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M E M O R A N D U M

June 20, 1983

To: Nuclear Waste Policy and Review Board and
Nuclear Waste Advisory Council

From: Susan E. Gould, Chair *Susan Gould*

Subject: Meeting Dates and Attached Article

The following meeting dates have been established for the rest of the calendar year:

- July 22
- September 16
- October 21
- November 18
- December 16

Unless conditions change, I plan to continue the format we have been following. The Advisory Council meets at 10:00 a.m. and Policy and Review Board meets at 1:30 p.m. The meetings will be held in the Hearings Room, Department of Ecology offices, Rowsix Complex, Building 4, 4224 Sixth Avenue S.E., Lacey, Washington.

I have enclosed a copy of Hank Schilling's article entitled "High-Level Radioactive Waste: Washington's Prospects" published in Washington Public Policy Notes. This article reflects Hank's presentation at the seminar for members of the Advisory Council that was held on Friday, February 25, at Battelle's Seattle Conference Center. I hope you will find it interesting.

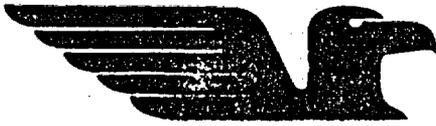
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WASHINGTON PUBLIC POLICY

NOTES

INSTITUTE FOR PUBLIC POLICY AND MANAGEMENT
UNIVERSITY OF WASHINGTON

HIGH-LEVEL RADIOACTIVE WASTE: WASHINGTON'S PROSPECTS

by A. Henry Schilling

The nuclear age dawned early in Washington with the wartime development of Hanford's facilities for producing weapons materials. Because high-level radioactive waste is a by-product of producing the materials from which the first bombs were made, it existed in Washington even before the bomb. Wartime priorities led to decisions for temporary management of the waste by storing it at ground level in steel tanks.

Today, after some 40 years of waste accumulation, the volume has grown tremendously. Waste is still being stored in tanks at Hanford: There have been occasional leaks, introduction of greatly improved tanks, development of systems for monitoring tank performance, and a largely completed effort to convert the waste from liquid to solid form. The United States Department of Energy (DOE), the waste's inheritor, is presently considering alternatives for its permanent disposal.

The waste produced at Hanford is not the only radioactive waste of concern to Washington State. DOE has responsibility for managing high-level waste from nuclear power production as well as from defense activities. For the past few years it has been investigating potential disposal sites at Hanford and elsewhere in the United States. The Hanford effort, the Basalt Waste Isolation Project (BWIP), has advanced to the point that DOE is ready to begin major mining activity to fully evaluate a specific site. If this activity leads to development of a disposal facility at Hanford, something like half of the nation's high-level waste from nuclear electricity may be placed there. In terms of radioactivity, this new waste will dwarf what is already there.

An Abiding Hazard

The waste originally produced at Hanford, like all high-level radioactive waste, is physically hot and highly radioactive. Moreover, while its heat and radioactivity will dissipate over time, it will be intensely radioactive and dangerous for a long period. Though the period of its endurance in hazardous form is both dependent on the precise composition of the waste and subject to considerable debate, there is no question that successful management of the waste ultimately requires its permanent removal from the biosphere. Currently, the most promising approach to removal is to dispose of the waste in

deep underground repositories dug into stable geologic formations, a kind of reverse mining operation.

This requirement for removal from the biosphere is common to all forms of high-level radioactive waste, whether the waste comes from defense activities or production of electricity. The waste itself may, as in the case of defense, be the residue from chemically recycling nuclear fuel taken from a reactor, or it may simply be the spent fuel itself.

In Search of a Policy

The wartime policy of temporizing with high-level waste was not seriously reconsidered until the mid fifties. It was only then that, perhaps in anticipation of dramatically increased waste from nuclear power, a comprehensive analysis of options was commissioned. This major study by the National Academy of Sciences led to the conclusion that the most promising approach to permanent management of the waste was placement deep underground in stable geological repositories, probably in salt. This reverse mining approach has remained the preferred technology ever since, although others have been investigated and some (e.g., sub-seabed disposal) remain promising. Following the study, the Atomic Energy Commission embarked on a fairly slow research-and-development process with limited budget and staff to investigate mined repositories in salt. This slow pace continued until a fire at the Rocky Flats Arsenal in Colorado led to the release of plutonium, contaminating the soil and thereby creating a large volume of waste in need of management.

The management problem at Rocky Flats, in turn, led to an acceleration of the salt investigations and to a proposal for a facility to serve as the nation's first repository for high-level radioactive waste. The proposal called for conversion of an experimental waste-management facility that had been constructed in Kansas for heat and other testing in an abandoned salt mine. The attempt at abrupt change in the nature of the Kansas facility generated a combination of technical and political concerns from the state's geologist, its governor, and members of its congressional delegation. The federal government was unable to allay these concerns and eventually dropped the project.

There followed a brief period of re-study, resulting, in the early 1970s, in a proposal to store the waste permanently at the surface in mausoleums called Retrievable Surface Storage Facilities. Intense opposition from environmentalists, however, and objections from the newly formed Environmental Protection Agency led to abandonment of the proposal during the environmental impact (EIS) statement process. Yet another round of technical reviews followed.

Most of the action, however, moved to a more visi-

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ble and political ring. The Ford administration announced the National Waste Terminal Storage Program (NWTs) in 1976. NWTs was intended to lead to the development of a repository for high-level wastes by 1985. While it would give attention to a wide range of geologic media, the primary thrust was towards salt, a preference established 20 years earlier in the first major study of radioactive waste management. NWTs announced various forms of investigation in a large number of states.

NWTs also set in motion an important reaction: growing state concerns over their role in meeting the federal government's legal responsibilities for safe waste disposal. This concern turned primarily on the states' ability to exert control over federal activities within their borders and to meet their responsibilities to provide for the health and safety of their citizens. A form of Catch-22 developed. On the one hand, the federal government sought access to sites within states in order to conduct research and development (R & D) activities; these were felt necessary as a basis for decisions about whether the sites, and indeed the concept of geologic disposal, were technically acceptable. On the other hand, the states, distrusting their ability to influence federal decisions after all the money had been invested in site-specific R & D, demanded to be shown that safe repositories could be developed before allowing the federal government to begin its work. The states, in other words, considered selection of a site for study tantamount to its designation as a repository and therefore wanted assurances of safety; the federal government required the testing sites for research on which to base such assurances.

While the federal government had clear constitutional power to override state objections, the states' political power generally prevailed. Thus NWTs stopped

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its investigations in Michigan in the face of state opposition and, shortly thereafter, announced a policy of abiding by state veto in regard to investigations in New Mexico and Louisiana. This dilemma of balancing federal constitutional and state political powers, in face of the R & D Catch-22, led to a series of attempts to define an acceptable state/federal relationship; the resulting definitions were eventually incorporated in the Nuclear Waste Policy Act of 1982 (NWPA).

Elected in part because of its strong concern for environmental issues and serious reservations about rapid development of nuclear power, the Carter administration changed the pace of the waste program and de-emphasized development of a repository by 1985, in favor of increased analysis and research. During the first year or so, the principal focus was on further reorganization of the federal government's energy efforts, leading to the formation of DOE. At about the same time, John Deutch conducted a study within the DOE of its options for dealing with the waste issue. This study was succeeded by an Administration-wide look at wastes and waste-related issues under the Interagency Review Group; this effort was completed in 1979.

Meanwhile, NWTS evolved into an investigation of three major geologic media: various salt formations, basalts on the Hanford Reservation, and tuff (porous, volcanic rock) at the Nevada Test Site. Work on such alternatives as sub-seabed disposal and repositories in granitic formations proceeded at a slower pace.

The Reagan administration announced an acceleration of the waste program, emphasizing development in contrast to its predecessor's research approach. Thus, the three primary repository projects (salt, basalt, and tuff) took more the form of competitors in a race than of parallel research projects. The speedup notwithstanding, the Reagan administration remained solicitous of state views. President Reagan, during the 1980 campaign, renewed the Carter administration's commitment to veto powers for Louisiana, and Reagan's first secretary of energy, James Edwards, had been heavily involved in articulating state concerns while governor of South Carolina. Nonetheless, DOE's activities accelerated.

The Congress also took action. The Senate passed rather comprehensive legislation in the spring of 1982 and the House approved its version in the fall of '82; in late December the Nuclear Waste Policy Act (NWPA) of 1982 was enacted. President Reagan signed the Act early in January of 1983.

The NWPA: Process for Information Needs

The NWPA addresses four major aspects of radioactive waste management: siting repositories for high-level waste, considering long-term storage as an alternative to permanent disposal, providing capacity for temporary storage of spent reactor fuel, and establishing a fund to pay for disposal of commercially generated waste. It also provides for a study to determine whether defense high-level waste is to go into a separate repository or into

commercial facilities. Among its most important provisions are a schedule for developing the first two repositories and a definition of the role of the states and tribal organizations in that process. DOE is to issue guidelines for repository siting, nominate five potential sites for the first repository and evaluate the environmental impacts of those five sites, recommend three sites for detailed (and very expensive) characterization activities, and, by March 1987, propose a site for the first repository. The second repository is to follow a similar process a few years later.

During the years of characterizing sites, states and tribal organizations are to participate in a relationship of consultation and cooperation, with the relationships to be spelled out in binding written agreements. Upon the selection of a site, the state's governor or its legislature may file an objection to the siting decision. If a site is on or near an Indian reservation, the affected tribe may object as well. If there is such an objection, both houses of Congress must agree to a "resolution of repository siting approval" before the Administration can go forward with a site. Then follows an NRC licensing process parallel to that for nuclear power plants.

State and tribal participation in the process is to include full access to information being collected and analyzed about a potential site, a substantial role as technical reviewer—assisted with federal financial resources to develop the necessary expertise—and, assuming a site is selected in a state, federal financial and technical assistance in coping with impacts.

The clearly defined milestones and schedule set out by NWPA are a response to historical vacillations in the waste program. The provisions for state and tribal participation in site evaluation, and particularly its grant of a clear right to object at the end of the selection process, is an attempt to resolve the Catch-22 that has plagued repository R & D activities in the past. In an important sense, NWPA is a procedural approach to the problem of obtaining sufficient information to make technically defensible decisions about where to put radioactive waste. While it may be that states do not object to site selections, NWPA seeks to assure that any objections will be weighed against adequate information.

For the state, there are two critical decision points, both well towards the end of the siting process. The first of these, congressional action on a state's objection, is probably the state's best shot at countering the DOE recommendation. The federal government forces facilities on unwilling states only with considerable reluctance. This reluctance is predictably greater if the two houses of Congress must concur than if only a single house were required to override the state's objection. The vote on any state objection may turn heavily on procedural issues. Congress may well defer resolution of outstanding technical disputes to the NRC's licensing process—the second decision point—but it is very likely to be heavily affected by process, especially perceptions of fairness and openness. Thus, a history of intransigent opposition

to DOE's site-evaluation activities may place the state in a very weak position in arguing for congressional support of its objection. By the same token, DOE or other federal failure to engage in what Congress views as fair and open process, particularly as that process is defined in NWPA, will greatly increase the odds that Congress will agree with an objecting state's point of view. The NRC licensing process, in contrast, will turn almost entirely on technical issues.

Washington State and NWPA

BWIP is on the brink of exhaustive investigations to determine if a specific site at Hanford is suitable for a repository for high-level commercial waste. The recent enactment of NWPA gives Washington, and perhaps the Yakima nation, considerable power in ultimate decisions about BWIP and potentially a major role in developing and analyzing data to support them. High-level radioactive waste generated by defense activities still sits in tanks at Hanford, awaiting federal decisions about its permanent disposal. The state's power over and role in defense-waste decisions is less clear under NWPA (and probably just plain less). What then is the state, particularly the state's government, to do?

Passage of Initiative 383, the Don't Waste Washington Initiative, can be read as making it quite clear that the population of this state opposes importation of high-level waste and, therefore, development of a commercial high-level waste repository at Hanford. Presumably, somewhat the same view applies to defense waste already at Hanford. Strong exceptions to such popular sentiments have been raised in the Tri-Cities, whose economies are heavily dependent on the nuclear enterprise and whose inhabitants are generally more comfortable with nuclear-energy activities than is the rest of the state.

But the initiative did pass and the Tri-Cities are a relatively small population; clearly, the state government could choose to act in accordance with the people's expressed will and oppose development of a waste repository in the state. Presumably such opposition would include opposition to the DOE's going forward with its BWIP investigations. Logically, it could also include pressure on the DOE to find a way to get the waste out of Hanford's tanks and out of the state. A fully rationalized policy of this kind would include statements of opposition by the governor, as have recently come from the governor of Nevada, and by the legislature. Beyond position statements, of course, could come actions to deny DOE the ability to gather the information it seeks for its own decisionmaking and, further, to get it to look elsewhere for waste disposal.

There are, however, a number of reasons for being leery of such a policy by the state, especially if its implementation includes intransigent opposition. First off, the federal courts, including the United States Supreme Court, have struck down Initiative 383. Ultimately, on purely legal grounds, a state has very little power to stop

the federal government. Ironically, had the courts ruled otherwise and found the initiative legally effective, the result would have been precisely the obverse of the initiative's intent: since other states would have rushed through similar legislation to prohibit importation of Hanford and other wastes, Hanford would undoubtedly have been confirmed as a permanent repository for the wastes already there.

This irony may well apply also in cases of political, as opposed to legislative, intransigence. If Washington were to succeed in pressuring DOE to give up on the state as a possible site for a waste repository, other states would be likely to try to do so as well. The results could be either a stalemate in which no repository could be sited or a siting decision grounded largely on the exercise of political power. The first possibility implies that the existing waste will remain at Hanford come whatever and leaves unresolved the nation's problem of managing high-level waste from nuclear power production. The second suggests that some state with very little clout, or great need for some form of federal largesse, gets the waste regardless of such concerns as geologic suitability.

Pure power politics is unlikely in siting decisions. A powerful countervailing force emerges from the NRC's licensing standards and process; EPA standards; and substantial shared concerns with safety among the scientists and engineers in DOE, their counterparts in state agencies, the scientific community as a whole, and environmental groups. But heavy politics is very difficult to integrate with careful technical decisionmaking: the greater the bare politics in the decisions, the less likely is technical adequacy.

Thus Washington State can lose in a political game of repository siting. The likely importance of procedural issues in congressional deliberations on a proposed site under NWPA strengthens that eventuality. Moreover, still another circumstance undermines Washington's prospects in such a game. DOE currently has field investigations underway at potential repository sites in six states: Louisiana, Mississippi, Nevada, Texas, Utah and Washington. The sites in both Washington and Nevada are located on large federal reservations that have historically been used for nuclear defense and energy activities. While these two states have some political and even legal leverage over activities on the federal reservations within their borders, they have much less influence than states in which investigations are taking place outside a federal energy reservation. Washington and Nevada have rather little ability to prevent the federal government from developing the information it feels necessary to make an adequate technical decision about a potential repository site.

Washington's Concerns

The consequences of losing this political game depend heavily on whether it is played before or after enough information has been gathered to allow confi-

dence in technical decisions about which repository sites are adequate.

The most important and general concern, clearly, is that high-level waste be put in a place where it doesn't harm people. Relevant to this concern are both how well the repository holds its contents over the long run and how carefully waste is handled as it moves from its origins to repository. Keeping both a repository and waste in transit out of Washington may be a way to satisfy this concern. It bears remembering, however, that except for those of us who are Native Americans, none of our ancestors lived in the Northwest two hundred years ago; each of us, including Native Americans, should consider the uncertainty about where our descendants might live two hundred years from now. Such uncertainty, in turn, leads to concern that high-level radioactive waste be safely disposed of regardless of which states host the repositories. Safety must be the paramount concern as the foundation for Washington's (or any other state's) policy. To paraphrase an equally applicable cliché: it is more important to be safe than elsewhere.

There are other concerns, of course. One, which presumably applies to all states, is that the impacts of repository construction and operation be mitigated or, if irreducible, compensated. The federal government should not impose on a community which hosts a repository, or on the state in which it lies, the sorts of boom and bust burdens that have accompanied other energy development. If affected state and tribal governments are to have confidence that their safety concerns are being met, they will need resources sufficient to allow them to participate fully in the site-evaluation process. NWPA makes provision for both the impact mitigation and site-evaluation participation—largely by directing DOE to provide financial assistance.

Another set of concerns is more specific to Washington State. One is a public-safety concern. Unlike commercial high-level waste, the waste in the tanks at Hanford does not have an assured source of funds to provide for disposal but must instead depend on annual appropriations for DOE's defense programs. Moreover, the existing waste may be somewhat more difficult to manage than new waste—it may, for example, be tough to remove from the tanks—and is ambiguously covered by NWPA's procedures for state and tribal involvement. The state may well choose to link its posture on BWIP to DOE's management of the existing defense waste.

Another major concern presently is the local economy of the Tri-Cities. Cancellations and mothballing of Washington Public Power Supply System (WPPSS) nuclear reactors have created a bust from a boom. Jobs and other economic revitalization in the area are both pressing and valid public-policy concerns for any administration. Since Republicans are typically more dependent than Democrats for electoral support from east of the Cascades, these concerns are apt to be even more pressing during a Republican state administration. Repository

construction at Hanford is one way to provide jobs. Conceivably even more jobs could be provided by linking repository development to expansion of other federal facilities at Hanford or elsewhere in the state.

Somewhat further afield, both substantively and bureaucratically, is the rest of the WPPSS mess. The Bonneville Power Administration (BPA) is a major player in WPPSS and could be a mighty contributor to reducing the financial pain. It may be late, but the state could seek a possible linkage here. Obviously, there is potential for many more linkages. New ones will no doubt arise over the period of site investigations and beyond.

Washington's Posture

Playing the linkage game too aggressively has problems, the most important being the risk of reducing confidence that waste-management activities will be safe. Indeed, it may not be possible to link safety with other concerns or even to consider such concerns until safety is assured. Here perceptions are at least as important as reality: a state government that gives the appearance of being willing to trade the safety of future generations for a few jobs now incurs the risk of inciting intransigent opposition.

Clearly, meeting the paramount concern for public safety requires that repository siting and other waste-management decisions be made on adequate technical grounds. Since Washington can do rather little to prevent gathering such information at Hanford, its best hope is to assure adequacy of data gathering and analysis. Doing so necessarily involves fairly close technical cooperation with DOE and its contractors. Merely critiquing finished work may be a way to show deficiencies, but it probably does not assure that the right data will be gathered or that the analysis will be satisfactory. New Mexico appears to have a reasonably effective relationship of such close technical cooperation with DOE in developing a defense-waste facility, despite having had to use the shotgun of litigation to force the federal government into a written agreement. Thus the necessary relationship at the technical level appears possible, even in a somewhat adversarial context.

A rather cooperative posture during site evaluation need not preclude the state from voicing objections to siting and other decisions. Such objections may even be registered at a policy level from the start, especially if they deal with health and safety concerns which may be evaluated through working relationships among state and DOE officials. A less public approach to raising state reservations and discussing linkages with DOE may raise the odds of the state's satisfying its other concerns while ensuring safety. Of course the state's posture must be attuned to the strong public reservations and opposition to a repository, and balancing the political delicacies of these concerns with effective technical cooperation may be difficult. In any event, pushing only safety concerns about BWIP can at best provide only a safe BWIP repository. The state may be able to get this and more.

Timing is very tricky. Waiting until selection of the first repository to seek satisfaction regarding its concerns, whether safety or other, puts the state in a fairly weak bargaining position. Tying such concerns into BWIP early carries risk of at least apparent willingness to compromise on safety. And Washington's early power, largely the power to impede information gathering, is less than that of other states. The clearest safety concern and therefore the most publicly palatable linkage that might be connected to BWIP, disposal of defense waste at Hanford, appears to be scheduled for major decisions soon. The state must act quickly if it is to exert much leverage beyond the ordinary EIS review.

In any case, the state needs to buy in heavily to the gathering and analysis of BWIP information and develop its own technical expertise in order to participate effectively. There has already been a beginning with the Spellman administration's creation of a task force of officials and a citizens' advisory council, and engaging technical consultants to review BWIP project documents; for its part, the legislature has passed a bill that converts the official task force into the Nuclear Waste Policy and Review Board and makes the Department of Ecology the state's lead agency. Staying quietly but strongly in the game over the next few years seems the best way to avoid wasting Washington.

The views expressed in *Washington Public Policy Notes* are those of the authors and not necessarily those of the University of Washington or the Institute for Public Policy and Management.