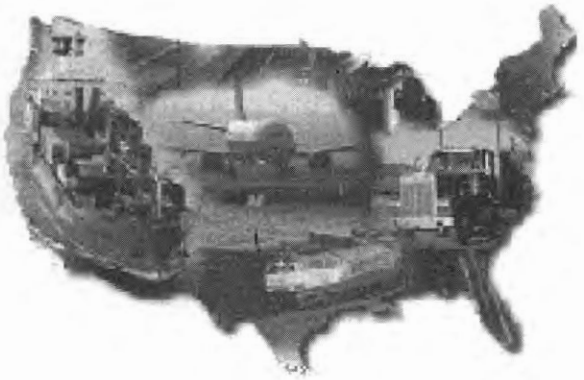
DOE/NTP-004



U.S. Department of Energy

National Transportation Program

Transporting DOE

Low-Level Radioactive Waste

Low-level waste being unloaded for disposal at the Nevada Test Site.

What Is Low-Level Waste (LLW) and How Is It Generated?

Federal regulations define LLW as any radioactive waste that is not high-level waste, transuranic waste (contains man-made elements heavier than uranium), spent fuel, or byproduct materials such as uranium mill tailings. Simply put, LLW is unwanted radioactive material created in the process of handling and use of radioactive substances. It usually contains small amounts of short-lived radioactive material dispersed in large quantities of material and poses little transportation risk. However, some LLW presents a greater hazard. Sometimes, the radiation levels are high enough to require protective shielding for handling and transport. Typical LLW consists of used protective clothing, rags, tools and equipment, used resins and residues, construction debris, and scrap metal.

Medical and research facilities, nuclear power plants, and industry all produce LLW. DOE also generates LLW, largely from site cleanup and ongoing activities. Because LLW accounts for a large percentage of DOE's new waste volume, the Department promotes activities to reduce production of new waste that ultimately must be shipped.

Transport Regulations

Transport of LLW is strictly regulated. The U.S. Departmenr of Transportation (DOT) regulates packaging, labeling, preparation of shipping papers, handling, marking, and placarding of shipments and establishes standards for personnel as well as conveyance (e.g., truck/train) performance and maintenance. DOT and the U.S. Nuclear Regulatory Commission (NRC) set radioactive material packaging standards. In addition, DOE LLW shipments must comply with all internal DOE requirements.

Packaging: Proper packaging is a key element in transport safety. LLW must be packaged to protect workers, the public, and the environment during transport. The NRC requires that all LLW be in solid form (free of liquids) before shipment to a disposal facility. Often, the same package is used for both transport and disposal.

Selection of appropriate packaging is based on the level and form of radioactivity. Waste with the lowest level of radioactivity can be shipped in *Excepted* packaging that meets minimum DOT performance

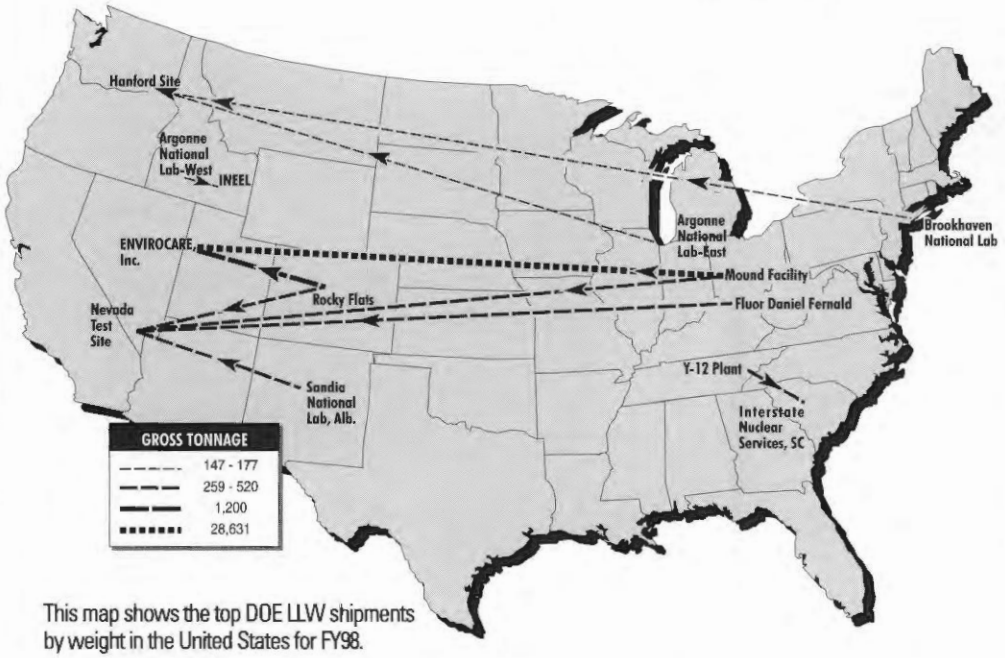
requirements. Excepted packagings are only used to transport materials with extremely low levels of radioactivity that present no risk to the public or environment. *Industrial, Type A,* or *Type B* packagings are used for higher levels of radioactivity.

Federal regulations require that shipments of LLW be documented on shipping papers or "manifests." These documents certify the materials have been properly packaged and identified for transport. Manifests are also useful in identifying packages received at the ultimate destination.

Marking/Labeling/Placarding: Package markings list important information such as the proper shipping name, material identification number, and shipper's name and address. Labels for radioactive materials are placed on opposite sides of a package and identify its contents and level of radioactivity. Shipments with extremely low levels of radioactivity that would present no severe hazard if involved in a transport accident are excluded from labeling requirements. Some shipments are identified by diamond-shaped placards placed on all four sides of the vehicle.

Inspections: DOE LLW is transported primarily by truck. Vehicle and load are inspected by DOE and State inspectors (where required) before shipment. States may inspect shipments to confirm regulatory compliance.

Routing: DOT requires carriers of radioactive materials for which placarding is required to use routes that minimize radiological risk.



This map shows the top DOE LLW shipments by weight in the United States for FY98.

Training: Carrier companies and drivers transporting LLW must meet DOT standards for training in order to transport hazardous materials. Federal regulations establish training requirements.

Emergency Preparedness

Should an accident involving a shipment of LLW occur, a response system is in place. DOE supports training and emergency planning through the Transportation Emergency Preparedness Program. State, Tribal, and local government officials respond to any such accident within their jurisdictions.

DOE also responds to transport emergencies at the request of States and Tribes. Radiological Assistance Program teams are available to provide field monitoring, sampling, decontamination, communications, and other related services. Technical assistance from the shipping site or appropriate DOE program is also available in the event of an accident.

Additional Information

Details on DOE plans for future treatment/disposal of LLW can be found in the Waste Management Programmatic Environmental Impact Statement (WM PEIS). Information on the WM PEIS is available at the DOE Environmental Management Website listed below.

Additional information on DOE's National Transportation Program may be obtained from:

National Transportation Program
U.S. Department of Energy
Albuquerque Operations Office
P.O. Box 5400, MS SC-5
Albuquerque, NM 87185-5400

Phone: 505-845-6134
FAX: 505-845-5508

Website:
http://www.ntp.doe.gov/

DOE Center for Environmental Management Information
P.O. Box 23769
Washington, DC 20026-3769

1-800-7EM-DATA
1-800-736-3282

Website:
http://www.em.doe.gov/

Transportation Resource Exchange Center
ATR Institute
University of New Mexico
1001 University Blvd., SE
Albuquerque, NM 87106-4342

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