

August 31, 2012

Mr. Terry J. Spears
Assistant Manager
Waste Disposition Project
U.S. Department of Energy
Savannah River Operations Office
P.O. Box A
Aiken, SC 29802

SUBJECT: ACKNOWLEDGEMENT OF U.S. DEPARTMENT OF ENERGY'S LETTER DATED JULY 12, 2012, REGARDING U.S. NUCLEAR REGULATORY COMMISSION'S LETTER OF CONCERN (TYPE IV) REGARDING DISPOSAL ACTIVITIES AT THE SAVANNAH RIVER SITE SALTSTONE DISPOSAL FACILITY

Dear Mr. Spears:

The purpose of this letter is to acknowledge U.S. Department of Energy (DOE) correspondence, dated July 12, 2012, regarding the U.S. Nuclear Regulatory Commission's (NRC's) Letter of Concern (Type IV) regarding salt waste disposal actions planned by DOE at the Savannah River Site (SRS) Saltstone Disposal Facility (SDF). Additionally, we provide our preliminary assessment of the information included in the DOE response.

Section 3116(b) of the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005 requires the NRC to monitor certain disposal actions taken by the DOE for the purpose of assessing compliance with the performance objectives set out in 10 CFR Part 61, Subpart C. NRC monitoring activities of the Saltstone facility began following the 2007 completion of the *U.S. Nuclear Regulatory Commission Plan for Monitoring the U.S. Department of Energy Salt Waste Disposal at the Savannah River Site in Accordance with the National Defense Authorization Act for Fiscal Year 2005*. These activities have included onsite observations, technical reviews, and meetings with DOE.

On April 30, 2012, NRC issued both the Technical Evaluation Report (TER) [available via the NRC's Agencywide Documents Access and Management System (ADAMS) at Accession Number ML121020140] and Type IV Letter of Concern [available via ADAMS at Accession Number ML120650576]. The TER concluded that the NRC does not have reasonable assurance that salt waste disposal at the SDF meets the performance objectives in 10 CFR Part 61. The Type IV Letter of Concern formally communicated NRC's concerns to DOE and the South Carolina Department of Health and Environmental Control.

On May 29, 2012, NRC held a public meeting with DOE and discussed the results of the TER. In that meeting, DOE indicated that it would: (1) provide research results developed since August 2011 to NRC in June 2012; and (2) provide information in response to the Type IV Letter to NRC in July or August 2012. On June 13, 2012, DOE sent NRC the research results.

On July 12, 2012, DOE responded to the NRC Type IV Letter, which included the statement that further information in response to the Type IV Letter was expected to be provided to NRC later in July 2012. The June 13 and July 12, 2012, submittals included information about updated technetium-99 (Tc-99) inventory projection for SRS Saltstone Disposal Units (SDU) 2, 3, and 5 as well as information about Case K and K1 uncertainty and sensitivity analyses. On July 26, 2012, DOE sent NRC additional information to supplement the previous letters of June 13 and July 12, 2012. The July 26, 2012, information has not yet been fully evaluated by the NRC and will not be discussed further in this letter.

The NRC staff has evaluated the information DOE provided about the revised inventory of Tc-99 in SDUs 2, 3, and 5 and finds the bases for the revision to be reasonable. Based on the NRC's TER analyses and DOE's revised Tc-99 inventory, the NRC staff concludes that a Type II Letter to the U.S. Congress is not needed at this time. The staff determined that, if DOE's new projected Tc-99 inventory for SDUs 2, 3, and 5 is correct, then it is unlikely to cause an off-site peak dose exceeding the requirements of §61.41 (i.e., 0.25 mSv/yr (25 mrem/yr)).

Therefore, based on the information provided, the NRC would offer no comments on the DOE's plan regarding the placement of saltstone into SDUs 2, 3, and 5. We will continue to interact with DOE, address technical issues identified in the Type IV letter, and coordinate with the State of South Carolina. The NRC staff is continuing to evaluate the basis for DOE's revised inventory projections and will later revisit the decision to send a Type II Letter if the staff finds that the projected inventory estimates are not well supported.

The NRC staff is also in the process of evaluating the revised probabilistic model (from the DOE letter with enclosures dated June 13, 2012), which addresses some of the issues described in the NRC staff's two requests for additional information [available via ADAMS at Accession Number ML100820101 and Accession Number ML103400571]. However, the staff anticipates that the utility of the model will be limited unless it can be further revised to address concerns outlined in the NRC's TER, including the following three major concerns: (1) unsupported reconcentration of Tc-99 in the disposal unit concrete; (2) use of the average- K_d model; and (3) unsupported timing of saltstone fracturing. In addition, the remaining technical concerns in the TER include the following: (1) support for long-term performance of the closure cap in limiting infiltration and erosion; (2) the hydraulic performance of field-emplaced saltstone; (3) model support for saltstone physical degradation; (4) long-term saltstone chemical performance; (5) disposal unit performance; (6) subsurface sorption coefficients; and (7) effects of settlement on site stability.

On August 6, 2012, NRC held a public meeting in Aiken, South Carolina to discuss waste disposal at the SRS. Included in the agenda for the meeting were the following two topics: (1) "DOE Presentation on DOE Path Forward to Resolve NRC's Concerns"; and (2) "NRC Questions on DOE Path Forward." In addition, NRC performed an onsite observation at SDF on August 7-8, 2012, where that same information was discussed. Separate summaries for both the meeting and the observation will be issued in the future and will not be discussed further in this letter.

A copy of this letter will be available electronically for public inspection in the NRC Public Document Room or using its ADAMS accession number ML12213A447. ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

T. Spears

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The NRC, like DOE, considers it to be in the public interest and important to dispose of the salt waste in a safe and timely fashion. If you have any questions or need additional information, please call me at (301) 415-7197, or call Nishka Devaser, the Saltstone Project Manager, at (301) 415-5196.

Sincerely,

/RA/

Mark A. Satorius, Director
Office of Federal and State Materials
and Environmental Management Programs

cc: S. Wilson
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