HISTORY, STRUCTURE AND INSTITUTIONAL OVERVIEW OF
THE NUCLEAR WASTE POLICY ACT OF 1982

Christopher W. Myers

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The RAND Corporation, 1700 Main Street, P.O. Box 2138, Santa Monica, CA 90406-2138
ABSTRACT

The Nuclear Waste Policy Act of 1982 (NWPA) established a program to deal comprehensively with the waste byproducts of nuclear power generation, as well as defense-related radioactive wastes, if appropriate. Under this program, the federal Department of Energy (DOE) must locate and develop a site for disposal of high-level radioactive wastes in a geologic setting capable of isolating them from adverse public and environmental exposure for at least 10,000 and up to 100,000 years. The procedures outlined in the act and subsequent regulations involve extensive consultation and participation by other federal agencies--notably the Nuclear Regulatory Commission (NRC), affected state governments or Indian tribes, and the public--as a means of encouraging public confidence in and support for its implementation.

An examination of the NWPA and its implementation by DOE reveals a number of important institutional issues that should be confronted and resolved for the program to be successful. These are the subject of this paper. The paper begins by summarizing the act's key features. It then describes the siting process for a waste repository and recent implementation history, including accomplishment of major milestones to date. This description is essential to understand the institutional issues, the process Congress established to deal with them, and DOE's efforts to implement that process. The paper concludes with a discussion of several institutional issues that remain to be resolved and that are likely to affect the program's implementation.
CONTENTS

ABSTRACT ................................................................. iii

TABLES ................................................................. vii

Section

OVERVIEW ............................................................... 1
MAJOR PROVISIONS OF THE NUCLEAR WASTE POLICY ACT OF 1982 .. 2
BACKGROUND ........................................................... 3
THE REPOSITORY SITING PROCESS ................................. 6
INSTITUTIONAL RESPONSIBILITIES ................................. 14
INSTITUTIONAL ISSUES IN IMPLEMENTING NWPA .............. 20

BIBLIOGRAPHY .......................................................... 25
TABLES

1. NWPA Repository Siting Process Stages ......................... 8
2. Major NWPA Roles and Responsibilities ....................... 15
3. Nuclear Regulatory Commission NWPA Responsibilities ........ 17
OVERVIEW

The Nuclear Waste Policy Act of 1982 (NWPA) established a program to deal comprehensively with the waste byproducts of nuclear power generation, as well as defense-related radioactive wastes, if appropriate. Under this program, the federal Department of Energy (DOE) must locate and develop a site for disposal of high-level radioactive wastes\(^1\) (HLW) in a geologic setting capable of isolating them from adverse public and environmental exposure for at least 10,000 and up to 100,000 years.\(^2\) The procedures outlined in the act and subsequent regulations involve extensive consultation and participation by other federal agencies—notably the Nuclear Regulatory Commission (NRC), affected state governments or Indian tribes, and the public—as a means of encouraging public confidence in and support for its implementation.

An examination of the NWPA and its implementation by DOE reveals a number of important institutional issues that should be confronted and resolved for the program to be successful. These are the subject of this paper. The paper begins by summarizing the act's key features. It then describes the siting process for a waste repository and recent implementation history, including accomplishment of major milestones to date. This description is essential to understand the institutional issues, the process Congress established to deal with them, and DOE's efforts to implement that process. The paper concludes with a list and

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\(^1\) Separate statutory authority governs disposal of low-level radioactive wastes through Congressionally-approved interstate compacts under the Low-Level Radioactive Waste Policy Act of 1980. That approach is fundamentally different from that taken in dealing with disposal of high-level nuclear wastes.

\(^2\) These timeframes are incorporated into two DOE postclosure objectives "related to the isolation of spent fuel and high-level waste from the accessible environment and prevention of adverse impacts to the health and safety of the public after repository closure." Their goal is to minimize adverse health effects attributable to the repository during those periods. (DOE, Recommendation by the Secretary of Energy of Candidate Sites for Site Characterization for the First Radioactive-Waste Repository, May 1986, pp. 3-4.) The act itself is vague, referring only to the need to protect this and future generations. See also Purcell, 1985.
introductory discussion of the institutional issues that remain to be resolved and that are likely to affect the program's implementation.

MAJOR PROVISIONS OF THE NUCLEAR WASTE POLICY ACT OF 1982

On January 7, 1983, President Reagan signed into law the Nuclear Waste Policy Act of 1982 (NWPA). This law established for the first time a national policy for managing the storage and disposal of high-level radioactive waste and provided for a step-by-step procedure to locate and develop an appropriate site for the permanent, safe disposal of these wastes by 1998. The major provisions of the NWPA are summarized below. The act:

- Covers disposal of high-level radioactive wastes, including spent civilian and defense nuclear fuel, transuranic wastes, and defined by-product materials.
- Establishes procedures for selection of one or more repositories for permanent deep geologic disposal of high-level radioactive wastes and spent nuclear fuel, the first to be operational perhaps by 1998, the second, if approved by Congress, by 2006.
- Requires public participation and consultation with state officials (or leaders of affected Indian nations) in states considered as candidates for repository siting.
- Provides that costs of disposal shall be responsibility of the waste generators and owners.
- Defines relationship between federal and state governments with respect to high-level waste disposal.
- Requires DOE to submit to Congress a proposal to develop a system of monitored intermediate retrievable waste storage (MRS).
- Vests lead agency responsibility in Department of Energy (in newly created Office of Civilian Radioactive Waste Management) in consultation with the Nuclear Regulatory Commission (NRC), Environmental Protection Agency (EPA), Council on Environmental Quality (CEQ), and U.S. Geologic Survey (USGS).

P. L. 97-425 (42 U.S.C. 4321, et seq.).
NRC licensing procedures are maintained and licensing for repository construction and operation will also be required.

The act further provides:

- for limited federal interim storage of spent fuel for utilities deemed eligible by NRC.
- a financing mechanism for disposal and storage services (set by DOE initially at $0.001/KWH).
- that the repository may also be used for disposal of defense-related HLW, although a separate facility for this purpose is permitted (and would be developed under separate statutory authority).
- a very limited NRC role. The NRC must rely on DOE-developed databases to the extent reasonable.

BACKGROUND

The NWPA was intended to address problems "besetting nuclear waste management" that had reached a high point by the late 1970s and early 1980s. In the early years of nuclear power development, it had been widely assumed that the technical issues affecting radioactive waste disposal were easily resolvable and that adequate disposal capacity would become available by the 1970s, when it would be needed. Subsequent events during the last decade proved that these assumptions were overly optimistic, and led to significant undermining of public confidence in the federal government's ability to deal with these wastes safely and permanently. A Lyons, Kansas site for a proposed pilot permanent HLW disposal facility was rejected in 1971 amid heated political debate on the program, only to be followed by revelations of serious technical flaws in the site. In 1973, 115,000 gallons of liquid leaked from a Hanford reservation tank. And furor over a proposed site in Michigan again halted the program in 1976.

"U.S. Code, Congressional and Administrative News, "Legislative History, P.L. 97-425,," p. 3792. Much of the material in this section is drawn from the House Interior Committee Report, as reprinted in the Legislative History."
Utilities relied on the expectation that a reprocessing industry would recycle their wastes and terminate their liability for dealing with their spent fuel. This industry did not develop as expected for economic and political reasons. Plans for three reprocessing facilities had been abandoned by 1976. And concern over nuclear proliferation led President Carter to defer reprocessing of civilian spent fuel indefinitely. The nascent reprocessing industry collapsed. Meanwhile, the public became increasingly concerned over growing spent-fuel inventories at reactor sites. Finally, the assumption that a "reasonable assurance" existed that disposal facilities would become available when needed was rejected in 1979 by the Washington, D. C., Court of Appeals (Minnesota v. NRC). The court held that the Commission's confidence that it could continue to license expansion of on-site spent-fuel storage was not well-founded.

A broad recognition emerged for the need for federal legislation to deal with this problem and to establish a process to address the lack of confidence in earlier repository siting efforts. During the 96th and 97th Congresses (1979-82), several bills were passed by the House and Senate aimed at a large set of problems confronting the domestic nuclear industry, including waste management. Many of these efforts, including review of the Price-Anderson Act, continue today. Out of this flurry of activity came the Nuclear Waste Policy Act of 1982, which was signed into law by President Reagan on January 7, 1983.

Introduced by Congressman Morris K. Udall of Arizona, the final version of the NWPA was shaped primarily by the efforts of the House Subcommittee on Energy and the Environment of the Committee on Interior and Insular Affairs. Both are chaired by Rep. Udall and continue to maintain oversight over the act's implementation. The House Armed Services Committee amended the bill to clarify the program's focus on civilian nuclear wastes, without interfering with defense waste programs. The Senate earlier had passed a similar bill, and subsequently accepted the House version (H.R. 3809), which was passed by both houses in December, 1982.
Although permanent disposal was judged to be technically feasible, the Committee report emphasized the need for close Congressional and public scrutiny over the process of repository siting and development:

Scientific reviews of the proposed design of deep geologic repository systems repeatedly show that in principle the hazards of nuclear waste disposal are small. In practice, however, management of nuclear wastes has been inadequate to guarantee that the risks will be small in fact. It is necessary, therefore, to provide close Congressional control and public and state participation in the program to assure that the political and programmatic errors of our past experience will not be repeated.  

A major concern expressed repeatedly by governmental and scientific study groups of the HLW disposal problem, and reiterated by Congressional leaders of the bill was the imperative to avoid committing to a site that would later prove to be inappropriate for a repository. Essential elements of the program cited by previous studies and reiterated in the Committee report include:

- disposal technology, based upon geologic containment plus engineered barriers, which does not depend on human monitoring and maintenance.
- a careful sequential screening process that is intended to minimize the likelihood of committing to a site that later proves to be unsuitable. Sites are identified as preliminarily qualified as potential repositories through surface  

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investigations in different geologic media. These are followed by in-depth study including drilling of exploratory wells.

- "Cooperative and concurrence role" for the states and Indian tribes where sites are studied or developed, including the right to veto site development.\textsuperscript{7}
- Ultimate federal responsibility for HLW disposal, including right to override state or tribal veto by joint Congressional and Presidential action.
- Total financing of the entire program by HLW generators who will use the repository.
- Financial assistance to states and tribes where sites are investigated and full impact assistance where repositories are developed.

**THE REPOSITORY SITING PROCESS**

The procedures outlined in the NWPA for selecting an appropriate site at which the initial (and, if needed, subsequent) repository will be developed require the following steps:

- development of siting guidelines
- identification of potentially suitable sites
- nomination of sites for possible site characterization
- environmental assessments of those sites
- recommendation of sites for site characterization
- site characterization, including environmental impact statement
- recommendation of a site for repository development
- possible state (or tribal) veto, followed by possible Congressional override
- authorization for construction
- licensing of repository operations

\textsuperscript{7} The National Research Council study expressed concern over whether such dual authority was workable. They also strongly recommended against a single, centralized repository because it would impose costly transportation requirements and exacerbate interregional inequities. Also see Solomon and Cameron, 1985.
The NWPA specifies a timetable for the repository siting process, although there are provisions under which the President can delay certain decisions. These steps are illustrated in Table 1, along with their expected or actual accomplishment dates and responsible agencies. Note that most dates provided in the Table represent current expected completion dates; milestone dates provided in NWPA have been almost universally missed so far. These steps are followed by acceptance of radioactive wastes and subsequent closure and long-term monitoring. Each major step is described in further detail below.

**Siting Guidelines**

Within 180 days after Jan. 7, 1983 (enactment date), DOE was required to issue general guidelines for recommendation of repository sites. NWPA provides that the guidelines are to take into consideration:

- the proximity of the repository to waste generation sites
- transportation and safety factors in moving wastes to the repository
- cost and impact of transporting waste to the repository
- advantages of regional distribution in siting repositories
- recommendation of sites in different geologic media, to the extent practicable

As provided in the NWPA, DOE developed general guidelines for recommending repository sites. These guidelines govern the entire repository siting process and provide the criteria by which prospective sites are evaluated and compared. They are thus crucial to the ultimate construction authorization and repository licensing decisions by the NRC. As required by the NWPA, the NRC reviewed and subsequently

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Most dates are taken from the DOE/OCRWM Annual Report to Congress, March 1986, and updated according to DOE's most recent statements, including *Recommendation by the Secretary of Energy of Candidate Sites for Site Characterization for the First Radioactive-Waste Repository*, May 1986.
Table 1.
NWPA Repository Siting Process Stages

<table>
<thead>
<tr>
<th>Stage</th>
<th>Agency with Primary Responsibility</th>
<th>Actual or Expected Completion</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>General guidelines for recommending sites</td>
<td>DOE</td>
<td>12/7/84</td>
<td></td>
</tr>
<tr>
<td>Identification of potentially acceptable sites</td>
<td>DOE</td>
<td>1976-83</td>
<td>Based on existing criteria</td>
</tr>
<tr>
<td>Nomination of sites as suitable for characterization</td>
<td>DOE</td>
<td>5/28/86</td>
<td>Environmental Assessments req'd</td>
</tr>
<tr>
<td>Recommendation of sites as candidates for site characterization</td>
<td>DOE</td>
<td>5/28/86</td>
<td></td>
</tr>
<tr>
<td>Recommendation of a candidate site for repository development</td>
<td>DOE</td>
<td>1990-91</td>
<td></td>
</tr>
<tr>
<td>Recommendation to Congress of a candidate site for repository development</td>
<td>President</td>
<td>1990-91</td>
<td>EIS plus comments from USGS, CEQ, EPA and NRC required</td>
</tr>
<tr>
<td>Repository construction authorization</td>
<td>NRC</td>
<td>within 4 years of DOE application</td>
<td></td>
</tr>
<tr>
<td>Repository license to operate</td>
<td>NRC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receipt of wastes</td>
<td>DOE</td>
<td>1/31/98</td>
<td></td>
</tr>
</tbody>
</table>
approved the guidelines. These were issued in final form by DOE in December, 1984. The guidelines are divided into three major categories:

- implementation guidelines
- preclosure guidelines
- and postclosure guidelines

The implementation guidelines establish general rules for the siting process. They govern the site screening, nomination, recommendation for site characterization, and recommendation for repository development stages. The preclosure guidelines govern the site conditions dealing with the repository during construction and operation. They concern the protection of the repository workers' and general public's health and safety, protection of the environment, and mitigation of socioeconomic impacts. The postclosure guidelines deal with the long-term behavior of the repository site after the wastes have been emplaced and the repository has been closed. The postclosure guidelines concern ability of the repository site to contain the wastes for between 10,000 and 100,000 years, and constitute the most important of the guideline categories.\(^\text{10}\)

The preclosure and postclosure guidelines are further divided into system and technical guidelines. The system guidelines define the general requirements for the performance of the repository system as a whole. They provide an overall measure of the site's ability to isolate radioactivity, and are based on regulatory standards.\(^\text{11}\) The technical guidelines identify site-dependent factors contributing to system performance. Some technical guidelines pertain to performance-related

\(^10\) In addition to 10 CFR Part 960, this discussion draws on Hanlon, 1985.
\(^11\) These relevant standards are established in 40 CFR Part 191, and 10 CFR Parts 20, 50, 60.
factors involving geohydrology, geochemistry, and rock characteristics. Others relate to potential disruptive factors, including climatic changes, erosion, dissolution, tectonics, and human interference. Technical guidelines may specify conditions that would qualify and disqualify sites. *Qualifying conditions* represent minimum criteria; *disqualifying conditions* describe conditions so adverse as to constitute sufficient evidence that the associated technical and system guidelines could not be satisfied. Other technical guidelines specify *favorable* or *potentially adverse conditions* that may be encountered.

DOE has devised a means of weighting individual guidelines and aggregating across them to provide multidimensional rankings of potentially suitable sites.\(^\text{12}\) Since complete assessments of system performance cannot be made before detailed site characterization, the evaluation scheme relies heavily upon the technical guidelines. These emphasize favorable and adverse conditions that together are believed to predict the ability of individual sites to comply with the technical and system guidelines when more data and analyses are available.

**Site Suitability Identification**

In February 1983, DOE identified nine sites as potentially suitable for nomination for site characterization work. These represented a variety of geologic media, as noted parenthetically:

- Cypress Creek Dome, Mississippi (salt dome)
- Richton Dome, Mississippi (salt dome)
- Vacherie Dome, Louisiana (salt dome)
- Swisher County, Texas (bedded salt)
- Deaf Smith County, Texas (bedded salt)
- Lavender Canyon, Utah (bedded salt)
- Davis Canyon, Utah (bedded salt)
- Yucca Mountain, Nevada (tuff)
- Hanford, Washington (basalt)

\(^{12}\) DOE, DOE/RW-0074, 1986.
This step was taken in accordance with NWPA; however, the screening and identification processes were completed under the previous radioactive waste management program. The NWPA siting guidelines had not yet been developed. Draft environmental assessments were prepared for each site and published in December, 1984.

Nomination of Sites Suitable for Site Characterization

Under NWPA, DOE, after consulting the Governors of the affected states or leaders of affected Indian tribes, is to nominate at least 5 sites determined to be suitable for site characterization for selection of the first repository site. The nominations are to be accompanied by an environmental assessment (EA) detailing the basis of the recommendation and probable impacts of the planned site characterization activities and discussing alternatives that may avoid such impacts. Each EA must also include: evaluation of whether the site is suitable for development as a repository under DOE's guidelines for site recommendation; discussion of the decision process by which the site was recommended; and an assessment of the regional and local impacts of locating the repository at the site.

In December 1984, DOE issued for public comment draft EAs for each of the nine potentially acceptable sites listed above. Five of these were proposed at that time for nomination as suitable for site characterization for the first repository; three of these five were tentatively proposed for recommendation to the President for site characterization. These three sites were:

- Deaf Smith County, Texas
- Yucca Mountain, Nevada
- Hanford, Washington.

Public hearings and briefings were held subsequently to fulfill the public participation requirements of NWPA. On May 28, 1986, the Secretary of Energy formally recommended these three sites to the President for site characterization,\textsuperscript{13} a decision which the President

\textsuperscript{13} The NWPA statutory timetable provided that this recommendation be made by January 1, 1985.
then ratified. The governor and legislature of the affected states (or leadership of the affected Indian Tribe) must be notified, and public hearings held in the vicinity of each site recommended for site characterization.

Site Characterization

Site characterization activities carried out by DOE, in consultation with the appropriate state or tribal government, must minimize any significant adverse environmental impacts. Site characterization is meant to provide the depth of information and analysis needed to support a decision on the appropriateness of each site for development as a HLW repository. These activities are designed, as well, to provide the information necessary to support DOE's applications to NRC for construction authorization and license to operate the repository, should repository development be recommended at the site by DOE and the President. NRC may require specific information as part of the site characterization plan and activities. DOE and NRC reached tentative agreement on an outline of DOE's proposed Site Characterization Plan in early 1985.

An important component of the information base developed during site characterization is the preparation of a final Environmental Impact Statement (EIS). Congress intended that the general provisions of the National Environmental Policy Act of 1969 (NEPA) be followed as part of the siting process. NEPA established a procedure for projects having potentially significant environmental impacts to address these concerns and explicitly analyze alternative means of mitigating those effects. The NWPA provides that an EIS shall be prepared for each site where site characterization takes place. The EIS must address the potentially significant effects repository development would have at the site and measures to be taken to minimize or overcome them. NWPA further specifies that no other decision points or milestones in the siting

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14 Under NWPA, the President may disapprove a recommended candidate site within 60 days (or, within 6 months if an extension is necessary); a recommended candidate site would be approved for site characterization activities automatically if the President failed to act within the allotted time.

15 See DOE, February 1985.
process shall be considered "major," and thus invoke the NEPA. This EIS is the only one that shall be required for each site.

Following site characterization (and preparation of an EIS, state notification and public hearings), DOE may recommend one of the sites to the President for construction of a repository. This recommendation must include a comprehensive statement of the basis of the recommendation, including the waste form proposed and a final Environmental Impact Statement, together with comments concerning the EIS by DOI, CEQ, EPA, and NRC. It must also include NRC comments concerning the extent to which the in-depth site characterization analysis and proposed waste form seem to be sufficient for a licensing application. The views and comments of the state must be included, along with any impact statement submitted by the state.

DOE must then submit to NRC an application for construction authorization within 90 days of the President's recommendation of the site. As provided in the NWPA statutory timetable, the President shall submit to Congress by March 31, 1987, his recommendation of one of the three sites for construction of a repository. At that time, the affected state or tribe may elect to veto the development of the repository in its state or tribal lands. Such veto effectively prevents repository development unless it is overridden by Congress. (This procedure is described in greater detail in the section on institutional responsibilities, below.)

Second Repository Siting Process

The NWPA also provides that DOE must pursue a parallel process for siting a second HLW repository. This process is identical to that specified for the first repository except that the siting guidelines must consider the issue of regional distribution of the two repositories. The second siting process is only slightly staggered in time from the first process. By July 1, 1989, DOE is to nominate five sites and recommend three as candidate sites for site characterization for selection of a second repository. The five sites must include at least three additional sites not nominated as suitable for site characterization for selection of the first repository. The five or more nominated sites for the second repository cannot include sites
nominated but that failed to be recommended as candidate sites for the first repository.

The other stages in the siting process are the same as for the first repository. However, construction of a second repository is not authorized under NWPA. Congress expressly reserved the decision to build a second repository to itself, based upon DOE's site characterization studies and subsequent Presidential recommendation. DOE announced on May 28, 1986, its intention to postpone indefinitely all consideration of sites for a second repository, however. This decision was highly controversial, and leaves the future of the NWPA repository program uncertain. (See section on institutional issues and problems, below.)

INSTITUTIONAL RESPONSIBILITIES

Many agencies and institutions play important roles in carrying out the provisions of the NWPA. Chief among them are DOE, NRC, EPA, and the affected states or Indian Tribes. These responsibilities are summarized in Table 2, and are discussed below.

Department of Energy

The Department of Energy (DOE) has primary responsibility for implementing the Nuclear Waste Policy Act. Under authority originally given its predecessor, the Energy Research and Development Administration, DOE conducted numerous studies and searches for sites suitable for long-term geologic disposal of radioactive wastes. In fact, most of the early implementation of NWPA relied upon that earlier work. In addition to the responsibilities noted above, DOE must develop a Mission Plan for the HLW program; determine whether defense-related radioactive wastes should be disposed of in a repository system separate from the one envisioned for civilian wastes in NWPA; submit to Congress a proposal for monitored retrievable storage (MRS) of nuclear wastes; develop a system for transporting wastes to their appropriate disposal or storage sites; manage the Nuclear Waste Fund and the Civilian Radioactive Waste R&D Account; and provide federal management over the nation's radioactive waste disposal program. Finally, DOE is charged with responsibility for effecting public trust and confidence in the radioactive waste management program.
Table 2.
Major NWPA Roles and Responsibilities

<table>
<thead>
<tr>
<th>Stage or Task</th>
<th>DOE</th>
<th>NRC</th>
<th>State or Tribe</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>General siting guidelines</td>
<td>Draft</td>
<td>Concur</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identification of potentially acceptable sites</td>
<td>X</td>
<td></td>
<td>Consulted.</td>
<td>Public hearings held.</td>
</tr>
<tr>
<td>Nomination of sites as suitable for characterization</td>
<td>X</td>
<td></td>
<td>Consult on characterization</td>
<td>Consulted</td>
</tr>
<tr>
<td>Recommendation of sites as candidates for site characterization</td>
<td>X</td>
<td>Comment</td>
<td>Comment. Submit own impact analyses.</td>
<td>USGS,CEQ, EPA consulted</td>
</tr>
<tr>
<td>Recommendation of a candidate site for repository development</td>
<td>Submit with EIS</td>
<td></td>
<td>May veto. Congress can override.</td>
<td></td>
</tr>
<tr>
<td>Recommendation to Congress of a candidate site for repository development</td>
<td>X</td>
<td></td>
<td>Issue based on DOE EIS.</td>
<td></td>
</tr>
<tr>
<td>Repository construction authorization</td>
<td>Submit application</td>
<td>Issue</td>
<td>Report status to Congress</td>
<td></td>
</tr>
<tr>
<td>Repository license to operate</td>
<td>Submit application</td>
<td>Issue</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The Nuclear Regulatory Commission

As the agency responsible for regulating civilian nuclear power, the Nuclear Regulatory Commission (NRC, or the "Commission") serves a central role in the NWPA program. NRC responsibilities to protect the public health and safety under the Atomic Energy Act of 1954 and its licensing responsibilities under the Energy Reorganization Act of 1974 are not changed by the NWPA. As noted in Table 3, the NRC has two primary responsibilities under NWPA. The NRC will have to grant or deny an authorization to construct and a license to operate each repository. In addition, the NRC must approve DOE's siting guidelines, which it has done; advise DOE on the appropriateness of DOE's site characterization plans for meeting the informational requirements of the NRC authorization and licensing processes; comment on DOE's site recommendation; report to Congress on their activities with regard to DOE's application to construct the repository.

The NRC must submit an annual report to the Congress on the status of the construction authorization application, including discussion of:

- unresolved safety issues, and DOE's explanation for dealing with them in the repository's design and operation
- all remaining matters of contention
- NRC actions regarding granting or denial of the authorization

A final NRC decision on the construction authorization must be made within four years of the application's submittal by DOE.

NRC's approval of the first repository application in effect limits the first repository to 70,000 metric tonnes of heavy metal or the waste resulting from reprocessing 70,000 metric tonnes of spent fuel until a second repository is in operation.

In its construction authorization and licensing procedures, the NRC is required to adopt DOE's written statement justifying its repository site recommendation to the "maximum extent practicable." (This statement includes a comprehensive explanation of the basis for the site recommendation decision, a final environmental impact statement, preliminary NRC comments; and any report submitted by the host state or
Table 3.
Nuclear Regulatory Commission NWPA Responsibilities

**Primary Responsibilities**

- Issue authorization for repository construction
- Issue repository license to operate

**Other Responsibilities**

- Approve DOE siting guidelines
- Advise DOE on appropriateness of Site Characterization Plans for construction authorization and licensing
- Comment on site recommendation
- Report to Congress on status of repository construction authorization
tribe regarding requirements for impact assistance.) The NRC role is specifically limited, as follows:

The [DOE] Secretary's statement is intended to suffice regarding the issues addressed and not be duplicated by the Commission unless the Commission determines, in its discretion, that significant and substantial new information or new considerations render the Secretary's statement inadequate as a basis for the Commission's determinations [under Sec. 114]. The Commission shall not in any statement it prepares with respect to the first repository constructed under this title consider the need for a repository or nongeologic alternatives to the site of such repository.¹⁶

Thus, the NRC has a responsibility to assess the adequacy of DOE's site selection investigations as it prepares to evaluate DOE's application for authorization to construct a repository. To require additional information or to otherwise go beyond DOE's justification requires a specific finding by the NRC that DOE's statement is inadequate to meet NRC's responsibilities.

State and Tribal Governments

As part of the compromise struck in developing the NWPA, Congress gave explicit authority to affected states or Indian tribes. In addition, these governments were granted extensive rights to participate in the siting process by commenting on DOE's actions, providing their own analyses of the expected economic and environmental impacts of proposed repository development, disseminating public information on the process, and participating in public hearings. Most importantly, state and tribal governments were granted authority to veto the President's selection of a repository site in their jurisdiction, subject to Congressional right to override. DOE must provide financial support to assist these governments in exercising their rights and duties under the act.

State and tribal authorities are provided similar rights under NWPA. They are not given these rights to exercise simultaneously with regard to a proposed repository site, however. Unless the site is on Indian lands, the state on whose territory the site is located is considered the primary governmental participant in the repository program for that site. If a site is located on Indian territory, the tribal government is the primary participant. Under existing federal law and court rulings, state governments are not entitled to regulate or otherwise intervene in Indian affairs. Thus for any site, DOE must deal with either the state government or the tribal government, but never both (unless the site is not exclusively on state or Indian territory). All public participation, including that of local governmental units (such as city councils, water districts, etc.) is facilitated by and through the state or tribal government.

DOE must provide to the affected state or tribal government all relevant information from investigations. In addition, DOE must provide for the participation of the state or tribal governments in the planning of environmental assessments and site characterization activities. DOE must respond to and implement all "reasonable suggestions" of a state or tribe during NWPA implementation, pursuant to procedures negotiated between DOE and the state or tribal government. DOE must resolve concerns and requests of states and tribes to the "maximum extent feasible." The state or tribal government may make recommendations about other aspects of the site investigations which affect the social and economic well-being of their citizens. DOE must provide 75 percent of the cost of participation in these activities to the state government, and 100 percent of the cost to the tribal government.

A host state or tribal government has the right to reject selection of a site for licensing as a repository. The host government may veto the recommendation of DOE and the President by notifying Congress of its rejection within 60 days of the President's recommendation to construct the repository at the site. Written justification for this decision must accompany the notice of rejection. This veto will stand unless overridden by a joint resolution of Congress within 90 legislative calendar days. If the veto is upheld, the President must submit a
recommendation for another site for repository development, following similar procedures as before.

INSTITUTIONAL ISSUES IN IMPLEMENTING NWPA

Overview of Institutional Problems

A series of institutional problems need to be addressed in order for the nation's program for managing HLW disposal to succeed. These are made especially urgent by the problem encountered during earlier radioactive waste management programs, which undermined public confidence in the government's efforts. Many technical issues must also be addressed. However, a general presumption underlying most of the debate over the development and implementation of legislative programs to deal with HLW disposal was that the technical problems were surmountable. Instead, institutional issues were believed to pose the greatest obstacles.17

The NWPA represented a carefully crafted compromise attempt to address these issues and overcome them, primarily through broad government and public participation in the siting process to overcome public doubts about the technical validity and political equity of past efforts. DOE's implementation of the NWPA illustrates how important many of these problems still are. Ultimately, they threaten the viability of the program envisioned in the NWPA; they presently threaten the legislative compromise represented in that legislation. These institutional difficulties could even constrain the continued development and use of nuclear power, should they prevent us from being able to successfully manage the waste disposal problem.

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17 The written legislative record on the NWPA is somewhat limited. Most of the elements concerning Congressional intent summarized in this paper are taken from the House Committee report, cited above. Additional conclusions regarding Congressional intent or legislative history are more difficult to draw (without reviewing the hearing record during consideration of this bill and its predecessors, the floor debate in both Houses, and subsequent hearings and legislation introduced to clarify NWPA provisions or overturn DOE actions). Nonetheless, some inferences are supported by statements of key participants subsequent to the act's passage, and were relied upon here to interpret likely Congressional intent.
A number of important institutional problems are evident from this review of the NWPA's legislative history and DOE's implementation efforts to date. They deserve careful analysis, although they are only introduced in this paper. They include the following:

- Can the NWPA schedule to receive wastes in a repository by 1998 be met?
- How should public opposition to siting a repository be addressed?
- Is DOE capable of adequately dealing with the problems faced by state and tribal governments?
- What effect will DOE's decision to postpone indefinitely the process for siting the second repository have on the process for siting the first one?
- What effect will inclusion of defense wastes have on the repository program?

Other issues not explicitly considered here, but which may become important, include:

-- What role will the MRS have?
-- What effect will the multitude of litigation against DOE's implementation have?
-- Is the NWPA likely to remain workable? Can it survive DOE's implementation?
-- What are the institutional problems associated with long distance transportation of HLW to a repository and/or MRS, and how should they be addressed?
-- What are the liability problems associated with the Civilian Radioactive Waste Management Program, and are changes in the Price-Anderson Act needed in this regard?
-- Are the fee system and budget for the program adequate?
-- How should pressures to change the NWPA be addressed?
**How can the NRC properly address itself to the controversies surrounding DOE's implementation of NWPA?**

**Introduction to Institutional Problems**

It seems clear that passage of NWPA entailed an important compromise over where to locate the nation's nuclear waste repository or repositories. Efforts to site such a facility had been stymied for years, as powerful interests fought to locate it elsewhere from where DOE (or its predecessor agencies) proposed. Congress struggled to resolve the conflict between a recognized need for a credible program to dispose of these wastes and the seemingly irreconcilable desire of those who wished to forestall any possibility of siting a high-level radioactive waste repository in their state or district. This conflict was compounded by apparent blunders in DOE's conduct of its siting process. To some, DOE's choice of potential sites appeared to be based more on political than scientific grounds.

An important feature of DOE's siting efforts prior to the passage of the NWPA was the Department's focus on potential sites in the Western United States—despite the fact that there was an acknowledged desire to minimize transportation distances to limit public risk and that most of the wastes were generated by power plants located in the eastern part of the country. Nonetheless, regional and geologic studies had focused on a variety of media in the more remote west, resulting in DOE's search reflecting greater knowledge of these areas and geologic formations.

Despite the alleged imbalance in DOE's emphasis, the NWPA did not attempt to overturn these earlier efforts. In fact, there appeared to be a widely recognized presumption that the first repository developed under NWPA was likely to be developed in the West. In exchange for allowing this presumption to stand, representatives of the western states won several provisions considered essential to passage of the act:

- The siting process for a second repository must explicitly consider the need for regional distribution.
• A second repository would be necessitated by placing a statutory limit on the capacity of the first repository (70,000 metric tonnes).

• DOE was to pursue the process for siting a second repository through the point of the President recommending such a site to Congress. Congress reserved to itself the decision on whether to actually construct the second repository, however.
- 25 -

BIBLIOGRAPHY


