ACNWR-0152
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON NUCLEAR WASTE
WASHINGTON, D.C. 20555-0001

April 18, 2000

The Honorable Richard A. Meserve
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

SUBJECT: ADVISORY COMMITTEE ON NUCLEAR WASTE 2000 ACTION PLAN AND PRIORITY ISSUES

Dear Chairman Meserve:

The Advisory Committee on Nuclear Waste (ACNW) has modified its 1999 action plan to update the priority issues it will consider in the year 2000 and beyond. We refer to the plan as an "action plan" rather than as a "strategic plan" to distinguish it from strategic plans required by the Government Performance and Results Act. A copy of the action plan is enclosed for your consideration.

The action plan is anchored to the NRC's Draft Strategic Plan for FY 2000–FY 2005 (NUREG-1614, Vol. 2) and supports NRC's mission, the principles of good regulation, and relevant strategies and performance goals identified by the agency. The plan is consistent with ACNW's revised charter and the ACNW's operating plan, which is being updated to reflect the priority issues identified herein.

One purpose of the ACNW action plan is to guide the Committee in carrying out its mission over the next year and beyond. The Committee identifies first-tier priority issues it will address this year and second-tier issues it will address if time and resources permit, unless directed otherwise by the Commission. In addition to the priority issues, the ACNW identified the process and report improvements that it will initiate this year to improve efficiency and effectiveness.

The Committee has identified five first-tier priority issues in this action plan, as follows.

1. **Site Suitability and License Application** reflect the increased activity associated with the proposed Yucca Mountain repository as the time for the site recommendation decision and the possible license application draws near.

2. **Risk-Informed, Performance-Based (RIPB) Regulatory Framework** acknowledges that the Committee remains committed and engaged in the agency's move toward an RIPB regulatory structure. Reviews of the agency's high-level waste regulation (10 CFR Part 63) and a fresh look at the defense-in-depth philosophy will fall under the RIPB issue.

3. **Decommissioning** will remain an area of continued focus. Topics that are included under this issue include various options for decommissioning nuclear power plants and materials sites, the Regulatory Approaches for Control of Solid Materials (Clearance Rule), and screening codes used to support decommissioning decisions.

4. The **Yucca Mountain Review Plan** will be closely monitored and reviewed as it is developed since it will contain the license application acceptance criteria.

5. **Transportation of radioactive waste** has become a first-tier priority issue in this year's action plan because of the public's interest and concern.

The Committee has also identified the following three second-tier priority issues in its action plan:

1. **Research** remains a second-tier priority issue, although the Committee will review waste-related research and report to the Commission on this topic.

2. **Low-Level Radioactive Waste (LLW) and Agreement States Program** remains a second-tier priority issue. The Committee continues to believe that the resolution of the LLW disposal problem (state compacts) is required to allow society to continue to benefit from the use of nuclear materials.

3. **Risk Harmonization** remains a second-tier priority issue. By risk harmonization, the Committee is suggesting that regulations within and across agencies reflect the same degree of protection for the relative risk posed by the hazard.

We would appreciate your comments or suggestions on the enclosed action plan.

Sincerely,

B. John Garrick
Chairman

Enclosure: As stated

THE ADVISORY COMMITTEE ON NUCLEAR WASTE
2000 ACTION PLAN AND PRIORITY ISSUES AND ACTIVITIES

This plan provides strategic direction to the Advisory Committee on Nuclear Waste (ACNW) in 2000 and beyond for focusing on issues most important to the NRC in carrying out its mission of protecting public health and safety, promoting the common defense and security, and protecting the environment. It also conveys ACNW's mission, vision, goals, and priority activities and indicates how these goals support the NRC's Strategic Plan.

SCOPE OF ACNW ACTIVITIES

The Committee reports to and advises the Commission on nuclear waste management. The bases of ACNW reviews include 10 CFR Parts 61, 63, 71, 72, and 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, performance-based (RIPB) regulations; and evaluation of licensing documents, rules, regulatory guidance, and other issues as requested by the Commission. The Committee will interact with representatives of the public, NRC, the Advisory Committee on Reactor Safeguards (ACRS), other Federal agencies, State and local agencies, Indian Nations, and private, international, and other organizations as appropriate to fulfill its responsibilities.

OVERARCHING PHILOSOPHY

In conducting its self-assessments, the Committee realized that it has been the most effective in the areas in which it either initiated review of an issue or the Commission requested ACNW's advice on an issue. Examples include letters on the viability assessment, risk communication, and a white paper on repository design. The Committee has crafted its 2000 action plan to continue to place greater emphasis on self-initiated and Commission-requested topics.

The Committee will strive to take a top-down approach in its review of issues, focusing on the interconnection between issues and their crosscutting relationships, as opposed to reviewing issues in isolation.

The Committee also believes that it will best serve the Commission by taking an RIPB view in all of its activities. By this statement the Committee means that it will strive to ascertain the inherent risk associated with various issues, to encourage transparency in risk assessments, and to encourage consistency in the approach to risk assessments. The Committee will accomplish these goals by encouraging development of an overall flexible RIPB framework for materials and waste-related regulations. ACNW believes that an RIPB approach will remove or reduce rigid interpretation and prescriptive approaches in the application of regulations. The ACNW further believes that adoption of an RIPB framework could advance efforts toward risk harmonization and could alleviate conflicts associated with dual regulatory authority by providing a systematic and quantitative framework for assessing and comparing risk assessment approaches across and within agencies. An RIPB framework will allow for greater flexibility and transparency and will thus lead to greater confidence in regulatory decisions. In

this way, the NRC can develop defensible regulations that have an obvious link to safety and can achieve a greater understanding of relative risks.

Finally, as part of its philosophy, the Committee aspires to factor in international experience whenever possible in examining issues. The ACNW also strives to consider creative ways to involve the public to a greater extent, including the decisionmaking process and ensuring that communication paths with the public remain open and effective.

ACNW MISSION

The ACNW's mission is to provide independent and timely technical advice on nuclear 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

In addition to a clear mission statement describing the ACNW's purpose, the Committee has identified a vision statement and desired outcomes to convey the Committee's direction, as well as commitments that guide the Committee toward these outcomes.

Vision

The ACNW strives to provide advice and to recommend solutions that are forward-looking, are based upon 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

The Committee aspires to achieve the following ultimate outcomes:

1. Advice is provided in adequate time to influence Commission decisions.

2. Advice is "forward-looking" in that it alerts the Commission to potential problems that may be averted by taking interim action, or forewarns the Commission of emerging issues that may require action at a later time.

3. Advice reflects state-of-the-art science and technology, yet is sufficiently practicable to allow for incorporation into NRC technical approaches, regulations, and guidance.

4. Advice for the intended audience is clear and concise.

5. Advice reflects an understanding of inherent risk and reflects consideration of the need to balance risk, cost, and benefit in all of NRC's decisions,

6. ACNW assists the Commission in making more transparent the regulatory decisionmaking process by operating in a spirit of openness and focusing on risk.

7. Advice identifies the interplay between HLW, LLW, and decontamination and decommissioning (D&D) programs wherever possible, as well as crosscutting relationships of issues to Environmental Protection Agency (EPA) and Department of Energy (DOE) programs.

8. ACNW is respected by the Commission, the NRC staff, EPA, DOE, and the public and is perceived as adding value.

9. ACNW is trusted by the public for providing frank, open advice and for offering a forum for public participation in the regulatory process.

10. ACNW assists in resolving conflicts between NRC and DOE, EPA, and other stakeholders by encouraging communication and providing a neutral forum for interaction.

Commitments

The Committee will carry out the following commitments in accomplishing its mission and in pursuing its desired outcomes:

1. Be responsive to the Commission's needs.

2. Challenge the status quo, as appropriate, thereby becoming an "engine for change."

3. Remain flexible, be responsive to change, and consider various options and contingencies.

4. Identify in advance those issues that could have an impact on NRC's ability to achieve its mission.

5. Focus on risk by asking "what is the risk, what are the contributors to risk, and what are the uncertainties?"

6. Be mindful of and begin to identify issues that cut across NRC waste and materials programs, as well as across EPA and DOE waste-related programs.

7. Foster an atmosphere of mutual problem-solving with the NRC staff.

8. Keep abreast of international trends and developments that could influence NRC policies or approaches, and factor international experience into Committee advice.

9. Consider the public as its ultimate stakeholder and seek improved approaches to obtain public involvement.

10. Maintain technical excellence and independence.

11. Abide by the Committee's action plan to ensure 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 serve to provide strategic direction for the ACNW this year and support selected goals identified in NRC's Strategic Plan. For each goal, we identify objectives to help us better focus on our priority issues.

Goal 1: **Assist the NRC in positioning itself to respond to external change and uncertainty in 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, protection of the environment, and the common defense and security.]**

Objective 1: *Advise the Commission in a timely fashion on issues of a technical nature that may require changes in the regulations.*

Objective 2: *Inform the Commission about issues that could cause problems for the NRC or society if not given adequate attention, and recommend solutions.*

Goal 2: **Strive to ensure that NRC is 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 abreast of cutting-edge methods and technologies being developed and utilized worldwide that are applicable for assessing and managing risks associated with cleanup, disposal, and storage of nuclear waste.*

Objective 2: *Advise the Commission on projected or perceived technical shortcomings in NRC staff capabilities that could adversely affect the agency's ability to address safety issues.*

Goal 3: **Advise the NRC on how to increase its reliance on risk as a basis for decisionmaking, including using risk assessment methods for waste management that (1) implement a risk-informed approach, (2) quantify and reveal uncertainties, and (3) are consistent across programs, where possible. [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 and propose approaches to gain a better understanding of the inherent risks of licensed activities regarding nuclear waste disposal,*

cleanup, and materials, as well as the relationship between regulations, cost, and safety.

Objective 2: *Encourage the NRC staff to develop an overall flexible RIPB framework for management of nuclear waste disposal, cleanup, and materials that will allow for greater transparency of the underlying assumptions and associated uncertainties of risk assessments, greater consistency across programs, and development of more defensible regulations that are linked to safety.*

Goal 4: **Support the NRC in improving public involvement in its waste and materials program and 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 gain more meaningful public involvement in the regulatory process, taking into consideration international experience.*

Objective 3: *Assist the NRC in making the agency's decisionmaking process more transparent and ensuring agency documentation is thorough, clear, and readily understandable.*

Goal 5: **Improve the effectiveness and efficiency of ACNW operations. [This goal supports the NRC's Corporate Management Strategies to employ innovative and sound business practices.]**

Objective 1: *Increase the perceived value of ACNW advice to the Commission and the staff.*

Objective 2: *Improve and modify existing operational procedures to accomplish "more with less."*

PRIORITY ISSUES AND PROCESS IMPROVEMENTS

In support of its first four goals, the ACNW has identified its highest priority issues for this year, along with other important issues it plans to address this year or next, time and resources permitting. Also identified are the criteria the Committee uses to select its priority issues. In support of its fifth goal, the ACNW has identified process improvements it plans to continue to implement this year to improve its effectiveness.

The highest priority issues of 2000 are identified as first-tier priorities, and other important issues are identified as second-tier priorities. The Committee plans to conduct in-depth information gathering on most of the first-tier topics, whereas it does not plan to carry out a concentrated effort this year on most of the second-tier issues, unless directed by the Commission or in response to changes in nuclear waste legislation. The Committee may move several

of these topics to the first tier in its next action plan. Each priority issue supports one or more of ACNW's goals, as indicated.

For each priority issue addressed, the Committee plans to prepare a task action plan that identifies the nature and scope of the issue and a strategy for addressing it, including planned products and schedule, and performance measures and targets that will enable the Committee to determine whether it has achieved its goals.

CRITERIA FOR SELECTING PRIORITY ISSUES

The following criteria are used to select priority issues:

- issues that are requested by the Commission or the Commissioners for ACNW review,
- the protection of public health, workers, and the environment from adverse effects of the management of nuclear waste, especially in regard to disposal facilities, that is, the risk significance of an issue,
- issues for which the ACNW's review is "self-initiated" rather than "reactive,"
- timeliness based on when an issue is scheduled to come before the Commission and when the advice would be of greatest benefit to influence the Commission's regulatory decisions,
- the relationship of an issue to the NRC's Strategic Plan, including trends and directions in regulatory practice, such as the adoption of an RIPB method of regulation and decision-making,
- issues that arise from strategies and activities of licensees and applicants,
- the potential for or likelihood of an issue to pose undue risk or costs to society, and
- issues that arise that are based on the scientific and technical information supporting the safety and performance assessments of nuclear waste disposal facilities, including the quality and level of expertise involved.

FIRST-TIER PRIORITY ISSUES

1. **Site Suitability and License Application** — The DOE is required to make a site suitability determination in 2001, and the NRC staff will comment on the sufficiency of DOE's determination in May 2001. The ACNW will begin interactions with the NRC staff on its strategy for site characterization sufficiency comments beginning in March 2000. A review plan will be developed with milestones for the Committee, the NRC staff, and DOE interactions over the next 14 months so that the ACNW will be positioned to provide advice to the Commission before the NRC's sufficiency comments are sent to the DOE.

If the Secretary of Energy recommends the Yucca Mountain Site to the President, and the President considers the site justified for application to the NRC for construction authorization, the President will submit a recommendation of the site to Congress. If there are no objections to the site from the Governor or legislature of Nevada, or if there is and Congress passes a joint resolution of repository siting approval and the President signs it into law, a license application for construction authorization would be submitted by the Secretary of Energy within 90 days. The license application would be based on a particular facility design. The ACNW will review the construction authorization request in parallel to the NRC staff's review over the 3-year statutory time period for a licensing decision. The ACNW will consider repository design and quality assurance issues under this item. This issue supports ACNW Goals 1 through 4.

2. **Risk-Informed, Performance-Based Regulatory Framework** — The ACNW will continue to support the agency's effort to implement a risk-informed and incrementally performance-based regulatory framework. Specifically, the ACNW and the Joint ACRS/ACNW Subcommittee will continue to encourage and help the NRC staff in developing and implementing an overall RIPB framework for nuclear waste and materials. The Committee anticipates continuing to encourage the NRC to adopt regulatory approaches that are transparent, to enhance public understanding of the key safety issues, and to encourage the NRC to use risk as a basis for setting priorities. In particular, the Committee will continue to stress the need for RIPB risk assessments to quantify the contributions of individual barriers for waste isolation and for the staff to develop guidance that clarifies its intentions regarding quantification of barriers. Issues to be addressed under this action plan item will be efforts related to clarifying the meaning of defense in depth in the nuclear waste and materials arena, the completion of the review of NRC's HLW regulation, 10 CFR Part 63, the staff's Branch Technical Position on Low-Level Waste Performance Assessment, and the continuation of the effort begun last year on risk communications. This issue supports ACNW Goals 1 through 4.

3. **Decommissioning** — Decommissioning topics will continue to be a primary focus of the Committee through the coming year. Areas of continued focus include guidance for implementing the final Rule on Radiological Criteria for License Termination, such as guidance on dose assessment modeling and parameter selection criteria for decommissioning assessment and streamlining the Site Decommissioning Management Program. The Committee will focus on an integrated approach to decontamination and decommissioning screening codes. RESRAD and DandD comparison reports will be reviewed along with the multi-agency decision support system used to support decommissioning decisions. Decommissioning options such as rubblization and entombment will continue to receive attention. The Committee will comment on the clearance rule. The ACNW expects to review guidance on decommissioning, such as the standard review plan for decommissioning. The Committee will take up the topic of residual contamination after decommissioning and the unrestricted versus restricted release of decommissioned sites. This issue supports ACNW Goals 1 through 4.

4. **Yucca Mountain Review Plan** — The ACNW will review the license application acceptance criteria as it is developed and listed in the Yucca Mountain Review Plan (YMRP). The YMRP is based on the Issue Resolution Status Reports that have documented the status of and acceptance criteria and status of each key technical issue. The Committee intends to review both pre-closure and postclosure safety issues and to ensure that the

review framework is risk informed and performance based. The ACNW will review the YMRP to ensure reviews are prioritized on the basis of risk significance. Issues such as plans for waste retrieval and pre-closure and postclosure performance confirmation and closure of individual key technical issues will be reviewed under this issue. The Committee will offer formal comments on the complete draft review plan during the public comment period beginning September 2000 and on the final review plan in September 2001. This issue supports ACNW Goals 1 through 4.

5. **Transportation** — The transportation of HLW and spent fuel is an issue that creates public concern. The ACNW plans to focus attention on this topic in the coming year, expanding its review of transportation issues undertaken during the review of the Yucca Mountain draft environmental impact statement. The focus will be an examination of past efforts to ensure transportation safety, such as the demonstration of cask strength and a discussion of the responsibilities of the various Government agencies involved in transportation safety. A goal would be to increase public confidence in this aspect of waste management using a risk-informed approach. The Committee also anticipates reviewing proposed changes to the NRC's transportation rule (10 CFR Part 71) from an RIPB perspective and taking a fresh look at transportation hazards through an updated modal study. This issue supports ACNW Goals 1 through 4.

SECOND-TIER PRIORITIES

1. **Research** — The ACNW will continue to report yearly to the Commission on NRC's waste-related research and technical assistance programs. As in past years, the ACNW will provide a chapter on waste-related research to the ACRS' annual research report to the Commission. The Committee will examine research performed by the Office of Nuclear Regulatory Research and technical assistance performed at the Center for Nuclear Waste Regulatory Analyses. The Committee expects to conduct its review of the Center's activities in San Antonio, Texas. The ACNW will continue to monitor the NRC's research program to ensure that it is changing in response to the agency's shifting emphasis to RIPB regulation. This issue supports ACNW Goals 1 through 3.

2. **Low-Level Radioactive Waste and Agreement States Program** — The ACNW believes that, from a risk perspective, the national low-level radioactive waste program is of growing concern because of the failure of the Low-Level Waste Policy and Amendments Act of 1986 process to bring about new LLW sites. The ACNW will consider the role of the NRC in LLW disposal from the perspective that lack of progress of the national LLW program could interfere with society's benefitting from the use of nuclear material, and therefore with NRC's ability to carry out its mission. The ACNW may examine interactions between NRC and Agreement and non-Agreement States, and whether communications can be improved. Other topics under this priority may include review of the mixed-waste (waste with a hazardous and radioactive component) issue, including the effort by the NRC and EPA to end the dual regulation of mixed wastes. The Committee will investigate LLW management practices in other countries. This issue supports ACNW Goals 1 through 4.

3. **Risk Harmonization** — By risk harmonization the Committee is suggesting that regulations within and across agencies reflect the same degree of protection for the relative risk

posed by similar hazards. Thus, two different agencies, both dealing with the hazard of exposure to ionizing radiation, would set like standards, or for different hazards an individual would be protected to the same degree from, for instance, the risks associated with hazardous chemicals, or ionizing radiation. The ACNW believes that adoption of an RIPB framework could advance efforts on risk harmonization and could alleviate conflicts associated with dual regulatory authority by providing a systematic and quantitative framework for assessing and comparing risk assessment approaches across and within agencies. Differences in the approach to regulating HLW, mixed wastes, and decommissioning sites between the NRC and EPA would be explored. Relative risks, such as the radiation hazard associated with the transportation of nuclear waste versus the hazard associated with traffic accidents, can also be compared. This issue supports ACNW Goals 1 through 4.

PRIORITY OPERATIONAL ACTIVITIES

Operational processes or activities that the ACNW plans to implement this year in support of ACNW Goal 5, "Enhance the Effectiveness and Efficiency of ACNW Operations," follow.

Strategic Planning — On an annual basis, the ACNW will conduct top-down planning to identify primary goals and priority issues and activities for the coming year, followed later in the year by a self-assessment of the Committee's performance against these goals. The ACNW has established performance goals and indicators to measure effectiveness and will use stakeholder surveys to solicit feedback from the public on the Committee's effectiveness.

Changes in Operational Procedures — To improve its efficiency and effectiveness, the ACNW will try to modify some of its processes and products, including the letter-writing process, the depth and consistency of advice, the scope and duration of meetings, interactions with Commissioners, communication between members and ACNW staff, and use of ACNW consultants. The Committee plans to implement the following:

- Hold more informal meetings on technical topics between individual ACNW members and members of the NRC staff.

- Allocate more time for Committee discussion of the content of letters before preparing a first draft. Circulate draft letters before the next Committee meeting so as to increase letter-writing efficiency within the bounds of the Federal Advisory Committee Act.

- Place recommendations up front, and indicate which of the recommendations the ACNW would like the NRC staff to formally respond to. If possible, the ACNW will suggest the time frame within which the staff should carry out the recommendation.

- For each priority topic, identify whether a consultant is needed and develop a list of possible consultants.

- Spend the same amount of time on Committee deliberation as is spent on the technical briefings.

- Consider reserving an entire day of every meeting for letter writing, Executive Director for Operations' response review, and discussing the Committee's future agenda.

- Conduct more meetings one-on-one with individual Commissioners and have more public interactions with the Commission.

UPDATING THIS PLAN

The ACNW will conduct periodic planning meetings to update this action plan as necessary. Revisions to the plan may be based on input from the Commission, changes to the NRC Strategic Plan, results from stakeholder surveys and self-assessments, external events and factors, and available resources.