**Statement of Dr. Carolyn L. Huntoon**
**Assistant Secretary for Environmental Management**
**U. S. Department of Energy**
**before the**
**Subcommittee on Strategic**
**Committee on Armed Services**
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Mr. Chairman, and Members of the Subcommittee, I appreciate this opportunity to appear before you to discuss the Department of Energy's Environmental Management (EM) program and its Fiscal Year (FY) 2002 budget request.

The Department of Energy's FY 2002 request of $19.2 billion fulfills President Bush's commitment to responsible discretionary spending while meeting critical requirements and priorities in the national security, energy, science and environmental quality programs the Department administers. We faced some tough choices for all of the Department's programs, but the end result is a balance among the critical national priorities in the programs administered by DOE.

The Environmental Management program constitutes nearly a third of the Department's budget, second only to our national security activities, illustrating the scope and complexity, as well as the challenge, of the cleanup we face. Our budget request of $5.913 billion for FY 2002 for the EM program will enable DOE to continue the cleanup of the contamination and wastes that resulted primarily from nuclear weapons research and production over the past 50 years. We are requesting $4,128.7 million in Defense Environmental Restoration and Waste Management (excluding $420 million for the Federal contribution to the Uranium Enrichment Decontamination and Decommissioning Fund); $1,050.5 million in the Defense Facilities Closure Projects; and $141.5 million in Defense Environmental Management Privatization. This totals $5,179.2 million in traditional budget authority and $141.5 million for privatization funding in the Defense accounts. Detailed information on site activities covered under this account are attached to this testimony.

The level of funding in our request reflects the Department's priorities for the EM program. These priorities are, first and foremost, to ensure the safety of the workers and the public at all our sites. The request supports critical safety programs for the protection of workers who carry out cleanup activities across the DOE complex. Our request supports activities needed to address high risk wastes and nuclear materials to ensure they are safe and secure and that progress continues to reduce risks. It keeps us on track to meet accelerated closure schedules at Rocky Flats in Colorado and the Fernald site in Ohio. It supports many key projects, including the development of a waste treatment plant at Hanford to immobilize high-level waste, increased waste shipments to the Waste Isolation Pilot Plant, and stabilization of spent nuclear fuel and plutonium materials at the Savannah River Site in South Carolina. Our budget request continues efforts to develop and deploy innovative technologies that can reduce the cost and schedule of cleanup. While the budget addresses the major cleanup problems

covered by compliance agreements and other essential requirements across the complex, Energy Secretary Abraham also has directed a top-to-bottom management review of the EM program with the goal of identifying efficiencies and speeding up our cleanup efforts.

The Secretary has challenged every program in the Department to become five to ten percent more efficient, and the EM review will focus on meeting this challenge. Under this management review, the program will work to identify steps to strengthen project management, implement contracting strategies that help reduce costs and schedules, make greater use of new technologies, and sequence work more effectively. We must be sure that we are spending our cleanup dollars on the right problems and that we are addressing cleanup problems as effectively as possible.

Critical to the success of these efforts is the involvement and support of our state and federal partners. The Department is firmly committed to conducting the cleanup safely and in compliance with applicable laws and regulations. It is critical, however, that we are conducting the cleanup in the best and most practical way possible. Accordingly, the Secretary has invited the governors of the States that host our sites and EPA Administrator Christine Todd Whitman to work with us to improve the compliance framework that governs much of the cleanup work at our sites. We need to review our cleanup work to ensure it promotes on-the-ground results, makes use of technologies that are efficient, and reflects the lessons and technical understanding developed over the past decade. I am confident that, working cooperatively, we can find ways to achieve our shared environmental goals more efficiently.

## INTRODUCTION

Before discussing the specifics of our FY 2002 budget request, I would like to provide an overview of our program, as well as highlight some of our accomplishments in the past year and our planned achievements for the current fiscal year.

### A. MEETING THE CHALLENGE OF THE ENVIRONMENTAL LEGACY

The Environmental Management program is responsible for managing and cleaning up the environmental legacy of the nation's nuclear weapons program and government-sponsored nuclear energy research. A common theme among the very diverse facilities across the country where the EM program is conducting cleanup is the challenge presented by the magnitude and complexity of the task we face in managing large volumes of nuclear wastes, safeguarding materials that could be used in nuclear weapons, and remediating extensive surface and groundwater contamination.

In total, we are responsible for addressing an estimated 1.7 trillion gallons of contaminated groundwater and 40 million cubic meters of contaminated soil and debris. EM is responsible for safely storing and guarding more than 18 metric tons of weapons-usable plutonium, enough for hundreds of nuclear weapons. Our inventory includes over two thousand tons of intensely radioactive spent nuclear fuel, some of which is corroding. EM is also responsible for storage, treatment, and disposal of radioactive

and hazardous waste, including over 340,000 cubic meters of high-level waste stored at the Hanford, Idaho, New York and Savannah River sites; and for deactivation and decommissioning of about 4,000 facilities that will no longer be needed to support the Department's mission. The EM program also is responsible for critical nuclear non-proliferation programs to accept and safely manage spent nuclear fuel from foreign research reactors that contain weapons-usable highly enriched uranium.

Completing the cleanup of the legacy from nuclear weapons production will meet our obligations to those communities and states that supported our national defense effort and helped win both the Second World War and the Cold War. Completing this cleanup will allow us to turn lands and facilities to other public uses and allow the Department to focus on its science, security, and energy missions.

## B. ACCOMPLISHMENTS AND PROGRESS IN FY 2001

I am pleased to report that EM is making significant progress around the country. Our accomplishments reflect the program's continued commitment to performance-based management, establishing goals and performance measures that demonstrate our progress in on-the-ground environmental cleanup and meeting our goals. For example:

- In FY 2000, EM completed its cleanup work at two more sites – the Battelle Columbus-King Avenue site in Ohio and the Monticello site in Utah. We plan to complete cleanup of the Grand Junction site in Colorado, General Atomics in California, and Argonne-West in Idaho by the end of FY 2001. This will bring the number of completed sites to 74, with 40 sites (including the Moab site in Utah) remaining that require active cleanup.

- The rate of shipments of transuranic waste for disposal at the Waste Isolation Pilot Plant (WIPP), the world's first deep geologic waste repository, continues to increase. WIPP received 58 shipments in FY 2000 and plans to receive an additional 381 shipments by the end of FY 2001, which will bring the total number of shipments to 471 containing over 3,000 cubic meters of waste since WIPP began operations in March 1999. We are receiving waste from Rocky Flats, Los Alamos National Laboratory in New Mexico, Hanford, and the Idaho National Engineering and Environmental Laboratory (INEEL), and made the first shipment from the Savannah River Site last week.

- We continue progress toward the ambitious goal of closing Rocky Flats by 2006. In February 2000, we put in place a new "closure" contract that provides incentives to the contractor to meet the December 2006 target date for site closure. We completed the demolition of Building 779 in January 2000, eight months ahead of schedule. This is the first plutonium facility of its size and complexity in the nation to be decommissioned and demolished. Shipments of waste continue, including 249 cubic meters of transuranic waste to WIPP in FY 2000 with another 1,000 cubic meters scheduled for FY 2001. And we are removing nuclear materials from the site – we completed shipments of plutonium scrub alloy to the Savannah River Site in FY 2000

and will complete shipments of classified metals to Los Alamos and the Savannah River Site in FY 2001.

- In December 2000, we awarded a "closure" contract for the Fernald site in Ohio, which includes incentives to the contractor to accelerate closure ahead of the 2010 closure date in the site's current baseline. We continue to stay on track for closure by deactivating and decommissioning facilities, disposing of contaminated soils and waste, and shipping nuclear materials off-site.

- We produced a total of 231 canisters of vitrified high-level waste in FY 2000 at the Savannah River Site in South Carolina and expect to produce 220 more canisters in FY 2001.

- At INEEL, we recently finished moving Three Mile Island spent nuclear fuel debris to a newly constructed dry storage facility, almost two months ahead of the milestone in the Idaho Settlement Agreement. Construction of the Advanced Mixed Waste Treatment Project started in FY 2000 under a privatization contract. This facility will treat up to 65,000 cubic meters of stored waste. Transuranic waste shipments to WIPP continue in support of the Settlement Agreement with the State.

- At the Oak Ridge Reservation in Tennessee, we completed the cleanup of all eight "Gunite" tanks containing highly radioactive sludge in FY 2000, eight months ahead of schedule and ten years ahead of the original baseline. We began shipments of low-level waste to the Nevada Test Site for disposal, which allowed the resumption of off-site shipments of waste to the Toxic Substances Control Act (TSCA) Incinerator under an agreement with the State. In FY 2001, we will begin construction of a new on-site disposal facility for remediation wastes, as well as the construction of a transuranic/alpha waste treatment facility which will prepare Oak Ridge waste for shipment to WIPP.

- At the Hanford site in Washington State, we continue to make significant progress in reducing the urgent risks associated with the 177 underground high-level waste tanks, some of which have leaked to the surrounding soils threatening groundwater and the nearby Columbia River. We are successfully resolving tank safety issues – in FY 2001 we will resolve an issue related to flammable gas safety, the last of high priority safety issues, and remove all remaining tanks from the "Watch List." We continue interim stabilization of single-shell tanks, transferring free liquids in the tanks to more secure double-shelled tanks. We began pumping free liquids from four single-shelled tanks in FY 2000 and will begin pumping another six tanks in FY 2001, meeting all milestones in the Consent Decree with the State of Washington. In December 2000, a new performance-based contract was awarded ahead of schedule for construction of the treatment facility that will immobilize a significant portion of the high-level tank waste.

- Also at Hanford, in December 2000, we began moving spent nuclear fuel from the K-West basins to safer, dry storage away from the Columbia River. We plan to remove, dry, and transport 116 metric tons heavy metal of spent nuclear fuel in FY 2001. We are also continuing the stabilization of plutonium-bearing liquids and materials in the Plutonium Finishing Plant,

completing about 50 percent of solutions and nine percent of

- the containers by the end of FY 2001. In FY 2001, we will dispose of more than 490,000 tons of contaminated soil and debris in the on-site disposal facility.

- In FY 2001, we will complete construction of the Decontamination Waste Treatment Facility at the Lawrence Livermore National Laboratory in California. This facility will provide new, state-of-the-art technology for treatment of Livermore waste.

- At the Los Alamos National Laboratory, we began full operation of our sealed source program in FY 2001 to recover radioactive sources that exceed the U.S. Nuclear Regulatory Commission's upper limit for commercial disposal and therefore currently have no approved disposal pathway. This program removes unwanted radioactive sources from the private and public sector and places them in safe storage at Los Alamos. We have brought 1100 private sector sealed sources to Los Alamos for storage and expect to recover over 2000 sources by the end of FY 2001.

- In support of non-proliferation goals, we have completed a total of 19 shipments to date of spent nuclear fuel from foreign research reactors in 25 countries since the start of the acceptance program, including three shipments in FY 2001 from Argentina, Chile, Germany, Italy and Japan. All told, these 19 shipments effectively removed from commerce an amount of uranium equivalent to over 20 crude nuclear weapons. This program is crucial in supporting U.S. policy to reduce and eventually eliminate the use of highly enriched (nuclear weapons-capable) uranium in civil commerce world-wide.

- All EM sites achieved full implementation of Integrated Safety Management (ISM) by the end of FY 2000. ISM is a "common sense" approach to safety management that defines the necessary safety structure for any work activity that could affect the safety of the public, the workers, or the environment.

- Our on-the-ground use of new innovative technologies continues to increase, many of which contributed to or resulted in the accomplishments described above. During FY 2000, DOE sites used EM-sponsored innovative technologies 210 times in cleanup activities. For example, a breakthrough technology (LASAGNA$_{TM}$) that uses buried electrodes to produce a flow of groundwater and dissolved contaminants toward "in situ" treatment zones was deployed at the Paducah Gaseous Diffusion Plant to treat trichloroethylene and technetium contamination in the ground. During the next two years, this technology is expected to reduce the level of contamination in the soil to a level that presents no threat to groundwater.

- Also in FY 2000, 30 innovative technologies were made available for use for the first time. One such technology is the Vadose Zone Characterization System which measures contaminants that have leaked from high-level waste tanks into the groundwater. We also initiated 37 full-scale demonstrations of innovative technologies, including the Fiber Optic

Tritium Detector and Quantifier, which enables tritium measurements to be made safer, faster (real time), better and cheaper than traditional liquid scintillation-based techniques.

- During FY 2001, the sites expect to deploy new technology at least 60 times in cleanup activities. For example, we plan to deploy a new technology recommended by the FY 2001 "blue ribbon panel" on alternatives to incineration at Hanford to treat organic hazardous and radioactive mixed waste.

## THE FY 2002 REQUEST

The FY 2002 budget request of $5.913 billion will enable EM to continue making progress in cleaning up its sites. The request supports the Department's key priorities needed to meet the environmental management mission. Our request:

- protects the health and safety of the workers and the public at all our sites as our first priority;

- ensures the safety and security of high risk wastes and nuclear materials and continues the progress in addressing our high-risk cleanup problems and addresses critical needs across the DOE complex;

- keeps the major sites on track for meeting accelerated closure goals;

- continues investments in science and technology to find safer, less expensive and more efficient solutions for cleanup problems;

- provides for long-term stewardship responsibilities after cleanup is done.

In addition, the budget request for FY 2002 reflects an increased scope of responsibility from previous requests, funded primarily in non-defense accounts. These include:

*Turnover of the Portsmouth Plant:* In June 2000, the U.S. Enrichment Corporation (USEC) announced its intention to cease uranium enrichment operations at the Portsmouth Gaseous Diffusion Plant in Ohio. The Department must take steps to keep the facilities in a safe and operable standby condition to ensure, if necessary, that U.S. energy security and nuclear fuel commitments can be met; mitigate the impact of the cessation of enrichment activities on workers; and transition the facility from USEC operation to DOE stewardship.

*Uranium Programs:* The Energy and Water Development Appropriation for FY 2001 consolidated funding for Uranium Programs and cleanup activities and authorized the transfer of federal personnel from the Office of Nuclear Energy, Science and Technology to EM to carry out the associated responsibilities. With this transfer, EM is now the landlord at the gaseous diffusion plant sites, responsible for the management and disposition of 680,000 metric tons of depleted

uranium hexafluoride, among other activities associated with the gaseous diffusion plants now leased to USEC.

*Remediation of the Moab Site:* The National Defense Authorization Act for FY 2001 directed the Department to undertake the remediation of the uranium mill tailings site in Moab, Utah, a site previously owned and operated by a now-bankrupt private company.

*Transfer of Excess Facilities:* Beginning in FY 2002, EM will resume for the first time since 1996 accepting excess contaminated facilities, on a limited basis, from other DOE program offices for eventual deactivation and decommissioning.

I would like to highlight some of the critical activities supported in the FY 2002 request and our plans for the Environmental Management program.

## A. SAFETY FIRST

The safety of our workers is paramount in all we do. We expect outstanding safety performance as a matter of course, demand this from ourselves and our contractors, and accept nothing less. Full and continued implementation of Integrated Safety Management is our way of achieving and sustaining a safe and healthful cleanup. The fundamental principle of Integrated Safety Management is that all accidents are preventable and that safety requirements must be consistent and defined at all steps of planning and conducting work. We recognize that safety culture flows down from actions by the senior management of an organization. These actions enforce the belief at every level that constant attention to safety has an incremental beneficial effect. The Office of Safety, Health and Security was created to track safety and to assist our managers, programs and sites in meeting their safety responsibilities.

We influence workers' approach to doing a job by instilling a safety culture; ensuring that workers have the proper knowledge, qualifications, training and equipment; identifying areas for improvement and verifying that safety deficiencies are corrected, and measuring progress and disseminating lessons learned.

We also have a new initiative to more formally assure that new technologies are developed with the safety of the worker using them as a primary consideration. New technologies, however cost effective, will not be developed and deployed unless they can be used safely. Our goal is develop technologies that are safer to use, and make cleanup safer.

Our enhanced focus on safety has begun to pay off. Currently, the total recordable case rate (a measure of occupational injuries and illnesses, more serious than those requiring first aid) for EM contractors and federal employees was 1.7 compared to the overall DOE rate of 2.0 and the private industry average of 6.7, despite the fact that the construction type work employed in EM activities is considered to be among the most hazardous. We have, in fact, reduced the EM total recordable case

rate by 25 percent since 1999. There has also been considerable progress in closing out corrective actions in response to independently-observed safety deficiencies. There is every indication that workers are committed to the principles of Integrated Safety Management and are taking an active role in making it a part of workplace culture. We are driving safety performance to new levels of excellence, and are developing new ways to safely manage the risks associated with cleanup. Our FY 2002 request fully funds the safety systems and processes that ensure our workers are protected.

## B. GIVING PRIORITY TO THE HIGHEST RISK MATERIALS AND WASTES

***Moving spent nuclear fuel to safe storage at Hanford*** – In December 2000, we began removing spent nuclear fuel from K-West Basins at the Hanford Site in Washington as part of our ongoing effort to protect the Columbia River. This project is a first-of-a-kind technical solution to move 2,100 metric tons of corroding spent nuclear fuel from at-risk wet storage conditions in the K-East and K-West basins into safe, dry storage in a new facility away from the river. Our FY 2002 request of $163 million for the Spent Nuclear Fuel Project at Hanford allows this critical project to continue on schedule, supporting the transport of 662 metric tons of spent nuclear fuel from K-West Basin and the completion of modifications to K-East Basins.

***Stabilize Plutonium at Hanford and the Savannah River Site*** – We are reducing risks by stabilizing plutonium-bearing materials at Hanford and the Savannah River Site, consistent with our commitments to the Defense Nuclear Facilities Safety Board. At Hanford, our request provides $73.8 million to continue stabilization activities at the Plutonium Finishing Plant, where we will complete stabilization of the remaining 4,300 liters of plutonium-bearing solutions and polycubes and continue stabilization and packaging of plutonium oxides and residues. These stabilization activities are a critical step in the deactivation of Plutonium Finishing Plant, which will significantly reduce "mortgage" costs at Hanford.

At the Savannah River Site, our request of $357.6 million will continue operations in the two chemical processing canyons to stabilize nuclear materials, including plutonium residues and plutonium metals and oxides, as well as plutonium alloys from Rocky Flats. Stabilization of these "at risk" materials is critical in resolving health and safety concerns surrounding these liquid or unstable radioactive materials; in supporting closure goals at Rocky Flats; and in responding to Defense Nuclear Facilities Safety Board recommendations. By the end of FY 2002, with stabilization of sand, slag and crucible plutonium residues, we will complete processing of all nuclear materials currently planned to be stabilized using the PUREX process in F-Canyon.

***Safely Manage and Treat High-Level Waste in Underground Storage Tanks at Hanford*** – The River Protection Project at Hanford includes the safe storage, retrieval, and treatment of 53 million gallons of high-level waste now stored in 177 underground tanks near the Columbia River. In FY 2002, we will continue interim stabilization of the tanks, i.e., pumping liquid waste from single-shelled tanks, which are at or beyond their design life or do not conform to current design codes, into more reliable double-shelled tanks. We will initiate pumping of four additional single shell tanks, staying on track to meet our commitment to complete interim stabilization of all single-shell tanks in 2004.

FY 2002 is a critical year in developing the waste treatment plant to vitrify the high-level tank waste, one of the most critical, complex and costly projects in the DOE complex. The FY 2002 request provides $500 million to develop treatment facilities to vitrify at least 10 percent by volume and 25 percent of the radioactivity of the 53 million gallons of high-level tank waste. Initially being developed

under a privatization approach, the privatized contract was terminated in May 2000 because of price and management concerns, and a new contract using a cost-reimbursement approach was awarded in December 2000. The new contract contains incentives tied to performance, encouraging the contractor to meet or exceed cost and schedule goals. The request provides funds to initiate construction of high-level waste pre-treatment and low-activity vitrification facilities and continues the design and installation of waste retrieval systems that will provide waste feed to the treatment facilities.

***Treat High-Level Waste and Begin Construction of Salt Processing Pilot Plant at Savannah River Site:*** The FY 2002 request includes $110.6 million to support continued vitrification of high-level waste at the Defense Waste Processing Facility that has produced more than 1,080 canisters of vitrified waste. By the end of FY 2002, we will complete about 22 percent of the expected lifetime total of 6,025 canisters. The request also supports development of a technology to separate the high-activity and low-activity fractions of the salt waste, in order to minimize the amount of waste that must be vitrified and disposed of in a deep geologic repository. The Department is scheduled to identify a preferred alternative technology or technologies in June 2001 to replace the In-Tank Precipitation technology, which was terminated in 1998 because of excessive benzene generation. Two of three technology options currently being considered are a result of the EM science program – without this work, Savannah River Site would have had to begin development of new alternatives, creating a further delay of at least six years. In FY 2002, we will begin construction of a pilot plant that will provide design and operational information for a full-scale salt processing plant.

***Complete Construction of the Advanced Mixed Waste Treatment Project at INEEL*** – The request includes $40 million in budget authority for the Advanced Mixed Waste Treatment Project (AMWTP) at INEEL, a privatization project that will greatly increase the INEEL's capability to prepare 65,000 cubic meters of waste for disposal at WIPP. In FY 2002, we will complete construction of the facility, and we will be on track to begin operations in 2003 in accordance with the agreement with the State.

In response to a lawsuit and community concerns, the Department put the incineration component of the AMWTP on hold pending an expert review of alternative technologies to incineration that can meet legal standards. The "blue ribbon panel" of experts, in a December 2000 report, identified several promising technologies. The request provides $5 million to explore several of these technologies, which may eliminate the need for the incinerator that had been planned for AMWTP.

***Increase Shipments to WIPP:*** The request of $164.6 million plus $2.6 million for safeguards and security for the Waste Isolation Pilot Plant will allow us to increase shipments of contact-handled transuranic waste to WIPP in FY 2002. We will continue critical shipments from Rocky Flats to support the closure schedule and from INEEL to meet its agreement with the State, as well as limited shipments from other sites. The WIPP facility remains critical to meeting our closure and completion goals at other sites.

***Begin Construction of a Pilot for "Melt and Dilute" Technology:*** The Savannah River Site has been developing a cost-effective path forward for spent nuclear fuel that does not require stabilization for health and safety reasons. This research and development effort is helping us identify technologies to manage spent nuclear fuel and other nuclear materials without chemical separation. Our efforts to develop the "melt-and-dilute" process have been so successful that we selected it as the preferred technology to prepare aluminum-based spent nuclear fuel for geologic disposal. Construction of a pilot plant that will test real spent fuel to demonstrate the viability of the melt and dilute process will be completed this fiscal year, and the $4 million requested in FY 2002 will support operations of the pilot plant. This will provide a firm basis for the design and construction of the full-scale facility to prepare and store this spent nuclear fuel prior to final disposition in a geologic repository.

## C. SUPPORTING THE CLOSURE OF MAJOR SITES

***Staying On Track to Close Rocky Flats:*** The FY 2002 budget request of $628.6 million plus $35.4 for safeguards and security, or a total of $664 million, supports the closure of Rocky Flats by December 15, 2006, the closure date targeted in the contract. The Rocky Flats site is the largest site challenged to accelerate site cleanup and achieve closure in 2006. To date, significant progress has been made toward making this goal a reality. A key ingredient for closing Rocky Flats is being able to ship nuclear materials and waste off-site, which requires that other sites – often DOE sites – are available and prepared to accept the materials. Our request also provides the necessary funds to other sites, such as Savannah River Site, Oak Ridge, Nevada Test Site, and WIPP, to support their part of the Rocky Flats closure effort. The coordination and support of these planned shipping campaigns to the receiver sites demonstrates the Department-wide commitment to the goal of achieving accelerated closure of Rocky Flats.

***Accelerating the Closure of the Fernald Site:*** Our request of $285.3 plus $4.7 million for safeguards and security also funds efforts to complete cleanup and close the Fernald site in Ohio. The site is currently scheduled to close in 2010, but the new closure contract for Fernald awarded last November includes incentives to the contractor to accelerate the completion date to 2006. FY 2002 efforts build on past cleanup progress, including stabilization of liquid uranium solutions, off-site shipment of low level radioactive wastes, disposition of excess nuclear materials, and decontamination and demolition of several large industrial buildings at Fernald. We will continue these activities in FY 2002, including completing shipments of uranium materials to the Portsmouth site in Ohio for disposition, and beginning the full-scale remediation project for Silos 1 and 2 that contain radium-bearing residues generated from the processing of high-grade uranium ore.

## D. MEETING NEW RESPONSIBILITIES

The budget request for FY 2002 reflects an increased scope of responsibilities assigned to EM as a consequence of Congressional action in last year's legislation or internal initiatives. We have incorporated these new requirements into our request and prioritized the necessary activities in

consideration of existing requirements of the Environmental Management program.

***Turnover of the Portsmouth Plant:*** In June 2000, the United States Enrichment Corporation (USEC) announced its intention to cease uranium enrichment operations at the Portsmouth Gaseous Diffusion Plant in Ohio and to return the plant to DOE. The EM program is responsible for placing and maintaining the plant in cold standby condition and for other critical transition-related activities, as well as eventual decontamination and decommissioning of the plant.

A total of $125 million requested in FY 2002 in the Uranium Facilities Maintenance and Remediation account supports activities to winterize the facilities, place the facilities in cold standby, and mitigate the impacts on the workforce. Some of these funds will be used to replace some of the funding sources for an FY 2001 reprogramming for transition activities now pending before Congress. In FY 2002, this will allow us to complete the winterization of the plant, an activity we must begin this year. It will fund actions needed to place those portions of the plant needed for production of enriched uranium in a condition that would allow for restart of the operations within 18 to 24 months, should that become necessary in the future. And it allows us to selectively begin deactivating other parts of the plant and structures at the site that are no longer needed in order to reduce the surveillance and maintenance costs.

***Uranium Programs:*** The Energy and Water Development Appropriation for FY 2001 consolidated funding for Uranium Programs and cleanup activities, and authorized the transfer of federal personnel from the Office of Nuclear Energy, Science and Technology (NE) to the Environmental Management program. With this transfer, EM became responsible for a number of additional activities, including safely managing 680,000 metric tons of depleted uranium hexafloride ($DUF_6$) now stored at three gaseous diffusion plant sites and the design, construction and operation of $DUF_6$ conversion facilities at Portsmouth and Paducah. We also are responsible for maintenance and cleanup of facilities not leased to USEC, management of DOE Material Storage Areas in and around USEC buildings, and for pre-existing liabilities arising from law or agreement after the transfer of the uranium enrichment operations to USEC.

The FY 2002 request in the Uranium Facilities Maintenance and Remediation account places priority on actions needed to ensure safety, including maintenance of the $DUF_6$ cylinders. We also will continue to work with the Commonwealth of Kentucky regulators to undertake actions needed to resolve the notice of violation issued by Kentucky concerning hazardous waste identified in the DOE Material Storage Areas at Paducah. The request also keeps the development of the $DUF_6$ conversion facilities on track to begin construction in January 2004, consistent with the schedule provided in Public Law 105-204.

***Transfer of Excess Facilities:*** The Department has a number of aging facilities that are no longer needed to support mission work. The costs to maintain these facilities so that they do not become a safety or contamination hazard can be significant, costs which can increase as facilities degrade over

time. EM currently manages the majority of the Department's excess contaminated facilities. Since 1996, due to concerns about funding and increasing the scope of EM responsibilities, facilities that became excess to the needs of other programs have been managed by those programs. However, consistent with a new DOE order, beginning in FY 2002, EM will, on a limited basis, begin accepting excess contaminated facilities from other DOE program offices for eventual deactivation and decommissioning.

In FY 2002, ten facilities or facility complexes, located at Brookhaven, Oak Ridge, Pantex Plant in Texas, and the Savannah River Site, will transfer to EM from the National Nuclear Security Administration, the Office of Science, and the Office of Nuclear Energy. We are requesting funds for surveillance and maintenance to enable EM to manage these newly transferred facilities safely, based on a budget transfer from the DOE program that currently "owns" the facility. Since these excess facilities constitute new work scope for the EM program, we are requesting the funding in a separate program account to enable DOE and the Congress to track the cost and progress associated with the excess facilities transferring in FY 2002. We also plan to include facility transfers in future years in this account.

## E. CONTINUING THE INVESTMENT IN SCIENCE AND TECHNOLOGY

Developing and using more effective technologies in our cleanup continues to be a critical element of our strategy to reduce the cost and the pace of cleanup. Since its inception, EM's Science and Technology program has made approximately 280 innovative technologies available for use. Yet we have seen an *increase* in the needs for technological solutions reported by the sites. This is due to a large degree to better problem definition and a better understanding of project requirements, uncertainties, and costs. More than two-thirds of the EM life-cycle cost estimate occur after 2006, so the need for Science and Technology investments continues.

The FY 2002 request of $196 million for the Science and Technology program activities will support the Department's near-term needs for technical solutions while allowing us to work toward solutions for the more intractable environmental problems.

Over the past several years, Environmental Management's Science and Technology program has concentrated not only on technical achievements, but also on ensuring its activities are directly linked to solving specific problems identified by project managers in the field and enhancing the program's management practices. I am pleased to report today that both technical advances and management processes for the Science and Technology program are solidly on track:

***On-the-ground Successes:*** In FY 2000 alone, there were more than 200 innovative technologies used for the first-time in a project or site across the complex, demonstrating that EM's Science and technology program is successfully meeting real cleanup needs. For example, an innovative phytoremediation process was activated at the Mixed Waste Management Facility at the Savannah

River Site. Tritium-contaminated water is pumped above ground and sprayed onto the roots of selected trees where it is evapo-transpired into the atmosphere at safe concentrations. This process, which is already making improvements in downstream water quality, will prevent contaminants from flowing into Fourmile Creek and the Savannah River Site.

At Hanford, the In Situ Redox Manipulation process, a 1998 *R&D Magazine* R&D 100 Award recipient, is being used on the highest-concentrated portion of a chromium VI groundwater plume. This process replaces expensive pump-and-treat with a permeable treatment zone that immobilizes chromium traveling through it.

And over 30 technologies were used as an integrated system to remediate the Oak Ridge Gunite and Associated Tanks, some of DOE's oldest tanks. Retrieval operations were completed in FY 2000, ten years ahead of schedule and at a savings of $350 million.

***Technical and Deployment Assistance:*** While furnishing innovative technologies is the cornerstone of our activities, the program also provides scientific and technical support to EM cleanup decisionmaking. In response to public concern about incinerator emissions, last year a Secretarial "blue ribbon panel"studied emerging alternatives to incineration, which resulted in recommendations on emerging technologies that hold greatest promise for further development. EM's Science and Technology program led the effort to provide technical data for this effort.

The Science and Technology program is also supporting the development of an alternative technology to in-tank processing for cesium removal from high level waste. The Tanks Focus Area, one of five teams that address DOE's major environmental problem areas, is performing much of the testing and will continue to work with the site to develop and pilot the selected technology. It will also continue development of an alternative until the primary technology has successfully completed pilot-scale tests on actual waste.

Deployment assistance teams were sent to the Paducah Gaseous Diffusion Plant and the Pantex Plant last year to perform technical reviews of their groundwater, soils and surface water contamination. Based on the teams' recommendations, innovative technologies are being deployed at both sites.

Also, a first-ever textbook of reference material related to contamination of the vadose zone, a major problem for DOE sites, was compiled and published. This is an exhaustive compendium of information from multiple agencies and the private sector.

***Basic Research:*** Research sponsored by the Environmental Management Science Program (EMSP) is yielding beneficial results. To date, this work has been documented in 576 publications and has resulted in 28 patent disclosures and applications. Promising EMSP work is using tobacco and rice plants by a University of Georgia team to detoxify ionic mercury. This method could be applicable to mercury-contaminated soils at shallow depths, such as at Oak Ridge. Also a new technology being pursued at Sandia National Laboratory in New Mexico acts as a molecular "sponge" by capturing and

storing radioactive strontium from liquid hazardous waste. Heat turns the sponge into a stable material that shows promise of being suitable for disposal.

With the requested $32 million, EMSP will complete research begun in FY 1999 on scientific problems associated with the vadose zone, subsurface contamination, and groundwater issues to support initiatives at sites such as Hanford. Also, the first full year of research will be completed on projects awarded in FY 2001 to improve the effectiveness of tank cleanup and decontamination and decommissioning processes.

## C. MEETING LONG-TERM STEWARDSHIP RESPONSIBILITIES

As the Department completes stabilization, cleanup and disposal of waste, we must consider the next and final stage in the cleanup process: meeting our enduring environmental protection obligations through long-term stewardship at sites that are unable to be cleaned up sufficiently to allow for unrestricted use. DOE's cleanup efforts have resulted in substantial risk and maintenance cost reductions across the complex. However, at most sites, cleanup will make the land available for other industrial uses, but not necessarily unrestricted use. Like private sites or other federal facilities, cleanup to levels allowing for unrestricted use often cannot be achieved for economic or technical reasons, including the presence of residual contaminants or deliberate entombment of waste or facilities.

The Department has a legal and moral responsibility to ensure the protection of human health and the environment after cleanup is complete. The goal of long-term stewardship is the sustainable protection of human health and the environment after cleanup, disposal or stabilization is complete. The long-term stewardship program allows the Department to provide safe and effective long-term stewardship while optimizing future land and resource use. Good project management, applying the best science and technology to manage residual hazards, and increasing public confidence through effective involvement of state and local governments, Tribal Nations, and stakeholders is essential to a successful long-term stewardship program. A reliable long-term stewardship program can also provide confidence to regulators and the public that non-removal remedies are acceptable because the Department can be trusted to care for the sites after the waste is contained in place. These needs are not unique to the Department of Energy – while EM's Office of Long-term Stewardship may be the first office addressing these issues in the federal government, I would suggest to you that it will not be the last.

In January 2001, DOE reported to Congress on the Department's long-term stewardship responsibilities, in response to the FY 2000 National Defense Authorization Act (NDAA). The report provides the best available information on the cost, scope, and schedule of DOE's current and future long-term stewardship. It concludes that DOE currently carries out such activities at about 30 sites and may eventually be responsible for stewardship at 129 sites.

Recently, we designated the Idaho Operations Office as the lead field office for our long-term stewardship program. The Grand Junction Office, which is currently conducting stewardship at sites

that have completed cleanup, has been transferred from the Albuquerque Operations Office to the Idaho Operations Office to provide for continuity of critical operations and to coordinate policy and guidance development.

The FY 2002 request maintains funding for long-term stewardship activities at $8 million. In addition, $5.4 million in funding for Grand Junction also supports its stewardship activities. The number of sites moving from active cleanup to stewardship is expected to grow from 30 sites in FY 2001 to 35 sites in FY 2002, with an additional 33 sites transitioning into long-term stewardship in the next five years.

The request also supports INEEL and Headquarters activities to address complex-wide long-term stewardship challenges. Our emphasis in FY 2002 will be on resolving issues that interfere with, or potentially delay, the transition of sites through closure and into long-term stewardship. We also continue investments in science and technology to help ensure that the protections provided by our remedies can be maintained as cost-effectively as possible for the necessary duration.

## ENSURING WE USE RESOURCES EFFECTIVELY

The cleanup facing DOE is perhaps the most complex and challenging environmental challenge in the world. And it is one of the most costly, currently estimated to cost about $200 billion to complete. It is critical that we manage the program well and employ strategies that will help us continue progress and meet our commitments more efficiently and at a lower cost. The comprehensive, top-to-bottom assessment of the Environmental Management mission that the Secretary has directed be conducted will help identify opportunities to optimize the use of cleanup funds. Strategies to achieve this include:

- implementing sound project management practices;
- achieving efficiencies through innovative performance-based contracting approaches that provide financial incentives for performance;
- working closely with state and federal regulators, tribal nations, and other stakeholders at our sites; and
- linking sites through integration.

### A. IMPROVING PROJECT MANAGEMENT

Sound project management is fundamental to cost effective and timely completion of EM's massive clean-up effort. EM has accomplished significant improvements in the past several years in planning and execution of project baselines, but certainly more work remains. In particular, we need to improve our up-front planning and our project risk management practices. The latter is particularly important given the high degree of uncertainty associated with many of our first-of-a kind projects.

EM's Office of Project Management, created in August 1999, is charged with bringing state-of-the-art project management tools and training into the EM program to enable us to better manage our projects. We work closely with the Office of Engineering and Construction Management (OECM) in the Office of the Chief Financial Officer, the unifying organization for project management for DOE. We learn from and compare our performance with the standards and practices of external organizations such as the Construction Industry Institute, the Project Management Institute, and the National Aeronautics and Space Administration.

Over the past year, EM has significantly improved project management practices by taking an aggressive approach to implementing the new DOE project management order, *Program and Project Management for the Acquisition of Capital Assets*, which mandates that industry standard processes and reporting be incorporated into DOE project management. We have recently identified over 70 discrete, well-defined projects (referred to as Capital Asset Projects) that will be subject to the comprehensive project management requirements laid out in the new DOE order.

A sample of the other changes made to promote better project planning and reduce overall program costs include:

- We are increasingly using a comprehensive project planning tool similar to that used by the Construction Industry Institute across the complex. We expect its use to result in near term project cost and schedule improvements.

- We have instituted quarterly performance reviews for key projects and formalized a "critical decision" approval process using the expertise of DOE's Energy Systems Acquisition Advisory Board (ESAAB). These internal and external independent project reviews are the independent "eyes and ears" assist us in making sound decisions.

- We have begun to make use of "state-of-the-art" cost estimating models for environmental remediation and decontamination and decommissioning projects. We plan to extend these models to all types of EM projects.

- We are putting together Integrated Project Teams to provide more effective intra-site communication. These teams are charged with expanding technology transfer and reducing project risk associated with cross site waste transfers.

- We are developing the project management career ladder to ensure that future project managers have the right training and experience to mange the large complex environmental management projects to come.

EM is taking project management "off the drawing board" and putting it into practice. Both headquarters and field offices are making changes needed to promote effective project management. While we will certainly face challenges ahead, we also anticipate substantial project management improvement, and more success stories in the coming years.

## B. IMPROVING CONTRACT MANAGEMENT

The EM program accomplishes its work largely through facility management contracts that provide for management and operations at each site. EM site managers have oversight responsibility for eleven facility management contracts. Managing performance under these contracts is key to successfully carrying out the EM mission and to reducing costs.

To ensure we get what we pay for and that we get what we need, we have moved away from traditional cost-plus-award-fee contracts and are applying performance-based contracting and management principles to all our facility management contracts, as well as to our support service contracts. This contracting approach uses objective performance metrics to define and measure contract performance, tying the contractor's fee to achievement of these specific performance

measures. Innovative performance metrics developed and used by EM sites include multi-year performance incentives, "gateway" provisions requiring the contractor to complete previous performance requirements before earning fee in a performance area, and "stretch" and "super-stretch" goals in which the contractor uses cost savings to fund unfunded work.

In the past few years, we awarded new cost-plus-incentive-fee "closure" contracts for the Rocky Flats and Fernald sites tied to completing the closure of the site. The contracts identify a target closure and include incentives for accelerated completions and reductions in fee for any delay beyond this targeted date. The contracts also include cost and schedule incentives focused on ensuring the cleanup is conducted safely and compliantly. We also negotiated new or extended contracts for operation of the Waste Isolation Pilot Plant, the Richland Operations Office and the Office of River Protection at Hanford, and the Savannah River Site that tie fees to performance.

To further enhance contract reform objectives, EM is taking an increasingly active role in defining performance expectations, ensuring that these expectations are consistent with the Department's strategic plan, reviewing results, and holding both site managers and contractors accountable for producing results. In fact, site managers now have very specific elements in their annual performance plans concerning contract management.

## C. WORKING WITH OUR REGULATORS AND OTHER STAKEHOLDERS

We have found that performing good technical work is not enough. Getting the job done requires coordination with regulators and others outside of DOE that have a stake in our actions. By working cooperatively with regulators, stakeholders, local communities and the Tribal Nations, we have improved the efficiency of the EM program and have made progress in meeting our regulatory commitments in a more efficient and cost-effective way.

Critical to the success of our efforts to improve the efficiency of this program and the cleanup results is the involvement and support of our state and federal partners. We believe this is an opportune time to examine the compliance framework that guides cleanup at all our major sites to ensure it reflects the experience gained over the past decade when many agreements were put in place. Accordingly, the Secretary has invited the governors of the States that host our sites and EPA Administrator Christine Todd Whitman to work with us to review our cleanup work to make sure it promotes on-the-ground results, and reflects the lessons and technical understanding that have developed. I am confident that, working cooperatively, we can find ways to achieve our shared environmental goals more efficiently.

Our request supports public participation through continued relationships with states, site-specific and national advisory boards, and Indian tribes potentially affected by our activities. We will encourage an open and frank dialogue with our regulators to ensure that we are pursuing the most efficient and most cost effective solutions to cleanup and compliance needs, as well as the most appropriate sequencing of work.

## D. LINKING SITES THROUGH INTEGRATION

While each DOE site has its own objectives and milestones for cleanup and closure, no site can complete its mission without help from other parts of the EM program. Making use of the unique capabilities for managing and treating nuclear wastes and materials at our sites and sharing information and expertise is critical to our success. Through integration, we seek to use available capacity rather than construct new facilities; apply innovative technologies at multiple sites; and apply lessons learned and site successes complex-wide. We work to address common problems and challenges across the DOE complex through a corporate approach.

The contribution of other sites to the closure of Rocky Flats continues to illustrate the importance of integration. Our ability to close Rocky Flats depends on the acceptance of waste and materials by other DOE sites, including the Savannah River Site, Los Alamos, Pantex Plant, Lawrence Livermore National Laboratory, and the Nevada Test Site. Rocky Flats is in the process of formulating an Integrated Closure Project Baseline that integrates the Department's contractual commitments to provide items and services with activities to be carried out by the site contractor. The Integrated Closure Project Baseline highlights that the closure of Rocky Flats is truly a complex-wide project, requiring the support and careful coordination of a number of Departmental sites and programs. It has improved our ability to integrate complex-wide activities, schedules and resources.

We are working to develop disposition pathways for surplus nuclear materials throughout the DOE complex, including orphan materials (i.e., those with unclear programmatic ownership), and wastes that cannot be disposed of in their current forms. This requires that the Department has a full understanding of the surplus materials inventories and corresponding disposition plans prior to termination of facility capabilities. For example, EM recently completed the "*Savannah River Site Canyons Nuclear Material Identification Study*" (February 2001) to determine which materials would potentially require the use of the Savannah River canyons. Such disposition studies often identify the need to transfer materials and wastes between DOE sites in preparation for ultimate disposition. To support one particular transfer, EM recently revised DOE's 3013 Storage Standard for surplus plutonium, accelerating Rocky Flats closure by allowing metals and oxides stored there to be packaged for shipment off-site. We are also working to develop a cost-effective disposal approach for the classified waste currently stored at Rocky Flats.

Finally, the transport of radioactive waste and material between sites is critical to the success of our integration priorities. Our national transportation program, which has successfully moved spent nuclear fuel containing U.S. enriched uranium from research reactors around the world to the U.S. for safe storage, is applying its success to other DOE shipments. For example, EM is working with other DOE program offices and with the sites to develop a national packaging strategy that will improve the availability of certified casks for unique types of DOE shipments, is working with NNSA to ensure the availability of Transportation Safeguards System for shipping special nuclear materials from Rocky Flats, and is developing the option of shipping waste to WIPP via rail. Our efforts will enable us to

identify future packaging and transportation needs, to support aggressive shipping schedules, and to utilize our transportation assets more efficiently.

## PROVIDING EFFECTIVE FEDERAL OVERSIGHT

Critical to successfully managing the cleanup program and to identifying and implementing more efficient ways of doing business is having the Federal workforce in place to provide effective oversight of the contractors that compete for and carry out the actual cleanup work. Federal employees establish the program and project goals; they provide the direction to the contractors; and they monitor contractor performance to ensure we are getting the results we need, at the quality and cost promised, and that work is done in a safe and compliant manner. Our initiatives to reduce the costs and schedules of the cleanup depends on having an effective Federal workforce to keep the pressure on the contractor to find more innovative and efficient ways of doing business.

The Federal workforce performs essential tasks that it would be inappropriate to have contractors perform. These include formulating the annual budget and outyear projections; managing contractors, including contract negotiations, oversight, and accountability; representing the Department in its dealing with regulators; analyzing and formulating program policy and planning; and integrating activities and information across sites.

Our request for Program Direction, which funds Federal salaries as well as travel and administrative and technical support services, is $355 million. However, our request reduces support services and travel funds by almost half, while essentially maintaining the funds for Federal salaries. The request supports 2,708 Full-time Equivalents (FTEs) – about 84 percent of which are in the twelve DOE field and operations offices – and includes increases in the Carlsbad Field Office and the Office of River Protection to reflect increased requirements. Overall, the Program Direction account has been significantly reduced from earlier years. The number of Headquarters FTEs, for example, is 45 percent less than when at its highest point in 1995. The request for Program Direction in FY 2002 is about 15 percent less than in FY 1997, the year these activities were consolidated into a single account.

The Department continues to place a high priority on workforce management to provide a stable workforce with the right skill mix and technical capabilities to accomplish our mission, now and into the future.

## CONCLUSION

In conclusion, the Department is making progress in cleaning up the legacy of contamination left from the nuclear weapons production process. We are giving priority to reducing our most serious risks, accelerating cleanup at our major sites across the country, safely storing and safeguarding weapons-usable nuclear materials, and reducing the long-term costs of the program. We will continue to use science and technology to reduce costs and schedules, improve our project management, make the

most effective use of our unique resources across the DOE complex, and maintain our focus on worker safety. We pledge to continue to work closely and cooperatively with the Congress to ensure that this progress continues and that we can meet the challenges ahead in the most effective way.

## SUMMARY OF THE FY 2002 BUDGET

The total FY 2002 budget request for the Department of Energy's Environmental Management Program is $5.913 billion. This includes $4,128.7 million in Defense Environmental Restoration and Waste Management (excluding $420 million for the Federal contribution to the Uranium Enrichment Decontamination and Decommissioning Fund); $1,050.5 million in the Defense Facilities Closure Projects; and $141.5 million in Defense Environmental Management Privatization. This totals $5,179.2 million in traditional budget authority and $141.5 million for privatization funding in the Defense accounts. The FY 2002 appropriation will fund cleanup at sites across the Nation. Five sites receive almost three-fourths of Environmental Management funding – the Hanford site in Washington (including Richland Operations Office and Office of River Protection), the Savannah River Site in South Carolina, the Rocky Flats site in Colorado, the Idaho National Engineering and Environmental Laboratory in Idaho, and the Oak Ridge Reservation in Tennessee.

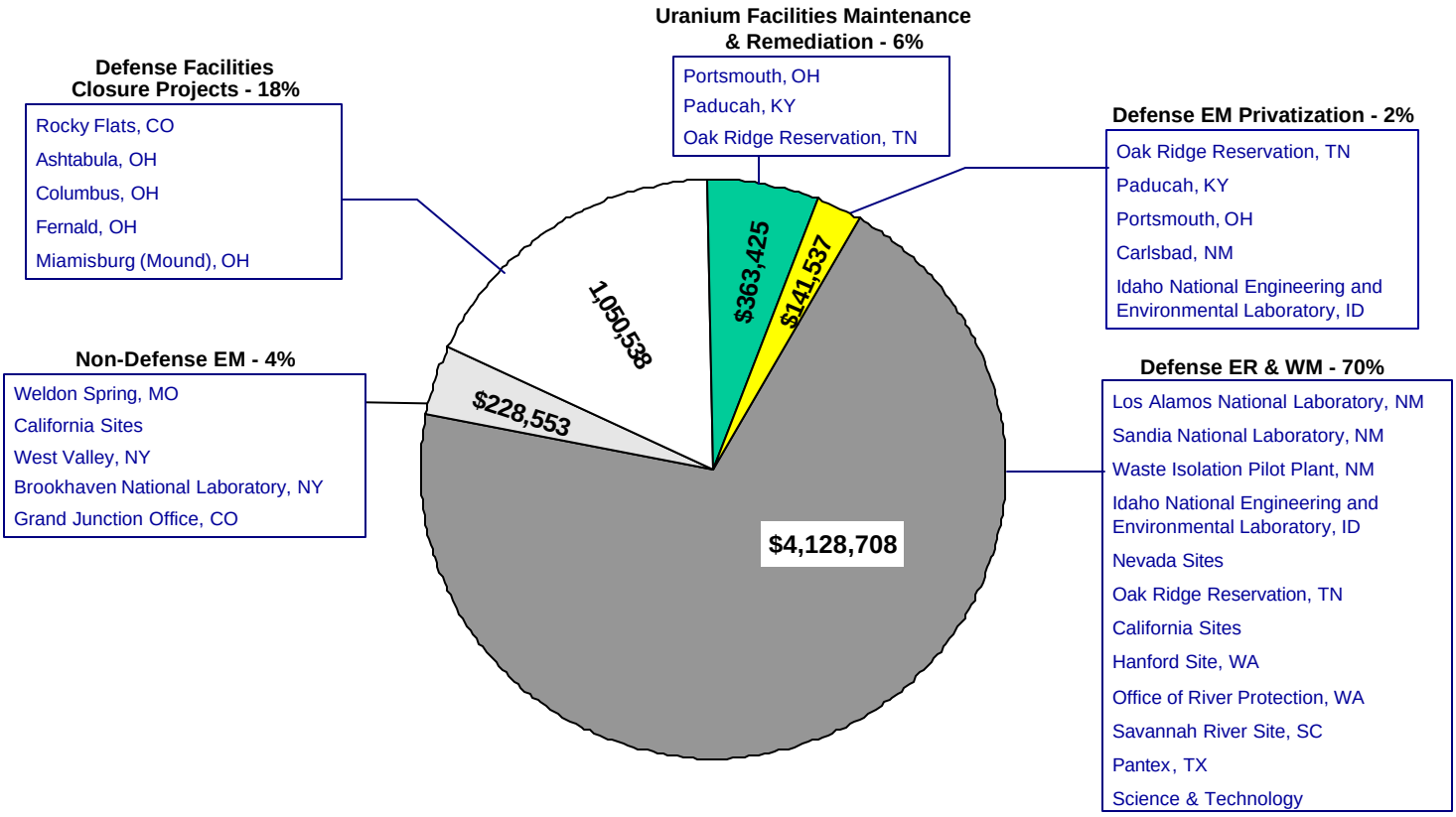
Our FY 2002 budget proposal provides details on each project, including performance measures, which we use to hold managers accountable, and expect to be held accountable by Congress. Summaries of budget accounts and the FY 2002 request by State and Operations Office are attached. In addition, information on each of following sites can be found immediately after the budget summaries.

1. Hanford Site, Washington
   - Office of River Protection
   - Richland Operations Office
2. Savannah River Site, South Carolina
3. Rocky Flats Environmental Technology Site, Colorado
4. Idaho National Engineering and Environmental Laboratory, Idaho
5. Oak Ridge Reservation, Tennessee
6. Fernald Environmental Management Project, Ohio
7. Waste Isolation Pilot Plant, New Mexico
8. Nevada Test Site and Operations Office, Nevada
9. Los Alamos National Laboratory, New Mexico
10. Miamisburg Environmental Management Project (Mound), Ohio
11. Lawrence Livermore National Laboratory, California

# EM's Five Appropriation Accounts

## Distribution of the FY 2002 Request*

(Dollars in Thousands)




**Total FY 2002 Request: $5,912,761**

* Listing of sites is not complete; funding amounts are net of all adjustments

**FY 2002 EM Budget Request by State**

Dollars in Thousands

| State | FY 2001 Comparable Appropriation | FY 2002 Request | | | | | |
|---|---|---|---|---|---|---|---|
| | | Defense Facilities Closure | Defense ER&WM | Non-Defense EM | Uranium Fac. Maintenance & Remediation | Privatization | Total |
| Alaska | $9,108 | $0 | $1,868 | $0 | $0 | $0 | $1,868 |
| California | 91,903 | 0 | 46,166 | 27,329 | 0 | 0 | 73,495 |
| Colorado | 718,860 | 664,000 | 26,884 | 14,250 | 0 | 0 | 705,134 |
| Florida | 7,317 | 0 | 8,000 | 0 | 0 | 0 | 8,000 |
| Idaho | 637,462 | 0 | 452,634 | 5,380 | 0 | 89,332 | 547,346 |
| Illinois | 25,623 | 0 | 15,801 | 6,513 | 0 | 0 | 22,314 |
| Iowa | 533 | 0 | 250 | 0 | 0 | 0 | 250 |
| Kentucky | 89,840 | 0 | 3,008 | 0 | 72,982 | 13,329 | 89,319 |
| Mississippi | 1,210 | 0 | 865 | 0 | 0 | 0 | 865 |
| Missouri | 56,388 | 0 | 1,500 | 43,000 | 0 | 0 | 44,500 |
| Montana | 6,764 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nevada | 84,468 | 0 | 85,600 | 0 | 0 | 0 | 85,600 |
| New Mexico | 367,740 | 0 | 305,253 | 3,898 | 0 | 0 | 309,151 |
| New York | 144,251 | 0 | 4,975 | 122,013 | 0 | 0 | 126,988 |
| Ohio | 540,226 | 386,538 | 30,686 | 0 | 201,096 | 2,000 | 620,320 |
| South Carolina | 1,297,917 | 0 | 1,142,572 | 0 | 0 | 0 | 1,142,572 |
| Tennessee | 474,926 | 0 | 285,513 | 141 | 88,347 | 36,876 | 410,877 |
| Texas | 13,369 | 0 | 8,100 | 0 | 0 | 0 | 8,100 |
| Utah | 9,067 | 0 | 0 | 1,000 | 0 | 0 | 1,000 |
| Washington | 1,604,348 | 0 | 1,563,812 | 1,485 | 0 | 0 | 1,565,297 |
| West Virginia | 57,388 | 0 | 46,086 | 0 | 0 | 0 | 46,086 |
| Various Locations | 246,940 | 0 | 141,296 | 3,544 | 1,000 | 0 | 145,840 |
| D&D Fund Deposit | 419,076 | 0 | 420,000 | 0 | 0 | 0 | 420,000 |
| **Subtotal, EM** | **$6,904,724** | **$1,050,538** | **$4,590,869** | **$228,553** | **$363,425** | **$141,537** | **$6,374,922** |
| UE D&D Fund Offset | (419,076) | 0 | 0 | 0 | 0 | 0 | (420,000) |
| Reimbursable Work | 0 | 0 | 0 | 0 | 0 | 0 | (5,391) |
| Dupont Pension Offset | (50,000) | 0 | 0 | 0 | 0 | 0 | 0 |
| Prior Year Balances | (168,741) | 0 | 0 | 0 | 0 | 0 | (36,770) |
| **Total, EM** | **$6,266,907** | **$1,050,538** | **$4,590,869** | **$228,553** | **$363,425** | **$141,537** | **$5,912,761** |

NOTE: All dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

**FY 2002 EM Budget Request by Operations Office**

Dollars in Thousands

| Operations Office | FY 2001 Comparable Appropriation | FY 2002 Request | | | | | |
|---|---|---|---|---|---|---|---|
| | | Defense Facilities Closure | Defense ER&WM | Non-Defense EM | Uranium Fac. Maintenance & Remediation | Privatization | Total |
| Albuquerque | $186,849 | $0 | $139,085 | $3,898 | $0 | $0 | $142,983 |
| Carlsbad | 200,960 | 0 | 175,630 | 0 | 0 | 0 | 175,630 |
| Chicago | 62,945 | 0 | 17,221 | 33,711 | 0 | 0 | 50,932 |
| Idaho | 671,878 | 0 | 459,062 | 20,330 | 0 | 89,332 | 568,724 |
| Natl Energy Tech Lab | 64,152 | 0 | 46,086 | | | | 46,086 |
| Nevada | 96,338 | 0 | 90,928 | 0 | 0 | 0 | 90,928 |
| Oakland | 94,993 | 0 | 47,166 | 27,329 | 0 | 0 | 74,495 |
| Oak Ridge | 711,850 | 0 | 295,370 | 43,141 | 362,425 | 52,205 | 753,141 |
| Ohio | 553,096 | 386,538 | 26,442 | 95,115 | 0 | 0 | 508,095 |
| Richland | 829,254 | 0 | 725,958 | 1,485 | 0 | 0 | 727,443 |
| Richland/ORP | 775,094 | 0 | 837,854 | 0 | 0 | 0 | 837,854 |
| Rocky Flats | 693,382 | 664,000 | 26,199 | 0 | 0 | 0 | 690,199 |
| Savannah River | 1,297,917 | 0 | 1,142,572 | 0 | 0 | 0 | 1,142,572 |
| Multi-Site | 175,098 | 0 | 141,296 | 3,544 | 0 | 0 | 144,840 |
| U/TH Reimbursement | 71,842 | 0 | 0 | 0 | 1,000 | 0 | 1,000 |
| D&D Fund Deposit | 419,076 | 0 | 420,000 | 0 | 0 | 0 | 420,000 |
| **Subtotal, EM** | **$6,904,724** | **$1,050,538** | **$4,590,869** | **$228,553** | **$363,425** | **$141,537** | **$6,374,922** |
| UE D&D Fund Offset | (419,076) | 0 | 0 | 0 | 0 | 0 | (420,000) |
| Reimbursable | (5,244) | 0 | 0 | 0 | 0 | 0 | (5,391) |
| Pension Offset | (50,000) | 0 | 0 | 0 | 0 | 0 | 0 |
| Prior Year Balances | (163,497) | 0 | 0 | 0 | 0 | 0 | (36,770) |
| **Total, EM** | **$6,266,907** | **$1,050,538** | **$4,590,869** | **$228,553** | **$363,425** | **$141,537** | **$5,912,761** |

NOTE: All operations office dollars include safeguards and security, program direction, excess facilities, privatization, and science and technology funding.

**1. Hanford Site, Washington**

FY 2002 Request (in thousands):

Office of River Protection

| | |
|---|---|
| Defense ER&WM, Post 2006-ORP | $812,468 |
| Defense ER&WM, Site/Project Completion | $ 2,000 |
| Defense ER&WM, Program Direction | $ 23,386 |
| Total | $837,854 |

Richland Operations Office

| | |
|---|---|
| Defense ER&WM, Site/Project Completion | $419,586 |
| Defense ER&WM, Post 2006 Completion | $164,642 |
| Defense ER&WM, Program Direction | $ 53,342 |
| Non-defense EM, Site/Project Completion | $ 1,485 |
| Total | $639,055 |

| | |
|---|---|
| Defense ER&WM, Science & Technology | $ 36,844 |
| Defense ER&WM, Safeguards & Security | $ 51,544 |
| Total (Hanford Site) | $1,565,297 |

The Hanford Site in Washington State remains the Department's greatest cleanup challenge. The 560-square mile site was carved out of a broad curve of the Columbia River during World War II. It is now the nation's largest former nuclear weapons production site, and the cleanup of the Hanford Site is the largest, most technically complex, environmental cleanup project yet undertaken. The site contains large amounts of spent nuclear fuel, unstable weapons grade plutonium, 177 underground tanks containing 53 million gallons of high-level radioactive waste, and more than 100 square miles of contaminated ground water. The Hanford Site remediation activities are regulated by the Tri-Party Agreement which was signed by the U.S. Department of Energy, the U.S. Environmental Protection Agency, and the Washington State Department of Ecology. In addition to cleanup of the site, the EM program provides critical infrastructure activities and service at the site, referred to as "landlord" activities.

The Hanford site mission is carried out by two independent organizations, the Richland Operations Office and the Office of River Protection (ORP). ORP was established in December 1998 following Congressional direction in the *Strom Thurmond National Defense Authorization Act for Fiscal Year 1999* and is responsible for all aspects of the River Protection Project (formerly the Tank Waste Remediation System), which includes safe storage, retrieval, treatment and disposal of the high-level radioactive tank waste. Richland Operations Office responsibilities include all aspects of treatment, storage and disposal of legacy radioactive and hazardous wastes; safe and secure storage of nuclear materials and spent nuclear fuel; and the decontamination and decommissioning of facilities associated with the production of nuclear materials during the Cold War. The Richland and ORP managers report directly to the Assistant Secretary for Environmental Management, and their budgets (with the

exception of integrated safeguards and securities and science and technology budgets) are separate. The ORP Manager has been delegated authority for contracting; financial management; safety; and general program management equivalent to other DOE Operations Offices.

Office of River Protection

ORP works closely with the Richland Operations Office to protect the health and safety of the public, workers, and the environment and to control hazardous materials to protect the Columbia River. ORP manages the River Protection Project located on the central plateau (200 Area) of the Hanford Site. The River Protection Project uses two major contracts for the storage, retrieval, treatment and disposal of the high-level tank waste. A 10-year contract to design, construct and commission a new Waste Treatment and Immobilization Plant (WTP) was awarded to Bechtel National, Inc. on December 11, 2000. The goal is to treat and immobilize approximately 10 percent of the waste by mass and 25 percent by radioactivity by 2018. The award of this contract follows a privatization effort to design, build, and operate a WTP that resulted in an unacceptable proposal submitted by the privatization contractor and termination of the privatization contract. However, as a result of the privatization effort, DOE acquired a robust technical design for the WTP that has been independently verified. In addition, the contract for maintenance and operations of the tank farms, which will provide waste feed to the WTP, is with CH2M Hill and was recently extended through 2006.

Management of the underground high-level waste tanks remains one of the biggest challenges at Hanford. In FY 2001, we made significant progress in reducing the urgent risks associated with these tanks. The issue of the rising level of tank SY-101 was resolved by dissolving the crust on the surface of the waste through a series of waste transfers and back dilutions. Elimination of the crust reduced the retention of flammable concentrations of gas in SY-101 and permitted us to resolve the flammable gas safety issue for this tank and to remove the tank from the "Watch List" established by the National Defense Authorization Act for FY 1991. During FY 2001, we expect to resolve the flammable gas safety issue for the remaining 24 tanks that are affected and to remove those from the Watch List. Once this action is complete, there will be no tanks remaining on the Watch List. The Department signed a Consent Decree with the State of Washington that established a schedule for interim stabilization of the single-shell tanks. To date, we have met all Consent Decree milestones, which includes declaring seven of 29 single shell tanks to be interim stable. The two unstabilized single shell tanks that are suspected of having leaked in the past will be pumped during FY 2001.

For FY 2002, we will continue improving tank safety by transferring free liquids from single shell tanks to double shell tanks in accordance with the Consent Decree schedule. In addition, design and construction will continue on tank farm retrieval systems and other infrastructure improvements necessary to support future waste feed delivery to the treatment facility and eventual removal of all waste from the single shell tanks. Several of these upgrades are adapted from technologies developed under the EM Science and Technology Program. For example, we have procured a variant of the Houdini robotic platform for confined slucing of sludge waste and are planning to test an adaption of the

fluidic sampler technology in solid waste retrieval.

In FY 2001, we completed termination activities associated with the privatization contractor, including purchase of the pilot-scale melter, and acquisition of the appropriate intellectual property rights associated with the pilot-scale melter and with the WTP design completed under privatization. In addition, we will continue the design and engineering of the WTP, and begin site preparation activities to support WTP construction, including site clearing and grading, installation of site utilities, and construction of equipment laydown areas. In FY 2002, the requested $500 million in funding will be used to maintain momentum on WTP design, proceed with long lead project procurement, begin facility construction, and manage the project.

Richland Operations Office

Over the past year, Richland has formulated an outcome-oriented version of the Hanford Site's future that embraces priorities of regulators, stakeholders, and area Tribal Nations, while recognizing the absolute need to make visible progress in the near-term. The three elements of that vision are: (1) to restore the Columbia River corridor; (2) complete the transition of the Central Plateau to long-term waste management; and (3) prepare the remainder of the site to contribute to the future welfare and well-being of its neighboring communities. This focus on outcomes has resulted in a new contract strategy and a revised project baseline. In December 2000, DOE negotiated an extension to the current site operations contract through 2006 for transitional work in the Central Plateau and the Spent Nuclear Fuel Project. We are currently exploring awarding a closure-type contract for the River Corridor.

In December 2000, we began moving spent nuclear fuel from K Basins, which are leak-prone underground wet storage pools located 400 yards from the Columbia River that hold roughly 2,100 metric tons of fuel, some of which is corroding. This first-of-a-kind, technically complex project entails loading the fuel elements while still underwater into a multi-canister overpack using robotic arms, drying it in the nearby Cold Vacuum Drying Facility, and transporting the fuel for dry storage to the newly-built Canister Storage Building, 12 miles from the river. Moving the fuel to safer storage safeguards the health of workers and the surrounding communities, and reduces the risks to the health and vitality of the Columbia River. By the end of FY 2001, we expect to remove 116 metric tons of spent fuel from the K-West Basin. We will also begin design work for the K-Basin sludge and debris removal system and the sludge pre-treatment system. Our FY 2002 request supports continued transport of spent nuclear in K-West Basin to dry storage.

The Department is continuing to remediate waste sites and dispose of the contaminated soil and debris in the Environmental Restoration Disposal Facility (ERDF). In FY 2000, ERDF received approximately 639,000 tons of contaminated soil and debris from cleanup sites along the Columbia River Corridor, and completed construction of cells 3 and 4. In FY 2001 ERDF will receive over 490,000 tons of contaminated soil and debris. We plan to complete remediation of nine waste sites in

the Hanford 100 and 300 Areas, and send up to 461,000 tons of contaminated soil and debris to ERDF in FY 2002.

In FY 2000, we began operating three additional furnaces at the Plutonium Finishing Plant (PFP) for thermally stabilizing plutonium-bearing materials. We completed stabilization of 574 containers of plutonium metals and oxides, and began stabilizing plutonium solutions via magnesium hydroxide precipitation. We also began packaging stabilized plutonium materials using the Bagless Transfer System and the Pipe-n-Go system for packaging residues. In FY 2001, we plan to stabilize 2,190 liters of plutonium bearing solutions and 527 containers of plutonium metals and oxides at the PFP. We have initiated startup of the outer container packaging system at PFP and will also complete brushing and packaging of plutonium metals and. Stabilization activities will eliminate the risk posed by the plutonium-bearing materials and is a critical step in the deactivation of PFP, which will significantly reduce mortgage costs at Hanford. In addition, we will continue stabilization of plutonium oxides and residues, and complete stabilization of plutonium-bearing solutions and polycubes at PFP in FY 2002.

We continue to decommission the reactor facilities in the 100 Area through the Interim Safe Storage Project. In FY 2000 and 2001, decommissioning activities continue at the DR and F reactors as well as at the 233-S Plutonium Concentration Facility.

In FY 2000, we made our first shipment of Hanford transuranic waste to the Waste Isolation Pilot Plant (WIPP) for final disposal, completing three shipments totaling 18 cubic meters, and we plan to complete at least five shipments of 42 cubic meters of transuranic waste to WIPP in FY 2001. In FY 2002, we will treat more than 500 cubic meters of mixed low-level waste in accordance with Tri-Party Agreement milestones, dispose of more than 6,700 cubic meters of low-level waste, process over 200 million gallons of radioactive and hazardous effluents, and complete treatment of 265 cubic meters of mixed low-level waste at a contract facility.

In FY 2002, the Hanford Site Groundwater/Vadose Zone Integration Project will implement the highest priority science and technology activities identified in FY 2000.

**2. Savannah River Site, South Carolina**

FY 2002 Request (in thousands):

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| Defense ER&WM, Site/Project Completion | $ 391,401 |
| Defense ER&WM, Post 2006 Completion | $ 585,989 |
| Defense ER&WM, Science & Technology | $ 17,526 |
| Defense ER&WM, Excess Facilities | $ 700 |
| Defense ER&WM, Safeguards and Security | $ 94,225 |
| Defense ER&WM, Program Direction | $ 52,731 |
| Total | $1,142,572 |

The Savannah River Site is a 310 square mile site near Aiken, South Carolina with an on-going defense

mission. In addition to cleanup of the site, the EM program provides critical infrastructure activities and services at the site, referred to as "landlord" activities.

One of the critical EM responsibilities at the site is the stabilization of nuclear materials resulting from its mission to produce strategic isotopes for national security purposes during the Cold War. In FY 2001 and FY 2002, we will continue to operate the two canyons as well as FB-Line, and HB-Line, to stabilize "at risk" plutonium-bearing materials and spent nuclear fuel covered by Defense Nuclear Facilities Safety Board Recommendations 94-1 and 2000-1. The Savannah River Site also continues it critical role in supporting the accelerated closure of Rocky Flats, receiving and stabilizing surplus plutonium-bearing materials from Rocky Flats. By the end of FY 2002, more than 25 percent of plutonium residues at Savannah River will have been stabilized. In addition, surplus plutonium metal and oxides from Rocky Flats packaged in DOE-STD-3013 containers will be received and stored in the K-Area Material Storage area until they can be permanently dispositioned. The FY 2002 budget request also supports continued construction of a process to vitrify americium/curium solutions, which have very intense radiation fields and require heavy shielding to protect workers and the public.

The FY 2002 budget request continues support for receipt and storage at the Savannah River Site of spent nuclear fuel from domestic and foreign research reactors in support of national and international non-proliferation goals. In FY 2002, we expect to receive 22 casks of spent nuclear fuel from foreign sources and another 31 casks from domestic sources which will be safely stored at the Savannah River Site's basins. By the end of FY 2001, we expect to have received almost one-third of the spent fuel assemblies that we know other countries plan to return.

The Savannah River Site has been developing a cost-effective technology for preparing spent nuclear fuel that does not require stabilization for health and safety reasons for disposal. This work is helping us identify an approach to stabilize spent nuclear fuel and other nuclear materials without chemical separations. Last August, we selected the "melt-and-dilute" process as the preferred technology to prepare aluminum-based spent nuclear fuel for geologic disposal. The FY 2002 budget provides $4 million for operation of the L-Area Experimental Facility to demonstrate the viability of the melt-and-dilute process. This will provide a firm basis for the design and construction of the full-scale facility to prepare and store this spent nuclear fuel prior to final disposition in a geologic repository.

Much of the EM work at the Savannah River Site that will be completed after FY 2006 involves management of approximately 38 million gallons of high-level waste in 49 tanks, including vitrifying waste for final disposal and removing waste from storage tanks so the tanks can be closed. Two tanks have already been closed and, in FY 2000, we produced 231 canisters of vitrified waste in the Defense Waste Processing Facility (DWPF). As of the end of May 2001, we had vitrified a total of 1,118 canisters of high level waste. We expect the DWPF to produce at least 150 canisters in FY 2002, which will bring the total DWPF canister production level to about 22 percent of its expected lifetime total of 6025 canisters.

Due to the long-term nature of this project, there are significant potential payoffs if we are able to develop and apply innovative technologies. We are currently moving forward with technologies that will make it easier to retrieve waste, to improve the way we decontaminate our canisters once they are filled, to reduce worker exposure through use of high efficiency filters that can be regenerated and reused, and to increase the amount of waste in each canister. These advances will allow DWPF to operate more efficiently and ensure that our goals for increasing canister production and reducing life cycle costs are realized.

In-Tank Precipitation operations were terminated in January 1998 because we were unable to successfully pre-treat the waste and limit the levels of benzene generation in the tanks to safe and manageable levels while maintaining production levels for DWPF. Pre-treatment of the waste is necessary to separate the high-activity and low-activity wastes, in order to minimize the amount of waste that must be vitrified and disposed in a deep geologic repository. We undertook a systems engineering analysis, which was reviewed by a panel of independent experts, to evaluate all possible alternatives and have narrowed them down to three. We will select a preferred alternative technology for treatment of the salt component of the high level waste this June, and the FY 2002 budget request supports continued construction of a pilot plant for that technology. The design and operational data gathered from this pilot project will support the design and engineering of the full scale Salt Processing Project facility by providing a research and development test bed.

The first shipment of Savannah River Site transuranic waste to the Waste Isolation Pilot Plant occurred in May 2001, followed by three more shipments in FY 2001, with shipping rates increasing to about one a month during FY 2002. Storage, treatment and disposal operations of low-level, mixed low-level, and hazardous wastes will continue, including on- and off-site recycling activities.

We will also continue to aggressively pursue the use of new technologies to characterize and clean up contaminated release sites and groundwater plumes. We are using the Vadose Zone Monitoring System to determine how fast and in what concentration contaminants are traveling to the groundwater. This approach provides sensitive early warning of aquifer contamination from the E-Area shallow disposal trenches. At the mixed waste management facility, we have begun using a phyto-remediation system to remove tritium from groundwater by the process of "evapo-transpiration" using trees and other indigenous vegetation. In FY 2002, we expect to complete key closures at the K Area Burning Rubble Pits and in the L and P Area Bingham Pump Outage Pits. We will complete remediation of five release sites, bringing the total count of sites remediated to 300, nearly 60 percent of the 515 release sites needing remediation. We will also operate eight groundwater treatment systems in six of eleven groundwater plumes at the site to remove and control contamination.

**3. Rocky Flats Environmental Technology Site, Colorado**

FY 2002 Request (in thousands):

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| Defense Closure, Site Closure | $628,577 |
| Defense Closure, Safeguards & Security | $ 35,423 |

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| Defense ER&WM, Science & Technology | $ 3,000 |
| Defense ER&WM, Program Direction | $ 23,199 |
| Total | $690,199 |

The accelerated closure of the Rocky Flats Environmental Technology Site is one of the Department's key initiatives. As the first major weapons-related facility to be cleaned up and closed, this project will offer a wealth of lessons-learned that will be applied to other sites in the complex. Similarly, the closure of Rocky Flats requires the implementation of innovative approaches and resolution of new project and policy issues.

One of the innovative approaches we have applied is the use of a cost-plus-incentive-fee closure contract. In January 2000 we awarded Kaiser-Hill, L.L.C. a closure contract valued at approximately $4 billion (excluding incentive fee payments) to complete the closure of the site. The contract identifies a target closure date of December 15, 2006, and includes incentives for accelerated completions and reductions in fee for any delay beyond this targeted date. In addition, the contract includes cost and schedule incentives focused on ensuring the cleanup is conducted safely and compliantly.

We are continuously working to ensure that safety is not compromised in our efforts to complete the cleanup scope as quickly and cost effectively as possible. The Department's Integrated Safety Management System (ISMS), an integral part of the closure contract, was implemented at Rocky Flats in January 2000. Since January 2001, both the Rocky Flats Field Office and Kaiser-Hill have been working to strengthen the site's safety posture. The site manager requested assistance reviews by the Office of Environment, Safety and Health, which were recently completed. The contractor has also recently completed a site-wide, ISMS-based safety improvement plan.

The contract also formalized DOE's commitment to site closure in that it identified specific activities contractually required by the Department to support closure. These activities are referred to as government-furnished services and items and largely include activities necessary to ship special nuclear materials and wastes off-site. For this reason, we are approaching the execution and management of this contract as a complex-wide project, and this has required us to develop some new management tools. During this first year of the contract execution, we have been working to "projectize" the activities required by the Department through the formulation of the Integrated Closure Project Baseline. This integrated baseline will provide the formality and structure necessary to ensure the Department meets its contractual commitments, as well as improve our means of managing the contract. The Integrated Closure Project Baseline highlights that the closure of Rocky Flats is truly a complex-wide project, requiring the support and coordination of a number of Departmental sites and programs. The effort has been fully supported by the contractor and the other programs and sites, and has received significant attention from external stakeholders, including the General Accounting Office (GAO).

In February 2001, GAO published their follow-on report assessing DOE's ability to complete the

closure of Rocky Flats in 2006. Overall, the report provides a thorough assessment of the challenges facing us, and also demonstrates the progress we have made towards closure. Whereas the initial assessment indicated a one percent chance of achieving site closure in 2010 (1999 report), this follow-on report concluded there is a 15 percent chance of reaching site closure in 2006 and a 98 percent chance of closure in 2008. As such, the GAO assessment is a powerful validation of the progress realized to date. The report also recognizes the value of the Integrated Closure Project Baseline, and provides useful recommendations for formalizing the responsibilities and authorities necessary to resolve any inter-organizational resource issues.

A key ingredient for closing Rocky Flats is being able to ship nuclear materials and waste off-site. This requires not only the preparation of the materials and waste for shipment, but ensuring the receiver sites and the necessary transportation services are available. We have made some very significant progress to date. We recently completed the shipment of classified plutonium metals to the Savannah River Site and Los Alamos National Laboratory. We also completed the Operational Readiness Review of the Plutonium Stabilization and Packaging System, which will package plutonium metals and oxides into approximately 2,000 containers, and expect to begin packaging operations later this month. These containers will be shipped to the Savannah River Site for storage beginning in August 2001. The disposition paths for the remaining nuclear material streams are being finalized through the integrated baseline development. We plan to ship certain weapons components to the Lawrence Livermore National Laboratory and highly enriched uranium, either contaminated or associated with plutonium to the Savannah River Site. With the proper coordination of receiver site preparation and transportation services (provided by Defense Programs), we hope to complete all nuclear material shipments by the end of calendar year 2002.

We have also made significant progress in the disposition of waste. In March 2001, we made our 100$^{th}$ transuranic waste shipment to WIPP. Rocky Flats to date has disposed of over 650 cubic meters of transuranic waste, more than any other site in the DOE complex. Currently, the site is completing an average of four shipments per week, and by year end will be nearing an average of nine shipments per week. In total, nearly 15,000 cubic meters of transuranic waste and about 100,000 kilograms of plutonium residues will be packaged and sent to WIPP. In FY 2000, we also nearly doubled our planned shipments of low-level waste for disposal.

The site's progress towards the reconfiguration of the site's Protected Area marks another significant accomplishment because it provides considerable productivity improvements. All special nuclear material on-site has been consolidated within Building 371, enabling us to close material access areas in the other major plutonium facilities. This has reduced the security requirements in those facilities, improving access for the workers performing the decontamination and decommissioning (D&D) in those buildings. We will fully implement the reconfiguration once all issues associated with the new alarm and detection systems are resolved. The reconfiguration of the Protected Area reduces safeguards and security requirements, increasing the total funding available to support actual cleanup activities.

DOE has also clearly made enormous progress in reducing risks at the site. About 80 metric tons of plutonium residues have been stabilized and/or repackaged to date. This represents 79 percent of the total. We have also completed the draining of 32 and removal of 30 liquid piping systems.

We continue to make progress in deactivating and decommissioning buildings. Early in FY 2000 we completed the demolition of Building 779, one of the five major plutonium facilities. Given that this facility once contained 133 contaminated gloveboxes, this achievement marked a significant milestone for the complex. We continue to apply the lessons learned from that demolition to the ongoing activities in the four remaining plutonium facilities. We have deployed an innovative technology called plasma-arc cutting for glovebox size reduction. This technology provides a significant reduction in worker risk and improved efficiency.

In the area of environmental remediation, we are using another innovative technology, a horizontal drilling technology, to characterize the contamination located under the buildings. This characterization information helps us coordinate remediation plans with the facility cleanup schedules to support the 2006 closure date. We continue to work closely with the regulators and stakeholders to refine the details of site cleanup. We expect the regulators will reach a decision on the final soil action levels late this calendar year. Through our integrated stakeholder focus group, we are working to address all the cleanup issues in an integrated fashion to ensure the aggregate impact to the project schedule and costs is considered.

The FY 2002 budget request supports the closure contract and the closure activities we have identified as necessary for accelerated closure, including many of the complex-wide activities required to provide the government-furnished services and items. It is important to note that activities included in other sites' and programs' budgets are also needed to support Rocky Flats closure – including the nuclear materials transportation services provided by Defense Programs, the storage operations at the Savannah River Site, waste treatment operations at the incinerator at Oak Ridge, waste disposal operations at the Nevada Test Site, and the availability of transuranic waste containers and trailers from WIPP.

Our FY 2002 request for Rocky Flats enables us to:

- Complete the stabilization and packaging of the plutonium residues;
- Continue the packaging and shipment of plutonium metals and oxides to Savannah River Site (620 containers);
- Ship over 25,000 cubic meters of radioactive waste for off-site disposal; and
- Complete the decontamination and decommissioning of 18 work sets.

**4. Idaho National Engineering and Environmental Laboratory, Idaho**

FY 2002 Request (in thousands):

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| Defense ER&WM, Site/Project Completion | $ 52,105 |
| Defense ER&WM, Post 2006 Completion | $276,551 |

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| Defense ER&WM, Science & Technology | $ 18,407 |
| Defense ER&WM, Safeguards & Security | $ 34,346 |
| Non-Defense EM, Site/Project Completion | $ 5,080 |
| Defense, Privatization | $ 89,332 |
| Subtotal | $475,821 |
| Use of Prior Year Balances (Defense) | $ (36,770) |
| Total | $439,051 |

The Idaho National Engineering and Environmental Laboratory (INEEL), a multi-program national laboratory with a significant cleanup mission, occupies 890 square miles of the eastern Snake River Plain in southeastern Idaho. INEEL combines a significant environmental and nuclear operations component with basic and applied research and development supporting the Department's four mission areas: Environmental Management, Energy Resources, National Security, and Science. INEEL operates under the sponsorship of EM, and has been designated a lead laboratory as well as a lead field site on long-term stewardship. The EM program provides critical infrastructure efforts at the site, referred to as "landlord" activities. In addition, the INEEL continues to serve important national security functions by receiving spent nuclear fuel from the Navy, and spent fuel from foreign research reactors that may contain weapons grade nuclear materials.

In total, most EM activities at the INEEL are regulated by enforceable agreements like the Idaho Settlement Agreement, the Federal Facility Agreement and Consent Order, the Site Treatment Plan and a 1999 Voluntary Consent Order. The Idaho Settlement Agreement guaranteed the government access to the INEEL for national security missions such as spent nuclear fuel examination and storage, in return for meeting specific waste treatment and disposal milestones. To date, the INEEL has met every milestone in the Idaho Settlement Agreement.

INEEL has approximately 65,000 cubic meters of waste contaminated with transuranic radionuclides that must be removed from the State of Idaho under the terms of the 1995 Settlement Agreement. This waste originated from weapons production at the former Rocky Flats Plant in Colorado. We continue to make progress in characterizing, certifying, and shipping the transuranic waste to the WIPP for disposal. A significant effort is underway to meet the Settlement Agreement milestone to ship the initial 3,100 cubic meters of transuranic waste out of the State of Idaho by the end of 2002. In FY 2000, we shipped 103 cubic meters of transuranic waste to the WIPP, exceeding our goal, and plan to ship 1,160 cubic meters in FY 2001 and 1,483 cubic meters in FY 2002. Progress also continues on the Advanced Mixed Waste Treatment Project, a privatization project that will greatly increase the INEEL's processing capability for this waste. Construction began in FY 2000 and will continue in FY 2001 and FY 2002. The facility is expected to begin operations in FY 2003. We are requesting $40 million in the FY 2002 privatization budget for this project.

INEEL plays a key role in meeting non-proliferation goals by providing safe storage and management of spent nuclear fuel from foreign research reactor and domestic sources, and currently manages more

than 50 percent by volume of the spent nuclear fuel in the entire DOE complex, constituting about 250 specific fuel types. We are actively improving storage conditions at the site, transferring fuel from wet to dry storage, or from aging facilities to modern, state-of-the-art facilities. For example, we have transferred all spent nuclear fuel in wet storage in the CPP-603 South Basin to improved storage facilities well in advance of the Idaho Settlement Agreement milestone date of December 31, 2000. We completed movement of Three Mile Island spent nuclear fuel and core debris from wet storage at Test Area North to dry storage at the Idaho Nuclear Technology and Engineering Center (INTEC) six weeks ahead of the June 1, 2001, Settlement Agreement milestone. DOE also awarded a privatization contract last year for the design, licensing, construction, and operation of a facility for the packaging and safe dry storage of other spent nuclear fuel at the INEEL. The contractor is now proceeding with the facility design and is scheduled to submit its license application to the Nuclear Regulatory Commission in FY 2002.

The FY 2002 budget request supports the management of high-level waste at INEEL including about 1.2 million gallons of liquid sodium-bearing waste stored in 11 underground tanks, and about 4,300 cubic meters of calcined mixed high-level waste in separate robust temporary storage bin sets. As of June 2001, the volume of liquid sodium-bearing waste will be reduced by 250,000 gallons through evaporation and consolidation of tank contents. A draft environmental impact statement (EIS) for high-level waste treatment alternatives has been issued, and a final EIS and Record of Decision are planned for the end of 2001. We have deployed the Light Duty Utility Arm in two high-level waste tanks, one of a suite of innovative technologies that can inspect, sample, and retrieve waste remotely through openings in the tank dome. In this case, we visually inspected the tank interior and obtained samples of the tank waste. We are moving forward in FY 2002 to inspect and obtain samples from two additional tanks. In addition, we continue to treat and dispose of low level and mixed low level wastes in compliance with regulatory commitments with the State of Idaho.
One of the most complex challenges at INEEL is the remediation of buried wastes, contaminated release sites, contaminated soils, and ground water, which is governed by the Federal Facilities Agreement/Consent Order. A key goal is to eliminate the threat these contaminants pose to the Snake River Plain Aquifer, a sole-source aquifer underlying the site that provides drinking water to a quarter of a million people and serves as a critical source of irrigation water for Idaho's agricultural industry. Our environmental restoration program continues to make progress in assessing and remediating these areas of contamination. The INEEL made progress on the Pit 9 buried waste project, with the insertion of 43 probes into the pit. These and other probes will provide data for the comprehensive study that will support selection of a final cleanup remedy for all the buried waste in the Subsurface Disposal Area.

We are applying bioremediation techniques at Test Area North to clean up the ground water plume at the injection well and continuing pump-and-treat operations for the extended plume. At the Test Reactor Area, we will complete remediation of all identified release sites in FY 2001, two years ahead of schedule. At INTEC, with the signing of the Record of Decision in FY 1999, we are undertaking the complex process of remediating soil and groundwater release sites while continuing to operate INTEC for spent fuel storage and waste management missions. In addition, we will continue design

and construction of the Idaho CERCLA Disposal Facilities for the storage/treatment and disposal of contaminated soils generated in the cleanup of INTEC and other contaminated sites at the INEEL.

The INEEL will continue to perform world-class scientific research and development, technology demonstration and deployment, and systems analysis and integration in FY 2002. The goal of this effort is to ensure a sound scientific basis for decision-making and full integration of science and technology into INEEL and EM operations. To date, INEEL has deployed nearly 100 technologies in its cleanup operations, leading to reduced cost, improved worker safety, schedule acceleration, and lower risks. In FY 2002, deployments are planned to support each major cleanup program at INEEL.

**5. Oak Ridge Reservation, Tennessee**

FY 2002 Request (in thousands):

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| Defense EM, Privatization | | $ 36,876 |
| Defense ER&WM, Post 2006 Completion | | $244,102 |
| Defense ER&WM, Science & Technology | | $ 10,695 |
| Defense ER&WM, Safeguards & Security | | $ 11,476 |
| Defense ER&WM, Excess Facilities | | $ 500 |
| Defense ER&WM, Program Direction | $ 18,740 | |
| Non-Defense EM, Excess Facilities | | $ 141 |
| Uranium Facil Main & Rem, Other Uranium Activ | | $ 12,809 |
| Uranium Facil Maint & Rem, UE D&D Fund | $ 65,538 | |
| Uranium Facil Maint & Rem, UE D&D-DUF6 | $ 10,000 | |
| Total | | $410,877 |

The Oak Ridge Reservation (ORR) is comprised of three facilities -- the Y-12 Plant, the East Tennessee Technology Park (ETTP) (formerly the Oak Ridge K-25 uranium enrichment facility), and the Oak Ridge National Laboratory (ORNL). Funding for EM activities at Y-12 and ORNL is primarily funded in Defense accounts. Funding for the cleanup of ETTP comes from both the Defense and the Uranium Facilities Maintenance and Remediation accounts.

At ORNL, we continue the decommissioning of the Molten Salt Reactor Experiment, an experimental nuclear reactor designed to use a fuel of highly-reactive uranium-233 blended with a molten salt coolant. After four and a half years of operation, the reactor was shut down in December 1969. We have made substantial progress, with input from the National Academy of Sciences, in stabilizing and deactivating this reactor. For example, we have installed and continue to operate a system to remove reactive gases from the reactor tanks and keep the reactor systems below atmospheric pressure until the fuel salt can be removed. In FY 2001, we completed fabrication and testing of uranium conversion equipment; completed the planning, major equipment design and documentation for fuel salt removal, and removed about 14 inches of Uranium-233 bearing material from the charcoal filter bed. In FY 2002, we will continue conversion of uranium captured in the sodium fluoride traps to a stable oxide for repackaging and storage, and will begin flushing and fuel salt removal.

In FY 2001, we completed transferring waste from eight highly radioactive waste storage tanks, called the "Gunite Tanks," at ORNL. The tanks were built in 1943 and were used for waste from chemical separations operations until the late 1970's. The tanks vary in size, with most having a capacity of 170,000 gallons (approximately the size of a 4-bedroom house). The cost of the project was $80 million, less than half the original estimate of $200 million. A key factor in the accelerated schedule has been the development of a variety of remote remediation technologies, such as the "Houdini" vehicle and a robotic arm that provides access to the tank interior. This remotely operated equipment eliminated the need for workers to be placed at risk while performing cleanup, while allowing the work to proceed more efficiently. The robotic equipment will be reused to enhance the cleanup of similar tanks at other sites. In FY 2002, we plan to continue stabilization of the Gunite tank shells.

The request supports continued operation of the incinerator at Oak Ridge, which is permitted by the State to treat mixed radioactive and hazardous wastes regulated by the Resource Conservation and Recovery Act and by the EPA to treat PCB-contaminated wastes regulated under Toxic Substances Control Act (TSCA). This facility offers unique existing treatment capability for the DOE complex and is a vital DOE treatment asset. In addition to treating wastes generated by Oak Ridge facilities, it has also been used to treat wastes from other DOE sites. It provides a cost-effective and integrated approach to reducing the risk and managing these wastes.
The FY 2002 request supports two privatization projects at Oak Ridge. Construction of a facility to prepare transuranic waste to prepare waste for disposal at WIPP and for low-level waste at the Nevada Test Site began in FY 2001 and is scheduled to be completed in November 2002, allowing operations to begin in FY 2003. The Environmental Management Waste Management Facility is an on-site disposal cell with a capacity up to 2 million cubic yards of contaminated soils and debris resulting from cleanup and D&D actions at the site. Construction is currently scheduled to be completed late in 2001.

In FY 2002, the Department will continue its effort to reindustrialize facilities in Oak Ridge, particularly at ETTP. The goal is to clean up ETTP as quickly and as safely as possible so that the site can be reused as an industrial park. As of December 2000, about 6,300,000 square feet of space have been leased to 35 private companies in a total of 71 separate leases. In some cases, the Department has conducted cleanup of the building and, in other cases, the private company is undertaking the cleanup. Overall, we estimate that this strategy will save $182 million in life-cycle costs.

We are making good progress on the Department's largest ever decommissioning project at ETTP. Cleanup of K-33, the first DOE uranium enrichment facility to be decommissioned, is already 60 percent complete as of March 2001. This first building will be finished in FY 2002 and will then be readied for private sector reuse. The K-33 building and two other buildings are being decommissioned under a fixed price contract with BNFL, Inc. The project has turned the corner, and is currently making up for previous schedule delays. The largest supercompactor in the United States is now operating and is helping to minimize waste disposal volumes.

The Department's moratorium on releasing into commerce recycled metals from radiological areas remains in effect, continuing to impact the BNFL project cost. These restrictions are expected to remain pending decisions made after completion of an Environmental Impact Statement. DOE has minimized impacts by purchasing metals destined for recycling and storing them for possible future release.

Our FY 2002 request for Uranium Programs at ETTP supports surveillance and maintenance of the inventory of 4,700 cylinders of depleted uranium hexafluoride ($DUF_6$) and 2,500 other surplus uranium cylinders at ETTP. We are managing the cylinders at ETTP and the other gaseous diffusion plants in Ohio and Tennessee consistent with the consent agreements with the affected states and with Defense Nuclear Facilities Safety Board's Recommendation 95-1, which was closed in December 1999 when the Board determined the Department had met all of the relevant commitments.

The FY 2002 request includes $10 million in the Oak Ridge Account to proceed with the project to chemically convert the Department's inventory of $DUF_6$ into a more stable form that would make it acceptable for reuse, if applications for the material are found, or for disposal. Early in FY 2001, the Department issued the final Request for Proposals to design, construct and, for the first five years, operate conversion facilities at Paducah and Portsmouth. Initially scheduled to be awarded at the end of FY 2001, we now expect to award the contract early in FY 2002 due to the number of proposals received and the complexity of the technical and business evaluations. In FY 2002, DOE is requesting $10 million for the conversion project and plans to allocate an additional $12 million to this amount from funds obtained under Memoranda of Agreement (MOA) with USEC. The Department is committed to keeping this project on track to begin construction by January 2004, consistent with the schedule provided in Public Law 105-204.

**6. Fernald Environmental Management Project, Ohio**

FY 2002 Request (in thousands):

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| Defense Closure, Site Closure | $285,299 | |
| Defense Closure, Safeguards & Security | | $ 4,701 |
| Defense ER&WM, Science & Technology | | $ 255 |
| Total | | $290,255 |

The Fernald site, encompassing approximately 1,050 acres near Cincinnati, produced uranium for nuclear weapons from 1951 to the end of the Cold War in 1989. Nearly 40 years of uranium production at Fernald resulted in soil and groundwater contamination, a large backlog of wastes, including some unstable liquids, as well as stored nuclear materials such as depleted and enriched uranium. Several years of cleanup progress have included stabilization of liquid uranium solutions, off-site shipment of low level radioactive wastes, on-site disposal of contaminated soils and debris, and deactivation, decontamination and demolition of several large industrial buildings at Fernald.

Achieving the closure of its two major sites, the Fernald and Rocky Flats sites, is a high priority for the Department. At Fernald, the Department entered into a closure contract with Fluor Fernald on November 20, 2000, whereby the contractor is given incentives to complete site cleanup before the contractual completion date of December 31, 2010. The contractor can earn maximum incentive fees by achieving closure by December 2006. Long-term stewardship, including continued groundwater remediation and long-term institutional controls, will be necessary after active cleanup is completed.

Our record at Fernald demonstrates that we will not compromise safety in our efforts to complete the cleanup quickly and cost effectively. In January 2001, DOE's Office of Environment, Safety and Health awarded the Fernald Environmental Management Project STAR recognition status in the Voluntary Protection Program. This DOE program promotes safety and health excellence through cooperative efforts among labor, management, and government at DOE sites. Contractors that meet the requirements for outstanding performance receive STAR recognition. STAR status is the highest safety performance and program honor that can be achieved.

New technology deployments at Fernald are resulting in significant project cost and schedule savings. For example, a variety of technologies are being used to provide real-time identification of radioactive contaminants in the soil. This rapid characterization reduces the amount of soil excavated and improves worker productivity. These technologies are estimated to reduce remediation costs by over $30 million. A groundwater re-injection demonstration project has accelerated cleanup of the Great Miami Aquifer. Current analysis indicates that the re-injection technology will reduce treatment time from 27 to 10 years, resulting in a cost savings of an estimated $14 million.

The On-site Disposal Facility allows for accelerated disposal of contaminated soil and debris resulting from cleanup and building demolition at a significant cost savings. In FY 2000, we disposed of more than 255,000 cubic meters of waste, contaminated soil, and debris in the facility, including the

completion of waste placement in Cell 1 and start of waste placement in Cell 3. In FY 2001, the placement of a permanent cap on Cell 1 will be completed, and approximately 45,000 cubic meters will be placed in Cells 2 and 3. In FY 2002, the disposal facility will continue to be monitored and maintained.

The Silo 3 pre-operations/treatment activities continued in FY 2000, and the design and construction of the Tank Transfer Area/Waste Retrieval System, and Radon Control Systems was initiated. In FY 2001, pre-operational activities for Silo 3 remediation are continuing, construction of the Radon Control System continues, and plans for the Silo 4 mock-up testing of the Waste Retrieval System are being developed. In FY 2002, Silo 3 operations will begin, construction of the Silos 1 and 2 Tank Transfer Area/Waste Retrieval System and Radon Control System will proceed, and the Silos 1 and 2 full-scale remediation project will continue.

Removal of wastes and materials from the site is critical to closure. We are shipping uranium to the Portsmouth Gaseous Diffusion Plant in Ohio, with over 100 metric tons of uranium transferred to date. We are currently on schedule to complete the disposition of all nuclear product material by June 2002. We are also shipping waste off-site for disposal. As of May 2001, thirty-eight unit trains of rail cars loaded with treated waste have left the Fernald site for disposition at a permitted commercial disposal facility.

We continue to make great progress in the demolition of deactivated and decontaminated industrial buildings. Approximately 90 of the over 250 structures that require decontamination and demolition have been completed. We will complete cleanup of the Plant 6 Complex in FY 2002, and begin work on the Multi-complex and Lab/Pilot Plant Complex. In addition, the facility shutdown of the non-nuclear facilities onsite will continue in FY 2001 and FY 2002. Facility shutdown includes disconnecting utilities on process equipment and structures; and removing and dispositioning of residues, process material, and equipment as required.

As remediation proceeds at Fernald, we are carrying out natural resource restoration projects and demonstrations using plantings similar to what historically and naturally occurs in the area, and incorporating a diverse variety of vegetation to promote wildlife colonization. Through FY 2000, 31 acres were restored, and an additional 40 acres are planned for FY 2001. In FY 2002, the Area 1 Phase III Northern Woodlot/Wetland Mitigation project will be completed, restoring 103 acres, the largest land restoration project to be completed to date.

**7. Waste Isolation Pilot Plant, New Mexico**

FY 2002 Request (in thousands):

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|---|---|
| Defense ER&WM, Post 2006 Completion | $164,570 |
| Defense ER&WM, Safeguards & Security | $ 2,550 |
| Defense ER&WM, Program Direction | $ 8,510 |
| Total | $175,630 |

Operating WIPP is a key element of the Department's strategy to provide for the permanent disposal of the Department's inventory of radioactive waste. WIPP is critical to achieving site closure at the Rocky Flats Environmental Technology Site by December 2006 and to the closure or cleanup of 26 other sites in the DOE complex that store or generate transuranic waste. The total volume of transuranic waste currently managed by DOE (stored and projected) is estimated to be 171,439 cubic meters, of which 167,412 cubic meters is contact-handled (CH-TRU) transuranic waste and 4,027 cubic meters is remote-handled (RH-TRU) transuranic waste. By shipping this waste to WIPP for disposal, the Department will be able to reduce the number of sites where this type of waste is stored, reduce the management costs of this waste, and reduce the long-term risks to the public and the environment.

On March 26, 1999, WIPP began operations, receiving its first shipment of transuranic waste from Los Alamos National Laboratory, subsequently followed by shipments from the Idaho National Engineering and Environmental Laboratory (INEEL) and Rocky Flats. The State of New Mexico issued the final Hazardous Waste Facility Permit, with an effective date of November 26, 1999, enabling WIPP to receive mixed hazardous and transuranic waste, and all five of the major shipping sites (Rocky Flats, INEEL, Hanford, Savannah River Sites, and Los Alamos) are certified under the permit to ship transuranic waste to WIPP. The Hanford Site began shipments in FY 2000, and the Savannah River Site began shipments in FY 2001. As of the end of May 2001, there have been 235 shipments to WIPP totaling about 1628 cubic meters of waste.

The Department currently transports CH-TRU waste in Nuclear Regulatory Commission certified packages called TRUPACT-II's. To support increased shipping requirements, DOE is procuring additional TRUPACT-II's. The Department ordered the fabrication of a newly developed container called the HalfPACT to transport heavier-than-average drums of CH-TRU waste under the current TRUPACT-II fabrication contracts. RH-TRU waste requires a shielded cask for safe transportation. The Department will transport the RH-TRU waste in a certified cask called the RH-72B. Contracts were awarded in August 2000 to two vendors to fabricate a total of 12 RH-72B casks. The Department will use FY 1999 privatization funds to procure the casks. The FY 2002 budget request includes no funds for this project.

In FY 2001, the Department awarded a new performance-based Site Management and Operating Contract for WIPP. The Carlsbad Field Office's management and operating contractor assists the Department in managing the activities of the WIPP facility and the National Transuranic Waste Management Program; therefore, the selection of a qualified management and operating contractor for WIPP is not only crucial to WIPP but also to DOE's mission and goals.

In FY 2001, DOE revised the Record of Decision on treatment and storage of transuranic waste. The Department has decided to establish a centralized characterization capability at WIPP to prepare CH-TRU waste for disposal (up to 1,250 of the 7,000 cubic meters planned to be received for disposal annually). The New Mexico Environment Department must approve a modification of WIPP's Hazardous Waste Facility Permit before the Department could perform disposal characterization at

WIPP. By conducting centralized characterization the Department will avoid the necessity of constructing characterization facilities at the small quantity sites.

During FY 2002, WIPP expects to receive CH-TRU waste shipments from Rocky Flats, INEEL, the Los Alamos National Laboratory, the Savannah River Site, Argonne National Laboratory-East, and limited shipments from other sites. We plan to increase shipments from the Savannah River Site to WIPP by using mobile facilities to prepare the waste for shipment. This will allow receipt of Mound transuranic waste at the Savannah River Site, as agreed with the State of South Carolina, to support early closure of the Mound Site.

WIPP will continue activities in FY 2002 to support the first receipt of RH-TRU waste. The Department must receive New Mexico Environment Department and the U.S. Environmental Protection Agency approvals before RH-TRU waste can be disposed of.

The funding request for FY 2002 includes $21.5 million to provide economic assistance to the State of New Mexico, as authorized by the WIPP Land Withdrawal Act. The WIPP program also funds a variety of institutional programs that provide for operational oversight and other assistance for affected governments and stakeholder groups.

The Carlsbad Field Office, working with the Office of Science and Technology, will continue to apply innovative science and technology solutions that facilitate receipt of transuranic waste and promote cost savings in the National Transuranic Waste Management Program.

**8. Nevada Test Site, Nevada**

| FY 2002 Request (in thousands): | |
|---|---|
| Defense ER&WM, Post 2006 Completion | $74,843 |
| Defense ER&WM, Science & Technology | $ 2,429 |
| Defense ER&WM, Program Direction | $ 5,656 |
| Total | $82,928 |

The Nevada Test Site (NTS) is located 65 miles North of Las Vegas and encompasses 1,375 square miles (an area roughly the size of Rhode Island). The EM program undertakes waste management activities and environmental restoration actions resulting from past DOE nuclear testing activities at NTS.

NTS plays a crucial role for other DOE sites as one of the major low-level radioactive waste disposal facilities in the DOE complex. In FY 2000, the NTS disposed of 18,267 cubic meters of low-level waste and 29 cubic meters of mixed low-level waste. This year's projections are 28,500 cubic meters of low-level waste. NTS disposal operations are critical to closing other DOE sites. For example, Rocky Flats and Fernald will dispose of more than 38,000 cubic meters of low-level waste at NTS to support their closure.

We are working with the State of Nevada to acquire the required permits and to increase capacity for mixed low-level waste disposal at NTS as a result of the February 2000 Record of Decision designating NTS as a regional disposal facility for DOE low-level and mixed wastes. Work is also proceeding on the characterization of transuranic waste drums, in preparation for shipment to the Waste Isolation Pilot Plant, to begin in FY 2002.

Progress continues in the Underground Test Area to address groundwater contamination through installation of groundwater wells, monitoring activities, and modeling efforts. We installed and sampled three deep wells in FY 2000. The corrective action strategy for NTS groundwater contamination was also renegotiated in FY 2000 with the State of Nevada, and have implemented actions to address regulator and stakeholder concerns.

The cleanup of NTS Industrial Sites area that supported the historic nuclear testing continues on schedule. To date, corrective actions have been completed at over half of the 1,068 release sites. Negotiations are continuing with the State of Nevada on corrective action levels for cleanup of soils, which were contaminated primarily by above-ground testing. The start of corrective actions for soils cleanup has been deferred, pending negotiations.

Project baselines have been reviewed with the regulators and stakeholders and fully identify the planned implementation of corrective measures for the various Nevada projects. These baselines include long-term stewardship obligations and emphasize the use of innovative technologies, such as the deployment of laser cutting for oversized TRU boxes, and an alternative arid landfill cover and monitoring system.

**9. Los Alamos National Laboratory, New Mexico**

FY 2002 Request (in thousands)

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|---|---|
| Defense ER&WM,, Post 2006 Completion | $73,182 |
| Defense ER&WM,, Science & Technology | $ 2,538 |
| Non-Defense EM, Post 2006 Completion | $ 2,500 |
| Total | $78,220 |

The Los Alamos National laboratory is a 43 square mile research and development site located 60 miles northeast of Albuquerque, New Mexico. Through FY 2001, the Department expects to complete remediation of 1,302 of 1,942 “release sites,” or specific areas where releases of contaminants had occurred, and decommission 36 out of 101 surplus facilities. We plan to complete cleanup of one additional release site in FY 2002.

Approximately half of the FY 2002 funding request for Los Alamos is devoted to environmental restoration work, such as drilling new regional ground water wells to characterize the hydrogeology and cleanup work in multiple watersheds. Although no EM funds in FY 2002 directly support the project to transfer land to the community, a joint project with the Office of Defense Programs, other Los Alamos cleanup work, such as the source removal actions at high risk sites at the TA-21 parcel and

some of the characterization work in the canyons, will support the transfer of parcels in future years. At this point, cleanup work has been completed at four of the 10 parcels proposed to be transferred.

The EM program provides for the treatment, storage, and disposal of all legacy waste that is presently stored at the Los Alamos National Laboratory. The legacy waste consists of mixed low-level waste, transuranic waste, and mixed transuranic waste generated at 33 Technical Areas and is treated, stored. Los Alamos has accelerated the treatment and disposal of legacy mixed low-level waste and retrieval of legacy transuranic waste (both transuranic and mixed transuranic) stored on asphalt pads under earthen cover, and now expects to complete these activities a year earlier than previously planned. Treatment and disposal of legacy mixed low-level waste with an identified path for disposal is now planned to be completed in FY 2003. Retrieval of legacy transuranic and mixed transuranic waste stored on Asphalt Pads 1 and 4 has been completed. Retrieval of waste drums on Pad 2 began in FY 2000 with completion scheduled for FY 2002.

In March 1999, Los Alamos National Laboratory became the first DOE site to ship transuranic waste to WIPP. Los Alamos plans to make 19 shipments to WIPP in FY 2001, bringing the total number of shipments or quantities of waste shipped to 41 which includes transuranic waste from the Office of Environmental Management and DOE's Office of Defense Programs.

The Department designated Los Alamos as the lead laboratory for research and development efforts to support DOE's nuclear materials management. In this capacity, Los Alamos provides solutions to complex-wide technical and operational issues associated with stabilization and storage of plutonium and other nuclear materials. LANL also manages the Off-Site Source Recovery Program for the recovery and storage of more than 5,500 commercial sealed radioactive sources, as well as Department of Defense sources and radioisotopoic thermoelectric generators. The program began full operations in FY 2001 and to date has recovered more than 1,100 private sector sealed sources and brought them to LANL for storage. We expect to recover over 2,000 sources by the end of FY 2001, and an additional 1,000 sources in FY 2002.

**10. Miamisburg Environmental Management Project (Mound)**

FY 2002 Request (in thousands):

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|---|---|
| Defense Closure, Site Closure | $70,939 |
| Defense Closure, Safeguards & Security | $ 5,778 |
| Total | $76,717 |

The Miamisburg Environmental Management Project, a 306-acre facility near Dayton, Ohio used for tritium and plutonium operations, consists of 152 buildings and approximately 230 potentially contaminated soil areas. By the end of FY 2001, over one-half of the 107 buildings scheduled for removal will have been demolished or auctioned for off-site use, a quarter of the 42 buildings scheduled to be transferred to the Miamisburg Mound Community Improvement Corporation will have been decommissioned and decontaminated, and two-thirds of the soil release sites will have been

remediated. We still have a goal of completing cleanup of the site by 2006; however, changing conditions and increased scope are making a closure date of several years later more likely. Expanded project scope, especially in the excavation of greater quantities of contaminated soils, has significantly impacted cost and schedule. Worker health and safety issues at various times have seriously curtailed work in the "critical path" areas while additional personal radiation protection equipment to address these concerns has contributed to increased project cost.

We continue to make progress towards closure. In FY 2000, Mound completed the disposition of its excess nuclear materials, most of which were sealed sources used to calibrate and test equipment. The site also completed the decontamination or demolition of four buildings and the remediation of five contaminated soil areas in FY 2000, and will complete three buildings and the assessments of six contaminated soil areas in FY 2001. We are shipping low-level radioactive waste off-site for disposal, approximately 18,000 and 13,000 cubic meters in FY 2000 and 2001 respectively. And in FY 2001, Mound will begin off-site disposition of its transuranic waste to the Savannah River Site for interim storage and eventual repackaging and shipment to WIPP.

In FY 2002, Mound will complete shipments of its transuranic waste as well as disposition of all remediation-generated waste. Groundwater remediation will continue, and up to nine contaminated soil areas will be assessed for remedial action. In addition, cleanup will continue on the site's most contaminated buildings, including the tritium operations facilities that comprises three highly contaminated and complex buildings.

In 1998, the Department signed an agreement to transfer ownership of the site to the Miamisburg Mound Community Improvement Corporation as remediation of discrete parcels are completed. To date, the Department has transferred two buildings and 122 acres, and another five acres and two buildings will be deeded over in the next few months, bringing the total acreage transferred to 40 percent of the site. Currently, 31 private businesses employing 342 workers are co-located at Mound in leased or transferred property. The Department's radioisotope heat source program, managed by the Office of Nuclear Energy, Science and Technology, will remain at Mound after the rest of the site is transferred. The program will retain use of three of the site's buildings.

**11. Lawrence Livermore National Laboratory, California**

| FY 2002 Request (in thousands): | |
|---|---|
| Defense ER&WM, Post 2006 Completion | $32,317 |
| Defense ER&WM, Science & Technology | $ 910 |
| Defense ER&WM, Site/Project Completion | $ 762 |
| Total | $33,989 |

The Lawrence Livermore National Laboratory consists of the Livermore Main Site, an operating weapons research and development laboratory; and Site 300, located about 15 miles east of the Livermore Main Site, which is used to test high explosives and other technologies for defense

programs. The EM program is responsible for management of both legacy waste and waste generated from on-going operations. It also is responsible for site remediation, which includes cleanup of hazardous contaminant releases to the soil and ground water contamination at the Livermore Site, and releases of hazardous and radioactive materials to soil and ground water from landfills, drum storage areas, and dry wells at Site 300. Both sites are listed on the Superfund National Priorities List and have cleanup agreements with U.S. Environmental Protection Agency and the State of California.

At the Livermore Main Site, we have used an aggressive cleanup strategy to contain and extract groundwater contaminants that uses enhancements to pump-and-treat technology, supplements the existing permanent treatment system network with portable treatment units, and emphasizes specific source area removal. In FY 2000 we continued to install portable treatment units to treat specific areas of the site. In FY 2001, we applied an electro-osmosis technology to our treatment system strategy to attempt to remove groundwater contaminants from fine grained sediments more effectively. In FY 2002, groundwater treatment systems will continue to operate to maintain control of off-site migration of the Western boundary plume.

In FY 2000, we completed testing of the Molten Salt Oxidation unit for treating mixed low-level and hazardous waste and have awarded a contract to a commercial vendor who will own and operate the treatment unit to treat waste. In FY 2001, we will complete construction of the Decontamination and Waste Treatment Facility, a treatment system for mixed low-level waste, and begin operational testing. In FY 2002, we will continue to operate waste treatment, storage and disposal facilities and prepare documentation for closure of old waste storage facilities.

At Site 300, the Department has focused on removal actions such as capping the Pit 6 Landfill to control release, getting groundwater treatment systems in place to contain off-site plume migration, and characterizing the contamination at the site. In FY 2000, we finalized plans and schedules for site-wide cleanup of the site and will begin design work in FY 2001. We will also begin operation of an innovative groundwater treatment system in a canyon in the southeast part of the site using the Iron Filing/Geosyphon technology to remediate high concentrations of contaminants in groundwater. In FY 2002, we will continue operation and maintenance of existing treatment facilities and soil vapor extraction units and will complete remedial design for several of the operable units.