





# U.S. Department of Energy's Record of Decision *Transportation of Transuranic Waste to the Waste Isolation Pilot Plant*

In a Record of Decision issued January 23, 1998, the Department of Energy announced its intent to dispose of its defense-generated transuranic (TRU) waste at the Waste Isolation Pilot Plant (WIPP), near Carlsbad, NM, and to transport the waste to WIPP by truck. TRU waste can be anything contaminated with manmade radioactive elements heavier than uranium, mostly plutonium. Examples include protective clothing, tools, piping, and air filters.

Approximately 40,000 shipments of TRU waste are expected to arrive at WIPP over its 35-year period of operation. Trucks will travel to WIPP from the Department's TRU waste sites over routes designated by the U.S. Department of Transportation (DOT) and the States along each route, and in compliance with DOT and Nuclear Regulatory Commission (NRC) requirements.

## **Packaging TRU Waste for Shipment**

TRU waste is packaged and handled to avoid risk to people. Containers with contact-handled TRU waste can be lifted and moved directly by trained workers. Containers with remote-handled TRU waste require special shielding and special training for workers.

Trucks will transport contact-handled TRU waste to WIPP in NRC-approved packages called TRUPACT-IIs. Each truck could carry as many as three TRUPACT-IIs, each of which can hold up to fourteen 55-gallon drums or two waste boxes.

Trucks will transport remote-handled TRU waste in containers called RH-72B casks, which are currently awaiting NRC certification. Each truck could carry a single canister containing up to three 55-gallon drums of TRU waste.

## **Ensuring Safety**

The Department ensures safe shipments through:

— **Waste Acceptance Criteria:** Before being shipped to WIPP, all waste must be characterized and packaged according to strict safety criteria for transportation.

— **Safe Shipping Containers:** The TRUPACT-II and the RH-72B cask are constructed to withstand severe accidents without releasing their contents.

— **Stringent Driver Qualifications:** Drivers must pass strict traffic safety and emergency response exams, maintain good driving records, and renew their certifications every year.

— **Emergency Response Training:** In addition to its own emergency response capabilities, the Department of Energy has and will continue to provide emergency response training to police, fire, and medical personnel located along the WIPP transportation routes.

— **Advance Notification:** A shipment schedule will be provided to affected States and Tribes each year, with a mid-year update.

— **Safety Inspections:** States perform an enhanced inspection of the vehicle and its contents before a shipment leaves a site to confirm the vehicle's safety.

— **Advanced Tracking System:** The Transportation Tracking and Communications System uses communications and satellite equipment to track each truck along its route. State and Tribal emergency response and law enforcement officials can use the system to track shipments through their jurisdictions. The system also makes the appropriate notifications prior to a shipment crossing a State's border.

## **Future Rail Option**

The Department may decide to use commercial rail service for TRU waste transportation in the future in order to reduce the number of shipments. Any future plans to use rail service will be made with State, Tribal and local involvement.

## **For More Information**

The Record of Decision was published in the January 23, 1998, issue of the *Federal Register*. Information on the transportation of TRU waste to WIPP is available from:

WIPP Information Center:  
1-800-336-WIPP (1-800-336-9477)

National Transuranic Waste  
Program Home Page: <http://www.wipp.carlsbad.nm.us>



# U.S. Department of Energy's Record of Decision Waste Management Program: Treatment and Storage of Transuranic Waste

## Record of Decision

The Department of Energy has issued a Record of Decision announcing its decision on where the Department will prepare its transuranic (TRU) waste for disposal and storage until shipment to the Waste Isolation Pilot Plant (WIPP).

This is the first of a series of Records of Decision on each of the five waste types evaluated in the *Department of Energy Waste Management Programmatic Environmental Impact Statement* (WM PEIS, May 1997).

## Background

For each of the five waste types, i.e., *low-level waste, low-level mixed waste, transuranic waste, high-level waste, and hazardous waste*, the WM PEIS analyzed alternative configurations of the Department's sites for locating waste management operations. Some alternatives evaluated decentralized approaches, in which all or most of the Department's sites would manage their own waste, while other alternatives evaluated regionalized or centralized approaches, in which the Department would consolidate its waste management operations.

## TRU Waste Defined

TRU waste is generated from nuclear weapons production and dismantlement, and research and development activities. TRU waste can include anything contaminated with manmade radioactive elements heavier than uranium, mostly

plutonium. TRU waste generally consists of, for example, protective clothing, tools, piping, and air filters.

## The Department's Decision

The Department will use a decentralized approach for the preparation and storage of its TRU waste prior to disposal. This means that each of its sites having or generating TRU waste in the future will store it on site while preparing it for shipment to WIPP. An exception to this is that the Sandia National Laboratory in New Mexico will transfer its TRU waste to the Los Alamos National Laboratory, also in New Mexico, for preparation and storage prior to disposal.

## Preparing TRU Waste for Disposal

To prepare the waste for shipment to WIPP, the Department will use either fixed or mobile facilities to characterize, treat (as needed) and package the waste to meet waste acceptance criteria for disposal at the Waste Isolation Pilot Plant near Carlsbad, NM. In the future, the Department may decide to transfer TRU waste from sites where it may be impractical to treat the waste to meet WIPP waste acceptance criteria to other sites having the necessary facilities. Such decisions, however, would be subject to regulatory review and to applicable agreements between the Department and affected States where TRU waste is stored.

## Disposal at WIPP

The Department has coordinated its Record of Decision on the nationwide configuration of sites for treating and storing TRU waste with its Record of Decision following the *Waste Isolation Pilot Plant Disposal Final Phase Supplemental Environmental Impact Statement* (WIPP SEIS-II, September 1997).

The WIPP SEIS-II Record of Decision identifies WIPP, a geologic repository near Carlsbad, NM, as the *disposal location* of TRU waste and requires that the *level of treatment* to prepare the waste conform to the waste acceptance criteria (Revision 5 as described in the WIPP SEIS-II) for WIPP.

## Decisions Published

The Department of Energy published these two Records of Decision on the treatment, storage and disposal of TRU waste in the January 23, 1998, edition of the *Federal Register*.

## For More Information

Center for Environmental Management, 1-800-736-3282 (in D.C., 202-863-5084)

Waste Management Home Page:  
<http://www.em.doe.gov/em30/>

WIPP Information Center:  
1-800-336-WIPP (1-800-336-9477)

National Transuranic Waste Program Home Page: <http://www.wipp.carlsbad.nm.us>

# RECORD OF DECISION



*for the*

*Treatment and Storage of Transuranic Waste  
Pursuant to the  
Waste Management Programmatic Environmental Impact  
Statement*

*January 1998*

Billing Code: [6450-01-P]

**DEPARTMENT OF ENERGY**

*Record of Decision for the Department of Energy's Waste Management Program: Treatment and Storage of Transuranic Waste*

**AGENCY: Department of Energy**

**ACTION: Record of Decision**

**SUMMARY:** The Department of Energy (DOE) is issuing this Record of Decision on where, i.e., at which DOE sites, the Department will prepare and store its transuranic (TRU) waste prior to disposal. Each of the Department's sites that currently has or will generate TRU waste will prepare and store its TRU waste on site, except that the Sandia National Laboratory in New Mexico (SNL-NM) will transfer its TRU waste to the Los Alamos National Laboratory (LANL) in New Mexico. LANL will have facilities, not available or anticipated at SNL-NM, to prepare and store this waste prior to disposal.

DOE made this decision based on analyses in the *Department of Energy Final Programmatic Waste Management Environmental Impact Statement (WM PEIS) (May 1997)* and other information. This decision differs slightly from the Preferred Alternative in the WM PEIS. The Appendix to this Record of Decision lists the sites for which DOE analyzed the potential impacts of treating (which includes packaging) and storing TRU waste in the WM PEIS. The potential health and environmental impacts of this decision were identified and evaluated in the Decentralized Alternative of the WM PEIS.

In the future, the Department may decide to ship TRU wastes from sites where it may be impractical to prepare them for disposal to sites where DOE has or will have the necessary

capability. The sites that could receive such shipments of TRU waste are the Idaho National Engineering and Environmental Laboratory (INEEL), the Oak Ridge Reservation (ORR), the Savannah River Site (SRS) and the Hanford Site. However, any future decisions regarding transfers of TRU wastes would be subject to appropriate review under the National Environmental Policy Act (NEPA), and to agreements DOE has entered into, such as those with States, relating to the treatment and storage of TRU waste. Future NEPA review could include, but would not necessarily be limited to, analysis of the need to supplement existing environmental reviews. DOE would conduct all such TRU waste shipments between sites in accordance with applicable transportation requirements and would coordinate these shipments with appropriate State, Tribal and local authorities.

This Record of Decision was prepared in coordination with the Record of Decision issued on January 16, 1998, on disposal of DOE's TRU waste, which is based on the *Waste Isolation Pilot Plant Disposal Phase Final Supplemental Environmental Impact Statement (WIPP SEIS-II)*, issued in September 1997. On the basis of the analyses in the WIPP SEIS-II, DOE decided to dispose of TRU waste generated by defense activities at the WIPP near Carlsbad, New Mexico, after preparation (i.e., treatment, as necessary, and packaging) to meet WIPP's waste acceptance criteria.

**FOR FURTHER INFORMATION:** Copies of the WM PEIS and this Record of Decision 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 Record of Decision 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 Record of Decision, or a list of the reading rooms and public libraries, please write or call:

The Center for Environmental Management Information  
P.O. Box 23769  
Washington, D. C. 20026-3769  
Telephone: 1-800-736-3282 (in Washington, D.C.: 202-863-5084)

For further information on DOE's national Waste Management Program, the WM PEIS, or this Record of Decision, please write or call:

Ms. Patrice Bubar, Director  
Office of Planning and Analysis (EM-35)  
United States Department of Energy  
Office of Environmental Management  
19901 Germantown Road  
Germantown, MD 20874  
Telephone: (301) 903-7204

For general information on the U.S. Department of Energy National Environmental Policy Act process, please write or call:

Ms. Carol M. Borgstrom, Director  
Office of NEPA Policy and Assistance (EH-42)  
United States 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 (800) 472-2756

## **SUPPLEMENTARY INFORMATION:**

### **Background**

DOE prepared this Record of Decision pursuant to the Council on Environmental Quality's regulations for implementing NEPA (40 CFR Parts 1500-1580) and DOE's NEPA Implementing Procedures (10 CFR Part 1021). This Record of Decision is based on analyses contained in the *Department of Energy's Final Waste Management Programmatic Environmental Impact Statement* (DOE/EIS-0200-F). DOE published a notice of its intent to prepare the WM PEIS in the Federal Register on October 25, 1990. DOE issued a Draft WM PEIS on September 22, 1995, and hearings were held during the public comment period, which closed on February 19, 1996. All public comments were addressed in the Final WM PEIS, which DOE issued on May 30, 1997.

### **Purpose and Need for Agency Action**

DOE needs facilities to manage its radioactive and hazardous wastes in order to maintain safe, efficient, and cost-effective control of these wastes; to comply with applicable Federal and state laws; and to protect public health, safety and the environment. The WM PEIS is a Department-wide study of the environmental impacts of managing five types of waste generated by defense and research activities at a variety of DOE sites around the United States. The five waste types are: low-level mixed waste, low-level waste, TRU waste, high-level waste, and hazardous waste. The WM PEIS examines, in an integrated fashion, the potential impacts of managing these waste

types and the cumulative impacts of waste management, transportation and other ongoing and reasonably foreseeable activities.

The WM PEIS provides information on the potential impacts of alternatives for nationwide waste management that DOE will use to decide, on a programmatic basis, where, i.e., at which DOE sites, to locate particular waste management facilities. However, DOE will not decide the specific location of new facilities at sites selected to manage a particular type of waste, or a facility's capacity and design, until DOE completes appropriate site-wide or project-specific NEPA reviews, such as an environmental assessment or environmental impact statement. These subsequent analyses would rely, to the extent appropriate, on the analyses in the WM PEIS.

This Record of Decision applies only to the treatment (including packaging) and storage of TRU waste as analyzed in the WM PEIS. Records of Decision for the four other waste types analyzed in the WM PEIS will be issued in due course. An Appendix to this Record of Decision identifies the major sites evaluated in the WM PEIS as potential locations for waste management operations, and the sites analyzed that have TRU waste.

#### **TRU Waste Treatment and Storage**

TRU waste is waste containing more than 100 nanocuries of alpha-emitting transuranic isotopes per gram of waste, with half-lives greater than 20 years (a few exceptions to this definition are identified in the WM PEIS). Over 99% of the total volume of existing and anticipated TRU waste is located at the DOE sites listed in the Appendix. TRU waste is categorized as either contact-handled (CH) or remote-handled (RH), based on the radiation level at the surface of the

waste container. CH-TRU waste constitutes more than 85% of the total existing and anticipated volume of TRU waste considered in the WM PEIS. CH containers can be safely handled by direct contact, with appropriate health and safety measures. RH-TRU waste contains a greater proportion of radionuclides that produce highly penetrating radiation, and thus RH containers require special handling and shielding during waste management operations.

### **Alternatives Considered**

In the WM PEIS, the term "alternative" refers to a nationwide configuration of sites for treating, storing, or disposing of a waste type. The alternatives analyzed for each waste type fall within the four broad categories described below.

*No Action Alternatives.* These alternatives involve the use of currently existing or planned waste management facilities at DOE sites. In the NEPA process, a no action alternative or "status quo" alternative may not comply with applicable laws and regulations; however, analysis of such an alternative is required and provides an environmental baseline against which the impacts of other alternatives can be compared.

*Decentralized Alternatives.* These alternatives involve managing waste where it is or will be generated. Unlike the no action alternatives, the decentralized alternatives may require the siting, construction, and operation of new facilities or the modification of existing facilities. Under the decentralized alternatives, waste management facilities would be located at a larger number of sites than under regionalized or centralized alternatives.

*Regionalized Alternatives.* These alternatives involve consolidating waste management activities by transporting wastes to a limited number of sites (fewer than the number of sites considered for the decentralized alternatives but greater than the number of sites considered for the centralized alternatives). In general, sites with the largest volumes of a particular waste type were evaluated as potential regional sites for consolidating waste management activities.

*Centralized Alternatives.* These alternatives involve consolidating management of wastes at fewer locations than the regionalized alternatives (typically one to three locations). As was the case for the regionalized alternatives, generally those sites with the largest volumes of a particular waste type were evaluated as potential sites for centralized waste management.

There are many possible combinations of the number and locations of DOE sites for waste management facilities. To limit these combinations to a reasonable number for meaningful analysis, DOE selected alternatives that cover the full spectrum of reasonable alternatives under each category for each waste type. Table 1 summarizes the alternatives for TRU waste treatment storage that are analyzed in the WM PEIS, and the preferred alternative that DOE developed based on the analysis and other relevant criteria identified in the WM PEIS.

**Table 1: Summary of TRU Waste Alternatives Analyzed in the WM PEIS**

<u>Alternative Category</u>	<u>Description</u>
No Action	Eleven sites* that anticipate generating TRU waste in the future would prepare TRU waste to meet planning-basis WIPP waste acceptance criteria**; existing TRU waste at 16 sites would be stored indefinitely; assumes TRU waste would not be transported among sites.
Decentralized	Either fixed or mobile characterization facilities would be operated at sites that would need to retrieve existing TRU waste, treat, repackage, and ship the waste. TRU waste would be shipped from the 6 sites with the smallest amounts to the nearest site of the 10 sites (ANL-E, NTS, Hanford, INEEL, LANL, LLNL, Mound, ORR, RFETS, SRS) with the largest amounts of TRU waste for storage prior to disposal; assumes for purposes of analysis that the waste would be prepared to meet waste acceptance criteria for WIPP and that disposal would occur at WIPP.
Regionalized (3 Subalternatives)	Three subalternatives differ in the level of treatment assumed for the purpose of impact analysis and the number of sites at which treatment would occur; RH-TRU waste would be treated and stored at Hanford and ORR; CH-TRU waste would be treated and stored at all sites considered in each alternative except ORR; all three subalternatives assume for purposes of analysis that disposal would occur at WIPP. Subalternatives: 1. TRU waste would be shipped from the 10 sites with the smallest amounts to the 6 sites with the largest amounts (together having 95% of current and anticipated TRU inventories) for treatment to reduce gas generation and storage prior to disposal. 2. TRU waste would be shipped as described for Regionalized Alternative 1; the waste would be treated to meet Land Disposal Restrictions (LDRs). 3. TRU waste would be consolidated at the 4 sites with approximately 80% of the current and anticipated inventories; treatment to meet LDRs would occur at these 4 sites.
Centralized	All CH-TRU waste would be treated at WIPP to meet LDRs; all RH-TRU waste would be treated at Hanford or ORR to meet LDRs and stored there until disposal; assumes for purposes of analysis that disposal would occur at WIPP.
Preferred	Combination of the Decentralized Alternative, under which most TRU waste would be treated and stored where it is located, and parts of the Regionalized Alternative, under which some TRU waste could be shipped to INEEL, LANL, ORR, and SRS for treatment and storage, pending disposal, with the level of treatment and whether to dispose of TRU wastes at WIPP to be decided on the basis of analyses in the WIPP SEIS-II.

\* The Appendix to this Record of Decision lists the sites' names and their abbreviations.

\*\* WIPP waste acceptance criteria Revision 5 as defined in the WIPP SEIS-II.

## **Environmentally Preferable Alternative**

The WM PEIS analyzed a number of potential impacts, including those on human health, air and water resources, ecological resources, land use, and site infrastructures for each of the major sites at which waste management facilities might be located. Differences in impacts among all of the action alternatives were small. Nonetheless, all potential impacts identified in the WM PEIS were considered in DOE's selection of the preferred alternative, its identification of the environmentally preferable alternative, and its decision regarding treatment and storage of TRU waste.

For the 20-year period of waste management operations analyzed in the WM PEIS, the potential impacts under the No Action alternative for TRU waste management are smaller than those identified under the action alternatives, and on this basis, the No Action alternative could be considered to be the environmentally preferable alternative. However, the No Action alternative assumes indefinite storage, and therefore does not include preparing and shipping the waste for disposal, i.e., permanent isolation from the human environment. Although the No Action alternative could pose less risk to workers and communities surrounding DOE's sites for the first 20 years, the longer-term risks are likely to exceed those for the first 20 years, not only as a result of continuing routine storage operations, but also as a result of degradation of storage facilities and containers.

Taking these circumstances into account, the Department considers the environmentally preferable alternative to be the Decentralized Alternative under which DOE will prepare the TRU waste for disposal with minimal transportation. Transportation of TRU waste would occur

only in situations where the sites at which the waste is located lack the capability to prepare it for disposal.

**Decision: DOE National Programmatic Configuration for Treatment and Storage of TRU Waste Prior to Disposal**

The Department will develop and operate mobile and fixed facilities to characterize and prepare TRU waste for disposal at WIPP. Each of the DOE's sites that has, or will generate, TRU waste will, as needed, prepare and store its TRU waste on site, except that the SNL-NM will transfer its TRU waste to LANL in New Mexico. LANL will have facilities, not available or anticipated at SNL-NM, to prepare and store this waste prior to disposal.

**Basis for the Decision**

Although the No Action Alternative resulted in the lowest impacts among the alternatives analyzed in the WM PEIS over the next 20 years, DOE did not select this alternative because it does not meet the Department's needs for the continued, safe management of TRU waste. Under the No Action Alternative, health and environmental impacts would continue to occur beyond the 20-year period of analysis in the WM PEIS. In the WIPP SEIS-II Record of Decision (discussed further below), DOE decided to dispose of TRU waste at WIPP, after treatment to meet the planning basis waste acceptance criteria. The No Action alternative evaluates treatment to meet the WIPP waste acceptance criteria only for TRU waste to be generated in the future; i.e., existing retrievably stored TRU waste would not be prepared to meet WIPP waste

acceptance criteria. Eventually, the stored waste as well as the newly generated and treated waste would have to be repackaged to maintain safe storage conditions.

Among the action alternatives, health and environmental impacts are generally similar over the 20-year period of analysis. DOE's decision seeks to limit environmental impacts and costs, while providing for the safe management of DOE's TRU waste. Among the action alternatives, the life cycle costs estimated in the WM PEIS are lowest for the Decentralized Alternative.

The level of treatment analyzed under the Decentralized Alternative in the WM PEIS corresponds to the level of treatment selected in the Record of Decision for the WIPP SEIS-II for preparing the TRU waste for disposal. Thus the potential health and environmental impacts of treating TRU waste in accordance with the WIPP waste acceptance criteria are identified and evaluated in the analysis of the Decentralized Alternative, which also identifies the potential impacts of treating and storing waste from SNL-NM at LANL.

### **Future Decisions**

The Department may, in the future, decide to transfer TRU wastes from sites where it may be impractical to prepare them for disposal to sites where DOE has or will have the necessary capability. The sites that could receive such shipments of TRU waste are INEEL, ORR, SRS and Hanford. However, any future decisions regarding transfers of TRU waste would be subject to appropriate NEPA review, and to agreements, such as those between DOE and States, relating to the treatment and storage of TRU waste. Future NEPA review could include, but would not necessarily be limited to, analysis of the need to supplement existing environmental reviews.

DOE would conduct all such TRU waste shipments between sites in accordance with applicable transportation requirements and would coordinate these shipments with appropriate State, Tribal and local authorities.

As provided by 10 CFR §1021.315, the DOE may revise this Record of Decision in the future as long as the revised decision is adequately supported by existing environmental impact statements. Revision of this Record of Decision could occur, for example, as new technology or information from ongoing studies becomes available, or as DOE identifies situations in which it would be appropriate to transfer TRU waste to INEEL, ORR, SRS or Hanford. Implementation of the Record of Decision is subject to compliance with all applicable Federal, State, and local requirements.

#### **Differences from the Preferred Alternative in the WM PEIS**

This decision differs from the preferred alternative identified in the WM PEIS in three respects. First, the preferred alternative in the WM PEIS included treatment and storage of ORR's RH-TRU waste on site, and treatment and storage of ORR's CH-TRU waste at SRS. Since publication of the WM PEIS, the Department has been considering treatment, as needed, of both ORR's CH-TRU and RH-TRU waste at ORR, because the radiation levels of ORR's CH-TRU waste are close to the levels of ORR's RH-TRU waste, and because the two waste forms share other physical characteristics. By including treatment of ORR's CH-TRU waste with its RH-TRU waste, DOE would reduce the need to transport CH-TRU waste and achieve economies of scale. The proposed action for a TRU waste facility at ORR that could treat, as needed, both its CH-TRU and RH-TRU wastes is subject to appropriate site-specific review under NEPA.

The second difference between this decision and the preferred alternative in the WM PEIS concerns RH-TRU waste at SRS. The preferred alternative called for transferring this waste to ORR for treatment and storage. The Department has now decided that it should defer any determination whether to transfer RH-TRU waste from SRS to ORR until DOE has the results of the NEPA review for the proposed ORR facility and additional information regarding its capability to meet transportation requirements for shipping the RH-TRU waste to ORR.

The third difference between this decision and the preferred alternative in the WM PEIS concerns the transfer of a portion of the TRU waste at the Rocky Flats Environmental Technology Site (RFETS) to INEEL. Since publication of the WM PEIS, additional information about the characteristics of the TRU waste at RFETS has become available indicating that existing or anticipated facilities at RFETS may be able to prepare this waste for disposal. If, in the future, RFETS needs to use another site's capability to prepare some of its TRU waste for disposal, DOE will complete any further review under NEPA that may be necessary, and will notify the appropriate State, Tribal and local authorities prior to making a final decision.

#### **Coordinated Decision on Level of Treatment and Disposal of TRU Waste**

This Record of Decision has been prepared in coordination with the WIPP SEIS-II Record of Decision (January 16, 1998), which specifies the *level* of treatment for, and the *disposal location* of, TRU waste generated by defense activities. The decisions on the level of treatment of TRU waste and where to dispose of it are based on analyses in the WIPP SEIS-II. In the WIPP SEIS-II Record of Decision, DOE has decided that TRU waste destined for disposal at WIPP will be treated to meet the planning basis waste acceptance criteria (Revision 5 of the waste acceptance

criteria as defined in the WIPP SEIS-II), which establish the minimum requirements for preparing TRU waste for disposal at WIPP. DOE has treated in the past and based on site-specific circumstances, may decide in the future to treat TRU waste at some sites more extensively than is required under the WIPP waste acceptance criteria.

## **Mitigation**

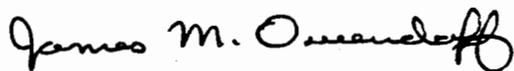
Chapter 12 of the WM PEIS describes measures that DOE takes in order to minimize the impacts of its waste management activities. Mitigation measures are an integral part of the Department's operations, so as to avoid, reduce, or eliminate potentially adverse environmental impacts. Some of the more important mitigation measures that DOE will continue during the treatment and storage of TRU waste are:

- Use of pollution prevention plans;
- Assistance to States, Tribes, local governments, and other public entities concerning human health, environmental, and economic impacts, including transportation planning and emergency response assistance;
- Use of "cleaner" waste treatment and storage technologies as they become available;
- Rigorous quality assurance programs for the characterization of TRU waste;
- Reuse of existing facilities wherever feasible rather than construction of new facilities;

- Occupational safety and health training to ensure that workers understand operational safety procedures.

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

Issued in Washington, D.C. this 20th day of January, 1998.



James M. Owendoff  
Acting Principal Deputy Assistant Secretary  
for Environmental Management

## Appendix

### *Sites Evaluated in the WM PEIS and Sites with TRU Waste*

<u>Abbreviation</u>	<u>Full Name</u>	<u>State</u>	<u>Major Site<sup>1</sup></u>	<u>TRU Waste</u>
ANL-E	Argonne National Laboratory - East	IL	Yes	Yes
BNL	Brookhaven National Laboratory	NY	Yes	No
ETEC	Energy Technology Engineering Center	CA	No	Yes
FEMP	Fernald Environmental Management Project	OH	Yes	No
Hanford	Hanford Site	WA	Yes	Yes
INEEL	Idaho National Engineering and Environmental Laboratory	ID	Yes	Yes
LBL	Lawrence Berkeley Laboratory	CA	No	Yes
LLNL	Lawrence Livermore National Laboratory	CA	Yes	Yes
LANL	Los Alamos National Laboratory	NM	Yes	Yes
Mound	Mound Plant	OH	No	Yes
NTS	Nevada Test Site	NV	Yes	Yes
ORR	Oak Ridge Reservation	TN	Yes	Yes
PGDP	Paducah Gaseous Diffusion Plant	KY	Yes	Yes
Pantex	Pantex Plant	TX	Yes	No
PORTS	Portsmouth Gaseous Diffusion Plant	OH	Yes	No
RFETS	Rocky Flats Environmental Technology Site	CO	Yes	Yes
SNL/NM	Sandia National Laboratories-New Mexico	NM	Yes	Yes
SRS	Savannah River Site	SC	Yes	Yes
UofMO	University of Missouri	MO	No	Yes
WIPP	Waste Isolation Pilot Plant	NM	Yes	No
WVDP	West Valley Demonstration Project	NY	Yes	Yes

<sup>(1)</sup> Sites analyzed in the WM PEIS as potential locations for waste management facilities for one or more types of waste

# RECORD OF DECISION



*for the*

*Department of Energy's  
Waste Isolation Pilot Plant Disposal Phase*

*January 1998*

Billing Code: [6450-01-P]

DEPARTMENT OF ENERGY

*Record of Decision for the Department of Energy's Waste Isolation Pilot Plant Disposal Phase*

AGENCY: U.S. Department of Energy

ACTION: Record of Decision

SUMMARY: The Department of Energy (DOE or Department) is issuing this record of its decision to dispose of transuranic (TRU) waste at the Waste Isolation Pilot Plant (WIPP), a mined repository located 2,100 feet below the surface in an ancient salt deposit near Carlsbad, New Mexico. Under this decision, DOE will dispose of up to 175,600 cubic meters (6.2 million cubic feet) of TRU waste generated by defense activities at WIPP after preparation (i.e., treatment, as necessary, including packaging) to meet WIPP's waste acceptance criteria. This waste includes TRU waste accumulated in aboveground storage since 1970 and TRU waste to be generated over approximately the next 35 years. This waste does not include TRU waste commingled with polychlorinated biphenyls in concentrations greater than or equal to 50 parts per million. Transportation of waste to WIPP will initially be by truck, although the Department reserves the option to use commercial rail transportation in the future. DOE will comply with the requirements and waste limits in the WIPP Land Withdrawal Act, as amended, and the Consultation and Cooperation Agreement between New Mexico and the Department of Energy. DOE has applied for a permit from the New Mexico Environment Department under the Resource Conservation and Recovery Act concerning mixed TRU waste (TRU waste containing radioactive and hazardous constituents); such a permit is not needed for disposal of other TRU waste at WIPP.

Implementation of this decision is contingent upon obtaining a Compliance Certification from the United States Environmental Protection Agency (EPA). EPA recently proposed to certify that WIPP complies with applicable EPA requirements for TRU waste disposal (62 FR 58792, October 30, 1997).

This Record of Decision documents the Department's decision to implement the Preferred Alternative, as analyzed in the "Waste Isolation Pilot Plant Disposal Phase Final Supplemental Environmental Impact Statement" (DOE/EIS-0026-FS2, September 1997) (SEIS-II). This Record of Decision is being issued in coordination with the preparation of the Record of Decision on the treatment and storage of TRU waste, which is based on the "Waste Management Programmatic Environmental Impact Statement" (DOE/EIS-0200, May 1997) (WM PEIS). The WM PEIS Record of Decision will specify the DOE sites at which TRU waste will be prepared and stored before disposal.

**FOR FURTHER INFORMATION CONTACT:**

For further information regarding WIPP SEIS-II and transuranic waste contact:

Harold Johnson, SEIS-II Document Manager  
Mail Stop 535  
U.S. Department of Energy, Carlsbad Area Office  
Post Office Box 3090  
Carlsbad, NM 88221  
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## **SUPPLEMENTARY INFORMATION:**

### **Background**

Since the mid-1940s, DOE's research and development, nuclear weapons production, and nuclear fuel reprocessing activities have produced transuranic (TRU) waste. TRU waste is waste that contains alpha particle-emitting radionuclides with atomic numbers greater than that of uranium (92) and half-lives greater than 20 years in concentrations greater than 100 nanocuries per gram of waste.

TRU waste is classified according to the radiation dose rate at a package surface. Contact-handled (CH) TRU waste has a radiation dose rate at a package surface of 200 millirem per hour or less; this waste can safely be handled directly by personnel. Remote-handled (RH) TRU waste has a radiation dose rate at a package surface greater than 200 millirem per hour, and must be handled remotely (e.g., with machinery designed to shield workers from radiation).

TRU waste that has both radioactive and hazardous constituents is known as mixed TRU waste. The hazardous component of mixed TRU waste is regulated under the Resource Conservation and Recovery Act (RCRA). DOE estimates that approximately 60 percent of TRU waste is mixed TRU waste. In addition, some TRU waste is commingled with polychlorinated biphenyls (PCBs) in concentrations greater than or equal to 50 parts per million and is known as PCB commingled TRU waste. Disposal of PCBs is regulated under the Toxic Substances Control Act.

Before 1970, TRU waste was disposed of in shallow land burial sites. Since 1970, TRU waste has been retrievably stored in aboveground facilities at DOE sites. Plutonium stabilization and management activities, environmental restoration (which could include remediation of sites where TRU waste was buried before 1970), decontamination and decommissioning, waste management, and defense testing and research are expected to generate additional TRU waste.

The Department began examining the environmental impacts of TRU waste disposal under the National Environmental Policy Act (NEPA) in the late 1970s. After issuing the "Final Environmental Impact Statement for the Waste Isolation Pilot Plant" (DOE/EIS-0026, October 1980), the Department decided in a 1981 Record of Decision to begin phased development of WIPP to demonstrate the safe disposal of TRU waste in bedded salt. Consequently, the Department has, since 1981, been preparing to dispose of and isolate TRU waste by emplacing it in the Waste Isolation Pilot Plant (WIPP), a mined repository located 2,100 feet

below the surface in an ancient salt deposit near Carlsbad, New Mexico. The major construction activities at WIPP have been completed. WIPP consists of the Waste Handling Building where waste would be received and inspected, an underground disposal area, and a waste handling shaft for transfer of waste from the surface to the disposal area. WIPP was designed for a total capacity of 175,600 cubic meters (6.2 million cubic feet) of TRU waste.

In 1990, after issuing the "Final Supplement Environmental Impact Statement for the Waste Isolation Pilot Plant" (DOE/EIS-0026-FS, January 1990), DOE issued a Record of Decision that continued the phased development of WIPP by instituting an experimental program to further examine WIPP's suitability as a TRU waste repository. In September 1997, DOE issued the "Waste Isolation Pilot Plant Disposal Phase Final Supplemental Environmental Impact Statement" (DOE/EIS-0026-FS2) (SEIS-II), which analyzes the environmental impacts of proposed disposal operations at WIPP. The Department has prepared this Record of Decision pursuant to the Council on Environmental Quality Regulations for implementing the provisions of NEPA (40 CFR Parts 1500-1508) and the Department of Energy regulations implementing NEPA (10 CFR Part 1021).

While SEIS-II was prepared to inform DOE's decision on whether to open WIPP for the disposal of TRU waste, the "Waste Management Programmatic Environmental Impact Statement" (DOE/EIS-0200, May 1997) (WM PEIS) was prepared to inform DOE's decision on where to treat (which includes packaging) and store TRU waste prior to disposal. In the WM PEIS, DOE examined several TRU waste treatment and storage site consolidation strategies (i.e., whether to

treat and store TRU waste at the DOE sites where it is generated, at a few regional DOE sites, or at a centralized DOE site). In coordination with this WIPP Record of Decision, DOE is separately preparing a Record of Decision, supported by the WM PEIS, that specifies whether, and if so, where, to consolidate TRU waste for preparation and storage pending disposal.

### **Purpose and Need for Agency Action**

The Department needs to safely dispose of the TRU waste that has accumulated at DOE sites and to provide for the disposal of additional TRU waste to be generated over approximately the next 35 years (through approximately 2033) in a manner that protects public health and the environment. DOE prepared SEIS-II in order to help DOE make the following decisions:

- whether to open and operate WIPP for the disposal of TRU waste, and, if so,
- which portions of the TRU waste inventory would be disposed of,
- to what minimum level TRU waste must be treated for disposal, and
- what mode of transportation would be used to transport TRU waste to WIPP.

*WIPP Operation.* With respect to the decision on whether to open WIPP, SEIS-II examines the environmental impacts of four alternatives that involve operating the facility (the Proposed Action and other Action Alternatives) and the impacts of two alternatives that involve dismantling and closing WIPP and continuing storage of TRU waste at the generating sites (the No Action Alternatives).

*Waste Inventories.* SEIS-II uses the most recent inventory data available for its analysis, including data from "The National Transuranic Waste Management Plan," (DOE/NTP-96-1204,

Revision 0, September 1996)(TRU Waste Management Plan). Using these data, SEIS-II examines the environmental impacts of disposing of different inventories of TRU waste. For purposes of analysis in SEIS-II, the DOE TRU waste inventory is divided into a Basic Inventory and an Additional Inventory. The Basic Inventory consists of (1) TRU waste generated by defense activities (defense waste) that has been placed in retrievable storage since 1970 and (2) defense TRU waste that would continue to be generated over approximately the next 35 years as a result of plutonium stabilization and management activities, environmental restoration (including remediation of some sites where defense TRU waste was buried before 1970), decontamination and decommissioning, waste management, and defense testing and research. The Basic Inventory volume (per recent estimates analyzed in SEIS-II) is approximately 170,000 cubic meters (6 million cubic feet). The Additional Inventory consists of commercial and non-defense waste (waste for which DOE has responsibility and which was generated by activities other than defense activities), PCB commingled TRU waste, and waste that was buried before 1970 that is not included in the Basic Inventory (because, for example, DOE does not expect remediation activities to occur within approximately the next 35 years, or because the extent of remediation has not been determined). The Additional Inventory also includes non-defense and commercial waste that DOE believes could be generated over approximately the next 35 years. The Additional Inventory volume (per recent estimates analyzed in SEIS-II) is approximately 142,500 cubic meters (5 million cubic feet).

The WIPP Land Withdrawal Act, as amended in 1996, limits the capacity of WIPP to 175,600 cubic meters (6.2 million cubic feet). The Act also specifies that only defense TRU waste may

be disposed of at WIPP. In addition, the Consultation and Cooperation (C&C) Agreement between DOE and the State of New Mexico limits the volume of RH-TRU waste to 7,080 cubic meters (250,000 cubic feet). Using the volume estimates analyzed in SEIS-II, disposal of the Basic Inventory would be within these limits, and disposal of the Basic Inventory and all of the Additional Inventory would exceed these limits.

*Waste Treatment Levels.* SEIS-II examines treatment of TRU waste to three different levels before disposal: treatment to meet the planning basis WIPP waste acceptance criteria (WIPP WAC), thermal treatment to meet RCRA land disposal restriction (LDR) levels, and treatment by shred and grout. The planning basis WIPP WAC is that level of treatment and packaging in WIPP WAC Revision 5, with anticipated revisions as analyzed in SEIS-II. Treatment to planning basis WIPP WAC would require repackaging of TRU waste to meet transportation and disposal regulations and DOE policies. Treatment to LDR levels would use a thermal process that would substantially condense the waste and yield a vitrified or metal ingot waste form. Such treatment would also remove any organic hazardous constituents and immobilize any hazardous metals in mixed TRU waste and PCB commingled TRU waste. Treatment by shredding the waste and sealing it in grout would reduce gas generation, but would create a much larger waste volume. As set forth in this WIPP Record of Decision, DOE has concluded that waste destined for WIPP should at a minimum be prepared (i.e., treated as needed, and packaged) according to the planning basis WIPP WAC. As noted previously, in coordination with this WIPP Record of Decision, DOE is preparing a Record of Decision, based on the WM

PEIS, that will specify whether, where, and to what extent to consolidate TRU waste for preparation and storage pending disposal.

*Transportation Modes.* SEIS-II analyzes the transport of TRU waste by truck, by regular rail and truck (truck transportation from those sites that do not have rail access), and by dedicated rail and truck. Regular rail refers to use of commercial rail lines, with TRU waste being included on trains that are also carrying other types of freight. Dedicated rail would also use commercial rail lines, with trains composed exclusively of rail cars carrying TRU waste.

The Department has investigated and continues to investigate the possibility of using rail transportation, but considers it less reasonable than truck transportation at this time. The primary factors that make rail transportation less reasonable are (1) limited interest of rail carriers in handling shipments of TRU waste, (2) the higher cost of dedicated rail transportation as compared to truck transportation, (3) the initial cost of acquiring additional transport containers needed for rail transportation (because three times as many containers are needed for each shipment), and (4) DOE's inability to obtain rail carrier assurance that TRU waste container transit will enable DOE to unseal the containers within 60 days of loading, as required by Nuclear Regulatory Commission regulations. Regular rail transportation, because of its lower public health impacts and cost, is still considered a desirable option for some waste transportation in the future, provided that the factors that make it currently less reasonable can be mitigated.

## **Alternatives Considered**

SEIS-II examines the environmental impacts of the Proposed Action, three other reasonable Action Alternatives, and two No Action Alternatives that involve the waste inventories and treatment levels described above.

### **1. Proposed Action (Preferred Alternative)**

Under the Proposed Action, DOE would open WIPP and dispose of 175,600 cubic meters (6.2 million cubic feet) of post-1970 defense TRU waste (except PCB commingled TRU waste), which is the Basic Inventory of TRU waste adjusted up to the capacity limits specified in the WIPP Land Withdrawal Act and the C&C Agreement. The waste would be treated as necessary to meet the planning basis WIPP WAC. Based on the inventory volume and the anticipated emplacement rate, TRU waste would be disposed of at WIPP over a 35-year period. Transportation would be by truck.

The Department identified the Proposed Action as its Preferred Alternative in the final SEIS-II. Under the Preferred Alternative, TRU waste transportation would initially be by truck; however, the Department reserves the option to use commercial rail transportation of TRU waste in the future.

The Proposed Action (and Preferred Alternative) would isolate TRU waste for more than 10,000 years and would comply with the WIPP Land Withdrawal Act and the C&C Agreement. However, this alternative would not dispose of the Additional Inventory.

## 2. Action Alternative 1

Under Action Alternative 1, the Department would dispose of the Basic and Additional Inventories of TRU waste (except PCB commingled TRU waste) at WIPP, after treating the waste to meet the planning basis WIPP WAC. SEIS-II analyzes the disposal of TRU waste over the 160-year period needed for emplacement of this amount of waste at the anticipated emplacement rate. SEIS-II also analyzes the environmental impacts associated with the modifications to WIPP facilities and operations that would be needed to increase the emplacement rate and reduce the disposal time (for this alternative, to 60 years). SEIS-II analyzes transportation by truck and transportation by rail (regular commercial and dedicated trains).

Action Alternative 1 would isolate TRU waste for more than 10,000 years, and would dispose of defense, non-defense, and commercial TRU waste and TRU waste that was buried before 1970. DOE could not implement Action Alternative 1 unless the WIPP Land Withdrawal Act and the C&C Agreement were modified accordingly. In addition, under Action Alternative 1, DOE would not dispose of PCB commingled TRU waste at WIPP.

### 3. Action Alternative 2

Under Action Alternative 2, the Department would dispose of the Basic and Additional Inventories of TRU waste (including PCB commingled TRU waste) at WIPP after treating the waste thermally to LDR levels. SEIS-II analyzes the disposal of waste over the 150-year period needed for emplacement of this volume given thermal loading constraints and anticipated emplacement rate. SEIS-II also analyzes the environmental impacts associated with the modifications to WIPP facilities and operations that would be needed to increase the emplacement rate and reduce the disposal time (for this alternative, to 70 years). SEIS-II analyzes three subalternatives (Alternatives 2A, 2B, and 2C) that examine consolidated thermal treatment at DOE sites.

Action Alternative 2 would isolate TRU waste for more than 10,000 years, and would dispose of defense, non-defense, and commercial TRU waste, PCB commingled TRU waste, and TRU waste that was buried before 1970. DOE could not implement this alternative unless the WIPP Land Withdrawal Act and the C&C Agreement were modified accordingly.

### 4. Action Alternative 3

Under Action Alternative 3, DOE would dispose of the Basic and Additional Inventories of TRU waste (except PCB commingled TRU waste) at WIPP after treatment by a shred and grout process. SEIS-II analyzes the disposal of waste over the 190-year period needed for

emplacement of this volume at the anticipated emplacement rate. SEIS-II also analyzes the environmental impacts associated with the modifications to WIPP facilities and operations that would be needed to increase the emplacement rate and reduce the disposal time (for this alternative, to 75 years). The impacts of both truck and rail transportation are analyzed.

Action Alternative 3 would isolate TRU waste for more than 10,000 years, and would dispose of defense, non-defense, and commercial TRU wastes and TRU waste that was buried before 1970. DOE could not implement Action Alternative 3 unless the WIPP Land Withdrawal Act and the C&C Agreement were modified accordingly. The treatment method under this alternative would increase the volume of the waste to be disposed of, thus increasing transportation. In addition, under Action Alternative 3, DOE would not dispose of PCB commingled TRU waste at WIPP.

#### 5. No Action Alternative 1

Under No Action Alternative 1, the Department would thermally treat the Basic and Additional Inventories of TRU waste and store the waste indefinitely in newly constructed monitored retrievable storage facilities. SEIS-II analyzes two subalternatives that examine the impacts of thermal treatment. The impacts of transporting TRU waste to treatment sites by both truck and rail transportation are analyzed. WIPP would be dismantled and closed under this alternative.

No Action Alternative 1 would treat TRU waste to RCRA LDR levels and indefinitely store the treated waste. Treatment to LDR levels would reduce human health impacts in the event of a release of the stored waste. This alternative would not offer the isolation afforded by deep geologic disposal, would require periodic maintenance of storage facilities and waste repackaging, and could not be implemented without modification of agreements that DOE has reached with several states regarding the offsite disposition of TRU waste. No Action Alternative 1 would require the use of effective institutional controls for the indefinite future.

#### 6. No Action Alternative 2

Under No Action Alternative 2, DOE would continue to store newly generated TRU waste at generator sites in existing or planned storage facilities. The newly generated waste would be treated to meet the planning basis WIPP WAC to facilitate safe storage; however, the waste form would not protect human health if the waste were released. No transportation is analyzed for this alternative, because the waste is assumed to remain indefinitely where it was generated. WIPP would be dismantled and closed under this alternative.

This alternative would not involve impacts to workers and the public associated with thermal or shred and grout treatment or with transportation. However, this alternative would not offer the isolation afforded by deep geologic disposal, would require periodic maintenance of storage facilities and waste repackaging for the indefinite future, and could not be

implemented without modification of agreements that DOE has reached with several states regarding the offsite disposition of TRU waste.

### **Environmentally Preferable Alternative**

In identifying its environmental preference among alternatives for the long-term management of TRU waste, DOE considered both near-term and long-term (through and beyond 10,000 years) human health and environmental impacts. There are alternatives that would result in low near-term impacts but relatively high long-term impacts, and identifying the environmentally preferable alternative(s) requires judgment concerning these impacts and sensitivity concerning the uncertainties of some of the near-term and long-term impacts.

SEIS-II estimates that some potential near-term fatalities, mainly among workers as a result of industrial accidents from waste treatment operations, would occur under all alternatives. The largest number of potential fatalities would occur as a result of thermal treatment under Action Alternative 2 (up to approximately 14 fatalities) and No Action Alternative 1 (up to approximately 13 fatalities), and the smallest under No Action Alternative 2 (approximately 1 fatality), under which only newly generated waste would be treated. Thermal treatment may result in air quality exceedances for radionuclides, offsite treatment impacts (including fatalities), and, for thermal treatment at WIPP (Action Alternative 2C), potentially disproportionately high and adverse impacts to minority and low income populations near WIPP.

Some potential near-term fatalities also could occur from storage operations under all of the alternatives; a larger number of fatalities could occur as a result of a natural disaster, such as an earthquake with a small annual probability of occurring damaging an aboveground TRU waste storage facility. For the No Action Alternatives, however, the associated risks would continue for the indefinite future. Long-term storage risks would also occur for the Additional Inventory that would not be disposed of under the Proposed Action and for PCB commingled TRU waste that would not be disposed of under Action Alternatives 1 and 3.

Transportation for treatment and for disposal are estimated to cause more fatalities (mainly involving the general public) than other near-term waste management operations. The largest number of fatalities are estimated to occur under the three Action Alternatives, in which the most waste would be sent to WIPP. The analysis shows, however, that regular commercial rail service would have lower potential fatalities than transportation by either dedicated rail service or by truck. The consequences of low probability accidents would be similar for all transportation options. In contrast, the No Action Alternatives would pose little to no transportation risk, depending on the alternative, but would not dispose of the waste.

Thus, SEIS-II analyses show that, in the near term, No Action Alternative 2 would be environmentally preferable. For the long term, however, disposal of as much of DOE's TRU waste as possible at WIPP is environmentally preferable to indefinite storage, because disposal isolates the waste and avoids the long-term need to protect the public and workers from exposure to stored waste, a protection that cannot be assured over the long periods of time

that TRU waste poses a health hazard to the public. The long-term impacts of indefinite storage of TRU waste under No Action Alternative 2 and, to a lesser extent, No Action Alternative 1, would result primarily from future exposures to stored waste should DOE lose institutional control of the storage facilities in the future. Over the long term, there would also be an increasing probability of adverse impacts from a natural disaster. Such impacts could be exacerbated by future population growth near DOE sites. SEIS-II analyses show that there is virtually no benefit to long-term repository performance from thermal or shred and grout treatment of waste as compared to treatment to meet the planning basis WIPP WAC.

Considering both near-term and long-term impacts, therefore, Action Alternative 1 is the environmentally preferable alternative, with transportation of waste by regular commercial rail service to the maximum extent possible to lessen near-term impacts. Action Alternative 1 would dispose of defense, non-defense, and commercial TRU waste (with the exception of PCB commingled TRU waste) and TRU waste that was buried prior to 1970, after treatment as necessary to meet the planning basis WIPP WAC. This alternative would dispose of a greater amount of TRU waste than the Proposed Action.

### **Comments on SEIS-II and Agency Responses**

SEIS-II was initiated by a notice of intent published in the Federal Register on August 18, 1995. A draft SEIS-II was issued in November 1996, and public hearings were held in January 1997. Approximately 4,000 comments were received from individuals, organizations,

states, tribes, and Federal agencies during the 90-day comment period. Many of the comments received on the draft SEIS-II expressed strong opinions in favor of or against disposal at WIPP, or suggested revisions to SEIS-II. The final SEIS-II, issued in September 1997, incorporated many changes in response to public comments and internal review, including updating of waste volumes, TRU waste locations, and the long-term performance assessment.

The Department received four letters on the final SEIS-II. The Environmental Protection Agency (EPA) Region 6 letter stated that the agency had completed its review and had no further comments on the final SEIS-II. The State of Tennessee's Department of Environment and Conservation, the State of Idaho Oversight Program, and the Southwest Research and Information Center submitted comments which the Department has considered.

In its comments, the DOE Oversight Division of the Tennessee Department of Environment and Conservation requested clarification of responses provided in SEIS-II regarding: (1) consolidation of TRU waste at sites prior to being shipped to WIPP, (2) management of "special case" waste, (3) management of the excess inventory of RH-TRU waste if WIPP's capacity is reached, and (4) plans and schedules for transporting TRU waste to WIPP. In addition, the State asked DOE to provide assurance in the Record of Decision that RH-TRU waste will be removed from DOE's Oak Ridge site in accordance with the Oak Ridge Reservation Site Treatment Plan.

Decisions regarding consolidation of TRU waste for preparation and storage pending disposal will be made in the Record of Decision for the WM PEIS. With regard to what the commenter referred to as “special case” waste, such waste that is classified as post-1970 defense TRU waste is included in the SEIS-II analysis as CH-TRU waste as part of the Basic Inventory, and under this Record of Decision upon preparation to meet the planning basis WIPP WAC would be disposed of at WIPP. Materials cited by the commenter that are not classified as TRU waste could not be disposed of at WIPP and are beyond the scope of SEIS-II and this Record of Decision. Regarding the comment about the excess inventory of RH-TRU waste, DOE expects that there will be sufficient capacity at WIPP to dispose of all RH-TRU waste currently in storage and to be generated over approximately the next 35 years, based on the most recent estimates contained in the TRU Waste Management Plan. DOE’s proposed plans and schedule for transporting waste from particular sites to WIPP are contained in the TRU Waste Management Plan. Finally, as stated in SEIS-II, DOE intends to meet its obligations with regard to the disposition of TRU waste as set forth in the agreements (including Site Treatment Plans) that it has reached with states and in related court orders.

The State of Idaho Oversight Program requested that the ROD be consistent with the agreements made with the State with regard to transuranic waste that will be disposed of at WIPP. As noted above, the Department intends to fulfill its obligations with regard to the disposition of TRU waste as set forth in its agreements with states and in related court orders.

In its comments on the final SEIS-II, the Southwest Research and Information Center stated that disposal of TRU waste in a high-level waste repository is a reasonable alternative that was not examined in SEIS-II or the WM PEIS. This commenter also stated that, because all of the estimated TRU waste inventory would not be disposed of at WIPP, DOE will be required to consider additional disposal sites, and that such other sites were not considered in SEIS-II or the WM PEIS. Further, the commenter stated that DOE should prepare a comprehensive NEPA analysis of storage and disposal options for all of DOE's nuclear waste, including all TRU waste, before issuing a Record of Decision on TRU waste disposal at WIPP. Finally, the commenter asked for clarification of DOE's position regarding the opening of WIPP without a RCRA permit from the New Mexico Environment Department.

The Department has examined all reasonable TRU waste disposal alternatives in SEIS-II and the preceding environmental impact statements, including disposal in a high-level waste repository and disposal at sites other than WIPP. DOE decided in 1981 to develop WIPP for the disposal of TRU waste, and SEIS-II confirms that WIPP is an effective disposal facility for TRU waste. The most recent waste volume estimates contained in the TRU Waste Management Plan indicate that DOE would be able to dispose of all of the TRU waste currently in storage, and waste to be generated by DOE over approximately the next 35 years. In SEIS-II, DOE analyzes the disposal at WIPP of all defense, non-defense, and commercial TRU waste and TRU waste that was buried prior to 1970. The WM PEIS comprehensively analyzes the management of all of DOE's radioactive and hazardous waste types. With regard to the RCRA permit issue, DOE has applied for a RCRA permit from the New Mexico

Environment Department for mixed TRU waste. Such a permit is not needed for disposal of other TRU waste at WIPP.

### **Decision**

The Department will dispose of up to 175,600 cubic meters (6.2 million cubic feet) of defense TRU waste (except PCB commingled TRU waste) at WIPP. Transportation of waste to WIPP will initially be by truck, although the Department reserves the option to use commercial rail transportation in the future. DOE will prepare (including treatment, as necessary, and packaging) the wastes to be disposed of to meet the WIPP WAC (WIPP WAC Revision 5, including any future revisions as analyzed in SEIS-II, such as pipe overpacks used in waste packaging). This decision establishes only the minimum waste acceptance requirements that must be met for disposal of waste at WIPP. DOE has treated in the past (and based on site-specific circumstances, may decide to treat in the future) TRU waste at some sites more extensively than is required under the WIPP WAC. WIPP may accept for disposal grouted TRU waste, thermally treated TRU waste, or TRU waste treated by any other process that meets the WIPP WAC.

Under this decision, the wastes to be disposed of include both CH and RH defense TRU waste (except PCB commingled TRU waste) placed in retrievable storage after 1970, and TRU waste generated for approximately the next 35 years by plutonium stabilization and management activities, environmental restoration (including defense TRU waste from future remediation of

sites where TRU waste was buried before 1970), decontamination and decommissioning, waste management, and defense testing and research. The amount of TRU waste that will be disposed of at WIPP will not exceed limits established by the WIPP Land Withdrawal Act and the C&C Agreement. Impacts of disposal at WIPP of this volume of defense TRU waste are analyzed in the SEIS-II under the Proposed Action (Preferred Alternative).

TRU waste will be transported to WIPP in containers certified by the Nuclear Regulatory Commission, as required by the WIPP Land Withdrawal Act. DOE will initially use trucks to transport waste. However, DOE reserves the option to use commercial rail service for TRU waste transportation in the future, because SEIS-II analyses show that, under normal operations, regular rail transportation would cause fewer fatalities and would cost less than truck transportation (although consequences of a low probability accident would be similar for all transportation options). In contrast, SEIS-II analyses show that dedicated rail shipments would cause the largest number of fatalities and would be the most costly transportation mode.

### **Basis for Decision**

The decision described above minimizes, to the extent possible under current statutory restrictions contained in the WIPP Land Withdrawal Act, the impacts and costs of continued TRU waste management activities at DOE sites. Disposal of TRU waste at WIPP would effectively isolate the waste from human contact for more than 10,000 years if the repository

remains undisturbed, and, under the Preferred Alternative, is not expected to adversely impact human health even if the repository were to be breached by drilling. For example, based on analyses in the WIPP SEIS-II, the probability that a member of a drilling crew that breached the repository would die of cancer from exposure to the waste is 4 in 10,000. If an intrusion occurred, radionuclides and heavy metals could reach the Culebra Dolomite (the principal water-bearing unit overlying WIPP). However, impacts would be negligible.

The Department has taken into consideration irreversible and irretrievable commitments of resources, impacts from retrieval of waste from the repository, and cumulative impacts in making this decision. There would be irreversible and irretrievable commitment of resources associated with the use of the WIPP site resulting from residual salt that remains after remediation of the salt storage pile. Although DOE has no plans to retrieve waste from WIPP, if the waste were retrieved prior to repository closure, the impacts would be the same as from emplacing the waste. If the waste were required to be recovered after repository closure, there could be several worker fatalities from recovering waste and any contaminated salt. The impacts from transporting waste back to the treatment sites would be higher than from transporting it to WIPP because of the additional volume of contaminated salt. In considering cumulative impacts, DOE recognizes that for all alternatives involving transportation of TRU waste, there would be cumulative impacts from past, present and reasonable foreseeable future activities involving transportation of other waste types (hazardous, low-level, low-level mixed, and high level waste). There would also be

cumulative impacts at some of the treatment sites as a result of past, present, and reasonably foreseeable future activities.

DOE did not select the No Action Alternatives because they would not isolate TRU waste from humans and the environment, and could cause public harm if long-term institutional control were to be lost. (Although no deaths would be expected based on current population densities and distributions under No Action Alternative 1, intruders could receive doses that greatly exceed current regulatory limits; up to 800 deaths could occur over 10,000 years under No Action Alternative 2). Maintaining such controls indefinitely would require future generations to incur risks and costs that can be avoided by disposing of the waste in WIPP now. In addition, the No Action Alternatives could not be implemented without modification of agreements that DOE has reached with several states regarding the offsite disposition of TRU waste.

DOE did not select the Action Alternatives because disposal of the volumes and waste types involved in these alternatives would require modification of the WIPP Land Withdrawal Act and the C&C Agreement. DOE did not select either thermal or shred and grout treatment because the SEIS-II analyses show that these treatments do not materially improve the repository's performance, and also have greater costs and near-term impacts across the DOE complex.

This decision is consistent with the intent of Congress, as expressed in the WIPP Land Withdrawal Act, that DOE commence disposal operations at WIPP once all applicable health and safety standards and laws have been met. The decision will enable the Department to comply with the agreements that DOE has entered into with several states, particularly those agreements that set a schedule for removal of TRU waste from DOE sites.

Implementation of the decision to dispose of TRU waste at WIPP is contingent on obtaining a Compliance Certification from EPA. EPA recently proposed to certify compliance, subject to certain conditions (62 FR 58792, October 30, 1997). DOE has applied for a RCRA permit from the New Mexico Environment Department for disposal of mixed TRU waste; such a permit is not needed for disposal of other TRU waste at WIPP.

### **Mitigation Measures**

DOE has a Mitigation Action Plan in effect for WIPP to reduce possible adverse environmental effects. DOE will continue to implement those actions and provide information on their status in its annual mitigation action reports.

DOE will comply with applicable Department of Transportation and Nuclear Regulatory Commission regulations governing the shipment of TRU waste. As described in SEIS-II, DOE will transport TRU waste to WIPP in such a manner as to alleviate, to the maximum

extent possible, potential impacts from transportation of TRU waste over the highways. These measures include tracking shipments with the TRANSCOM satellite tracking system and maintaining constant communication with the driver to provide notice of adverse weather or road conditions along the route. Equipment will be inspected at the beginning of each shipment and periodically every 100 miles or every two hours while on route. If shipments are delayed on route, drivers will park at designated DOE or Department of Defense sites, or State designated parking areas if possible. If no such sites are available, drivers will park in areas away from population concentrations and notify the State Police of the shipment's location.

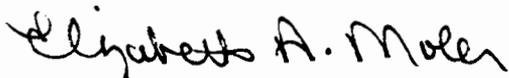
In addition to maintaining its own emergency response capabilities, DOE offers emergency response training to police, fire, and medical personnel located along the WIPP transportation routes. In the event of an accident involving a WIPP shipment, the driver would notify emergency responders by cellular phone and also the WIPP Central Monitoring Room using the TRANSCOM system. A DOE official would be dispatched to assist at the accident site. DOE resources would be available to support mitigation of the accident, including but not limited to package recovery and site cleanup.

The United States Department of the Interior suggested in comments on the draft SEIS-II that DOE should develop a spill contingency plan to address the potential impacts of a diesel fuel spill on fish and wildlife and their habitats. DOE already has plans in place to address the potential impacts of a truck accident; these plans address potential releases of TRU waste and

other materials. Remediation efforts may include excavation and disposal of contaminated environmental media as appropriate.

A copy of SEIS-II and this Record of Decision are available from the Center for Environmental Management Information, telephone: 1-800-7EM-DATA (1-800-736-3282) (in Washington, D.C., call 202-863-5084).

Issued in Washington, D.C., this 16th day of January, 1998.



Elizabeth A. Moler  
Deputy Secretary of Energy