THE OPERATIONAL STATUS OF WIPP

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ABSTRACT

The Waste Isolation Pilot Plant (WIPP) in southeastern New Mexico is being constructed as a first-of-a-kind research and development (R&D) facility for the disposal of defense-generated transuranic (TRU) waste. The facility has been designed to accept approximately 168,000 m^3 of contact-handled waste and 700 m^3 of remote-handled waste. A limited amount of defense high-level waste will be received at WIPP for experimental purposes. When the experimental program is completed, all high-level waste will be removed from WIPP. This paper will detail WIPP's construction and operational status.

BACKGROUND

The WIPP site is located in southeastern New Mexico in a bedded salt formation known as Los Medanos. The radioactive wastes will be emplaced 655 m below the surface of the ground within a 914-m thick salt medium.

The project is managed by the Department of Energy's Albuquerque Operations Office under the direction of the WIPP Project Office.

Major participants in the project are:

Westinghouse Electric - Management Operating Contractor

Bechtel - Architect/Engineer

U.S. Army Corps of Engineers - Construction Management

Sandia National Laboratories - Scientific Support

Geological exploration and conceptual design began in 1975, with actual construction of the facility beginning in 1981. The WIPP facility will begin receipt of radioactive waste in 1988.

UNDERGROUND

The layout of the underground facility is shown in Fig. 1. The construction of the underground experimental rooms and drifts is virtually completed in the northern part of the facility, with the exception of the mining of several additional experimental rooms which have yet to be completed.

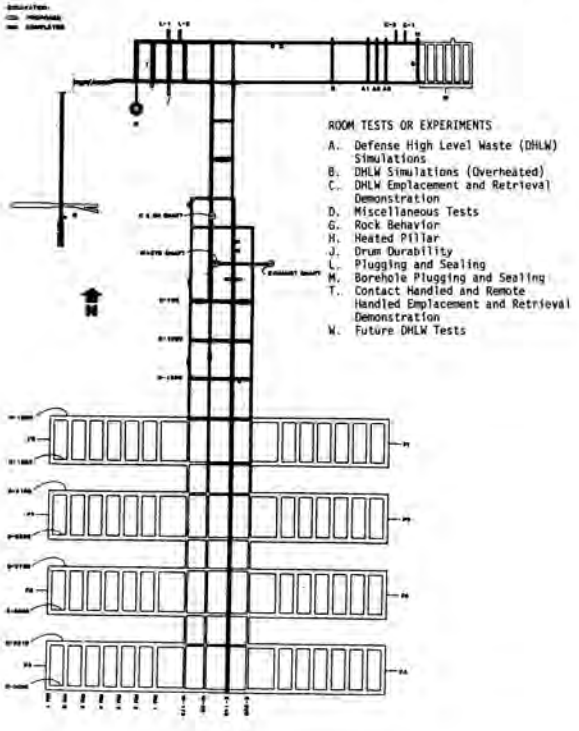

Fig. 1. Underground Excavation.

Access drifts to the first waste panel (southern part of the facility) have been completed with mining of the first waste panel expected to begin by December 1986.

Due to room closure by salt creep, mining cannot be done well in advance of an area being utilized. Currently, mining of an area is done in passes or cuts, due to the large amount of initial rebound (creep) experienced. After the initial rebound is completed, the area is remined to further enlarge the opening, with a final remining just prior to use. This process is necessary to ensure proper access and operational clearances for equipment and machinery to be used in the TRU waste storage areas during the entire waste emplacement operation in a particular portion of the storage area.

Sinking of all shafts has been completed. The hoist for the waste shaft is currently being installed, with completion scheduled for July 1986. Additional underground work at the waste hoist station is also currently underway.

In order to put things into perspective, one can look at the mining accomplished to date in light of that which remains to be done. To date, 378,000 metric tons of salt have been excavated at WIPP. The three existing shafts at WIPP yielded 88,900 metric tons of salt. The remaining 289,000 metric tons of salt were excavated from the drifts, accessways, and experimental rooms. If the salt removed to date were placed over a football field, the pile would be over 61 m high.

When completed, WIPP will consist of eight waste storage panels of several rooms each in addition to connecting drifts, accessways, and experimental rooms. Each waste panel requires the mining of 109,000 metric tons of salt. When completed, the total excavated salt from the panels will amount to 871,000 metric tons. Again, if all the salt were evenly spread over a football field, the pile of salt would be almost 213 m in height. This equates to over 19.3 km of drifts and rooms.

SURFACE FACILITIES

The surface facilities at WIPP consist of those buildings and facilities needed to receive and emplace the waste, office areas for support personnel, guard and security buildings, electrical distribution systems, warehouse and maintenance buildings, and visitor areas. The layout of the surface area is shown in Fig. 2.

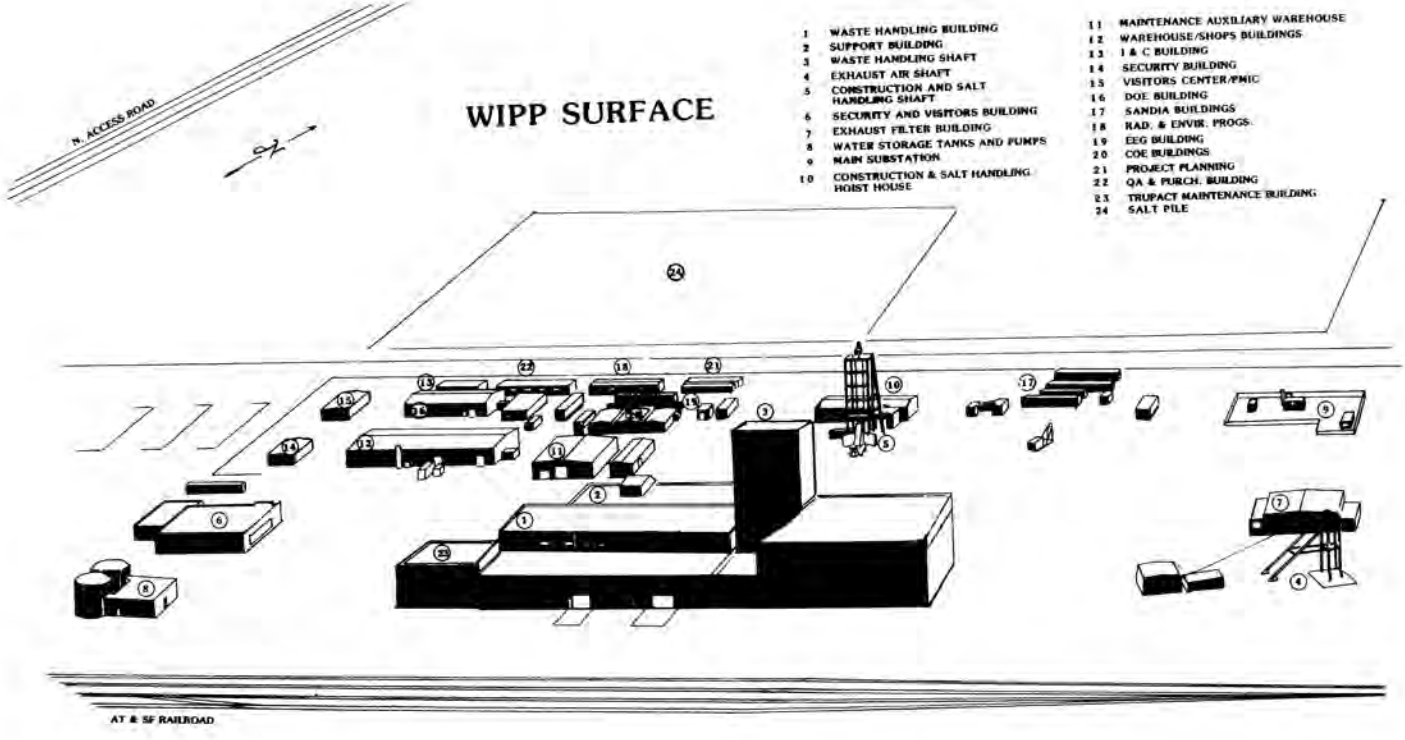

Fig. 2. Surface Construction.

The major surface facilities are the Waste Handling and Support Buildings. The Waste Handling Building structural steel has been completed, as well as side wall closure and roofing. The hot cell concrete has been poured, and outfitting of the hot cell is underway. Construction of the remote-handled portion of the Waste Handling Building is progressing well, as is the construction of the transuranic package transporter (TRUPACT) Maintenance Facility, located on the opposite end of the building.

The Support Building is enclosed, and interior finish work is being completed. The anticipated completion of the Support Building is scheduled for June 1986, with completion of the Waste Handling Building and hot cell scheduled for August 1986.

The Guard and Security Building has been completed, with occupancy occurring in February.

The Exhaust Filter Building is in the final steps of outfitting with turnover anticipated in April 1986.

A complete status of WIPP construction is shown in Fig. 3.

SUMMARY

Construction of WIPP continues to progress well. All facilities will be completed and ready when the first contact-handled waste arrives in October of 1988. Also, all institutional requirements and commitments will have been completed. WIPP's role as the leader for the demonstration of safe, efficient, permanent disposal of radioactive waste is more evident as the facility nears full completion.

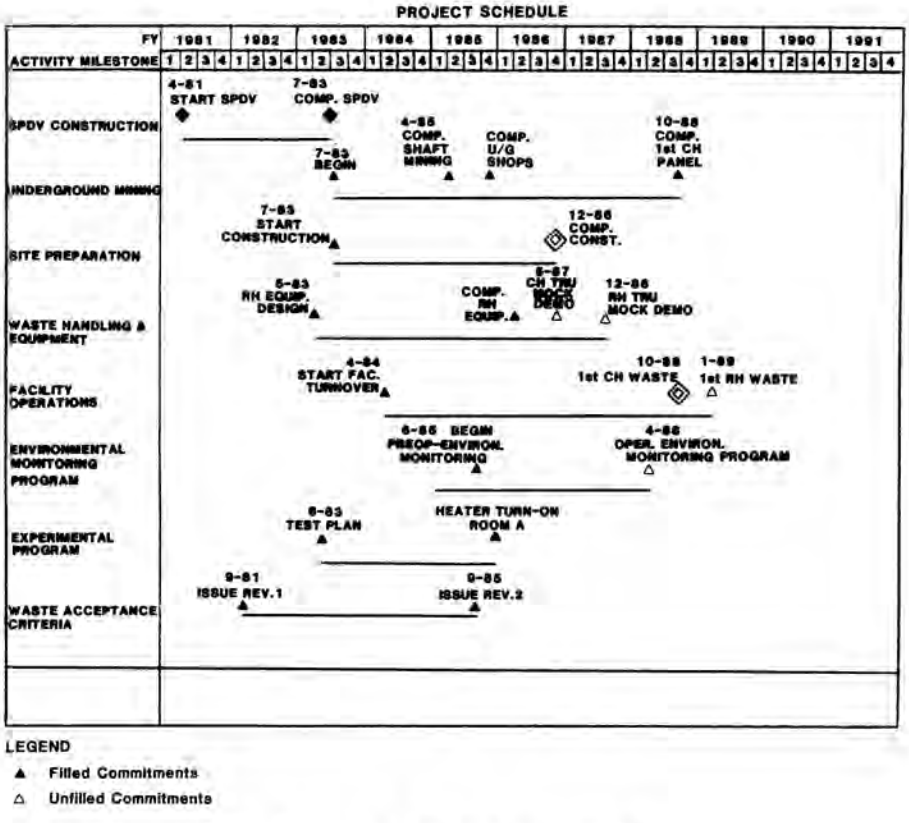

Fig. 3. Status of WIPP Construction.

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