



Department of Energy
Savannah River Operations Office
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APR 09 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: Contaminant Fate and Transport Modeling for C-Reactor Lead and Heavy Water Sources (SRNS-RP-2025-00161, March 2025) and Supporting Documents SEMS Number: 79

Savannah River Site (SRS) hosted an information meeting on the planning efforts for C-Reactor lead and heavy water inventories on March 31, 2025. U. S. Department of Energy (DOE), Savannah River Nuclear Solutions, LLC, South Carolina Department of Environmental Services (SCDES), and U. S. Environmental Protection Agency (EPA) personnel participated in the meeting. Meeting attendees participated at SRS and via Microsoft Teams (Enclosure 1). The purpose of the meeting was to present and discuss the current state of C-Reactor (105-C), previous remedial decisions, modeling data for the lead and the heavy water inventories (Enclosure 2 and 3), and the SRS recommended actions.

SRS presented the following topics to the Core Team (DOE, SCDES, and EPA) at the meeting:

- C-Reactor facility history
- C-Reactor status update and discussion of potential future missions
- Detailed discussion of the current consolidated idle process equipment and its radiological inventory
- Groundwater modeling results at the 0-foot elevation from the lead inventory (comprised of the 690-1G Deionizer Trailer, Process Area lead inventory, Crane Maintenance Area [CMA] lead inventory), and the heavy water located in the minus 40 feet elevation Storage Tank Room (Tanks 204 and 205)
- Proposed removal action end-state alternatives, and
- Recommendations for the C-Reactor heavy water and lead inventories, and the 690-1G Deionizer Trailer.

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As discussed during the meeting, the SRS conclusions and recommendations are:

- No exceedances of regulatory standards are predicted within the compliance period at all points of assessment for all No Action scenarios associated with both the lead inventory and heavy water inventory.
- Contaminant fate and transport modeling demonstrate the sources in their modeled configuration do not pose a contaminant migration risk and there are no contaminant migration problems warranting action for the sources considered.
- Modeling data, along with the reactor process affiliation, supports the relocation of the 690-1G Deionizer Trailer into the C-Reactor complex to be included as part of the final in-situ decommissioning (ISD) remedial action.
- Modeling data supports retaining the heavy water in the two storage tanks (204 and 205) located within the Storage Tank Room to be included as part of the final ISD remedial action.
- Modeling data, along with the reactor process affiliation, supports retaining the lead inventory within the CMA and Process Area, and including the lead inventory as part of the final ISD remedial action.

In summary, the modeling results support the ISD end-state of C-Reactor with all lead sources left in place, the 690-1G Deionization Trailer placed inside the reactor building, and heavy water left in its current location within the Storage Tank Room. Due to the potential future missions of C-Reactor, we recommend the no action alternative at this time due to the timeline for the final ISD C-Reactor complex continues to be uncertain.

Please review the enclosures and provide your comments or approval of the modeling conclusions and recommendations of the presentation within thirty (30) days of receipt of the document. This will serve for future reference as part of the final remediation of the C-Reactor complex. The effort and time that the SCDES and the EPA have provided on this topic are greatly appreciated.

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**

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MATTHEW BAKER
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Matthew R. Baker
Acting FFA Remedial Project Manager
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RDDD-25-131

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Enclosures:

1. Contaminant Fate and Transport Modeling for C-Reactor Lead and Heavy Water Sources (SRNS-RP-2025-00161, March 2025) SEMS Number: 79
2. Contaminant Migration Modeling of Lead and Heavy Water within C-Reactor (105-C) (U) (SRNS-OS-2023-00213, Revision 0, August 2023) SEMS Number: 79
3. Addendum to In-Situ Decommissioning Contaminant Migration Modeling of C-Reactor (105-C) - Updated Moderator Tank Inventory (U) (SRNS-TR-2024-00495, Revision 0, September 2024) SEMS Number: 79

cc w/o encl:

M. Reece, SCDES-Columbia
H. J. Porter, SCDES-Columbia
J. Blalock, SCDES-Columbia
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R. G. Stewart, SCDES-Columbia
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cc w/encl:

H. H. Cathcart, SCDES-Columbia
M. McRae, TechLaw, Inc.