



UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON NUCLEAR WASTE AND MATERIALS
WASHINGTON, D.C. 20555-0001

ACNWMR-0273

November 26, 2007

The Honorable Dale E. Klein
Chairman
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: NUREG-1854, "NRC STAFF GUIDANCE FOR ACTIVITIES
RELATED TO U.S. DEPARTMENT OF ENERGY WASTE DETERMINATIONS -
DRAFT FINAL REPORT FOR INTERIM USE"

Dear Chairman Klein:

During its 183rd meeting on October 16–18, 2007, the Advisory Committee on Nuclear Waste and Materials (the Committee) received a briefing by staff from the NRC Office of Federal and State Materials and Environmental Programs (FSME) on NUREG-1854, "NRC Staff Guidance for Activities Related to U.S. Department of Energy Waste Determinations - Draft Final Report for Interim Use," issued August 2007. This version of NUREG-1854 incorporates NRC staff responses to comments by the public and the Committee on the May 2006 version of NUREG-1854, "Standard Review Plan for Activities Related to U.S. Department of Energy Waste Determinations - Draft Report for Interim Use and Comment." The current version of NUREG-1854 is designated as a "draft final report for interim use" because the NRC staff expects to revise it after resolving some generic technical issues.

The NRC staff reported that the agency received comment letters from the U.S. Department of Energy (DOE), the West Valley Citizen Task Force, the Natural Resources Defense Council, private citizens, the Committee, and the States of Idaho, New York, Washington, and Oregon. The staff indicated that the report revision reflected the comments received as well as insights obtained from waste determination activities and tasks that the staff has recently completed.

The following are examples of important revisions made to the guidance:

- inclusion of a new methodology for radionuclide concentration averaging for waste classification
- clarification regarding the use of removal efficiencies
- expanded discussion of the disadvantages of quantifying benefits in terms of collective dose
- discussion of the appropriate scope of cost-benefit analyses, including environmental benefits and nonradiological risks
- consideration of uncertainty in cost-benefit analyses
- inclusion of additional performance assessment review procedures

OBSERVATIONS

The Committee believes that the staff has considered public comments and has revised NUREG-1854 in several important ways that clarify key technical issues. The Committee believes that the report provides needed guidance on the review of DOE waste determinations.

The Committee particularly notes the new methodology for averaging radionuclide concentrations for the purpose of determining whether a proposed waste incidental to reprocessing (WIR) is less than Class C. This methodology takes into account site-specific features, events, and processes such as the spatial distribution of the radionuclides, waste stabilization techniques, site geohydrology and meteorology, and the engineered features of the disposal technology. This methodology is risk informed and requires explicit consideration of uncertainties, but it allows for either probabilistic or deterministic calculations.

The staff developed the new radionuclide concentration averaging methodology specifically for the classification of WIR and waste determination reviews. The Committee believes that the use of this methodology will risk-inform waste disposal options for a broad range of wastes. For example, this method could be applied to the disposal of slightly contaminated materials or small volumes of waste containing high radionuclide concentrations, such as irradiated hardware, by taking into account all the features, events, and processes particular to each case. This is just an example of the range of applicability of the methodology and does not indicate specific priorities.

The Committee supports the staff's continued use of the guidance in NUREG-1854 to review DOE waste determinations. Additionally, the Committee endorses staff efforts to resolve related generic technical issues.

RECOMMENDATION

The Committee recommends that the staff evaluate a broader application of the new concentration averaging methodology to wastes other than WIR. These evaluations should include an assessment of a range of concentration and total radioactive material content in wastes, waste form and waste packaging, engineered features of disposal sites, and site geohydrologic characteristics, as has been done in NUREG-1854. Waste types that could be included are very low activity waste, low-level waste, greater-than-Class-C determinations, or other specific waste disposal analyses. The staff should also identify any limitations of the method.

The Committee looks forward to hearing about the resolution of the generic technical issues and the results of further evaluation of concentration averaging, particularly those outcomes that may have broader implications or applicability to near-surface waste disposal.

Sincerely,

/RA/

Michael T. Ryan
Chairman

OBSERVATIONS

The Committee believes that the staff has considered public comments and has revised NUREG-1854 in several important ways that clarify key technical issues. The Committee believes that the report provides needed guidance on the review of DOE waste determinations.

The Committee particularly notes the new methodology for averaging radionuclide concentrations for the purpose of determining whether a proposed waste incidental to reprocessing (WIR) is less than Class C. This methodology takes into account site-specific features, events, and processes such as the spatial distribution of the radionuclides, waste stabilization techniques, site geohydrology and meteorology, and the engineered features of the disposal technology. This methodology is risk informed and requires explicit consideration of uncertainties, but it allows for either probabilistic or deterministic calculations.

The staff developed the new radionuclide concentration averaging methodology specifically for the classification of WIR and waste determination reviews. The Committee believes that the use of this methodology will risk-inform waste disposal options for a broad range of wastes. For example, this method could be applied to the disposal of slightly contaminated materials or small volumes of waste containing high radionuclide concentrations, such as irradiated hardware, by taking into account all the features, events, and processes particular to each case. This is just an example of the range of applicability of the methodology and does not indicate specific priorities.

The Committee supports the staff's continued use of the guidance in NUREG-1854 to review DOE waste determinations. Additionally, the Committee endorses staff efforts to resolve related generic technical issues.

RECOMMENDATION

The Committee recommends that the staff evaluate a broader application of the new concentration averaging methodology to wastes other than WIR. These evaluations should include an assessment of a range of concentration and total radioactive material content in wastes, waste form and waste packaging, engineered features of disposal sites, and site geohydrologic characteristics, as has been done in NUREG-1854. Waste types that could be included are very low activity waste, low-level waste, greater-than-Class-C determinations, or other specific waste disposal analyses. The staff should also identify any limitations of the method.

The Committee looks forward to hearing about the resolution of the generic technical issues and the results of further evaluation of concentration averaging, particularly those outcomes that may have broader implications or applicability to near-surface waste disposal.

Sincerely,

/RA/

Michael T. Ryan
Chairman

Distribution: ***See Next Page

ADAMS ML073190610

| | | | | | |
|---------------|----------|----------|----------|--------------------------------|--------------------------------|
| OFFICE | ACNW&M | SUNSI | ACNW&M | ACNW&M | ACNW&M |
| NAME | LHamdan | LHamdan | ADias | FPGillespie /Santos Acting/ | FPG for MTR /Santos Acting/ |
| DATE | 11/23/07 | 11/23/07 | 11/26/07 | 11/26/07 | 11/26/07 |

OFFICIAL RECORD COPY

File Code__WL 148

Letter To: The Honorable Dale E. Klein
Chairman, NRC

From: Michael T. Ryan
Chairman, ACNW&M

Subject: NUREG-1854, "NRC STAFF GUIDANCE FOR ACTIVITIES
RELATED TO U.S. DEPARTMENT OF ENERGY WASTE DETERMINATIONS—
DRAFT FINAL REPORT FOR INTERIM USE"

Date: November 26, 2007

Distribution:

| | | | |
|---|---|--|---|
| RidsSecyMailCenter | RidsEDOMailCenter | RidsNRROD | |
| RidsNMSSOD | RidsFSMEOD | RidsOCAMailCenter | |
| RidsNSIROD | RidsRESOD | RidsNROOD | |
| RidsOIGMailCenter | RidsOGCMailCenter | RidsASLBPMailCenter | |
| RidsOCAAMailCenter | RidsOPAMailCenter | RidsRGN1MailCenter | |
| RidsRGN2MailCenter | RidsRGN3MailCenter | RidsRGN4MailCenter | |
| BChamp ABates JPerry MLee DWidmayer | CLBrown NColeman YDiaz-Sanabria LHamdan VMurphy | JFlack CJaegers DPelton ADias | SMcKelvin LMike PTressler SJones |