Chapter 8
Addressing State and Public Concerns

Contents

	Page
Introduction	175
State Concerns	175
Waste Management Impacts	176
Equity	176
Federal Credibility	177
State Involvement in Waste Management Decisions	177
State Role in Policy Development and Program Oversight	177
State Role in Facility Siting Decisions	178
Prevention and Mitigation of Impacts	184
Addressing State Concerns About Safety	184
Impact Mitigation	186
Equity in Siting Waste Facilities	188
Public Involvement	190

TABLES

Table No.		Page
8-1.	NWPA Decisions, Deadlines, Opportunities to Influence	179

Chapter 8
Addressing State and Public Concerns

INTRODUCTION

History suggests that concerns about the safety and equity of Federal waste management activities on the part of States, Indian tribes, localities, and the general public could become a source of increasingly effective opposition to implementation of a waste management program unless specific steps are taken to deal with these concerns. Efforts to proceed without dealing with them may simply provoke greater resistance, confrontations, and failure to achieve program objectives on schedule. On the other hand, measures that adequately address these concerns in the waste management program are likely to broaden support for it, reduce opposition during implementation, and remove grounds for complaint.

The Nuclear Waste Policy Act of 1982 (NWPA) includes many provisions designed to deal with the concerns of the States, Indian tribes, and the general public. This chapter will describe those provisions and the background against which they were developed.

STATE CONCERNS

The Federal Government must have access to potential disposal sites to evaluate the suitability of various geologic media and of particular sites for radioactive waste disposal. Ultimately, Federal ownership of actual disposal sites will be necessary.

Federal attempts to perform siting activities have met with strong State opposition, however, severely hindering Federal efforts to find and examine potential waste disposal sites across the country.[1] State and Federal apprehensions have led to a vicious circle in which the actions of each side, taken in perceived self-defense, reinforce the fears of the other. On the Federal side, some parties are concerned that States will refuse to take waste under any circumstances. On the State side, there is fear that the Federal Government will site waste facilities despite legitimate State objections.[2]

The manner in which State opposition to Federal radioactive waste management activities is dealt with, and the ultimate outcome of such opposition, have implications for Federal activities in other policy areas in which there is Federal/State conflict. This is especially true in other activities that concentrate costs in smaller areas while spreading benefits on a national or interregional scale. Federal/State relations in radioactive waste management pose both an opportunity to establish mutually satisfactory and workable precedents and a risk of establishing unwise ones.

State opposition to Federal siting activities appears to be based primarily on (1) fears regarding the possible risks and impacts of radioactive waste and waste management activities and (2) fears about possible inequitable distribution of those risks and impacts. These concerns are complicated by distrust of the Federal Government.[3]

[1] As of September 1982, approximately 160 State laws, initiatives, and resolutions and 250 local laws pertaining to high-level radioactive waste had been passed throughout the United States. Steven H. Murdock, F. Larry Leistritz, and Rita R. Harem (eds.) *Nuclear Waste: Socioeconomic Dimensions of Long Term Storage* (Boulder, Colo.: Westview Press, 1983), p. 75.

[2] For a discussion of some of the difficulties encountered in past Federal-State relations, see Roger Kasperson, "The Dark Side of the Radioactive Waste Problem," *Progress in Resource Management and Environmenta/P/arming,* T. O'Riordan and K. Turner (eds.) (New York: John Wiley & Sons, Ltd., 1980), vol. 2, pp. 135-136. See also app. A.

[3] OTA's analysis of State concerns draws on the results of OTA staff interviews with State officials in South Carolina, Nevada, New Mexico, and Washington, and on interviews with State officials in Michigan, New York, Illinois, and Tennessee conducted for OTA by the Academy for Contemporary Problems, as reported by Pat Choate and John Bowman in *Radioactive Waste Management: State Concerns,* report prepared for the Office of Technology Assessment, 1980. See also app. A. It should be noted that efforts to find sites for treatment or disposal of nonnuclear hazardous wastes are beset by similar con-

Waste Management Impacts

Radiological impacts—dangers to physical health and safety from exposure to radiation—are the potential impacts of greatest concern to States and localities. No matter how remote the possibility, waste management facilities and transportation of waste bring the chance of accidental release of radioactive materials to the biosphere.

States and localities are also concerned about the nonradiological impacts of waste management activities—i. e., those impacts that can be expected to occur even if there is no release of radioactive materials. Some potential nonradiological impacts, such as demands for increased State emergency response capabilities, arise because radioactive waste management involves radiological hazards. Others arise simply because a nuclear waste management facility is a large-scale industrial activity. Potential nonradiological impacts include the following:

- ***Expenditures for activities related to Federal/State relations.*** Depending on the arrangements adopted, States will incur costs in reviewing Federal siting proposals, particularly if outside experts are consulted.
- ***Increased demands on governmental services.*** State and local police and fire departments, health departments, and other agencies will have increased responsibilities to prepare for and cope with possible accidents involving radioactive waste. States may have to allocate additional funds for regulatory activities such as inspection of trucks bearing waste. Roads will be subjected to added stress from truck shipments.
- ***Possible losses in land and property values.***
- ***Possible losses in tax revenue.*** Radioactive waste repositories will be built on land either already owned by the Federal Government or acquired for that purpose. Such lands and facilities will remain federally owned in perpetuity. Traditionally, Federal ownership has meant that lands and facilities are not taxable by State and local governments.
- ***Increased demands on potentially scarce natural resources, such as water.***
- ***Possible loss of the ability to exploit mineral and other resources from lands surrounding repositories.***
- ***Nonradioactive water and airpollution*** resulting from facility construction and operation.
- ***Boomtown*** **effects.** Construction and, to a lesser extent, operation of radioactive waste management facilities may result in an influx of new residents and transients to areas in which such facilities are located, possibly straining existing physical and social services. Boomtown effects have been severe, for example, in some rural areas of Western States where mining and energy extraction industries have recently begun operations. In some cases, the introduction of a new industry to an unprepared locality has led to social disruption, such as rising rates of alcoholism, divorce, and crime.

Equity

Beliefs about what is equitable vary widely. While the health and safety aspects of prospective waste sites are of primary consideration, the amount of waste present in storage and disposal facilities and the distribution of sites are also important factors in States' views of siting.[4] Some States fear that they could be forced to host radioactive waste generated by the rest of the Nation and thus bear an inequitable share of the disadvantages of nuclear power. Such concerns about equity have been important in the debate over onsite storage v. away-from-reactor storage and in evaluations of repository siting, especially in discussions of numbers and locations of repositories.

Another equity consideration is the length of time waste will be in interim storage in a State. Some States fear that the impetus for the Federal Government to develop permanent repositories would be lessened if such short-term solutions are put into

cerns. See Martin Jaffe, *Hazardous Waste Management: Implications for Nuclear Waste Facility Siting,* report prepared for the Office of Technology Assessment, American Planning Association, Apr. 18, 1980.

[4]Concern about equity was expressed by many State officials in interviews with OTA staff and has been frequently expressed in congressional hearings on radioactive waste legislation. See, for example, statements made by officials from Illinois and South Carolina to the Senate Environment and Public Works Subcommittee on Nuclear Regulation during hearings concerning pending nuclear waste legislation on Nov. 9, 1981.

place, and that, as a result, interim spent fuel storage in those States could become permanent by default.5

Federal Credibility

Distrust of the Federal Government, stemming from past instances of what States perceive to be low Federal competence and poor responsiveness to States' needs, forms the background against which States express fears about impacts and equity and from which States measure current Federal efforts.[6] State opinion of Federal competence has been lowered by frequent Federal policy changes; delays in formulating a stable national radioactive waste management plan; failure to consult effectively with State officials on site investigations; several controversies about the scope of the Waste Isolation Pilot Plant, near Carlsbad, N. Mex.; maintenance and funding of the contaminated Nuclear Fuel Services reprocessing plant site at West Valley, N. Y.; and the safety of the proposed site at Lyons, Kans. Problems with leaks and inadequate monitoring of military and low-level waste have also affected State perceptions of Federal management of commercial high-level radioactive waste. One State fear is that considerations other than technical criteria bearing on safety will play an unwarranted role in Federal siting decisions. Such considerations might be, for example, a perceived need for rapid siting of a repository to remove the waste problem as an obstacle to nuclear power, or a desire to save costs and time by directing site-selection efforts toward locations with already existing Federal facilities.

NWPA addresses State and Indian tribe concerns through measures in three areas: State involvement in waste management decisions, prevention and mitigation of impacts of waste management activities, and equity in siting waste facilities.

[5]Officials in both South Carolina and Illinois were concerned that proposed Federal interim spent fuel storage in existing facilities in those States could become permanent if there were continued delays in a Federal permanent repository. They also did not want such interim storage facilities to take a disproportionate share of the national spent fuel storage burden. See *Federal Facilities for Storing Spent Nuclear Fuel—Are They Needed?* General Accounting Office, June 27, 1979, EMD-79-82, pp. 14-16. See also E. William Colglazier, Jr. (cd.), *The Politics of Nuclear Waste (New* York: Pergamon Press, 1982), especially the Foreword by Governor Richard W. Riley of South Carolina, pp. ix-x.

[6]See app. A; and Choate and Bowman, op. cit.

STATE INVOLVEMENT IN WASTE MANAGEMENT DECISIONS

Discussions about State involvement in radioactive waste management have focused on two areas:

1. How States should be involved in making overall Federal radioactive waste management policy and in reviewing implementation of policy.
2. What powers a State should have in siting decisions involving that State, and what limits should be placed on those powers.

State Role in Policy Development and Program Oversight

States have played a role in the formation of Federal radioactive waste management policies and in the review of implementation of those policies by the same means as those used in other policy areas: discussions with agency officials, direct lobbying of administration and congressional leaders, and use of the State's congressional delegation to make views known and to influence policy. Organizations representing State governmental groups, such as the National Governors' Association and the National Conference of State Legislatures, have also been important in advocating State interests.

In addition to these traditional means, States were involved in the development of Federal radioactive waste management policy through a special-purpose organization, the State Planning Council (SPC), created by President Carter by Executive order in February 1980 and given an 18-month maximum lifespan. SPC, among other duties, made recommendations to the President and the

Secretary of Energy about State involvement in all phases of radioactive waste siting and on more general matters of policy affecting State and local interests, such as composition of the National Waste Management Plan and the Nuclear Regulatory Commission's (NRC) licensing procedures. SPC formally dissolved in August 1981 after issuing a final report.

Some proposals for future State involvement in radioactive waste management have envisioned the recreation of SPC or the creation of a similar organization; others have focused exclusively on the State role in siting decisions, leaving State involvement in policymaking to traditional means.

It can be argued that with the completion of the assigned duties of SPC, there is no longer a need for a special-purpose organization to supplement existing ways in which States can contribute to Federal radioactive waste management policy. Within SPC itself, there was division about whether the council's life should be extended, and no resolution was passed calling for such an extension.

In favor of reviving SPC or creating a similar organization, it can be argued that there is a continuing need for a single body to synthesize the viewpoints of different States and of groups within States. Radioactive waste management policy could experience major changes under different Presidential administrations during the extended period in which waste management facilities will be sited and operated. A special-purpose organization could prove useful for reviewing and commenting on the draft radioactive waste Mission Plan to be prepared pursuant to NWPA, for monitoring the waste program, and for making recommendations when appropriate.[7] Another possible avenue for State involvement in policy development and program oversight would be State representation on broader bodies such as a high-level council for overseeing development of a Federal Government-wide Mission Plan, or an oversight body for an independent waste management agency. (Further discussion of these ideas is found in ch. 7.)

NWPA made no special provision for State involvement in policy development and program oversight, although it does specify that the draft Mission Plan must be submitted to the States and affected Indian tribes for their comments. However, it may be useful for the administration to consider establishing some mechanism through Executive order, as was done with the SPC, and for congressional deliberations on alternative management approaches to consider a State role in oversight of the institutional options that are considered.

State Role in Facility Siting Decisions

The question of the appropriate role for States and Indian tribes in Federal decisions about siting radioactive waste management facilities has been one of the main areas of contention in development of Federal radioactive waste management policy, The Carter administration proposed giving States a continuing role in radioactive waste management through a process termed ***consultation and concurrence.***[8] This policy left many specific features of the Federal/State relationship undefined, however. Later, proposals setting out the State role more clearly were introduced in the 96th Congress, and both the Senate and House passed radioactive waste management bills (S. 2189 and H.R. 8378, respectively) in 1980 which specified provisions for State involvement, although no final bill was adopted at that time. NWPA, passed in the closing days of the 97th Congress, contained detailed provisions for State involvement in siting not only permanent disposal facilities, but also facilities for interim spent fuel storage and for certain research and development (R&D) activities. These are discussed below.

There has been general agreement that a process of consultation—in which individual States are promptly and continuously provided information about intended siting activities affecting them, State views are solicited, and Federal responses are made to State concerns—should take place. NWPA provides for such consultation in two general ways, First, it specifies points during the repository site screening and licensing process at which the affected

[7] The RESOLVE Forum on High-Level Radioactive Waste Management recommended continuation of SPC. See *Managing the Nation High-Level Radioactive Waste: Key Issues and Recommendations* (Washington, D. C.: The Conservation Foundation, July 1981), pp. 27-28.

[8] For a discussion of the genesis of this concept during the deliberations of the Interagency Review Group (IRG), see Ted Greenwood, "Nuclear Waste Management in the United States" in Colglazier, op. cit.

States and Indian tribes must be notified of proposed Federal actions, provided with detailed information, and given a chance to comment (see table 8-l). Second, it requires the Secretary of Energy to seek to enter into binding written agreements with States or Indian tribes affected by Federal activities at sites that have been selected for detailed characterization. These agreements are to include a wide range of specified procedures, including procedures: 1) by which a State or Indian tribe may study and make recommendations concerning the impacts of a proposed repository; 2) by which the Department of Energy (DOE) shall assist the State and local governments near the repository site in resolving concerns about such offsite effects as emergency response requirements, waste transportation, and monitoring of the repository during operation and after decommissioning; and 3) by which the objections of a State or Indian tribe can be resolved through negotiation, arbitration,

Table 8-1.—NWPA Decisions, Deadlines, Opportunities to influence

Decision/event	NWPA deadline	Opportunity to influence
Draft Mission Plan published by DOE	Apr. 6, 1984	Reviewed by State/tribe Comments available for public inspection
Final Mission Plan submitted to Congress	June 6, 1984, effective 30 days after submission	
Five sites nominated for site characterization	After issuance of siting guidelines (Rl)[a] Julv 1, 1989 (R2)[a]	Hearings in vicinity of sites prior to nomination and prior to preparation of environmental assessments
Environmental assessments for five nominated sites	Accompany nominations	
Three sites recommended for site characterization	Jan. 1, 1985 (Rl) July 1, 1989 (R2)	
President approves or disapproves three sites for site characterization	2 to 6 months after recommendation	
Site characterization plans (SCPS) prepared by DOE for each site to be characterized	Prior to sinking exploratory shafts	Public hearings State/tribal comments on draft SCPS, SCPS available for comment at hearings
NRC site characterization Analysis for each site		State/tribal comments on draft
	Prior to repository site recommendation	DOE must hold hearings at all sites under consideration for repository recommendation
	30 days prior to recommendation	DOE must notify State/tribe State/tribe may comment to DOE and provide impact report to be forwarded to the President
DOE recommends one site for repository		
DOE prepares environmental impact assessment		Public comment on draft environmental impact statement
President recommends site to Congress	Mar. 31, 1967 or 1988 (Rl) Mar. 31, 1990 or 1991 (R2)	
Possible State/tribal notice of disapproval to Congress	60 days later	State/tribal action (may include public participation if no written agreement)
Possible congressional override	90 days later	
DOE submits application to NRC for construction authorization	90 days after site designation takes effect	Application sent to State/tribe
NRC issues construction authorization	Jan. 1, 1989 (Rl), or 3 to 4 years after receipt of application (Rl, R2)	Intervention in licensing
Repository in operation	1998 (Rl)	

aRI refers to the first repository; R2 to the second.

SOURCE: Laura Worby, Citizen's *Nuclear Waste Manual* (Washington, D. C.: Nuclear Information and Resources Service, 19S4).

or other mechanisms. Similar mechanisms and procedures are provided by the Act for consultation with States and affected Indian tribes concerning siting and operation of Federal interim storage facilities, any monitored retrievable storage facilities that might subsequently be authorized, and test and evaluation facilities.

Perhaps the most controversial question concerning the State role in waste facility siting was how much formal power, if any, the States should be given to block Federal actions. 'I'he alternatives that were considered ranged from giving States an absolute veto-i. e., the binding legal authority to halt Federal siting activities—to giving the Federal agency responsible for waste management the explicit authority to preempt State objections. This section will discuss some of the principal arguments for these two positions, which represent the opposite ends of the spectrum of alternatives, and will describe the provisions for shared powers that were ultimately incorporated in NWPA.

State Veto—the Binding Legal Power to Halt Federal Siting Activities

Under a State veto approach, Federal agencies could proceed with activities only in the absence of State objections. The most important feature of this approach is the binding legal power of a State to stop the activity in question at any point. Such activity could resume only if the State changed its position.

As argued by proponents, veto rights represented an equitable and constitutionally justified distribution of power among political units. If errors were made in the siting, design, construction, or operation of radioactive waste facilities, present and future residents of States would have to live with the consequences. Historically, States have been accorded primary responsibility for protecting their citizens' property, health, and general welfare. Veto power was seen by some as a necessary defense against a Federal Government perceived as prepared to site radioactive waste facilities regardless of State objections.

In addition, many advocates of State veto believed that States would act reasonably and that a veto would not be used unless it were essential. In their view, a veto would indicate an unreasonable or unsafe Federal proposal rather than an unreasonable State reaction. They expected that siting would occur if the Federal Government could provide credible assurances of safety. A situation in which all 50 States vetoed sites was not anticipated. Advocates believed that, even if the situation were likely, the veto approach should be rejected only if and when the situation occurred, and not before.

On the other hand, not only Federal officials, but many State officials as well, feared that if given a veto power, State officials would have no choice but to use it, regardless of the merits of a particular project.[9] They believed the alternative to such use could be political disaster because public opposition to a radioactive waste project is likely to be much stronger and more intense than support for it. Even if internal political pressures were not overwhelming, officials might use their veto power out of fear that their State would be the only one not to veto a facility. If use of the veto by many States was expected, the Federal Government might select sites primarily on political rather than technical grounds—one of the very reasons why some States distrust the Federal Government. For these and other reasons, the veto approach was opposed by many organizations, including SPC.[10]

Federal Agency Preemption

Federal agency preemption—whereby a Federal agency could, if necessary, overrule a State and proceed with a siting activity in dispute-is the reverse of State veto. In essence, the extent of involvement and power possessed by States would be determined by the Federal Government. In its extreme form, States would have little or no chance to influence Federal activities, and consultation would be minimal. More commonly, however, proponents of the preemption approach envisioned much greater State involvement, including measures of consultation. Even with extensive consultation, however, Federal agency power would remain clearly predominant.

---

[9] For example, statement by Steven Sklar for the National Conference of State Legislatures before the Subcommittee on Energy Regulation, Senate Committee on Energy and Natural Resources, July 19, 1979, p. 8.

[10] State planning Council on Radioactive Waste Management (SPC), *Recommendations on National Radioactive Waste Management Policies: Report to the President*, August 1981, p. 6.

Several rationales were given for preemption. Preemption was seen by proponents as the appropriate expression of Federal preeminence in radioactive waste management, given the relationship of waste management to other areas of Federal concern, such as national energy policy, interstate commerce, foreign policy, national health, and distribution of costs among many States. It also was seen as consistent with past Federal legislation and policy in the general field of atomic energy.

An implicit assumption behind preemption, in many cases, was that a significant number of States would reject siting of a radioactive waste facility, given the power to do so. In this view, making compromises with a State would take too long or be too expensive to permit timely siting of needed waste management facilities. Examples that support this assumption include the many State laws restricting waste management activities and vociferous State reactions even to initial site exploration. An explicit declaration of Federal power was perceived by some proponents to be the quickest and, perhaps, only way to remove such present and potential obstacles to siting activities in time to safeguard nuclear power.

Opponents noted that preemption had potential problems as an approach to State powers in radioactive waste management. Apart from objections based on States' rights considerations, the ability of this approach to overcome State objections quickly may in fact be limited. States have substantial abilities to translate their objections into delay and expense for the Federal Government through such means as defense of their legislation in court and intervention in licensing hearings. While the Federal Government legal power to overcome State opposition is fairly clear,[11] the amount of time and expense required to do so is uncertain. Court challenges, for example, could take years to reach judgmoment[12] Some feared that unless the avenues for State intervention were narrowed or the procedures for reviewing challenges to State actions were expedited— measures that could have broader implications for Federal/State relations in general— attempts at preemption might make siting proceed more slowly. Preemption could also create a vicious circle in which preemption of initial State opposition would generate more intense opposition, which in turn would have to be preempted. Each turn of the circle would make it more difficult to return to mutual trust. Initial use of the preemption approach could make it difficult to switch to a more cooperative approach later.

[11] For a general discussion of the legal status of State laws affecting radioactive waste management, see Harold P. Green and L. Marc Zen, "Federal-State Conflict in Nuclear Waste Management: The Legal Bases," in Colglazier, op. cit.; and William C. Metz, "Legal Constraints to Repository Siting," in Murdock et al., op. cit.

[12] Frederic A. Morris, "The Federal Legal Framework for High-Level Nuclear Waste Management" (Seattle: Battelle Human Affairs Research Center, Mar. 31, 1980), BHARC-31 1/80/009, pp. 29-34.

Shared Powers

Between preemption and veto, a broad spectrum of possible approaches to Federal/State sharing of power in radioactive waste management were considered in the debate leading up to passage of NWPA. This report will use the term shared powers to characterize this middle ground.

Basic features of most proposals for shared powers that were considered included: 1) extensive consultation between States and the Federal Government, often including procedures for resolving some types of State objections (e. g., by arbitration); and 2) the formal ability of States to halt some Federal siting activities, under some circumstances, balanced by Federal power to override State objections, given certain conditions. Shared powers thus represented a compromise between veto and preemption, with limitations placed on the powers of both sides.

Limitations on State power, especially override provisions, are objected to by some defenders of States' rights because of the perceived chilling effect such limitations might have on a State's ability to influence Federal actions and to protect State interests. Conversely, even with such limitations, some observers are troubled by the formal ability of States to halt Federal projects. These disadvantages to each side are mitigated by several factors. From the State perspective, limitations on veto power may be acceptable even to strong defenders of States' rights. At the same time, defenders of Federal preeminence may find satisfaction even in a process that gives States nonconcurrence powers under some circumstances.

The Carter administration policy of consultation and concurrence, while intended as a compromise between the extremes of preemption and veto, was

vague in its definition of concurrence, particularly in distinguishing between nonconcurrence—the ability of a State to prevent the continuance of Federal siting activities—and State veto. [13] Not surprisingly, much of the debate about the State role in radioactive waste management during the 96th and 97th Congresses focused on the precise specification of the balance between Federal and State authority.

In response to those who were concerned about giving States any formal authority to halt Federal activities, it was noted that adoption of explicit procedures for shared powers would in some ways be simply a formalization of powers States already possessed to delay Federal actions, plus formalization of procedures for resolving disputes at several levels. It was argued that these formalizations would make the use of State power more predictable and contained. Federal plans, State objections, Federal responses, mediation between parties, and final judgments could all be expressed within specified areas with prescribed procedures and time limitations. Adoption of a formal structure in law might enable the Federal Government to avoid the slow, graduated appeal procedures likely in various courts if restrictive State actions were challenged and defended .14

Procedures Established by NWPA

NWPA includes detailed processes for State and Indian tribe involvement in decisions for siting the different types of waste management facilities addressed in the Act. While there are some differences in the processes dealing with different facilities, in general they share two features: 1) prior to selection of a final facility site, State and Indian tribe participation is limited to extensive consultation; and 2) following site selection[15] by the Federal Government, the affected State or Indian tribe has the right to lodge a formal objection with Congress, and that objection becomes effective unless overturned by passage of a joint resolution by both Houses of Congress. These and several other features will be discussed briefly next.

State role during site exploration and characterization.—NWPA provides for extensive consultation with States during the siting steps preceding the President's recommendations to Congress of a site for a repository, but the Act grants the States no authority to halt Federal activities. During the debates on waste management legislation, some had argued that States should have the right to forbid or halt these initial siting activities, as well as some other activities, because of the possibility that site exploration might lead eventually to a repository. Others argued that such restrictions on exploration could mean that sites that were desirable from a technical viewpoint might be effectively withdrawn from consideration, or that the sites that were finally chosen might be those that were most politically acceptable rather than those that were most technically suitable. [16] If safety is to be the primary goal of radioactive waste management policy, it was argued, the ability to gain knowledge about different media and sites must be preserved, and therefore the States' ability to prevent the Federal Government from conducting site exploration activities should be limited. [17]

Procedures by which the Federal Government could override a State's objection.—The 96th and 97th Congresses debated extensively about what procedures should be required to override a State's objections to a Federal choice of a waste disposal site. The greater the number of political bodies required to reach agreement to override a State objection, and the greater the amount of action required by them, the more difficult it will be for an

[13] The Interagency Review Group stated that consultation and concurrence implies ''an on-going dialogue participation and the development of a cooperative relationship between States and all relevant Federal agencies during program planning and the site identification and characterization programs on a regional basis using the systems approach, through the identification of specific sites, the joint decision on a facility, any subsequent licensing process and through the entire period of operation and decommissioning. Under this approach the State effectively has a continuing ability to participate in activities at all points throughout the course of the activity and, if it deems appropriate, to prevent the continuance of Federal activities. *(Report to the President by the Interagency Review Group on Nuclear Waste Management,* TID-29442, March 1979, Washington, D. C., p. 95.) For further discussion of the concept of consultation and concurrence, see *Consultation and Concurrence,* proceedings of a workshop held at Eastsound, M ich. on Sept. 23-26, 1979, published by the Office of Nuclear Waste Isolation, Battelle Memorial Inst itute, January 1980, ONWI-87.

[14] Sklar, op. cit. , p. 2.

[15] In th case of a Federal Interim Storage Facility, the State has the right to object only after DOE decides to provide more than 300 tonnes of storage capacity at a site.

[16] Sklar, op. Cit. , p. 5.

[17] In this regard, SPC recommended that States and t ribes not arbitrarily refuse permission for initial site investigations. SPC, *Interim Report,* Feb. 24, 1981, p. 14.

override to occur. SPC, for example, recommended that for a State's objection to be voided, a Presidential determination and a concurrent or joint resolution by both Houses of Congress should be required.

Conversely, override can be made easier in various ways. Both the Senate and House bills passed in the 96th Congress had provisions stating that for a State's objection to stop DOE's civilian waste siting activities effectively, at least one House of Congress must pass a resolution sustaining the State's objection. State objections would thus be overridden de facto if such a resolution were not passed.

After considering and finally rejecting the "one-House-sustain" approach, the 97th Congress ultimate] y agreed to include in NWPA a procedure requiring passage of a joint resolution by both Houses of Congress to override a State's objection to a Presidential selection of a repository site. However, the "two-House-override' approach may be little different from the ' 'one-House-sustain' approach in terms of the relative difficulty of overturning such an objection. The reason is that the procedures in NWPA for congressional consideration of a State's objection practically ensure that both Houses would ultimately have to vote on a resolution dealing with that objection, as was the case with the "one-House-sustain' provisions previously under consideration. As long as each House will eventually have to vote on the question of whether to sustain or overturn a State's objection, all the State has to do to have its position upheld under either approach is to persuade one House to vote its way. is However, if the procedures had allowed a significant possibility that one House might never vote on the question (for example, if the resolution could die without being discharged from a committee to which it had been referred), the legislation would have been biased in favor of continuation of the status quo if Congress failed to act—rejection of *a* proposed site in the case of a "two-House-override" approach, or acceptance of the site with a "one-House-sustain' approach.

Participation by affected States and local governments.-Affected States are those that could be heavily affected by a radioactive waste management facility located in another State: e.g., States that are connected by above- or below-ground water systems or that serve as a transportation corridor for waste shipments to another State in which a waste facility is located. Some proposed giving affected States rights similar to those enjoyed by host States. SPC, for example, recommended that affected States meeting certain criteria established by DOE in consultation with the Department of Transportation (DOT) have rights equivalent to host States.[19] However, NWPA gave explicit participation rights only to States that would host a repository site and to affected Indian tribes. [20]

Localities near radioactive waste management facilities will bear a large share of facility-related impacts. While there were many proposals that relevant local governments be given consultation rights, there were few proposals that they be given any authority to block Federal actions, as well. State officials and organizations have generally been opposed to giving local governments such authority. NWPA does not provide for participation in siting decisions by units of local government, and leaves it up to States to decide how local governments will be involved in the consultation process.

A recent National Research Council report concluded that the lack of an institutionalized process for involving local governments in the siting process represents a significant gap in the framework defined by NWPA, and that the need for linkage between local jurisdictions and State governments is of potentially critical importance to the waste management program. The report underscored the responsibility of State governments to address the issue of State-local relations constructively, since Congress decided against a Federal prescription for the institutional relationship between State and local

1 [8]If the one-House-sustain approach is used, a House sympathetic with the State would vote to pass the resolution to sustain the objection. If the two-House-override approach is used, a House sympathetic with the State would vote to defeat the resolution to override the State objection. In either approach, the State objection would be overridden only if both Houses supported the selection of a site by voting to defeat a resolution to support the State or to pass a resolution to override the State. If either House does not support the site selection under either approach, the State's objection would be sustained.

[19]SPC, *Interim Report,* p. 19.

[20]NWPA defines an "affected Indian tribe' as one whose reservation contains a specified radioactive waste facility or whose federally defined possessor or usage rights may be substantially and adversely affected by the locating of such a facility, (42 USC 10101.)

governments.[21] On his topic, SPC had recommended that the Federal Government put forward a clearly structured interagency waste management program plan that provides for effective participation by local governments, as well as by State and tribal governments.[22] In addition, it recommended that States establish a process that would enable local governments to participate in the NRC repository licensing process.[23]

The State role in military waste siting.—There was substantial disagreement over whether States should have the same role in military waste disposal as in civilian waste disposal efforts. Some argued that because the hazards associated with defense and commercial waste are similar, their treatment should be similar. In addition, some feared that if commercial and defense waste were considered separately, defense waste might remain in storage indefinitely rather than be disposed of safely. Others argued that giving States a role in decisions on the disposal of military waste would jeopardize national security and could set a precedent for involving States in decisions on siting other facilities needed for national security purposes, such as military bases.

One compromise considered was to give States the power to object to military waste facility siting but to make override easier than would be the case for the siting of commercial waste facilities. For example, S. 2189, considered during the 96th Congress, required that a State's objection to defense waste siting could be upheld only if both Houses of Congress affirmed the objection. However, the 97th Congress agreed in NWPA to apply the same procedures to repositories for commercial waste and defense waste. NWPA also provided that the Secretary of Energy use the commercial waste repositories developed under the Act for disposal of defense waste, as well, unless the President finds, on the basis of an evaluation to be completed by January 1985, that a separate repository for defense waste is required. The draft of that evaluation, released in 1984, concludes that disposal of defense waste in commercial repositories would be the most cost-effective option.

[21] National Research Council, *Social and Economic Aspects of Radioactive Waste Disposal: Considerations for Institutional Management* (Washington, D. C.: National Academy Press, 1984).
[22] SPC, Recommendations, p. 12.
[23] 1 bid., p. 15.

PREVENTION AND MITIGATION OF IMPACTS

State concerns may also be addressed directly in the waste management program by measures dealing with the prevention and mitigation of impacts. Such measures could reduce pressures on the participation process (above) as the principal means of protecting States' interests. They could also increase State confidence in the competence and integrity of the Federal radioactive waste management system.

Addressing State Concerns About Safety

It is beyond human ability to ensure that no release of radioactivity will occur over the course of radioactive waste management operations and during the long life of the waste after it is disposed of; indeed, such total containment is not required by the proposed Environmental Protection Agency (EPA) standards nor final NRC regulations for high-level waste repositories. However, it is possible to reduce the chances that serious impacts will occur and to lower the consequences of impacts if they do occur. States seek assurances that siting will not be based on nontechnical grounds or inadequate criteria, that the siting process will proceed no faster than safety concerns dictate, that waste management activities will be monitored for safety, and that emergency response capability exists. The Federal radioactive waste management program could provide such assurances in several ways. Some are explicitly provided by NWPA, while others are within the discretion of DOE.

Independent Reviews of Radioactive Waste Management Plans and Activities

Confidence in the safety of waste management activities will be increased by independent reviews of Federal plans for radioactive waste management before such activities take place. At present, there are three main levels planned for such review-internal review by DOE, licensing proceedings by NRC, and reviews by individual States of applicable parts of the plan. Additional levels of review (e.g., by bodies of independent scientific experts) might increase the confidence of observers that sites, technologies, and management systems will meet necessary levels of safety and reliability.

NWPA provides States and affected Indian tribes with funding for such independent technical reviews. The Environmental Evaluation Group in New Mexico provides a good example of how such review might be accomplished. This group, which is supported by funds from DOE, provides the State of New Mexico with independent technical review of DOE activities in developing the Waste Isolation Pilot Plant near Carlsbad.

As discussed in chapter 3, the first repository could well become an international waste disposal research center. In that event, opening the repository to independent scientific investigations could give the affected State and locality additional confidence that potential problems with the site would not be overlooked.

Availability of Backup Sites

States' concerns that the Federal Government might continue to develop a less-than-satisfactory repository site simply because of the lack of any alternatives could be addressed by measures designed to increase confidence that an adequate number of backup sites would be under consideration at each stage of the repository development process, up to and including full-scale operation. Along these lines, NWPA establishes a process for siting and licensing two separate repositories. The site for each is to be selected based on (1) an initial evaluation of five sites that have been nominated for consideration on the basis of preliminary data obtained from surface exploration and drill holes, and (2) a detailed characterization at repository depth of three of the nominated sites.

Additional measures that could be provided by DOE in the Mission Plan include a target date for operation of the second repository soon after the opening of the first, characterization of one more site than the required three, and submission of a backup site for licensing for each repository. These measures—which are also needed to increase confidence in a firm waste acceptance schedule, as discussed in chapter 6—could increase confidence that any sites eventually selected for development had been chosen strictly on technical merit,[24] and could also deal with State concerns about equity in siting by assuring States that the initial site would not automatically become the only operational site.

Assistance in Monitoring and Emergency Response

The capabilities of personnel and equipment to detect and respond to accidents are important for maintaining the safety of radioactive waste management operations. Filling the need for these capabilities may be the impact of radioactive waste siting that affects the largest number of States and communities, depending on waste transportation arrangements.[25] Evert State and community through which waste will be transported will need some ability to respond to accidents, or at least to know whom to contact if local capability is inadequate. Monitoring and emergency response capabilities are also necessary for the safety of waste management facilities during operation and after closure. The Federal Government will have the primary responsibility for monitoring any emergency response at Federal facilities, although States will be involved to some extent.

NWPA provides for assistance to repository host States and affected Indian tribes concerning monitoring and emergency response for both waste transportation and repository operation. However, no provision is made for special assistance to nonrepository States affected by waste transportation. Thus, such States will have to rely on existing general provisions for Federal involvement in transportation of radioactive materials.

---

[24] Choate and Bowman, op. cit., pp. 25-26.

[25] See Albert M. Church and Roger D. Norton, "Issues in Emergency Preparedness for Radiological Transportation Accidents," *Natural Resources Journal*, vol. 21, No. 4., October 1981, pp. 757-771.

Under legislative authority that existed prior to passage of NWPA, NRC and DOT regulate the transportation of radioactive waste. However, State and local authorities, along with personnel employed by transportation carriers, are usually the first to respond to transportation accidents involving all types of hazardous cargo shipments, and they have primary responsibility for maintaining public health and safety in the event of such accidents. This is true for radioactive waste transport, as well.[26] The Federal Government provides assistance to State efforts in various ways: for example, through radiological assistance teams, training courses for State and local authorities, assistance to States in preparing emergency response plans, and funding of state enforcement efforts through the State Hazardous Materials Enforcement Development Program conducted by DOT. *7

Monitoring—which includes inspection, enforcement, and, possibly, escort of waste shipments—and emergency response policies and capabilities vary greatly from State to State. 28 Some States have wide-ranging requirements and large offices devoted to one or both efforts; others have more minimal requirements and may depend largely or entirely on outside assistance. For both emergency response and monitoring, the ability of States to handle shipments depends, in part, on regulatory demands. For example, if Federal regulations requiring waste to be escorted were to be promulgated, a heavy burden could be placed on State and local police departments.

Some States feel that their programs are adequate to handle foreseeable demands. However, other States and localities see some level of Federal assistance as necessary. Localities, in particular, often lack equipment and expertise to deal with emergencies involving radioactive materials, and many States express a desire for aid in training personnel and in procuring special equipment. Opinions vary on what the extent of Federal assistance should be. SPC recommended that State and, where appropriate, tribal governments should have the lead role in developing emergency response plans and procedures for dealing with transportation accidents.[29] Consideration of additional Federal support to States affected by radioactive waste transportation may be appropriate before large quantities of waste begin to be moved to an operating repository. Options include:

1. Additional Federal backup to State and local efforts, such as training programs, provision of information, or more active support in equipment and personnel.
2. Increased level and scope of Federal funding of State and local efforts. Financial assistance may be needed to enable States to cope with the relatively large number of shipments of radioactive waste that will occur when a repository begins operating. For example, it has been estimated that it would cost about $6 million over 30 years for the equipment and training needed to bring New Mexico's emergency response capacity to the level required for the anticipated shipments of transuranic waste to the WIPP facility .30
3. Direct provision of monitoring and emergency response services.

Impact Mitigation

Many of the nonradiological impacts likely to arise from the management of radioactive waste are common to other large-scale industrial developments and could be significant for the States and communities involved, depending on the size of repositories, the size of the affected communities, and the proximity of communities to repositories. DOE has said that potential impacts on communities near proposed repository sites represent a significant issue in gaining public and local acceptance of siting activities. [31]

SPC recommended that, because the Federal Government has responsibility for developing re-

[26] Ibid., p. 765.

[27] S. N. Salomon, State *Surveillance of Radioactive Material Transportation,* U.S. Nuclear Regulatory Commission, Office of State Programs, NUREG-1015, February 1984, pp. 35-36.

[28] For a detailed review of existing State programs, see ibid.

[29] SPC, *Recommendations.*

[30] R. *Cummings,* H. Burness, and R. Norton, *The Proposed Waste Isolation Pilot Project (WIPP) and Impacts in the State of New Mexico: A Socioeconomic Analysis* (Albuquerque, EMD-2-67-1 139, April 1981), ch. 7; cited in Church and Norton, op. cit., p. 764.

[31] Statement of Kenneth Davis, Deputy Secretary of Energy, before the Subcommittee on Energy and the Environment, Committee on Interior and Insular Affairs, U.S. House of Representatives, July 9, 1981. Interior and Insular Affairs Document 97-12.

positories, it should accept responsibility for socioeconomic impacts arising from such development.[32]

Measures to mitigate the impacts of repository siting activities may be vital in making those activities acceptable to the affected population .33 Without mitigation measures, a major portion of the costs of siting would be borne by host States and communities. While such concentration of costs is common, radioactive waste management may be judged differently from other industrial activities. One major difference lies in the perceived benefits brought by the siting of facilities. Apart from the general national importance of isolating waste safely, the principal specific benefit of commercial radioactive waste management will be the continued viability of nuclear power—a benefit that may not be experienced directly by affected areas.

On the positive side, some jobs will be created and some local businesses will benefit, especially with the construction of repositories. There may be long-term beneficial impacts on the community if the repository becomes an international scientific research center. However, these local benefits may not by themselves outweigh local concerns about the potential negative impacts of a radioactive waste repository.

NWPA includes a number of requirements for a range of payments to host States, affected Indian tribes, and, in some cases, units of local government to mitigate the impacts of development and operation of the various facilities provided for in the Act. Drawing these payments from the Nuclear Waste Fund, rather than from general revenues, should substantially increase the credibility of Federal assurances that mitigation payments will be forthcoming when needed. A brief discussion of three types of impact payments follows .34

Tax-Equivalent Payments

Because waste disposal will be conducted by the Federal Government, the land, facilities, and operations will not be subject to the State and local taxation that normally offsets some of the costs of private industrial activities. While other Federal facilities share this drawback, radioactive waste management operations are less attractive. Unlike many other Federal lands, which are at least potentially returnable, waste sites will never be turned back to lower units of government. To deal with this, NWPA includes a requirement for payments to States and units of local government in which a repository is located, and to Indian tribes affected by repository development, of an amount equivalent to the revenues that would be collected if the repository could be taxed at the same rate as other real property and industrial activities. In the case of Federal interim storage facilities, general impact assistance payments can be used to compensate for the loss of taxable property resulting from public rather than private ownership of the facilities. No provision is made for tax-equivalent payments in the case of monitored retrievable storage facilities or test and evaluation facilities.

Compensation Payments

There are many precedents for compensating affected units of government monetarily for direct impacts caused by private or Federal activities and for making anticipatory payments in expectation of such impacts.[35] Firms planning to conduct operations such as extraction and development of natural gas, coal, oil, shale, and minerals have offered lump sum payments and other mitigation measures, such as direct funding of services, to offset both actual and anticipated impacts. Nuclear utilities in several countries also offer such measures to affected communities. In Japan, for example, anticipatory compensation payments are made prior to evidence of damage. Localities receive a subsidy—portions of which go to improve roads, schools, and other public projects—generated from a tax on utilities for electrical generation. [36]NWPA

[32]SPC, Recommendations, p. 11.

[33]A more extensive discussion of mitigation measures can be found in chapters 10, 11, and 12 of Murdock et al., op. cit.; see also S. A. Carries et a!., *Incentives and the Siting of Radioactive Waste Facilities* (Oak Ridge, Term.: Oak Ridge National Laboratory, ORNL-5880, 1982).

[34]A more detailed description of the mitigation measures contained in NWPA and an evaluation from a State point of view are found in "The Nuclear Waste Policy Act and Socioeconomic Impact Mitigation Provisions and Problems, " by Robert D. Smith of the Texas Nuclear Waste Programs Office, published in *Proceedings of the 1983 Civilian Radioactive Waste Management Information Meeting,* U.S. Department of Energy, CONF-831217, February 1984, pp. 50-56.

[35]This was done, for example, when the Tennessee Valley Authority (TVA) and the State of Wyoming signed an agreement that subjects TVA to all the laws, regulations, and taxes the State imposes on private mining companies. *Nuclear Fuel,* Mar. 31, 1980.

[36]In one case, the amount devoted to such payments was 10 Per cent of the cost of plant construction. Hilliard W. Paige, Daniel S.

includes provisions for impact mitigation payments to States in which a repository is located and to affected Indian tribes. State participation in forecasting potential impacts arising from radioactive waste management activities and in negotiating Federal mitigation measures are included in the guarantees provided by NWPA.[37]

The Act also provides for impact payments to units of local government within which a monitored retrievable storage facility is located, and to States and units of local government hosting a Federal interim storage facility. No impact mitigation measures are provided for test and evaluation facilities.

Incentive Measures

Some argue that the benefits provided to States, localities, and Indian tribes asked to host radioactive waste facilities should go beyond simple compensation for impacts, and should instead be set at a level sufficient to provide positive incentives to accept the facilities. Measures to encourage communities or States to accept waste management activities include monetary payments, construction of public facilities, and the tradeoff of siting a waste facility for a pledge to site a desirable project nearby or an undesirable project elsewhere.

Although incentives could lessen opposition to siting, perhaps even making it attractive, they may also have drawbacks. A potential disadvantage of monetary payments, in particular, is that they may appear to prejudice a waste siting decision, possibly increasing suspicion in some communities that they are being bribed to accept something that is unsafe. If incentives are offered to make radioactive waste management activities more acceptable, it may be necessary to tie them to other measures that address health and safety concerns, such as emergency response, and to measures that provide assurances regarding the technical merits of the radioactive waste management program .38 In addition, there may be a need for explicit upper limits on the amount of incentives that could be provided. Otherwise, depending on the latitude that the beneficiaries of incentive measures are given to negotiate the amounts received, the cost of such measures could become excessive, placing an unfair burden on those who must pay for waste management activities.

NWPA makes no provision for incentive measures beyond compensation for impacts. However, there is no limit placed on the level of tax-equivalent and impact payments for States and Indian tribes affected by repositories, and considerable flexibility is given to the Secretary of Energy in negotiating a package of impact compensation.

Pipman, and Janice E. Owens, *Assessment of National Systems for Obtaining Local Acceptance of Nuclear Waste Management Siting and Routing Activities,* International Energy Associates Limited, IEAL-158, July 1980, "Japan," pp. 9-10.

[37] SPC recommended that impacts of repository development activities should be independently assessed by State, tribal, and local governments as a basis for Federal impact payments. SPC, *Recommendations,* p. 11.

[38] For example, in an interview with OTA on Dec. 11,1980, members of the New Mexico Governor's Task Force on Radioactive Waste Disposal indicated that Federal compensation to affected States may be appropriate, but only after all the questions about radiological health have been considered.

EQUITY IN SITING WASTE FACILITIES

Measures to address State concerns about the impacts of waste management facilities will not necessarily address their concerns about equity in the siting of those facilities. Measures dealing explicitly with the question of equity may help increase the acceptability of siting decisions. Though State laws banning out-of-State waste probably could be overturned with relative ease[39] the passage of such laws by a number of States indicates the strength of State

[39] Recent court decisions support the conclusion that State or local laws restricting radioactive waste management from outside the State or locality can be preempted. A Louisa County, Va., ban on the storage of spent fuel from facilities outside the county's boundaries was voided by a U.S. District Court judge on Mar. 4, 1983. In issuing that judg-

concerns about equity in the siting of waste management facilities. Nonnuclear States, in particular, feel keenly the intrinsic unfairness of storing or disposing of the waste of nuclear States. Nuclear States, for their part, are understandably sensitive about bearing more than their perceived fair share of costs .40

Concerns about equity have been heightened by proposals for a highly centralized waste management system, using the minimum number of waste facilities technically necessary to store or dispose of waste safely. It may be technically possible for one repository or storage facility with a large annual loading capacity to handle all of the expected disposal or storage needs for decades. This approach might require less initial capital expenditure than an approach involving more or less simultaneous construction of several smaller facilities. Conceivably, only one siting battle would have to be fought for the disposal or storage system, avoiding the additional battles engendered by additional facilities.

From an equity standpoint, however, the centralized approach has important drawbacks. While the meaning of fair distribution differs from person to person, one factor is generally included in equity perceptions: to the extent possible, beneficiaries of actions should bear the accompanying costs. There is disagreement, however, about who are the primary beneficiaries of the activities that have generated commercial high-level radioactive waste. Some consider the benefits of nuclear power to be national in scope because, for example, nuclear power aids energy independence. Others focus on a smaller class of beneficiaries, the direct consumers of electricity generated by nuclear power. Whichever view is taken, use of a minimum number of large facilities for storage and disposal of radioactive waste would make it inevitable that many of the beneficiaries of nuclear power generation would not bear a proportionate share of the impacts of waste management.

Thus one advantage of centralized systems—that it is easier to expand a first facility than to build another one—is a distinct disadvantage in an equity sense, since it favors the concentration of the negative impacts of waste management in a very few areas. Moreover, a system utilizing a single, large storage or disposal facility will probably necessitate a longer transportation network that affects a greater number of States than a system with regional facilities, if those facilities are located near the sources of waste.

Federal policy that takes into account State concerns about equity may be less likely to provoke State opposition. At various times, Federal officials have noted equity considerations and proposed measures to increase equity in siting. For example, DOE's environmental impact statement (EIS) on commercial radioactive waste management considered equity as a social issue and, partly in response to concerns about equity, stated that DOE would consider the feasibility of regional repositories [41] although no official commitment 'as made.

NWPA contains two features that relate to equity in siting. First, it encourages interim spent he] storage at reactor sites and strictly limits Federal interim storage to 1,900 tonnes, to be used only by utilities that are unable to provide their own storage in time. Onsite storage provides assurance that at least some beneficiaries—in this case, utilities and their customers—will bear interim storage costs. It would be difficult for a small number of away-from-reactor facilities, especially if federally owned, to restrict the costs only to the utilities involved. In addition, onsite storage involves less transportation of spent fuel than does away-from-reactor storage; hence, the number of communities affected and potentially the number of transportation accidents would be reduced.

---

ment, the judge cited NWPA as clearly giving the Federal Government the authority over storage of radioactive material. He also cited the Federal Government's exclusive authority over radiation safety and over interstate commerce. The *Radioactive Exchange, vol. 2, Nos. 3* and 4, Mar. 22, 1983, p. 20. Furthermore, on May 2, 1983, the Supreme Court decided not to review lower court decisions that declared unconstitutional laws of the States of Illinois and Washington which imposed restrictions on the transportation and storage of radioactive materials in those States. This action allowed the lower court decisions to stand. *The Radioactive Exchange, vol. 2, No. 8,* May *20, 1983,* p. *10.*

[40] For example, testimony of former Nevada Governor Mike O'Callaghan before the Subcommittee on Nuclear Regulation, Senate Environment and Public Works Committee, Nov. 14, 1979.

[41] *Management of Commercially Generated Radioactive Waste, Final* Environmental *Impact Statement,* U.S. Department of Energy, DOE/EIS-0046F, October 1980, vol. 1, p. 3.45.

Second, in response to concerns about the question of regional equity, NWPA requires the development of two geologic repositories.[42] It also specifies that transportation impacts be taken into account in siting the second repository, a stipulation that appears to be intended to encourage location of the second repository closer to the sources of waste generation than the sites now under investigation for the first repository .43

While NWPA requires siting and licensing two repositories, it only authorizes construction of the first. The Act does not require operation of the second until 70,000 tonnes of spent fuel or waste have been placed in the first-which could take more than 20 years. Some State officials have suggested that if a regional strategy is adopted, simultaneous regional repository activities might be necessary to assure potential host States that the first repository would not be the only repository. Equity considerations could thus support a commitment to a schedule involving operation of the second repository within a reasonably short time after the first, as provided in the conservative Mission Plan described in chapter 6.

[42] IRG, for example, recommended siting repositories on a regional basis, as far as the technical considerations would permit. IRG, op. cit., pp. 51-52,

[43] In support of this provision during the debate on NWPA, Senator Slade Gorton (Wash.) stated: "In the case of the State of Washington, it is my opinion that it should be asked to do no more than provide nuclear disposal capacity adequate to dispose of those wastes which are generated within a range of distance in which the transportation risks can be minimized. Other States in other regions of the country should be responsible to provide disposal capacity for nuclear waste generated within similar ranges of those disposal facilities. We should not be planning to move high-level nuclear waste across the continent if we can avoid it. We should not be looking to a State on one side of the continent to provide disposal capacity for waste generated on the other. " (*Congressional Record*, Dec. 20,1982, p. S15667.)

PUBLIC INVOLVEMENT

Public interest in radioactive waste management comes from concerns about its potential hazards and from its possible linkage to the future of nuclear power. The checkered history of radioactive waste management has convinced some members of the public that the hazards may not be sufficiently understood or fully explained by Government officials. Some feel that the promoters of nuclear techology may not be sufficiently conservative about public health and safety. Others are concerned that delays in implementing permanent waste disposal may impair the authorization of new nuclear reactors, thereby jeopardizing the energy security of the country and perhaps their own jobs. As with hazardous waste disposal, many citizens living near a candidate site adopt the attitude "not in my backyard. " Through grassroots organizing efforts, some special-interest groups attempt to stymie the waste-siting process and demand an end to the production of mom waste, thereby stopping nuclear power. Nuclear waste and radiation are also associated with many negative images, such as nuclear weapons, cancer, and birth defects. It is understandable, therefore, that many members of the public have sought greater access to the decisionmaking process, in the belief that the Government has not made the best decisions in the past.

The call for additional avenues for public participation is usually predicated upon a belief that public acceptability is central to the resolution of a particular societal problem such as radioactive waste management. The fundamental objectives often quoted for public participation in a Government program are:[44]

- ***To improve the quality of Governrnent decisions through the solicitation of broad public input and review.*** Public scrutiny has improved some Government programs, such as the trans-Alaska pipeline. Participation by the "technical' public through peer review by outside expert groups is obviously valuable in program design and implementation. Because confidence that a geologic repository will perform as desired over millenia must ultimately rest on confidence in the soundness of the

[44] See, for example, A. Henry Schilling and Stanley M. Nealey, "Public Participation in Nuclear Waste Management, " Battelle Human Affairs Research Centers, Seattle, Wash., April 1979.

underlying scientific analysis, extensive peer review of this analysis at each step can play an important role in assuring the public that radioactive waste will be disposed of safely. General public review is also valuable because technical decisions implicitly involve social values. Public input allows Government officials to discern what the public wants and assists them in formulating technically and politically acceptable policies. Some of the chronic technical, institutional, and political problems that have occurred in the waste management program in the past might have been eliminated or alleviated through wider public scrutiny.

- ***To enhance the legitimacy of and to build support fora Government program.*** Once implementation of a program has begun, voluntary compliance or active cooperation by key individuals, firms, and groups is often essential for a program to achieve its goal. If a significant segment of the public believes its concerns are being ignored, it can stop virtually any project by devoting sufficient resources to do so. Making the decision process open to public inspection and responsive to input from responsible parties can result in greater public acceptance and understanding of the decision.
- ***To inform and educate the interested public, so that they can act as they deem appropriate.*** Effective, intelligent, and meaningful public involvement in Government decisionmaking processes often requires adequate information and education.[45] Members of the public can most appropriately decide on their own how to be involved in Government decisions if they are well-informed about the issues involved in those decisions.

Thus, the purpose of increased public participation is for the Government to reach wise, just, and fair decisions that can be implemented successfully. The implicit hope of proponents of public participation is for the Government to make better decisions in radioactive waste management than it has in the past. Increased public participation, however, does not automatically build public support.[46] Sometimes more information increases fears and concerns, thereby leading to polarization rather than consensus. The desire by some to minimize public participation, e.g., in military programs for waste management, is based on the fear that increased visibility will create increased opposition.

Nonetheless, public involvement can pinpoint problems that need further attention by the Government as well as accelerate the ripening of an issue in order to initiate the settlement process. Ignoring the need for public participation may only postpone problems that appear later in a program's development. While an inadequate technical program cannot be made acceptable solely by public participation, public scrutiny can highlight difficulties that need the application of more Government resources. In controversial issues of high public visibility, such as radioactive waste disposal, Government officials will probably have to accommodate increased demands for sharing of information and even some authority.

Considerable opportunity for public involvement in Federal Government activities is already required by existing law and administrative procedure. The Administrative Procedure Act,[47] for example, requires notice in the ***Federal Register*** and public hearings for various Federal actions, e.g., rulemakings. The regulatory agencies must hold formal public commenting periods on draft rules, standards, and regulations prior to promulgating final versions. The National Environmental Policy Act (NEPA) requires the preparation of environmental impact statements that entail public participation opportunities in the notice of intent, public hearings, and commenting process. In a final EIS, Federal officials are required to respond to public comments received on the draft EIS. Regulations promulgated by the Council on Environmental

[45] IRG stated, "The IRG's own experience with public participation and the recommendations of many citizens appearing before the IRG indicate the urgent need for sustained, effective efforts to inform the public and to provide opportunities for discussion between the public and the Government." IRG, op. cit., p. 96.

[46] A representative of the League of Women Voters observed that "if *increasing* the likelihood of project completion is an agency's sole rationale for involving the public, the process will certainly fail to reach even that single, limited objective . . . If people sense (accurately) that they are involved only to be sold a particular decision, the seeds for failure are well sown." Susan Wiltshire, "Public Involvement in Nuclear Waste Management Decisions, *Proceedings of the 1982 National Waste Terminal Storage Program Information Meeting*, U.S. Department of Energy, DOE/NWTS-30, December 1982, pp. 214-216.

[47] 475 U. S.C. 551, et seq.

Quality have broadened the opportunities for public review and involvement in NEPA implementation. The legislation that established DOE directed it to encourage and provide for public participation in the development of national energy programs; the DOE Citizen Participation Manual was produced in 1979 as a result. The Office of Management and Budget has required that local communities be informed of Federal Government projects that are likely to affect them. Formal licensing procedures, such as those required by NRC's procedural regulations for high-level waste repositories, offer opportunities for public and State participation through public hearings in the siting and licensing process, The Uranium Mill Tailings Radiation Control Act of 1978 contains provisions for public participation in remedial action programs, as do the rules promulgated by DOT for selecting alternate routes for transport of radioactive waste. In addition, the Freedom of Information Act increases open public access to a broad range of information about Federal activities.

The many available avenues for public participation in Federal programs also include formal and informal mechanisms not required by law. These include:

- public meetings that incorporate presentations by Government officals;
- outside advisory panels and review committees created for various Federal programs;
- library and information services provided by Government agencies;
- submission of unsolicited comments and advice to program managers;
- public surveys and questionnaires for identifying public concerns and opinions; and
- congressional lobbying by various special interest groups to put pressure on executive branch officials.

Federal radioactive waste management programs have, since 1976, provided significant public participation opportunities in the development of national policies and plans.[48] For example, the Carter administration created the Interagency Review Group (IRG) to produce formal policy recommendations for the President in radioactive waste management. According to an IRG staff member:

> The IRG recognized two reasons why obtaining input from interest groups and the public was critically important. First, it believed that its policy recommendations would not be useful or capable of being implemented unless they commanded broad support. Second, it believed that the legitimacy of the outcome and willingness of the public to accept it depended in large measure on the legitimacy of the process itself and on giving the public a chance to participate and be heard. In short, the IRG sought both to accommodate its policies to external reality and to draw relevant interest groups into the process in the hope that because of their involvement, they would be more likely to support the policy outcomes. [49]

Public hearings, meetings with interest groups, and solicitation of public comments on draft documents were used by IRG for public involvement. Approximately 15,000 copies of the draft IRG report were distributed, and comments were actively sought. Some 3,300 written comments were received. The review of the public comments led to the reopening of internal IRG discussions on many of the difficult policy questions. The revised IRG report published in March 1979 contained the text of the draft report, the drafting committee's summary of the public comment on each section of the draft, and an IRG response to these comments. These responses frequently involved extensions and revisions of findings contained in the draft report .50 President Carter adopted many of the IRG recommendations in his policy statement of February 12, 1980, and stated that:

> . . . it is essential that all aspects of the waste management program be conducted with the fullest possible disclosure to and participation by the public and the technical community .5]

In addition to public participation in national policy discussions, various segments of the public have undertaken activities at specific project sites. The proposed Waste Isolation Pilot Plant has for several years elicited intense interest, both in support and opposition, from groups in New Mexico. Other potential host States for a repository have had contacts and public information meetings with Federal

[48] See Schilling and Nealey, op. cit.

[49] Greenwood, op. cit., p. 22.

[50] 1 bid., pp. 22-23.

[51] "Fact Sheet: The President's Program on Radioactive Waste Management," Office of the White House Press Secretary, Feb. 12, 1980, p. 10.

officials over a period of years. Since attempting to site a repository in Kansas in the early 1970's, DOE has increased contacts with State and local officials and the public at proposed project sites, apparently recognizing that "a Federal agency disregards at its peril the potential power of State and local officials whose opinions reflect the consensus of their constituency on matters of health and safety. "[52]

Congress, in passing NWPA, found that "State and public participation in the planning and development of repositories is essential in order to promote public confidence in the safety of disposal of . . . waste and spent fuel. "[53] To accomplish this, NWPA specifies a detailed process for State involvement and for public hearings and review of environmental analyses prepared by DOE at various stages of the siting process.

Review of past Federal efforts at public participation in radioactive waste management activities, and of critiques of those efforts by non-Federal observers,[54] suggests three steps that could increase public confidence in DOE's public involvement program:

1. Commit additional resources to public involvement.

Because of the importance of public acceptability of DOE waste management activities, planning and implementation of public involvement programs require the same degree of care and attention as technical programs.[55] The need for improvements in the program for public involvement in repository development activities was the subject of many public comments on DOE's draft guidelines for repository site selection.[56] while DOE strongly endorses the concept of public participation at the State and local levels,[57] it may be necessary to dedicate additional resources—in terms of staff, funds, and management attention—to that task.

As noted in chapter 7, questions were raised prior to passage of NWPA about the relative weakness of the DOE waste program staff in the area of the nontechnical aspects of waste management. The increased level of interaction with the States and public required by the Act will place even greater demands on DOE in that area. Thus creation of an adequately staffed and financed program group devoted solely to DOE relations with non-Federal actors, including the general public, as suggested in chapter 7, could increase confidence that public involvement will receive a level of attention commensurate with its importance to the success of the program. The newly established outreach division within the Office of Civilian Radioactive Waste Management may accomplish this.

Mechanisms for some public participation in Federal radioactive waste programs surely will continue to be provided, if only because of the existing legal and procedural requirements. However, some outside groups that have studied the Federal Government's public participation efforts in the area of radioactive waste management have found those efforts wanting in some way, either directly—

---

[52] Richard G. Hewlitt, **"Federal Policy for the Disposal of Highly Radioactive Waste from Commercial Nuclear Power: A Historical Analysis, " (Washington, D. C.: U.S. Department of Energy, Mar. 9, 1978).**

[53] Public **Law 97-425, sec. 11 l(a)(6), 96 Stat. 2207, 42** U.S.C.10131.

[54] See, **for example, "Public Participation in Developing National Plans for Radioactive Waste Management: Summary Report of the Second Keystone Conference on Public Participation in Radioactive Waste Management Decision Making, " (Keystone,** Colo.: **Keystone Center for Continuing Education, October 1980). The conference concluded, "If adequate plans for public participation are not prepared soon and** carefully **executed, Federal-State relationships could be harmed; DOE's credibility could be reduced further; and progress in implementing (President Carter's) new radioactive waste program could become more** difficult." **Letter to Stuart Eizenstat from Robert Craig and** Terry **Lash, July 15, 1980, p. 3, appended to the conference report.**

[55] This point **is emphasized in a letter from** SPC **to** President carter, **which stated: "Public participation in waste management planning and programs is sufficiently important** to **deserve the same quality of thought, commitment, and implementation as technical programs. This requires a clear definition of goals and objectives; a detailed** framework **of operating policies, procedures, and/or regulations; and management cognizance, control, evaluation and** improvement." **The text of the letter is found in app. E of** SPC, ***Recommendations. See*** **also** ***Nuclear*** **Waste Management** ***Process Review Forum: Final Report*** **(Palo Alto,** Calif.: **RESOLVE Center for Environmental Conflict Resolution, June 1980), pp.** ***36-37.***

[56] US. Department **of Energy,** ***Responses*** **to** ***Public Comments on the Proposed General Guidelines for Recommendation of Sites for Nuclear Waste Repositories,*** **Draft, May 27, 1983, vol. 1, pp. IV-10—IV-12.**

[57] **1 bid., p. IV-12.**

through explicit criticism—or indirectly—through detailed recommendations for change. For example, the Keystone Center's conference on public participation in July 1980 concluded that:

> Involvement of the public and non-Federal jurisdictions in making decisions about management and disposal of radioactive wastes is important for gaining needed improvements in the overall Federal program, enhancing the credibility of Federal agencies' prugrams (when warranted), and educating the public about those programs and the technology of waste disposal. *Current Federal plans for* ***obtaining public participation need substantial improvements to achieve this objective*** (emphasis added) .58

Such criticisms suggest that additional efforts are needed.

2. Include an explicit public involvement plan in the Mission Plan.

DOE agrees with the need for involvement by both the lay and technical publics in the waste management program.[59] However, it has yet to publish explicit policies or a long-term plan showing how such involvement is to be carried out and how the results are to be used in the decision process.[60] As noted in chapter 5, the broad distrust of the Federal waste management program that developed as a result of past experiences means that a high degree of explicitness about and commitment to policies and programs is needed to rebuild credibility. Thus, confidence that an adequate public involvement program will be carried out could be enhanced by including a detailed public involvement plan in the Mission Plan.[61] This plan should make clear whose comments will be sought, where the interaction will take place, how the comments will be used, and how decisions will be made. It should also include explicit provisions for an objective public information program[62] and for a systematic technical peer review process.[63] Confidence would be further increased if this plan were accompanied by a long-term budget for carrying it out, to ensure that the costs of public involvement are explicitly included in the estimates of overall program costs so that adequate resources can be made available from the Nuclear Waste Fund.

3. Use the Mission Plan as a focus for public involvement.

A frequent theme of recommendations for public involvement activities is the development of a national radioactive waste management plan as the focal point for such activities.[64] An attempt was made by DOE during the Carter administration to develop a National Plan for Radioactive Waste Management. The administration circulated the fourth working draft of the plan to State governments and Congress for comment before producing a revised draft for formal public review. The intention was to produce a final version after ob-

[56] Keystone Center, "Public Participation," p. iv.

[59] Department of Energy, *Responses,* p. IV-12 and IV-27.

[60] An example of a formal Federal agency policy for public participation can be found in the Environmental Protection Agency's policy published in the *Federal Register, vol. 46, No. 12,* January 19, 1981, pp. 5736-5746.

[61] The value of explicit, detailed plans for public involvement is identified in the SPC letter to President Carter, op. cit.; in the *Final Report* of the RESOLVE forum, pp. 36-37, and in the report of the Keystone Center, "Public Participation in Developing National Plans," p. iv.

[62] The importance of a public information program has been emphasized by a representative of the government of the State of Mississippi: "The only means through which this nation is going to effectively solve the problem of radioactive waste disposal is through the process of gaining a public confidence that the Federal, State and local governments and the public sector are satisfied that the waste disposal program is credible and is designed to absolutely assure the public health and safety and the environmental quality. There is only one mechanism by which such a program can be successful. That mechanism is a comprehensive, completely objective public information program. Testimony of Ronald Forsythe, Mississippi Energy and Transportation Board, before the Subcommittee on Energy and Environment of the House Committee on Interior and Insular Affairs, May 26, 1983.

[63] Additional efforts may be needed in the area of peer review. Addressing this subject in a 1983 report, a National Research Council panel concluded that DOE "should institute a more deliberate overall technical review of its program on geologic disposal. This technical review should be done on a continuing and extended basis, with full technical input representing the technical breadth of the program . . ." National Research Council, A *Study of the Isolation System for Geologic Disposal of Radioactive Wastes* (Washington, D. C.: National Academy Press, 1983), p. 15.

[64] For example, the Keystone conference on public participation recommended, "A National Plan for the management of radioactive wastes should be prepared through an extended process involving the knowledgeable and concerned segments of the public, and the appropriate officials of State, tribal, and local governments." Keystone Center, "Public Participation," p. iv. Similarly, SPC concluded, "A National Plan, which would be updated periodically, is vital to improve coordination among the Federal agencies, to build and maintain the Federal/State/tribal partnership, and to involve the public in the decision making process." It recommended that the National Plan process be carried forward. SPC, *Recommendations,* pp. 28-29.

taining public comments and then to update the plan biennially by repeating the process. It was hoped that the preparation of a National Plan might then become a useful vehicle for improving coordination among Federal agencies, incorporating comments from States and Indian tribes, and eliciting public participation. The Reagan administration received the comments on the draft plan from the States and Congress, but it did not proceed with the development of a document for review by the generaI public.

As discussed in chapter 5, NWPA requires DOE to prepare a comprehensive Mission Plan for the waste management program. Chapter 6 showed that the choices to be made in the Mission Plan will involve many decisions about the waste management program that will have significant implications for many affected parties—e. g., the utilities and their ratepayers, the communities affected by waste transportation, and so on. For example, the timing of operation of the second repository could greatly influence the number of States affected by waste transportation, while the planned full-scale loading capacity of the repository system will determine the level of impacts of waste transportation and the length of time that utilities will have to care for spent fuel stored at reactors. While NWPA does not explicitly require DOE to provide for broad public involvement in preparation of the Mission Plan, such involvement could be a useful means of developing broad support for the Plan by those affected by the choices made in it, and in fact may be a necessary step for achieving that objective. [65]

DOE widely circulated a preliminary draft of the Mission Plan for comments, which were used in preparing the formal draft required by NWPA. As suggested in chapter 7, a process of extensive public and technical review of this formal draft, and of any subsequent revisions of the Plan after it has been submitted to Congress as required by the Act, could help develop broad national understanding of and agreement about the high-level waste management program.

[65] SPC stated that "public participation must be incorporated to produce a 'true National Plan. " Letter to President Carter from Governor Richard Riley, Chairman of the State Planning Council, Jan. 13, 1981, p. 2, contained in the appendixes to the SPC *Interim Report,* Feb. 24, 1981. The Keystone conference on public participation also agreed that public participation in development of a National Plan "is needed if the administration's plans are to be widely accepted and workable. Letter to Stuart Eizenstat from Robert Craig and Terry Lash, July 15, 1980, p. 2, appended to October 1980 report of the conference.