

June 23, 2003

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

SUBJECT: FISCAL YEARS 2003 AND 2004 ACTION PLAN FOR THE ADVISORY
COMMITTEE ON NUCLEAR WASTE

Dear Chairman Diaz:

The Advisory Committee on Nuclear Waste (ACNW) has updated its Action Plan (hereafter the Plan) to reflect new and continuing priorities for fiscal years (FYs) 2003 and 2004. The Committee will continue to update the Plan at least every 2 years. The Plan identifies our mission, vision, desired outcomes, commitments, goals, objectives, and priority topics. The Plan supports the Nuclear Regulatory Commission's (NRC's) Strategic Plan for FY 2002–FY 2005 (NUREG-1614, Vol. 2). The Plan is also consistent with the ACNW's charter and the Memorandum of Understanding between the ACNW and NRC's Executive Director for Operations, dated March 23, 2001.

The primary purpose of the Plan is to guide the Committee in carrying out its mission. In addition to the priority topics identified in the Plan, the ACNW has identified operational process improvements that it will implement this year to improve its efficiency and effectiveness. The ACNW will track the progress and outcomes of these process improvements in a separate, internal planning document.

The Committee has identified five first-tier priority topics and four second-tier priority topics for FY 2003 and FY 2004:

First-Tier Topics:

1. Risk-Informing the High-Level Waste Licensing Process
2. Resolution of Key Technical Issues
3. Performance Confirmation
4. Transportation of Radioactive Waste
5. Safeguards and Security

Second-Tier Topics:

1. Decommissioning Options
2. Research
3. Proposed Private Fuel Storage Facility
4. Low-Level Radioactive Waste

The Committee plans to address its first-tier priority topics over the next few years, and the second-tier priority topics as time and resources permit, unless otherwise directed by the Commission. One new topic has been added to the Plan – Safeguards and Security. This topic has been added to reflect increased staff activity in this area since the events of September 11, 2001. All of the topics identified in last year's Plan are still included in this revision.

In addition to reviewing issues identified under these nine priority topics, the ACNW will continue to participate in activities of the Joint ACNW and Advisory Committee on Reactor Safeguards Subcommittee. The priority topics are described in more detail in the enclosed Plan.

Sincerely,

/RA/

George M. Hornberger
Chairman

Attachment:
FY 2003-04 Action Plan for ACNW

FISCAL YEARS 2003 AND 2004 ACTION PLAN ADVISORY COMMITTEE ON NUCLEAR WASTE

PURPOSE OF PLAN

This Action Plan (Plan) provides strategic direction and guidance for fiscal years (FYs) 2003 and 2004 to the Advisory Committee on Nuclear Waste (ACNW) for addressing the issues that are most important to the Nuclear Regulatory Commission (NRC) in carrying out its mission to protect public health and safety, promote the common defense and security, and protect the environment. The Plan defines the ACNW's mission, vision, desired outcomes, commitments, goals, objectives, and priority topics selected for review. For each goal, the Plan indicates the relationship between the goal and the strategic arenas and management strategies in the NRC's FY 2000–FY 2005 Strategic Plan (NUREG-1614, Vol. 2).

This Plan also provides the Commission, NRC staff, and other interested stakeholders with information about the priority topics on which the ACNW intends to focus its reviews. The Committee selected the first- and second-tier priority topics in a top-down manner designed to support our mission, vision, goals, and objectives. The priority topics consist of self-initiated topics requested by the Commission, as well as those requested by the NRC staff and other stakeholders.

SCOPE OF ACNW ACTIVITIES

The Committee reports to and advises the Commission on technical matters related to nuclear materials and waste management. The bases of ACNW reviews include Title 10, Parts 20, 40, 50, 60, 61, 63, 70, 71, and 72 of the *Code of Federal Regulations* (CFR), as well as other applicable regulations and legislative mandates. The ACNW will undertake studies and activities related to the transportation, storage, and disposal of high-level and low-level radioactive waste (HLW and LLW, respectively), including the interim storage of spent nuclear fuel; materials safety; decommissioning; application of risk-informed and performance-based (RIPB) regulations; and evaluation of licensing documents, rules, regulatory guidance, and other issues, as requested by the Commission. To fulfill its responsibilities, the Committee will interact with representatives of the public, the NRC, the Advisory Committee on Reactor Safeguards (ACRS), other Federal agencies, State and local agencies, Indian Nations, and private, international, and other affected organizations, as appropriate.

RISK-INFORMED, PERFORMANCE-BASED APPROACH

The Committee believes that it best serves the Commission by taking an RIPB approach to ACNW activities. The Committee will accomplish this goal, in part, by supporting the Commission in applying the principles in the NRC's probabilistic risk assessment (PRA) policy statement, dated August 10, 1995 (60 FR 42622), to waste and materials regulations. For example, in its reviews, the ACNW will encourage use of PRA principles and associated analyses (sensitivity studies, uncertainty analyses, and importance measures) to reduce unnecessary conservatism associated with the NRC's regulatory framework. The ACNW will also encourage realism, transparency, and consistency in risk and performance assessments, including the identification of uncertainty in these assessments.

In addition to supporting the PRA policy statement, the Committee will encourage implementation of a flexible overall RIPB regulatory framework for the NRC's materials and waste related regulations. An RIPB approach should reduce rigid interpretation and prescriptive approaches in the application of regulations. An RIPB framework should facilitate the use of more defensible and transparent regulation and will improve confidence in regulatory decisions. In this way, the NRC can develop more efficient regulations that have an obvious link to safety and encourage a more effective allocation of NRC and licensee resources.

ACNW MISSION

The ACNW's mission is to provide the Commission with independent and timely technical advice on nuclear materials and waste management issues to support the NRC in conducting an efficient and effective regulatory program that enables the Nation to use nuclear materials in a safe manner for civilian purposes.

ACNW VISION, DESIRED OUTCOMES, AND COMMITMENTS

The ACNW has identified a vision statement and desired outcomes to guide the Committee's implementation of its mission and commitments that will guide the Committee toward these outcomes.

Vision

The ACNW's advice and recommended solutions are forward-looking, are based upon the best available science and technology, can be implemented, and reflect the need to balance risk, benefit, and cost to society to enable the safe use of nuclear materials.

Desired Outcomes

1. ACNW advice reflects the need for safety and the need to balance risk, cost, and benefit in all of the NRC's decisions.
2. ACNW advice is clear, concise, and easily understood.
3. ACNW provides an effective forum for the public to participate in the regulatory process, increases public confidence in the regulatory process, and ensures that communication paths with the public remain open and effective.
4. ACNW advice is provided in ample time for consideration by the Commission in making regulatory decisions.
5. ACNW advice reflects sound technical judgment and influences the NRC's regulations and guidance.
6. ACNW advice alerts the Commission to emerging and potentially challenging issues.
7. ACNW advice reflects consideration and awareness of relevant waste and materials issues that cut across other Federal agencies, institutions, and industry.

8. ACNW advice is valued by the Commission, the NRC staff, the public, and other stakeholders.

Commitments

To achieve its desired outcomes, goals, and objectives, the Committee makes the following commitments:

1. Make safety its highest priority.
2. Be responsive to the Commission's needs and requests.
3. Maintain technical excellence, independence, and credibility.
4. Adopt the NRC's plain language initiative.
5. Regard the public as its ultimate stakeholder and seek better ways to obtain meaningful public involvement.
6. Implement a risk-informed philosophy by asking: What is the risk? What are the important contributors to risk? What are the uncertainties associated with the risk?
7. Strive to examine issues and offer advice while regulatory solutions are still being formulated.
8. Foster an atmosphere of mutual problem solving with the NRC staff.
9. Remain flexible, anticipate change, and evaluate options and contingencies.
10. Keep informed of external trends and events that may adversely impact the NRC.
11. Keep abreast of international trends and developments that could affect the NRC's regulatory practices or approaches and apply the experience when practicable.
12. Identify relevant waste and materials issues that cut across the NRC and other Federal agencies, institutions, and industry.
13. Abide by the Committee's Action Plan to foster the efficiency and effectiveness of Committee activities and products.

GOALS AND OBJECTIVES

The ACNW has developed general goals and objectives consistent with its mission and vision. The following five goals provide strategic direction for the ACNW over the next 2 years and support selected goals and strategic arenas identified in the NRC's Strategic Plan. Each goal is followed by objectives to help the Committee better select and focus its priority issues.

Goal 1: Assist the NRC in positioning itself to respond to external change in its regulation of the management of nuclear waste and materials. (This goal supports the NRC's Nuclear Waste Safety and Nuclear Materials Safety strategic arenas and NRC's strategic goal and primary performance goal to maintain safety, protect the environment, and ensure the common defense and security.)

Objective 1: Advise the Commission in a timely fashion on technical developments that may require changes in the NRC's regulations, policies, and practices.

Objective 2: Inform the Commission of issues that the NRC needs to address and recommend solutions.

Goal 2: Support the NRC in employing the best science in resolving key safety issues. (This goal supports the NRC's Nuclear Waste Safety and Nuclear Materials Safety strategic arenas and the specific performance goal to make NRC activities and decisions more effective, efficient, and realistic.)

Objective 1: Keep informed of methods and technologies being developed and used worldwide that are applicable for assessing and managing risks associated with the cleanup, disposal, and storage of nuclear waste.

Objective 2: Advise the Commission on enhancements to the NRC staff's technical capabilities that are needed to address current and expected Commission needs.

Objective 3: Advise the Commission and the NRC staff on ways to use risk-informed and performance-based approaches to develop an efficient and effective regulatory framework.

Goal 3: Advise the NRC on how to increase its reliance on risk as a basis for decisionmaking, including methods that (1) implement a risk-informed approach, (2) quantify and reveal uncertainties, and (3) are consistent across programs. (This goal supports the NRC's Nuclear Waste Safety and Nuclear Materials Safety strategic arenas and the specific performance goal to reduce unnecessary regulatory burden on stakeholders.)

Objective 1: Encourage the NRC staff in seeking and proposing approaches to gain a better understanding of the inherent risks of activities within NRC's regulatory responsibilities, as well as the relationship between regulations, cost, and safety.

Objective 2: Propose approaches that provide a better understanding of the inherent risks associated with nuclear power and the relationship between safety, regulations, and cost, and advise the Commission on the proposals.

Objective 3: Provide technically sound and realistic approaches for resolving new and emerging issues, and identify ways to utilize risk-informed and performance-based approaches related to the safe use of nuclear materials for civilian purposes.

Goal 4: Support the NRC in improving public involvement and understanding in its waste and materials programs and in gaining increased public confidence and respect. (This goal supports the NRC's Nuclear Waste Safety and Nuclear Materials Safety strategic arenas and the specific performance goal to increase public confidence.)

Objective 1: Provide opportunities through the Federal Advisory Committee Act process for more meaningful public involvement in the regulatory process.

Objective 2: Recommend ways for the NRC to achieve more meaningful public involvement in the regulatory process, taking into consideration lessons learned from international experience.

Objective 3: Assist the NRC in making the agency's decisionmaking process more transparent and ensuring that agency documentation is readily understandable and addresses the relevant issues.

Goal 5: Support the effectiveness and efficiency of NRC operations. (This goal supports the NRC's corporate management strategies to employ innovative and sound business practices.)

Objective 1: Select and evaluate feedback from stakeholders on ACNW operations.

Objective 2: Evaluate and modify existing ACNW operational procedures as appropriate to accomplish "more with less."

PRIORITY TOPICS AND PROCESS IMPROVEMENTS

In support of its first four goals, the ACNW has identified its highest priority topics through FY 2004, and other important topics that it plans to address as time and resources permit. The highest priority topics are identified as first-tier priorities, while other important topics are identified as second-tier priorities. The Committee plans to place most of its emphasis on reviewing issues under the first-tier topics, unless otherwise directed by the Commission. The ACNW will address to a lesser extent or stay informed of issues under the second-tier topics, but is not likely to carry out a concentrated effort on any of these topics. The Committee has taken care to ensure that each priority topic supports one or more of the ACNW's goals.

The Committee has also defined the criteria it uses to select its priority topics. In support of its fifth goal to support the effectiveness and efficiency of NRC operations, the ACNW has

identified the improvements in operational processes it will carry out this year and next. The Committee will track its progress toward these process improvements in a separate internal planning document, and will periodically evaluate their impact.

For each priority topic addressed, the Committee plans to prepare a task action plan that will identify the nature and scope of the issue and a strategy for addressing it. These task action plans will include a schedule, purpose, scope, planned products, and performance measures to evaluate the Committee's effectiveness.

Identified below are the criteria for selecting priority topics, followed by a brief background discussion of the selected topics.

Criteria for Selecting Priority Topics

The Committee uses the following criteria to select priority topics:

- the likelihood that a topic, if not properly addressed, will result in significant adverse impact on the environment, significant risk to the health and safety of the public, or unnecessary economic costs
- topics for which the Commission or the Executive Director for Operations requests ACNW review
- topics for which the ACNW can provide a unique input that will add significant value to the resolution of the issue
- the relevance of the topic in the NRC's near-term regulatory agenda and the need for timely ACNW review
- the level of interest shown by NRC's external stakeholders in a topic and the degree to which ACNW engagement of the topic will have a positive impact on stakeholder confidence

Background Information on Priority Topics

On February 15, 2002, President Bush submitted a recommendation to Congress that Yucca Mountain, Nevada, be developed as the Nation's first geologic repository for the disposal of spent nuclear fuel (SNF) and other HLW. On April 8, 2002, the Governor of Nevada filed a notice of disapproval of the proposed Yucca Mountain project. Congress subsequently passed a joint resolution that allowed work to continue on the proposed repository. The U.S. Department of Energy (DOE) now plans to submit a license application to the NRC for approval to construct a geologic repository at Yucca Mountain. Current DOE planning assumptions suggest a potential DOE license application sometime in 2004. Any potential DOE license application for construction at Yucca Mountain would be reviewed in accordance with the NRC's risk-informed, site-specific regulations for HLW disposal in 10 CFR Part 63.

The NRC has conducted extensive preclicensing interactions with DOE concerning the proposed Yucca Mountain repository. As part of these preclicensing activities, the NRC engaged the DOE

in a prelicensing issue resolution process, identifying key technical issues (KTIs) and subissues. By the end of 2001, the NRC and DOE reached a closed-pending status on all KTI subissues, pending receipt and acceptance of information to be provided by DOE on some 293 agreements. Until DOE submits its license application, the NRC staff will continue to collect and evaluate information provided by the Department, and hold technical exchange meetings to close, KTIs at the staff level, prior to licensing. Plans for performance confirmation testing and long-term monitoring will become increasingly more important as the program moves toward a potential licensing decision. Some KTIs may remain open or closed-pending even into the performance confirmation period pending completion of long-term tests and analyses. Consistent with its advisory role, the ACNW expects to provide the Commission with its independent advice concerning the adequacy of the DOE license application.

Transportation of SNF has gained increased national attention since the President's recent Yucca Mountain site recommendation to Congress. A public discussion of the risks associated with the transportation of SNF and HLW and the roles and responsibilities of the various involved entities is needed to improve stakeholders' understanding of and confidence in this activity. Transportation of SNF is also one of the public concerns related to independent spent fuel storage. In 2002, NRC adjudicatory hearings were held concerning a license application from Private Fuel Storage (PFS, a consortium of utilities) to operate an independent spent fuel storage installation on the reservation of the Skull Valley Band of Goshute Indians in Utah. In 2003, the Atomic Safety Licensing Board (ASLB) issued its first decision concerning the PFS License application.

The events of September 11, 2001, have resulted in a reevaluation of the Nation's preparedness for possible terrorists attacks directed at infrastructures, including nuclear licensed facilities and radioactive waste transportation systems. The ACNW will be prepared to advise the Commission on safeguards- and security-related issues in these areas, as needed.

Safe and efficient decommissioning of nuclear reactors and nuclear materials facilities continues to be a critical function of the NRC's mission, and a concern to the public, industry, and other stakeholders. Complex technical and policy issues remain unresolved. Such issues include those associated with the release of property under restricted conditions, such as long-term institutional controls, the proposed rulemaking on entombment options for nuclear power reactors, control of the release of solid materials, and orphan and sealed sources. Because decommissioning waste must be disposed of in LLW disposal facilities, the failure of the Low-Level Waste Policy and Amendments Act of 1985 to bring about the construction of new LLW disposal facilities is also a concern. In addition, the availability of existing LLW sites may become limited in the near future.

First-Tier Priority Topics

Risk-Informing the HLW Licensing Process

Part 63 reflects the NRC's effort to implement an RIPB regulatory framework that relies primarily on the use of iterative performance assessment techniques to simulate the future behavior of the engineered and natural components of a geologic repository at Yucca Mountain. Previously, the ACNW reviewed and commented on the Yucca Mountain Review Plan (YMRP, NUREG-1804), which would be used to review any potential DOE license application. The Committee intends to examine how the NRC staff uses risk insights from sensitivity analyses and other performance assessment investigations to resolve technical issues, consistent with the risk-informed focus of the YMRP. In a follow up to its vertical slice review of DOE's total system performance assessment site recommendation (TSPA-SR), the Committee plans to continue to evaluate DOE's TSPAs and supporting documents. The Committee also plans to continue tracking progress in the NRC's performance assessment capability, including evaluating developments concerning NRC's performance assessment (TPA) computer code. In FY 2003, the ACNW held a working group meeting to evaluate differences between DOE and NRC performance assessment assumptions and results, including the extent to which the respective performance assessment activities have been subject to independent scientific validation. In anticipation of providing the Commission with its independent advice during the staff review of DOE's license application, the Committee intends to convene additional working groups in other priority areas viewed to be risk significant to repository performance in FY 2004.

Resolution of Key Technical Issues

The ACNW has closely tracked the KTI resolution process since its inception. In 2001, the ACNW conducted a vertical slice review of several KTIs and subissues to evaluate the NRC's issue resolution process and sufficiency review. The Committee's emphasis was on evaluating whether the issue resolution process was risk-informed, including whether the NRC staff was developing and using risk insights to inform its prelicensing agreements with DOE. As part of its continued evaluation of the KTI resolution process, the ACNW may extend its vertical slice review concept to examine selected subissues considered risk significant, and continue to examine development and use of risk insights. In addition, the ACNW plans to closely follow the progress of the 293 issue resolution agreements, and review and comment on any future updates to the draft Integrated Issue Resolution Status Report (NUREG-1762).

Performance Confirmation

The ACNW plans to hold a working group meeting in FY 2003 to review the staff's plans for evaluating DOE's proposed performance confirmation program for Yucca Mountain. The Committee expects to review the approach used to define those tests, experiments, and analyses that may be proposed in DOE's performance confirmation program, or those suggested by the NRC. The Committee may also evaluate proposed plans for long-term post-closure monitoring for Yucca Mountain as well as the techniques for testing and monitoring that could be useful for other prospective waste sites.

Transportation of Radioactive Waste

The Committee held a working group meeting in FY 2003 to examine past and ongoing risk studies on SNF transportation safety. Participants included NRC staff, and representatives from the Department of Transportation, DOE national laboratories involved in testing spent fuel transportation systems, international organizations, state and local governments, and interested stakeholders. In addition, the Committee commented on the NRC staff's proposed Package Performance Study Test Protocols for waste package transportation (draft NUREG-1768). The Committee will continue to follow developments in the draft NUREG, and possibly review transportation risk studies as documented in updates to the final environmental impact statement for Yucca Mountain.

Safeguards and Security

As needed in FY 2003 and FY 2004, the ACNW will advise the Commission on safeguards and security issues related to the management and transportation of radioactive waste. The areas the ACNW will consider reviewing include risk-informed vulnerability analysis and decisionmaking methodology, consequence analyses, pilot plant studies, recovery, and emergency planning.

Second-Tier Priority Topics

Decommissioning Options

This year, the Committee plans to evaluate developments in controlling the release of solid materials. The Committee also plans to explore developments in alternatives to restricted release criteria and use of institutional controls. The ACNW will continue to follow the development of decommissioning guidance, including the use of RIPB in decommissioning applications. Other issues may include the disposal of greater-than-Class C wastes, including orphan and sealed sources; the decommissioning of the West Valley, New York, Demonstration Project; and the application of the License Termination Plan to a complex decommissioning site.

Research

The ACNW will continue to report once a year to the Commission on NRC's waste-related research and technical assistance programs. Specifically, the Committee will continue to examine the research performed by the NRC's Office of Nuclear Regulatory Research that is associated with nuclear waste safety and the technical assistance work performed by the Center for Nuclear Waste Regulatory Analyses. The ACNW will continue to monitor the integration of research and technical assistance programs. The Committee may consider elements of an appropriate anticipatory research program and lessons learned from past anticipatory research that can be applied to planning future research programs.

Proposed Private Fuel Storage Facility

In June 1997, PFS submitted a license application to the NRC to operate an away-from-reactor independent spent fuel storage installation on the reservation of the Skull Valley Band of

Goshute Indians. After reviewing the license application, the NRC staff issued its safety evaluation report in September 2000, and adjudicatory hearings were completed in 2002. In 2003, the ASLB issued its first decision concerning the PFS license application. The ACNW will continue to stay informed of the technical issues associated with the licensing of this facility and with its proposed operation and will provide such reviews as appropriate.

Low-Level Radioactive Waste

The ACNW will keep informed of any new developments related to LLW issues. Issues of interest include the growing concern that LLW disposal capacity may be decreasing, assured isolation, management of mixed waste (waste with both hazardous and radioactive components), and possibly management of LLW or intermediate-level waste in other countries.

JOINT ACRS/ACNW SUBCOMMITTEE ACTIVITIES

The Commission authorized the establishment of the joint subcommittee in response to a request for ACRS/ACNW assistance on activities associated with risk-informing regulations developed by the NRC's Office of Nuclear Materials Safety and Safeguards (NMSS). The scope of the joint subcommittee's work now includes some activities that are within the purview of both Committees, so as to provide more effective and efficient reviews utilizing the expertise of both committees. The joint subcommittee plans to continue its review of risk-informing NMSS activities, proposed PRA for spent fuel dry cask storage, proposed safety goals for NMSS activities, decommissioning issues that overlap both ACNW and ACRS assignments, and other technical issues that would benefit from a review by the joint subcommittee. One such activity is the review of the Integrated Safety Assessment for the Mixed Oxide Fuel Fabrication Facility.

MEASURES OF SUCCESS

The Committee will assess the extent to which the goals and objectives in this Plan have been met and report the results in the annual ACNW operating plan. The Committee has established performance metrics to measure its overall effectiveness. The performance metrics include the ACNW's effectiveness, efficiency, quality, timeliness, and success in contributing to the RIPB regulatory process. As part of its annual self-assessment, the Committee will solicit stakeholder feedback as one of the sources of information for evaluating the ACNW's effectiveness.

UPDATING THE PLAN

The ACNW will continue to conduct top-down planning on an annual basis to identify goals and priority issues for the coming year. Revisions to the Plan will reflect input from the Commission, changes in legislation, changes to the NRC Strategic Plan, the results of customer surveys and self-assessments, external events, and available resources. As part of its efficiency and effectiveness goal, the ACNW will track, in a separate planning document, outcomes of its operational process improvements, special projects, ideas for working group meetings, possible follow up action to past ACNW letters, and items that the Committee considers important but cannot pursue this year due to time or resource limitations.