March 9, 2006

MEMORANDUM TO: Scott Flanders, Deputy Director
Division of Waste Management
and Environmental Protection
Office of Nuclear Material Safety
and Safeguards

THRU: Ryan Whited, Chief
Low-Level Waste Section
Division of Waste Management
and Environmental Protection
Office of Nuclear Material Safety
and Safeguards

FROM: Anna Bradford, Senior Project Manager /**RA**/
Low-Level Waste Section
Division of Waste Management
and Environmental Protection
Office of Nuclear Material Safety
and Safeguards

SUBJECT: FEBRUARY 21, 2006, MEETING SUMMARY: MEETING WITH NATURAL RESOURCES DEFENSE COUNCIL AND OTHER STAKEHOLDERS TO DISCUSS THE TECHNICAL EVALUATION REPORT FOR SALT WASTE DISPOSAL AT THE SAVANNAH RIVER SITE

On February 21, 2006, staff and management from the U.S. Nuclear Regulatory Commission (NRC) met with representatives of the Natural Resources Defense Council, Greenpeace, Public Citizen, the Nuclear Information and Resource Service, and the Institute for Energy and Environmental Research to discuss technical issues related to NRC's Technical Evaluation Report (TER) for salt waste disposal at the Savannah River Site. The TER was issued on December 28, 2005. The meeting summary is enclosed for your use.

CONTACT: Anna Bradford, DWMEP/NMSS

Enclosures:
1. Summary of Meeting
2. Attendee List

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OFFICE	DWMEP	DWMEP	
NAME	A. Bradford	R. Whited	
DATE	03/08/06	03/09/06	

ENCLOSURE 1: SUMMARY OF FEBRUARY 21, 2006, OPEN MEETING TO DISCUSS THE TECHNICAL EVALUATION REPORT FOR SALT WASTE DISPOSAL AT THE SAVANNAH RIVER SITE

Introduction

On February 21, 2006, staff and management from the U.S. Nuclear Regulatory Commission (NRC) met with representatives of the Natural Resources Defense Council (NRDC), Greenpeace, Public Citizen, the Nuclear Information and Resource Service (NIRS), and the Institute for Energy and Environmental Research (IEER) to discuss technical issues related to NRC's Technical Evaluation Report (TER) for salt waste disposal at the Savannah River Site (SRS). This meeting was open to the public and was held at NRC Headquarters. The list of attendees is Attachment 2. No handouts were used during the meeting.

The TER was issued on December 28, 2005, and is available in the Agencywide Documents Access and Management System (ADAMS) under accession number ML053010225.

Discussion

The purpose of the meeting was to provide an opportunity for representatives of NRDC, Greenpeace, Public Citizen, IEER, and NIRS to ask questions concerning the analysis in the TER, such as the assumptions presented in the TER, the definition of "highly radioactive radionuclides" under the National Defense Authorization Act for FY 2005 (NDAA), sensitivity analyses, NRC's monitoring role for the salt waste at SRS, and NRC's coordination with the State; some of the topics raised during the meeting are discussed in detail below.

The NRDC asked whether the two-year delay in the startup of the Salt Waste Processing Facility (SWPF) would affect the findings of the TER and whether the delay could lead to increased amounts of cesium or other radionuclides being disposed of in the saltstone disposal facility (SDF). The NRC responded that DOE's final waste determination stated that the delay in startup of the SWPF did not affect the conclusion that highly radioactive radionuclides would be removed to the maximum extent practical. The final waste determination also stated that DOE cannot develop additional technologies for waste treatment during the two-year delay. NRC staff also indicated that DOE has committed to the State that it will not dispose of more than 3-5 MCi in the SDF. Also, that even if DOE waited until the SWPF was operational and processed all of the salt waste through the SWPF, the amount of radionuclides that were risk drivers (e.g., selenium, iodine, technetium) that would be disposed of in the SDF would not change significantly because the waste DOE is processing with the interim processes has the lowest concentrations of those radionuclides and because the SWPF was not designed to remove these radionuclides any better than the interim processes will.

The NRDC stated that NRC staff has defined the NDAA phrase "highly radioactive radionuclides" to mean those radionuclides that contribute most significantly to risk to the public, workers, and the environment, and that the NRDC does not agree with that definition. The NRDC asked why the NRC did not consider radionuclides that are highly radioactive but do not contribute to the risk, and whether cesium and strontium were included as highly radioactive radionuclides in the TER. The NRC staff responded that both cesium and strontium were included in the list of highly radioactive radionuclides in the TER, and that the NRC believes that

risk, as measured by dose, is the most reasonable metric to use to determine which radionuclides are highly radioactive radionuclides and whether the radionuclides have been removed to the maximum extent practical. NRDC also asked whether there are any isotopes in the SRS high-level waste tanks that are highly radioactive, if "highly radioactive" is defined as disintegrations per second, that are not on the NRC's list of highly radioactive radionuclides in the TER. The NRC staff responded that there are trace amounts of many different radionuclides in the tank but that the dose assessment considered all the radionuclides that contribute to the risk. The NRDC stated that the National Academy of Sciences has previously said that high-level waste should go to a geologic repository, including cesium and strontium, and now DOE says it can dispose of 3-5 MCi in near-surface disposal because it is economically beneficial and the NRC has said that plan is fine. The NRDC also stated that the NRC is interpreting the NDAA the way that it wants to. NRC staff responded that it agrees that cesium and strontium are highly radioactive radionuclides but that the NRC believes that the engineered disposal system will provide protection for the approximately 300 years that it will take for these constituents to decay. IEER stated that short-lived radionuclides can have an effect on wasteform performance even if they are not themselves risk significant; for example, by contributing to wasteform degradation through heat loading. NRC staff responded that they were aware of the issue, that it was discussed in the TER, and that the TER provided suggestions for tests that DOE could perform to address the issue.

The NRDC asked the NRC staff for information on the modeling assumptions used in the TER analysis. The NRC staff responded that the receptor was assumed to be located 100 meters downgradient of the SDF, that institutional controls ended after 100 years, and that the modeling used an agricultural scenario, all of which are typical for a 10 CFR Part 61 analysis. The NRDC stated that 10 CFR 61 did not contemplate large blocks of cesium being disposed of and that the saltstone disposal facility will be outside of the scope of what 10 CFR 61 was meant for, but that the NRC is applying 10 CFR 61 criteria regardless. The NRC staff responded that the NDAA specifies that 10 CFR 61 should be used in these waste determinations. NRDC asked whether NRC assessed locations other than 100 meters downgradient from the SDF, and the NRC staff responded that they did assess variable locations but that location did not have much affect on the dose because the site geology would not provide much delay in the transport of the radionuclides once they were released from the wasteform.

The NRDC asked several questions regarding the sensitivity analyses results presented in Table 11 of the TER. In response, the NRC staff explained that DOE's dose estimates were scaled to account for inventory differences and possible groundwater plume overlap, that the sensitivity cases assuming 100% oxidation were probably unrealistic, and that DOE does not currently have sufficient supporting information for the hydraulic conductivities assumed for the wasteform over the 10,000 year analysis period. NRDC asked if the NRC expected DOE to show the NRC why the scenarios identified in the sensitivity analysis as resulting in estimated doses that were more than 25 mrem/yr would not occur, in order to show that the waste disposal could meet the performance objectives. NRC staff replied that the conditions necessary to prevent those scenarios were listed as assumptions in the TER and would be addressed during monitoring.

IEER stated that assessing changes in hydraulic conductivities is very complicated and that studies have shown that physical properties of grout can vary greatly over time, and asked what

type of data the NRC would want DOE to provide to support its assumptions regarding hydraulic conductivities. The NRC staff responded that ideally it would like to see multiple lines of evidence, such as field studies, assessment of analog sites, accelerated laboratory experiments, and computer modeling.

The NRDC asked whether DOE intends to respond formally to the TER. NRC staff responded that the DOE is not required to respond back to the NRC, that the findings of the TER were reflected in DOE's final waste determination document, and that the NRC will be following up on some of the TER findings during the monitoring phase. Greenpeace asked whether DOE would reconsult with the NRC if the total inventory disposed of in the SDF would exceed 5 MCi. NRC staff responded that it would be DOE's responsibility to assess whether the NRC needed to be reconsulted. The NRDC stated that, considering that a geologic repository is not going to be operational any time soon, does not agree that the Defense Waste Processing Facility needs to continue to operate at full capacity. The NRDC also stated that it disagreed with DOE's plan to dispose of 3-5 MCi at the site just because there could possibly be a future leak in one of the tanks at the site, and that this schedule seems to be driven by the State with no health or safety basis. Greenpeace asked whether DOE has consulted with the NRC about possibly needing to perform emergency grouting of a tank if it leaks and the NRC staff responded that DOE has not.

Public Comment

There were no public comments provided during the meeting.

Closing Remarks and Action Items

The meeting participants agreed that the discussion was helpful. NRDC thanked the NRC for agreeing to meet and discuss the issues in an open meeting. The NRC staff agreed to provide the NRDC with the ADAMS accession numbers for some of the documents referenced in the salt waste TER.

ENCLOSURE 2: Attendees at NRC Meeting with Stakeholders to Discuss Technical Issues Related to the Technical Evaluation Report for Salt Waste Disposal at the Savannah River Site

NAME	AFFILIATION	PHONE NUMBER
Larry Camper	NRC/NMSS	301-415-7437
Scott Flanders	NRC/NMSS	301-415-6717
Ryan Whited	NRC/NMSS	301-415-7257
Mark Thaggard	NRC/NMSS	301-415-6971
Anna Bradford	NRC/NMSS	301-415-5228
David Esh	NRC/NMSS	301-415-6705
A. Christianne Ridge	NRC/NMSS	301-415-5673
E. Neil Jensen	NRC/OGC	301-415-1637
Diane D'Arrigo	NIRS	202-328-0002
Geoff Fettus	NRDC	202-289-6800
Thomas B. Cochran	NRDC	202-289-2372
Brice Smith	IEER	301-270-5500
Tom Clements	Greenpeace International	202-415-6158
Michele Boyd	Public Citizen	202-454-5134
Jim Lieberman	Consultant	301-299-3607
Kathy Martin	DOE-GC	
Karen Pinkston	NRC/NMSS	301-415-3650
Cynthia Barr	NRC/NMSS	301-415-4015
Xiaosong Yin	NRC/NMSS	301-415-7640
Jon Peckenpaugh	NRC/NMSS	301-415-6753
Rebecca Tadesse	NRC/OCM	301-415-8431
Center for Nuclear Waste Regulatory Analyses (on phone)		
CH2MHill (on phone)		