

August 15, 2005

MEMORANDUM TO: Scott Flanders, Deputy Director
Environmental & Performance Assessment Directorate
Division of Waste Management
and Environmental Protection
Office of Nuclear Materials Safety
and Safeguards

THRU: Ryan Whited, Chief **/RA/**
Low-Level Waste Section
Environmental & Performance Assessment Directorate
Division of Waste Management
and Environmental Protection
Office of Nuclear Materials Safety
and Safeguards

FROM: Anna Bradford, Senior Project Manager **/RA/**
Low-Level Waste Section
Environmental & Performance Assessment Directorate
Division of Waste Management
and Environmental Protection
Office of Nuclear Materials Safety
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SUBJECT: JULY 19, 2005 MEETING SUMMARY: MEETING WITH U.S.
DEPARTMENT OF ENERGY TO DISCUSS TECHNICAL ISSUES
RELATED TO WASTE DETERMINATIONS

On July 19, 2005, staff and management from the U.S. Nuclear Regulatory Commission and the U.S. Department of Energy met to discuss technical issues related to waste determinations.

The meeting summary is attached for your use.

Attachment 1: Summary of Meeting
Attachment 2: Attendee List
Attachment 3: DOE Presentation Slides (ML052170088)
Attachment 4: DOE Presentation Slides (ML052170091)

cc: K. Picha/DOE

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ML052170073

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DATE	08/15/05	08/15/05

**SUMMARY OF JULY 19, 2005,
OPEN MEETING TO DISCUSS TECHNICAL ISSUES RELATED TO WASTE
DETERMINATIONS**

Introduction

On July 19, 2005, staff and management from the U.S. Nuclear Regulatory Commission (NRC) and the U.S. Department of Energy (DOE) met to discuss technical issues related to non-high-level waste (HLW) determinations made by DOE. This meeting was open to the public and was held at NRC Headquarters in Rockville, MD.

In addition to NRC and DOE staff and contractors, the meeting was attended by reporters from Platts and Fuel Cycle Week. Representatives of DOE-SRS, DOE-West Valley, CH2MHill, and the Center for Nuclear Waste Regulatory Analyses participated via conference call.

The list of attendees is included as Attachment 2. The presentation slides used by DOE at the meeting are Attachments 3 and 4.

Discussion

The purpose of the meeting was to allow DOE to ask questions regarding possible technical issues related to waste determinations that DOE is developing for its sites. The main topics of discussion were: 1) contamination of environmental media, and 2) application of a NRC Branch Technical Position (BTP) to particular types of waste.

The DOE discussed its approach towards evaluating spills, leaks, and other environmental media contamination at its sites (see attached slides for details). Possible examples of such situations are waste that has leaked from a tank into the soil or waste that was accidentally released due to a pipe rupture. The DOE stated that such contamination is handled under the requirements of the Resource Conservation and Recovery Act (RCRA) or the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Except for Hanford, the sites do not include such contamination in its performance assessments (PAs) for waste determinations but do include it in its Composite Analyses (CAs) of the sites. DOE uses PAs to focus on a particular action DOE is considering taking (i.e., closure of a tank farm). CAs are used for planning, radiation protection and future use commitments, and to assist DOE in developing an understanding of all the sources of contamination at a site.

The NRC staff asked DOE why the CAs only analyze out to 1,000 years rather than 10,000 years. The DOE responded that because it is a planning document, 1,000 years is adequate for its intended purpose. The NRC staff also asked if DOE considers the effects of past spills or leaks on possible future releases from the tanks and whether RCRA/CERCLA require analyses of intruders, and noted that it will be difficult to determine the source of any future releases during monitoring. The DOE indicated that they would consider the impact of past spills and leaks on the possible future releases from tanks, but that it was unlikely to have a significant impact. The DOE indicated that RCRA/CERCLA analyses did require them to consider an intruder. The DOE agreed it could be a challenge but that it is developing

monitoring plans that may help them determine the sources of any future releases. The NRC staff agreed with DOE's stated belief that the National Defense Authorization Act of Fiscal Year 2005 (NDAA) does not require DOE to consult with NRC on environmental contamination that may have resulted from HLW reprocessing operations.

The DOE then discussed topics related to the application of the BTP on Concentration Averaging and Encapsulation (January 17, 1995) (see slides for details). The DOE stated it wants to be sure it is addressing all residual waste in the tanks, such as material on tank walls or contained in pumps within the tanks. The DOE indicated that the types and amounts of residual waste in the tanks can depend on tank design, nature of the source of the waste put into the tank, and removal technologies used. The DOE believes that Section 3.2 of the BTP (e.g., averaging over the well-mixed volume) may be most applicable for the heels at the bottom of tanks. However, the stability criteria in 10 CFR 61.56, which allows for concentration averaging over the stabilized waste volume, may be used in some circumstances especially for material on the sides of structures or associated with equipment. Section 3.9 of the BTP may be used for other circumstances where the aforementioned options are not applicable.

In applying Section 3.9, DOE stated that it believes the important considerations are: 1) the characteristics of the waste (i.e., solidified 3 to 10 m belowground), 2) the sites are already operating facilities and are generally stable, 3) multiple barriers exist (e.g., solidified waste, tank, vault), and 4) DOE can show reasonable assurance of compliance with 10 CFR 61, Subpart C. For ancillary equipment (e.g. tank vaults), DOE believes it can average over the mass of the grout necessary to stabilize the residual waste. For example, if residual waste is on the vault floor, DOE can use the mass of grout necessary to mix with the waste. The DOE also indicated that its intruder analyses and its assessment of meeting the performance objectives of 10 CFR 61, Subpart C, do not use the average source term but instead use the actual concentrations of the material in the tank; averaging is only used to determine the classification of the waste.

The NRC staff stated that the examples in the BTP were not written for this type of application, and that the BTP gives examples of ways to average but doesn't necessarily say why it is appropriate to average. Staff agreed that the average concentration should not be used for the assessment of intruder doses or meeting the other performance objectives of 10 CFR 61, Subpart C. The staff also stated that DOE should assess if the grout is well-mixed with the residual waste. Mixing should take into account whether the waste is physically well-mixed with the grout as well as whether it is well-mixed with respect to intruder scenarios. If the waste is not well-mixed, DOE should evaluate how much grout is necessary to stabilize the waste. The NRC staff stated it believes that stabilization in 10 CFR 61 refers to reducing the mobilization or dispersability of the liquid waste, not the stabilization of the entire disposal area or facility. If the waste is not well-mixed and the grout is not used to provide stabilization, then DOE should use 10 CFR 61.58 ("Alternative Requirements for Waste Classification and Characteristics") for the waste. NRC staff stated that DOE should apply 10 CFR 61.58 in a rigorous manner and evaluate whether the proposed approach is protective of public health and safety.

The NRC staff indicated it may need to meet with DOE to discuss provisions of the NDAA regarding additional consultation for waste that exceeds Class C concentrations. The DOE agreed that such conversations may need to be held but indicated it was not yet prepared to enter into such discussions.

Public Comment

None.

Closing Remarks and Action Items

The DOE stated it would take into account the NRC staff's feedback. Future meetings may be held to discuss consultation requirements of the NDAA for waste that exceeds Class C concentrations, as well as monitoring.

**Attendees at NRC and DOE Meeting
to Discuss Technical Issues Related to Waste Determinations
July 19, 2005**

NAME	AFFILIATION	PHONE NUMBER
Michele O'Shaughnessy	NRC	301-415-6659
Anna Bradford	NRC	301-415-5228
David Esh	NRC	301-415-6705
Carrie Brown	NRC	301-415-8092
Ryan Whited	NRC	301-415-5135
Scott Flanders	NRC	301-415-6717
Thomas Frank England	WSRC	803-557-8825
Ginger Dickert	WSRC	803-208-1527
Steve Thomas	WSRC	803-208-8064
Sherry Ross	DOE-SRS	803-208-6078
Doug Hintze	DOE-SRS	803-208-6076
Harry Calley	DOE-HQ	301-903-7417
Roger Quintero	DOE-ORP	509-373-0421
Bill Hewitt	YAHSGS LLC for ORP	509-539-7629
Randall Kaltreider	DOE-HQ	301-903-4259
Martin Letourneau	DOE-HQ	301-903-3532
Kent Rosenberger	WSRC	803-208-3147
Tom Robinson	WSRC	803-208-3443
John Starmer	Terranear PMC, LLC	301-998-6155
Jim Lieberman	DOE consultant	301-299-3607
Robert Hoggard	DOE-HQ summer intern	202-586-5784
Elaine Hiruo	Platts	202-383-2163
Thecla Fabian	Fuel Cycle Week	301-869-0721
Dave McIntyre	NRC	301-415-8206

Brian Hansen	Platts Inside Energy	202-383-2242
Joel Case	DOE-Idaho	208-520-4181
Kathy Martin	DOE GC	202-586-4467
Mark Gilbertson	DOE-EM/HQ	202-586-5042
Boby Abu-Eid	NRC	301-415-5811
Michel Call	NRC	301-415-8118
Neil Jensen	NRC/OGC	301-415-1637
DOE-SRS (on phone)		
DOE-West Valley (on phone)		
CH2MHill (on phone)		
CNWRA (on phone)		