July 24, 2008

MEMORANDUM TO: Patrice M. 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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FROM: Michael Fuller, Project Manager ***/RA/***
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SUBJECT: ONSITE OBSERVATION GUIDANCE FOR AUGUST 2008 INCIDENTAL WASTE MONITORING VISIT AT THE IDAHO NATIONAL LABORATORY

Nuclear Regulatory Commission (NRC) staff is planning an onsite observation visit on August 12, 2008 to the U.S. Department of Energy's (DOE's) Idaho National Laboratory (INL) site to monitor activities related to the disposal of incidental waste, per NRC's responsibilities under the National Defense Authorization Act for Fiscal Year 2005. The onsite observation guidance is attached for your review and approval.

Enclosure: Onsite Observation Guidance

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ONSITE OBSERVATION GUIDANCE FOR AUGUST 12, 2008 INCIDENTAL WASTE MONITORING VISIT AT THE IDAHO NATIONAL LABORATORY

PURPOSE

To provide onsite observation guidance for a planned visit on August 12, 2008 to the U.S. Department of Energy's (DOE's) Idaho National Laboratory (INL) site to monitor activities related to the disposal of incidental waste, per NRC's responsibilities under the National Defense Authorization Act for Fiscal Year 2005 (NDAA).

OBJECTIVES

To observe the waste disposal actions taken by DOE at the Idaho Nuclear Technology and Engineering Center (INTEC) Tank Farm Facility (TFF) for the purpose of assessing compliance with the performance objectives set out in 10 CFR Part 61, Subpart C.

BACKGROUND

The NDAA authorizes DOE, in consultation with the Nuclear Regulatory Commission (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 10 CFR Part 61, Subpart C, performance objectives for low-level waste.

On September 7, 2005, DOE submitted a draft waste determination for residual waste incidental to reprocessing, including sodium bearing waste, stored in the INTEC TFF 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 the NDAA criteria could be met for residual waste stored in the INTEC TFF. NRC documented the results of its review in a technical evaluation report (TER) issued in October 2006. DOE issued a final waste determination in November 2006 taking into consideration the assumptions, conclusions, and recommendations documented in NRC's TER.

To carry out its monitoring responsibility under the NDAA, NRC developed a monitoring plan for the INTEC TFF facility, and issued it in April 2006. NRC conducted two onsite observations in 2007 to observe tank grouting operations at the INTEC TFF. No findings were identified in the 2007 onsite observations. As a continuation to the April and August 2007 onsite observations at INL, NRC staff will observe additional grouting operations at INTEC TFF. NRC staff will also observe DOE's radiation protection program and environmental sampling program.

OBSERVATION REQUIREMENTS

NRC's onsite observation of the disposal actions taken by DOE is to focus on the performance objectives set out in 10 CFR Part 61, Subpart C. These performance objectives include (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).

As part of this onsite observation visit, NRC staff will continue to observe grouting operations at the INTEC TFF; namely, the ancillary components and equipment (e.g., piping, encasements, valves, and valve boxes). Although the risk associated with the ancillary components and equipment is relatively low (compared to the tank risk) for members of the public (including inadvertent intruders) protected under 61.41 and 61.42, grouting of these components and equipment is expected to reduce the risk to a level as low as is reasonably achievable (ALARA), limiting dispersal of radioactivity into the environment and increasing waste stability.

The main focus of observing pipe grouting operations is, therefore, to assess compliance with 10 CFR 61.43 by verifying DOE's radiation protection measures in its INTEC TFF tank closure operations. Because grouting of system components generally benefits the long-term stability of the tank farm facility after its closure, this observation will also partially assess the performance objective in 10 CFR 61.44. Additional visits will be conducted in the future to continue assessing DOE compliance with the performance objectives.

As specified in sections 3.2.4 and 5.2.2 of NRC's monitoring plan, environmental data will be reviewed to assess compliance with the performance objectives in 10 CFR 61.41 and 61.43. As part of this onsite observation, NRC staff will review DOE's environmental sampling program at INL.

Process Line Grouting Operations

As stated in the INTEC TFF waste determination, the ancillary components and equipment (e.g., piping, encasements, valves, and valve boxes) will be grouted. The grout will provide a solid physical form to incorporate any residuals and to prevent their dispersal into the surrounding environment. The piping and ancillary equipment grout must necessarily be able to flow easily during grouting operations, and consequently, this grout will have higher water content than the grout mixture used for other INTEC TFF system components. However, the grout should still be able to harden into a solid physical form to provide waste stability. As part of this onsite observation, NRC staff plans to verify consistency of the as-emplaced grout formulations against design specifications presented in Appendix C of DOE's final waste determination and to the extent practicable, observe placement of the grout in piping and other ancillary equipment.

Radiation Protection Program

For 10 CFR Part 61.43, protection of individuals during operations, NRC staff will verify that DOE's radiation protection program is in place for its process line grouting operations. Onsite observations will include, as appropriate, but not limited to the following:

- Review DOE's radiation protection program in order to validate various reports and records related to protection of individuals during its waste disposal operations.

- Interview DOE's site radiation protection personnel and discuss its onsite implementation of the radiation protection program.

- Verify that personnel who are involved in the waste disposal operations are provided with personal dosimetry and/or other adequate personal monitoring devices.

- Tour the site to verify DOE's access-control program is in place.

- Verify the programs and policies presented in the DOE's INTEC TFF waste determination are in effect during the operational period.

- Discuss with DOE and/or DOE contractor personnel the effectiveness of DOE's radiation protection program governing its waste disposal operations.

Environmental Sampling Program

- Observe environmental monitoring activities that occur during the time that NRC staff is on site (if applicable).
- Review environmental monitoring plans and QA procedures for environmental sampling.