



# Waste Receiving and Processing Facility

U.S. Department of Energy • Richland Operations Office

The mission of the 2336-W Waste Receiving and Processing Facility (WRAP) is to process drums and small boxes of low-level waste (LLW), mixed low-level waste (MLLW), and transuranic waste (TRU) for permanent disposal. WRAP inspects, treats, and repackages waste to ensure that it meets the acceptance criteria of the appropriate disposal facility. DOE-RL's Waste Management Division has programmatic responsibility for WRAP. Fluor Hanford is the operating contractor.

WRAP has the capability to perform waste handling operations with robotics to minimize worker exposure to radioactive and hazardous materials.



*Above: Waste Receiving and Processing Facility*

The facility has automated processes that x-ray waste and analyze waste using both gamma and neutron assay equipment to properly characterize the waste. Workers use computer equipment and TV consoles to monitor the process and operate the automated equipment. Packaging of 55-gallon drums is performed in large gloveboxes to either verify drum contents or remove prohibited items. WRAP treatment capabilities include neutralization for pH adjustment, amalgamation of mercury, solidification of free liquids, and macroencapsulation.



*Above: X-ray image of drum contents*

## Quick Facts

**Purpose:** Receive, examine, and prepare contact-handled (<200 mr/hr) wastes (LLW, MLLW, and TRU) for final disposal

**Facility Description:** The major functional areas in the 51,000 ft<sup>2</sup> building are waste receiving and shipping, non-destructive examination and assay, and waste processing; other areas provide space for support functions and activities.

**Non-destructive examination and assay (NDE/NDA) capability:** Three NDE vaults, one for boxes and two for drums, controlled from two stations in the control room; two imaging active/passive neutron (IPAN) vaults; two gamma energy analysis (GEA) vaults; and one combination IPAN/GEA box vault.

**Glovebox capability:** Two large gloveboxes for sorting and compaction; two smaller boxes for treatment.



The NDE/NDA techniques used at WRAP are x-ray, passive/active neutron measurement, and gamma energy analysis. WRAP also prepares the TRUPACT, a NRC-approved Type B shipping container, for shipment of TRU waste to the Waste Isolation Pilot Plant in Carlsbad New Mexico. A maximum of 14 55-gallon drums can be loaded into each TRUPACT container. Each TRUPACT trailer can hold three TRUPACT containers.

Low-level waste is disposed of in the Low-Level Burial Grounds at the Hanford Site. Mixed low-level waste is placed in a mixed waste disposal trench or stored above ground in the Central Waste Complex, also at Hanford.



*Left: Verifying materials using an automated x-ray process*

*Above: Worker using Glove Box for Handling LLW*

*Right: LLW Glove Box*



*Below: Remote Handling Equipment, from Left to Right: Manipulator Claw inside Glove Box, Automated Guided Vehicle, and Jib Crane*



### Historical Note

The U. S. Department of Energy's Richland Operations Office owns the Hanford Site in southeastern Washington State. Hanford was established during World War II as part of the top secret Manhattan Project to produce plutonium for nuclear weapons. Weapons material production was halted in the late 1980's. The Hanford Site is now engaged in the world's largest cleanup effort to deal with the legacy of radioactive and hazardous wastes that resulted from the plutonium production era. Hanford's cleanup program is regulated by the U. S. Environmental Protection Agency and the Washington Department of Ecology under a long term compliance contract called the Tri-Party Agreement. This agreement sets the framework and timelines on the cleanup work so that Hanford meets current environmental standards. The Waste Receiving and Processing Facility has an important role in meeting these environmental laws and standards.

