



UNITED STATES  
**NUCLEAR REGULATORY COMMISSION**  
ADVISORY COMMITTEE ON NUCLEAR WASTE  
WASHINGTON, DC 20555 - 0001

ACNWS-0147

**Revised**

September 9, 2004

The Honorable Nils J. Diaz  
Chairman  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

SUBJECT: SUMMARY REPORT—152<sup>ND</sup> MEETING OF THE ADVISORY COMMITTEE  
ON NUCLEAR WASTE, JULY 20–22, 2004, AND OTHER RELATED  
COMMITTEE ACTIVITIES

Dear Chairman Diaz:

During its 152<sup>nd</sup> meeting on July 20–22, 2004, the Advisory Committee on Nuclear Waste (ACNW) discussed the following reports to Nils J. Diaz, Chairman, U.S. Nuclear Regulatory Commission (NRC):

**REPORTS**

- Research on Model Uncertainty, dated August 4, 2004
- Working Group Meeting on Geosphere Transport at Yucca Mountain, dated August 3, 2004
- Review the LTR Analysis — Intentional Mixing of Contaminated Soil, dated July 30, 2004
- Nuclear Regulatory Commission's Package Performance Study — Demonstration Test, dated July 30, 2004

**HIGHLIGHTS OF KEY ISSUES CONSIDERED BY THE COMMITTEE**

**1. Package Performance Study**

The NRC staff briefed the Committee on the status of the U.S. NRC Package Performance Study (PPS). The Committee sent a report to the Commission. The report concludes that the ACNW has not seen any compelling science-based justification for the proposed demonstration test. The Committee believes the proposed demonstration will add little new information of technical value. If a full-scale demonstration is deemed necessary, it should be justified on grounds other than technical needs.

**Conclusions/Action Items**

The Committee will continue to follow developments related to the PPS and offer advice as appropriate.

## **2. License Termination Rule Analysis of the Use of Intentional Mixing of Contaminated Soil**

Dr. Michael T. Ryan introduced Mr. Derek Widmayer, Office of Nuclear Material Safety and Safeguards (NMSS), who provided a background on this topic, including the options analysis, recommendations provided to the Commission, and the future issues for guidance.

The basic issue was whether intentional mixing of contaminated soil for meeting the release criteria of the License Termination Rule should be allowed.

After a complete survey of a wide range of NRC regulations and guidance, the staff reached the conclusion that dilution was not forbidden in the regulations, mixing and dilution had been addressed many times (in various applications with various conclusions reached) and it had not been addressed in the Generic Environmental Impact Statement supporting the license termination rule (LTR). A similar detailed review of Department of Energy, Environmental Protection Agency, and international documents related to the topic revealed similar conclusions.

The staff recommended that the current practice be continued and allow limited (case-by-case) use of intentional mixing to meet the LTR release criteria. The staff proposal approves only cases where the resultant footprint would be equal or smaller than the footprint present before decommissioning work begins, and clean soil, from outside the footprint, should not be mixed to lower concentrations.

Comments have been requested (and already received from several stakeholders) with the final draft scheduled for issuance in September 2005.

The Committee was particularly interested in obtaining stakeholder input and was also interested in the waste acceptance criteria to be used, especially if it could result in a change of the waste classification.

### **Conclusions/Action Items**

The Committee approved a letter on this issue. One of the recommendations was that in addition to obtaining written comments from stakeholders, the staff consider a public workshop where stakeholder interactions would be possible. The Committee also indicated its intention to continue to follow the LTR issue closely (an early Fall 2004 presentation is anticipated).

## **3. Risk Informing Yucca Mountain Inspection System**

The NRC staff briefed the Committee on the status of the development of the Yucca Mountain inspection program. The inspection program will rely on risk analyses to focus inspections on areas of risk significance.

### **Conclusions/Action Items**

The ACNW will continue to track the development of this program.

#### **4. Integrated Safety Assessment Background**

Ms. Sharon Steele, NMSS, provided a brief presentation to the members on the integrated safety analysis (ISA) requirement for fuel cycle facilities that fall under 10 CFR Part 70. The staff provided background information on the Part 70, Subpart H rule, presented an example of an actual ISA summary submittal and discussed recent developments.

Ms. Steele's presentation began with the schedule requirements to comply with the new rule. She continued her discussion with the three major elements of the rule: performance requirements, items relied on for safety (IROFS) that are required to meet performance requirements, and management measures to ensure that the IROFS are reliable and available. She discussed the Nuclear Fuel Services Company's license amendment application for the BLEU project (in particular the uranyl nitrate building for the storage of low-enriched uranyl nitrate). Ms. Steele discussed the licensee's overall ISA process, hazard identification methodologies, potential accident sequences, accident consequences, and the binning of credible accidents sequences according to the performance criteria. She explained the quantitative and qualitative aspects of the ISA process.

Finally, Ms. Steele provided the members with an update on recent activities in NMSS regarding the ISA summary submittals. She discussed the status of the licensee ISA, the development of interim staff guidance on specific technical issues, and the outcomes of the July 2004 workshop.

### **Conclusions/Action Items**

This was an informational briefing. No action is required.

#### **5. Health Physics Issues**

Dr. Donald Cool, NMSS, provided a high-level overview of the draft recommendations from the International Commission on Radiation Protection (ICRP). The staff is currently reviewing these recommendations and intends to respond formally to the ICRP in December. ICRP representatives have offered to meet with NRC staff, other Federal agency representatives, and members of the public. They will likely visit the NRC in the next several months. Dr. Cool summarized the history of NRC's basic standards for radiation protection that are embodied in 10 CFR Part 20. The staff is waiting for the latest ICRP recommendations to come out formally before engaging in a new rulemaking process.

Dr. Cool noted that the Commission had requested proposals for a more robust materials program (i.e., byproduct and source material and other areas of regulatory jurisdiction). The staff has provided a paper outlining how to evaluate scientific recommendations on health effects in radiation biology. With the Commission's approval, the staff is moving

ahead with a more aggressive and proactive approach, which includes extensive interaction in national and international forums to discuss health physics issues.

**Conclusions/Action Items**

This was an informational briefing. No action is required.

**6. Site Visit and Igneous Activity Working Group**

The Committee intends to conduct a working group meeting in September 2004 (153rd ACNW meeting) on the treatment of disruptive igneous events in a Yucca Mountain performance assessment. It was noted that all invited speakers and experts have been contacted, and the scopes of their respective participation discussed. The NRC staff said that one speaker remained to be named for the planned session on the DOE 2003 Igneous Consequences Peer Review Panel. It was also noted that attempts were underway to identify an alternative leader for the proposed field trip to examine the Crater Flats volcanic field.

**Conclusions/Action Items**

The cognizant staff engineer for this meeting was asked to distribute background materials as soon as practical to the members, their consultants, and outside invited working group experts.

**7. Committee Retreat**

The ACNW members and staff held a brainstorming session in preparation for the ACNW retreat in September 2004. Ms. Sharon Steele facilitated this session. The agenda was as follows:

- (1) clarify the goals and objectives of the retreat
- (2) obtain feedback on the proposed activities
- (3) revise the proposed retreat plans and agenda
- (4) get the Committee's approval to continue with the planning activities
- (5) discuss next steps

The Committee members and staff discussed the retreat objectives and the proposed agenda. The Committee reviewed the key topics and discussed the assignments of topics to staff and members. The Committee identified additional key topics.

**Conclusions/Action Items**

The staff agreed to further develop the key topics and provide preliminary input (source documents) to the members the first week of September.

**8. Proposed Agenda for the 153<sup>rd</sup> ACNW Meeting**

The Committee agreed to hold a 2-day Working Group on the Evaluation of Igneous Activity and Its Consequences at a Geologic Repository at Yucca Mountain, Nevada, during its 153<sup>rd</sup> meeting, scheduled for September 22–23, 2004.

Sincerely,

**/RA/**

B. John Garrick  
Chairman