UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
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ATLANTA, GEORGIA 30303-8960

December 16, 2021

Mr. Brian T. Hennessey
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EPA Comments on the RCRA FACILITY INVESTIGATION/REMEDIAL INVESTIGATION WORK PLAN FOR THE D-AREA GROUNDWATER OPERABLE UNIT (D-AREA UPGRADIENT SOURCES) (U), SEMS NUMBER: 63, SRNS-RP-2019-00394, REVISION 0, DATED JUNE 2021 SAVANNAH RIVER SITE AIKEN, SC

Dear Mr. Hennessey:

The U.S. Environmental Protection Agency, Region 4 (EPA), has reviewed the June 14, 2021 R0 and attached are our comments.

If you have any questions or require additional information, please contact me at (404) 562-8648.

Sincerely,

JON RICHARDS

Digitally signed by JON RICHARDS
Date: 2021.12.16 14:14:55 -05'00'

Jon Richards
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GENERAL COMMENTS

1. The RCRA Facility Investigation/Remedial Investigation Work Plan for the D-Area Groundwater Operable Unit (D-area Upgradient Sources) (U), SEMS Number: 63, SRNS-RP-2019-00394, Revision 0, dated June 2021 (the RFI/RIWP) indicates that Sections 5.0 through 7.0 represent the Sampling and Analysis Plan (SAP); however, several elements of the SAP are missing from the RFI/RIWP. Examples of missing elements include, but are not limited to, the following:
    a. Procedures for collecting split samples
    b. Identification of key project personnel and contact information, including the analytical laboratory
    c. Field and laboratory quality control (QC) performance or acceptance criteria
    d. Project action limits that will be used to evaluate the data
    e. Calculations for evaluating accuracy and precision
    f. Standard operating procedures
    g. Planned assessments and corrective action procedures

    Revise the RFI/RIWP to include sufficient information required to perform the tasks outlined in the RFI/RIWP and to ensure data collected is of sufficient quality to meet the data quality objectives (DQOs).

2. Several of the figures throughout the RFI/RIWP include an inset map showing the location of the D-Area Groundwater (DAGW) Operable Unit (OU) within the Savannah River Site; however, it would be helpful if the RFI/RIWP included a larger scaled figure showing the relative location of the site within South Carolina. Revise the RFI/RIWP to include a figure showing the location of the site within South Carolina.

3. The RFI/RIWP discusses several site features that are not shown on a figure. For example, the bulleted list in Section 1.2.3 (Summary of Unit Description, Page 4 of 122) indicates that the DAGW OU consists of groundwater impacted by previous operations from the Fire Training Area (411-1D/411-3D); however, the Fire Training Area is not depicted on Figure ES-2 (D-Area Operable Unit Subunits and Facilities) or Figure 2 (DAOU Subunits and Facilities). As another example, Section 1.2.5 (D-Area Operable Unit, first paragraph, Page 7 of 122) states that the DAGW OU also includes the D-Area Asbestos Pit (080-20G), but this site feature is not shown on a figure. Revise the RFI/RIWP to include figures that depict all site features discussed throughout the document, including the examples provided.

4. Several of the figures are incorrectly referenced throughout the RFI/RIWP. For example, the first paragraph in Section 2.3.1 (DAG OU VOC Plume, Page 25 of 122) references Figure 11 for the Gordon Aquifer trichloroethylene (TCE) plume and Figure 12 for a cross-sectional view of the TCE plume; however, the correct references are Figure 10 and Figure 11, respectively. As another example, the first paragraph in Section 2.3.2.1 (DAG OU Tritium Plume, Page 27 of 122) references Figure 16 for the tritium plume, but the correct reference is Figure 15. Ensure the correct figures are referenced throughout the RFI/RIWP.

5. It is unclear why Section 2.3.2.1 (DAG OU Tritium Plume) and Section 2.3.2.2 (DAG OU PFAS Plume) are subsections to Section 2.3.2 (DAG OU Low pH and Metals Plume). Revise the RFI/RIWP so that Sections 2.3.2.1 and 2.3.2.2 are subsections to Section 2.3 (Unit Evaluation Conclusions), rather than subsections to Section 2.3.2.

6. The discussion of DQOs in Section 3.1.2 through 3.1.8 is insufficiently detailed and should be expanded to provide additional information regarding the decision process and objectives based on EPA's *Guidance on Systematic Planning Using the Data Quality Objectives Process*, EPA QA/G-4 (the DQO Guidance), dated February 2006. Examples of insufficient detail include, but are not limited to:
    a. Section 3.1.5 (Define the Boundaries of the Study, Page 38 of 122) does not discuss practical constraints that could interfere with sampling or temporal boundaries that describe the timeframe the study will represent and when samples should be taken.
    b. Section 3.1.6 (Develop Decision Rules, Page 38 of 122) does not provide decision statements (i.e., "if…, then…" statements) for how the project data will be used.
    c. Section 3.1.7 (Specify the Limits on Decision Errors, Page 39 of 122) does not define the screening levels that will be used for making each project decision.

    Revise the RFI/RIWP to provide comprehensive DQOs in accordance with the DQO Guidance.

7. Section 3.1.3 (Identify the Decisions, first paragraph on Page 37 of 122) indicates that limited sediment samples will be collected; however, insufficient information is provided in the RFI/RIWP for sediment sampling. For example, sediment samples are not discussed in Section 4.4 (Exposure Media Characterization), equipment and decontamination procedures for sediment sampling are not provided in Section 7.2 (Equipment and Decontamination Procedures), the locations of sediment samples are not included on Figure 7 (DAG OU Monitoring Well and Surface Water Stations), and sediment samples are not listed in Table 1 (DAG OU Monitoring Well and Surface Water Network Details and Additional Samples and Sample Stations). Revise the RFI/RIWP to provide sufficient information for the collection and analysis of sediment samples, including the examples provided.

SPECIFIC COMMENTS

1. **Figure ES-2, D-Area Operable Unit Subunits and Facilities, Page ES-8 of ES-10, and Figure 2, DAOU Subunits and Facilities, Page 63 of 122:** Site features are not easily identifiable, and it is unclear whether the Former Dead/Stressed Vegetation Area, Borrow Pit, and Lake/Pond/River are depicted on these figures. For example, the legends present a color to depict the Former Dead/Stressed Vegetation Area that is too similar to the facility labels. In addition, the legends present a color to depict the Borrow Pit that is too similar to the background features (e.g., land) on the figure. Further, the color used to depict Lake/Pond/River is too similar to the Moderator Processing Subunit, and the Savannah River is not identified according to the legend. Revise Figures ES-2 and 2 to clearly depict site features using colors that can be easily distinguished from the D-Area Operable Unit (DAOU) Subunits and background features and to identify the Savannah River according to the legend.

2. **Section 2.3, Unit Evaluation Conclusions, Pages 24 to 29 of 122:** Statements are made throughout this section that cannot be substantiated. For example, the second paragraph of Section 2.3.1 (DAG OU VOC Plume, Page 25 of 122) states, "Most concentrations of TCE in the UTRA [Upper Three Runs Aquifer] source area are decreasing, indicating depletion of the source and degradation of the TCE plume;" however, insufficient information is provided in the RFI/RIWP to substantiate this statement. As another example, Section 2.3.2 (DAG OU Low pH and Metals Plume, first full paragraph on Page 27 of 122) states, "Metals trends show lingering contaminant concentrations are likely due to ongoing low (acidic) pH levels

in the vadose zone and in the groundwater," but trend graphs are not provided in the RFI/RIWP to verify this statement. Revise Section 2.3 to provide sufficient information to substantiate conclusions made about each plume (e.g., provide historic data, include trend graphs, or reference the document[s] where the information can be found).

3. **Section 4.1, Objectives, Pages 41 to 42 of 122; Section 6.2, Field Analytical Sampling Quality Assurance/Quality Control, Page 49 of 122; and Table 8, Minimum Field Quality Control/Quality Assurance Sampling Requirements, Page 118 of 122:** The last paragraph in Section 4.1 indicates that rinsate blanks will be collected at a rate of one per 30 samples and that field blanks will be collected at a rate of 10 percent (%) of the sampling locations; however, Section 6.2 and Table 8 indicate that equipment blanks (i.e., rinsate blanks) will be collected at a rate of one per 40 samples. Table 8 also indicates that field blanks will be collected at a rate of one per 40 samples (optional). In addition, it is unclear why the RFI/RIWP does not include the collection of matrix spike (MS)/matrix spike duplicate (MSD) samples. Revise the RFI/RIWP to resolve discrepancies in the required frequency of field QC samples and to include the collection of MS/MSD samples.

4. **Figure 17, DAG OU PFAS Plume (2Q2020), Page 93 of 122:** The legend on this figure is incomplete. For example, there are wells designated with red squares and green circles, but it is unclear what these symbols represent. In addition, the dashed lines around the plume have not been defined. While it is assumed that the dashed lines indicate the boundary of the plume is inferred, the dashed lines should still be defined in the legend as inferred. Further, a red rectangle is shown on the northeast side of the plume around the 411-D Fire Fighting Simulation Area and 411-3D Fire Fighting Simulator Building, but it is unclear what the red rectangle represents. Revise Figure 17 to include a complete legend that defines all items presented on the figure.

5. **Table 7, Laboratory Analytical Specifications Table for TAL/TCL Analytes for Surface or Groundwater Media, Page 115 of 122:** This table lists the analytical method for mercury in surface water and groundwater as EPA 7471B; however, EPA Method 7471B is a solids/semisolids method. Revise Table 7 to indicate that surface water and groundwater samples will be analyzed for mercury by EPA Method 7470A, which is the method for mercury in liquid.

6. **Table 7, Laboratory Analytical Specifications Table for TAL/TCL Analytes for Surface or Groundwater Media, Pages 115 to 117 of 122:** The column headers in Table 7 reference footnotes A and B; however, there are no footnotes at the end of the table. In addition, the last column header is "CRDL," but "CRDL" is not defined, and it is unclear if this column represents the laboratory limit of quantitation (LOQ) or a different value. Revise Table 7 to include footnotes A and B, or remove the references to these footnotes. Further, revise Table 7 to define "CRDL" and to clarify what the values in this column represent.

7. **Table 9, Preservatives, Holding Times, and Sample Containers, Page 120 of 122:** Table 9 indicates that the holding time for metals analysis is 6 months; however, target analyte list (TAL) metals include mercury, which has a maximum holding time of 28 days according to Section 6.3 in EPA Method 7470A. Revise Table 9 to indicate that mercury has a holding time of 28 days.