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

MAR - 1 2018

Ms. Susan B. Fulmer, P. G., Manager
Federal Remediation Section
Division of Site Assessment, Remediation and Revitalization
Bureau of Land and Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

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

Dear Ms. Fulmer and Mr. Richards:

SUBJECT: Savannah River Site's Responses to the Regulatory Comments on the 2016 Groundwater Monitoring Report for the D-Area Groundwater Operable Unit (U) (SRNS-RP-2017-00383, Revision 0, July 2017) CERCLIS Number 63

In accordance with the terms of the Federal Facility Agreement, the U. S. Department of Energy (DOE) is submitting the subject comment responses for your review and approval. The South Carolina Department of Health and Environmental Control (SCDHEC) and the U. S. Environmental Protection Agency (EPA) provided comments on the Revision 0 report on November 28, 2017 and December 4, 2017, respectively. This report will not be revised; however, all comment responses will be included in the next monitoring report, as applicable. Please review these responses and provide your approval thirty (30) days from receipt. The effort and time that the SCDHEC and the EPA have given on the subject operable unit are greatly appreciated.

Comments or questions from your staff may be directed to me at (803) 952-8365, or the DOE Federal Project Director, Ms. Karen Adams, at (803) 952-7871.

Sincerely,

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

IACD-18-137

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Enclosures:
1. SRS Responses to EPA Comments on the 2016 Groundwater Monitoring Report for the D-Area Groundwater Operable Unit, CERCLIS Number: 63 (SRNS-RP-2017-00383, Revision 0, July 2017)
2. SRS Responses to SCDHEC Comments on the 2016 Groundwater Monitoring Report for the D-Area Groundwater Operable Unit (U), CERCLIS Number: 63 (SRNS-RP-2017-00383, Revision 0, July 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
R. Pope, EPA-Atlanta

cc w/ encl:
D. Lloyd, EPA-Atlanta
M. McRae, TechLaw, Inc.

SRS Responses to U.S. Environmental Protection Agency
Comments on the
2016 Groundwater Monitoring Report for the D-Area Groundwater Operable Unit,
SRNS-RP-2017-00383, Revision 0, July 2017, CERCLIS Number: 63
Savannah River Site, Aiken, South Carolina

Comments Received December 4, 2017

EPA Comments:

1. The D-Area Groundwater Operable Unit (DAG OU) groundwater model may no longer be useful for comparing and predicting long-term plume behavior since the site conditions have changed and an update to the conceptual site model (CSM) and groundwater model is warranted.
    a. For example, Section 4.2, Comparison to Model/Expectation for Long-Term Plume Behavior, Page 17 of 24, states, "Overall, the results from recent analytical monitoring are consistent with those predicted from the groundwater modeling for the DAG OU."
    b. Additionally, Section 5.1.2 VOC Plume, Page 20 of 24, indicates there have been no releases of river water into Beaver Dam Creek since May of 2012 and therefore no dilution of the groundwater contamination by the river water has occurred since the shutdown of the 484-D Powerhouse.

   It is not currently known if the initial DAG OU modeling assumed the water balance changes that have occurred and that impact the fate and transport of contaminants of concern (COCs) in groundwater as they migrate and discharge to surface water. As such, as the CSM requires updating, it appears the groundwater model should also be updated. Please revise the 2016 Groundwater Monitoring Report for the D-Area Groundwater Operable Unit to address these issues.

   Response: Agree/Clarification

   The *Flow and Transport Modeling for D-Area Groundwater (U)* (WSRC-RP-2002-4166, Rev 0, October 2002) acknowledged some changes would occur once operations of the 484-D Powerhouse ceased. Recent removal actions on the 488-1D Ash Basin, 488-2D Ash Basin, 488-4D Ash Landfill, and 489-D Coal Pile Runoff Basin are expected to slightly decrease the water table elevation as the basins are no longer holding water in the local area. Also, the upcoming removal actions associated with the low pH in groundwater and in the D-Area Discharge Canal/Beaver Dam Creek and the soil in the 484-17D Coal Storage Area will also effect groundwater conditions as additional groundwater will be injected in the water table and pH changes will greatly affect inorganic sorption in the aquifer sediments and groundwater concentrations. It is proposed that an updated or new groundwater model be conducted after those actions are complete and installation of new monitoring wells and surface water stations and the subsequent data is collected and reviewed with the Core Team. No changes to the 2016 monitoring report are proposed.

   Contact: Ashley Shull (ashley.shull@srs.gov) 803-952-7090

SRS Responses to U.S. Environmental Protection Agency Comments on the 2016 Groundwater Monitoring Report for the D-Area Groundwater Operable Unit, SRNS-RP-2017-00383, Revision 0, July 2017, CERCLIS Number: 63 Savannah River Site, Aiken, South Carolina

Comments Received December 4, 2017

2. The text in Subsection DAG OU FFA Schedule, Page 21 of 24, states, "The FFA Field Start for additional characterization for groundwater at the DAG OU is scheduled for June 2020. Subsequent to completion of the D-Area Ash Basins/Landfill removal activities, additional characterization will occur in order to address any additional data gaps..." Based on the review of the information and data presented in the Report, the following data gaps in the horizontal and vertical extent of groundwater contamination have been identified:

    a) Horizontal extent of metals (e.g., Be, Co, Mn) contamination southeast of Beaver Dam Creek and surface water monitoring stations DSWM-5, -6 and -7 is poorly constrained in the Upper Three Runs Aquifer (UTRA). As such, it is unclear if the metal(s) plume extends across Beaver Dam Creek where no monitoring wells are currently installed.

    b) Vertical extent of trichloroethylene (TCE) contamination in the Gordon Aquifer beneath the VOC source zone near well DCB 62 has not been adequately assessed or characterized and is currently not known. Although Gordon Aquifer zone well DCB 51D measured non-detect for TCE, the well is located upgradient of the source zone. Figure D-32, D-Area Groundwater Cross-Section A-A' for Trichloroethylene (TCE), 2Q16, Page D-67 of D-80, shows the vertical extent of TCE contamination near the source area is not adequately defined as indicated by the dashed >5 µg/L iso-concentration contour.

    c) Additionally, the "Time Series Plot for Trichloroethylene (TCE) for Station DCB 33", Page E-123 of E-188 shows an increasing TCE trend in this Gordon Aquifer well DCB 33D. The TCE concentration measured in DCB 33D during 2Q15 measured 3.85 micrograms per liter (µg/L), 4Q15 measured 2.7 µg/L, 2Q16 measured 2.6 µg/L and in 4Q16 measured 3.57 µg/L.

    d) Gordon Aquifer well DCB 33D is located more than 1,000 feet southeast of source area well DCB 62 and TCE remains stable just below the maximum contaminant level (MCL) of 5 µg/L.

    Therefore, additional characterization in the UTRA southeast of Beaver Dam Creek in the Gordon Aquifer from beneath the source area is warranted to ensure the appropriate range of remedial alternatives is proposed.

    Response: Agree/Clarification

    Currently, only monitoring wells associated with completion of the removal action for the 488-1D Ash Basin are planned to be installed prior to the groundwater characterization effort which has as a field start of June 2020. The need for

additional monitoring wells will be discussed with the Core Team during D-Area Groundwater characterization scoping and installed, as appropriate.

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3. To demonstrate the uncertainty in the vertical extent of TCE contamination below the source area, it is also recommended Figure D-5, D-Area Cross-Section A-A', Page D-13 of D-80 be revised to include source area well DCB 62 in the cross-section line.

Response: Agree

Well DCB 62 will be added to the A-A' Cross-Section in future reports. No changes to the 2016 report are proposed.

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SRS Responses to South Carolina Department of Health and Environmental Control Comments on the 2016 Groundwater Monitoring Report for the D-Area Groundwater Operable Unit, SRNS-RP-2017-00383, Revision 0, July 2017, CERCLIS Number: 63

Comments Received November 28, 2017

General Comments

1. In November 2017, an agreement to suspend the liquid waste milestones was signed. To offset for the loss of these milestones and to continue to support the common goal of risk reduction, DOE agreed to accelerate two Soil and Groundwater projects in D-Area – D-Area Groundwater Removal Actions to remediate acidic groundwater using a carbonate reactive substrate and D-Area Coal Storage Yard (484-17D) cleanup. Both of these removal actions will impact the D-Area Groundwater (DAG) OU and possibly its schedule. Please reference these removal actions in future DAG OU groundwater monitoring reports.

   Response: Agree

   The two removal actions will be referenced in future DAG OU monitoring reports and will include a discussion of the impacts to the DAG OU and schedule.

   Contact: Ashley Shull (ashley.shull@srs.gov) 803-952-7090

Specific Comments

1. Appendix B, Groundwater and Surface Water Samples Analyte List and Sample Frequency, Table B-1. Please include hexavalent chromium as an analyte and show the sampling frequency for each well in Table B-1.

   Response: Clarification

   As described and accepted in *SRS's Responses to US EPA's Comments on the 2014 Groundwater Monitoring Report for the DAG OU* (SRNS-RP-2015-00390, April 26, 2016), the analysis of hexavalent chromium is only required on wells that exceeded the total chromium MCL of 100 µg/L. Since hexavalent chromium requires a separate and different analysis method from total chromium, an additional sample bottle must also be collected. However, due to extremely short hold times there would not be enough time to perform the total chromium analysis and determine if hexavalent chromium would also need to be analyzed. Due to these complications, during 4Q2016, hexavalent chromium was analyzed at many of the wells in the DAG monitoring network. In future sampling events, if the total chromium value exceeds the MCL of 100 µg/L, hexavalent chromium will be analyzed at that well in the subsequent sampling event. In future monitoring reports, a brief description will be added to the metals footnote at the end of Table B-1 stating the hexavalent chromium analysis requirements.

   Contact: Ashley Shull (ashley.shull@srs.gov) 803-952-7090