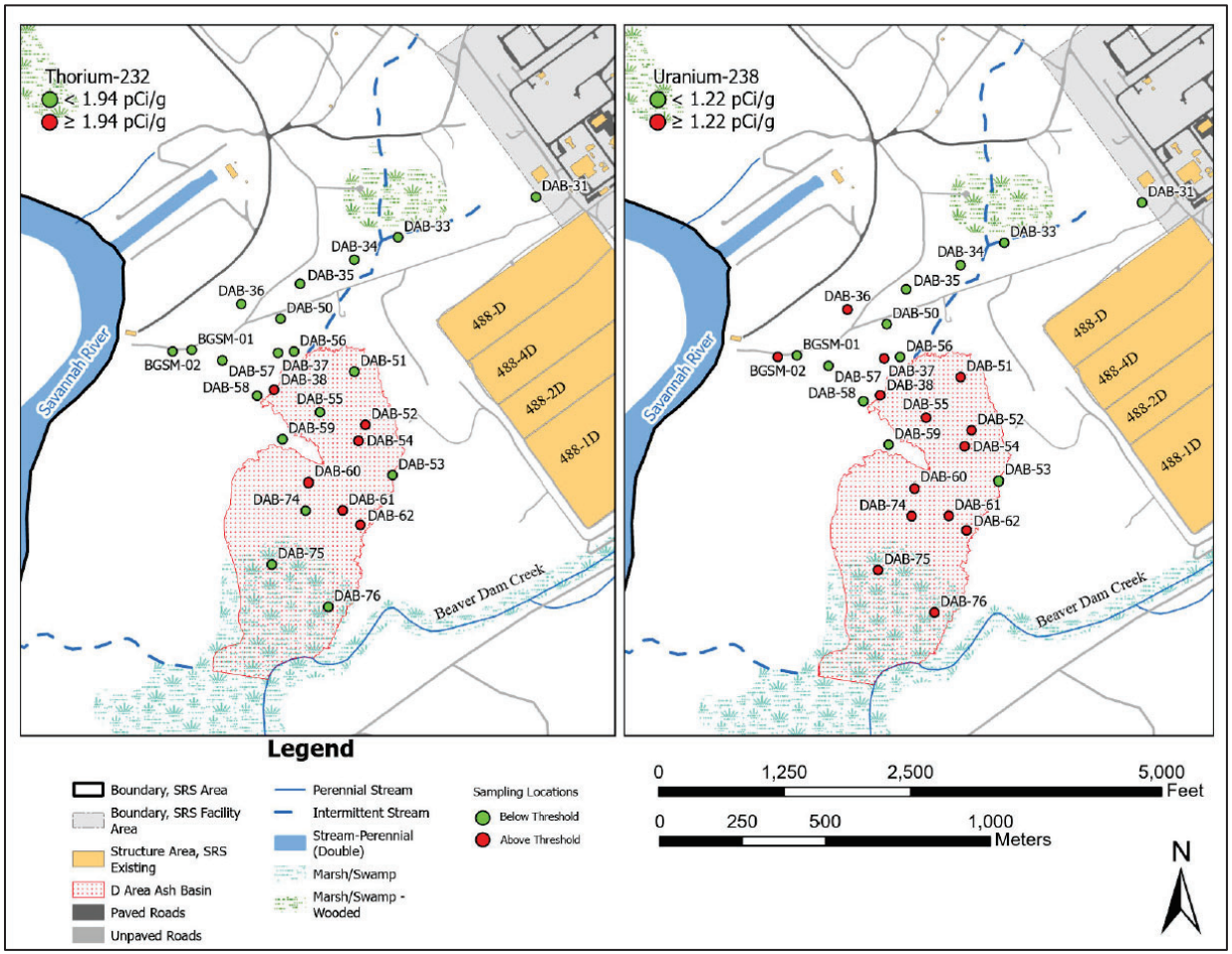

Figure CR-2. Thorium-232 and Uranium-238 Levels in Sediment/Soil Within the 0-1 ft ~~and 0-4 ft~~ Depth Intervals

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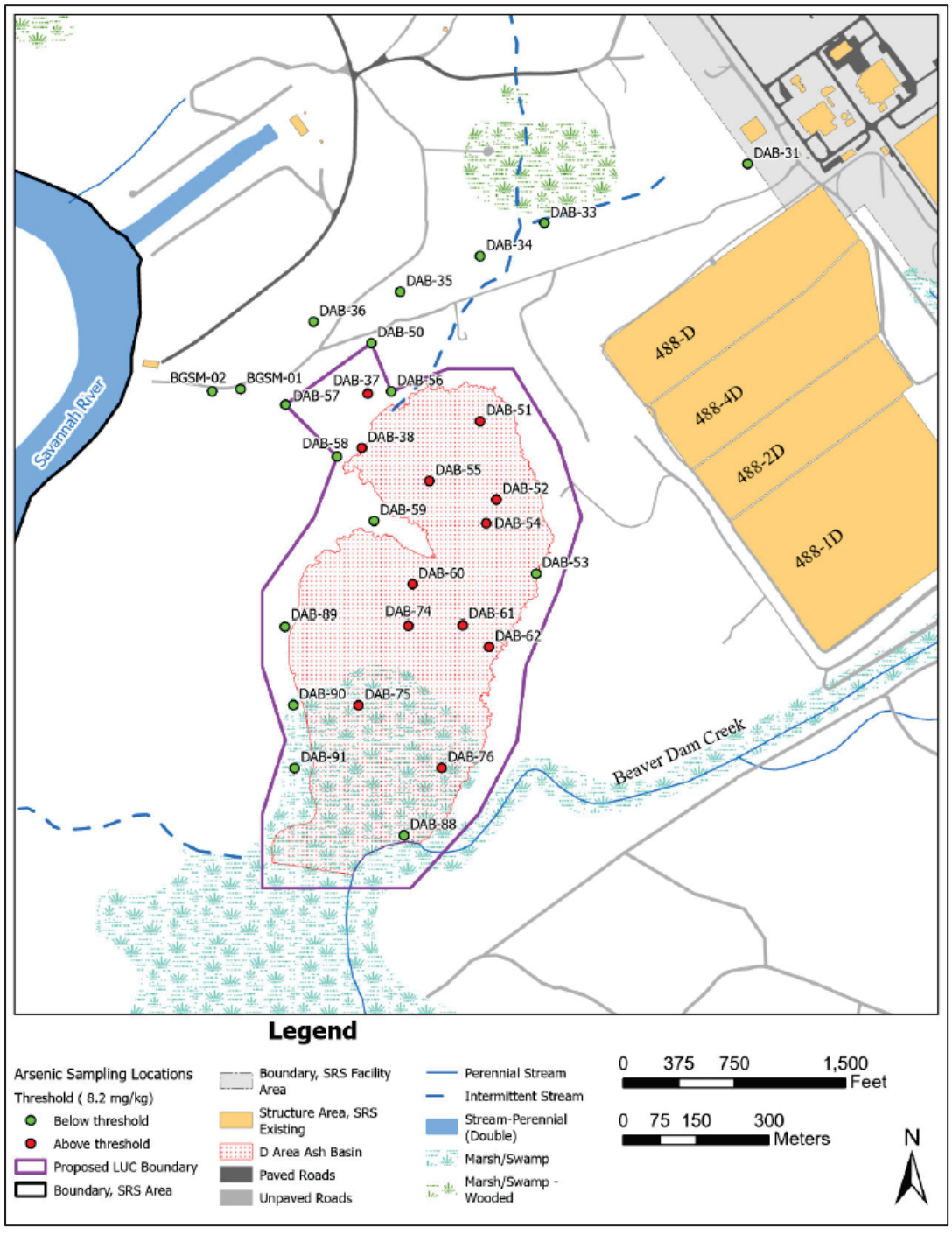

Figure CR-3. Proposed Land Use Control Boundary Based on Ash Extent (represented by As and background cleanup level of 8.2 mg/kg)

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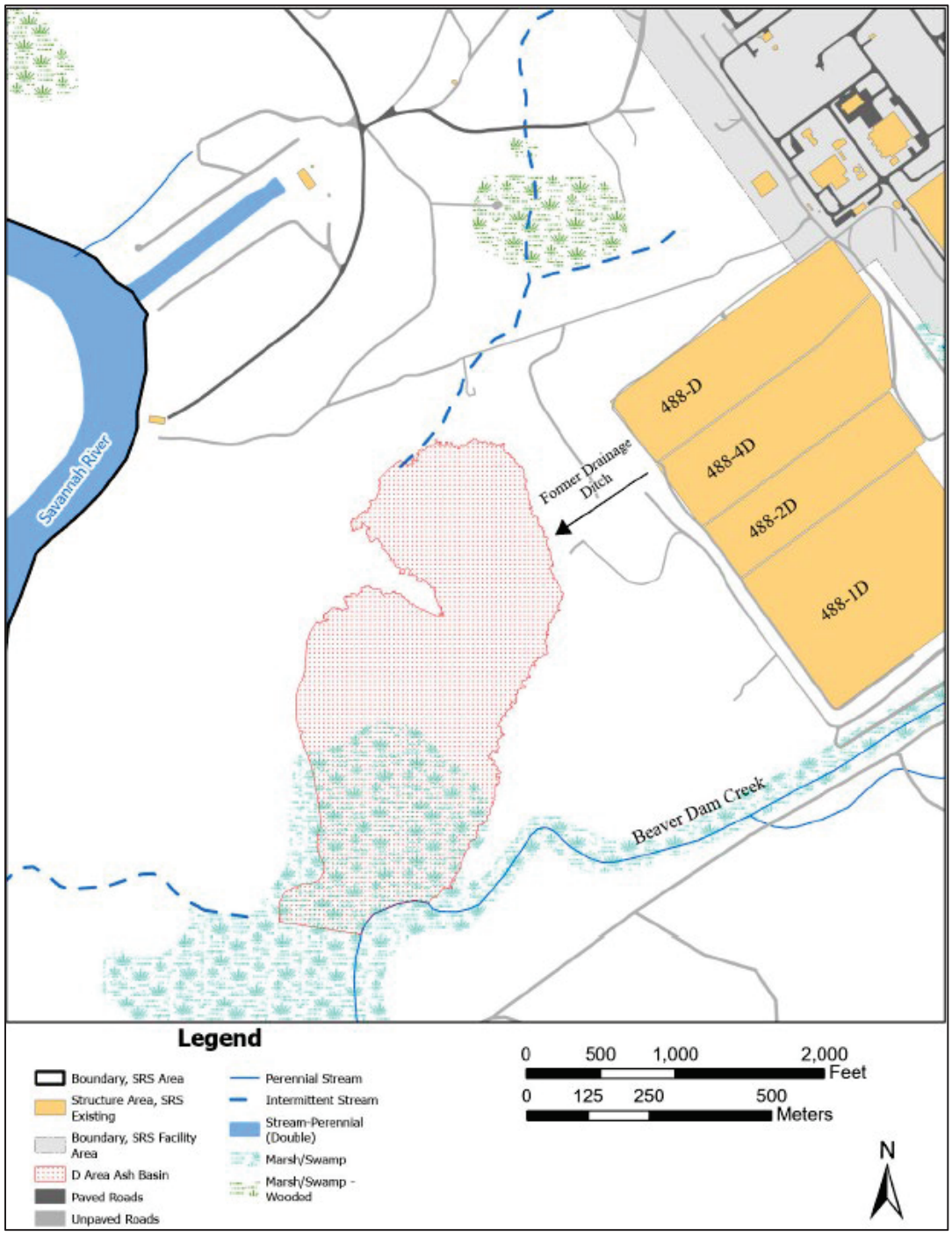

Figure CR-4. Layout of the D Area Ash Basin Wetlands

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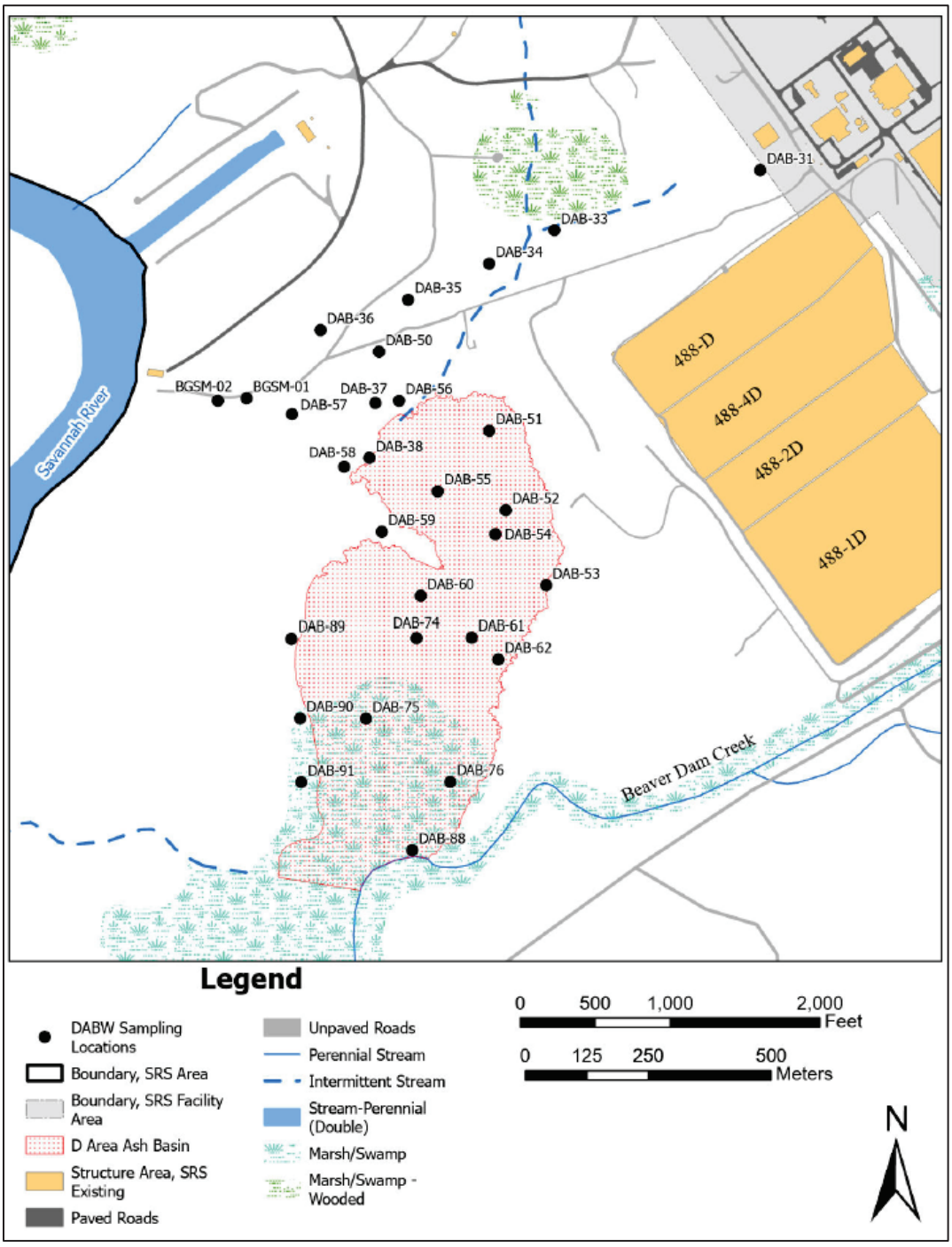

CR-5. D-Area Ash Basin Wetlands Sampling Locations

SRS Responses to Environmental Protection Agency Comments on the Focused Early Action Corrective Measures Study/Feasibility Study for D-Area Ash Basin Wetlands (NBN) in Support of the Savannah River and Floodplain Swamp Integrator Operable Unit, (SRNS-RP-2024-10134, Revision 0, October 2024)
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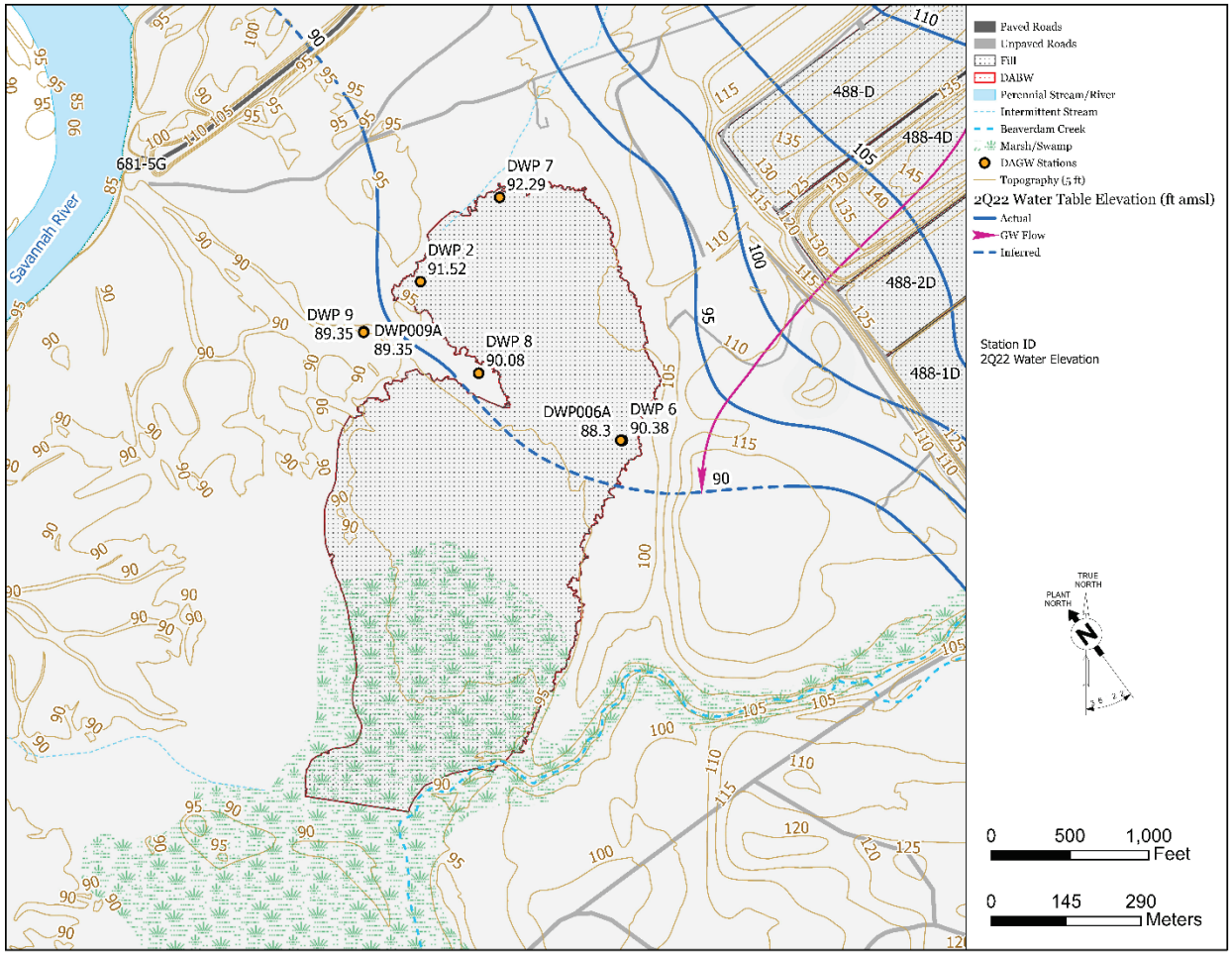

Figure CR-6. D-Area Ash Basin Wetlands Topography and Water Table Contours

SRS Responses to Environmental Protection Agency Comments on the Focused Early Action Corrective Measures Study/Feasibility Study for D-Area Ash Basin Wetlands (NBN) in Support of the Savannah River and Floodplain Swamp Integrator Operable Unit, (SRNS-RP-2024-10134, Revision 0, October 2024)
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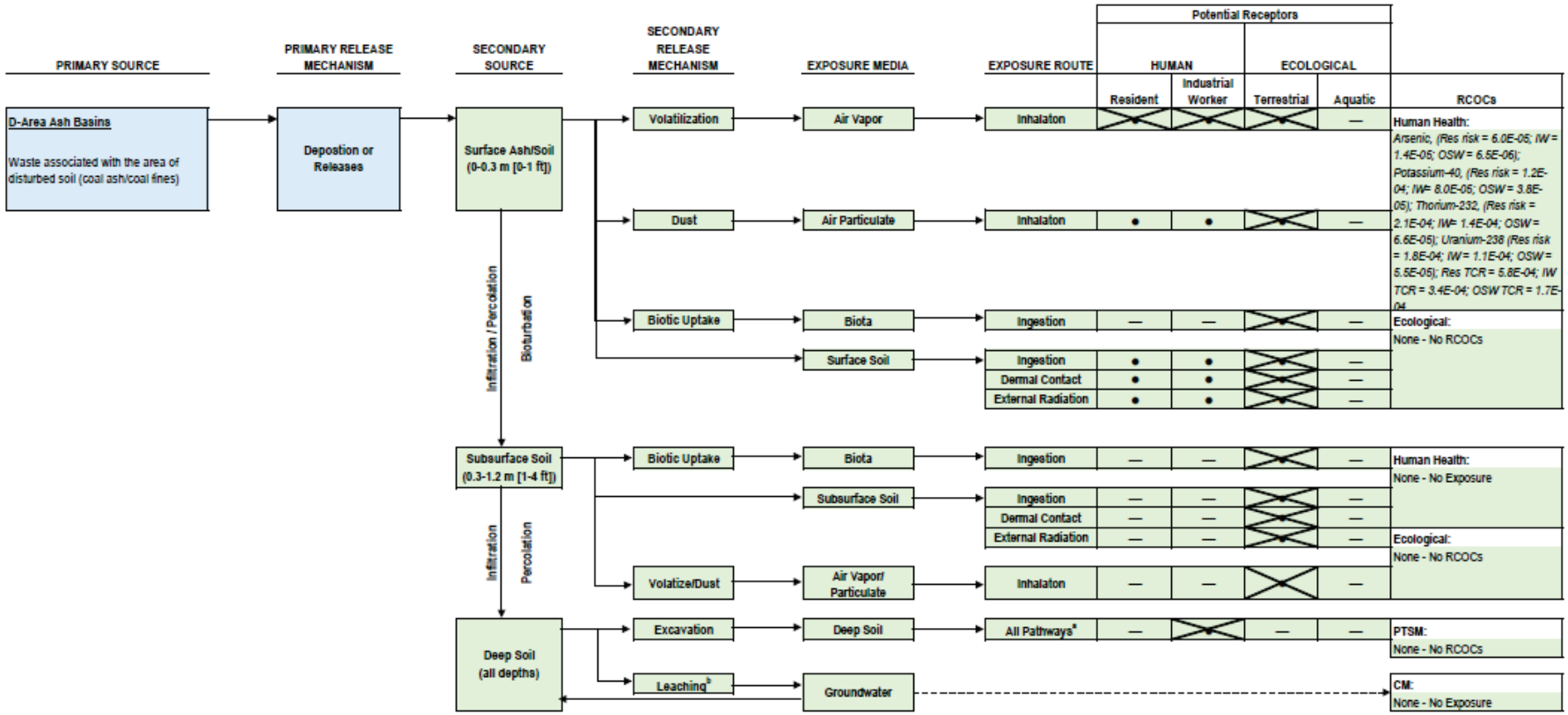

Figure CR-7. Refined CSM for the D-Area Ash Basin Wetlands

SRS Responses to South Carolina Department of Environmental Services Comments on the Focused Corrective Measures Study / Feasibility Study for D-Area Ash Basin Wetlands (NBN) in Support of the Savannah River and Floodplain Swamp Integrator Operable Unit (U),
SRNS-RP-2024-01034, Revision 0, Dated October 2024

Comments Received January 24, 2025.

Specific Comments

1. Figure 8, D-Area Ash Basin Arsenic Results for Groundwater (2Q23), page 6-11. This figure, which is referenced in the discussion of groundwater results for seven shallow DABW monitoring wells in Section 1.2.4.3, shows the following results for arsenic: three detects below MCL, three non-detects and one not sampled. Table 2 indicates five detections out of eight samples, with an exceedance of the MCL (elevated turbidity, which was explained in Section 1.2.4.3). There appears to be a discrepancy in the number of detects listed in Table 2 and the results shown on Figure 8. Please correct and include the location of the arsenic MCL exceedance in addition to the other seven results.

   Response: Clarification.

   Figure 8 presents the second quarter of 2023 (2Q23) results for D-Area Groundwater monitoring wells in the DABW. Table 2 presents data for each year, which included the fourth quarter of 2023 (4Q23) in the row for calendar year 2023 (CY23). In 2Q23, there were six wells sampled, and in 4Q23 there were two wells sampled, for a total of eight wells sampled in CY23. In 2Q23, there were three detections and in 4Q23 there were two detections, for a total of five detections in CY23. The location of the MCL exceedance in 4Q23 (58 ug/L) was at DWP 8. The 2Q23 result at DWP 8 was an estimated result of 7.28 ug/L. For clarity, Table 2 revisions will be made to the first column heading, a note will be added to the column heading, and a "Station of Max" column will be added for each constituent. Revised Table 2 is included in these responses as Table CR-1.

   Responsible Party: Adam Willey, (803) 646-4944, adam.willey@srs.gov

2. Table 7, Summary of the Screening of Alternatives for the DABW, page 6-34. In the Comments column for A-3 – Excavation and Disposal, the last sentence states "Requires five-year remedy reviews." However, in Section 3.1.3 Alternative A-3: Excavation and Disposal, the last sentence of the section states, "This alternative would not require five-year remedy reviews." Please revise Table 7 to the correct statement regarding five-year remedy reviews for A-3 – Excavation and Disposal.

   Response: Agree.

   Table 7 will be revised as follows:

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A-3 – Excavation and Disposal	Effective for achieving RAO; eliminates exposure to IOU onsite worker. Permanently removes volume, toxicity and mobility of ash.	Although excavation and disposal are typically readily implemented with standard earth- moving equipment, materials, and conventional construction methods; the implementation of this large-scale removal in a wetland environment would be very challenging. Specialized equipment and/or site preparation will likely be necessary to execute the work safely.	High	Retained	Protective of human health; all ash would be removed from DABW eliminating risk, volume, toxicity, and mobility. Even though the distance to the nearest permitted landfill with adequate storage capacity is in the vicinity, hauling costs very high. Does not require ~~Requires~~ five-year remedy reviews.

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

**SRS Responses to South Carolina Department of Environmental Services Comments on the Focused Corrective Measures Study / Feasibility Study for D-Area Ash Basin Wetlands (NBN) in Support of the Savannah River and Floodplain Swamp Integrator Operable Unit (U),
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Table CR-1. Summary of the Groundwater Data from the Seven DABW Shallow Wells

Calendar Year [A] ~~Sampling Event~~	Arsenic				Barium				Beryllium				Uranium			
	Detects/ Samples	Max	Station of Max	# Above MCL[AB]	Detects/ Samples	Max	Station of Max	# Above MCL[AB]	# of Samples	Max	Station of Max	# Above MCL[AB]	# of Samples	Max	Station of Max	# Above MCL[AB]
2023	5/8	58[CB]	DWP-008	1	8/8	103	DWP-007	0	7/8	10[CB]	DWP-008	1	-	-	-	-
2022	2/7	7.77	DWP-008	0	7/7	125	DWP-009-A	0	4/7	2.07	DWP-008	0	-	-	-	-
2021	5/10	27.9[CB]	DWP-008	1	10/10	127	DWP-006-A	0	2/10	1.11	DWP-006-A	0	-	-	-	-
2020	4/7	6.77	DWP-008	0	7/7	81.2	DWP-002	0	5/7	0.714	DWP-009-A	0	-	-	-	-
2019	4/6	6.47	DWP-008	0	6/6	47.4	DWP-007	0	6/6	0.946	DWP-009-A	0	0/6	-	-	-
2018	5/6	7.5	DWP-009-A	0	6/6	109	DWP-009-A	0	5/6	3.04	DWP-009	0	2/6	0.185	DWP-007	0
2017	4/5	5.97	DWP-008	0	5/5	142	DWP-009-A	0	5/5	1.54	DWP-009	0	-	-	-	-
2016	6/8	7.92	DWP-006	0	8/8	185	DWP-006	0	5/8	2.75	DWP-006	0	1/8	2.92	DWP-006	0
2015	4/7	5.97	DWP-009-A	0	7/7	68	DWP-008	0	5/7	0.944	DWP-008	0	0/7	-	-	-
2014	3/6	3.9	DWP-009-A	0	6/6	140	DWP-009-A	0	5/6	0.68	DWP-002	0	-	-	-	-
2013	2/5	6.2	DWP-008	0	5/5	82.8	DWP-009-A	0	5/5	0.896	DWP-002	0	-	-	-	-
2012	4/4	7.63	DWP-009-A	0	4/4	156	DWP-007	0	4/4	1.29	DWP-002	0	0/3	-	-	-
2011	2/6	6.4	DWP-008	0	6/6	92.8	DWP-009-A	0	4/6	0.66	DWP-002	0	-	-	-	-
2010	3/7	9.3	DWP-008	0	7/7	118	DWP-009-A	0	2/7	0.45	DWP-002	0	-	-	-	-
2009	3/7	5.8	DWP-008	0	7/7	90	DWP-009-A	0	7/7	1.6	DWP-009	0	1/7	0.327	DWP-008	0
2008	0/6	-	-	-	6/6	135	DWP-008	0	2/6	1.87	DWP-009	0	0/6	-	-	-
2007	2/7	16.2	DWP-008	1	7/7	131	DWP-008	0	6/7	2	DWP-009	0	-	-	-	-
2006	3/7	10.1	DWP-008	1	7/7	195	DWP-009-A	0	7/7	1	DWP-009	0	-	-	-	-
2005	2/5	10.7	DWP-008	1	5/5	81.9	DWP-008	0	3/5	2.1	DWP-009	0	0/5	-	-	-
2004	3/5	13.9	DWP-008	1	5/5	87.9	DWP-008	0	2/5	5	DWP-008	1	-	-	-	-
2003	2/6	7.29	DWP-008	0	6/6	67	DWP-008	0	12/12	3.48	DWP-009	0	-	-	-	-

Red shaded results exceed the MCL

A – Number of sampling events vary in each calendar year. Sampling performed in accordance with the *Monitoring Work Plan for the D-Area Groundwater Operable Unit (U)* (WSRC-RP-2003-4150).

BA – November 2023 USEPA MCLs; Arsenic - 10 ug/L, Barium - 2,000 ug/L, Beryllium - 4 ug/L, Uranium - 30 ug/L

CB – Sample had high turbidity (>140 NTU) |

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