

December 28, 2009

MEMORANDUM TO: Patrice Bubar, Deputy Director  
Environmental Protection  
and Performance Assessment Directorate  
Division of Waste Management  
and Environmental Protection  
Office of Federal and State Materials  
and Environmental Management Programs

THRU: Gregory Suber, Chief **/RA/ N.Devaser for G.Suber**  
Low-Level Waste Branch  
Environmental Protection  
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Office of Federal and State Materials  
and Environmental Management Programs

SUBJECT: ONSITE OBSERVATION GUIDANCE FOR FEBRUARY 9 - 10,  
2010, WASTE MONITORING VISIT TO THE SAVANNAH RIVER  
SITE, SALTSTONE FACILITY

The U.S. Nuclear Regulatory Commission (NRC) staff is planning an onsite observation visit on February 9 - 10, 2010, to the U.S. Department of Energy's Savannah River Site, Saltstone Facility to monitor activities related to the disposal of non-high-level waste, per NRC's responsibilities under the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005. The onsite observation guidance is attached for your information.

Enclosure:  
Onsite observation guidance

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## ONSITE OBSERVATION GUIDANCE FOR FEBRUARY 9 - 10, 2010, MONITORING VISIT AT THE SAVANNAH RIVER SITE SALTSTONE FACILITY

### PURPOSE:

To provide onsite observation guidance for a planned visit on February 9 - 10, 2010, to the U.S. Department of Energy's (DOE's) Savannah River Site (SRS) Saltstone Facility to monitor activities related to the disposal of non-high-level waste, per the U.S. Nuclear Regulatory Commission's (NRC's) responsibilities under Section 3116(b) of the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005 (NDAA).

### OBJECTIVE:

1. To observe ongoing construction of new disposal cells 2A and 2B at the Saltstone Disposal Facility (SDF);
2. To observe ongoing operation of the Saltstone Production Facility (SPF);
3. To discuss PORFLOW and GoldSim models used to support the "*Performance Assessment of the Saltstone Facility at the Savannah River Site, 2009*" (Revised PA);
4. To discuss procedures for tracking disposal of key radionuclides at the SDF against the radionuclide inventory assumed in the 2005 performance assessment.

### BACKGROUND:

Section 3116(a) of the NDAA authorizes DOE, in consultation with the NRC, to determine whether certain radioactive waste related to the reprocessing of spent nuclear fuel is not high-level waste, provided certain criteria are met. Section 3116(b) of the NDAA requires NRC to monitor DOE disposal actions to assess compliance with Title 10 of the Code of Federal Regulations (10 CFR), Part 61, Subpart C, performance objectives for low-level waste.

On March 31, 2005, DOE submitted to the NRC a draft waste determination titled, "Draft Section 3116 Determination, Salt Waste Disposal, Savannah River Site." The purpose of the draft waste determination was to demonstrate compliance with the criteria in Section 3116(a) of the NDAA, including compliance with the performance objectives in 10 CFR Part 61, Subpart C. In its consultation role, the NRC staff reviewed the draft waste determination and concluded that there was reasonable assurance that the applicable criteria of the NDAA could be met, provided certain assumptions made in DOE's analyses were verified via monitoring. In December 2005, NRC staff documented the results of its review in a technical evaluation report (TER). DOE issued a final waste determination in January 2006 taking into consideration the assumptions, conclusions, and recommendations documented in NRC's TER. On May 3, 2007, NRC staff, pursuant to its monitoring responsibility under the NDAA, completed a monitoring plan for the SRS Saltstone Facility. This onsite observation guidance has been developed in accordance with the May 2007 monitoring plan to ensure consistency in NRC staff's monitoring activities. The May 2007 monitoring plan is available in NRC's Agency-wide Document Access and Management System (ADAMS) at accession number ML070730363.

Enclosure

## OBSERVATION REQUIREMENTS:

NRC's onsite observation of the disposal actions taken by DOE focuses on the performance objectives set out in 10 CFR Part 61, Subpart C. These performance objectives are, (i) protection of the general population from releases of radioactivity (10.CFR.61.41), (ii) protection of individuals against inadvertent intrusion (10.CFR.61.42), (iii) protection of individuals during operations (10.CFR.61.43), and (iv) stability of the disposal site after closure (10.CFR.61.44).

Protection of the general population and disposal site stability predicate heavily on the performance of the disposal cell within the period of compliance. Protection of individuals during operations depends, in part, on the containment of salt waste in the disposal cells during and immediately following grout emplacement. The staff will observe features important to disposal cell performance during the hydrostatic test of the disposal cells. Staff will use the following guidance to direct the observation while visiting the SRS facility.

### Construction of the New SDF Disposal Cells – Cell Hydro-Test

The NRC staff plans to visit the construction site of the new disposal cells 2A and 2B. Staff anticipates that the hydro-test of the disposal cells will be taking place during the observation and staff expects it will benefit from observing the cells' behavior under hydrostatic load. These construction milestones are listed in a schedule provided by DOE (ADAMS accession number ML090150170). As noted in Section 3.1.3, "Hydraulic Isolation of Saltstone," of the May 2007 monitoring plan, NRC staff will be focused on the integrity of the disposal units and the potential mechanisms of contaminant release from the facility.

### Ongoing Operation of the Saltstone Production Facility – Grout Pour Observation

The NRC staff plans to visit the SPF to observe production of the grouted wasteform during standard operation. As noted in Section 3.1.3, "Hydraulic Isolation of Saltstone," of the May 2007 monitoring plan, NRC staff will observe the grouting operation, focusing on any mechanisms that may contribute to contaminant release and transport.

### PA Model Walkthrough – GoldSim and PORFLOW

Also in accordance with NRC's monitoring responsibilities under the NDAA, the NRC staff is conducting a review of the recently released Revised PA. Accordingly, the staff would like to gain more insight into model development, including, but not limited to conceptualization, integration of components, and the evaluation of sensitivity cases.

### Technical Discussion – Saltstone Radionuclide Inventory

The NRC staff would like to discuss procedures for tracking disposal of key radionuclides at the SDF and other topics related to radiological inventory at Saltstone. As noted in Section 3.1.1.1, "Data Reviews – Radioactive Inventory," of the May 2007 monitoring plan, NRC staff will be focused on verifying compliance with the performance objective identified in 10 CFR 61.41, protection of the general population from releases of radioactivity.