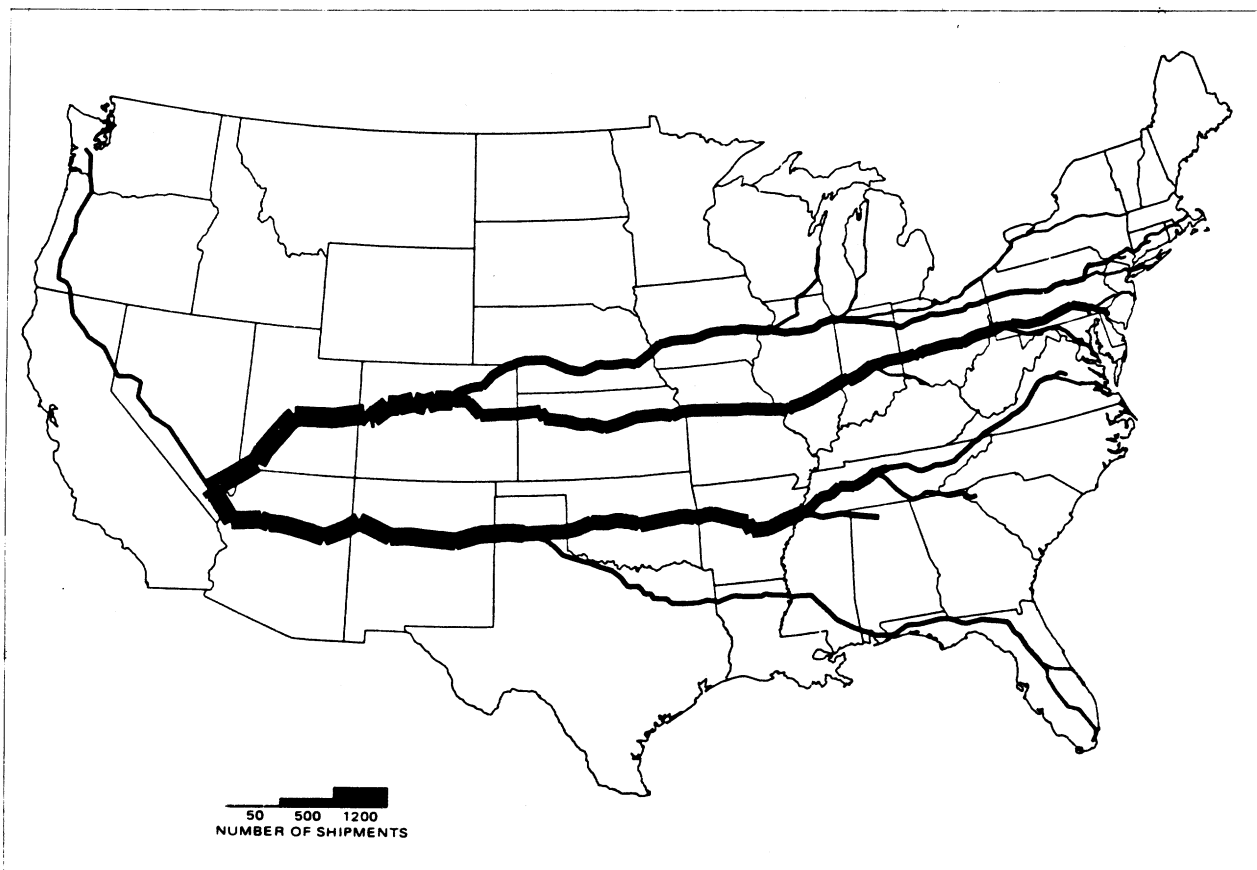


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HOW NOT TO FIND A NUCLEAR WASTE SITE

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HOW NOT TO FIND A NUCLEAR WASTE SITE

by Don Hancock

On May 28, 1986, President Reagan announced that sites in three states — Washington, Nevada, and Texas — would be investigated as possible locations for the world's first permanent high-level nuclear waste disposal facility and that, in time, one of them would be chosen to house the repository long sought by the federal government. At the same time, Department of Energy (DOE) Secretary John Herrington announced that he was postponing indefinitely any site-specific work on a second nuclear waste repository, a program that in recent months had raised storms of protest in seven targeted states. Secretary Herrington stated: "We have reached an important milestone and taken a significant step forward. It is a clear sign that this nation will have the capacity for safely storing and disposing of high-level nuclear waste well into the twenty-first century."¹

Rather than signaling an important step forward for safe disposal of nuclear waste, the announcements seemed to serve a less lofty purpose — a political one aimed at substantially reducing the number of states where citizens are in a uproar about the nuclear waste program. Rather than reducing opposition to DOE's program, the announcements should fuel public outrage as more people come to understand that the statements were political in nature — subject to change at any time — and that they represented decisions about nuclear waste management that could lead the country toward a nuclear disaster. Rather than promoting public confidence in the waste program, the announcements should cause alarm among citizens in the dozens of states along transportation routes from the East, where approximately 85 percent of U.S. nuclear waste is now stored, to a repository somewhere in the West. Those citizens and their elected officials will learn what people in the repository states already know, that DOE will allow them no role in decision making, and federal-state conflicts could produce a serious crisis in government relations.

To support that interpretation of the May 28 announcements, this article will discuss the announcements from a historical perspective, describing how states, Indian tribes, and citizens have

so far responded to DOE's waste program, and it will outline some possible alternatives and propose a way to develop and implement a scientifically sound, publicly acceptable program for high-level nuclear waste disposal.

THE NUCLEAR WASTE PROBLEM

National public opinion polls have shown that nuclear waste — radioactive materials that will be dangerous for hundreds of thousands of years — is one of the most feared hazards in our society.² Wisconsin voters spoke clearly on the issue in 1983 when almost 90 percent rejected the idea of a nuclear waste repository in that state. But along with the fear and loathing of radioactive waste, there is also continuing public concern about its eventual safe disposal, and the federal program is failing badly. While the U.S. has been producing nuclear wastes from its weapons program for almost 45 years and from commercial nuclear power plants for almost 30 years, any permanent disposal site for those wastes is more than a decade away, even in the unlikely event that DOE's program proceeds on schedule. One aspect of the program does appear to be firmly settled — nuclear wastes will be buried 1,000 to 3,000 feet underground. Geologic entombment is the only solution the nation has seriously pursued in the past 30 years of its search for an answer to the waste problem, and it is now enshrined in law.

THE LAW

After years of congressional debate, the Nuclear Waste Policy Act (NWPA) was passed in 1982 and signed into law by President Reagan on January 7, 1983. While supporting geologic disposal as the preferred alternative, the NWPA also found that "federal efforts during the past 30 years to devise a permanent solution to the problems of civilian radioactive waste disposal have not been adequate."³

Designed to improve on past efforts, the NWPA required the development of a waste disposal program with: (1) new site selection criteria; (2) a strong role for state and tribal governments directly affected by the program; (3) a schedule for siting, constructing,

and operating at least two repositories; (4) a provision for financing through fees assessed to ratepayers of nuclear utility companies (previous funding came from U.S. taxpayers); and (5) development of interim waste storage facilities, if they are needed.

In the stepwise process mandated by the Act for both the first and second repositories, the DOE secretary must first develop site selection guidelines, then nominate five sites that are suitable for a repository and recommend three of them to the president for detailed site "characterization" (surface and subsurface testing, including digging large shafts to the proposed repository horizon). After characterization, the president must then recommend one site to Congress, at which time the affected state or Indian tribe may notify Congress of disapproval of the selection. The veto stands unless both houses of Congress pass a joint resolution overriding it. If the veto of the first site is sustained, the president must select another site within a year. After a site is chosen by the president (if the state or tribe does not object) or by Congress (overriding a state or tribal veto), the DOE must then apply to the Nuclear Regulatory Commission (NRC) for licenses to construct, operate, and decommission the repository.

In addition to siting two repositories, DOE may propose to Congress the development of an interim surface storage facility — Monitored Retrievable Storage (MRS). The Act calls for the MRS to

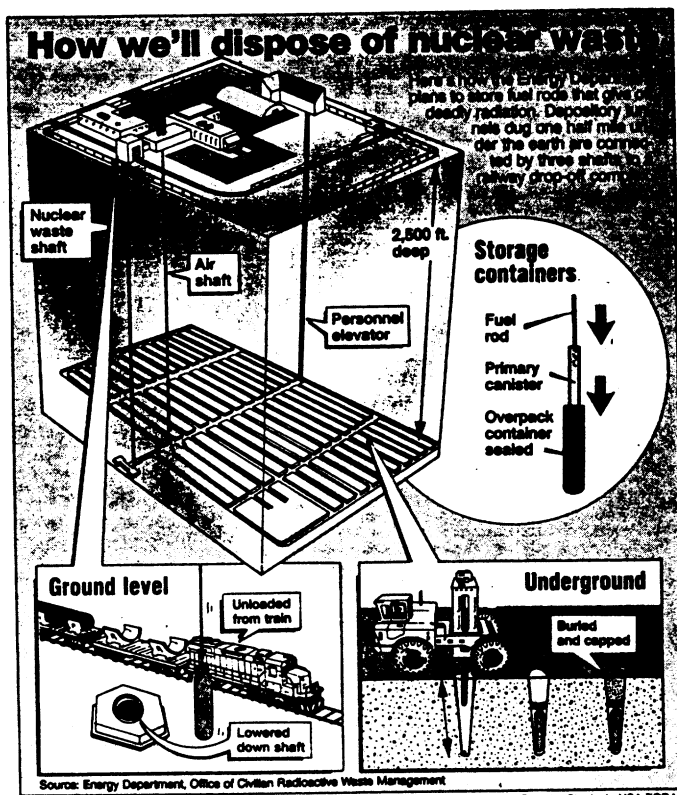
"proceed as expeditiously as possible" but requires that the geological disposal program proceed whether or not an MRS is built.

PROBLEMS WITH THE DOE PROGRAM

Despite the NWPA's intent that the nuclear waste program should be technically based and that decisions should be made with full participation by affected states, Indian tribes, and citizens, DOE has largely ignored the requirements of the law. Before Congress passed the NWPA, DOE had made its decision about sites it would characterize. They were Hanford, Washington; Yucca Mountain, Nevada; and a site in either Texas or Utah.⁴ With Utah excluded, the agency maintains the same lineup of unsuitable sites four years later. It is as if the NWPA never happened.

Other problems with the program deserve mention. In the 13 states where DOE has gone for first and second repository and MRS sites, substantial political opposition has developed. That opposition, coupled with technical deficiencies in the program, has resulted in DOE's missing, sometimes by years, almost every date scheduled in the Act — and yet the agency still pledges that it will not miss the date targeted for opening the first repository, January 31, 1998 (see table). DOE began by missing the date for one of the very first steps required by the NWPA — development of the technical criteria (guidelines) for site selection — by 17 months. The guidelines have since been challenged in the Ninth Circuit Court of Appeals by ten states (including Colorado and Nebraska, nonrepository states which are concerned about the safe transportation of nuclear waste), three national environmental organizations, and four citizen organizations.⁵ The suit charges, in part, that DOE failed to use the guidelines to select the first-round sites. If the court agrees, DOE's illegal actions will have wasted several billion dollars.

Virtually all of the states and tribes involved in the program believe that DOE is not complying with the law's requirements for consultation and cooperation, and in two suits brought so far the courts have agreed with the states. The Ninth Circuit upheld Nevada's complaint that DOE's funding guidelines were improper and that the agency should provide funds to the state to conduct its own independent geologic testing.⁶ A federal judge also agreed with Tennessee that DOE had not properly consulted with the state regarding its designation of potential MRS sites and enjoined DOE from even submitting a proposal to Congress based on that siting study.⁷ (In a third case, the Fifth Circuit Court of Appeals dismissed as premature a Texas lawsuit challenging DOE's site selections.⁸)



SCHEDULED DEADLINES FOR THE WASTE PROGRAM

	NWPA DATE	DOE DATE ²³
Final Repository Guidelines	July 7, 1983	December 6, 1984
Final Mission Plan	June 6, 1984	June 1985
Three sites recommended for characterization	January 1, 1985	May 28, 1986
First repository recommended to Congress	March 31, 1987 or March 31, 1988	October 1991
NRC decision on construction license (or 3 or 4 years after application received)	January 1, 1989	March 1994
Five second-round sites nominated	July 1, 1989	Deferred
Second repository recommended to Congress	March 31, 1990	Deferred
First repository accepts waste	January 31, 1998	January 31, 1998

The nuclear utility companies, strong supporters of most aspects of the DOE repository program, also successfully sued DOE to reduce the fees the agency had set for assessments against ratepayers.⁹

Legal challenges arising from the May 1986 announcements have begun, and others are expected to follow. Within a day of the announcements, seven lawsuits had been filed — five by the state of Nevada, one by the state of Texas, and one by citizen groups and landowners in Texas.¹⁰ Suits regarding the Hanford site by the state of Washington or the Yakima Indian Nation are likely. Utah and Mississippi, the two first-round states not selected for site characterization, may also challenge DOE's declaring sites in their states suitable for repositories.

A cursory examination of the voluminous, recently released final environmental assessments (EAs), which must provide the technical justification for the May 28 announcements, shows that the documents retain many of the flaws and factual inaccuracies of the draft EAs, which were roundly criticized by almost all reviewers in more than 22,000 comments. The methodologies used in the draft EAs to rank the sites, from most to least suitable, were totally discredited. After delaying release of the final EAs for six months while developing a new methodology, which included review by a National Academy of Sciences panel, DOE issued its composite rankings of the sites. They were, in order: Nevada, Mississippi, Texas, Utah, and Washington.¹¹ Despite the rankings, the three previously chosen sites were the ones recommended for characterization!

For years, the technical adequacy of DOE's program has also been questioned because it depends so heavily on contractors who have vested financial interests in promoting the sites they work on. As if to confirm that criticism, in April 1986, the major geologic subcontractors at the Washington and Nevada sites had to stop subsurface testing because of quality assurance problems.

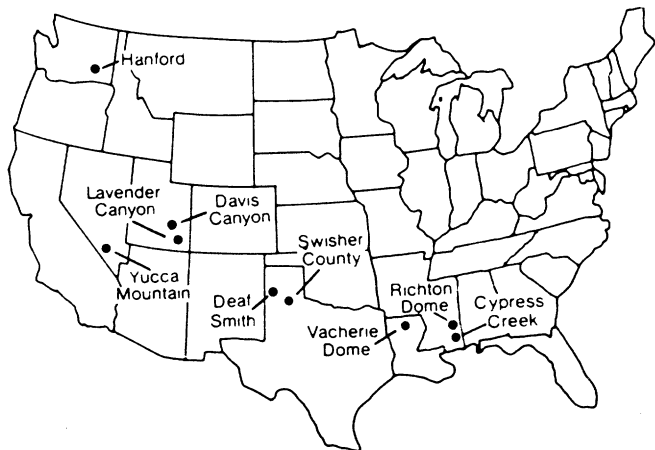
Besides the DOE, two other federal agencies — the Nuclear Regulatory Commission (NRC) and the Environmental Protection Agency (EPA) — have major waste responsibilities, and they also are having problems with DOE or with some of the affected parties. The NRC, which did not initially concur with DOE's repository guidelines, has stated on numerous occasions that DOE's proposed 27-month licensing schedule is too short, and it has criticized various aspects of all the draft EAs, although it has not recommended disqualification of the proposed sites. EPA was 20 months late in issuing its environmental protection standards for repositories and then promulgated them only because of a lawsuit brought by national environmental organizations.¹² Once released, the standards were challenged in the First Circuit Court of Appeals by three states and three environmental groups.¹³

CHOOSING THE FIRST REPOSITORY SITES

Throughout the search for a repository, which began in the 1960s, DOE and its predecessor agencies — the Atomic Energy Commission (AEC) and the Energy Research and Development Administration (ERDA) — have maintained that salt is the best geologic medium for nuclear waste disposal. Even after a chosen salt site near Lyons, Kansas, was abandoned in 1972 because of strong political opposition and technical deficiencies, federal officials confined their investigations solely to salt formations. However, when the governors of Michigan, Ohio, and New York objected to investigations of bedded salt formations in their states, ERDA abandoned them and turned to Louisiana, Mississippi, Texas, and Utah, where governors were more cooperative.¹⁴ After scientists raised substantial questions about the suitability of salt as a medium, and after a federal interagency group recommended that various other geologic media be considered in addition to salt, the General Accounting Office (GAO) recommended in 1979 that federal reservations with existing nuclear

waste activities should be investigated as potential sites.¹⁵ DOE then began investigations at the Nevada Test Site and at Hanford, Washington, but gave no reason for not also considering the federal sites at the Idaho National Engineering Laboratory, the Oak Ridge (Tennessee) National Laboratory or the Savannah River Plant in South Carolina.

By early 1982, as part of the past efforts the NWSA later called inadequate, DOE had determined that it would characterize three sites for the first repository — in Washington, Nevada, and either Texas or Utah — and in November 1982, the agency issued a site characterization report for the Hanford site.¹⁶ Then, less than a month after the NWSA's enactment in 1983, then DOE Secretary Donald Hodel notified the governors of Louisiana, Mississippi, Nevada, Texas, Utah, and Washington that sites potentially acceptable for nomination were located in their states. (Since Louisiana's Governor Edwin Edwards had previously received DOE and presidential agreement that Louisiana would not be selected because it had agreed to provide the site for the U.S. Strategic Petroleum Reserve, no one thought that DOE was seriously considering the Louisiana site.) Obviously, DOE had hardly paused to consider whether the new Act required it to make substantive changes in its past decisions about what sites it would consider and characterize for the first repository.



Nonetheless, DOE has consistently maintained that it is following the law. But the May 28 announcements raise new questions about the agency's observance of both the letter and the spirit of the NWSA. DOE apparently did not comply with the procedural requirements of the Act when it announced its three choices for site characterization. The law requires that the secretary notify the governor and the legislature of each state prior to its nomination, yet the governors of Texas and Nevada were given less than an hour's notice. (In contrast, earlier in the day DOE had contacted the second-round states with what it knew would be the good news of deferral.) The law contemplates a delay of at least 60 days between DOE's recommendations to the president and his final

decision. Instead, deputy press secretary Larry Speakes announced the president's decision even before DOE publicly announced its nominations and released the final EAs.

It will come as no surprise that the flawed selection process has produced these unsuitable sites:

The *Hanford, Washington, site* on the federal reservation is less than six miles from the Columbia River, a major regional source of water for drinking and irrigation. The volcanic basalt rock formation contains many large fractures and circulating ground water which could rapidly carry wastes to the Columbia River. Various scientists believe that the ground water flow and possible rock bursting will prevent successful site characterization. DOE justified recommending the site, despite its fifth-place ranking, in order to have two nonsalt sites.

The *Yucca Mountain, Nevada, site* is on federal land just off the western border the Nevada Test Site. It is in one of the nation's most earthquake prone regions, indicating that the geologic isolation of stored wastes could be breached, which could also be the case if underground nuclear weapons testing continues in the area. Although the level of the proposed repository is above the water table in unsaturated volcanic tuff rock, ground water invading the site in the future because of geologic disruptions or climatic changes could rapidly take wastes into ground water supplies. The site is almost certainly too small to handle all of the nuclear wastes the nation is expected to produce.

The *Deaf Smith County, Texas, site* is on privately owned land in one of the top ten agricultural counties in the nation. The Richardson Seed Company, which covers five square miles and is the only place that maintains and develops the seeds essential for wheat production valued at more than \$1 billion in 1984, would be destroyed by the repository (and probably by site characterization). The proposed repository horizon is in close proximity to the Ogallala aquifer (the nation's largest, underlying eight states), and to the deeper Santa Rosa aquifer, both of which supply water for drinking, irrigation, and livestock needs over a vast area of the Southwest. Just reaching the relatively thin and impure salt bed formation (which is probably unsuitable because the tunnels and rooms will collapse in a few years) would require the unprecedented task of freezing the aquifers to allow shaft construction.

The two other sites nominated, which could still be characterized if any of the other three sites are eliminated, are likewise seriously flawed.

The *Richton Dome, Mississippi, site* is on private land, much of which is occupied by the town of

Richton. The salt dome is apparently encircled by ground water flows, and its exact size is virtually impossible to determine, since penetrating the side would allow ground water to circulate and dissolve the salt. Many citizens believe that the NWPA's population disqualifying factor should eliminate the site from consideration as a repository. It is certain that operating a repository at Richton Dome would require relocation of many of the town's 1,200 residents.

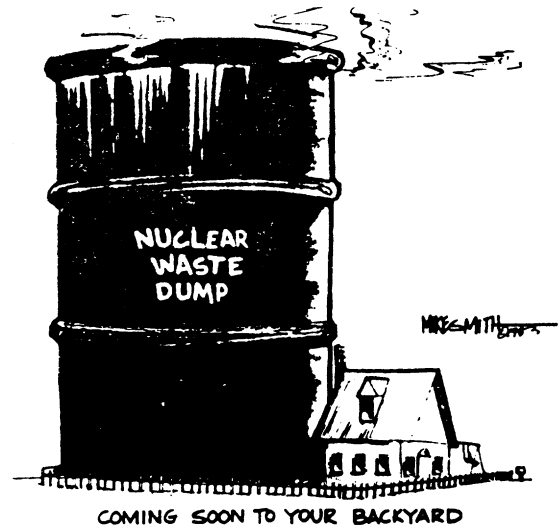
The *Davis Canyon, Utah*, site is on federal land within a quarter-mile of Canyonlands National Park and just 12 miles from the Colorado River. Site characterization or repository construction would require testing inside the park, something which is likely to be precluded by existing law. The selection of Davis Canyon is strongly opposed by the National Park Service, including current Secretary of Interior Donald Hodel, who as DOE secretary in 1984 stated that the site was suitable. Ground water below the bedded salt formation apparently flows to the Colorado River, potentially threatening millions of downstream users who have no alternative source of water.

POTENTIAL SECOND REPOSITORY SITES

While the second-round program was put on "hold" by the May announcements, DOE could presumably restart the program at any time. The NWPA authorizes DOE to construct only one repository, but it also requires the agency to nominate sites for a second repository which must be ready to operate when the first repository reaches a storage limit of 70,000 metric tons of waste. While DOE can nominate as sites for the second repository those which have been characterized but not chosen for the first repository, it must name additional sites to increase the variety of rock formations and the regional diversity of sites considered for the second repository.

For the past four years DOE's work to identify such additional sites has been directed exclusively at areas with crystalline (granitic) rock formations. Even though salt has long been the reigning favorite as a geologic medium, much research has also been done on crystalline rock. DOE has temporarily stored spent fuel in granite at the Climax mine on the Nevada Test Site, and eight nations now work cooperatively in studying a granite formation in Stripa, Sweden,¹⁷ which was first developed in 1977.

In February 1983, just after notifying the governors and legislatures of the six first-round states with potentially acceptable sites, DOE also notified 17 eastern and midwestern states that crystalline



formations there would be considered for a second repository. In a substantial departure from pre-NWPA procedure, DOE began to fund states requesting assistance and to involve state officials in developing the methodology to screen 236 rock formations for the most preferred areas for field investigations. Although 31 Indian reservations are located in eight of those 17 states, DOE refused to provide funding for the tribes or to allow their participation in the screening process.

On January 16, 1986, DOE released its Draft Area Recommendation Report (DARR), which proposed twelve sites in seven states (Minnesota, Wisconsin, Maine, New Hampshire, Virginia, North Carolina, and Georgia) as potentially acceptable sites and named eight additional backup sites in four of the same states. Like the first-round sites, the second-round sites have technical problems.

The reaction to the DARR was strong and immediate. The enormous public outcry against the second-round repository program drew national media coverage and was heard and seen around the nation. Thousands of people jammed DOE briefings and field hearings, and governors and members of Congress strongly objected to the areas selected. To quell the protests, DOE announced deferral of the program even before it had reviewed the states' comments on the DARR (some states had not even submitted their comments).

Under NWPA, the DOE secretary must nominate the five second-round sites not later than July 1, 1989. Nevertheless, Secretary Herrington says that DOE will not further consider any sites for a second repository "until at least the mid-1990s — or much later." He gave four reasons for the decision: (1) progress with siting the first repository; (2) "hope" that Congress will authorize the MRS; (3) the volume of wastes being produced is less than expected when the Act was passed; and (4) one repository will be adequate for the foreseeable future. Also, the secretary said that

spending hundreds of millions of dollars on site identification would be "unsound fiscal management."¹⁸

Other clearly important reasons for the deferral, which were not included in DOE's announcement, are: (1) the enormous political opposition to the second-round sites; (2) national media coverage of the vehement reaction to the second-round selections; (3) Vice President Bush's interest in maintaining a good image in New Hampshire, which has the first presidential primary election in 1988; and (4) the concern of nuclear power utilities that the opposition to waste disposal could be transformed into strong opposition to power plants in the second-round states. (Of the first-round states, only Washington and Mississippi have operating nuclear power plants.)

MONITORED RETRIEVABLE STORAGE

The nuclear waste program has also caused great controversy in Tennessee, where DOE wants to site its MRS. Instead of considering the MRS as a long-term storage facility as intended in the NWSA, DOE plans to use the MRS for such storage only if delays occur in the repository program. Rather, DOE intends the MRS to support the first repository by providing a location to receive spent fuel prior to January 1998 (when the repository is to open), so that wastes could be consolidated and repackaged to reduce the number of shipments going to the repository.

In April 1985, DOE notified Congress that the MRS proposal would be submitted in January 1986 and that DOE had selected three sites, all in Tennessee — the preferred location at the Clinch River breeder reactor site, with others near Oak Ridge and at the abandoned Hartswell nuclear power plant. DOE also provided Tennessee \$1.4 million to review the MRS program.

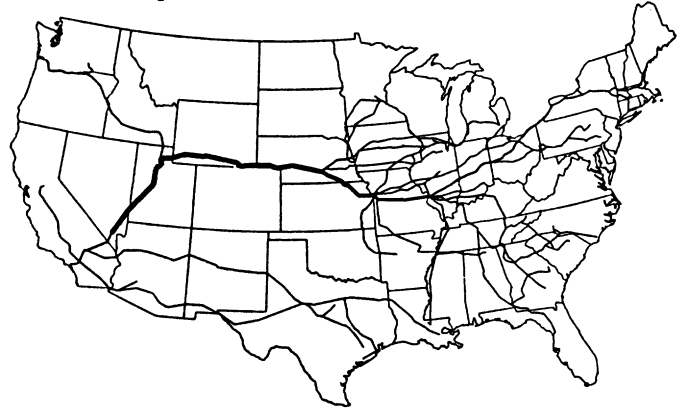
Widespread public opposition in Tennessee has spurred bipartisan political action against the MRS. In August 1985, the Tennessee attorney general filed suit against DOE claiming that the state had not been consulted in the MRS siting study, as required by the NWSA. As noted above, a federal judge agreed with the state and ordered DOE not to submit its proposal to Congress. DOE has appealed, and a decision may come this summer.

However, the MRS may be a locus of further conflict if congressional appropriations committees approve the \$46 million budget request before DOE's proposal for the facility is introduced, debated, or passed.

NUCLEAR WASTE TRANSPORTATION

With the May 28 announcements, citizens and state

and local government officials along transportation routes should become aware of how the waste program will affect them (see accompanying map and map on cover). Conflict will arise when the federal government attempts to prohibit state and local control over how, when, and where nuclear wastes will be transported.



Projected annual spent-fuel shipments by railroad to Nevada repository site in 2004.

The NWSA did not change the basic laws governing nuclear waste transportation — the Hazardous Materials Transportation Act (HMTA) and the Atomic Energy Act — which require the Department of Transportation (DOT) and the NRC to regulate nuclear waste routing and handling and the containers used in transportation. But the NWSA makes transportation costs and impacts a criterion in the site selection guidelines, although in the case of the Hanford, Washington, site DOE explicitly disregarded transportation costs in order to choose the site for characterization.¹⁹

From 1979 to 1984, less than 120 metric tons of spent fuel was transported in the United States,²⁰ but DOE expects to send 3,000 tons per year to a repository. Many people want the new containers that will be needed (only 20 are now on hand) to meet more stringent criteria and be subjected to more rigorous testing than in the past. Current international testing standards in effect since 1964 do not require full-scale testing. Prototype containers must pass tests that include a 30-foot drop onto an unyielding surface, a 40-inch drop onto a 6-inch spike, a fire of 1,475 degrees F for 30 minutes, and an 8-hour submersion in three feet of water. Critics charge that some fuels burn at 2,000 degrees F or more, with fires continuing for several days, and that some rivers or lakes are so deep that retrieval would take days in case of an accident.

Another major concern is the lack of adequate liability coverage for both transportation and repository accidents. Current federal law, the Price-Anderson Act, limits liability to \$500 million for federal government facilities. In the current

congressional debate on renewing Price-Anderson, several proposals would substantially increase or eliminate liability limits for nuclear waste and would allow damage recoveries from negligent contractors.

Since DOE believes that no serious radiation releases would occur during the transportation of nuclear waste, any new laws to regulate waste shipments will almost certainly be initiated by state and local governments. In turn, DOT and DOE will certainly challenge those new laws, claiming that they are preempted by federal standards and unnecessary. Congressional debate on renewing HMTA in 1987 will provide an opportunity to change existing law to allow more state participation in waste transportation decision making.

HOW STATES AND INDIAN TRIBES HAVE RESPONDED TO DOE

First- and second-round states and tribes have used their unprecedented authority over the waste program to press DOE to take their concerns into account "to the maximum extent feasible," as the Act requires. DOE must: (1) notify states before beginning site investigations; (2) fully consult and cooperate with regard to public health, safety, and environmental impacts; (3) provide complete and timely information; (4) negotiate binding consultation and cooperation ("C&C") agreements with states and tribes affected by site characterization; (5) give financial grants to review DOE's activities, provide public information, and mitigate any adverse impacts. As previously mentioned, the Act also gives a potential host state or tribe a veto over repository or MRS siting, which can be overridden only by a vote of both the U.S. House and Senate.

State Response

Citizens interested in making their states' responses to DOE as effective as possible should note the following. (1) Maintain a two-pronged approach to DOE — one political and one technical. Both are equally important. Consider: DOE needs a technical excuse for abandoning a site (or risk having 49 states scream "Politics!"), but it will take politics as usual to force DOE to heed a state's technical case. (2) Present a united, bipartisan front to DOE. State participation and review should be well coordinated among all branches of government — executive, legislative, and judicial. (3) Be ready and willing to challenge DOE actions in the courts when all else fails. (4) Ensure meaningful participation by the public in state decision making and a maximum of understanding of the issues involved. States should consider their public allies and seek to work cooperatively with them. (5) Maintain regular and close contact with congressional delegations and

committees with oversight responsibility for DOE. (6) Work cooperatively with tribal governments within their borders and help ensure that DOE affords tribes equal status in their ability to participate effectively in nuclear waste programs. (7) Work cooperatively with other affected states and attempt to develop unified positions and strategies for dealing with what is really a national problem. *Under no circumstances should a state promote the siting of dangerous or unnecessary nuclear waste facilities in other states.*

A variety of management structures has been established in first- and second-round states to facilitate state participation in and review of DOE activities, develop and articulate state policies, and involve the public. Nonrepository states concerned about transportation have yet to develop such structures and, as yet, have not received any DOE funds.

Tribal Response

An Indian government is eligible for formal participation in the DOE program if it is a federally recognized tribe, if its reservation lands or treaty rights will be affected by a repository, and if it is certified as "affected" by the secretary of interior (acting for the Bureau of Indian Affairs [BIA]). Three first-round tribes (Yakima, Umatilla, and Nez Perce) have received affected status at the Hanford site. The National Congress of American Indians (NCAI) has received funds to monitor the DOE program and provide technical assistance to tribes.

NCAI and many tribes have been highly critical of BIA's interpretation of "affected" tribes. They also criticize DOE for what seems to be preferential treatment of states and inequitable federal funding, especially compared with second-round states.

CITIZEN RESPONSE TO THE REPOSITORY PROGRAM

The recent history of the nuclear waste program shows that citizen groups have often played major roles in shaping state responses to DOE and in drawing public attention to the program. Knowing how citizen groups have so far responded to DOE will help others influence future decisions about repository sites and nuclear waste transportation.

Many groups have come to recognize that nuclear waste is a national problem that demands a national solution — one that DOE's program does not provide — and that a solution will not be achieved just by shutting DOE out of their own backyards. Citizens have also come to realize that they must combine technical expertise on the repository issue with another essential element — political action.

Wherever DOE has gone with its repository program, citizens have been quick to organize. Their reaction, in general, was expressed by Texas Agriculture Commissioner Jim Hightower when he told visiting DOE representatives, "You are our guests, and you are certainly welcome to our state. I just don't like that skunk you're dragging behind you."²¹ Citizen organizations in both first- and second-round states have poured their considerable energies into political organizing, public education, technical research, and legal action. A few examples follow.



The *Don't Waste Utah Campaign* (DWUC), in conjunction with several national environmental groups, organized nationally against the proposed sites near Canyonlands National Park. One measure of the group's effectiveness is that the largest number of comments on the draft EAs related to the Utah sites. DWUC also emphasized working with a sometimes reluctant state government, and it has been actively involved in the guidelines lawsuit.

In Texas, Serious Texans Against Nuclear Dumping (STAND) and People Opposed to Wasted Energy Repositories (POWER) formed separately in two counties to oppose the DOE program. While conducting their own local educational campaigns, they joined forces to hire a lawyer and a technical advisor and to successfully propose that the state of Texas contract with the groups for public education and technical review of the proposed sites, using DOE funds. In another innovative action, STAND formed the Swisher County Nuclear Development Rights Trust, whereby DOE, in any attempt to acquire land, must first obtain the agreement of all trust landowners, prior to initiating any individual land purchases or condemnation actions. To further broaden their support, the two groups have recently helped form STAND-Amarillo and a Nuclear Waste Task Force, which already represents more than 75,000 people.

In Mississippi, the many local groups opposed to the Richton Dome selection stressed high-visibility

statewide organizing and media work. They convened the Mississippi Nuclear Waste Forum in 1980, which attracted more than 5,000 people; successfully urged many organizations to pass resolutions against the waste site; advertised on television to inform people about EA hearings; and participated in political rallies.

In Washington state, groups have focused public attention on the history of radiation releases from the Hanford military reservation in addition to discussing the dangers of the repository site.

With the DOE announcement that Maine was one of the seven second-round states, existing and newly founded local groups organized the massive public protest that drew national attention. In the Sebago Lake region, four groups formed an alliance to coordinate their efforts and raised more than \$300,000 in three months to pay for technical and legal research, public education, and media advertising on nuclear issues.²²

National organizations

Some national environmental organizations were actively involved in lobbying on the NWP in the late '70s and early '80s. Since the passage of the Act, the Environmental Policy Institute (EPI) and the Sierra Club have maintained an especially active interest in its implementation and are lead plaintiffs in the guidelines lawsuit. EPI and Southwest Research and Information Center are principal contacts on the waste program for citizen groups throughout the nation.

Working Together

Over the past several years citizen group representatives have participated in various conferences which allowed them to share information and to develop skills and common strategies. One result of the first meetings was the formation of a network which shares information about the repository program through monthly mailings, coordinated by Southwest Research and Information Center, to participants from all first- and second-round states.

A mid-1985 meeting, sponsored by Citizen Alert, a multi-issue statewide organization in Nevada, produced a comprehensive "Statement of Principles" for sound nuclear waste management, which has been endorsed by various groups, primarily in first-round states.

ALTERNATIVES TO THE CURRENT DOE PROGRAM

As dissatisfaction with the DOE program has grown, people have asked, If not the current program, what

else? What follows is a brief summary of alternatives that have been suggested as solutions to the nuclear waste problem.

It has been widely recommended that, in addition to long-term storage options, safe short-term options be developed also. Since DOE is hopelessly behind schedule and will not have a repository operating by 1998, many say, DOE and the utility companies must develop alternative plans for on-site storage. The most promising technology, now being developed by some utilities, employs dry cask containers which cool wastes by air circulation.

Some people also argue that areas already contaminated by radioactive waste storage or nuclear testing should be carefully studied as long-term storage sites before additional sites are subjected to possible contamination. That "national sacrifice area" concept is opposed by many who believe that it could lead the federal government to abdicate its responsibility for the safe disposal of nuclear wastes. The "sacrifice" areas would be located in states with the least political power, no matter what the potential for technical problems with a repository, those critics say.

Because of DOE's long-standing and continuing problems with the waste program, many believe the agency lacks the credibility with the states and the public necessary to successfully site any repository. Some have suggested that the program be given to some other managing entity — an independent waste management agency, a public corporation (as suggested by the Alternative Means of Financing and Management Panel, required by the NWSA), or a public-private corporation.

There is some support among DOE's critics for further research into nongeologic disposal options, which include long-term surface facilities; disposal in the ocean, in polar icecaps, or in space; or the chemical transmutation of wastes into a less hazardous, faster decaying form. Above-ground, or mausoleum-type, facilities have been supported for years by some who want wastes easily accessible for reprocessing to remove the plutonium for use in weapons or breeder reactors and by others who believe that mausoleums could be sited and operated more cheaply and easily than repositories. In response, opponents of surface facilities say that wastes should not be available for reprocessing, since increased plutonium proliferation and environmental hazards would result, and that mausoleums would not be safe for hundreds, let alone thousands, of years.

The concepts of disposing of waste in outer space or in polar icecaps are no longer being seriously considered because of their obvious drawbacks. For

the past decade DOE has funded studies of deep-ocean storage, but the agency's proposed 1987 budget eliminated all funding for the program. Opponents of seabed disposal point out that international law currently prohibits such disposal and that the environmental hazards and technical problems would be substantial.

While nuclear materials can be reduced in volume by additional burning in reactors, no one has yet succeeded in transmuting high-level nuclear waste into a less hazardous material, and it may not be possible at all. Research done so far indicates that the process would at best be hazardous and expensive.

Since none of the disposal alternatives are promising, geologic burial has continued to be the preferred long-term disposal solution. Now, however, given the May announcements and the technical deficiencies of the three chosen sites, the spotlight is on finding a *suitable* geologic site — and that seems unlikely.

A NEW WASTE DISPOSAL PROGRAM: STOP AND START OVER

The Nuclear Waste Policy Act was intended to remedy the inadequacies of DOE's past efforts to develop a solution to the nuclear waste problem. Instead, DOE has maintained its past program virtually unchanged during the last three-and-a-half years, and the nation is not moving toward a sound solution. Clearly, then, the nuclear waste problem is even more difficult than Congress believed in 1982. While geologic disposal still appears to be the best means of isolating nuclear wastes from the environment for the long term, DOE's devotion to the 1998 date for repository operation clearly is inconsistent with the time needed to select the best sites, to develop repository technologies, and to build the national political consensus necessary to support any nuclear waste program.

But a solution to the seemingly intractable problem is still possible. It would require action by Congress to (1) stop the current flawed repository and MRS siting processes and (2) establish an independent commission, with a membership of scientists, state and tribal representatives, utility industry executives, federal officials, and members of the public, to evaluate the DOE program and alternative management structures; to reevaluate the various disposal options; and to propose publicly acceptable solutions and a time frame and funding for achieving them. Additionally, DOE and utility companies should develop on-site dry cask storage of wastes at reactor sites until long-term disposal facilities are operating, which probably will be some decades into the next century.

CONCLUSION

What does the future hold? Over the next few months major conflicts between DOE and the states of Washington, Nevada, Texas, and Tennessee will be played out in the courts and possibly in Congress. If DOE proceeds to site characterization, confrontations on privately owned land are quite possible. Local and state politicians will almost certainly be elected or defeated based on their positions on the nuclear waste issue.

Reprints of *The Workbook Feature* are available. Single copies, \$2.00; 5-20 copies, \$1.50 each; 21 or more copies, \$1.00 each.

Although DOE believes that its waste program is now moving forward, the May 1986 announcements were an implicit admission that the program could not succeed and that changes are necessary. But those announcements did not signal that the necessary changes are on the way. It will take the best efforts of citizens, scientists, and government officials to stop the inadequate, illegal waste program in order to prevent the waste of billions of dollars on a program that would put the health and safety of millions of people at risk.

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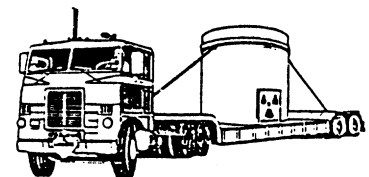
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NOTES

¹Statement by John S. Herrington, May 28, 1986, p. 1.

²See, for example: William R. Freudenburg, "Waste Not: The Special Impacts of Nuclear Waste Facilities." Pullman, Wash.: Washington State University, February 1985.

³Public Law 97-425, Section 111(a) (3), 42 USC 10131.

⁴U.S. Department of Energy, *National Plan for Siting High-Level Radioactive Waste Repositories and Environmental Assessment*, (Public Draft), DOE/NWTS-4, DOE/EA-151, February 1982, pp. 112-113.

⁵*Environmental Policy Institute v. Herrington*, 9th Cir., 84-7854, December 19, 1986. (and consolidated cases)

⁶*Nevada v. Herrington*, No. 84-7864, 9th Cir., Dec. 2, 1985.

⁷*Tennessee v. Herrington*, 626 F. Supp. 1345 (M.D. Tenn. 1986).

⁸*State of Texas v. U.S. Department of Energy*, 764 F.2d 278, cert. denied, 106 S. Ct. 531 (1985)

⁹*Wisconsin Electric Power Co. v. Department of Energy*, D.C. Cir., Dec. 6, 1985.

¹⁰The five Nevada suits all are on behalf of the State, Governor Richard Bryan; and the four members of the congressional delegation v. *Herrington*. They were filed on May 28 in the Ninth Circuit Court of Appeals, Nos. 86-7307, 86-7308, 86-7309, 86-7310, 86-7311. The suits regarding the Texas site were filed in the District of Columbia Court of Appeals on May 29 (and will likely be transferred to the Ninth Circuit and consolidated with the Nevada litigation). The Texas cases are *Nuclear Waste Task Force, et al. v. U.S. Department of Energy*, 86-1309; and *State of Texas v. U.S. Department of Energy*, 86-1310.

¹¹U.S. Department of Energy, 1986a, *Recommendation by the Secretary of Energy of Candidate Sites for Site Characterization for the First Radioactive-Waste Repository*, May 1986, DOE/S-0048, p. 6.

¹²*Natural Resources Defense Council v. Thomas*, D.C. Cir. No. 85-1123, February 26, 1985.

¹³*Natural Resources Defense Council v. U.S. EPA*, 1st Cir., No. 85-1915, November 27, 1985.

¹⁴See, for example, Jackie L. Braitman, *Nuclear Waste Disposal: Can Government Cope?* Santa Monica, Calif.: Rand Graduate Institute, RAND/P-6942-RG1, December 1983, pp. 101-118.

¹⁵Comptroller General of the United States, *The Nation's Nuclear Waste — Proposals for Organization and Siting*. EMD-79-77, General Accounting Office, June 21, 1979.

¹⁶U.S. Department of Energy, *Site Characterization Report for the Basalt Waste Isolation Project*, November 1982.

¹⁷The nations are Canada, Finland, France, Japan, Sweden, Switzerland, the United Kingdom, and the United States.

¹⁸Statement by John S. Herrington, May 28, 1986, p. 2.

¹⁹DOE, 1986a, ("Site Recommendation Report"), p. 8.

²⁰Western Interstate Energy Board, *Spent Nuclear Fuel and High Level Radioactive Waste Transportation*. White Paper, June 1985, p. 1.

²¹DOE, 1983, *U.S. Department of Energy Transcripts from Public Hearings in Texas*, Vol. II, Austin, TX, May 18, 1983, p. 432.

²²Contact: Lakes Environmental Association, 102 E. Main St., Bridgton, ME 04009, (207) 647-8580.

²³Future dates are from U.S. Department of Energy, *Project Decision Schedule*, DOE/RW-0067, March 1986.