

AN OVERVIEW OF THE ORNL WASTE HANDLING & PACKAGING PLANT

R. C. Mason

D. W. Turner

J. B. Berry

Office of Waste Management and Remedial Actions
Oak Ridge National Laboratory*
Oak Ridge, Tennessee 37831-6060

ABSTRACT

The Waste Handling & Packaging Plant (WHPP) is proposed as a FY 1994 capital line-item project to be constructed at the Oak Ridge National Laboratory (ORNL). The mission of this project is to retrieve, receive, repackage, certify, and ship remote-handled (RH) and special case (SC) transuranic (TRU) waste. Approximately 90% of the inventory of RH TRU currently stored at the Department of Energy (DOE) sites is stored at ORNL, and all of this waste requires repackaging before it can be shipped. The WHPP may also process TRU waste from other DOE sites, such as the Argonne National Laboratory. The certified TRU waste would be shipped from WHPP to the Waste Isolation Pilot Plant (WIPP) located near Carlsbad, New Mexico. The WHPP is planned to be operational in FY 2000.

PROJECT OVERVIEW

The WHPP has been identified as a key element in the United States DOE TRU waste program for both RH and SC waste(1). Thus, the WHPP has been proposed as a FY 1994 line item project for construction at the ORNL. The mission of the facility is to retrieve, receive, repackage, certify, and ship TRU waste to the WIPP located near Carlsbad, NM. The inventory of RH TRU waste stored at ORNL is about 90% of the RH TRU waste stored in the entire DOE system. The proposed WHPP would also receive RH TRU solid waste from other DOE sites, such as the Argonne National Laboratory.

The conceptual design task was initiated in March 1988, and the preliminary report was issued in May 1989 (2). The development activities to support the WHPP were initiated during the summer of 1988 and will continue to provide technical information and data to the project over the next several years.

The WHPP project scope includes processing of both stored liquid and solid transuranic wastes. Stored solid waste will be retrieved in the original concrete casks. The waste material inside the casks will be removed in the WHPP, sorted, processed, repackaged, and certified to meet the WIPP waste acceptance criteria (WAC) before being transported to WIPP for final disposal. Special case waste will also be processed through the plant on a case-by-case basis. Solid waste stored at other DOE sites will be transported to WHPP and processed in a fashion similar to that used for ORNL solid wastes. All waste handling activ-

ities will be conducted remotely in shielded hot cells, which are an integral part of the WHPP design.

The slurry processing portion of the plant includes mobilization of liquids and sludges from the Melton Valley Storage Tanks (MVSTs), adjustment of the loading of salt and TRU solids in the slurried material, transport of the slurry to the WHPP, and processing to form a transportable waste that meets the WIPP-WAC. The WIPP-WAC parameters most crucial to WHPP performance with the MVST material are the requirements limiting free liquid and fine particulate matter.

The WHPP is currently being pursued as a FY 1994 line item project. A preliminary conceptual design was completed in May 1989. The Preliminary Safety Analysis Report was issued in conjunction with the conceptual design. The conceptual design was updated during FY 1990. The project is currently on hold awaiting additional funding and clarification of uncertainties regarding final waste form requirements. The development activities that support the project will feed information into the project continuously. The entire line item project will require about seven years to complete. Operational startup is currently expected about FY 2002.

REFERENCES

1. Department of Energy Joint Integration Office, "Long-Range Master Plan for Defense Transuranic Waste Program," DOE-JIO-023, July 1987.
2. Preliminary Conceptual Design Report for the Waste Handling and Packaging Plant, X-OE-453, May 1989.

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