

## THE ROLE OF ENVIRONMENTALISM IN THE REPOSITORY SITING PROCESS

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### ABSTRACT

The present controversy over the high-level waste repository siting is discussed, and the role of each participant is analyzed in an essentially political analysis. Some suggestions are made for breaking the current stalemate. The history of the conflict is also analyzed.

### HISTORICAL CONSIDERATIONS

The present conflict surrounding implementation of the Nuclear Waste Policy Act (PL97-425) is undermining the Act's goals in the establishment of a national high-level radioactive waste repository. The conflict revolves around the U. S. Department of Energy (DOE), which is responsible for siting the repository. The federal agency's efforts are continually criticized by other participants in the process: the U. S. Nuclear Regulatory Commission, state and local government agencies in whose jurisdictions prospective sites have been identified, Indian tribes occupying reservation land adjacent or in close proximity to proposed sites, and a variety of citizen groups.

PL97-425 was a response to pressure from nuclear utilities to find a disposal method for spent fuel from commercial nuclear reactors, an issue which had been avoided by federal regulatory officials in their early zeal over commercial nuclear power development. The siting process affects a variety of interest groups, and the Act offers mechanisms for public input at each stage of the siting process. However, the driving force behind the siting process remains the accumulation of spent fuel at commercial reactors; this is the "reality" behind the Act.

Although the present conflict has slowed rather than stalled implementation, the mounting criticism of DOE is disrupting the site characterization and certification process which lies at the heart of the Act. The criticism reinforces the currently popular anti-nuclear atmosphere, in which it has become politically suicidal for elected officials to approve of a repository location. Though implementation of the Act may be slowed to a virtual standstill, high-level radioactive waste cannot be handled by any other means.

This paper analyzes the conflict between DOE, the agency's critics, and other groups interested in the siting process, and proposes some steps for reviving momentum in advancing toward site selection. The discussion includes a brief history of the role of the radioactive waste issue in the broader nuclear power debate, identifies both tangible and intangible concerns advanced in the present controversy, and analyzes the obstructionist strategy adopted by some

citizen groups (justified by claims of "the public interest"). This obstructionism is actually contrary to long-term public interest because it obscures the need to site a facility. The analysis in this paper is a political analysis, and thus involved reference to, and conjecture about, attitudes and sociological perspective.

The first extensive investigation of disposal of high-level radioactive waste was Project Salt Vault in Kansas, about ten years after the start of commercial nuclear power development.<sup>1</sup> At about the same time, investigations were begun at the federal Hanford reservation in eastern Washington to assess the suitability of the Hanford basalt for storing waste from defense plutonium production reactors.<sup>2</sup> The technical complexity of radioactive waste storage restricted the issue of radioactive waste disposal to institutional agendas. Until the early 1970s, when difference of opinion about nuclear power emerged from within the scientific community, radioactive waste disposal was of concern primarily to Atomic Energy Commission scientists and administrators; citizen concerns remained localized.

Since waste disposal comes at the end of the nuclear fuel cycle, it was convenient to divert technical expertise from the disposal problem. The underlying environmental sensitivity of the nuclear waste disposal issue also furnished a convenient excuse for avoiding a direct political confrontation. This default policy of "enlightened ignorance" was accepted by a largely pro-nuclear public, which provided political disincentives for questioning the nuclear government-industry complex. Indeed, to the extent that they directly reflect mainstream public sentiment, established environmental organizations remained mostly neutral on the nuclear power question until very recently. The Sierra Club and National Audubon Society, for example, refrained from supporting the slate of anti-nuclear public initiative campaign in the Western states which began in 1976.

Though the nuclear establishment continued to ignore immediate resolution of the waste disposal question in deference to unobstructed development of commercial nuclear power, a small faction interpreted this policy as one of official irresponsibility.<sup>3</sup> For members of this faction, internal pressures against dissent forced shaky alliances with elements

of the broad, unstable anti-nuclear coalitions that formed around the nuclear power issue. Despite the opportunities for publicizing technical concerns about unresolved nuclear power questions, these alliances remained problematic for dissident scientists since they implied identification with the radical elements of the anti-nuclear movement. For example, during the period of disorder in the anti-nuclear ranks following the nationwide defeat of anti-nuclear electoral campaigns in 1976, many scientific critics avoided participation in the extreme anti-nuclear activities targeted against development of the Trident nuclear submarine.

The Three Mile Island accident of March, 1979, provided the opportunity for anti-nuclear activists to pursue more conventional avenues of dissent. TMI also afforded scientific critics the opportunity to voice criticism openly, marking the beginning of broader cooperation among dissident natural and nuclear scientists and established environmental organizations. This post-TMI alliance between dissident scientists and the environmentalist community was initially characterized by a moderate anti-nuclear position expressed, for example, in one claim that nuclear power generation is neither more nor less environmentally destructive than any other method of large-scale electric power generation. Thus, in prompting the entrance of these influential participants, TMI legitimized opposition to nuclear power.

Open scientific dissent and the entrance of established environmentalist organizations into the anti-nuclear debate marked the beginning of a reversal in official credibility over the promise of commercial nuclear power. Apart from TMI, industry credibility was injured by construction delays, cost escalation, inaccurate demand growth projections and, worst of all, dramatic escalation in power rates. Anti-nuclear forces capitalized on these adversities in political campaigns, broadening the nuclear power issue to encompass economic recession and nuclear weapons escalation. This was a distinct evolution from typical arguments advanced against commercial nuclear power in the early days of the debate. In this escalation of the nuclear power conflict, federal sponsors were no longer effective bulwarks, having lost their public credibility in earlier partnership with industry. Chief among the federal agencies implicated in this reversal was DOE.

#### THE NUCLEAR WASTE POLICY ACT

The stark reality of radioactive contamination dramatized by TMI influenced Congress in enacting PL97-425 in 1982. The law was supported by nuclear power advocates and critics alike, though for different reasons. PL97-425 formalized scientific consensus over the desirability of disposing of spent nuclear fuel and other high-level radioactive waste in deep mined geologic repositories, and specified the process for siting such repositories in the United States. In addition, PL97-425 formalized federal responsibility for disposing of spent nuclear fuel. Though the Atomic Energy Commission regulation had decreed this responsibility from the time that the regulatory framework for nuclear generating stations was established, this federal role was only legislated in PL97-425. The liberal participatory provisions of PL97-425 satisfied the demands of anti-nuclear forces, whose political goals were traditionally oriented around access to decision-making arenas. For the public at large, whose interests were represented only indirectly, PL97-425 ensured timely and safe disposal of a significantly toxic and hazardous waste.

The obstructionist tactics used by nuclear power opponents in siting controversies were well suited for delaying or even crippling construction of nuclear power reactors. Against the selection of a disposal site, however, obstructionist tactics appear to contradict the goals of nuclear power opponents, aggravating an unsafe situation by delaying the process for determining the safest means of disposal. There is, however, an additional motivation for obstructionist tactics which is completely consistent with anti-nuclear goals. The primary challenge to the claims of safety made for nuclear power has been the lack of a safe method for high-level waste disposal. Several states, including California, have passed referenda which prohibit construction of new nuclear generating plants until a safe method of waste disposal is found. As long as no safe disposal method is available, therefore, new nuclear construction can be stalled indefinitely. PL97-425's *de facto* declaration that mined geologic disposal is a safe disposal method will thus undermine such laws, and nuclear power opponents will have lost one of their most powerful arguments.<sup>4</sup>

Anti-nuclear forces could not overtly oppose passage of PL97-425, lest they cast doubt on their avowed concern with safety and thus lose popular support. Their public stance must appear to support the Act and its implementation, even though enthusiastic implementation - the actual siting and opening of a repository - poses problems for them. Both public input on implementation and the various lawsuits which have been filed belie a supportive stance.<sup>5</sup> Environmental and anti-nuclear groups have made a number of public statements indicating that no site will ever receive support, and actual siting of a repository will not be condoned.<sup>6</sup> It is reasonable to conclude that there are forces within the environmental and anti-nuclear movements who seek to protect the traditional anti-nuclear argument that there is no safe radioactive waste storage possible. These forces inform the consistent obstruction to implementation of PL97-425.

#### THE ROLE OF ENVIRONMENTALISM

Among public interest groups, environmentalist organizations have been the most active public participants in the siting process, successfully constraining DOE initiatives in site characterization and certification with predictably critical responses. The high level of technical complexity of the waste repository siting process affords considerable uncertainty and invites speculation; the geologic suitability of the site, the hydrology, geochemistry, tectonics and seismicity are all, to a degree, speculative at present. Environmental activists have exploited this uncertainty by seeking to discredit official site characterization activities. Since there is no basis for verifying the long-term consequences of repository siting empirically, the situation seems ideal for a campaign of discreditation.

This strategy of discreditation is revealed in the heavily symbolic character of the environmentalist campaign, which focuses on such intangibles as threats to future generations and Tribal cultural rights which are decades or centuries in the future. This public posture reflects the technical uncertainties of site characterization and is readily understood by those who have little knowledge of the technical details surrounding the actual characterization process. Given DOE's current reputation, environmentalists find that they do not have to campaign very hard to accomplish their ends.

The tragedy of this strategy of obstruction is that the environmentalist community is prepared with little else. The strategy evolved through hard experience, but was geared to a different set of institutional realities; in the heyday of nuclear plant construction, it was a logical and effective response to a set of policymaking arrangements that excluded both citizen activists and scientific dissenters. Just as utility officials, who were committed to an inflexible view of reality, wound up with a Maginot Line of terminated reactors, environmentalists and anti-nuclear activists now find that obstruction is the only strategy they know or are capable of implementing. They are, in short, left with the choice of obstruction or doing nothing, for the world has passed them by.

Lacking a sound environmental basis, anti-nuclear opposition to the repository siting appears to have no clear rationale precisely because it hardly affects commercial nuclear power development. Apart from ordinary political ambitions, anti-nuclear opposition to DOE's efforts appears to be informed primarily by ideological considerations. Policymaking on ideological grounds, if not unsound, contravenes the intent of PL97-425, which was established to provide a systematic basis for site selection relying on empirical investigation. In this situation, environmentalist groups have apparently targeted DOE as a bureaucratic "enemy," citing its traditional pro-nuclear industry-utility constituency. In its insistence on abiding by predetermined schedules, DOE often behaves like such an "enemy." However, activists have virtually transformed DOE into a symbol on which to focus opposition; they may realize that the siting controversy doesn't affect nuclear power development, but it does not appear to be in their interest to concede that.

Suffering the effects of "credibility reversal," DOE finds itself on the defensive against critics who have attracted media coverage by exploiting the popular myth of duplicity that informs public perception of the relationship between government and the nuclear industry. Ironically, it is DOE which is best equipped, both scientifically and economically, to examine the consequences of repository siting and radioactive waste burial. In contrast to reactor construction, however, which actually involved long-range policymaking for commercial nuclear energy development and reactor deployment, DOE's interests in repository siting appear to be mundane and shortsighted, directed only toward discharging its responsibilities under PL97-425.

#### THE ROLES OF STATES AND TRIBES

Demands by state officials for greater participation in DOE decisionmaking, unlike environmentalist opposition, appears rationally informed since it establishes a basis for transactions capable of yielding direct material concessions by the federal government to the states. For the states, obstruction in this form is an opportunity to gain political leverage vis-a-vis the federal government through the procedural framework offered by PL97-425. The rhetorical vehicle provided by traditional "states' rights" claims offers a convenient symbolic framework for legitimizing temporary state opposition. Similarly, transactions with federal agencies can be justified by state officials in the complementary "federal prerogative" rhetorical package, especially in the well-adjudicated area of nuclear regulatory

policy. Thus an obstructionist posture for state officials is understandable, since they can wrest tangible concessions from the federal agencies.

The effectiveness of state opposition was demonstrated in the recent federal court decision which essentially directs DOE to fund all state activity in the repository siting process except activity which interferes directly with DOE. State opposition is likely to continue until affected states have negotiated suitable federal concessions through DOE.

Affected Indian tribes, as corporate "nations," benefit in similar ways. Tribal involvement in DOE decisionmaking would present difficulties for agency officials, since tribal claims center on intangibles that must be negotiated individually when translating material equivalencies. Assertions of infringement on tribal heritage were used successfully in negotiation during debate over passage of the 1980 Northwest Regional Power Act, when tribal representatives demanded compensation for fish losses due to hydroelectric development on the Columbia River. The Tribes' positions, which revolve around ancestral land claims based on treaty agreements, are strengthened by the already heavily symbolic character of the nuclear waste controversy. Although PL97-425 does not allow affected tribes veto right unless the repository is physically located on tribal reservation land, the Tribes are prepared to challenge the siting decision in the courts, and it is likely that such challenges will be settled by DOE.

#### CONCLUSION

Breaking the existing stalemate depends on a change in public perception of both the acceptability of a waste site and the credibility of the federal site investigations. It is possible that *in situ* testing will dispel some uncertainty by providing an empirical basis for making claims about the suitability of a particular location. Sinking the main shaft at each of the three candidate sites should demonstrate whether or not the rock is mechanically suitable for repository construction. DOE would hardly continue characterization in the face of clear evidence of inability to sink a shaft to depth or actually build the repository, and the Nuclear Regulatory Commission would be hard pressed to license an obviously mechanically unsuitable site. Doubts about mechanical suitability have been expressed about the Nevada and Hanford sites.<sup>7</sup> Although there is little question that a repository could be constructed in salt,<sup>8</sup> investigations at the WIPP site in New Mexico and the Project Salt Vault site have also revealed site-specific characteristics rendering those locations unsuitable for a high-level waste repository. Site-specific qualifying or disqualifying characteristics in salt can be elucidated only *in situ*.

Empirical verification of site suitability clearly follows the spirit of PL97-425 and might restore a measure of DOE's public credibility. Such verification also works in the interests of the states which remain site candidates, for they retain veto prerogative guaranteed in PL97-425; their bargaining position vis-a-vis DOE is thus enhanced.

The integrity of the waste package itself could be improved by vitrification of spent fuel (along with the planned vitrification of high-level waste from defense reactors). Yet, vitrification raises two grave problems: worker exposure during the vitrification process and the close connection between vitrification and the reprocessing of commercial spent fuel. In

view of the technical advantages offered by vitrification, the public should be afforded the opportunity to consider the option in the following context: the repository can be made considerably safer by glassifying waste, and the choice of geologic medium would be rendered far less critical than for spent fuel. However, given the implications, the vitrification decision must be a public one.

Unfortunately, a third alternative is now being pursued: the idea of using monitored retrievable storage (MRS) to ask Congress to extend the time schedule for repository siting virtually indefinitely. The State of Washington considered a memorial to Congress to this effect in the 1986 session. The general public and their elected representatives are still unable to come to grips with the existence of commercial spent fuel, and seem to be ready to deny its existence. It is important, therefore, that the ultimate focus of public attention be made the location of the repository rather than its existence. Such refocusing requires understanding of the dynamics behind current agency, public and activist attitudes and motivation, increased political acceptability of state negotiations, and greater probity for DOE's site characterization investigations. Only under such circumstances can a good scientific decision on repository siting be brought about.

## REFERENCES

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