Chapter Two

Waste Acceptance, Storage and Transportation Project

Overview

In Fiscal Year 1996, because of deep funding cuts by Congress, congressional interest in interim storage issues, and the Administration's emphasis on privatization, OCRWM reassessed its programmatic objectives and formulated new strategies for storage and transportation. Those strategies, described in our revised *Program Plan*, continued to govern our Fiscal Year 1997 efforts, which focused on two major tasks:

- Development and refinement of a procurement strategy for acquiring waste acceptance and transportation equipment and services. The strategy will rely, to the maximum extent possible, on obtaining needed equipment and services directly from private vendors through competitive proposals, rather than on provision of design, equipment, and services by the Department.

- Development of a non-site-specific interim storage facility design and Topical Safety Analysis Report for NRC review. This could expedite development of an interim storage facility if one were authorized.

Other activities, such as providing support for the NRC's review of the *Actinide-Only Burn-up Credit Topical Report* and the *Dry Spent Fuel Transfer System Topical SAR* (Safety Analysis Report), also continued during the year.

However, the need to shift more resources to site characterization at Yucca Mountain resulted in a reduction in the budget for waste acceptance, storage, and transportation from $13.5 million in Fiscal Year 1996 to $10 million in Fiscal Year 1997. This decreased the level of support for development of the transportation procurement initiative, reduced funding for cooperative agreement groups, and resulted in a decision not to pursue further design work on a non-site-specific interim storage facility. Nonetheless, even with under 3 percent of OCRWM's total budget, the work performed in this area remained essential to preparing for waste acceptance and transportation of spent nuclear fuel to a Federal facility.

Throughout Fiscal Year 1997, congressional debate on the issue of interim storage for spent nuclear fuel continued. The Administration's position remained constant: any potential decision about interim storage should rest on objective, science-based criteria and be informed by the results of the Yucca Mountain viability assessment. In the absence of authorization for a facility and with limited funding, our work scope for interim storage planning remained limited. Our future activities will be impacted by whether or not such legislation is enacted.

Developing a Market-Driven Strategy

We continued to refine the strategy for acquiring waste acceptance and transportation services that we had initiated in Fiscal Year 1996. That strategy involves a competitive procurement designed to stimulate the market in transportation of commercial spent nuclear fuel, and it relies on private industry to provide a cost-effective approach with minimal Federal involvement. We are pursuing this procurement independent of interim storage contingency planning: it would support spent nuclear fuel transportation to either an interim storage facility or to a repository.

Essentially, contractors would pick up spent nuclear fuel at utility sites and deliver it to a Federal facility, providing all equipment and services needed to perform those functions. Elements of the acquisition would

Tasks to Be Performed under Regional Service Contracts for Waste Acceptance and Transportation Services

Phase A: Planning
- Complete site-specific planning
- Develop management and operation plans
- Complete regional planning
- Develop pricing

Phase B: Mobilization and Acquisition of Equipment
- Purchase/lease equipment
- Perform site preparation for spent nuclear fuel shipments
- Initiate training
- Provide initial storage systems
- Finalize routing

Phase C: Operations
- Transport spent nuclear fuel
- Perform waste acceptance
- Perform cask maintenance
- Provide remaining storage systems

include competition for a combination of fixed-price, fixed-rate, multi-year, performance-based contracts. The acquisition will entail a series of 10- to 15-year contracts, with each contract cycle leading to awards to multiple regional service contractors.

In May 1996, we published an Expression of Interest and Request for Comments in the *Federal Register* and *Commerce Business Daily*. In July 1996, we held the first presolicitation conference with potential vendors to discuss a draft Statement of Work and draft Concept of Operations. On December 27, 1996, we published a complete draft Request for Proposals for public review and comment. Publication of the draft met both a commitment made in the Secretary's Performance Agreement with the President for Fiscal Year 1997 and a milestone in our revised *Program Plan*.

On February 25, 1997, we held our second presolicitation conference, announced in the *Federal Register* and *Commerce Business Daily*, in Washington, D. C., to solicit additional input on technical and contractual issues. Approximately 140 attendees received updated program information and offered comments on operations, logistics, and institutional issues. The majority of the written comments were supportive of, or neutral about, our overall approach to acquisition.

Two public workshops that we sponsored (described at the end of this chapter) also addressed transportation issues. Input from these workshops and the formal comments submitted in response to the draft Request for Proposals helped shape the next version, which was issued on November 24, 1997.

The Debate over Interim Storage Continues

Congressional efforts in Fiscal Year 1997 to redirect the Nation's policies for managing nuclear waste were very similar to efforts in Fiscal Year 1996, with almost the same results. Although the Senate passed S.1936, the Nuclear Waste Policy Act of 1996, the 104th Congress adjourned in December 1996 without passing legislation. However, because of the prospect that legislation could have been enacted in Fiscal Year 1997, and due to continued funding constraints, we concentrated our efforts on development and refinement of our approach for providing waste acceptance and transportation services. While we worked to maintain momentum in waste acceptance, storage, and transportation efforts, we knew that those efforts could be substantially affected if legislation were enacted. Thus, we continued to monitor pending legislation, analyze its potential impacts on our current course of action, and maintain capability to respond to change.

Key congressional actions in Fiscal Year 1997 included the following:

- Senate bill S.104, the Nuclear Waste Policy Act of 1997, was introduced in January 1997 and passed the Senate on April 15, 1997. As approved, this bill ties the designation of the interim storage site to the viability assessment of Yucca Mountain, which the bill would direct the Department to complete by December 1, 1998.

- In the House of Representatives, H.R.1270, which was similar to S.104, was not brought to a floor vote during Fiscal Year 1997, although it had cleared several committees with jurisdiction

over it. The bill passed the full House in Fiscal Year 1998. H.R.1270 would require the Secretary to start operation of an interim storage facility at the Nevada Test Site by January 31, 2002, based on a positive viability assessment of Yucca Mountain.

As stated above, the Administration's position on siting an interim storage facility continued to be that the decision should rest on objective, science-based criteria and should be informed by the results of the viability assessment of the Yucca Mountain site. The Administration has notified Congress that the President would veto any legislation that is inconsistent with this principle and would weaken environmental standards.

Non-Site-Specific Storage Planning

In April 1996, we had begun work on design, engineering, and the supporting safety analyses for a non-site-specific storage facility to be constructed in two phases. The first phase is for receipt of canistered spent nuclear fuel only; the second phase, which would be developed in modules, adds the capability to receive and store uncanistered spent nuclear fuel.

During Fiscal Year 1997, we completed this design effort and submitted a non-site-specific Topical Safety Analysis Report for a Centralized Interim Storage Facility to the NRC for review. This submittal met a commitment made in the Secretary's Performance Agreement with the President for Fiscal Year 1997. It also met a milestone in our revised *Program Plan*. The report describes the facility design, operations, and supporting systems; demonstrates conformance with the NRC's siting evaluation factors and general design criteria; and presents the results of radiological and safety analyses.

In January 1997, we issued a *Design Requirements Document* (Revision 1) to support development of this Topical Safety Analysis Report. The *Design Requirements Document* identifies the basis for the non-site-specific design, engineering, and safety requirements, and it describes physical characteristics and capacity assumed in the Phase I facility design. We discussed the design criteria with the NRC's Advisory Committee on Nuclear Waste on May 22, 1997; the Committee found them acceptable.

The *Total System Description* we issued in June 1997, described below, addresses possible acceptance of DOE spent nuclear fuel and high-level radioactive waste at a centralized interim storage facility, and it states that "to the extent practicable, the facility will have the capability to accommodate certain types of DOE spent nuclear fuel starting from its first year of operation."

Relations with Utilities

Managing the Standard Contract with utilities

The *Standard Contract* requires the Federal Government to take legal title to, as well as physical possession of, the spent nuclear fuel. Therefore, waste acceptance will require well-defined procedures and accurate documentation. In preparation for this, we continued to monitor spent nuclear fuel inventories and discharges.

The Nuclear Waste Policy Act of 1982 authorized the Secretary to enter into contracts with the owners and generators of commercial spent nuclear fuel, and our interactions with them on matters concerning receipt, shipment, and disposal of their spent nuclear fuel are governed by a 1983 rulemaking, *Standard Contract for Disposal of Spent Nuclear Fuel and/or High-Level Radioactive Waste,* 10 CFR Part 961, which defined the terms of a *Standard Contract*.

On May 19, 1997, we provided to all holders of the *Standard Contract* a Spent Fuel Verification Plan (Revision 0). The document explains how we plan to fulfill our contractual responsibilities to verify spent nuclear fuel prior to acceptance and how we plan to collect information needed to implement the Material Control & Accounting Plan, in order to meet NRC and International Atomic Energy Agency requirements.

Our revised *Program Plan* identified as a Fiscal Year 1997 milestone the completion of the first phase of a unified database that would integrate existing information about all spent nuclear fuel and high-level radioactive waste loaded into sealed canisters. The information would be used for planning and operations, including tracking of spent nuclear fuel generation, material control and accounting, and spent nuclear fuel verification. Budget cuts and the need to shift resources

to the Yucca Mountain Site Characterization Project forced us to terminate this effort.

Legal developments

Throughout Fiscal Year 1997, congressional debate over interim storage legislation continued. The Administration's position remained constant: any decision about interim storage should be based on objective, scientific criteria and should be informed by the results of the Yucca Mountain viability assessment. The Nuclear Waste Technical Review Board stated its belief that a primary centralized interim storage facility should not be sited at Yucca Mountain until the site's suitability for a repository has been determined.

In July 1996, the U.S. Court of Appeals for the District of Columbia Circuit held that the Department has an obligation to commence spent nuclear fuel disposal by January 31, 1998, but stated that it was premature to address the remedy available because the Department had not yet failed to meet its obligation. On December 17, 1996, the Department notified holders of the *Standard Contract* that it did not expect to be able to start accepting spent nuclear fuel by January 31, 1998, and it solicited their views on how best to accommodate this delay. Soon after his confirmation, in April 1997, the Secretary met with utility executives to discuss options for addressing the Department's delay in spent nuclear fuel acceptance. However, no agreements were reached. In January 1997, a coalition of utilities and a coalition of State agencies filed a petition for the court to issue a writ of mandamus enforcing its earlier decision and compelling the Department to begin accepting spent nuclear fuel by January 31, 1998.

While litigation proceeded, the Department explored with some contract holders how it might alleviate the impacts of a delay on a case-by-case basis, by modifying individual contracts under clauses of the *Standard Contract.* Under existing delivery schedules, 14 of 59 contract holders have 1998 delivery dates.

On November 14, 1997, the U. S. Court of Appeals for the District of Columbia Circuit concluded that "the remedial scheme of the standard contract offers a potentially adequate remedy." The court did not direct the Department to start accepting waste on January 31, 1998, nor did it allow contract holders to escrow Nuclear Waste Fund payments until waste acceptance begins. It did issue a writ precluding the Department from excusing its failure to accept waste on the grounds that it had not yet established a permanent repository or an interim storage program.

In December 1997, the Department filed a petition for rehearing, arguing that the D.C. Circuit Court lacks jurisdiction to decide the adequacy and appropriateness of contractural remedies, since such issues are committed to the Court of Federal Claims. In February 1998, State regulators and utilities petitioned the court on several issues. They asked the court to bar the Department from using the Nuclear Waste Fund to compensate utilities, authorize utilities to escrow their fee payments, order the Department to file a plan for immediately beginning spent nuclear fuel disposal, and appoint a Special Master to oversee the Department's activites. On May 5, 1998, the court denied the Department's December 1997 request for a rehearing and the February 1998 petitions filed by the States and utilities.

As of May 31, 1998, no utility has sought the contractual remedy the court discussed in its November 1997 opinion, which would require the Department to process claims pursuant to the Standard Contract. Two utilities, however, have filed claims in the Court of Federal Claims for partial breach of contract.

In an attempt to end the litigation, on May 18, 1998, the Department proposed a settlement for utilities that have standard contracts with the Department. The Department proposes that utilities limit Nuclear Waste Fund payments to the proportionate share of fees appropriated to administer the civilian radioactive waste program. The remaining portion of the fee, normally paid quarterly, would be postponed until the Department is ready to accept spent nuclear fuel. A utility would remain obligated to pay the withheld fees, with interest at the Treasury rate, when receipt of spent nuclear fuel begins. Until then, a utility would be able to invest the withheld funds at higher interest rates and use the extra earnings to pay for its costs resulting from the contract delay. The Department estimates a benefit of approximately $2.8 to $5 billion to all utilities. The utilities, through the Nuclear Energy Institute, contend that the proposal is inadequate because it does not

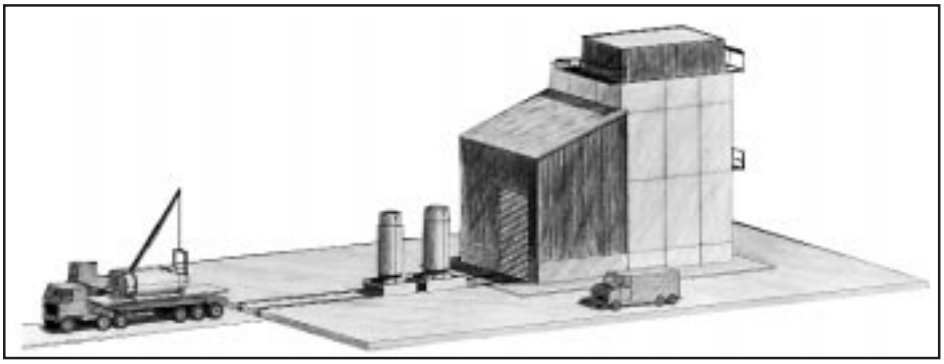
provide a mechanism for the Department to meet its obligation to accept spent nuclear fuel and does not directly provide funds for continued on-site storage.

Technical Developments

Dry spent fuel transfer system

To enable utilities with crane capacity limitations or physical size constraints to use the larger storage and transportation systems being developed commercially, OCRWM and the Electric Power Research Institute (EPRI) jointly developed the concept of a dry transfer system. The system is designed as a free-standing, portable, self-contained building that would provide the shielding, structural integrity, containment, and criticality controls necessary to allow the transfer of spent nuclear fuel from the small transfer casks that those utilities can safely handle to a larger storage or transportation cask. The ability to use the larger storage or transportation casks would allow the utility to more economically store or ship spent nuclear fuel.

The possibility of accelerated reactor shut-downs resulting from the economic impacts of utility deregulation and restructuring increases the importance of having the dry transfer system available in the near term. The dry transfer system must be licensed by the NRC, and we have worked with Transnuclear Corporation to develop a detailed generic design for the system.



Dry Transfer System

We submitted a Topical Safety Analysis Report for the dry transfer system to the NRC in September 1996, and in October 1996 the NRC accepted it for further technical review. We expect the NRC to issue a Safety Evaluation Report by September 1998.

Actinide-only burnup credit topical report

In May 1995, we submitted a Topical Report to the NRC concerning the methodologies for factoring burnup credit into the design of criticality control systems for casks used to transport spent nuclear fuel. Burnup credit accounts for the fact that, as nuclear fuel is used to generate power in a reactor, its reactivity declines. The use of burnup credit in cask criticality analysis permits design of a cask that can accommodate more spent nuclear fuel. With larger cask capacities, fewer shipments will be needed to transport spent nuclear fuel, thereby reducing transportation risk to the public.

During Fiscal Year 1997, we provided responses to the NRC's first round of questions on the Topical Report. As the year ended, we were evaluating the costs and benefits of proceeding with a follow-up Topical Report. The report would seek further burn-up credit that can be attributed to reduced reactivity when additional key fission products are considered.

Institutional Developments

Safe transportation and emergency response training, technical assistance, and funding

Section 180(c) of the Nuclear Waste Policy Act provides for technical and financial assistance to States and Native American Tribes through whose jurisdictions DOE plans to transport spent nuclear fuel and high-level radioactive waste. This assistance includes training public safety officials of appropriate units of local government. Training will cover procedures required for safe routine transportation of these materials, as well as procedures for responding to emergency situations. The Department's Office of the General Counsel determined that Section 180(c) applies

only to shipments to a facility developed under the authority of the Nuclear Waste Policy Act—that is, a repository for spent nuclear fuel and high-level radioactive waste, or a monitored retrievable storage facility constructed under the Nuclear Waste Policy Act.

To implement Section 180(c), we published a Notice of Revised Proposed Policy and Procedures for comment in the *Federal Register* on July 17, 1997. Publication met a commitment made in the Secretary's Performance Agreement with the President for Fiscal Year 1997. Publication of a final Notice of Policy and Procedures in Fiscal Year 1997 was a milestone in our May 1996 revised *Program Plan*, but because our current planning assumptions tie the start of waste shipments to the opening of a repository in 2010 and because the Yucca Mountain site's suitability for a repository has not yet been determined, we decided that it would be premature to publish a final Notice so far in advance of the selection of actual transportation routes. We published another revised proposed policy on April 30, 1998, which summarized the comments we received on the previous Notice and responded to specific issues raised.

Several of the organizations with which we maintain cooperative agreements have provided valuable input to the development of policies and procedures to implement Section 180(c). We have also received comments responding to previous *Federal Register* Notices on Section 180(c) and have participated in public forums, such as the Transportation External Coordination Working Group, described below, to obtain their views on particular implementation issues, such as eligibility for and the timing of grants as well as the percentage of funds that may be used to purchase equipment.

We intend to implement Section 180(c) through a grants program. The Department would administer the grants, which would be made for activities specified under the policy and procedures for implementing Section 180(c). OCRWM will adopt, to the extent practicable, any future Department-wide standardization of assistance to States and Tribes for the Department's shipments of radioactive materials.

We expect to know approximately 4 years prior to shipment through which State or Tribal lands the shipments will travel, even if specific routes have not been selected. Using this information, the Department will notify these jurisdictions about their potential eligibility for the Section 180(c) grants.

Transportation External Coordination Working Group

Co-chaired by OCRWM and DOE's Office of Environmental Management, this group is the primary mechanism for coordination among OCRWM and other DOE elements, other government organizations, and outside entities with responsibility for, or interest in, DOE transportation activities. Members include personnel from various DOE programs, national and regional organizations representing State, Tribal, and local governments; professional associations; and industry organizations.

Meetings are open to the public and are held twice a year to exchange information and identify issues. Participants report back to their member organizations to share information and materials from the meetings and to seek further input.

At the January and July 1997 meetings, OCRWM staff participated in topic groups that addressed route identification, funding and technical assistance for emergency preparedness, railroad operational issues, and training. Our staff provided program updates at the plenary sessions. The topic groups reported their views to the full membership at each of the meetings. The views they expressed are contributing to our implementation of Section 180(c) and to our development of the procurement initiative for waste acceptance and transportation services.

Transportation workshops

We sponsored two public workshops to discuss transportation of commercial spent nuclear fuel and Government-managed nuclear waste. One was held in Dallas, Texas, August 7-8, 1997; the other in Reston, Virginia, August 12-13, 1997. The workshops drew over 100 people with varying views of transportation activities. Participants included representatives of industry, State and Tribal governments, environmental organizations, and members of the public.

The workshops provided a forum for open discussions in which participants could express their own views and listen to those of others. On the first day of each workshop, participants had the opportunity to provide public comments and submit statements for the record. During the second day, summary reports from the breakout sessions, public comments, and statements submitted for the record were recorded. Information from these workshops is posted on the OCRWM Home Page; it includes the lists of attendees, the transcripts of their reports, and public comments submitted.

Transportation cooperative agreement groups

OCRWM maintains cooperative agreements with nine stakeholder organizations, identified in Chapter Four. During Fiscal Year 1997, our staff participated in meetings sponsored by these organizations to provide them with updates on our transportation planning and to respond to questions about our transportation program. Frequent communication with these groups enables us to provide them with current information and to learn their views and understand their concerns.