United States
Nuclear Regulatory Commission

RISK COMMUNICATION

DECEMBER 15, 1999

Dr. B. John Garrick, Chairman
Advisory Committee on Nuclear Waste

OVERVIEW

- ACNW identified risk communication as a first tier priority in its 1999 Action Plan.
- Met with NEI, EPA, and NRC.
- Risk Communication Training.
- Held one-day round table meeting and evening meeting with stakeholders and public.
- In process of developing observations and recommendations.

BASIS FOR IDENTIFYING RISK COMMUNICATION AS FIRST TIER PRIORITY

- NRC Strategic Plan.
- International experience (Germany, Switzerland, France, Sweden).
- 1998 meeting with Yucca Mountain stakeholders in Amargosa Valley.
- Participation in outside meetings (i.e., NWTRB, the academies).

ROUND TABLE MEETING ON SAFETY ASSESSMENT AND PUBLIC MEETING WITH STAKEHOLDERS

- Purpose to initiate dialogue with and among Yucca Mountain stakeholders and hear and convey public concerns.
- Objectives were to: (1) enhance ACNW's capability to communicate technical issues, (2) develop ideas about how to improve public participation in NRC's regulatory process, and (3) clarify roles of the ACNW and the NRC.

ROUND TABLE MEETING ON SAFETY ASSESSMENT AND PUBLIC MEETING WITH STAKEHOLDERS

(Continued)

- Round table participants represented diverse points of view and included State of Nevada, affected counties, EPA, DOE, Sandia National Labs, National Congress of American Indians, Nevada Nuclear Waste Task Force, Yucca Mountain Study Committee, and public.
- Draft letter in progress that summarizes public comments and our observations and recommendations based on stakeholder feedback.

DRAFT OBSERVATIONS

- Risk communication involves exchanging information about risk with the public. It includes listening to stakeholder views and creating opportunities for the public to participate in NRC's decision-making process.
- Some members of the public and some stakeholders perceive risk communication as disingenuous because of lack of real opportunity to influence NRC's options and decisions.

DRAFT OBSERVATIONS
(Continued)

- Some members of the public and some stakeholders perceive transportation to be an "after thought" rather than a well-understood component of overall safety assessment — has led to deep concern about transportation of HLW to Yucca Mountain.
- Most members of the public and some stakeholders have little or no experience with the NRC and its method of doing business.

DRAFT OBSERVATIONS
(Continued)

- Additional perceptions of some stakeholders and members of the public include:
  - NRC will not be tough on DOE (State, Counties).
  - NRC relaxed the HLW regulations to ensure that Yucca Mountain will comply (State, Counties).
  - NRC has not justified its position against groundwater protection and that conflict between NRC and EPA undermines public trust in NRC (all).

DRAFT OBSERVATIONS
(Continued)

- NRC lacks a clear bottom line and basis for decision-making (public, press).

DRAFT RECOMMENDATIONS

- Evaluate feasibility of involving stakeholders and interested members of the public in conducting performance assessment.
- Establish transparency in NRC decision-making to facilitate public involvement.
- NRC should take lead in clarifying role of various agencies involved in transportation of HLW.

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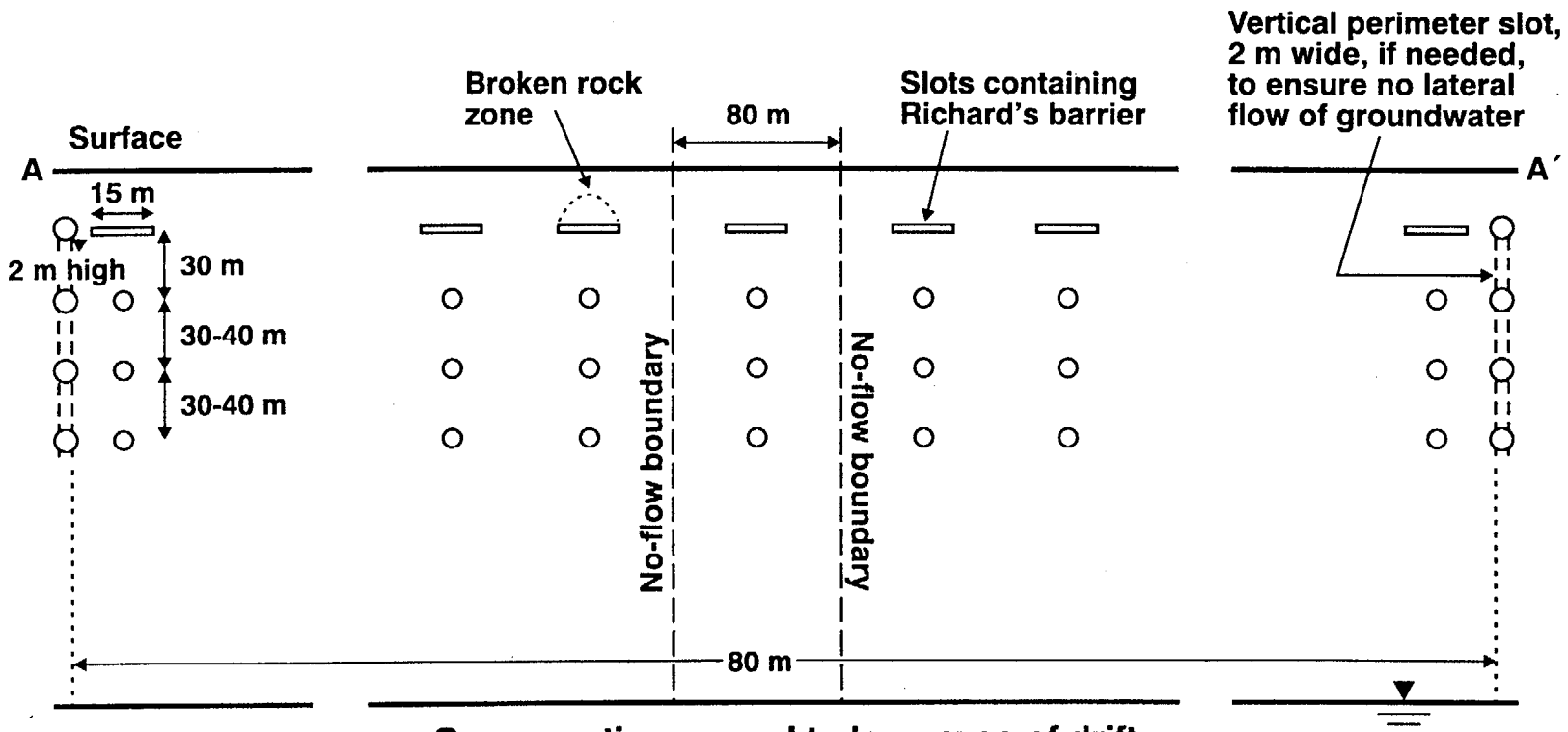
WHITE PAPER ON REPOSITORY DESIGN

DECEMBER 15, 1999

Dr. George M. Hornberger

WHITE PAPER ON ENGINEERED BARRIERS BY CHARLES FAIRHURST

- There may be innovative designs that could (a) have significant benefits with respect to safety assurance and (b) reduce costs.
- The intent of the paper is to stimulate thinking about design options; the intent is not to present a preferred design. As one example, the issue of a hot versus cold repository is cited as needing more study before a final decision.



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(20 X 3 tier columns)

PAST ACTIONS

- ACNW in the past has recommended that NRC staff must strengthen its expertise in the engineering aspects of repository design.
- In particular, ACNW has encouraged the development of a "systems" approach.
- In a visit to the CNWRA in June, ACNW was assured that engineering would receive greater emphasis.

REPOSITORY DESIGN ISSUES

- Regarding repository design issues, ACNW recommends that NRC staff explore innovative designs for the repository:
  - in furtherance of NRC mission of "enabling the safe and efficient use of nuclear materials;"
  - to enhance NRC's engineering capabilities in preparation for a critical review of an LA.

REPOSITORY DESIGN ISSUES
(Continued)

- ACNW appreciates that the role of NRC is to regulate, not design facilities. Our recommendation about NRC involvement in innovative design relates to demonstrating that engineering expertise.

REPOSITORY MONITORING

- Plans for monitoring of the repository have not been advanced. Evaluation of any proposed monitoring strategy will be an important part of NRC's evaluation of a repository license application.
- ACNW encourages NRC staff to consider long-term monitoring needs and strategies for how DOE may factor performance confirmation monitoring into its final design. The issue of what guidance (in respect to Part 63) should be provided regarding performance confirmation monitoring must be addressed.

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ENVIRONMENTAL PROTECTION AGENCY HIGH-LEVEL WASTE STANDARD AND 10 CFR Part 63

DECEMBER 15, 1999

Mr. Milton Levenson
ACNW Consultant

INTRODUCTION

- EPA HLW Standard Issues
- Technical Issues Regarding 10 CFR Part 63

EPA HLW STANDARD ISSUES

- ACNW concurs with NRC's comments on EPA's 40 CFR Part 197 and in past advice has supported 25 mrem all-pathways standard.
- Overly restrictive standards if accepted become the norm.
- Once accepted they tend to receive widespread application, possibly leading to increased near-term exposure and cost large amounts of money.
- Conflict between EPA and NRC must be resolved.

TECHNICAL ISSUES REGARDING 10 CFR Part 63

- Multiple Barriers and Defense-in-Depth.
  - In previous advice ACNW endorsed staff's' approach to implement multiple barriers in draft 10 CFR Part 63 and recommended quantification of individual barrier contributions.
  - ACNW made additional recommendations in its letter on Viability Assessment concerning other aspects of 10 CFR Part 63, including PA requirements and the need to outline steps in the licensing process.

TECHNICAL ISSUES REGARDING 10 CFR Part 63

(Continued)

- ACNW generally supports staff's current thinking for clarifying its approach to multiple barriers in 10 CFR Part 63. Approach is flexible and performance based.
- ACNW is still evaluating details of staff's approach for multiple barriers and is planning a joint working group meeting with ACRS on defense-in-depth in January.

TECHNICAL ISSUES REGARDING 10 CFR Part 63

(Continued)

- ACNW supports staff's approach on a 10,000-year time of compliance, 25 mrem all-pathways standard, and the characteristics of a critical group. ACNW has commented in past letters on each of these topics.

- ACNW may comment on additional issues including:
  - Human intrusion
  - Emergency preparedness

TECHNICAL ISSUES REGARDING 10 CFR Part 63

(Continued)

- Design basis event.
- Performance confirmation.
- Transportation.

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FACILITY DECOMMISSIONING

DECEMBER 15, 1999

Dr. Raymond G. Wymer
Advisory Committee on Nuclear Waste

PREVIOUS COMMITTEE RECOMMENDATIONS:

- Continue to develop review criteria.
- Test DandD code at a variety of sites.
- Provide straightforward guidance on selection of screening and site-specific codes.
- Continue program of licensee/stakeholder involvement.

PREVIOUS COMMITTEE RECOMMENDATIONS:

(Continued)

- Concur with staff that establishment and use of clearance criteria should be priority goal.
- An efficient license termination process, coupled with clearance criteria, could go far toward ensuring safe disposal of LLW and limiting decommissioning cost.
- Continue Decommissioning Management Board – valuable integration tool.

RUBBLIZATION

- Precedent setting – broad implications for decommissioning.
- Potential for significant cost savings – need to understand cost/benefit and risk implications.
- Resolution of conflicting radiation standards required.
- Evaluation of bulk (volumetric) contamination is nontrivial – important to develop techniques for proper volumetric measurement of material – NRC Research has two studies underway.

RUBBLIZATION
(Continued)

- Restricted and unrestricted license termination – distinction fuzzy.

COMMITTEE FUTURE ACTIVITIES

- Participate in resolution of rubblization issues.
- Responding to Commission and staff request to review proposed clearance rule.
- Review progress in finalizing SRP module (modeling and rubblization); participate in workshop.

COMMITTEE FUTURE ACTIVITIES
(Continued)

- Review in-field use of proposed final License Termination Rule.
- Review agency integrated decommissioning requirements efforts.

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ADVISORY COMMITTEE ON NUCLEAR WASTE 1999 ACTION PLAN AND SELF-ASSESSMENT

DECEMBER 15, 1999

Dr. B. John Garrick, Chairman
Advisory Committee on Nuclear Waste

ACNW FIRST-TIER PRIORITIES

- Viability Assessment, Draft Environmental Impact Statement, and Site Suitability.
- Risk Communication.
- Repository Design, Thermal Effects, Coupled Processes.
- Decommissioning.
- Radiation Risk Levels for Low-Level Ionizing Radiation.

ACNW SECOND-TIER PRIORITIES

- Risk-Informed, Performance-Based Regulatory Framework.
- LLW and Agreement States Programs.
- Research.
- Risk Harmonization.
- Interim Storage Facilities for Spent Fuel.
- Transportation.

SELF-ASSESSMENT PROCESS

- Assessed performance using the following metrics: timeliness, effectiveness, efficiency, quality, and use of RIPB.
- Looked for evidence that advice was useful:
  - Direct evidence including licensee response
  - Customer feedback (SRMs, EDO responses)
  - Indirect evidence (observed modifications) in NRC programs or approaches.

SELF-ASSESSMENT PROCESS
(Continued)

- Created a matrix to track advice and outcomes.
- Will repeat the process in February 2000
  - New Action Plan/Priorities
  - Self-Assessment

LESSONS LEARNED FROM SELF-ASSESSMENT

- Most effective when ACNW initiated review or Commission requested our advice.
- Areas in which advice not heard by staff became follow-up targets (CNWRA meeting).
- Focus on a limited number of issues that are aligned with agency priorities.
- The Action Plan provides the basis for the operating plan and budget request.

ADVICE CURRENTLY BEING FORMULATED

- Risk Communications.
- Technical Issues associated with DOE's Draft Environmental Impact Statement.
- Defense In-Depth philosophy (with ACRS).
- Decommissioning/Rubblization.
- NRC Waste Related Research.

ADVICE CURRENTLY BEING FORMULATED

(Continued)

- Additional views on 10 CFR Part 63.
- Year 2000 Action Plan/Self-Assessment.