TANK WASTE REMEDIATION SYSTEM DRAFT ENVIRONMENTAL IMPACT STATEMENT

WASHINGTON STATE DEPARTMENT OF ECOLOGY

The Environmental Impact Statement is co-prepared by DOE and Ecology.

The Tank Waste Remediation System (TWRS) Draft Environmental Impact Statement (Draft EIS) has been prepared by the U.S. Department of Energy (DOE) and the Washington State Department of Ecology (Ecology) for the Hanford Site near Richland, Washington. The Draft EIS is available for public review and comment through May 28, 1996.

The TWRS Draft EIS assesses the environmental impacts associated with DOE's proposed action to manage and dispose of approximately 56 million gallons of waste in 177 underground tanks and in approximately 60 active and inactive miscellaneous underground storage tanks. The proposed Federal action also includes managing and disposing of approximately 1,930 cesium and strontium capsules at the Hanford Site.

The Draft EIS identifies and compares the potential environmental impacts associated with alternatives for managing and disposing of Hanford's radioactive, hazardous, nd mixed tank waste nd encapsulated cesium and strontium.

Washington State is responsible for issuing air, groundwater, and hazardous waste treatment, storage, and disposal permits for the Site. The proposed State action examined in the Draft EIS is the permitting of proposed waste management and disposal facilities for the tank waste and cesium and strontium capsules.

Background Information

From 1943 to 1989, the Hanford Site's principal mission was the production of weapons-grade plutonium. The process resulted in a large volume of radioactive, hazardous, and mixed waste (waste that is both radioactive and hazardous). Much of the waste is stored in single-shell and double-shell underground storage tanks located in the 200 Areas of the Hanford Site's Central Plateau.

Federal and State environmental regulations and the Tri-Party Agreement require DOE to manage and dispose of the tank waste. The tank waste and cesium and strontium capsules are currently safely stored; however, they represent a long-term risk to Site workers, the public, and the environment.

On January 28, 1994, DOE announced its intent to prepare the TWRS Draft EIS. Ecology and DOE signed a Memorandum of Understanding on February 15, 1994 to co-prepare this Draft EIS to streamline the environmental review process.

DOE and Ecology conducted a scoping process from January 23, 1994 to March 15, 1994 to define the issues for analysis in the Draft EIS. DOE and Ecology considered comments from Federal and State agencies, Tribal Nations, and the public in preparing the TWRS Draft EIS.

Public comments on the TWRS Draft EIS will be received through May 28, 1996.

Tank Waste Alternatives Considered in the Draft EIS

ne tank waste alternatives are analyzed in Volume One the Draft EIS. These alternatives are described in detail in the Draft EIS and major features of the alternatives are compared. The Draft EIS contains an analysis of the full range of reasonable alternatives for management and disposal of the tank waste, as required by the National Environmental Policy Act. DOE and Ecology recognize that some of the alternatives would not comply with existing Federal, state, and local environmental laws and regulations. Tank waste alternatives analyzed include the following:

No Action -- This alternative would involve the minimum activities required for safe and secure management of Hanford Site tank waste with the current tank farm configuration during the assumed 100-year duration of this alternative.

Long-Term Management -- As under the No Action alternative, this alternative would involve the minimum activities required for management of Hanford Site tank waste. However, additional measures to address safety id regulatory compliance issues would be taken, cluding upgrades to tank farms within the current single-shell tank farm configuration and the replacement of the double-shell tanks twice during the assumed 100-year duration of this alternative.

In Situ Fill and Cap -- This alternative would involve retrieval and evaporation of liquid waste from the double-shell tanks, filling all tanks with gravel and covering the tank farms with an earthen surface barrier and disposing of all tank waste onsite.

In Situ Vitrification -- This alternative would involve the retrieval and evaporation of liquid waste from the double-shell tanks. DOE then would vitrify (melt to form glass) all of the waste and tanks and cover the tank farms with an earthen barrier, disposing of all tank waste onsite.

Ex Situ No Separations -- This alternative would involve retrieval of all tank farm waste practicable (assumed to be 99 percent). DOE then would either vitrify or calcine (heat waste to form a dry powder waste form) the waste and package the treated waste form for onsite storage id eventual offsite disposal at a geologic repository.

Ex Situ Intermediate Separations -- This alternative would involve the retrieval of all tank farm waste (99 percent) and separation of the waste into high-level and low-activity waste streams using sludge washing and ion exchange. DOE then would vitrify the waste streams in separate facilities and package the treated waste form for onsite disposal of immobilized low-activity waste and offsite disposal of immobilized high-level waste at a geologic repository.

Ex Situ Extensive Separations -- This alternative would involve the retrieval of all tank farm waste (99 percent) and separate the waste into high-level and low-activity waste streams using sludge wash, ion exchange, caustic leach, and acid dissolution. DOE then would vitrify the waste streams in separate facilities and package the treated waste form for onsite disposal of the immobilized low-activity waste and offsite disposal of immobilized high-level waste at a geologic repository.

Ex Situ/In Situ Combination -- This alternative would involve the retrieval of 90 percent of the contaminants that pose the greatest potential long-term health and environmental risk from the tanks (50 percent estimated by volume). The retrieved waste then would be separated into high-level and low-activity waste streams using sludge washing and ion exchange, vitrifed in separate facilities, and packaged. The immobilized low-activity waste would be disposed of onsite and the immobilized high-level waste would be disposed of offsite at a geologic repository. All tanks would be filled with gravel, including those with waste that had not been retrieved, and covered with a barrier, permanently disposing of the waste in-place.

Phased Implementation (DOE and Ecology's preferred alternative) -- This is a phased implementation of an alternative similar to the Ex Situ Intermediate Separations alternative. For Phase 1, commercial demonstration-scale facilities would be constructed that would include one low-activity waste separations and vitrification demonstration facility and one low-activity and high-level waste vitrification demonstration facility to operate for up to 10 years. These facilities could treat up to 30 percent of the tank waste by volume during the 10-year operating period.

The EIS also describes the potential impact of each alternative on the environment.

Tank Waste Alternatives Considered in the Draft EIS (con't)

For Phase 2, larger capacity separations and vitrification facilities would be constructed to retrieve the remaining waste, separate the waste into low-activity and high-level waste streams, vitrify the waste in separate facilities, and package the waste and dispose of the low-activity waste onsite in near-surface vaults and the high-level waste offsite at a geologic repository.

Why the Preferred Alternative was Selected
DOE and Ecology have identified the Phased Implementation alternative as the preferred alternative for the tank wastes. The preferred alternative provides a balance among key factors including: short-term and long-term human health and the environment; management of uncertainties associated with waste characteristics and treatment technologies; and compliance with laws, regulations, and policies.

Capsule Alternatives Considered in the Draft EIS

Four cesium and strontium capsule alternatives are analyzed in Volume One of the Draft EIS. These alternatives include:

No Action -- This alternative would continuing existing operations and maintenance in the Hanford Site Waste Encapsulation and Storage Facility for 10 years.

Onsite Disposal -- This alternative would involve overpacking the cesium and strontium in canisters and disposing of the canisters onsite in a newly constructed dry-well storage facility.

Overpack and Ship -- This alternative would overpack the cesium and strontium into canisters, which then would be overpacked into Multi-Purpose Canisters, and disposed of offsite at a geologic repository.

Vitrify with Tank Waste -- This alternative would involve removing capsule contents and vitrifing the waste with the high-level tank waste, placing the immobilized waste in Multi-Purpose Canisters, and disposing of the waste offsite at the proposed national high-level waste repository. This alternative only can be implemented if vitrification of high-level waste is chosen for tank waste.

DOE and Ecology have not identified a preferred alternative for the encapsulated cesium and strontium.

DOE and Ecology Invite Public Comments on the Draft EIS

DOE and Ecology invite all interested parties to submit written comments concerning the Draft EIS during a 45-day comment period ending May 28, 1996. Written comments will be accepted until May 28, 1996. Written comments must be postmarked by May 28, 1996. Comments postmarked after that date will be considered to the extent practicable.

Mail written comments to:

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Submit comments via the Internet: TWRSEIS@ken01.JACOBS.com or via Facsimile: (509) 736-7504.

For information or to receive a copy of the Draft EIS, call the toll-free Hanford Cleanup line at 1-800-321-2008.

Public Hearings on the Draft EIS

DOE and Ecology will consider comments on the Draft EIS prior to completing the Final EIS. The Final EIS will include a list of public comments and the response to comments by DOE and Ecology.

The public is invited to attend public hearings at which oral comments will be received on the Draft EIS. Written comments also may be submitted at these public hearings. DOE and Ecology will conduct workshops and meetings on the Draft EIS for interested organizations. To schedule a workshop or meeting, call 1-800-321-2008. A public meeting will be held on May 7, 1996 from 6:00 p.m. to 9:00 p.m. at the Sheraton National Hotel, 900 Orme Street, Arlington, Virginia.

Public hearings will be held on:

May 2, 1996
6:00 p.m. to 9:00 p.m.
Hawk Union Bldg., West Dining Room
Columbia Basin College
2600 North 20th Avenue
Pasco, Washington

May 9, 1996
6:00 p.m. to 9:00 p.m.
Multnomah Room
Red Lion Hotel at Lloyd Center
1000 NE Multnomah Drive
Portland, Oregon

DOE Public Reading Rooms and Information Repositories

The Draft EIS and supporting documents are available for public review at the following locations:

Suzzallo Library
University of Washington
Government Publications Room
Seattle, WA

Foley Center
Gonzaga University
E. 502 Boone
Spokane, WA

DOE Reading Room
Washington State University
Tri-Cities Campus
100 Sprout Road, Room 130
Richland, WA

Bradford Price Millar Library
Science and Engineering Floor
Portland State University
SW Harrison and Park
Portland, OR

Summary of the Contents of the Draft EIS

The Summary of the Draft EIS is available for those who do not wish to read or have the entire Draft EIS. When requesting a copy of the Draft EIS, please indicate whether you wish to receive only the Summary, the entire draft document and associated appendices, or a specific volume, as listed below:

Summary:	Summary of the alternatives and analysis presented in the EIS (50 pages)
Volume One:	Text of the TWRS Draft EIS (600 pages)
	Volumes Two to Five include appendices supporting the analysis summarized in Volume One (400 to 600 pages per volume)
Volume Two:	Appendix A -- TWRS EIS Waste Inventory Data
	Appendix B -- Description of Alternatives
	Appendix C -- Alternatives Considered but Rejected from Further Evaluation
Volume Three:	Appendix D -- Anticipated Risk
Volume Four:	Appendix E -- Risk from Accidents
	Appendix F -- Groundwater Modeling
Volume Five:	Appendix G -- Air Modeling
	Appendix H -- Socioeconomic Impact Modeling
	Appendix I -- Affected Environment
	Appendix J -- Consultation Letters