



Department of Energy

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Richland Operations Office  
P.O. Box 550  
Richland, Washington 99352

MAR 19 1990



Mr. Timothy L. Nord  
Hanford Project Manager  
Washington Department of Ecology  
Mail Stop PV-11  
Olympia, Washington 98504-8711

Dear Mr. Nord:

QUALIFICATION OF THE HANFORD WASTE VITRIFICATION PLANT FOR INTERIM STATUS EXPANSION

Per Washington State Department of Ecology's (Ecology's) request, a revised Hanford Waste Vitrification Plant (HWVP) Part A permit application Form 3, was prepared and transmitted to your office on November 1, 1989. In the Part A revision transmittal letter, we stated our intent to seek interim status expansion for the HWVP, pursuant to the following:

1. Justification of the proposed facility (and action) for consideration under the provisions of Washington Administrative Code (WAC) 173-303-805(7)(c). WAC 173-303-805(7)(c) allows the expansion of Hanford's facilities for the treatment, storage, or disposal of dangerous waste "if the owner or operator submits a revised Part A permit application prior to such change, the requirements of WAC 173-303-281 are met and the department approves the change because: (i) it is necessary to prevent a threat to public health or the environment because of an emergency situation; or (ii) it is necessary to comply with state, local, or federal regulations."
2. Provision of comparative information documenting capital costs which would be required for a comparable entirely new Treatment, Storage, and/or Disposal (TSD) Facility. This is required to demonstrate that construction of the HWVP is pursuant to provisions of WAC 173-303-805(7)(e) stating that "in no event shall changes be made...under the interim status permit which amount to reconstruction of the facility." The WAC 173-303-805(7)(e) also states that "reconstruction occurs when the capital investment in the changes to the facility exceeds fifty percent of the capital cost of a comparable entirely new TSD facility."

The HWVP plays a major role in complying with Resource Conservation and Recovery Act Land Disposal Restrictions for mixed waste. Further justification of the role HWVP plays in complying with these restrictions and other regulations is addressed in the attachment.



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On March 2, 1990, a report entitled, "Estimated Replacement Costs for Hanford Site Treatment, Storage, and Disposal Units," was transmitted to your office. Based on this report, the cost of the HWVP waste management unit (\$965 million capital cost [1989 dollars]) is less than 50 percent of the estimated replacement costs for the existing TSD waste management units comprising the Hanford Site (the estimated total replacement costs are approximately \$6 billion). It is therefore concluded that HWVP could qualify for interim status expansion under the provisions of WAC 173-303-805(7)(e).

We are requesting that the information prepared to support the qualification of the HWVP for interim status expansion be reviewed and responded to by your staff. If you have any questions regarding this request and the associated information, please contact Mr. C. E. Clark of the U.S. Department of Energy, Richland Operations Office on (509) 376-9333 or Ms. C. J. Geier of Westinghouse Hanford Company on (509) 376-2237.

Sincerely,



R. D. Izatt, Director  
Environmental Restoration  
Richland Operations Office



R. E. Lerch, Manager  
Environmental Division  
Westinghouse Hanford Company

Enclosure:  
Role of the HWVP in Complying with  
Federal Laws and Regulations

cc w/encl.:  
P. T. Day, EPA  
C. E. Findley, EPA  
R. E. Lerch, WHC

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**ROLE OF THE HANFORD WASTE VITRIFICATION PLANT  
IN COMPLYING WITH FEDERAL LAWS AND REGULATIONS**

**INTRODUCTION**

The Washington Administrative Code (WAC) 173-303-805(7)(c) allows the expansion of Hanford's facilities for the treatment, storage, or disposal of dangerous waste "if the owner or operator submits a revised Part A permit application prior to such change, the requirements of WAC 173-303-281 are met and the department approves the change because: (i) it is necessary to prevent a threat to public health or the environment because of an emergency situation; or (ii) it is necessary to comply with state, local, or federal regulations." Expansion is defined in WAC 173-303-281(2)(c) as including "...., the addition of a new dangerous waste management process,...."

A revised Part A permit application for the Hanford Waste Vitrification Plant (HWVP) was submitted in November 1989 and the provisions of WAC 173-303-281 (Notice of Intent) were satisfied in February 1989.

The purpose of this document is to demonstrate that construction and operation of the HWVP is necessary to comply with federal laws and regulations.

**SUMMARY AND CONCLUSIONS**

In December 1981, Congress passed the Department of Energy National Security and Military Applications of Nuclear Energy Authorization Act of 1982 (Public Law 97-90). The President was directed by law to submit a report which sets forth his plans for the permanent disposal of high-level and transuranic wastes resulting from atomic energy defense activities. The report, The Defense Waste Management Plan, states that retrievable waste stored at Hanford which requires repository disposal will be immobilized in glass.

Operation of the HWVP is necessary to treat and transform high-level mixed wastes to a form suitable for final disposal in a geologic repository. The HWVP will treat liquid radioactive mixed waste (RMW) by converting it to a stable borosilicate glass. The wastes to be treated contain high levels of radioactivity, including isotopes of cesium, strontium, and assorted fission products. There are no other treatment facilities on the Hanford Site which have the capacity to immobilize the large quantities of waste to be treated by the HWVP (up to 8,800 gallons per day).

Approximately 1.9 million gallons of high-level waste currently stored at Hanford will require treatment prior to final disposal. There are constituents of this waste that are Land Disposal Restricted (LDR) under Title 40 of the Code of Federal Regulations (CFR) Part 268. The construction and operation of the HWVP is necessary to comply with Federal Land Disposal Restrictions.

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Since The Defense Waste Management Plan was mandated by Public Law 97-90 and since construction and operation of the HWVP is necessary to comply with the Federal Land Disposal Restrictions, interim status expansion is warranted for the HWVP pursuant to WAC 173-303-805(7)(c)(ii).

### DISCUSSION

Public Law 97-90, the Department of Energy National Security and Military Applications of Nuclear Energy Authorization Act of 1982, states that:

"The President shall submit to the Committees on Armed Services of the Senate and of the House of Representatives not later than June 30, 1983, a report which sets forth his plans for the permanent disposal of high-level and transuranic wastes resulting from atomic energy defense activities."

The Defense Waste Management Plan, dated June 1983, provides a thorough and detailed program management plan for the disposal of such wastes. The primary goal of this program is to utilize or dispose of high-level and transuranic (TRU) waste routinely, safely, and effectively. Borosilicate glass was selected as the waste form in 1983.

Defense high-level waste (HLW) and defense TRU waste are in interim storage at three sites, namely: at the Savannah River Plant (SRP), in South Carolina; at the Idaho National Engineering Laboratory (INEL), in Idaho; and at the Hanford Site. The orderly transition to permanent disposal at the three sites was intended to proceed sequentially. This approach permits the experience gained at the first site to be applied to the other sites thereby achieving the more efficient use of resources including funding.

Processing of HLW for disposal will begin at the SRP before the other two sites because it contains 75 percent of the DOE's tanked waste radioactivity and because environmental factors are less favorable than at the other two sites. The Defense Waste Management Plan identified the Hanford Site to be the second site on which a waste vitrification facility would be located. Immobilization of new and readily retrievable HLW by the HWVP will begin about 1999, after sufficient experience is available from SRP's vitrification process.

Since June 1983, the vitrification process has been evaluated to determine whether the waste form meets the criteria established under Resource Conservation and Recovery Act (RCRA). In 1984, Congress enacted the Hazardous Solid Waste Amendments (HSWA) to amend RCRA. Pursuant to HSWA, EPA promulgated restrictions on the land disposal of hazardous wastes. There are constituents of Hanford's tank wastes that are LDR under 40 CFR 268. Other constituents of this waste are expected to become subject to the Federal Land Disposal Restrictions in the near future. The EPA prohibits the restricted waste from being stored unless storage is "solely for the purpose of the accumulation of such quantities of hazardous waste as necessary to facilitate proper recovery, treatment, or disposal" (40 CFR 268.50[a]).

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In this manner, generators could not evade the requirements for waste treatment by storing wastes for an extended period of time. Compliance with this requirement for RMW is a particular problem at DOE facilities, including the Hanford Site. Because the EPA did not consider lack of treatment capacity for RMW, storage has become the only management option available. Until the HWVP is operating, the DOE-RL is not in a position to comply with the storage prohibition of 40 CFR 268.50 for RMW.

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<b>Subject</b> HANFORD WASTE VITRIFICATION PLANT INTERIM STATUS EXPANSION LETTER (TSD: TS-2-5)		

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