Department of Energy
Germantown, MD 20874-1290

AUG 26 1999

General

Mr. Greg Lewis
Division Director
Water and Waste Management
New Mexico Environment Department
1190 St. Francis Drive
Room N2210
Santa Fe, New Mexico 87502

Dear Mr. Lewis:

Enclosed is a copy of the Department of Energy's Record of Decision for the management of high-level radioactive waste. This decision supports continued storage of high-level waste at the sites that generated or will generate the waste, until its disposal in a future geologic repository.

The Department's decision is based on the May 1997 *Waste Management Programmatic Environmental Impact Statement*, which analyzed locations for waste treatment, storage, and disposal facilities for four types of radioactive waste, plus hazardous waste. Based on this analysis and the Department's resulting decision, four sites -- Hanford Site in Washington State, Idaho National Engineering and Environmental Laboratory, Savannah River Site in South Carolina, and the West Valley Demonstration Project in New York -- will continue on-site storage of high-level radioactive waste produced at the site but will not receive any other State's high-level waste for storage.

If you have any questions, please call me at (301) 903-4981. If you need additional copies of the Record of Decision, please call the Department of Energy's Center for Environmental Management Information at 1-800-7EM-DATA (1-800-736-3282).

Sincerely,

Karen C. Guevara
Manager, Waste Management Programmatic
Environmental Impact Statement
Office of Waste Management
Environmental Management

Enclosure

Miscellaneous / ROD / High Level Waste

RECORD OF DECISION

for the

Department of Energy's Waste Management Program:

Storage of High-Level Radioactive Waste

August 1999

from the Waste Management Programmatic Environmental Impact Statement

DEPARTMENT OF ENERGY

Record of Decision for the Department of Energy's Waste Management Program: Storage of High-Level Radioactive Waste

AGENCY: Department of Energy

ACTION: Record of Decision

SUMMARY: The Department of Energy (DOE) has decided to store immobilized high-level radioactive waste (HLW), at three DOE-owned sites (the Hanford Site in the State of Washington, the Idaho National Engineering and Environmental Laboratory, and the Savannah River Site in South Carolina) and one DOE-managed site (the West Valley Demonstration Project in New York, a project that is managed by DOE under the West Valley Demonstration Project Act, at a site owned by the State of New York). Immobilized HLW is a final waste form that will remain in storage until accepted for disposal at a geologic repository. This decision is based on the *Final Waste Management Programmatic Environmental Impact Statement* (WM PEIS).

FOR FURTHER INFORMATION: Copies of the WM PEIS and this Record of Decision (ROD) are available in DOE public reading rooms and selected libraries located across the United States. A list of the public reading rooms at which the WM PEIS and this ROD are available can also be accessed on the DOE Office of Environmental Management's World Wide Web site at http://www.em.doe.gov/em30/. To request copies of the WM PEIS, this ROD, or a list of the reading rooms and public libraries, please write or call: Center for Environmental Management Information, P.O. Box 23769, Washington, DC 20026-3769, telephone: 1-800-736-3282 (in Washington, D.C.: 202-863-5084).

For further information on the WM PEIS or this ROD, please write or call: Ms. Karen Guevara, WM PEIS Program Manager, Office of Planning and Analysis (EM-35), U.S. Department of Energy, Office of Environmental Management, 19901 Germantown Road, Germantown, MD 20874, telephone: 301-903-4981.

For general information on the DOE National Environmental Policy Act (NEPA) process, please write or call: Ms. Carol M. Borgstrom, Director, Office of NEPA Policy and Assistance (EH-42), U.S. Department of Energy, Office of Environment, Safety, and Health, 1000 Independence Avenue, S.W., Washington, DC 20585-0119, telephone: 202-586-4600, or leave a message at 1-800-472-2756.

SUPPLEMENTARY INFORMATION:

Background

The *Waste Management Programmatic Environmental Impact Statement* (WM PEIS), DOE/EIS-0200F, issued in May 1997, studied the potential nation-wide impacts of managing four types of

radioactive waste (low-level waste, mixed low-level waste, transuranic waste, high-level waste (HLW)) and hazardous waste generated by defense and research activities at 54 sites around the United States. Two Records of Decision (RODs) have been issued, based in part on the analyses in the WM PEIS. These are the transuranic waste treatment and storage ROD (63 FR 3629, January 23, 1998) and the non-wastewater hazardous waste treatment ROD (63 FR 41810, August 5, 1998). The ROD for low-level and mixed low-level waste treatment and disposal is expected to be issued shortly.

The WM PEIS analyzes the potential environmental impacts of broad alternatives for DOE's waste management program, and was designed to provide part of the basis for DOE to decide upon a programmatic configuration of sites for waste management activities. In addition, DOE will perform site-wide or project-specific NEPA reviews, as needed, to more specifically analyze site-specific waste management activities, consistent with the selected programmatic approach. Those reviews provide more focused analysis, including specific storage facility capacities and design parameters. DOE will not decide the specific location of any new facilities at sites selected to store HLW, or specific facility capacities and designs, until the completion of these follow-on NEPA reviews.

This ROD applies only to the storage of immobilized HLW as analyzed in the WM PEIS. DOE prepared this ROD in accordance with NEPA (42 U.S.C. §4321 *et seq.*), the Council on Environmental Quality's regulations for implementing NEPA (40 CFR Parts 1500-1508) and DOE's NEPA Implementing Procedures (10 CFR Part 1021).

High-Level Waste Storage

HLW is the highly radioactive waste resulting from the reprocessing of spent nuclear fuel, including liquid waste produced directly in reprocessing and any solid material derived from the liquid waste that contains fission products in sufficient concentrations, and other highly radioactive material that is determined, consistent with existing law, to require permanent isolation (DOE Order 435.1, *Radioactive Waste Management*, July 1999). In Chapter 9 of the WM PEIS, DOE analyzed alternatives for the storage of HLW, immobilized to a final form, that has been or will be generated at three DOE-owned sites: the Hanford Site in Washington, the Idaho National Environmental Engineering Laboratory (INEEL), and the Savannah River Site (SRS) in South Carolina, as well as at the West Valley Demonstration Project (WVDP) in New York. The State of New York retains title to the WVDP site and the stored HLW, but the waste has been treated by DOE pursuant to the West Valley Demonstration Project Act. Discussion and agreement with the State of New York would be necessary if DOE were to move the HLW canisters to another site.

For all four sites, DOE needs to decide where to store the immobilized HLW until its acceptance for disposal at a geologic repository managed by DOE's Office of Civilian Radioactive Waste Management. The Department is preparing an EIS on a proposal to construct, operate and monitor, and eventually close a geologic repository at Yucca Mountain in Nevada for the disposal of spent nuclear fuel and high-level radioactive waste. The Department plans to distribute the draft Yucca Mountain EIS in August of 1999 for public comment, and issue the

Final EIS in the Fall of 2000. If Yucca Mountain were eventually approved as the site of the nation's first geologic repository, DOE intends to dispose high-level radioactive waste there. For the HLW at Hanford, WVDP, and SRS, DOE has already selected borosilicate glass poured into stainless steel canisters as the final waste form. No decision on a final immobilized waste form has yet been made for the HLW at INEEL but DOE is currently preparing the *Idaho High-Level Waste and Facilities Disposition at the INEEL EIS* (DOE/EIS-02870) which will evaluate the environmental impacts associated with alternative strategies for treatment, storage, and disposal (including the waste form) of high-level and associated radioactive wastes at the site, including offsite treatment options.

Alternatives Considered for Storage of Immobilized High-Level Waste

In the WM PEIS, the term "alternative" generally refers to a nationwide configuration of sites for treating, storing, or disposing of a waste type. In the case of HLW, however, the analysis did not include the impacts of storing non-immobilized HLW, treating HLW, or disposing of HLW. The following summarizes the alternatives DOE analyzed for immobilized HLW storage.

No Action Alternative. A no action or "status quo" alternative may not comply with applicable laws and regulations; however, analysis of such an alternative is required under NEPA regulations, and provides an environmental baseline against which the impacts of other alternatives can be compared. Selection of the No Action Alternative, in this case, would involve using only currently existing or approved HLW storage facilities at DOE sites. Immobilized HLW canisters would be stored at Hanford, SRS, and WVDP until transfer to a geologic repository managed by DOE's Office of Civilian Radioactive Waste Management. HLW at INEEL would be stored as a solidified calcine material (a dry noncorrosive granular solid) or as liquids, until its final disposition is determined. Because sufficient storage capacity for the projected number of HLW canisters is not already existing or approved at Hanford and SRS, immobilization activities would have to be interrupted or delayed, based on the rate at which a repository could accept the immobilized HLW.

Decentralized Alternative. Selection of this alternative would result in storing HLW, immobilized to a final form, where it was generated or will be generated in the future. The activities that differentiate the Decentralized Alternative from the No Action Alternative would be the siting, construction and operation of new storage facilities or the modification of existing storage facilities at some sites. Hanford , SRS, and WVDP would store immobilized HLW canisters, and INEEL would store HLW in a final immobilized form, yet to be determined, until transfer to a geologic repository. This was designated as the preferred alternative in the WM PEIS.

Regionalized Alternatives. Two alternatives were considered for regionalized storage of immobilized HLW. Under Regionalized Alternative 1, immobilized HLW canisters would be stored at Hanford and SRS, immobilized HLW canisters from WVDP would be transported to SRS, and HLW at INEEL would be stored there after immobilization until the HLW is accepted at a geologic repository. Under Regionalized Alternative 2, HLW canisters would be stored at

Hanford and SRS, HLW canisters from WVDP would be transported to Hanford, and immobilized INEEL HLW would be stored there until transfer to a geologic repository.

Centralized Alternative. Immobilized HLW from INEEL, and HLW canisters from WVDP and SRS would be transported to Hanford where all of the HLW would be stored with Hanford HLW canisters until transfer to a geologic repository.

Environmentally Preferable Alternative

Table 9.16-1 in the Final WM PEIS summarizes the key impacts that may be associated with storage of immobilized HLW. This table quantifies potential worker health risks, transportation risks, and costs for the various HLW alternatives analyzed in the WM PEIS. Chapter 9 details additional HLW impact areas analyzed in the WM PEIS, including cultural resource and environmental justice concerns. All of these impacts were considered in identifying environmentally preferable alternatives and in making this waste storage decision.

The potential health and environmental impacts for all immobilized HLW storage alternatives are generally low. Differences among the alternatives are small, but the No Action, Decentralized (the preferred option), and Regionalized 1 Alternatives have 1-2 fewer estimated potential fatalities, over twenty years, than the Regionalized 2 and Centralized Alternatives (total fatalities are estimated to range from 8 to 10 among each of the five alternatives.) Under the No Action Alternative, however, immobilization of large quantities of HLW to a stable, durable form would be delayed or interrupted, posing an environmentally undesirable condition. Environmental impacts of the Decentralized and Regionalized 1 Alternatives are essentially comparable; however, the need for additional construction of a larger facility under the Regionalized 1 Alternative makes the Decentralized Alternative marginally more environmentally preferable. Additionally, under the Decentralized Alternative, immobilized HLW would need to be loaded and unloaded for transportation purposes less often, compared to the other action alternatives, thereby reducing worker radiological exposure. None of the alternatives would pose environmental justice concerns.

Decision: Storage of High-Level Waste

The Department has selected the Decentralized Alternative, to store immobilized HLW in a final form at the site of generation -- Hanford, INEEL, SRS, or WVDP -- until transfer to a geologic repository.

This decision is the same as the WM PEIS preferred alternative. The decision allows use of existing immobilized HLW storage capacity at SRS and WVDP, and use of the previously decided, almost complete Canister Storage Building at Hanford, which will provide partial storage for its immobilized HLW. This approach also reduces environmental impacts that would result from constructing larger storage facilities that would be needed under the Regionalized and Centralized Alternatives.

Although transportation-related fatalities are essentially the same for all the alternatives, the Decentralized Alternative results in reduced immobilized HLW loading and unloading operations for transportation purposes, as compared to the other action alternatives. Additionally, transportation-related administrative considerations involving the need for notification and emergency preparedness training, and public concerns in transportation corridor states, weighed in favor of the Decentralized Alternative when compared to the Regionalized and Centralized Alternatives.

DOE also considered uncertainties about the timing of accepting HLW at a geologic repository. Stakeholders and local governments have expressed concerns that sites may store immobilized HLW for much longer periods than the Department's plans currently indicate. The Department's selection of the Decentralized Alternative apportions the amount of such HLW to be stored according to the quantity of HLW generated at each site.

Mitigation

Although a mitigation action plan is not required because no non-routine mitigation commitments are being made, Chapter 12 of the WM PEIS describes measures that DOE takes in order to minimize the impacts of its waste management activities. Mitigation measures are an integral part of the Department's operations, so as to avoid, reduce, or eliminate potentially adverse environmental impacts. Some of the more important routine mitigation measures that DOE will continue to use in its management of radioactive waste are:

- Modifying engineering facility designs to reduce or eliminate risk or impacts;
- Implementing strict and mandatory safety programs for all facility workers;
- Using safety analyses to establish safety limits within which facilities can operate, while limiting risks and adequately protecting the environment; and
- Reviewing and modifying, as appropriate, existing emergency action plans at DOE sites to ensure appropriate response to accidents or other emergencies.

Site-specific, non-routine mitigation measures may also be identified and implemented in the course of further decision-making under site-specific NEPA reviews.

Issued in Washington, D.C. this 12th day of August, 1999.

[Original Signed By]
Carolyn L. Huntoon
Assistant Secretary
for Environmental Management