

## Chapter Two

# Waste Acceptance, Storage, and Transportation Project

The commercial spent nuclear fuel and DOE-managed nuclear materials that would be disposed of in a repository are now stored at 129 commercial and DOE sites in 39 States. Planning for the legal transfer of these materials to OCRWM and their physical transport to a repository is a significant task. Last year, most of the transportation-related components of this work were put on hold pending designation of a Federal site to which waste could be shipped.

### Acceptance of Commercial Spent Nuclear Fuel

The Nuclear Waste Policy Act of 1982 authorized the Secretary to enter into contracts with the owners and generators of commercial spent nuclear fuel. Our interactions with them on matters concerning receipt, shipment, and disposal of their spent nuclear fuel are

governed by the *Standard Contract for Disposal of Spent Nuclear Fuel and/or High-Level Radioactive Waste*, 10 CFR Part 961, promulgated as a Federal rule in 1983. Under the standard contract, the Department was to start accepting spent nuclear fuel from utilities in 1998. With no Federal facility available to receive the material, utilities are pursuing litigation to seek relief from hardships they allege as a consequence of the Department's inability to accept waste. The Department is working actively with the utilities to negotiate a settlement. Note 12 to OCRWM's Financial Statements (Appendix A) contains a discussion of the litigation and its current status.



Commercial nuclear power plant



Commercial nuclear fuel assembly

On March 12, 1999, in testimony before the House Subcommittee on Energy and Power, the Secretary proposed to take title to utilities' spent nuclear fuel at reactor sites pending the opening of a repository. By taking title, the Department could assume financial responsibility for a utility's continued management of the spent nuclear fuel.

Among other issues, the Department is examining how this option would be funded, how and when it would be implemented, who would own and regulate the spent fuel storage sites. Answers to these questions would depend on the specific needs of individual utilities. In return for taking title and financial responsibility for the spent nuclear fuel, the Department would expect the utilities to terminate their claims.

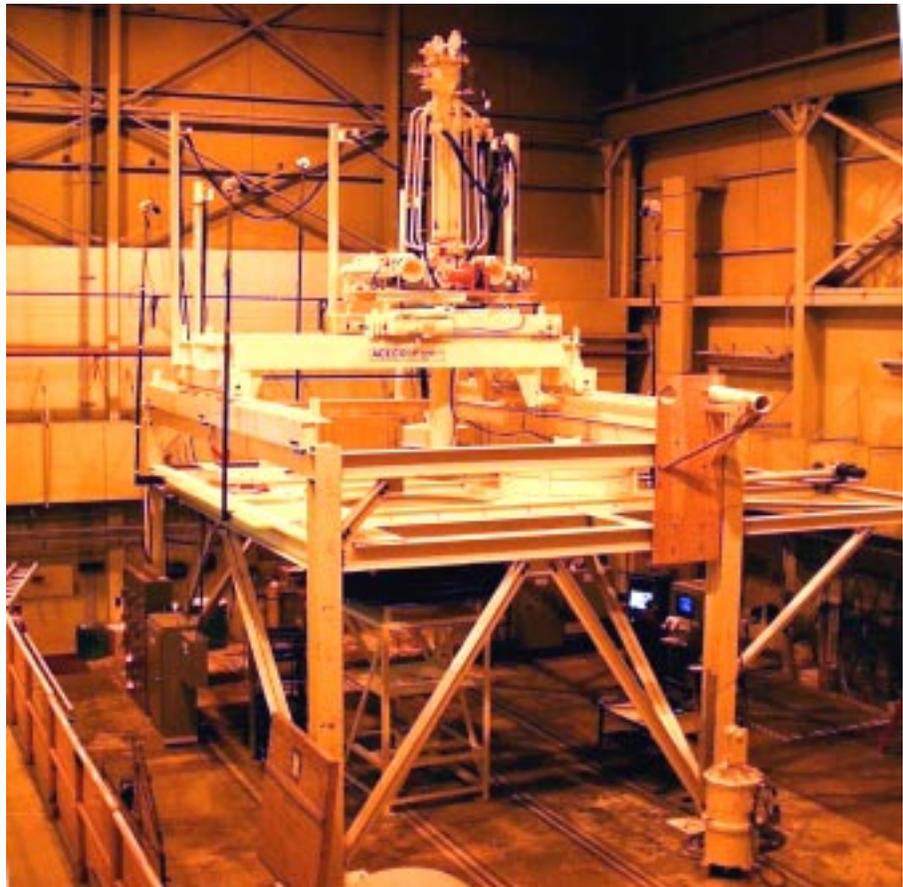
#### *Dry transfer system for spent nuclear fuel*

Development of the spent nuclear fuel dry transfer system continued in Fiscal Year 1999. The system has the potential to assist utilities and the Department in future spent fuel management activities. Congress appropriated funds in Fiscal Years 1992 and 1993 for DOE to develop the system in cooperation with the Electric Power Research Institute. The system design was completed in December 1995, and the Topical Safety Analysis Report was finalized in August 1996. A prototype demonstration project was initiated in August 1996 and completed in October 1999. During 1999, OCRWM also responded to technical questions from the Nuclear Regulatory Commission to support the Commission's review of the Topical Safety Analysis Report.

As depicted in the figure, the dry transfer system will enable the transfer of individual spent fuel

assemblies between a conventional top-loading cask and a multi-purpose canister in a shielded overpack, or accommodate spent fuel transfers between two conventional casks.

OCRWM initiated a \$4.5 million project in August 1996 to demonstrate a prototype dry transfer system with mockup spent fuel. The prototype, based on a design developed by the Electric Power Research Institute, was demonstrated at the Idaho National Engineering and Environmental Laboratory (INEEL). Completed in October 1999, it validated the performance of systems and components, determined design adequacy, confirmed system and operational capability to recover from off-normal conditions, and provided loading cycle time and overall system throughput rates. It also provided information on



**Dry transfer system at INEEL**

equipment fabrication costs through actual purchases under a rigorous quality assurance program.

In September 1996, we submitted a Topical Safety Analysis Report to the NRC. During Fiscal Year 1999, we responded to two requests for additional information on the report. The report is currently under review by the NRC, with completion anticipated in the Spring of 2000.

### Acceptance of DOE-Managed Materials

#### *Integrating DOE-managed nuclear materials into our Program*

Three offices within the Department manage materials destined for geologic disposal. The Office of Environmental Management (EM) manages high-level radioactive waste, DOE spent nuclear fuel, and surplus nuclear materials. The Office of Fissile Materials Disposition plans for the disposition of surplus weapons-usable plutonium. Naval spent nuclear fuel is managed by the Naval Nuclear Propulsion Program, which represents both the DOE Office of Nuclear Energy, Science, and Technology and the Department of the Navy.

In Fiscal Year 1999, we issued Revision 1 of our memorandum of agreement with EM. It modified how changes would be recorded and revised the quality assurance subagreement between EM and OCRWM. We continued discussions on defining the terms and conditions under which we would accept EM's nuclear materials, and we are now developing an integrated schedule for acceptance.

We continued to implement our memorandum of agreement with the Director, Naval Nuclear Propulsion Program, Department of the Navy, to achieve safe and timely disposal of naval spent nuclear fuel. Our schedule calls for receipt of naval spent nuclear fuel early in repository operations. The parties to the agreement seek to identify data needs, interfaces and acceptance criteria, and to develop compliance procedures needed to support waste acceptance. The focus of this work in Fiscal Year 1999 was identifying data needs, defining requirements for transportation and storage systems, and specifying transportation, loading, and waste acceptance operations.

**Defense Complex Clean-Up**



**Surplus Weapons-usable Materials**



**DOE and Foreign Research Reactor Spent Fuel**



**Naval Reactor Spent Nuclear Fuel**



**DOE-managed nuclear materials**

## Baseline Management

Two of the six documents that constitute the Project's technical baseline were updated in Fiscal Year 1999: the *Waste Acceptance System Requirements Document (WASRD) Revision 3*, and the *Integrated Interface Control Document, Volume I*. Also updated were the *Project Cost and Schedule Baseline* and *Work Breakdown Structure and Dictionary*. Project control and baseline management of waste acceptance, storage, and transportation elements were coordinated with Program efforts, as described in Chapter 3.

- The WASRD defines acceptance criteria for D to be the single document governing criteria for waste acceptance. The revision contains waste-acceptance criteria for DOE spent nuclear fuel, high-level radioactive waste, naval spent nuclear fuel, and immobilized plutonium.
- To define the programmatic interfaces between the Waste Acceptance, Storage, and Transportation Project and the Yucca Mountain Site Characterization Project, we developed a draft *Integrated Interface Control Document, Volume II*. It contains a set of preliminary agreements with respect to issues associated with waste characteristics.
- We updated the *Waste Acceptance, Storage, and Transportation Project Cost and Schedule Baseline* to reflect the lack of authorization for work on interim storage, to incorporate revisions to the Program's work breakdown structure dictionary, and to implement other policy decisions described in the *Program Plan, Revision 2*. The most significant changes reflect the deferral of the procurement of waste acceptance and transportation services and of implementation of Section 180(c) of the Nuclear Waste Policy Act.
- To reflect policy changes described in the *Program Plan, Revision 2*, and consolidation under the Waste Acceptance, Storage, and Transportation Project of functions related to acceptance of DOE-managed nuclear materials, we updated the *Waste Acceptance, Storage, and Transportation Project Work Breakdown Structure and Dictionary*. In addition, we closed out all cost elements for work related to interim storage.