



Backgrounder on the Waste Isolation Pilot Plant

An informational series by the Environmental Health Center, a division of the National Safety Council



5/20/98

Safety Precautions and Emergency Preparedness for Transporting Waste to the WIPP

The first shipments of transuranic radioactive waste are scheduled for delivery to the Waste Isolation Pilot Plant (WIPP) in mid-1998. The WIPP, a U.S. Department of Energy (DOE) facility near Carlsbad, New Mexico, is the first deep geologic repository for permanent disposal of defense-related transuranic waste in the United States. Transuranic waste consists primarily of protective clothing, tools, glassware, equipment, soils, and sludges that have been contaminated with trace amounts of manmade radioactive elements, such as plutonium. Only transuranic wastes generated at U.S. nuclear weapons production facilities are to be disposed of at the WIPP.

Over the next 35 years, a maximum of 6.2 million cubic feet of transuranic waste will be disposed at the WIPP from 23 (10 major) generator and storage sites throughout the United States. These 23 sites are located in the following states: California, Colorado, Idaho, Illinois, Iowa, Kentucky, Missouri, New Mexico, New York, Nevada, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia, and Washington. DOE estimates that nearly 38,000 shipments of transuranic waste will travel from these sites to the WIPP.

A dedicated fleet of trucks (modified flatbed trailers attached to conventional diesel tractors) operated under contract to DOE will transport waste to the WIPP. Each truck will be driven by a team of two drivers. An individual shipment of transuranic waste en route to the WIPP could pass through as many as eight states, including New Mexico and the shipment's state of origin. About 30 states will have routes designated for shipping transuranic waste to the WIPP. A map of the routes for transporting transuranic waste from major waste generator sites is located on page 4.

Safety Precautions

To protect human health and the environment, DOE and other federal and state agencies have taken many precautions to ensure safe passage of transuranic waste shipments to the WIPP.

- ◆ **Routing.** U.S. Department of Transportation (DOT) regulations require that shipments of transuranic waste follow the most direct interstate highway routes, using

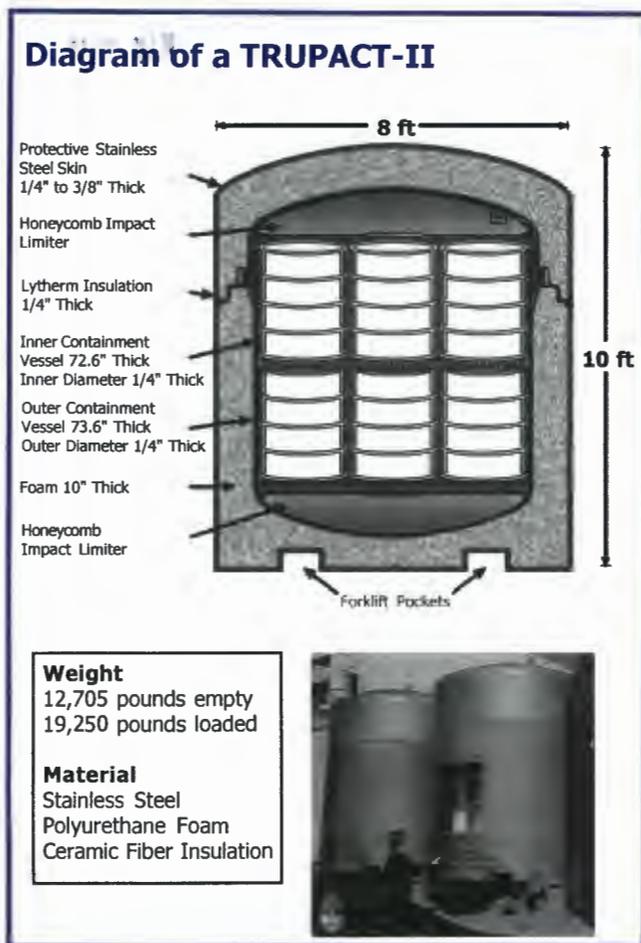
bypasses and beltways around highly populated areas whenever possible. Using these guidelines, individual states designate routes through their jurisdictions in consultation with DOE.

- ◆ **Inspection.** Certified state inspectors will check transport vehicles, their cargo, and their drivers before each trip to the WIPP. Only shipments that inspectors certify as safe for travel will be dispatched. In addition, drivers must perform mechanical inspections on the vehicles every two hours or 100 miles during a shipment. Inspectors at the point of entry of each state through which the waste travels along the way will also inspect the shipments.
- ◆ **Tracking.** DOE's satellite-based Transportation Tracking and Communication System, known as TRANSCOM, will track all WIPP shipments from beginning to end. Two communications satellites will relay vehicle positions to the TRANSCOM control center in Oak Ridge, Tennessee, where they will be displayed on computer-generated maps. If the truck gets off the designated route or stops moving without explanation, control center operators follow up to identify and solve the problem. Authorized federal, state, and tribal officials will be able to monitor this information and other shipment data 24 hours a day.



Trucks such as the one above, carrying three TRUPACT-II containers, are scheduled to transport contact-handled transuranic waste to the WIPP in mid-1998.





Source: U.S. Department of Energy

- ◆ **Shipping containers.** Fifty-five gallon steel drums of transuranic waste will travel aboard trucks to the WIPP in special containers, called TRUPACT-II (short for Transuranic Packaging Transporter Model 2). This container system (see diagram above), which is certified by the Nuclear Regulatory Commission, has passed a rigorous series of tests to demonstrate its ability to safely contain the waste, even under extreme accident conditions.
- ◆ **Driver training.** Each truck carrying waste to the WIPP will have two highly trained drivers. All drivers must comply with DOT training requirements applicable to transporting radioactive materials. Drivers must have more than 100,000 miles of driving experience, pass regular substance abuse tests, and have excellent driving records. They also must receive training in how to cope with rough terrain, severe weather, civil disobedience, and sabotage; how to operate radiation detection instruments; and how to recover a TRUPACT-II container if one separates from the trailer. In addition, all drivers must satisfactorily complete a First Responder Course, which prepares them to respond appropriately in case of an incident en route to or from the WIPP.

- ◆ **Advance notification.** Each January, DOE will provide a shipment schedule to states and tribes along WIPP transportation corridors. State and tribes also will receive an annual mid-year update of the shipment schedule. Through the TRANSCOM system, authorized state and tribal officials will have immediate access to eight-week projections of WIPP shipments and manifests for each shipment.
- ◆ **Other precautions.** Before a shipment of transuranic waste is dispatched to the WIPP, the two drivers and personnel from the WIPP and the originating waste site must agree that travel conditions—current weather, forecasted weather, and road conditions—are acceptable. Criteria for safe parking areas also have been developed to ensure that each shipment will be safe in the event of unexpected bad weather or mechanical problems.

Emergency Response Training

To prepare for the possibility of incidents involving transuranic waste shipments, DOE initiated an emergency response training program in 1988. The program, known as STEP (States and Tribal Education Program), has trained more than 11,000 emergency response professionals in 12 states. Courses offered under STEP address caring for incident victims, protecting public health and the environment, and ensuring the safety of emergency response personnel.

The six STEP courses, reviewed and certified by the Occupational Safety and Health Administration in 1993, are as follows:

- ◆ **First Responder.** This eight-hour course is for emergency workers, such as fire, police, and emergency medical personnel, who may be the first to arrive at the scene of an incident involving a WIPP shipment, as well as the truck drivers. Course topics include—
 - Definition and physical properties of transuranic waste
 - TRUPACT-II shipping containers and transportation system
 - TRANSCOM satellite tracking system
 - Emergency response actions and responder decontamination at the incident site
- ◆ **Command and Control.** This two-day course is for those who may be in charge at the scene of a WIPP transportation incident. The first day consists of the First Responder Course; the second day consists of a discussion of the Incident Command System, which provides for command and control at the incident scene.
- ◆ **First Responder Refresher.** This is a four-hour recap and update for those who have completed the First Responder Course or the Command and Control Course.

- ◆ **Train the Trainer.** This 12-hour course is designed to teach state-certified instructors how to incorporate WIPP-specific information from the First Responder Course into existing state hazardous materials training programs.
- ◆ **Medical Management.** This eight-hour course is for emergency room doctors and nurses who may treat patients contaminated with radioactive material. Experts from the Radiation Emergency Assistance Center/Training Site (REAC/TS) in Oak Ridge, Tennessee, teach the course.

Field Exercises

In addition to training courses for first responders and other emergency personnel, DOE funds exercises along WIPP transportation corridors to help prepare emergency responders for possible incidents involving transportation of transuranic waste. These exercises are joint ventures between DOE and states that request them. An exercise consists of a mock transportation incident that requires the participation of emergency responders from several state, local, and tribal jurisdictions, as well as DOE. Participants must respond to a simulated scenario, enacted in the field, that involves radioactive materials, chemicals, and human victims.

Each exercise is designed to help promote and develop effective, coordinated responses to transportation incidents by federal, tribal, state, and local entities. The exercises are also helpful in gauging the effectiveness of existing emergency preparedness training and response systems. From 1992 through February 1998, 11 field exercises were completed in western states.

DOE Emergency Response Resources

In the event of any incident involving a WIPP shipment, DOE's response would be automatic and would not require a state request for assistance. DOE has eight regional coordinating offices (see map below) that are on call 24 hours a day to respond to potential incidents.

If an incident required that equipment or personnel be sent to the incident site, the nearest regional coordinating office would activate a DOE Radiological Assistance Program (RAP) team. RAP team resources include field monitoring, spectrometry, sampling, decontamination, communication, and aerial survey capabilities; dedicated response vehicles; mobile laboratories; and generators. DOE's Carlsbad Area Office, which operates the WIPP, also would dispatch an incident recovery team to ensure safe loading and disposition of any damaged equipment.

For more information on the WIPP

U.S. Department of Energy

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 World Wide Web:
<http://www.wipp.carlsbad.nm.us>

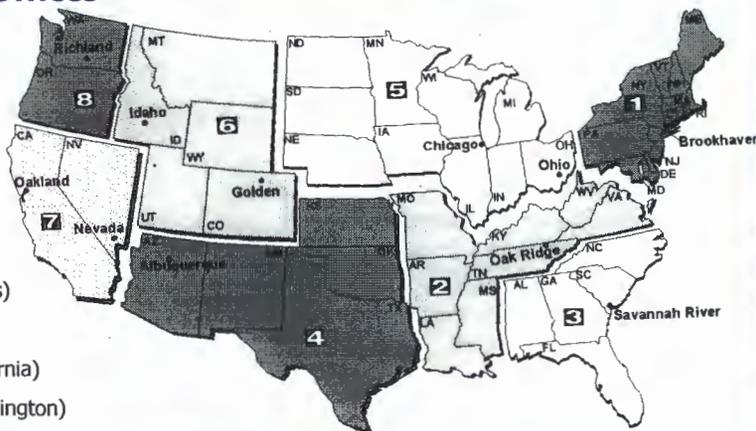
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DOE Regional Coordinating Offices

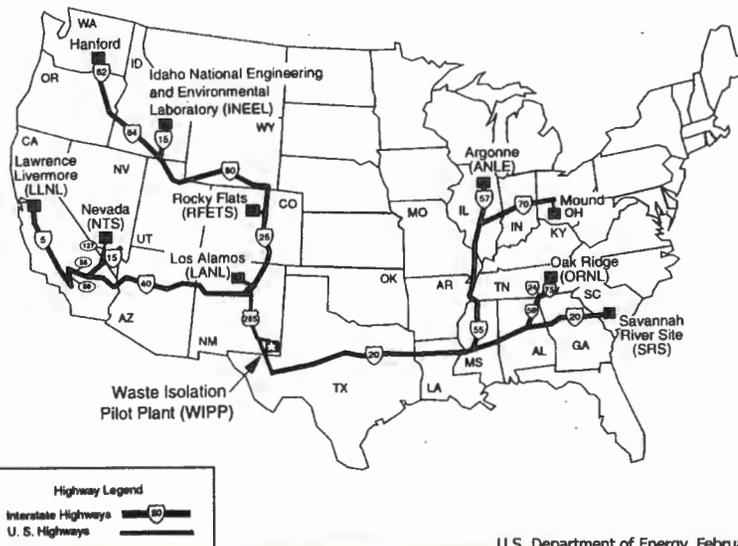
- Brookhaven Area Office (New York)
- Oak Ridge Regional Coordinating Office (Tennessee)
- Savannah River Regional Coordinating Office (South Carolina)
- Albuquerque Regional Coordinating Office (New Mexico)
- Chicago Regional Coordinating Office (Illinois)
- Idaho Regional Coordinating Office (Idaho)
- Oakland Regional Coordinating Office (California)
- Richland Regional Coordinating Office (Washington)



Safety Precautions and Emergency Preparedness for Transporting Waste to the WIPP

State routing agencies and Indian tribes have the authority to designate transuranic waste shipment routes within their borders. Department of Transportation regulations require that carriers transporting shipments from storage and generator sites follow the most direct interstate highway route, using bypasses and beltways when available around highly populated areas.

Transuranic Waste Shipment Routes (Major Waste Generator Sites)



Coming Soon:

- ◆ Which Wastes Will Be Sent to WIPP? How Is It Determined?
- ◆ How Safe Is DOE's Transportation System?
- ◆ Why Were Trucks Selected as the Method of Transportation?



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EHC Publications on WIPP Now Available:

- ◆ A Reporter's Guide to the Waste Isolation Pilot Plant
- ◆ Transporting Waste to the WIPP
- ◆ International Perspectives on Deep Geologic Disposal of Nuclear Waste

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