July 24, 2008

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: Anna Bradford, Branch Chief **/RA/**
Low-Level Waste Branch
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SUBJECT: ONSITE OBSERVATION GUIDANCE FOR JULY 31, 2008, WASTE MONITORING VISIT AT THE SAVANNAH RIVER SITE, SALTSTONE FACILITY

Nuclear Regulatory Commission (NRC) staff is planning an onsite observation visit on July 31, 2008, 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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DATE	07/24/08	07/24/08	07/24/08

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ONSITE OBSERVATION GUIDANCE FOR JULY 31, 2008, MONITORING VISIT AT THE SAVANNAH RIVER SITE SALTSTONE FACILITY

PURPOSE

To provide onsite observation guidance for a planned visit on July 31, 2008, 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 Nuclear Regulatory Commission's (NRC's) responsibilities under the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005 (NDAA).

OBJECTIVES

1. To observe DOE experiments that are being performed in accordance with the saltstone product quality assurance strategy for the SRS Saltstone Production Facility (SPF) and Saltstone Disposal Facility (SDF).

2. To discuss operational experience and available testing data for the Actinide Removal Process (ARP) and the Modular Caustic Side Solvent Extraction Unit (MCU) process.

3. To discuss the schedule of availability of certain reports and data that NRC staff may request for technical review for the remainder of calendar year 2008.

BACKGROUND

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. The NDAA also 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 NDAA criteria, including demonstration of 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.

On March 24-28, 2008, NRC staff visited SRS to observe DOE's salt waste disposal activities. NRC staff observations during that visit were documented in NRC staff's report dated June 5, 2008 (ADAMS accession number ML081290367). During the March 24-28, 2008, visit, NRC staff observed that DOE had developed a saltstone product quality assurance strategy.

This strategy includes experiments that will be performed through the remainder of fiscal year (FY) 2008 and into FY 2009 that are designed to obtain information that would support assumptions DOE has made in its waste determination regarding the characteristics of the saltstone grout and SDF vault. The NRC staff will observe ongoing experiments during this visit.

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).

This onsite observation will be primarily focused on the performance objective set forth in 10 CFR 61.41. Since the salt waste processing operations will impact the long-term stability of the SDF after its closure, this observation will also partially assess the performance objective in 10 CFR 61.44. The following topics will be used to guide the NRC staff's observations and actions while visiting the SRS facility.

Saltstone Characterization and Testing

NRC staff will observe ongoing DOE experiments that are designed to provide information on:

- Distribution coefficients (K_ds) of radionuclides in saltstone grout;
- Oxidation and desorption rates of technetium in saltstone; and
- Reducing capacity of saltstone

Waste Sampling

NRC staff will discuss with DOE and DOE contractor staff preliminary test results for the ARP/MCU process that may be available, including radionuclide concentration measurements for various sampling locations in the process, and DOE operating experience with starting the ARP/MCU process.

Technical Reviews

NRC staff will continue discussions with DOE and DOE contractor staff on DOE technical reports and data which may be available for NRC technical review in the remainder of calendar year 2008, including soil sampling and analysis results for the SDF vaults.