

Chapter Three

Program Management

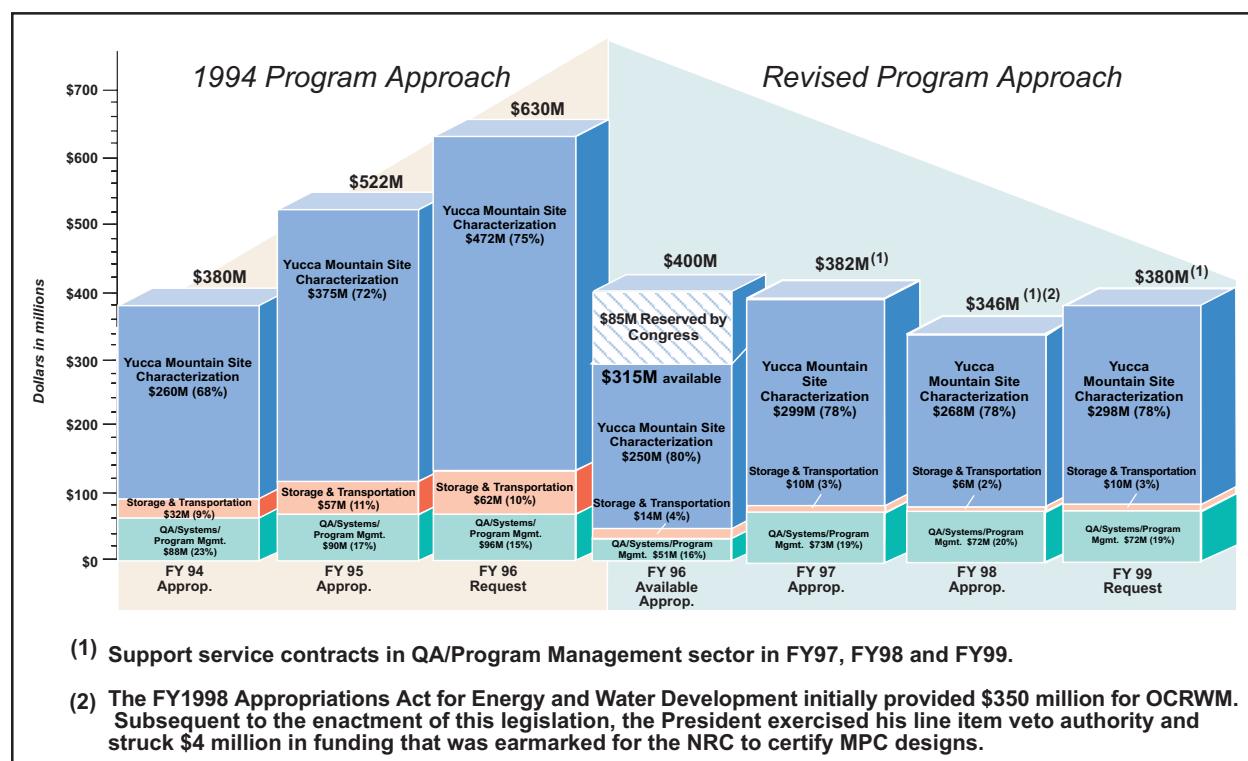
OCRWM's Director, Daniel A. Dreyfus, the third permanent Director of our program, resigned effective January 18, 1997. Lake H. Barrett, Deputy Director, was appointed Acting Director, the ninth person to hold the position since the program's inception in 1983.

Adapting to Budget Cuts

While the Fiscal Year 1997 appropriation of \$382 million was slightly higher than that for Fiscal Year 1996, it was \$18 million less than the Administration's request. In the conference report accompanying the Fiscal Year 1997 Energy and Water Development Appropriations Act, Congress directed OCRWM to

“refocus the repository program on completing the core scientific activities at Yucca Mountain” and to prepare the viability assessment by September 30, 1998. In accordance with this direction, we allocated 85 percent of our Fiscal Year 1997 appropriation to the Yucca Mountain Site Characterization Project to ensure successful completion of the viability assessment.

The remainder of the appropriation was used to support the Waste Acceptance, Storage and Transportation Project, which received 3 percent, and the Program Management Center, which received 12 percent. Funding for the latter shrank by almost half from Fiscal Year 1995 to Fiscal Year 1997. (See Figure below.)



Budget Distribution Comparison

Consequently, a major challenge has been adapting to funding reductions and meeting program objectives with greatly reduced contractor support—a challenge that has required continuing management attention. In Fiscal Year 1997, we completed the restructuring of our organization and narrowed our work scope to reflect congressional guidance.

Managing Our Human Resources

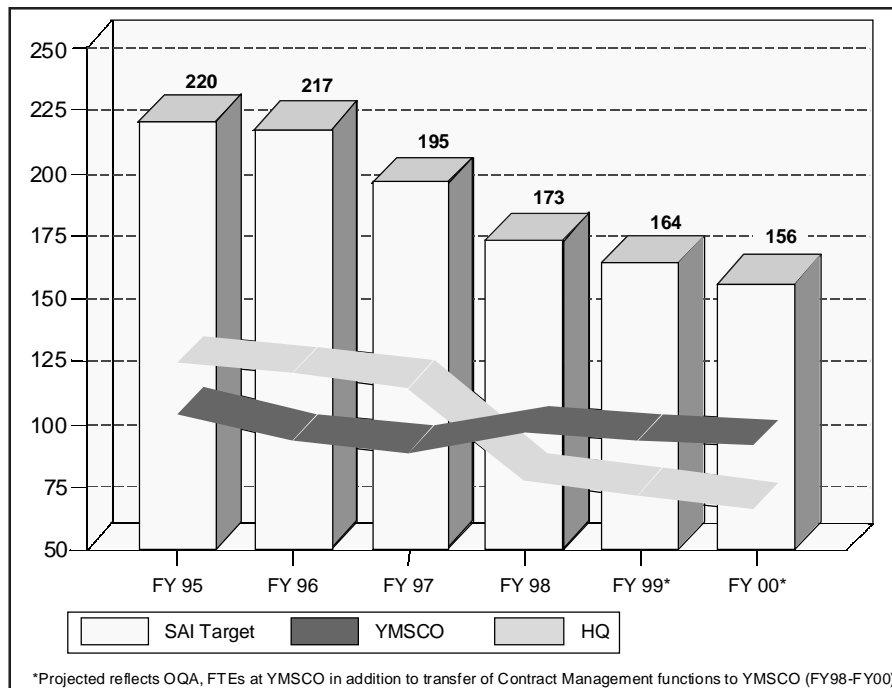
In accordance with the Department’s Strategic Alignment Initiative, OCRWM’s staffing levels have continued to shrink, as depicted below, and reductions are projected through Fiscal Year 2000. For Fiscal Year 1997, our Strategic Alignment Initiative staffing goal was 195. By the end of the fiscal year, through attrition, buy-outs, resignations, and reassignments, the number of full-time-equivalent staff positions was reduced from 213 to 202.

Alignment Initiative staffing goal of 173 could not be attained without involuntary separations; accordingly, we conducted a reduction-in-force early in Calendar Year 1998.

We continued to promote and support career development opportunities through formal training, rotational assignments, mentoring, and personnel details. In a collaborative effort by employees, supervisors, and managers, Individual Development Plans were prepared for our employees to guide training and staff development. To foster continuous improvement and excellence, OCRWM continued to participate in numerous departmental awards programs.

Managing Contractor Support

During Fiscal Year 1997, OCRWM’s support service contractor costs remained below the ceilings mandated by the Secretary’s Strategic Alignment Initiative.



OCRWM Strategic Alignment Initiative Staffing Levels

We continued implementation of contract reform initiatives for our management and operating contract in such areas as performance-based fee arrangements, use of the Department’s streamlined approach to business management oversight, and strengthened environmental, safety, and health requirements. These innovations eliminate unnecessary and costly processes and reviews, and provide incentives for improved contract performance. TRW Environmental Safety Systems, Inc., the OCRWM management and operating contractor, also simplified its

purchasing system and introduced industry “best practices” that resulted in lower acquisition costs.

We transitioned all programwide management and technical support services to the Booz-Allen &

Retaining the appropriate skills mix in our staff while achieving target staffing levels remained a program priority that received careful analysis and consideration. Our Fiscal Year 1998 Strategic

Results-Oriented Government

Traditionally, federal agencies have used the amount of money directed toward their programs, or the level of staff deployed, or even the number of tasks completed as some of the measures of their performance. But at a time when the value of many federal programs is undergoing intense public scrutiny, an agency that reports only these measures has not answered the defining question of whether these programs have produced real results. Today's environment is results-oriented. Congress, the executive branch, and the public are beginning to hold agencies accountable less for inputs and outputs than for *outcomes*, by which is meant the results of government programs as measured by the differences they make, for example, in the economy or program participants' lives.

Congress' determination to make agencies accountable for their performance lay at the heart of two landmark reforms of the 1990s: the Chief Financial Officers (CFO) Act of 1990 and the Government Performance and Results Act of 1993 (GPRA). With these two laws, Congress imposed on federal agencies a new and more businesslike framework for management and accountability. In addition, GPRA created requirements for agencies to generate the information congressional and executive branch decision makers need in considering measures to improve government performance and reduce costs.

*from The Executive Guide: Effectively Implementing
the Government Performance and Results Act (GAO/GGD-96-118, June 1996)*

Hamilton, Inc., contract, fully integrating those activities at headquarters and the Yucca Mountain Site Characterization Office in Las Vegas, Nevada.

Integrating our Planning, Budgeting, and Reporting Functions

Planning activities under GPRA

Enacted in 1993 to promote performance and accountability in government, the Government Performance and Results Act (GPRA) took effect with the Fiscal Year 1999 budget cycle. It requires that each agency (1) prepare, for submission with its annual budget request, an annual performance plan that identifies milestones and performance indicators; (2) report to Congress each year on progress made under its plan; and (3) prepare a strategic plan every 3 years covering the fiscal year in which it is submitted and at least 5 fiscal years forward.

During 1997, OCRWM participated in the development of the Department's September 1997 Strategic Plan, and prepared a Five-Year Planning Summary and a Fiscal Year 1999 Performance Plan as part of the Department's Fiscal Year 1999 internal review budget process. The Fiscal Year 1999 performance measures

developed by OCRWM were included in the Department's Fiscal Year 1999 Performance Plan, which was submitted with the Fiscal Year 1999 budget request.

Although GPRA's requirements for a strategic plan and an annual performance plan and performance report are directed at executive branch agencies, OCRWM applied key GPRA provisions to its own planning activities. In Fiscal Year 1997, OCRWM began to update and integrate its strategic and multi-year program plans into a single, preliminary draft document—the *OCRWM Program Plan, Revision 2*. This plan will be directly linked and traceable to objectives, strategies, and success measures in the Department of Energy's September 1997 Strategic Plan, as well as its Five-Year Planning Summary, Fiscal Year 1999 Annual Performance Plan, and Fiscal Year 1999 budget request.

Prior to participating in the Department's implementation of GPRA for the Fiscal Year 1999 budget cycle, OCRWM developed GPRA-compliant commitments and performance measures in Fiscal Year 1997 that were included in the Secretary of Energy's Performance Agreement with the President for that year. All of OCRWM's commitments (reproduced on the inside front cover of this report) were fully met.

We expect that the use of GPRA-compliant, performance-based planning and reporting methods will produce benefits by focusing management attention on mission-directed outcomes.

Strengthening Program Management and Integration

Management systems

In Fiscal Year 1997, we developed a draft management policy document that consolidates management system requirements, processes, and practices necessary to manage OCRWM's program. To be finalized in Fiscal Year 1998, the policy document is designed to yield the following benefits:

- A program/project management system that functions efficiently and effectively, producing products and services that are timely and of high quality, at the lowest possible cost.
- Clear definitions of accountability, responsibility, and authority. The policy is anchored in a performance-based approach that promotes accountability of both Federal employees and contractors, which includes any organization/agency expending funds in the performance of the program's authorized work scope.
- Clear demonstrations of accountability to program customers and the public. By codifying management policies and requirements, this document will further the understanding of how OCRWM carries out its mission; implementation will produce performance that demonstrates accountability.
- A sharp reduction in paperwork. Previous requirements were difficult to implement, entailed cumbersome improvement processes, and produced voluminous, duplicative paperwork. The management policy document replaces numerous documents with one integrated document.

The policy is designed to be consistent with the requirements of GPRA, described above, and to comply with DOE Order 430.1, "Life Cycle Asset

Management." This Order establishes a performance-based approach to cost estimating, systems engineering, and project management processes, and states minimum requirements in those areas. It is supplemented by the Joint Program Direction on Project Management issued by DOE's Offices of Energy Research, Environmental Management, Defense Programs, and OCRWM. Departmental Good Practice Guides are also available to assist with performance-based management.

DOE Order 430.1 reduces the number of DOE documents governing program and project management, and it delegates responsibility for defining management requirements to programs/projects. Under this DOE Order, in a September 28, 1995, memorandum, the Secretary designated the Civilian Radioactive Waste Management Program a Strategic System based on its size and importance. This designation means that the program's components are now managed as a single integrated entity rather than as separate, independent projects. The Secretary also delegated to OCRWM's Director responsibility for two of the four decisions deemed critical under the Strategic System designation: approval of mission need and approval of the start of construction. The Secretary retains approval of baselines and approval to start operations after construction is complete.

Baselines: controlling technical scope, cost, and schedule

OCRWM uses common business practices and standard project management tools to manage what is a large, complex undertaking. We baseline our scope of work, prepare schedules for specific activities, cost those activities out to establish a cost baseline, and establish key milestones by which performance can be measured. These milestones are approved and issued as the schedule baseline. A hierarchy of baselines governs the program, ranging from a very summary Secretarial level, through the Director's level and project level, to the highly-detailed contractor level.

Because baselines are the management tool used to measure project performance, they must be closely controlled if they are to be accurate and realistic. As the program evolves, as funding levels fluctuate, and as work scope changes, baselines are modified by means of controlled changes that are reviewed and approved

by baseline change control boards at the program, project, and contractor levels.

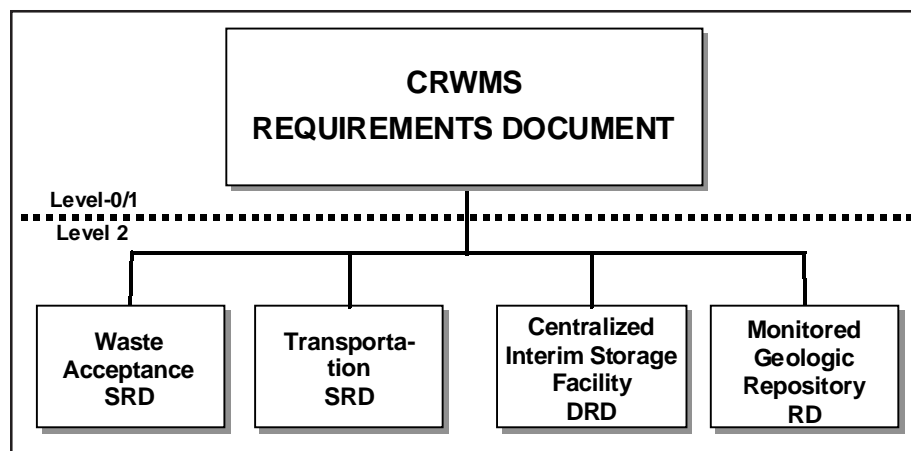
The baseline management process outlined in the draft management policy document described above ensures that these baselines are clearly defined and controlled at the appropriate level of authority. It also ensures that deliverables satisfy the technical and operational requirements derived from mission and programmatic needs.

During Fiscal Year 1997, the cost and schedule components of the baseline were updated to reflect the current fiscal year appropriation and the next year's congressional budget request. We also evaluated the impacts on the technical baseline of incorporating the two waste forms proposed for surplus weapons-grade plutonium: immobilized surplus weapons-grade plutonium and mixed oxide spent fuel. Because the impacts were determined to be manageable and acceptable, we initiated a formal change proposal to modify the program baseline to incorporate them. Work continued on fully integrating into our planning for the waste management system both DOE and Naval spent nuclear fuel, which had been incorporated into the program baseline in Fiscal Year 1996. Commercial spent nuclear fuel and high-level radioactive waste were part of the original program baseline.

Reports on OCRWM performance against the technical, cost, and schedule baselines were submitted to the Secretary on a quarterly basis and presented at bimonthly Director's Program Review meetings and monthly project management review meetings.

Controlled documents: defining an evolving waste management system

The technical baseline is the reference set of technical requirements, design information, and data that establishes the basis for design, construction and/or procurement of the components of the Civilian Radioactive Waste Management System (CRWMS).



CRWMS Technical Baseline – Level 0, 1, & 2

The CRWMS technical baseline consists of a *CRWMS Requirements Document* and the appropriate project-level documents necessary to define the CRWMS systems, structures, and components and to provide a well-documented basis for their design. The figure below shows the hierarchy of CRWMS technical baseline documents.

In November 1996, we issued Revision 3 of the *CRWMS Requirements Document*; it streamlined the program technical baseline and delegated control of the four *System Requirements Documents* to the Yucca Mountain Site Characterization Project and the Waste Acceptance, Storage and Transportation Project.

In June 1997, we issued the *Total System Description*, Revision 0, which presents a top-level description of the Federal waste management system and its operations as currently conceived. This document is consistent with other key program documents and provides guidance for total system life cycle cost analyses, systems studies, and planning. Intended as a common frame of reference for program participants, regulators, oversight bodies, and stakeholders, it is posted on the OCRWM Home Page.

Systems integration: controlling interfaces and understanding effects

Systems integration and systems engineering are fundamental to safe, efficient, cost-effective design and operation of the CRWMS. The Nuclear Waste Technical Review Board has long urged special attention to these functions, and a principal reason we

engaged a management and operating contractor was to ensure that they are performed effectively.

Systems studies conducted only for the geologic disposal system are discussed in Chapter One. To integrate all components of the CRWMS, we also conduct systems studies for issues that crosscut the program. In Fiscal Year 1997, we conducted the following studies:

- The *Preliminary Analysis of the Early Receipt Contingency Study* developed and discussed a list of issues associated with early receipt of commercial spent nuclear fuel at the repository.
- The *Repository Early Receipt Contingency Study* addressed the technical, cost, schedule, regulatory, and programmatic impacts of providing early receipt of spent nuclear fuel and high-level radioactive waste at repository surface facilities.
- The *Analysis of Potential Program Funding Constraints* analyzed potential impacts on the CRWMS of constrained funding in Fiscal Years 2003 through 2010, and it identified possible mitigation strategies.
- The *Early Reactor Shutdown Study* analyzed the impacts on fee income and interest plus the impact on program costs of early reactor shutdown (shutdowns before the projected end-of-reactor life).
- *Advantages and Disadvantages of Disposal of Site-Generated Wastes at the Repository* was a high-level study that characterized the advantages and disadvantages of disposing of low-level radioactive, hazardous, and mixed wastes at the repository.
- The *Preliminary Evaluation of the Disposability of Commercial Dual Purpose Canisters* provided an initial technical assessment of CRWMS capability to dispose of commercial dual purpose canisters.
- The *Analysis of Using All Legal Weight Trucks for Transportation* provided scoping information

on all transportation that would be conducted within Nevada for the CRWMS. The report provided input for the draft repository environmental impact statement.

We also developed the CRWMS process for interface management, which establishes the responsibilities and process for the development of interface control documents.

Regulatory coordination

Regulatory coordination helps to ensure that the OCRWM program is in compliance with all applicable Federal, State, local, and Native American Tribal requirements and with departmental orders and directives; it also helps to ensure that OCRWM program activities are consistent with the activities of other programs within the Department. In Fiscal Year 1997, we reviewed and participated in the preparation of three departmental programmatic and project-specific environmental impact statements, reviewing them against OCRWM's revised *Program Plan*. We also participated in a departmental working group to support the requirements of Executive Order 12898 on environmental justice.

Regulatory coordination also involves interacting with the NRC on matters related to repository licensing, licensing of an interim storage facility, and transport of spent nuclear fuel; coordinating the Department's position on the development of new EPA radiation protection standards and resulting revisions to NRC licensing regulations; and amending the siting guidelines for the repository. These efforts are reported in Chapters One and Two.

Safeguards and security

To obtain authorizations from the NRC to construct, operate, and close a repository, OCRWM must demonstrate that it complies with NRC requirements for a nuclear safeguards and security program. Utilities already have such programs in place, as a condition of the NRC licenses they hold. OCRWM must develop a program that will ensure that once utilities' spent nuclear fuel is accepted by the CRWMS, it is safely and securely managed. This same requirement will apply to Government-managed nuclear materials.

In Fiscal Year 1997, we established a task team that began planning for a safeguards and security program that will provide an internally consistent approach to meeting these requirements. Our preliminary efforts include consultations with the Office of Environmental Management and the Office of Naval Reactors, whose wastes will be encompassed by this program. After we develop a program policy, those two offices and our two projects will develop implementing procedures to ensure that CRWMS facilities and activities are in compliance with all applicable safeguards and security requirements specified by the NRC.

Preparing to Accept Government-Managed Nuclear Materials

Incorporating Government-managed nuclear materials into the CRWMS

Integrating Government-managed nuclear materials into the CRWMS has impacts that cut across our program, affecting the following:

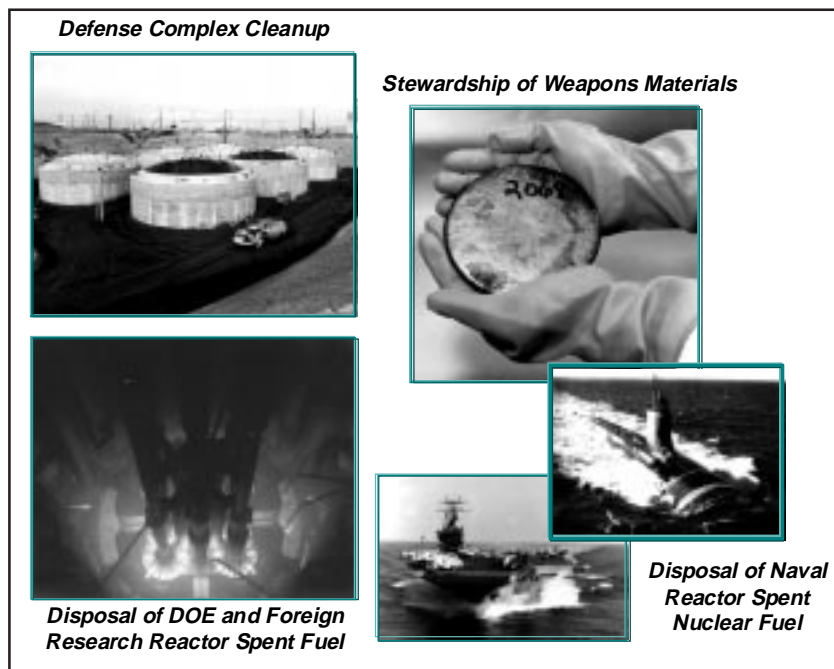
- Baselines
- Waste acceptance criteria and protocols, safeguards verification, and the application of quality assurance
- Waste package design
- Interim storage facility design and operations
- Repository design and operations
- Performance assessments conducted to determine site suitability and obtain an NRC license
- The licensing strategy
- Cost allocation
- Potential storage

- Transportation—not only hardware for shipping and handling, but the full array of logistical and administrative functions that transportation entails
- Record-keeping at every step of the process by which waste is transferred to OCRWM’s custody, transported to the repository, and disposed of

The subject is also addressed in Chapter One of this report, within the context of waste package and repository design, total system performance assessment, and the environmental impact statement; in Chapter Two, within the context of contingency planning for interim storage and transportation; and in this chapter, within the context of baseline control and below.

The decision path to disposal of Government-managed nuclear materials

Stored at multiple sites, Government-managed nuclear materials take forms that vary widely, and some have not yet been converted to final disposal forms. The sidebar that follows summarizes information about Government-managed nuclear materials. While current planning assumes that they will be emplaced in the



Government-Managed Nuclear Materials Destined for Geologic Disposal

Sources of Government-Managed Nuclear Materials and Current Planning Assumptions

Note: Quantities below are estimated through the year 2035.

High-level radioactive waste

In 1985, when the President determined that high-level radioactive waste resulting from atomic energy defense activities could be disposed of in the civilian repository, DOE and Naval spent nuclear fuel were being reprocessed. Those reprocessing wastes are stored at DOE's Idaho National Engineering and Environmental Laboratory, the Hanford Site, and the Savannah River Site, in the form of sludges, slurries, and calcines. They would be accepted at the repository only in solid form, and the Department plans to vitrify these wastes as borosilicate glass logs. The logs will be safely stored near the vitrification site, in the canisters the glass is poured into, until they are picked up by OCRWM. Approximately 19,000 canisters will require disposal. At the Savannah River site, vitrification has begun.

The West Valley Demonstration Project in New York State, a facility now managed by DOE, is vitrifying high-level radioactive waste that resulted from commercial reprocessing of spent nuclear fuel. Approximately 300 canisters of vitrified waste will be produced.

DOE spent nuclear fuel

DOE originally intended to reprocess most of its spent nuclear fuel, and spent nuclear fuel was reprocessed at a number of Federal sites, dating back to the 1940's. In 1992, the Secretary discontinued the practice, and the remaining intact spent nuclear fuel was placed in storage pending ultimate disposition. In 1995, concluding the development of a programmatic environmental impact statement that evaluated options for disposal, DOE issued a Record of Decision stating its intention to dispose of its spent nuclear fuel in a geologic repository and to store it regionally, largely on the basis of fuel composition. A 1996 Record of Decision for foreign research reactor spent nuclear fuel determined that most of it would be stored at the Savannah River site.

The total inventory of DOE spent nuclear fuel is projected to be approximately 2,655 MTHM.

- *Hanford Site.* The Hanford site in Washington State has most of the DOE inventory: 2,132 MTHM, most of it generated in the N-reactor for use in the weapons program. The Department plans to place this spent nuclear fuel, which is metallic-based, in dry storage at that site.
- *Savannah River Site.* The Department has designated this site, in South Carolina, for storage of aluminum-based spent nuclear fuel from domestic and foreign research reactors. The uranium in foreign reactor fuel was originally exported by the U. S. Government under the Atoms for Peace program. In keeping with nuclear non-proliferation policies, it is being returned to this country and placed under DOE management. Of the 19.2 MTHM projected to be returned, 18.2 will be stored at the Savannah River Site.

- *Idaho National Engineering and Environmental Laboratory.* The 230 MTHM of DOE spent nuclear fuel stored at this site originated in activities to promote the peaceful uses of atomic energy, beginning with the passage of the Atomic Energy Act of 1954. (The Naval spent nuclear fuel at this site is addressed below.) The inventory includes spent nuclear fuel from demonstration reactors, from research and development activities, and from activities to demonstrate storage technologies and characterization for disposal. The research reactor fuel stored at this site is not aluminum-based; it will include MTHM foreign research reactor spent nuclear fuel.
- Debris from the Three Mile Island reactor is also stored at this site. Under a consent agreement between the Federal Government and the State of Idaho, all spent nuclear fuel stored in that State must be removed by January 1, 2035.

The total projected inventory of DOE spent nuclear fuel includes some commercially irradiated spent nuclear fuel that DOE now manages. Some of the total DOE inventory is being evaluated to determine whether it requires treatment to make it suitable for disposal.

Naval spent nuclear fuel

The Department of the Navy fabricates its own nuclear fuel for its nuclear-powered vessels using uranium-235 leased from DOE. For many years, Naval spent nuclear fuel was shipped to the Idaho Chemical Processing Plant, where DOE reprocessed it to recover the uranium. Following DOE's termination of reprocessing in 1992, an agreement was reached in October 1995 between the Federal Government and the State of Idaho to allow the temporary storage of Naval spent nuclear fuel at the Idaho National Engineering and Environmental Laboratory. Under the consent agreement, Naval spent nuclear fuel will be among the first shipments to a repository. In 1996, the Navy issued a Record of Decision stating that it would store its spent nuclear fuel in dual purpose canisters in Idaho prior to shipping it to a geologic repository for disposal. The inventory will total approximately 65 MTHM.

Surplus weapons-grade plutonium

Recovered primarily from dismantled nuclear warheads, this material is stored primarily at the DOE Pantex site in Texas. Approximately 50 MTHM will be dispositioned to support national non-proliferation objectives. On January 21, 1997, the Department published a Record of Decision stating that it was considering a dual-track strategy for immobilizing its surplus weapons-grade plutonium and that it intended to dispose of the final waste forms in the geologic repository under the Nuclear Waste Policy Act of 1982, as amended. Thirty-three MTHM may be converted to a mixed oxide fuel that would be burned in commercial light water reactors; the resulting spent nuclear fuel would be stored at the reactor sites until OCRWM picked it up.

The remaining 17 MTHM could be immobilized in a glass or ceramic waste form and placed in small stainless steel cans that would be arrayed in a canister that would be filled with molten glass mixed with high-level radioactive waste. The high-level radioactive waste would increase the radioactivity of the waste form to meet the spent fuel standard under safeguards and security requirements. The waste forms would be stored at a high-level radioactive waste storage site to be designated.

civilian repository, the Department's plans for disposing of these materials are still evolving. The specific impacts of disposal will be carefully evaluated in the total system performance assessment that supports the viability assessment in Fiscal Year 1998. That assessment will also support the environmental impact statement, which will evaluate the impacts of transporting and disposing of the waste forms in the repository. Any recommendation of a site by the Secretary to the President must be accompanied by the final environmental impact statement as well as a discussion of data obtained through site characterization relating to the safety of the site, preliminary comments of the NRC, views of the Governor and legislature of Nevada, and other pertinent information. A subsequent total system performance assessment supporting a license application to the NRC would also evaluate the impacts of disposal of Government-managed nuclear materials.

As described in Chapter One, work to evaluate these impacts was under way in Fiscal Year 1997.

Fiscal Year 1997 activities

Because integrating these wastes into the CRWMS requires close coordination with the producers and custodians of these materials, in Fiscal Year 1997, a primary focus of efforts at OCRWM headquarters was enhancing integration and coordination with the four offices within the Department that manage these materials, and between OCRWM headquarters and the Yucca Mountain Site Characterization Office.

Two of those offices are within the Environmental Management Program: the Office of Waste Management, which is responsible for high-level radioactive waste, and the Office of Nuclear Materials and Facility Stabilization, which is responsible for DOE spent nuclear fuel. The other offices are the Office of Fissile Materials Disposition, responsible for surplus weapons-grade plutonium, and the Office of Naval Reactors, responsible for Naval spent nuclear fuel.

For some years, OCRWM has been working to prepare to accept Government-managed nuclear materials. During Fiscal Year 1997, we continued to work with the Office of Environmental Management and the Office of Naval Reactors to develop the terms of memoranda of agreement that define each party's

responsibilities for safe and timely disposal of their wastes.

Both memoranda will address waste acceptance, transportation, storage (if needed), and disposal. We currently plan to accept wastes at Environmental Management Program sites and transport them to the repository, and we are working to develop the capability to begin picking up DOE spent nuclear fuel for disposal as early as 2010, the year in which the repository would begin operations. The Office of Naval Reactors expects to transport its spent nuclear fuel to the repository.

Identification of data needs and definition of interface descriptions are also addressed. The memoranda will establish a process for determining waste acceptance schedules similar to those OCRWM has developed for utilities under the *Standard Contract*: the schedules will define what wastes will be picked up, where, and when. Development of waste acceptance criteria and compliance procedures needed to support the repository license application to the NRC are provided for, as is development of transportation systems that will meet applicable NRC and Department of Transportation requirements for shipping.

The memoranda will require cooperation to ensure that all waste acceptance activities are performed safely, securely, and cost-effectively, in a manner that contributes to public understanding of DOE goals and activities and complies with applicable regulations. They will establish a schedule for payment of fees to OCRWM equivalent to those paid by utilities. Equitable sharing of direct costs, common variable costs and unassignable costs is to be achieved through the methodology described in the *Federal Register* Notice identified in Chapter Five of this report. The parties are to coordinate in developing annual budget justifications to the Office of Management and Budget and presentations for congressional hearings. The desired results are sound integration of planning and consistency in communication.

No memorandum of agreement was initiated with the Office of Fissile Materials Disposition, as it was still developing its plans, but we continued to coordinate informally with that office's staff to ensure that all necessary technical interfaces are identified.

Coordination on quality assurance

Close coordination with producers and custodians of Government-managed nuclear materials is essential to ensure that they appropriately apply our quality assurance (QA) requirements to activities that could impact our acceptance and disposal of their wastes. In Fiscal Year 1997, we continued our interactions on QA with the Office of Environmental Management and initiated formal interactions with the Office of Naval Reactors. Our activities included QA audits and surveillances, information exchange, and guidance on applying OCRWM's quality assurance requirements.

operating licenses for commercial reactors and the last year for which the Office of Environmental Management believes it can reliably project its operations for planning purposes. The total inventories of commercial and Government-managed nuclear materials projected through that date exceed 70,000 MTHM.

The map on page 12 shows the location of all nuclear materials destined for geologic disposal. The tables and figures below report quantities projected through 2035 and allocation of first repository capacity.

Planning for allocation of repository capacity

The Nuclear Waste Policy Act of 1982 places a statutory cap of 70,000 MTHM on the quantity of waste that can be emplaced in the first repository until a second repository is in operation. The CRWMS planning basis for Fiscal Year 1997 allocated 10 percent of the 70,000 MTHM cap to Government-managed nuclear wastes. Of that 7,000 MTHM, two-thirds would be high-level radioactive waste; one-third DOE and Naval spent nuclear fuel and surplus weapons-grade plutonium waste forms.

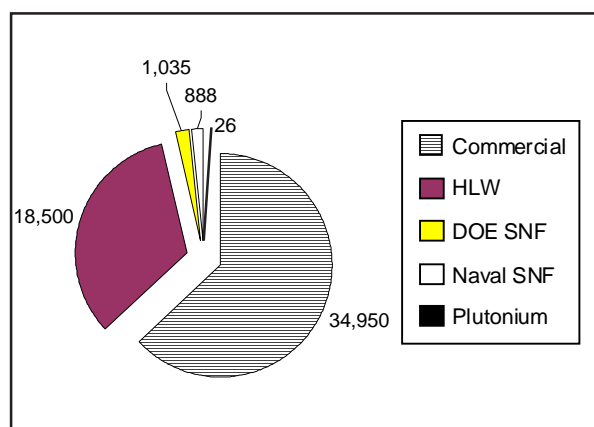
For the viability assessment, the base case assumed for the total system performance assessment, which does not include surplus plutonium waste forms, converts these proportions into numbers of waste packages: 7,667 waste packages for commercial spent nuclear fuel; 2,546 waste packages for high-level radioactive waste, Naval spent nuclear fuel, and DOE spent nuclear fuel.

All waste packages would be very similar in design, but because those containing commercial spent nuclear fuel will be very hot, under current planning assumptions they would be spaced far apart in the emplacement drifts, and cooler waste packages, containing non-commercial wastes, would be placed between them—a design strategy that optimizes the use of the area that must be excavated, and thus minimizes cost.

OCRWM's planning horizon extends to the year 2035, which marks the expiration of all currently held

Quantities of Nuclear Materials Destined for Geologic Disposal			
Type	MTHM***	Volume (cubic meters)	Canisters
Commercial SNF*	86,700	34,950	Not applicable
HLW**	9,650	18,500	19,300
DOE SNF	2,660	1,035	Not applicable
Naval SNF	65	888	300
Plutonium	17	26	600

*Spent Nuclear Fuel **High-Level Radioactive Waste ***Metric Tons Heavy Metal



Data for DOE SNF and Naval Fuel: Idaho Spent Fuel Database (Version 3.3.2, Release Date 5/5/98)

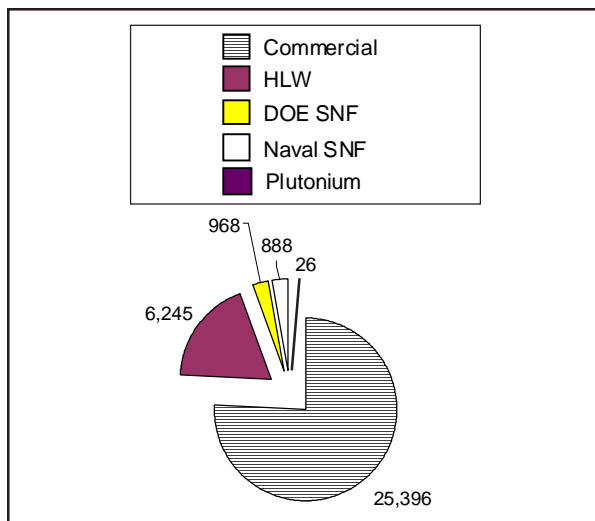
Data for HLW and commercial SNF: Integrated Data Base Report - 1996 (DOE/RW-0006, Rev. 13, December 1997). MTHM for HLW estimated.

Data for plutonium: DOE-RW Baseline Change Proposal BCP-00-98-0001

Value for plutonium is volume of cans containing plutonium to be emplaced within 600 HLW glass canisters.

Total Volume of Nuclear Materials Destined for Geologic Disposal (cubic meters)

Allocation of First Repository Capacity				
Type	MTHM	Volume (cubic meters)	Canisters	Waste Packages
Commercial SNF	63,000	25,396	Not applicable	7,667
HLW	4,667	6,245	8,314	1,483
DOE SNF	2,268	968	Not applicable	658
Naval SNF	65	888	300	300
Plutonium	17	26	600	300



Figures are extrapolated from base case planning assumptions adopted for the total system performance assessment to be conducted for the viability assessment.

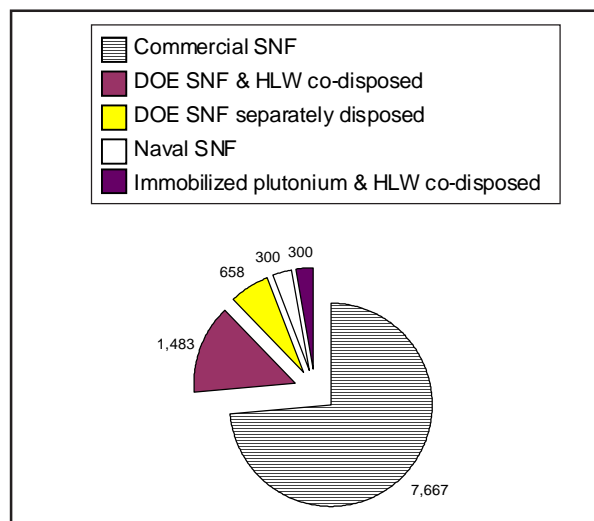
Of 19,000 total HLW canisters, 8,314 are to be dispositioned in the first repository, including all 302 West Valley canisters, all 5,915 Savannah River Site canisters, and 2,097 Hanford canisters. The dispositioned glass volume is calculated from these values.

Value for plutonium is the volume of cans containing plutonium to be emplaced within 600 HLW glass canisters.

Co-disposal of HLW assumes that 5 canisters of HLW and 1 canister of DOE SNF will be packaged in a single waste package.

Co-disposal of plutonium assumes that a single waste package will hold 2 canisters of HLW glass with plutonium and 3 canisters of HLW-only glass.

Allocation of First Repository Capacity in Volume (cubic meters)



Figures are extrapolated from base case planning assumptions adopted for the total system performance assessment to be conducted for the viability assessment.

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Allocation of First Repository Capacity in Waste Packages

Consolidating Quality Assurance Functions

OCRWM is committed to protecting public and worker health and safety, and the environment. To that end, we apply stringent QA standards to all work that affects the

near- and long-term radiological safety of the waste management system. Our QA program complies with NRC requirements, and it applies to quality-affecting work performed within OCRWM, as well as to quality-affecting work performed by external organizations, such as vendors who supply us with goods and services. By adhering to QA procedures in collecting and

maintaining the data we need for licensing and other purposes, we ensure that the NRC and other oversight bodies will accept the data as valid and traceable.

In Fiscal Year 1997, we consolidated the various QA organizations maintained by our management and operating contractor, the U. S. Geological Survey, and participating national laboratories into a single organizational unit reporting to the Director of OCRWM's Office of Quality Assurance. The consolidation was phased in over the course of the fiscal year and was carefully managed to ensure that our high quality standards were not compromised during the transition.

By consolidating these QA organizations, we significantly reduced overhead and infrastructure costs. We also increased the organizational independence of QA personnel and provided for greater consistency in interpretation and application of requirements across the program.

During Fiscal Year 1997, OCRWM's Office of Quality Assurance continued to implement its comprehensive audit and surveillance program. Audits and surveillances were performed to verify that our QA standards were being effectively implemented by all organizations that perform quality-affecting work. These audits and surveillances covered the full scope of operations of the Yucca Mountain Site Characterization Project and the Waste Acceptance, Storage and Transportation Project. In addition, we performed audits and surveillances of vendors supplying goods and services to us. Not only have these audits and surveillances resulted in early identification and correction of quality problems, they have proved to be effective tools for providing information that OCRWM managers can use to improve management processes.

Getting the Most from Information Technologies

The strategic application of information technologies is vital to OCRWM's ability to carry out its mission. These technologies provide integrated information systems, solutions, and services that enhance the productivity of our employees, drive business process improvement efforts, and reduce program costs.

OCRWM's information management (IM) organization performs the following functions:

- It designs and develops information systems to support the management and disposal of the Nation's commercial spent nuclear fuel and Government-managed nuclear wastes.
- It provides a reliable infrastructure for effective and timely access to, and communication of, information.
- It ensures the integration and integrity of technical, regulatory, management, and financial data.
- It streamlines program work processes through automation, thus reducing the paperwork burden and increasing the productivity and job satisfaction of OCRWM's human resources.

In Fiscal Year 1997, we validated OCRWM's IM Strategic Plan, and we issued our IM Multi-Year Program Plan for Fiscal Years 1998-2002, as well as the IM Planning Guidance for Fiscal Year 1998. These efforts are directed at better integration of IM planning with overall program planning, greater efficiencies and economies in IM developmental and implementation efforts, enhanced productivity of IM staff, and consistent compliance with Federal and departmental IM regulations.

In Fiscal Year 1997, OCRWM:

- Maintained over 654,000 records
- Processed over 7,800 records per month
- Responded to over 3,100 help desk inquiries per month
- Maintained an e-mail system that processed over 298,000 messages per month
- Trained approximately 60 users per month in various systems and applications
- Managed over 130 hours of videoconferencing per month

- Tracked over 70 pieces of correspondence per month
- Maintained over 2,000 work stations

Overall customer satisfaction with our services was rated at 94 percent; computer network availability was consistently 99 percent; and the OCRWM Home Page—www.rw.doe.gov—continued to be heavily visited.

We continued to streamline and integrate internal information systems that support assignment tracking, controlled correspondence, and management of critical data and information products such as speeches, testimony, issue papers, presentations, and briefings. These systems support the entire information product life cycle, from task assignment and tracking through the completion of product development, delivery, and dissemination. We also worked to incorporate Intranet and Internet technologies to more rapidly disseminate internal and external information. These information systems deliver substantial benefits:

- Instantaneous, simultaneous access across the program to accurate, complete, and consistent program data.

- More rapid response times and improvement in the caliber of information provided to meet the information needs of Congress and other parties.
- Electronic sharing of draft documents and immediate availability of new versions of controlled documents.
- Ready access to the Internet to disseminate information about the program and obtain information on policy, legislative, technical, scientific, and institutional matters.

In addition, we continued to apply state-of-the-art records management policies and practices to ensure support for repository licensing. Chapter One discusses planning for the Licensing Support System.

In Fiscal Year 1998, we will continue to manage the program's information infrastructure, develop useful products and services, and apply information technologies to improve business processes that support OCRWM's mission and objectives.