



UNITED STATES OF AMERICA
BEFORE THE
NUCLEAR REGULATORY COMMISSION

In The Matter Of

GENERIC PROCEEDING ON CONFIDENCE IN)
STORAGE AND DISPOSAL OF NUCLEAR WASTES)

Docket No. PR 50-51
44 FR 61372

SUPPLEMENTAL FILING OF NATURAL RESOURCES
DEFENSE COUNCIL, INC. ON PROCEDURES

Introduction

In its Notice of Intent To Participate, filed November 26, 1979, Natural Resources Defense Council, Inc. (NRDC) observed that "it is absolutely vital that ways be found to elicit testimony and input from experts in universities, national laboratories, and independent research institutions," and suggested that "the Commission should actively solicit the testimony" of such persons. See Notice of Intent To Participate, p.6. At that time, NRDC promised to submit to the Commission a list of experts it believes should appear in the proceeding with an outline of the matters which they should address. This paper is NRDC's promised submission.

Since it is unlikely that the following list is complete, NRDC also urges that the Commission (1) generally request other "full participants" and the public at large to recommend other experts who should offer testimony for the record; and (2) by written invitation specifically ask certain institutions with

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broad experience in waste management issues to identify other experts for the Commission to call upon. Institutions such as the National Academy of Science, State Geological Society of Kansas, and other state and private geophysical and geological associations come immediately to mind.

Finally, NRDC suggests that the staff in the Office of the General Counsel be given primary responsibility, assisted by other parts of the Commission's staff, to coordinate this collection of information, since the Office of General Counsel is particularly well suited to have the overview required to ensure that all views are represented in a full and complete record.

A. Specific Matters Which Outside Experts Should Be Asked To Address.

In our view, the issues posed by the Notice of Proposed Rulemaking must be addressed from both a technical and implementational perspective, requiring the Commission to (1) assess what needs to be done to manage and permanently dispose of spent fuel safely, (2) determine whether those things can be reasonably accomplished in principle, and, if so, (3) evaluate whether the Department of Energy's (DOE) program is adequate for achieving those objectives, and, if so (4) when.

Thus, the following more specific matters should be addressed by the outside witnesses the Commission invites to appear in this proceeding.

1. Technical Issues

In assessing whether, in principle, spent fuel can be safely managed and disposed of permanently, the following questions must be investigated:

a. Spent Fuel Storage and Management

- i) How long can high burn-up spent fuel be safely stored in water-cooled ponds?
- ii) What alternatives to water-cooled ponds are there for storing spent fuel?
- iii) How safely can spent fuel be transported?
- iv) What modifications must be made to spent fuel to dispose of it safely? (i.e., what is an acceptable form of spent fuel for permanent disposal?)

b. Geologic Disposal

These broad technical issues can be subcategorized as indicated below. (Detailed elaboration should be provided for each one). As Appendix A of the IRG's Subgroup 1 report indicates, for each of these problem areas there are "gaps in knowledge" and significant uncertainties in predictions. (These problem areas are also presented in the draft Earth Sciences Technical Plan.)

- i) selection of sites for study of suitability
- ii) technical evaluations of possible sites
- iii) design of civil structure
- iv) host rock/waste interactions

- v) mechanical response to high-heat loads
- vi) hydrological characteristics and sorption of radionuclides on surrounding rock
- vii) inadvertent human intrusion
- viii) sealing of boreholes and shafts
- ix) adequacy of quantitative models for predicting long-term safety of repositories
 - x) monitoring of repository performance
 - xi) retrievability of wastes

2. Implementational Issues

Putting aside the question of the adequacy of DOE's and other federal agencies' programs as a separate, major topic, the implementational issues can be subcategorized as "substantive" and "political."

a. Substantive

- i) Questions of scale, i.e., will there be sufficient materials (e.g., transportation casks) and qualified personnel for the expected technical solution to work? And, can we build enough repositories when needed?
- ii) How might the waste management and disposal system fail to provide adequate safety during implementation, e.g., will regulations for packaging be effectively followed?

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b. Political

- i) Will state and local political jurisdictions permit timely siting of geologic repositories?
- ii) Will public opposition to nuclear power and waste repositories prevent timely implementation of safe waste management and disposal?

3. Separate Implementational Issue: Are current governmental programs adequate for achieving safe management and disposal of spent fuel, and if so when?

a. Does the DOE program contain activities designed to answer all the questions identified?

b. Are the activities which have been designed to answer specific questions capable of producing appropriate results?

B. Suggested Witnesses

1. Federal Government

a. United States Geological Survey: to review (a) USGS research program on waste disposal, (b) current status of knowledge about geological disposal of high-level wastes (including issues under A.1.b., above), and (c) adequacy of DOE's geologic disposal program.

- George DeBuchanne, Chief, Office of Radiohydrology
- David Stewart
- Isaac Winograd
- Newell Trask
- J.D. Bredehoeft
- E-an Zen

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b. Environmental Protection Agency: to review (a) EPA criteria for acceptable waste disposal systems, (b) environmental impacts of geologic disposal of high-level wastes (including issues under A.l.b., above).

- David Rosenbaum, Deputy Asst. Administrator, Office of Radiation Programs

c. DOE and its Contractors: to describe DOE's program for geologic disposal and to review status of knowledge about geologic disposal.

- Sheldon Meyers, Program Director, Office of Waste Isolation - to describe DOE's overall program
- Colin Heath, Director, Division of Waste Isolation - to describe DOE's geologic disposal program
- Neal Carter, Director, ONWI, Battelle Memorial Institute - to describe geologic investigations off federal reservations
- Raul Deju, Rockwell/Hanford Operations - to describe investigation of basaltic formations at Hanford
- Robert Nelson, Jr., Project Manager, Nevada Nuclear Waste Storage Investigation Project - to describe investigations of geologic formations at NTS
- J.F. Kircher, ONWI - to describe Waste Isolation Safety Assessment Program
- P.F. Patchik, ONWI - to describe investigations of salt formations
- Richard Robinson, ONWI - to describe in situ testing program
- Paul Witherspoon, LBL - to describe hard rock investigations

2. University and Independent

- a. Status of knowledge for geologic disposal (including issues under A.l.b., above) and the adequacy of DOE's geologic program
- Gene Rochlin, Institute of Governmental Studies, University of California at Berkeley, CA 94720
 - Neville Cook, Dept. of Mineral Sciences and Engineering, University of California at Berkeley, CA 94720
 - Charles Fairhurst, Head, Dept. of Civil and Mineral Engineering, University of Minnesota, Minneapolis MN 55455
 - Raymond Siever, Dept. of Geologic Science, Harvard University, Cambridge, MA 02138
 - Chris St. John, Dept. of Civil and Mineral Engineering, University of Minnesota, Minneapolis, MN 55455
 - Charles Hollister, Oceanographic Institute, Woods Hole, MA 02543
 - Robert Pohl, Dept. of Physics, Cornell University Ithaca, NY 14850
 - Robert Watt, 1447 45th Street, Los Alamos, NM 87544
 - John Winchester, Dept. of Oceanography, Florida State University, Tallahassee, FL
 - Robert C. Scott, (hydrologist) Box 1454, Atascadero, CA 93422
 - Fred Donath, Dept. of Geology, University of Illinois, Urbana, IL 61801
 - Dean Abrahamson, Humphrey Inst. of Public Affairs, University of Minnesota, Minneapolis, MN 55455
 - George Pinder, Dept. of Civil Engineering, Princeton, University, Princeton, NJ
 - Bruno Giletti, Dept. of Geological Sciences, Brown University, Providence, RI
 - Robert Garrels, Dept. of Geology, Yale University, New Haven, CT

b. Safety of spent fuel management and adequacy of DOE programs (including issues under A.1.a., above)

- Dale Bridenbaugh, MHB Associates, 1723 Hamilton Ave., San Jose, CA 95125
- Irvin Bupp, School of Business, Harvard University, Boston, MA 02163
- Alan McGowan, President, Scientists' Institute for Public Information, 355 Lexington Ave., New York, NY 10017

c. Implementational issues and "political" adequacy of DOE's geologic disposal program (including issues under A.2., above)

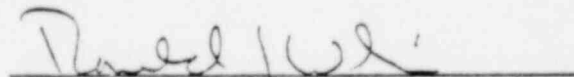
- Ida Hoos, Inst. for Governmental Studies, University of California at Berkeley, CA 94720
- Dan Metlay, Dept. of Political Science, University of Indiana
- Todd LaPorte, Woodrow Wilson Institute, Washington, D.C.
- David Deese, Center for Science & International Affairs, Kennedy School of Govt., Harvard University, Cambridge, MA 02138
- Kai Lee, Inst. for Environmental Studies, University of Washington, Seattle, WA 98195
- Randy Smith, Battelle Human Affairs Research Ctr., 4000 NW 41st St., Seattle, WA 98105
- Ted Greenwood, Dept. of Political Science, Mass. Inst. of Technology, Boston, MA 02139
- Roger Kasperson, CENTED, Clarke University, 950 Main St., Worcester, MA 01610

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CONCLUSION

NRDC is convinced that a full and complete record requires the appearance of the above-listed experts, as well as others that may be identified by the procedures suggested by NRDC.

Respectfully submitted,



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