ACNWS-0103
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON NUCLEAR WASTE
WASHINGTON, D.C. 20555-0001

April 12, 1999

The Honorable Shirley Ann Jackson
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

SUBJECT: SUMMARY REPORT — 106TH MEETING OF THE ADVISORY COMMITTEE ON NUCLEAR WASTE, FEBRUARY 23–25, 1999, AND OTHER RELATED COMMITTEE ACTIVITIES

Dear Chairman Jackson:

During its 106th meeting on February 23–25, 1999, at Two White Flint North, 11545 Rockville Pike, Rockville, Maryland, the Advisory Committee on Nuclear Waste (ACNW or the Committee) discussed the following six issues.

HIGHLIGHTS OF KEY ISSUES CONSIDERED BY THE COMMITTEE

Department of Energy's License Application Design Selection Presentation

Richard Craun, Department of Energy (DOE), spoke on the history of the design selection effort for the Yucca Mountain repository. He discussed the following: the license application design selection (LADS) process, alternative designs and features being evaluated, defense-in-depth analysis, and ranking alternative designs. DOE is currently scheduled to select a repository design in June 1999. At that time, DOE expects to have a single design concept with flexibility in such details as waste package materials.

Conclusions/Action Items

This briefing was conducted as part of the Committee's review of the DOE viability assessment (VA) and DOE's transition from the VA to developing the site recommendation and license application. The ACNW plans to write a report and brief the Commission on its VA review.

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Meeting With the Director of NRC's Division of Waste Management, Office of Nuclear Material Safety and Safeguards.

John Greeves, Director, Division of Waste Management (DWM), Office of Nuclear Material Safety and Safeguards (NMSS), discussed the status of the clearance rule, assistance to the Agreement State low-level waste (LLW) programs, the General Accounting Office's study of the national system for the disposal of commercial LLW, the standard review plan (SRP) for decommissioning, the status of the West Valley project, the proposed 10 CFR Part 63, and the Environmental Protection Agency high-level waste (HLW) standard.

The Committee asked questions about technical assistance concerning the Yucca Mountain project. Dr. Greeves stated that about 26 percent of the effort involved engineering technical assistance and that augmented work was being conducted on 19 additional tasks concerning key technical issues. He noted that the Center for Nuclear Waste Regulatory Analyses, assisted by consultants, contractors, and people with international reputations, is performing the work on waste package and repository design.

Conclusions/Actions

These discussions are part of a continuing dialogue between ACNW and DWM.

Waste-Related Research Activities of the Nuclear Regulatory Commission

During this part of the meeting, the Committee was updated on NRC research activities in preparation for its contribution to the joint (with the Advisory Committee on Reactor Safeguards) report to the Commission. (Last year the ACNW contribution was reported in Chapter V of NUREG-1635, Vol.1, June 1998, "Review and Evaluation of the Nuclear Regulatory Commission Research Program.")

William Ott, Team Leader, Office of Nuclear Regulatory Research (RES), discussed two waste-related programs managed by RES: the Radiation Protection and Health Effects Program and the Radionuclide Transport Research Program.

Mr. Ott gave the Committee a status report on each of the individual projects in both of these programs, presenting the objective, scope, current status, and expected work products.

The Committee was interested in the method used for identifying and prioritizing research projects, particularly given the challenges that the NRC faces in many waste-related areas.

Conclusions/Action Items

The Committee indicated that it would consider the programs that RES described in its report to the Commission. The Committee intends to complete its input for the fiscal year 1999 report at its 108th meeting.

Department of Energy Presentation on the Viability Assessment of a Repository at Yucca Mountain, Nevada

Representatives of DOE's Yucca Mountain Project (YMP) and the management and operations (M&O) contractor for the YMP discussed the post-VA activities that DOE plans to carry out as it develops an environmental impact statement, the site recommendation, and the draft license application (LA). These presentations included an overview of the license application plan for the VA, the rationale for DOE's prioritization of principal factors, and selection of work to be done before submitting the LA. Representatives of the M&O contractors presented DOE's specific plans for work on seepage into the drifts, unsaturated zone flow and transport, and container materials testing and modeling.

Conclusions/Action Items

This briefing was conducted as part of the Committee's review of the DOE VA and DOE's transition from VA to developing the site recommendation and LA. The ACNW will brief the Commission on its VA review and will report its findings and recommendations to the Commission.

NRC Staff Presentation on the Department of Energy's Viability Assessment of a Repository at Yucca Mountain, Nevada

Michael Bell, DWM, NMSS, presented the preliminary results of the staff's review of the DOE VA. He discussed the objectives and scope of the review, the schedule for completing it, and the basis for and results of the review. He said that the staff had not noted any new issues and that they found many positive aspects to the VA, but that there were some areas of concern that might affect DOE's ability to submit a complete LA. Areas of concern include the following: the uncertainties associated with the lack of a fixed design, the limited supporting information for DOE's model of waste package corrosion, the adequacy of DOE's treatment of water dripping onto the waste package, issues involving DOE's model and database for analyzing saturated zone flow and transport, the completeness of DOE's treatment of igneous activity, and the implementation of DOE's quality assurance (QA) program.

Conclusions/Action Items

This briefing was conducted as part of the Committee's review of the DOE VA, and the staff's prelicensing activities during the transition from VA to the site recommendation and LA. The ACNW will brief the Commission on its VA review and will report its findings and recommendations to the Commission.

Nuclear Energy Institute Presentation of 1999 High-Level Waste Initiatives

Representatives of the Nuclear Energy Institute (NEI) presented their 1999 high-level radioactive waste issues. This presentation was made by Marvin Fertel and Steven Kraft of NEI. They were pleased with the results of DOE's Yucca Mountain VA, but had concerns over DOE's Yucca Mountain project quality assurance program. NEI also expressed approval of NRC's proposed HLW regulation, 10 CFR Part 63. They also believe current legislation proposing a 100 mrem/year dose standards is adequate to protect public health and safety. NEI disagrees with the Environmental Protection Agency's 4 mrem/year groundwater standard. They would favor less formal legislative hearings for a HLW repository, rather than the current adjudicatory hearings.

Conclusions/Actions

The Committee indicated that it would continue these updates from the NEI.

PROPOSED SCHEDULE FOR THE 107th AND 108th ACNW MEETINGS

The Committee agreed to consider the following issues during its 107th and 108th meetings on March 16 and 17 and March 23–25, 1999, respectively:

107th ACNW Meeting

- **Meeting With the NRC Commissioners** — The Committee will prepare for and meet with the Commission. The viability assessment of a repository at Yucca Mountain will be the topic of discussion. The Committee will also observe presentations to the Commission on the VA by others including the NRC staff, affected local units of government, tribal nations, and the Nuclear Waste Technical Review Board.

- **Preparation for the Next Meeting With the Commission** — The Committee will discuss planned reports, including reports on an ACNW self-assessment, DOE's Viability Assessment, NRC-supported Waste-Related Research, a white paper on Repository Design Issues at Yucca Mountain, and other topics discussed during this and previous meetings, as the need arises.

108th ACNW Meeting

- **Low Levels of Ionizing Radiation** — The Committee will conduct a day-and-a-half working group session on the radiation effects from low-level ionizing radiation, specifically as related to the linear non-threshold dose response theory. This is a follow-on to several Committee meetings held over the past 3 years on this particular subject. Speakers will discuss various studies underway (or completed), as well as past advice related to this topic. Each speaker has been requested to offer suggestions for research, from their perspective, that would fill gaps in the current regulatory base. These periodic updates and overviews of research permit the Committee to continue to provide relevant advice to the Commission on this important topic. Among those invited to give presentations related to national and international perspectives are representatives of the National Council on Radiation Protection and Measurements, the Department of Energy, the National Academy of Sciences' Board of Radiation Effects Research, the National Cancer Institute, the International Committee on Radiation Protection, the University of Massachusetts, and the Nuclear Energy Institute. Following these presentations, a panel discussion will be held that will involve the participation of many of the presenters and invitees from the Environmental Protection Agency.

- **Clearance Rule** — The Committee will review progress on the development of a Clearance Rule for materials and equipment having residual radioactivity. The potential rulemaking is intended to focus on levels above background for unrestricted use that are adequately protective of public health and safety.

- **Decommissioning Standard Review Plan** — The NRC staff will brief the Committee on the Decommissioning Standard Review Plan (SRP). This SRP is being developed to enable the NRC staff to evaluate information submitted by licensees in a timely, efficient, and consistent manner to determine if the decommissioning can be conducted so that public health and safety are protected and the facility can be released in accordance with the NRC's requirements.

- **Preparation of ACNW Reports** — The Committee will discuss planned reports, including reports on an ACNW self-assessment, DOE's Viability Assessment, NRC-supported waste-related research, a white paper on repository design issues at Yucca Mountain, low levels of ionizing radiation, and other topics discussed during this and previous meetings.

OTHER RELATED ACTIVITIES OF THE COMMITTEE

The 109th ACNW meeting has been rescheduled for May 11–13, 1999.

Sincerely,

B. John Garrick
Chairman