June 4, 2012

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

THRU: Gregory Suber, Chief **/RA by James Kennedy Acting for/**
Low-Level Waste Branch
Environmental Protection
and Performance Assessment Directorate
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FROM: James Shaffner, Project Manager **/RA/**
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SUBJECT: ONSITE OBSERVATION GUIDANCE FOR JUNE 11-12, 2012, WASTE MONITORING VISIT TO THE SAVANNAH RIVER SITE, F AREA TANK FARM

The U.S. Nuclear Regulatory Commission (NRC) staff is planning an onsite observation visit on June 11-12, 2012, to the U.S. Department of Energy's Savannah River Site, F Area Tank Farm to monitor activities related to the disposal of non-high-level-waste, per NRC's responsibilities under Section 3116 of the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005.

Enclosure: Onsite Observation Guidance

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ONSITE OBSERVATION GUIDANCE FOR JUNE 11-12, 2012, MONITORING VISIT AT THE SAVANNAH RIVER SITE F TANK FARM

PURPOSE:

To provide onsite observation guidance for a planned visit on June 11-12, 2012, to the U.S. Department of Energy's (DOE) Savannah River Site (SRS) F Tank Farm to monitor activities related to the disposal of non-high-level waste, per the U.S. Nuclear Regulatory Commission's (NRC) responsibilities under Section 3116(b) of the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005 (NDAA).

OBJECTIVES:

This monitoring site visit will be limited to on-site observation and technical review of activities related to ongoing grouting operations in Tank 18 and 19. Grouting operations commenced on April 3, 2012. The NRC staff also anticipates discussions with DOE regarding possible timing and scope of near term future monitoring site visits to align with future DOE closure activities.

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 September 30, 2010, DOE submitted to the NRC a draft waste determination titled, "Draft Section 3116 Determination, F Area Tank, 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 highlighted a number of technical concerns during a series of public meetings. In October 2011, NRC staff documented the results of its review in a Technical Evaluation Report (TER). In the TER, NRC staff made a number of recommendations to DOE that NRC believes will enhance the likelihood that DOE can meet the performance objectives of Part 61 during the F Tank Farm closure process. A key recommendation related to closure of Tank 18, NRC recommended that DOE postpone closure of the tank pending the results of solubility experiments and re-evaluation of costs and benefits of additional tank cleaning. DOE issued a final waste determination in March 2012 taking into consideration the assumptions, conclusions, and recommendations documented in NRC's TER. DOE believes, based on supplemental analyses and expert elicitation, that it has addressed the technical uncertainties raised by NRC in the TER. Therefore, DOE decided that closure of Tanks 18 and 19 could commence. Grouting operations began on April 3, 2012. The NRC staff, pursuant to its monitoring responsibility under the NDAA, is in the process of preparing a monitoring plan for the F Tank Farm. Because active DOE tank closure activities (e.g. tank grouting) have already begun, the NRC staff believes that a monitoring site visited is warranted in advance of completion of the monitoring plan. This onsite observation guidance has been developed in advance of the availability of the monitoring plan.

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). Ensuring protection of the general population and disposal site stability predicates heavily on the performance of closed tanks and ancillary facilities within the period of compliance. Protection of individuals during operations depends, in part, proper implementation of work activities associated with emplacement of grout. The staff will observe features important to impeding migration of or access to residual tank waste and will use the following guidance to direct the observation while visiting the SRS facility.

Facilities Tour

The NRC staff has requested an opportunity to observe aspects of on-going grouting operations and to visit the grout fabrication plant.

- Observation of grout truck arrival and check-in protocols.
- Observation of tests (e.g. slump test) to ensure grout acceptability.
- Observe external processes to introduce grout to delivery system.
- Observe real time video of grout placement in tank(s).
- Observation of health physics practices to ensure worker protection.
- Review of and discussion of specific measures to prevent in-tank grout shrinkage.
- Review of and discussion of practices to ensure proper grouting of in-tank structures.
- Review and discussion of practices to ensure proper grouting of tank vault features important to performance (e.g., basemat leak detection components).

Technical Reviews (prior to on-site visit if possible)

- Radiological work procedures and safety procedures to ensure worker protection.
- Grout recipe and rationale.
- DOE plans and procedures for grout operations.
- Records and reports associated with grout operations.
  QC/QC protocols to ensure:
  - uniformity and consistency of grout.
  - introduction of grout to minimize horizontal discontinuities.
  - procedures to ensure curing to minimize cracking.