

# Site/Project Completion

## Program Mission

The Defense Site/Project Completion account provides funding for projects that are expected to be completed by FY 2006 at sites or facilities where a Department of Energy (DOE) mission will continue (e.g., environmental management or nuclear weapons stockpile stewardship) beyond FY 2006. Hence, this account focuses on the completion of specific Environmental Management (EM) projects at sites where the Department anticipates continuing missions.

This program account includes projects and sites under the following Operations Offices: Albuquerque, Idaho, Oakland, Richland, and Savannah River. Although the largest amount of funding for Site/Project Completion activities is in the Defense Environmental Restoration and Waste Management appropriation, a greater number of sites in this account are funded under the Non-Defense Environmental Management appropriation.

In a limited number of cases, sites have been placed in the Site/Project Completion account even though there is no expectation of a continuing mission after cleanup is completed. In these instances, use of the Site Closure account would have created an additional appropriation control for an Operations/Field office with a limited amount of associated funding, thereby hindering managerial flexibility in the execution of projects at these sites.

## Program Goal

Accelerating cleanup and project completion are the central goals of the EM program. Environmental Management sites are working to reduce outyear costs by completing projects in the quickest, most efficient manner possible, thereby reducing life-cycle costs and schedules. For those sites funded within the Site/Project Completion account, the goal of the EM program is to complete as many projects as possible by 2006. The FY 2001 request continues to support this goal.

## Program Objectives

- # Manage environmental cleanup projects for which EM has established the goal of completion by 2006 at EM sites where overall site cleanup will not be fully accomplished by 2006.
- # Manage environmental cleanup projects at DOE sites where EM has established the goal of completion of all EM projects by 2006 (except for long-term stewardship activities), but where there will be a continuing Federal workforce at the site to carry out enduring missions.

## Performance Measures

Environmental Management prepares a performance-based budget that demonstrates the program and project results expected for the resources requested. Environmental Management program performance measures can be found in the site details that follow this overview.

## Significant Accomplishments and Program Shifts

The FY 2001 request reflects the EM's project-oriented structure as a key component of the effort to accelerate cleanup and reduce costs. All EM activities are organized into projects which have a defined scope, schedule, cost, and end state. Specific accomplishments and program shifts may be found in the site details that follow this overview.

### Funding Profile

(dollars in thousands)

	FY 1999 Current Appropriation	FY 2000 Original Appropriation	FY 2000 Adjustment s	FY 2000 Current Appropriation	FY 2001 Request
Site/Project Completion, Defense . . . . .	1,032,762	984,592	-26,123	958,469	972,376
Add-Back of Proposed Supplemental . . . . .	0	0	13,000	13,000	0
Subtotal, Defense Site/Project Completion . . . . .	1,032,762	984,592	-13,123	971,469	972,376
Y2K Supplemental . . . . .	10,340	0	0	0	0
Contractor Travel Savings . . . . .	0	0	0	0	-1,425
Total, Defense Site/Project Completion . . . . .	1,043,102	984,592	-13,123 <sup>a</sup>	971,469	970,951

#### Public Law Authorization:

- Public Law 106-60, "The Energy and Water Development Appropriations Act, 2000"
- Public Law 95-91, "Department of Energy Organization Act (1977)"
- Public Law 103-62, "Government Performance and Results Act of 1993"
- Public Law 106-65, "The National Defense Authorization Act for Fiscal Year 2000"

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<sup>a</sup> Reflects spread of Congressional below-the-line reductions, approved reprogrammings, reduction for proposed supplemental, hold of the Fast Flux Test Facility reprogramming sources, and congressional rescission.

## Funding by Site

(dollars in thousands)

	FY 1999	FY 2000	FY 2001	\$ Change	% Change
Albuquerque Operations Office . . . . .	58,555	51,555	67,346	15,791	30.6%
Idaho Operations Office . . . . .	112,059	106,285	100,692	-5,593	-5.3%
Oakland Operations Office . . . . .	51,920	47,719	2,000	-45,719	-95.8%
Richland Operations Office . . . . .	329,461	368,418	349,467	-18,951	-5.1%
Savannah River Operations Office . . . . .	479,579	395,095	452,871	57,776	14.6%
Headquarters . . . . .	1,188	457	0	-457	-100.0%
Subtotal, Defense Site/Project Completion .	1,032,762	969,529	972,376	2,847	0.3%
Y2K Supplemental . . . . .	10,340	0	0	0	0.0%
Fast Flux Test Facility Reprogramming Sources . . . . .	0	1,940	0	-1,940	-100.0%
Contractor Travel Savings . . . . .	0	0	-1,425	-1,425	>999.9%
Total, Defense Site/Project Completion . . .	1,043,102	971,469	970,951	-518	-0.1%

# Albuquerque

## Mission Supporting Goals and Objectives

### Program Mission

The mission of the Defense Environmental Management, Site/Project Completion Program, carried out by the Albuquerque Operations Office, is to support cleanup activities at seven geographic sites in six states. These sites include the Kansas City Plant in Missouri; the Pantex Plant in Texas; the Sandia National Laboratory sites in California and New Mexico; the Maxey Flats site in Kentucky; the Pinellas Plant in Florida; and the South Valley Superfund Site in New Mexico.

The Albuquerque Operations Office also has responsibility for miscellaneous programs such as the Waste Management Education and Research Consortium, Historically Black Colleges and Universities, Innovative Treatment Remediation Demonstration Program, Norfolk State University Center for Materials Research, and Agreement in Principle with Texas.

### Program Goal

The Albuquerque Operations Office goal is to complete cleanup of all geographic sites under its cognizance in this account by FY 2006. The cleanup of the Sandia National Laboratories/California site was completed in FY 1999; the cleanup of the Pantex Plant will be completed in FY 2001 pending approval of state regulator; the Sandia National Laboratories/New Mexico site will be completed in FY 2003, and the cleanup of the Kansas City Plant is planned to be completed in FY 2004. These sites have continuing Defense Programs missions. Groundwater remediation, the only remaining cleanup activity at the Pinellas Plant will continue to about FY 2014. The DOE's responsibility as a potentially responsible party for the Comprehensive Environmental Response, Compensation, and Liability Act-required remedial action activities at the Maxey Flats Disposal Site will be satisfied by FY 2003, when the last potentially responsible party payment is made.

### Program Objectives

Historically, the Albuquerque Operations Office's primary mission has been to manage sites that were involved in the research, development, production and maintenance of nuclear weapons.

The objective of the program is complete all identified restoration and waste disposition. Nearly all of the land is expected to be available for other programmatic uses by FY 2004, with monitoring continuing at several sites.

## **Performance Measures**

Performance Measures are provided at an aggregate level after each table, entitled Funding by Site, as well as at the project level in the Detailed Program Justification section.

The Executive Budget Summary and the Metrics Summary provide a consistent set of high-level performance measures. The more detailed project-level justification provides a description of significant activities for each project including detailed project performance measures and key project milestones, as applicable.

## **Significant Accomplishments and Program Shifts**

### **Kansas City Plant**

- # Completed and implemented a transition plan for long-term surveillance and maintenance responsibilities to be transferred following completion of the restoration program to the landlord (Defense Programs) in FY 2004 (FY 1999).
- # Completed all Environmental Protection Agency required investigative activities for the 95th Terrace Site and resubmitted the Resource Conservation and Recovery Act Facility Investigation Report proposing no further action (FY 1999).
- # Completed groundwater treatment analysis to determine effectiveness of Iron Filing Wall for in-situ treatment and containment of contaminated plume (FY 1999).
- # Completed transition from Environmental Protection Agency Consent Order to Missouri State Post Closure Permit (FY 1999).
- # Complete Corrective Measures Study for the 95<sup>th</sup> Terrace Site (FY 2000).
- # Complete all implementation of institutional control corrective measures at multiple sites (FY 2000).
- # Complete corrective actions to stop contamination leak around the southern end of the Iron Wall project (FY 2000).
- # Complete Iron Wall Monitoring Report Addendum and continue Iron Wall investigation (FY 2000).
- # Complete multiple Post Closure Permit Documents (FY 2000).

### **Pantex Plant**

- # Transitioned waste management responsibilities for newly generated waste at Pantex to Defense Programs (FY 1999).
- # Completed Groundwater Corrective Measures Study (FY 1999).
- # Started Corrective Measure Implementation for Groundwater, Landfills; start and complete Burning Grounds Interim Corrective Measures, High Explosives/Radiation Sites, and Biovent Treatability Study (FY 1999).

- # Completed an additional Resource Conservation and Recovery Act Facility Investigation at Old Sewage Treatment Plant, and completed three final Resource Conservation and Recovery Act Facility Investigation Reports (FY 1999).
- # Completed the last site assessment at release site 122b and recommended no further action (FY 1999).
- # Completed task plans to deploy composting technology for high-explosive soils (FY 1999).
- # Acquired right-of-way to perform additional groundwater characterization on private lands outside the plant boundary (FY 1999).
- # Complete Corrective Measures Design for Groundwater and Landfill 3 (FY 2000).
- # Complete corrective measures implementation for two remaining major release sites including Groundwater and Landfill 3 (FY 2000, FY 2001).
- # Complete rework on the Resource Conservation and Recovery Act Facility Investigation Report for Landfill 2 and Zone 10 Landfill (FY 2000).
- # Complete deletion of Pantex Plant from the National Priorities List (FY 2000).
- # Achieve Clean Texas 2000 Initiative (FY 2000).

#### **Sandia Environmental Restoration Project**

- # Completed site-wide characterization (FY 1999).
- # Submitted documentation to State regulators recommending 12 release sites for no further action (FY 1999).
- # Completed remediation of Sandia/California Fuel Oil Spill Remediation project (FY 1999).
- # Conducted assessment of Sandia North groundwater and remediation of Technical Area 2 and conduct assessment and remediation of Southwest Test Area, Canyons Test Area and Mixed Waste Landfill (FY 1999).
- # Transferred waste management activities at Sandia National Laboratories to Defense Programs (FY 1999).
- # Complete most of the required remediation at the two large landfills, Classified Waste Landfill and Chemical Waste Landfill (FY 2000).
- # Conduct field work on 101 septic tanks per new regulatory requirements (FY 2000).

#### **Pinellas Plant**

- # Continue annual reimbursements to Lockheed Martin Corporation for retiree pension and medical and life insurance benefits and continue long-term groundwater remediation activities (FY 1999, FY 2000, FY 2001).

#### **Program Shift**

**Environmental Management/Defense  
Environmental Restoration and Waste  
Management/Site/Project Completion/  
Albuquerque**

**FY 2001 Congressional Budget**

# The completion end dates for Sandia National Laboratories and Kansas City Plant have been extended due to new scope being identified at both locations.

### Funding Schedule

(dollars in thousands)

	FY 1999 Current Appropriation	FY 2000 Current Appropriation	FY 2001 Request
AL-002 / Albuquerque Miscellaneous Programs . . . . .	7,248	6,121	7,055
AL-003 / South Valley Superfund Site . . . . .	0	75	0
AL-007 / Environmental Restoration, Kansas City . . . . .	1,706	1,742	3,500
AL-014 / Pantex Plant Site Remediation Project . . . . .	11,251	14,829	12,919
AL-018 / Sandia ER Project . . . . .	29,353	24,807	35,000
AL-019 / Pinellas Plant Close-out and Administration of Post-Employment Benefits . . . . .	501	498	4,062
AL-021 / Maxey Flats Field Management Project . . . . .	1,200	1,194	1,200
AL-025 / Pinellas STAR Center Environmental Restoration Project . . . .	2,296	2,289	3,460
AL-029 / TA-21 Cleanup . . . . .	5,000	0	0
AL-033 / State of Missouri Agreement-in-Principle . . . . .	0	0	150
<b>Total, Albuquerque . . . . .</b>	<b>58,555</b>	<b>51,555</b>	<b>67,346</b>

### Funding by Site

(dollars in thousands)

	FY 1999	FY 2000	FY 2001	\$ Change	% Change
Kansas City Plant . . . . .	1,706	1,742	3,650	1,908	109.5%
Los Alamos National Laboratory . . . . .	5,000	0	0	0	0.0%
Maxey Flats . . . . .	1,200	1,194	1,200	6	0.5%
Pantex Plant . . . . .	11,251	14,829	12,919	-1,910	-12.9%
Pinellas Plant . . . . .	2,797	2,787	7,522	4,735	169.9%
Sandia National Laboratories . . . . .	29,353	24,807	35,000	10,193	41.1%
South Valley . . . . .	0	75	0	-75	0.0%
Albuquerque Operations Office . . . . .	7,248	6,121	7,055	934	15.3%
<b>Total, Albuquerque . . . . .</b>	<b>58,555</b>	<b>51,555</b>	<b>67,346</b>	<b>15,791</b>	<b>30.6%</b>

## Metrics Summary

	FY 1999	FY 2000	FY 2001
Remedial Action/Release Site			
Assessments .....	0	0	1
Cleanups .....	12	11	7
Mixed Low-Level Waste			
Commercial Disposal (m <sup>3</sup> ) .....	4	0	0

## Site Description

### Kansas City Plant

The Kansas City Plant is part of a Federal complex located in south Kansas City, Missouri. In FY 1993, the Department shut down several facilities across the country and consolidated the production of non-nuclear components for nuclear weapons at the Kansas City Plant. The site is comprised of 43 release sites, all of which will be completed by the end of FY 2004. This will complete remediation actions required by state and Federal regulators. Advanced technologies are being employed to reduce soil contamination and to reduce groundwater cleanup time and cost (Iron Filing Passive Treatment Wall). Activities necessary to transition to a long-term surveillance and maintenance program will also be accomplished in FY 2004. Institutional controls and groundwater treatment and monitoring will continue indefinitely beyond FY 2004. Beginning in FY 1998, the Office of Defense Programs took financial and programmatic responsibility for waste management activities.

### Pantex Plant

The Pantex Plant is located near Amarillo, Texas, and has responsibility for dismantlement and maintenance of the Nation's nuclear weapons stockpile and storage of plutonium from dismantled weapons. At the Pantex Plant, the EM activities consist primarily of cleanup of contaminated soils and groundwater. In FY 1994, the site was placed on the National Priorities List, thereby requiring remediation under the Comprehensive Environmental Response, Compensation, and Liability Act authority. The Pantex Plant Remediation Project is comprised of 249 release sites, of which 246 have been either cleaned up or recommended for no further action; the remaining three need extensive cleanup activities and are expected to be completed in FY 2001. However, regulatory rework may extend completion to FY 2003. Groundwater pump and treat will likely need to continue well past this date; however, technology development activities are underway through the Innovative Treatment Remediation Demonstration program to try to accelerate groundwater cleanup at the Pantex Plant. Beginning in FY 1999, the Office of Defense Programs has financial and programmatic responsibility for waste management activities.

## **Sandia National Laboratories-California**

The Sandia National Laboratories-California facility is located adjacent to the Lawrence Livermore National Laboratory in California. Remediation of the laboratory was completed in FY 1999. Major restoration activities included the cleanup of a 59,000 gallon diesel fuel oil spill from an underground transfer pipe. The key to completion of remediation at this facility in FY 1999 was using advanced technology (bioremediation). In FY 1999, waste management activities were transferred to the Office of Defense Programs.

## **Sandia National Laboratories-New Mexico**

The Sandia National Laboratories-New Mexico site located in Albuquerque, New Mexico, is a research and development facility with a primary mission of developing, engineering, and testing non-nuclear components of nuclear weapons. In FY 1999, disposal of more than 90 percent of its legacy low-level and mixed low-level waste was completed. Major restoration efforts involve the remediation of inactive waste disposal and release sites at Albuquerque and of other off-site locations. These sites have known or suspected releases of hazardous, radioactive, or mixed waste.

A major initiative is to finish remediation activities at all of the release sites by FY 2003. Additional contamination has been found at the Chemical and Classified Waste Landfills requiring unplanned remediation, thereby extending the project end date to FY 2003. In FY 1999, waste management activities were transferred to the Office of Defense Programs.

## **Pinellas Plant**

In September 1997, remediation of the Pinellas Plant was completed and the site was transferred to Pinellas County. In December 1998, DOE completed all remaining administrative activities at Pinellas and vacated the site, except for continuing groundwater remediation overseen by the Grand Junction Office. In FY 2000 and FY 2001, DOE will continue annual payments for Pinellas post-contract medical, pension, and other contractor worker retirement benefits. Also, in FY 2000 and FY 2001, operation and maintenance of groundwater remediation systems at the Building 100 and Old Drum Storage Sites, the Northeast Site, 4.5 Acre Site, and the Wastewater Neutralization/Building 200 Area will continue. While all groundwater remediation sites are scheduled to be completed by FY 2014, the 4.5 Acre Site will be completed in FY 2002.

## South Valley

The Department is a potentially responsible party at the South Valley site in New Mexico. Remediation of one of the two release sites at South Valley was completed in FY 1996. Currently, groundwater monitoring and groundwater remediation system operation and maintenance activities are ongoing at this site. The Government has reached a liability buy-out settlement under which DOE will no longer have any financial liability for the project until the end of year 2003. If needed, a new buy-out settlement will need to be renegotiated for five more years beyond 2003.

## Maxey Flats

The Maxey Flats site in Kentucky is another site where DOE is responsible for contributing a potentially responsible party payment for the cleanup of the site. Maxey Flats is considered one release site. Environmental Management's last potential responsible party payment was expected in FY 2002, ending the DOE's responsibility at the site. However, based upon a consent agreement, DOE is obligated to pay its assessed Principal Responsible Party share of the remediation cost. Recent information indicates that the Principal Responsible Party remediation cost assessment may be increased and extend to FY 2004.

### Detailed Program Justification

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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The installations at the Albuquerque Site are managed through various performance based management and operating contracts or cost-plus-award fee contracts to assure the most cost-effective services to the government. The scope planned for FY 2001 has been reviewed and is appropriate to meet the goals of the sites as outlined in the *Accelerating Cleanup: Paths to Closure*. Most of the projects included in this section of the budget have had an independent cost review of the scope, and the funds requested for FY 2001 are appropriate to perform the activities.

**AL-002 / Albuquerque Miscellaneous Programs (Waste Management Education and Research Consortium, Historically Black Colleges and Universities, Innovative Treatment Remediation Demonstration Program, Norfolk State University Center for Materials Research, Texas/ Agreement-in-Principle)**

Provides financial assistance for grants, cooperative agreements, innovative remediation technologies, and other analytical research.

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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- # Historically Black Colleges and Universities/Minority Institutions Environmental Technology Consortium: Conduct research and technical transfer at post graduate level, award 80 scholarships with graduate student employment, support 750 professionals, fund 218 projects, and present 13 courses.
- # Waste Management Education and Research Consortium: Conduct research and technology transfer, fund 18 new projects, 50 faculty/175 students in research, and support 1,800 professionals in development.
- # Norfolk State University Center for Materials Research: Fund students/ faculty in materials science.
- # Innovative Treatment Remediation Demonstration Program: Support technical coordination for two remediation projects, and complete two projects.
- # Interface with DOE, Environmental Protection Agency, private industry and states to establish technical advisory/performance evaluation for projects.
- # Texas/Agreement-in-Principle supports environmental programs at Pantex, the review of environmental restoration reports, environmental monitoring and analysis, stakeholder concerns, and Texas regulatory issues.

AL-002 .....	7,248	6,121	7,055
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**Key Milestones**

- # Review, approve and negotiate final budget proposal for the Los Alamos Pueblo Project (January 2000).
- # Grant renewal negotiations completed for the Kansas City Plant Agreement-in-Principle (March 2000).
- # Tenth Annual Design Contest at the Waste Management Education and Research Consortium (April 2000).
- # Waste Management Education and Research Consortium Annual Report (June 2000).
- # FY 2001 budget approved for the Kansas City Plant Agreement-in-Principle (September 2000).
- # Grant renewal negotiations completed for Texas Agreement-in-Principle (September 2000).
- # Fiscal year progress report for the Innovative Treatment Remediation Demonstration (September 2000).

(dollars in thousands)

	FY 1999	FY 2000	FY 2001
# FY 2001 budget approved for Texas Agreement-in-Principle (September 2000).			
# Norfolk State University Center for Materials Research Annual Report (December 2000).			
# Historically Black Colleges and Universities/Minority Institutions and Environmental Technology Consortium Annual Report (December 2000).			
# Review, approve and negotiate final budget proposal for The Los Alamos Pueblo Project (January 2001).			
# Eleventh Annual Design Contest at the Waste Management Education and Research Consortium (April 2001).			
# Waste Management Education and Research Consortium Annual Report (June 2001).			
# FY 2002 budget approved for the Kansas City Plant Agreement-in-Principle (September 2001).			
# FY 2002 budget approved for Texas Agreement-in-Principle (September 2001).			
# Fiscal Year progress report for Innovative Treatment Remediation Demonstration (September 2001).			

**AL-003 / South Valley Superfund Site**

# No activity in FY 2001.

AL-003 ..... 0 75 0

**Key Milestones**

# Technical support for NRDA legal actions (September 2000).

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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**AL-007 / Environmental Restoration (Kansas City Plant)**

This project evaluates potentially contaminated areas and cleans up areas found to be a threat to human health or the environment.

# Planned activities for FY 2001 include the Corrective Measures Implementation Design for the 95th Terrace Site, routine program management oversight and administration, and groundwater treatment and monitoring.

# Groundwater treatment and monitoring covers operation of a groundwater treatment system, sampling and analysis of an extensive array of groundwater monitoring wells, drilling, groundwater interceptor well design, preparing groundwater reports for submittal to the regulators, and well maintenance.

AL-007 .....	1,706	1,742	3,500
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Metrics			
Remediation Waste			
Disposed (m <sup>3</sup> ) .....	6	6	6
Key Milestones			
# Southeast parking lot RFI-Phase I (February 2000).			
# Groundwater treatment and monitoring - 1999 Annual Report (March 2000).			
# 95 <sup>th</sup> Terrace Site - Corrective Measures Study (September 2000).			
# Groundwater treatment and monitoring - 2000 Annual Report (March 2001).			
# Groundwater treatment (September 2001).			
# Groundwater sampling (September 2001).			

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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### **AL-014 / Pantex Plant Site Remediation Project**

This project provides for cleanup of contaminated soils and groundwater resulting from production and testing of explosive components for nuclear weapons. Remediation methodologies incorporated in this effort include excavation and off-site disposal of soils contaminated with high explosives/radionuclides, recirculation and filtration of groundwater, and a Resource Conservation and Recovery Act landfill cap. These efforts are in accordance with the Resource Conservation and Recovery Act requirements.

# Planned activities to result in project completion at target in FY2001 include the following:

- < Groundwater Monitoring;
- < Groundwater Corrective Measures Implementation, Operations and Maintenance;
- < Additional deep soil remediation at Ditches and Playas site;
- < Miscellaneous Chemical Spills Final Interim Corrective Measures Implementation Report;
- < Fire Training Area Burn Pits Final Resource Conservation and Recovery Act Facility Investigation Report;
- < Zone 12 Sanitary Landfill closure;
- < Supplemental landfill closure activities;
- < Fire Training Area Burn Pits Final Closure Package;
- < Fire Training Area Burn Pits Interim Corrective Measures/Voluntary Corrective Action Closure Report;
- < Landfill 3 Corrective Measures Implementation, Operations and Maintenance;
- < Former Cooling Tower Final Interim Corrective Measures Report;
- < Miscellaneous High Explosive/Radioactive Sites Final Interim Corrective Measures Implementation Report;
- < Supplemental Verification Sites Final Resource Conservation and Recovery Act Facility Investigation and Interim Corrective Measures Report;
- < Supplemental Verification Sites Final Closure Package;

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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- < Natural Resources Damage Assessment;
- < Integrated Environmental Database/Geographic Information System Operations and Maintenance;
- < Comprehensive Environmental Response, Compensation and Liability Act Support;
- < Program Management Support.

AL-014 ..... 11,251 14,829 12,919

Metrics			
Remedial Action/Release Site			
Cleanups .....	0	1	1
Remediation Waste			
Disposed (m <sup>3</sup> ) .....	2,497	1,800	8,000
Key Milestones			
#	Complete Landfill 3 corrective measures construction (September 2000).		
#	Complete groundwater Operable Unit Phase I corrective measure construction (September 2000).		
#	Complete Landfill 1 corrective measure study (August 2001).		
#	Complete groundwater Operable Unit Phase II corrective measure construction (September 2001).		

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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**AL-018 / Sandia Environmental Restoration Project**

The mission of the Sandia Environmental Restoration Project is to complete all necessary corrective actions (assessment and remediation) at environmental restoration sites in the most expeditious and cost-effective manner while minimizing worker, public health, and environmental risks, satisfying public concerns, and complying with all applicable Federal, state and local laws. All of the designated solid waste management units and additional areas of concern will be remediated or placed under management controls adequate to ensure agreement of the Federal and state regulatory authorities that, based on the risk to humans or the environment, no further action is warranted.

# Continued groundwater monitoring of all required units, hazardous and rad remediation-derived waste shipments, completion of Voluntary Corrective Measures and No Further Action proposal submitted for about six sites.

# Continued excavation of the Chemical Waste Landfill and at the site 2 Classified Waste Landfill.

# Begin fieldwork for 101 septic sites.

AL-018 .....	29,353	24,807	35,000
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(dollars in thousands)

FY 1999	FY 2000	FY 2001
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Metrics			
Remedial Action/Release Site			
Assessments .....	0	0	1
Cleanups .....	12	10	6
Mixed Low-Level Waste			
Commercial Disposal (m <sup>3</sup> ) .....	4	0	0
Remediation Waste			
Disposed (m <sup>3</sup> ) .....	3,871	7,911	6,151
Key Milestones			
#	Complete excavation of Classified Waste Landfill (September 2000).		
#	Complete to 12 feet Chemical Waste Landfill excavation (September 2000).		
#	Application for removal of 61 sites from the Hazardous and Solid Waste Amendment Permit (September 2000).		
#	Submit 10 No Further Action Proposals for review ( September 2000).		
#	Complete fieldwork for sites 58 and 190 (August 2001).		
#	Complete field work Landfill Excavation Voluntary Corrective Measures, S74 (September 2001).		
#	Complete site-wide characterization well plug and abandonment (September 2001).		
#	Submit six No Further Action proposals for review (September 2001).		

**AL-019 / Pinellas Plant Close-out and Administration of Post-Employment Benefits**

This project comprises payments to former contractor employees pursuant to employee reduction-in-force requirements and administration of DOE liabilities associated with contractor employee retirement benefits.

- # Ongoing liability for annual employee benefit payment or lump sum buyout will continue indefinitely.

AL-019 .....	501	498	4,062
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(dollars in thousands)

FY 1999	FY 2000	FY 2001
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Key Milestones			
#	Annual payment for health insurance and pension contributions (September 2000).		
#	Annual payment for health insurance and pension contributions (September 2001).		

**AL-021 / Maxey Flats Field Management Project**

This project fulfills the Department’s responsibilities as a potentially responsible party for Comprehensive Environmental Response, Compensation, and Liability Act-required remedial action at the Maxey Flats Disposal Site, Kentucky.

# DOE makes obligated payment for continuing leachate pumping, solidification, and disposal activities.

AL-021 .....	1,200	1,194	1,200
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Metrics			
This project has associated metrics; however, no metrics are reportable in the 3-year budget profile.			
Key Milestones			
#	Make obligated annual payment (October 1999).		
#	Make partial payment of the obligated annual payment (October 2000).		

**AL-025 / Pinellas STAR Center Environmental Restoration Project**

This project includes all tasks associated with groundwater cleanup at Pinellas, and response to liability under the Comprehensive Environmental Response, Compensation, and Liability Act for former off-site disposal.

# Conduct Pinellas groundwater cleanup operations at four sites.

AL-025 .....	2,296	2,289	3,460
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(dollars in thousands)

FY 1999	FY 2000	FY 2001
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<p>Metrics</p> <p>This project has associated metrics; however, no metrics are reportable in the 3-year budget profile.</p>
<p>Key Milestones</p> <p># Implementation of biosparging and performance monitoring of groundwater remediation at the Pinellas 4.5 acre site (December 1999).</p> <p># Operations and maintenance of 4.5 acre site treatment systems (October 2000).</p> <p># Institute treatment technology for Dense Non-Aqueous Phase Liquid remediation at Northeast Site (September 2001).</p>

**AL-029 / TA-21 Cleanup**

Work on characterization of large Material Disposal Areas, cleanup of several small release sites, and decontamination and decommissioning was conducted. Work on this parcel is now conducted under PBS 030, Land Transfer in the Post 2006 Completion account.

# No activity.

AL-029 .....	5,000	0	0
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**AL-033 / State of Missouri Agreement-in-Principle**

The Missouri Agreement-in-Principle supports environmental programs at the Kansas City Plant, review of technical reports, emergency response, and environmental monitoring and analysis, and stakeholder and regulatory issues.

AL-033 .....	0	0	150
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Total, Albuquerque .....	58,555	51,555	67,346
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## Explanation of Funding Changes from FY 2000 to FY 2001

 FY 2001 vs.  
 FY 2000  
 (\$000)

**AL-002 / Albuquerque Miscellaneous Programs**

# Increase will provide for additional grants/scholarships, cooperative agreements, innovative remediation technologies, and other research . . . . . 934

**AL-003 / South Valley Superfund Site**

# No activity in FY 2001 . . . . . -75

**AL-007 / Environmental Restoration (Kansas City Plant)**

# Reflects increased remediation activities and transition to long-term monitoring and surveillance at the Kansas City Plant . . . . . 1,758

**AL-014 / Pantex Plant Site Remediation Project**

# Reflects decreased activities for completion of all remaining remediation at the Pantex Plant -1,910

**AL-018 / Sandia ER Project**

# Increase is to cover significant scope growth associated with two landfills, waste volume increases at Corrective Action Management Unit, rework of past regulatory submittals, new scope for remediation of septic tanks and drainfields, and additional scope for site 228 . . . 10,193

**AL-019 / Pinellas Plant Close-Out and Administration of Post-Employment Benefits**

# Reflects total cost of contractor post-employment and retirement benefits. Previously (FY 1999 and FY 2000) used prior year carryover to fund the project at the proposed level . . 3,564

**AL-021 / Maxey Flats Field Management Project**

# No significant change . . . . . 6

**AL-025 / Pinellas STAR Center Environmental Restoration Project**

# Reflects increase in operation and maintenance costs . . . . . 1,171

**AL-033 / State of Missouri Agreement-in-Principle**

# Funding removed from AL-002 and new PBS was created for the State of Missouri Agreement-in-Principle . . . . . 150

Total Funding Change, Albuquerque . . . . . 15,791

# Idaho

## Mission Supporting Goals and Objectives

### Program Mission

The mission of the Defense Site/Project Completion Environmental Management (EM) program at the Idaho National Engineering and Environmental Laboratory is to safely manage and dispose of transuranic waste, mixed low-level waste, low-level waste, hazardous, and other waste, while maintaining full compliance with applicable requirements and agreements, particularly the Idaho Settlement Agreement, and perform environmental restoration according to the Federal Facility Agreement and Consent Order.

### Program Goal

The goal of this portion of the Idaho program is to complete, by FY 2006, cleanup of several waste streams and release sites, disposed of over 90 percent of the Idaho National Engineering and Environmental Laboratory low-level legacy waste in FY 1999 and the remainder in FY 2000, dispose of most Idaho National Engineering and Environmental Laboratory mixed low-level waste by FY 2006, and satisfy the State of Idaho Settlement Agreement requirement to ship 3,100 m<sup>3</sup> of transuranic waste off-site for disposal (by December 31, 2002). Low-level waste, mixed low-level waste, and other waste will be treated, stored, and disposed in compliance with regulatory requirements and agreements. Environmental restoration activities will be completed for Waste Area Groups 1, 2, 4, and 5.

### Program Objectives

One objective of this program is to complete remediation efforts, improve the site infrastructure for the long-term continuing mission, and manage waste streams, including transuranic waste shipments off-site, in order to free resources to apply to the long-term continuing cleanup of the Idaho National Engineering and Environmental Laboratory and comply with the Idaho Settlement Agreement.

Another objective of the Environmental Management program at the Idaho National Engineering and Environmental Laboratory is to use technology development to accelerate cleanup schedules and reduce costs. These new technologies will ensure completion of the primary goals. Innovative technologies continue to be developed to meet the Idaho National Engineering and Environmental Laboratory needs and will be demonstrated and implemented as necessary to meet schedules and budgets. Use of technologies such as advanced transuranic waste characterization systems will improve throughput and increase efficiency.

## **Performance Measures**

Performance Measures are provided at an aggregate level after each Funding by Site table, as well as at the project level in the Detailed Program Justification.

The Executive Budget Summary and the Metrics Summary provide a consistent set of high-level performance measures. The more detailed project-level justification provides a description of significant activities for each project including detailed project performance measures and key project milestones, as applicable.

## **Significant Accomplishments and Program Shifts**

- # Continued Operable Unit 1-07B Stage 2 treatability study field demonstrations and completed Phase I In-situ Bioremediation and Natural Attenuation Field Demonstration Report (FY 1999, ID-ER-101).
- # Complete Operable Unit 1-10 Remedial Design/Remedial Action Draft workplan and complete remedial action sampling at several contaminated soil sites (FY 2000, ID-ER-101).
- # Completed the Final Comprehensive Record of Decision for the Idaho Test Area North (ID-ER-101) in December 1999; for the Power Burst Facility (ID-ER-105) in January 2000 and will complete the Central Facilities Area Operable Unit 4-13A (ID-ER-104) in March 2000.
- # Completed Waste Area Group 4 Final Comprehensive Remedial Investigation/Feasibility Study Report (FY 1999) and initiate removal of contaminated soils sites including cesium-contaminated drainfield and mercury-contaminated drain ponds (FY 2000, ID-ER-104).
- # Completed Waste Area Group 5 Final Comprehensive Remedial Investigation/Feasibility Study Report (FY 1999) and complete Operable Unit 5-12 Remedial Design/Remedial Action Scope of Work and submit draft workplan (FY 2000, ID-ER-105).
- # Complete all security work and building upgrades in Building-651 (FY 2000, ID-OIM-105).
- # Completed segments of the Electrical Utilities System Upgrade Project e.g., replacement of electrical panels, correction of overloaded circuits, and testing of the reliability of the system (FY 1999). Complete stand by power generator upgrades (FY 2000, ID-OIM-106)
- # Complete title design of the Health Physics Instrumentation Laboratory (FY 2000, ID-OIM-109).
- # Completed deactivation of the Old Waste Calcining Facility (FY 1999, ID-OIM-110).
- # Completed Resource Conservation and Recovery Act closure for the Process Experimental Pilot Plant (FY 1999, ID-OIM-110).
- # Complete all planning and turnover of CPP-603 fuel wet storage basins for deactivation (FY 2000, ID-OIM-110).
- # Continue contact handled and remote handled low-level waste disposal in the Radioactive Waste Management Complex Subsurface Disposal Area (FY 2000, ID-WM-101).

- # Continue off-site treatment and disposal of hazardous waste (FY 2000, ID-WM-101).
- # Treated, disposed, and safely stored mixed low-level waste and low-level waste in compliance with environmental regulations and DOE Orders (FY 1999, FY 2000, ID-WM-101).
- # Continued the Stored Waste Examination Pilot Plant production examination operations, selective intrusive waste sampling and analysis, and head space gas sampling to characterize and certify transuranic waste for disposal at the Waste Isolation Pilot Plant near Carlsbad, New Mexico (FY 1999/FY 2000, ID-WM-103).
- # Completed first shipment of non-mixed transuranic waste to the Waste Isolation Pilot Plant for disposal to meet a Settlement Agreement milestone and completed three additional shipments totaling 26 m<sup>3</sup> (FY 1999, ID-WM-103).
- # Ship 96 m<sup>3</sup> of transuranic waste to the Waste Isolation Pilot Plant for disposal (FY 2000, ID-WM-103).
- # Provide transuranic waste characterization and certification-related support activities for disposal at the Waste Isolation Pilot Plant by completing examination of at least 3,569 drums of transuranic waste at the Stored Waste Examination Pilot Plant (FY 2000, ID-WM-103).
- # Safely store approximately 64,878 m<sup>3</sup> of transuranic mixed waste in compliance with environmental regulations and DOE orders (FY 2000, ID-WM-103).

## Funding Schedule

(dollars in thousands)

	FY 1999 Current Appropriation	FY 2000 Original Appropriation	FY 2001 Request
ID-ER-101 / Test Area North Remediation . . . . .	3,855	5,954	9,982
ID-ER-104 / Central Facilities Area Remediation . . . . .	897	1,468	1,636
ID-ER-105 / Power Burst Facility/Auxiliary Reactor Area . . . . .	1,097	2,286	3,026
ID-LRP-101-PC / Environmental Engineering and Science Center . . . . .	8,939	0	0
ID-OIM-105 / Security Facilities Consolidation Project . . . . .	840	0	0
ID-OIM-106 / Electrical and Utility Systems Upgrade Project, Idaho Nuclear Technology and Engineering Center (formerly Idaho Chemical Processing Plant) . . . . .	13,584	12,879	905
ID-OIM-107 / Idaho National Engineering and Environmental Laboratory Electrical Distribution Upgrade . . . . .	90	0	0
ID-OIM-108 / Idaho National Engineering and Environmental Laboratory Road Rehabilitation . . . . .	8,079	2,716	0
ID-OIM-109 / Health Physics Instrument Laboratory . . . . .	1,049	5,110	4,420
ID-OIM-110 / Pre-FY 2007 Surplus Facility Deactivation Project . . . . .	8,724	0	2,859
ID-OIM-112 / Pre-FY 2007 Idaho National Engineering and Environmental Laboratory Surveillance and Maintenance . . . . .	2,109	2,086	4,087
ID-OIM-114 / Sitewide Idaho National Engineering and Environmental Laboratory Information Network . . . . .	0	50	0
ID-OIM-115 / Site Operations Center . . . . .	0	106	0
ID-OIM-117 / Cathodic Protection System Expansion . . . . .	0	0	584
ID-SC-101-PC / Validation and Verification Program . . . . .	0	0	2,308
ID-WM-101 / Idaho National Engineering and Environmental Laboratory Low-Level Waste/Mixed Low-Level Waste/Other Waste Program . . . . .	25,442	26,636	26,655
ID-WM-103 / Idaho National Engineering and Environmental Transuranic Waste . . . . .	37,354	46,994	44,230
<b>Total, Idaho . . . . .</b>	<b>112,059</b>	<b>106,285</b>	<b>100,692</b>

**Environmental Management/Defense  
Environmental Restoration and Waste  
Management/Site/Project Completion/  
Idaho**

**FY 2001 Congressional Budget**

## Funding by Site

(dollars in thousands)

	FY 1999	FY 2000	FY 2001	\$ Change	% Change
Idaho National Engineering and Environmental Laboratory .....	112,059	106,285	100,692	-5,593	-5.3%
<b>Total, Idaho .....</b>	<b>112,059</b>	<b>106,285</b>	<b>100,692</b>	<b>-5,593</b>	<b>-5.3%</b>

## Metrics Summary

	FY 1999	FY 2000	FY 2001
Remedial Action/Release Site			
Assessments .....	21	36	0
Cleanups .....	13	21	0
Facility Deactivation			
Deactivated During Period .....	1	0	0
Transuranic Waste			
Shipped to WIPP for Disposal (m <sup>3</sup> ) .....	26	96	1,160
Mixed Low-Level Waste			
Treatment (m <sup>3</sup> ) .....	222	200	200
Disposal (m <sup>3</sup> ) .....	75	52	52
Low-Level Waste			
Disposal (m <sup>3</sup> ) .....	4,671	4,000	2,500

## Site Description

### Idaho National Engineering and Environmental Laboratory

The Idaho National Engineering and Environmental Laboratory, established as the National Reactor Testing Station in 1949, occupies 890 square miles in the Snake River Plain of Southeastern Idaho. Over the years, 52 reactors have been constructed and operated at the Idaho National Engineering and Environmental Laboratory. This site is owned by DOE and as of October 1999, is managed by Bechtel, Babcock and Wilcox Inc. There are nine primary facilities at the Idaho National Engineering and Environmental Laboratory as well as administrative, engineering, and research laboratories in Idaho Falls, approximately 50 miles east of the site. Other activities at the Idaho National Engineering and Environmental Laboratory over the last five decades include nuclear technology research, defense programs, engineering testing and operations, as well as ongoing projects to develop, demonstrate, and transfer of advanced engineering technology and systems to private industry. These activities have resulted in an inventory of high-level waste and the continued generation of spent

nuclear fuel, transuranic waste, mixed low-level waste, and low-level waste. Idaho National Engineering and Environmental Laboratory activities have also resulted in contaminated areas and potential release sites requiring remediation under the Comprehensive Environmental Response, Compensation, and Liability Act, and other environmental regulations. Discontinued activities at the Idaho National Engineering and Environmental Laboratory have left a number of surplus facilities. The deactivation program provides for the deactivation of these surplus facilities placing them in a safe, stable, low-cost condition, requiring minimal surveillance and maintenance.

## Detailed Program Justification

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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The Idaho site is managed through an incentivized integrated management and operating contract, with fixed-price subcontracts, to assure the most cost-effective services to the Government. The scope planned for FY 2001 has been reviewed and is appropriate to meet the goals of the site as outlined in the *Accelerating Cleanup: Paths to Closure*. Funding estimates are based on historic cost information and annual cost estimating guidance. For most projects, cost estimates were independently reviewed by the US Army Corps of Engineers, and a DOE and site management and operating contractor team.

### **ID-ER-101 / Test Area North Remediation (Waste Area Group 1)**

Waste Area Group 1 has 10 Operable Units, containing 94 potential release sites, listed in the Federal Facilities Agreement/Consent Order. Activities associated with Waste Area Group 1 are legally mandated by the Federal Facilities Agreement/Consent Order and the Comprehensive Environmental Response, Compensation, and Liability Act. Funding supports the completion of all cleanup activities associated with Waste Area Group 1 by FY 2006 and ensures implementation of the Operable Unit 1-07B groundwater cleanup action providing containment of the contaminant plume and active aquifer remediation.

# The Operable Unit 1-10 remedial design/remedial action will be fully underway with completion of the contaminated soils sites remedial design/remedial action Work Plan and initiation of the associated cleanup.

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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# Initiate cleanup for sites such as the fuel leak, burn pits, and disposal pond.

# Continue the Operable Unit 1-07B remedial action with continuation of groundwater monitoring, continuation of hot spot containment, completion of New Pump and Treat Facility construction, and initiation of New Pump and Treat Facility operations.

# Continue the Test Area North-616 Track 2 investigation and risk evaluation with completion of the Phase 2 documentation, and sampling and analysis.

ID-ER-101 ..... 3,855 5,954 9,982

Metrics			
Remedial Action/Release Site			
Assessments .....	21	0	0
Cleanups .....	13	0	0
Key Milestones			
# Operable Unit-1-07B Draft Field Demonstration Report Phase II sent by the DOE-Idaho to the Environmental Protection Agency/Idaho Department of Health and Welfare for review (April 2001).			

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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**ID-ER-104 / Central Facilities Area Remediation (Waste Area Group 4)**

Waste Area Group 4 consists of 52 potential release sites which require assessment as stipulated by the Federal Facilities Agreement/Consent Order and the Comprehensive Environmental Response, Compensation, and Liability Act. An Interim Action Record of Decision for Operable Unit 4-13A, was submitted in November 1999, which detailed the final remedial actions which must be performed at the various release sites. Funding supports all regulatory requirements and completion of all remedial activities by 2003.

- # Perform cleanup at the sites Central Facilities Area-04 disposal pond, and 08 and 10 transfer yards during 2001.
- # Continue monitoring at the Central Facilities Area Landfills (Operable Unit 4-12).
- # Implement long-term monitoring at Operable Unit 4-13 surface soil sites.

ID-ER-104 .....	897	1,468	1,636
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Metrics			
Remedial Action/Release Site			
Assessments .....	0	16	0
Cleanups .....	0	11	0

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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**ID-ER-105 / Power Burst Facility/Auxiliary Reactor Area  
(Waste Area Group 5)**

Waste Area Group 5 has 13 Operable Units listed in the Federal Facility Agreement/Consent Order. Activities associated with Waste Area Group 5 are legally required by the Federal Facilities Agreement/Consent Order and the Comprehensive Environmental Response, Compensation, and Liability Act. Operable Unit 5-12 consists of 4 sites and the comprehensive Remedial Investigation/Feasibility Study required to complete the Waste Area Group 5 cleanup. The Remedial Investigation/Feasibility Study recommendations support preparation of a Comprehensive Record of Decision for Operable Unit 5-12. The Operable Unit 5-12 Comprehensive Record of Decision is a Federal Facilities Agreement/Consent Order milestone due October 1999, and signature is expected February 2000. Funding supports regulatory requirements and completion of all investigations and remedial actions by FY 2006.

- # The Operable Unit 5-12 remedial design/remedial action will be fully underway with completion of the contaminated soils sites Remedial Design/Remedial Action Work Plan and initiation of the associated remedial actions. Starting the remediation of the 5 contaminated soil sites in FY 2001 will depend on the availability of an on-site disposal facility assuming that the removal and disposal alternative is selected in the Record of Decision.
- # Complete remediation of the Advanced Reactor Area-02 seepage pit.
- # Begin remediation of the Advanced Reactor Area-16 mixed waste tank in FY 2001.
- # Waste stored at the Advanced Reactor Area-02 Temporary Accumulation Area will be sent to Waste Experimental Reduction Facility for disposal. The 22 drums containing Toxic Substances Control Act regulated polychlorinated biphenyl contaminated waste will be sent to an authorized treatment facility.

ID-ER-105 .....	1,097	2,286	3,026
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(dollars in thousands)

FY 1999	FY 2000	FY 2001
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Metrics	FY 1999	FY 2000	FY 2001
Remedial Action/Release Site			
Assessments .....	0	20	0
Cleanups .....	0	10	0

**ID-LRP-101-PC / Environmental Engineering and Science Center**

Provides for activities under the Idaho Long-Range Plan, including complex-wide integration and systems engineering support.

# Funding for this activity was requested in the Defense Science and Technology Budget in FY 2000. No activities will be performed in FY 2001 for this Project Baseline Summary.

ID-LRP-101-PC .....	8,939	0	0
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**ID-OIM-105 / Security Facilities Consolidation Project (95-D-456)**

This line-item construction project provides new facilities and equipment to support the Idaho Nuclear Technology and Engineering Center security organization.

# Complete project in FY 2000 using carryover funding from prior years. Included in the funding for this project is \$485,000 for FY 1999 for the line-item..

ID-OIM-105 .....	840	0	0
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**ID-OIM-106 / Electrical and Utility Systems Upgrade Project, Idaho Nuclear Technology and Engineering Center (96-D-464)**

This project is to upgrade the Idaho Nuclear Technology and Engineering Center utility systems by correcting high risk life-safety, health, and environmental deficiencies. The work corrects safety deficiencies and will improve reliability and efficiency of electrical systems needed to support the site settlement agreement. This project was validated by DOE-Idaho and Power Engineers of Hailey, Idaho

# Complete Construction of Load Centers 1 and 3.

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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# Continue Construction of Facility Electrical Upgrade Project.  
Included in the funding totals for this project are \$10,894,000 for  
FY 1999; \$11,971,000 for FY 2000; and \$0 for FY 2001 for the  
line-item.

# Continue Start-up and Testing Activities of completed systems.

ID-OIM-106 ..... 13,584 12,879 905

**ID-OIM-107 / Idaho National Engineering and Environmental  
Laboratory Electrical Distribution Upgrade (96-D-461)**

This project provides for the planning, management, design,  
procurement, and construction activities to upgrade portions of the  
Idaho Engineering and Environmental Laboratory electrical distribution  
system which provides numerous users at the Idaho Engineering and  
Environmental Laboratory with reliable electrical power.

# No activity due to completion of project.

ID-OIM-107 ..... 90 0 0

**ID-OIM-108 / Idaho National Engineering and Environmental  
Laboratory Road Rehabilitation (98-D-700)**

This project consists of the line item construction project to rehabilitate  
approximately 45 miles of the site road system and 27,000 square  
yards of parking area to provide safe transportation for waste  
movements, which are directly associated with regulatory and  
enforceable agreement compliance. The original cost estimate and  
scope was validated by a DOE and site management and operating  
contractor team, and competitively subcontracted.

# No activity. (Road Rehabilitation construction will be completed in  
the first quarter of FY 2001.) Included in the funding totals for this  
project are \$7,710,000 for FY 1999 and \$2,590,000 for FY 2000  
for the line-item.

ID-OIM-108 ..... 8,079 2,716 0

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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**ID-OIM-109 / Health Physics Instrument Laboratory (99-D-404)**

The Health Physics Instrumentation Laboratory project is a line item construction project which provides for the design, procurement, and construction of a replacement facility in order to provide reliable and safe radioactive detection equipment for all programs and essential site functions at the Idaho National Engineering and Environmental Laboratory. Laboratory operations will include repair, calibration, dosimeter irradiation, and research and development required to support radiation detection equipment needs for the site. This facility will replace an existing facility which is beyond its original design life and is significantly deteriorated. Deficiencies associated with the existing facility contribute to the inability of the facility to perform required functions in a compliant manner. The existing facility has been identified for closure and demolition. Original cost estimate and scope were validated by a DOE and site management and operating contractor team, in addition to an external/independent review. The construction phase will be competitively subcontracted.

# Complete Title I and II design and Government Furnished Equipment specifications and initiate construction activities. Included in the funding for this project are \$950,000 for FY 1999; \$5,000,000 for FY 2000; and \$4,300,000 for FY 2001 for the line-item.

ID-OIM-109 .....	1,049	5,110	4,420
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(dollars in thousands)

FY 1999	FY 2000	FY 2001
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**ID-OIM-110 / Pre-FY 2007 Surplus Facility Deactivation Project**

This project provides for the deactivation of excess facilities which reduce the cost and risk associated with surplus contaminated facilities. This includes removal of radioactive and hazardous materials, removal of uranium and other fissile materials, and isolation of the excess facilities from ongoing operating and utility systems. The project supports compliance with Resource Conservation and Recovery Act and has been validated by the Idaho DOE project manager.

- # Complete CPP-603 (Underwater Fuel Receiving and Storage Building) basin water removal.
- # Begin removing water from the Materials Test Reactor Canal Deactivation.

ID-OIM-110 .....	8,724	0	2,859
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Metrics			
Facilities Deactivation			
Deactivations .....	1	0	0

**ID-OIM-112 / Pre-FY 2007 Idaho National Engineering and Environmental Laboratory Surveillance and Maintenance**

This project provides surveillance and maintenance of radioactively contaminated excess facilities to maintain in a condition that reduces the risk to the public, site personnel and the environment.

- # Continue to monitor and maintain CPP-601 (Fuel Processing Building), CPP-621 (Chemical Storage Pump House), CPP-640 (Headend Process Plant), CPP-691 (Fuel Processing Restoration Building) and CPP-603 (Underwater Fuel Receiving and Storage Building) in the Idaho National Engineering and Environmental Laboratory Surveillance and Maintenance program with the goal to provide a safe working environment for the personnel working in and around the facilities, and prevent release of radioactive or hazardous materials to the environment. Develop and implement surveillance and maintenance plans for the remaining surplus facilities at Idaho National Engineering and Environmental Laboratory.

ID-OIM-112 .....	2,109	2,086	4,087
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(dollars in thousands)

FY 1999	FY 2000	FY 2001
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**ID-OIM-114 / Sitewide Idaho National Engineering and Environmental Laboratory Information Network**

The Sitewide Information Network Project will provide upgraded communication links between and among operating areas at the Idaho National Engineering and Environmental Laboratory, and provide connections to external networks.

# No activity.

ID-OIM-114 .....	0	50	0
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**ID-OIM-115 / Site Operations Center**

The Site Operations Center provides a multi-purpose facility that will eliminate worker health and safety issues, that are in jeopardy due to the current aging and deteriorating facilities, which may have to be closed. Maintenance and repair costs of the current aged and deteriorated buildings will continue to escalate if they are not replaced. Potential worker exposure and expensive repair costs will be eliminated by the construction of the Site Operations Center, as asbestos exists in the flooring and pipe insulation and lead paint is found throughout the existing facilities. The new facility will provide efficient office work space, a cafeteria, conference room, and a bus depot to support Idaho National Engineering and Environmental Laboratory-wide programs and operations. The economic analysis shows a payback within eight years of operations while meeting the EM program goals of reducing mortgage and support costs and protecting worker health and safety. The Site Operations Center supports the EM mission by providing an adequate infrastructure facility to support all compliance agreements associated with spent nuclear fuels, Idaho National Engineering and Environmental Laboratory waste streams, environmental remediation, the Federal Facilities Agreement Consent Order, facility deactivation and the Settlement Agreement (October 17,1995, court order).

# No activity.

ID-OIM-115 .....	0	106	0
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(dollars in thousands)

FY 1999	FY 2000	FY 2001
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**ID-OIM-117 / Cathodic Protection System Expansion (01-D-402)**

The Idaho Nuclear Technology Engineering Center has an extensive Cathodic Protection System installed that protects underground piping and structures from corrosion. The Cathodic Protection System is grouped into three systems; the first provides protection for the Tank Farm piping system, the second protects the Underground Fuel Storage Area Vaults, and the third provides protection for underground utility systems, e.g. firewater system. A majority of the components have been in service since 1961 exceeding their design life of 20 years. In order to comply with the State of Idaho Resource Conservation and Recovery Act Interim Status Part B Permit, an operational Cathodic Protection System is required.

# Initiate Title I Design. Included in the funding for this project is \$500,000 for FY 2001 for the line item.

ID-OIM-117 .....	0	0	584
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**ID-SC-101-PC / Validation and Verification Program**

The Validation and Verification program at the Idaho National Engineering and Environmental Laboratory conducts applied research in subsurface and related science and technology to provide the new and enhanced technologies necessary for remediation actions scheduled for completion prior to 2006 and other ongoing operations in the DOE complex. The program includes studies into the fate and transport of contaminants in the subsurface, in-situ characterization of buried waste, and ex-situ transuranic waste characterization and treatment. Particular emphasis is placed on understanding phenomena in the vadose zone at the Idaho National Engineering and Environmental Laboratory. Research in the program is driven and justified by the near-term technology needs identified by the operational programs through the ongoing Site Technology Coordination Groups technology needs identification efforts and the ongoing Environmental Management Integration waste stream mapping process.

# Initiate research to support near-term DOE needs in the Characterization Science, the Chemistry of Environmental Surfaces; and Facilitated Contaminate Transport.

# Integrate technologies from the Environmental Management

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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# Perform external peer reviews of all program areas.

# Provide technical assistance for the Office of Science and Technology Focus Areas.

ID-SC-101-PC ..... 0 0 2,308

**ID-WM-101 / Idaho National Engineering and Environmental Low-Level Waste/Mixed Low-Level Waste/Other Waste Program**

The project provides for the daily management, treatment, storage and disposal of legacy and newly generated mixed low-level waste, low-level waste, hazardous waste, and waste with no disposition path for the Idaho National Engineering and Environmental Laboratory. This work enables the Idaho National Engineering and Environmental Laboratory to characterize and disposition radioactive and hazardous waste in compliance with State and Federal regulations.

This project also enables DOE to comply with the Idaho National Engineering and Environmental Laboratory and other DOE Site Treatment Plans under the Federal Facility Compliance Act by providing incineration, stabilization, macroencapsulation, sizing/sorting/segregation, and lead cask dismantlement services for treatment of the Idaho National Engineering and Environmental Laboratory and other DOE complex sites' mixed low-level waste at the Waste Reduction Operations Complex through FY 2003.

This project also provides low-level waste volume reduction, where possible, through compaction, and size reduction at the Waste Reduction Operations Complex and disposal in the active pit of the Radioactive Waste Management Complex Subsurface Disposal Area. This project supports a centralized waste generator services function responsible for compliant management of waste from the point of generation through final disposition. Costs for waste characterization are charged back to generator customers, but the responsibility for compliance in waste management resides in the waste management function through waste generator services.

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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Other DOE complex or commercial low-level waste disposal facilities will be utilized after FY 2006 for contact-handled low-level waste. This project also enables the Idaho National Engineering and Environmental Laboratory to comply with the Resource Conservation and Recovery Act treatment and disposal requirements for hazardous waste using commercial treatment, storage, and disposal facilities.

- # Continue to operate waste generator services as a centralized function out of waste management.
- # Complete implementation of the Integrated Safety Management System and rigorous conduct of operations at treatment, storage, and disposal facilities.
- # Continue lead cask dismantlement activities.
- # Continue mixed low-level waste incineration, stabilization, sizing, and macroencapsulation at the Waste Reduction Operations Complex.
- # Continue low-level waste volume reduction activities at the Waste Reduction Operations Complex.
- # Continue contact handled and remote handled low-level waste disposal in the Radioactive Waste Management Complex Subsurface Disposal Area.
- # Continue management of mixed low-level storage facilities.
- # Continue to operate and maintain one storage facility for hazardous waste.
- # Continue consolidated packaging and transportation activities.
- # Continue off-site treatment and disposal of hazardous waste.
- # Initiate Maximum Achievable Control Technology and trial burn/burner upgrades to the Waste Experimental Reduction Facility Incinerator.
- # Initiate increased contaminated lead disposition.
- # Initiate the design and construction of additional remote handled low-level waste concrete vaults located at the Radioactive Waste Management Complex.

ID-WM-101 .....	25,442	26,636	26,655
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(dollars in thousands)

FY 1999	FY 2000	FY 2001
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Metrics			
Mixed Low-Level Waste			
Storage (m <sup>3</sup> ) . . . . .	2,219	4,267	4,200
Treatment (m <sup>3</sup> ) . . . . .	222	200	200
Commercial Disposal (m <sup>3</sup> ) . . . . .	75	52	52
Low-Level Waste			
Storage (m <sup>3</sup> ) . . . . .	3,027	1,000	1,000
Treatment (m <sup>3</sup> ) . . . . .	3,099	2,500	2,200
On-Site Disposal (m <sup>3</sup> ) . . . . .	4,671	4,000	2,500

**ID-WM-103 / Idaho National Engineering and Environmental Transuranic Waste**

The mission of the Transuranic Waste program is to safely store, treat, and prepare for disposal approximately 65,000 m<sup>3</sup> of transuranic mixed waste located at the Idaho National Engineering and Environmental Laboratory Radioactive Waste Management Complex. Most of the waste was originally received from the Rocky Flats Plant for interim storage until disposal at a permanent transuranic waste repository.

The Radioactive Waste Management Complex operations include waste characterization and certification of transuranic waste to meet the Waste Isolation Pilot Plant waste analysis plan requirements. This project is needed to meet the Idaho Settlement Agreement requirement to ship a minimum of 3,100 m<sup>3</sup> of transuranic waste out of the state by December 31, 2002. The remaining waste will be treated in the planned, privatized Advanced Mixed Waste Treatment Project to meet the Waste Isolation Pilot Plant waste analysis plan or other appropriate disposal facility requirements before it is shipped for disposal.

The Advanced Mixed Waste Treatment Project capital asset acquisition project (ID-WM-104) is discussed in the Defense EM Privatization account; and the Advanced Mixed Waste Treatment Project production operations project (ID-WM-105) is discussed in the Defense Post 2006 Completion account. All stored transuranic waste is planned to be removed from Idaho by December 31, 2015, but no later than December 31, 2018, as required by the Agreement.

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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- # Continue multishift transuranic waste examination operations, characterize 8,997 drums, certify 6,860 drums for shipment to the Waste Isolation Pilot Plant.
- # Continue intrusive sampling and visual examination at Argonne National Laboratory-West and Resource Conservation and Recovery Act analysis of samples.
- # Continue shipment of transuranic waste to the Waste Isolation Pilot Plant.
- # Provide Resource Conservation and Recovery Act-compliant storage for transuranic waste.
- # Develop remote-handled transuranic characterization and certification processes.
- # Provide facility base operations support services to ensure safe, environmentally compliant operations, maintenance, environment, safety and health support, updates to safety and health documents, and required monitoring and inspections.
- # Provide technical expertise, services, and facilities and equipment to support future development efforts.

ID-WM-103 ..... 37,354 46,994 44,230

Metrics			
Transuranic Waste			
Storage (m <sup>3</sup> ) .....	64,974	64,878	63,718
Shipped to WIPP for Disposal (m <sup>3</sup> ) .....	26	96	1,160

Total, Idaho ..... 112,059 106,285 100,692

### Explanation of Funding Changes from FY 2000 to FY 2001

FY 2001 vs. FY 2000 (\$000)
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#### ID-ER-101 / Test Area North Remediation

Environmental Management/Defense  
Environmental Restoration and Waste  
Management/Site/Project Completion/  
Idaho

FY 2001 Congressional Budget

FY 2001 vs. FY 2000 (\$000)
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# Increased funding to complete construction of the New Pump and Treat Facility and initiate operations .....	4,028
<b>ID-ER-104 / Central Facilities Area Remediation</b>	
# Increase funding to support full scale remediation at three sites .....	168
<b>ID-ER-105 / Power Burst Facility/Auxiliary Reactor Area</b>	
# Funding increased to initiate remediation at five contaminated soil sites .....	740
<b>ID-OIM-106 / Electrical and Utility Systems Upgrade Project</b>	
# Project approaching completion; decrease in funding consistent with project baseline funding profile and scope of work .....	-11,974
<b>ID-OIM-108 / Idaho National Engineering and Environmental Laboratory Road Rehabilitation</b>	
# Decrease represents winding down of the project activities consistent with the 2001 completion date .....	-2,716
<b>ID-OIM-109 / Health Physics Instrument Laboratory</b>	
# Decrease in funding is consistent with project planning to maintain schedule for FY 2001 .....	-690
<b>ID-OIM-110 / Pre-FY 2007 Surplus Facility Deactivation Project</b>	
# Increase reflects completion of the water removal portion of the deactivation of CPP-603, Wet Spent Fuel Deactivation Project .....	2,859
<b>ID-OIM-112 / Pre-FY 2007 Idaho National Engineering and Environmental Laboratory Surveillance and Maintenance</b>	
# Increase reflects surveillance and maintenance requirements for CPP-603, Underwater Fuel Receiving and Storage Building which was previously under the Spent Nuclear Fuel program, but now transferred to the deactivation program. ....	2,001
<b>ID-OIM-114 / Sitewide Idaho National Engineering and Environmental Laboratory Information Network</b>	
# Decrease reflects delay of start of construction phase of project .....	-50
<b>ID-OIM-115 / Site Operations Center</b>	
# Decrease reflects delay of construction phase of multi-purpose support facility to replace aging and deteriorating facilities. ....	-106
<b>ID-OIM-117 / Cathodic Protection System Expansion</b>	
# Increase is due to initiation of Title I design. ....	584
<b>ID-SC-101-PC / Validation and Verification Program</b>	

FY 2001 vs. FY 2000 (\$000)
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# Increase is due to transfer of scope from the Science and Technology program . . . . .	2,308
<b>ID-WM-101 / Idaho National Engineering and Environmental Low-Level Waste/Mixed Low-Level Waste/Other Waste Program</b>	
# Change reflects minor program adjustments. . . . .	19
<b>ID-WM-103 / Idaho National Engineering and Environmental Transuranic Waste</b>	
# Decrease in maintenance activities and deferral of procurement of spare parts for characterization equipment, and results in a five percent reduction of drums characterized in the Stored Waste Examination Pilot Plant and deferral of retrieval and repackaging of remote-handled transuranic waste. . . . .	-2,764
Total Funding Change, Idaho . . . . .	<u>-5,593</u>

# Oakland

## Mission Supporting Goals and Objectives

### Program Mission

The mission of the Defense Environmental Management (EM) Site/Project Completion program managed through the Oakland Operations Office, is to plan and implement remediation and waste treatment, storage, and disposal activities at three sites, two in California and one in New York. The sites are the Lawrence Livermore National Laboratory, consisting of the Livermore Site and Site 300, and the Separations Process Research Unit at the Knolls Atomic Power Laboratory in Schenectady, New York. Other DOE programs such as Defense Programs, Science, and Nuclear Energy's Naval Reactor Program continue to have operating facilities at these sites. Also, the Oakland Operations Office is responsible for the administration of State and educational grants funded by this appropriation.

### Program Goal

Environmental Management's programmatic goals are to ensure operating facilities and contaminated sites pose no undue risk to the public, worker health and safety; maintain compliance with applicable environmental laws; and manage risks associated with current and prior DOE operations. Prior to FY 2001, cleanup was to be completed at the Lawrence Livermore National Laboratory's Main Site by 2006, Site 300 by FY 2007, and at the Separations Process Research Unit site by 2014. The most recent estimates indicate that funding will be necessary beyond FY 2006 for the majority of the project completions. Therefore, these projects with the exception of the Decontamination and Waste Treatment Facility at the Lawrence Livermore National Laboratory have been moved to the Post 2006 account, consistent with the current budget structure.

### Program Objectives

The program objective is to: assess, remediate, decontaminate and decommission contaminated sites and facilities; characterize, treat, minimize, store, and dispose of hazardous and radioactive waste; and develop demonstrate, test and evaluate new cleanup technologies. These program activities use an integrated approach to assess work and meet schedules; while also balancing risk, mortgage reduction, compliance, cost efficiencies, stakeholder input and implementation of enhanced performance mechanisms. Financial responsibility for newly generated waste is expected to be returned to the generating DOE program in FY 2003. At the Lawrence Livermore National Laboratory all legacy waste will be characterized and shipped off-site. Long-term surveillance and maintenance of implemented remedial actions (e.g., pump and treat facilities) will be assumed by the landlord programs post FY 2006 or included in a long-term surveillance and

maintenance project. The Separations Process Research Unit will be cleaned up and all legacy waste will be characterized and shipped off-site by FY 2014.

The Oakland Operations Office has identified several innovative technologies to be evaluated and used for cleanup at the Lawrence Livermore National Laboratory. For example, field demonstrations using innovative technologies, such as in situ hydrous pyrolysis, Electrical Resistance Tomography, and biofiltration at the Lawrence Livermore National Laboratory main site. Electro-osmosis will be used as an innovative remediation technology to remove volatile organic compounds from the Lawrence Livermore National Laboratory main site in addition to pump and treat. At the Lawrence Livermore National Laboratory Site 300, a passive iron filings wall will be installed to intercept contaminated groundwater using the experience gained at another DOE site (Kansas City).

## **Performance Measures**

Performance Measures are provided at an aggregate level after each Funding by Site table, as well as at the project level in the Detailed Program Justification.

The Executive Budget Summary and the Metrics Summary provide a consistent set of high-level performance measures. The more detailed project-level justification provides a description of significant activities for each project including detailed project performance measures and key project milestones, as applicable.

## **Significant Accomplishments and Program Shifts**

- # At the Livermore Main Site, continue operation of four permanent treatment facilities and nine portable treatment units; install a soil vapor extraction treatment facility and solar treatment unit at Trailer 5475; install Treatment Facility D Area extraction wells; begin operation of Treatment Facility D-South portable unit and Treatment Facility A Area solar unit; complete one release site, and remove/dispose of 300 cubic meters of polychlorinated biphenyl contaminated soil at the East Traffic Circle (FY 1999).
- # Continue maintenance and operation of existing treatment systems; begin operation of a solar unit at Treatment Facility 518-North; start operation of a portable treatment unit at Treatment Facility E-Southwest; and initiate catalytic reductive dehalogenation operations (Phase 2) at Trailer 5475 at the Livermore Main Site (FY 2000).
- # At Livermore Site 300 continue operation and maintenance of current facilities, install off-site treatment system at the Eastern General Services Area; issue site-wide draft Record of Decision and final site-wide proposed plan; and hold public meeting (FY 2000).
- # Continued to operate and maintain groundwater treatment systems at the General Services Area/Operable Unit 1, Building 834/Operable Unit 2; begin interim action groundwater treatment system at Building 815/Operable Unit 4 and treatability study for contaminant removal at Building 854/Operable Unit 6 at Site 300 (FY 1999).

- # Prepared closure documentation for Buildings 514 and 612 at the Livermore Main Site (FY 1999).
- # At the Livermore Main Site, continued construction of Phase 3B and start construction of Phase 5 at the Decontamination and Waste Treatment Facility (FY 1999).
- # Complete Phase 5 and continue construction of Phase 3B at the Decontamination and Waste Treatment Facility at the Lawrence Livermore National Laboratory Main Site (FY 2000).
- # Began operation of the Explosive Waste Treatment Facility at Site 300 (FY 1999).
- # Completed testing activities of Molten Salt Oxidation and issue Request for Proposal at the Livermore site (FY 1999).
- # Award contract to commercialize Molten Salt Oxidation (FY 2000).
- # Issued an Environmental Assessment or Categorical Exclusion for the Large Container Processing Unit to meet National Environmental Policy Act requirements at the Livermore Site (FY 1999).
- # Complete design and begin fabrication of Large Container Processing Unit (FY 2000).
- # Initiate responsibility for surveillance and maintenance at the Separations Process Research Unit facilities and release request for procurement on Phase I characterization work (FY 2000).
- # Continue storage, treatment, and some off-site disposal of waste (low-level, mixed low-level, and transuranic waste) at Lawrence Livermore National Laboratory (FY 2000).
- # Complete construction of all phases at the Decontamination and Waste Treatment Facility, and begin operational testing (FY 2001).

### Funding Schedule

(dollars in thousands)

	FY 1999 Current Appropriation	FY 2000 Current Appropriation	FY 2001 Request
OK-001 / Lawrence Livermore National Laboratory Main Site Remediation . . . . .	13,972	9,708	0
OK-002 / Lawrence Livermore National Laboratory Site 300 Remedial Action . . . . .	7,383	10,985	0
OK-007 / Energy Technology Engineering Center Remediation . . . . .	500	0	0
OK-021 / Lawrence Livermore National Laboratory Base Program . . . . .	19,418	20,375	0
OK-026 / Lawrence Livermore National Laboratory General Plant Projects . . . . .	1,410	1,657	0
OK-027 / Lawrence Livermore National Laboratory Decontamination and Waste Treatment Facility . . . . .	4,752	2,000	2,000

**Environmental Management/Defense  
Environmental Restoration and Waste  
Management/Site/Project Completion/  
Oakland**

**FY 2001 Congressional Budget**

OK-040-D / State Grants . . . . .	3,755	783	0
OK-041 / Accelerated Waste Treatment . . . . .	730	1,722	0
OK-043 / Separations Process Research Unit . . . . .	0	489	0
Total, Oakland . . . . .	<u>51,920</u>	<u>47,719</u>	<u>2,000</u>

### Funding by Site

(dollars in thousands)

	FY 1999	FY 2000	FY 2001	\$ Change	% Change
Lawrence Livermore National Laboratory (CA) . . . . .	47,665	46,447	2,000	-44,447	-95.7%
Energy Technology Engineering Center . . . . .	500	0	0	0	0.0%
Separations Process Research Unit (NY) . . . . .	0	489	0	-489	-100.0%
Oakland Operations Office (CA) . . . . .	3,755	783	0	-783	-100.0%
Total, Oakland . . . . .	<u>51,920</u>	<u>47,719</u>	<u>2,000</u>	<u>-45,719</u>	<u>-95.8%</u>

### Metrics Summary

	FY 1999	FY 2000	FY 2001
Remedial Action/Release Site			
Assessments . . . . .	1	7	0
Cleanups . . . . .	5	7	0
Mixed Low-Level Waste			
Treatment (m <sup>3</sup> ) . . . . .	433	149	0
Commercial Disposal (m <sup>3</sup> ) . . . . .	321	149	0

### Site Description

#### Energy Technology Engineering Center

The Energy Technology Engineering Center is a DOE facility located on 90 acres of land leased from Boeing North America Corporation in Simi Valley, California. The environmental restoration activities at the Energy Technology Engineering Center are to remediate contaminated groundwater, complete decontamination and decommissioning of several remaining radiological facilities, deactivate and clean up existing sodium facilities, provide landlord functions, and perform waste characterization and off-site disposal. Overall site cleanup is projected to be completed by FY 2007 at which time it will be returned to the landowners.

## **Lawrence Livermore National Laboratory**

The Lawrence Livermore National Laboratory is a multi-disciplinary research laboratory specializing in weapons research and development which has two geographic locations in northern California. The Livermore Site is approximately one square mile and is located 40 miles east of San Francisco, near the City of Livermore. Site 300 is comprised of about 11 square miles and is located 15 miles southeast of the Livermore Site. Both the Livermore Site and Site 300 are on the Environmental Protection Agency's National Priorities List. Environmental Restoration activities at the Lawrence Livermore National Laboratory are focused on identifying contaminated groundwater and soil from past operations and implementing appropriate cleanup actions. The environmental restoration activities at the Lawrence Livermore National Laboratory are divided into nine Operable Units, one at the Livermore Site, eight at Site 300, with a total of 193 release sites. Waste management activities are directed at compliant storage, treatment, and off-site shipment for disposal of both legacy and currently generated hazardous and radioactive waste. Completion of the Decontamination and Waste Treatment Facility construction in FY 2001 will provide new, centralized and integrated facilities for the treatment of all Lawrence Livermore National Laboratory waste.

## **Separations Process Research Unit**

The Separations Process Research Unit located in Schenectady, New York is an inactive complex that requires decontamination and decommissioning. To date, no decontamination and decommissioning has been performed and the facilities have been placed in safe shutdown with the Nuclear Energy Naval Reactor Program maintaining landlord responsibilities. In FY 2000, surveillance and maintenance of these facilities will become the responsibility of the EM program. In addition to surveillance and maintenance, a basic health and safety program (radiation safety, industrial hygiene, industrial and nuclear safety) will be developed and implemented. Completion of the decontamination and decommissioning and remediation of the surrounding soil are planned for FY 2014.

## **Oakland Operations Office**

Based on an Oakland Operations Office and State of California developed statement of work, the Oakland Operations Office awards and manages grants provided to the State for oversight activities which include, participation in scoping meetings, review of documents, and involvement with the public. Also, the Oakland Operations Office provides funds and grants to support various activities, such as tribal colleges and universities, the Center for Environmental Excellence, independent reviews, and Hispanic scholarships.

## Detailed Program Justification

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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The Lawrence Livermore National Laboratory Livermore Site and Site 300 are managed through a performance based management and operating contract with the University of California to assure the most cost-effective services to the government. The scope planned for cleanup activities in FY 2001 has been reviewed and is appropriate to meet the goals of the site as outlined in the *Accelerating Cleanup: Paths to Closure*. These activities have had an independent cost review of the scope by the Corps of Engineers and the funds requested for FY 2001 are appropriate to perform the activities based on a historical level of effort costs.

### **OK-001 / Lawrence Livermore National Laboratory Main Site Remediation**

The mission of this project is to identify existing contamination from past operations, control contaminated groundwater migration, and effectively remediate soil and groundwater where contaminants exceed regulatory limits at the Livermore Site. This project consists of one operable unit and 120 release sites.

# The most recent estimates indicate that funding will be necessary beyond FY 2006 for project completion. Therefore, this project has been moved to the Post 2006 account, consistent with the budget structure.

OK-001 .....	13,972	9,708	0
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(dollars in thousands)

FY 1999	FY 2000	FY 2001
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Metrics			
Remedial Action/Release Site			
Assessments .....	1	2	0
Cleanups .....	1	2	0
Remediation Waste			
Disposed (m <sup>3</sup> ) .....	314	0	0
Key Milestones			
#	Begin operation of Treatment Facility 518-North Solar-Powered Water Activated-Carbon Treatment (January 2000)		
#	Begin operation of Treatment Facility-E-Southwest Mini Portable Treatment Unit (June 2000)		

**OK-002 / Lawrence Livermore National Laboratory Site 300  
Remedial Action**

This project's mission is to identify existing contamination from past operations, control contaminated groundwater migration, and effectively remediate soil and groundwater where contaminants exceed regulatory limits at Site 300. This project consists of eight operable units and 73 release sites.

# The most recent estimates indicate that funding will be necessary beyond FY 2006 for project completion. Therefore, this project has been moved to the Post 2006 account, consistent with the budget structure.

OK-002 .....	7,383	10,985	0
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(dollars in thousands)

FY 1999	FY 2000	FY 2001
---------	---------	---------

<b>Metrics</b>			
<b>Remedial Action/Release Site</b>			
Assessments .....	0	5	0
Cleanups .....	4	5	0
<b>Remediation Waste</b>			
Disposed (m <sup>3</sup> ) .....	24	0	0
<b>Key Milestones</b>			
#	Submit Draft Site-Wide (Operable Unit #8) Interim Record of Decision (July 2000).		

**OK-007-D / Energy Technology Engineering Center  
Remediation**

# This project supports decontamination and decommissioning activities, final survey, and independent verification at the Energy Technology Engineering Center, Santa Susana Field Laboratory Hot Cell which previously supported Defense Programs operations.

OK-007-D .....	500	0	0
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**OK-021 / Lawrence Livermore National Laboratory Base  
Program**

This project will formulate a centralized waste management program at Lawrence Livermore National Laboratory to ensure waste handling practices from the generating source through final disposition are consistent to ensure safe and compliant operations at the treatment, storage and disposal facilities. Waste types managed under this project include low-level waste, mixed low-level waste, transuranic waste, mixed transuranic waste and hazardous waste, and includes treatment and disposal at commercial facilities.

# The most recent estimates indicate that funding will be necessary beyond FY 2006 for project completion. Therefore, this project has been moved to the Post 2006 account, consistent with the budget structure.

OK-021 .....	19,418	20,375	0
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(dollars in thousands)

FY 1999	FY 2000	FY 2001
---------	---------	---------

Metrics	FY 1999	FY 2000	FY 2001
Transuranic Waste			
Storage (m <sup>3</sup> ) . . . . .	300	300	0
Mixed Low-Level Waste			
Storage (m <sup>3</sup> ) . . . . .	691	550	0
Treatment (m <sup>3</sup> ) . . . . .	433	149	0
Commercial Disposal (m <sup>3</sup> ) . . . . .	321	149	0
Low Level Waste			
Storage (m <sup>3</sup> ) . . . . .	1,711	1,655	0
Treatment (m <sup>3</sup> ) . . . . .	132	43	0
Shipped to DOE Disposal Site (m <sup>3</sup> ) . . . . .	691	573	0
Hazardous Waste			
Commercial Disposal (m <sup>3</sup> ) . . . . .	3,089	2,859	0

**OK-026 / Lawrence Livermore National Laboratory General Plant Projects**

General Plant Projects supports waste management operations to provide small capital improvements to property, purchase new/improved technology equipment, perform coded compliance updates, and/or upgrade existing buildings and utilities to meet current or new regulations and requirements.

# The most recent estimates indicate that funding will be necessary beyond FY 2006 for project completion. Therefore, this project has been moved to the Post 2006 account, consistent with the budget structure.

OK-026 . . . . .	1,410	1,657	0
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(dollars in thousands)

FY 1999	FY 2000	FY 2001
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**OK-027 / Lawrence Livermore National Laboratory  
Decontamination and Waste Treatment Facility (86-D-103)**

Construction of the Decontamination and Waste Treatment Facility at the Lawrence Livermore National Laboratory will provide new, centralized and integrated facilities for the hazardous waste management operations that will meet the requirement for a Low Hazard (chemical) Category 3 (nuclear) Facility.

- # Activate and begin operational testing of the Decontamination and Waste Treatment Facility.
- # Other activities will focus on completing the transition of operations from the old facilities to the new Decontamination and Waste Treatment Facility complex, while closing out the old facilities according to the Resource Conservation and Recovery Act permit plan.

OK-027 .....	4,752	2,000	2,000
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**Key Milestones**

- # Complete construction and begin testing of the Decontamination and Waste Treatment Facility (June 2001).

**OK-040-D / State Grants**

The purpose of the project is to provide funding to support grants for State regulatory agencies who have oversight of the Resource Conservation and Recovery Act and Comprehensive Environmental Response, Compensation, and Liability Act programs for DOE. A Memorandum of Agreement between the Department and Indian Nations allows for grants to support tribal universities and colleges.

- # The most recent estimates indicate that funding will be necessary beyond FY 2006 for project completion. Therefore, this project has been moved to the Post 2006 account, consistent with the budget structure.

OK-040-D .....	3,755	783	0
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(dollars in thousands)

FY 1999	FY 2000	FY 2001
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**OK-041 / Accelerated Waste Treatment**

Activities in this project are to accelerate waste treatment processes. Completed testing of Molten Salt Oxidation technology at Lawrence Livermore National Laboratory and issued request for proposal for commercial bids. Award contract in FY 2000 to selected contractor.

# The most recent estimates indicate that funding will be necessary beyond FY 2006 for project completion. Therefore, this project has been moved to the Post 2006 account, consistent with the budget structure.

OK-041 .....	730	1,722	0
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Key Milestones

# Pilot scale Molten Salt Oxidation Installation (September 2000).

**OK-043 / Separations Process Research Unit**

This project will remove radiological and hazardous contamination from the Separations Process Research Unit . Approximately 8 release sites will be remediated and 11 facilities will be decontaminated and decommissioned.

# The most recent estimates indicate that funding will be necessary beyond FY 2006 for project completion. Therefore, this project has been moved to the Post 2006 account, consistent with the budget structure.

OK-043 .....	0	489	0
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Metrics

This project has associated metrics; however, no metrics are reportable in the 3-year budget profile.

Key Milestones

# Characterization contract put into place (March 2000).

Total, Oakland .....	51,920	47,719	2,000
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## Explanation of Funding Changes from FY 2000 to FY 2001

FY 2001 vs.  
FY 2000  
(\$000)

**OK-001 / Lawrence Livermore National Laboratory Main Site Remediation**

# The most recent estimates indicate that funding will be necessary beyond FY 2006 for project completion. Therefore, this project has been moved to the Post 2006 account, consistent with the budget structure . . . . . -9,708

**OK-002 / Lawrence Livermore National Laboratory Site 300 Remedial Action**

# The most recent estimates indicate that funding will be necessary beyond FY 2006 for project completion. Therefore, this project has been moved to the Post 2006 account, consistent with the budget structure . . . . . -10,985

**OK-021 / Lawrence Livermore National Laboratory Base Program**

# The most recent estimates indicate that funding will be necessary beyond FY 2006 for project completion. Therefore, this project has been moved to the Post 2006 account, consistent with the budget structure . . . . . -20,375

**OK-026 / Lawrence Livermore National Laboratory General Plant Projects**

# The most recent estimates indicate that funding will be necessary beyond FY 2006 for project completion. Therefore, this project has been moved to the Post 2006 account, consistent with the budget structure . . . . . -1,657

**OK-027 / Lawrence Livermore National Laboratory Decontamination and Waste Treatment Facility**

# No change. Funding level maintained to complete the Decontamination and Waste Treatment Facility (construction project for processing transuranic waste, mixed low-level waste, low-level waste, hazardous waste, and other waste) at the Lawrence Livermore National Laboratory . . . . . 0

**OK-040-D / State Grants**

# The most recent estimates indicate that funding will be necessary beyond FY 2006 for project completion. Therefore, this project has been moved to the Post 2006 account, consistent with the budget structure . . . . . -783

FY 2001 vs. FY 2000 (\$000)
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**OK-041 / Accelerated Waste Treatment**

# The most recent estimates indicate that funding will be necessary beyond FY 2006 for project completion. Therefore, this project has been moved to the Post 2006 account, consistent with the budget structure . . . . . -1,722

**OK-043 / Separations Process Research Unit**

# The most recent estimates indicate that funding will be necessary beyond FY 2006 for project completion. Therefore, this project has been moved to the Post 2006 account, consistent with the budget structure . . . . . -489

Total, Oakland . . . . . -45,719

# **Hanford Site - Richland Operations Office**

## **Mission Supporting Goals and Objectives**

### **Program Mission**

The Hanford Site is the nation's largest former nuclear weapons production site, and the Hanford cleanup project is the largest, most technically complex, environmental cleanup project yet undertaken.

The Richland Operations Office mission is to protect the health and safety of Hanford workers, the surrounding public, and the environment. Its diverse activities are organized along three distinct and widely-supported outcomes: restoration of the Columbia River corridor (the majority of the Hanford land, including the river shoreline); transition of Hanford's 200 Area "central plateau" to long-term waste treatment and storage; and putting the government's Hanford assets, including land, cleanup technologies and experience to work for the taxpayers.

Under the Defense Environmental Management, Site/Project Completion account, the mission is to safely store and stabilize inventories of spent nuclear fuel and special nuclear materials. Included in this mission is deactivation of the nuclear facilities associated with these materials in order to reduce the risks posed by aging facilities and reduce the high annual costs for maintaining such facilities.

### **Program Goal**

The ultimate program goal at the Hanford site is to protect the Columbia River from radioactive and hazardous contamination, protect the public health and safety, and safeguard the environment. This program activity addresses the urgent risks associated with the first two outcomes -- stored spent nuclear fuel in close proximity to the Columbia River; plutonium, and other nuclear material inventories requiring stabilization; and the deactivation of the associated nuclear facilities that exist to maintain these inventories.

Under the Spent Nuclear Fuel Project the fuel in K-Basins is being removed from wet storage to dry storage, and is being relocated to higher ground in the central plateau region, known as the 200-Area. By 2006, the entire inventory of 2,100 metric tons of degrading spent nuclear fuel will be removed from the K-Reactor storage basins, and stored in a dry storage configuration in the Canister Storage Building. Schedules and milestones related to stabilizing the spent nuclear fuel are commitments in the Hanford Federal Facility Agreement and Consent Order, commonly referred to as the "Tri-Party Agreement" and the Defense Nuclear Facilities Safety board Recommendation 94-1 Implementation Plan. Deactivation of the K-East and K-West fuel storage basins would occur after fuel removal. The spent nuclear fuel would remain in dry storage awaiting final disposition, which is currently thought to be the permanent geologic repository.

The goal of the materials stabilization program is to stabilize and place in a safe interim storage configuration, by 2006, the entire inventory of about 4 metric tons of plutonium at the Plutonium Finishing Plant. Schedules and milestones related to stabilizing plutonium bearing materials at the Plutonium Finishing Plant are commitments in the Defense Nuclear Facilities Safety Board Recommendation 94-1 Implementation Plan. The goal of removing the stabilized material to an off-site location as soon as possible is being pursued. In conjunction with the stabilization activities at the Plutonium Finishing Plant, deactivation of the facility will occur in phases as sections of the plant are no longer needed for stabilization.

Deactivation of other former defense nuclear facilities on-site that fall under the Facility Transition Program will be accomplished. Deactivation of these facilities provides risk reduction benefits, outyear cost avoidances, and progress toward the Hanford outcome of transitioning the central plateau. Significant deactivation projects already completed include the Plutonium Uranium Extraction facility, which reduced the annual surveillance and maintenance costs from about \$34,000,000 to less than \$1,000,000 a year; the B-Plant, which reduced the annual surveillance and maintenance costs from about \$19,000,000 to less than \$1,000,000 per year; and the N-Reactor, whose annual surveillance and maintenance costs dropped from about \$16,000,000 to less than \$300,000 per year. The deactivation of facilities in the 300 Area, such as Buildings 324 and 327, will provide significant out year savings in surveillance and maintenance costs. In addition to deactivation of these surplus facilities, work efforts will include initiatives to prepare site assets for economic transition to the private sector, further reducing the costs of cleanup. With significant experience in nuclear facility deactivation, Richland provides lessons-learned and support to other facilities on-site as well as complex wide.

## **Program Objectives**

In FY 2001, the Spent Nuclear Fuel project will start removal and drying operations of the corroded fuel currently stored at the K-West Basin. The Canister Storage Building, located in the central 200 Area plateau, will begin operations in FY 2001 to receive and place the stabilized spent nuclear fuel in dry storage. The project will also conduct system installation, testing and start up preparations for starting removal and drying operations of the K-East Basin fuel scheduled to begin in early FY 2002.

At the Plutonium Finishing Plant, significant progress toward stabilization of plutonium bearing materials will continue in FY 2001. Specifically, 2,045 liters of plutonium bearing solutions will be stabilized, and 500 containers of plutonium metals and oxides will be stabilized. While stabilization activities proceed, the safe and secure storage of the special nuclear material in the Plutonium Finishing Plant is a primary objective. It will be achieved through surveillance and maintenance of the Plutonium Finishing Plant necessary to comply with the facility safety requirements and safeguards requirements. Safeguards requirements include obligation to comply with International Atomic Energy Agency non-proliferation inspections.

Deactivation activities will include buildings mostly in the 300 area, such as Buildings 324 and 327. Until deactivation is completed, the safe and secure maintenance of the facilities will be achieved through surveillance and maintenance of the facilities necessary to comply with the facility safety requirements and safeguards requirements.

## **Performance Measures**

Performance Measures are provided at an aggregate level after each Funding by Site table, as well as at the project level in the Detailed Program Justification.

The Executive Budget Summary and the Metrics Summary provide a consistent set of high-level performance measures. The more detailed project-level justification provides a description of significant activities for each project including detailed project performance measures and key project milestones, as applicable.

## **Significant Accomplishments and Program Shifts**

- # Completed Spent Nuclear Fuel stabilization facility pre-operational acceptance test (FY 1999).
- # Completed Spent Nuclear Fuel project safety designs (FY 1999).
- # Restarted plutonium stabilization activities at the Plutonium Finishing Plant (FY 1999).
- # Commenced prototype vertical denitration calciner stabilization operations at the Plutonium Finishing Plant (FY 1999).
- # Initiated procurement of plutonium packaging system for the Plutonium Finishing Plant (FY 1999).
- # Completed Building 324 B-Cell rack 1A size reduction and packaging of waste (FY 1999).
- # Complete fuel retrieval, drying, transport and storage system testing to support commencement of fuel removal from the K-West basin in early FY 2001 (FY 2000).
- # Complete installation of three additional plutonium stabilization furnaces at the Plutonium Finishing Plant (FY 2000).
- # Commence production stabilization of 255 liters of plutonium bearing solutions (FY 2000).
- # Continue stabilization of 400 containers of plutonium oxides (FY 2000).
- # Commence stabilization of 29 kilograms of plutonium bearing residues (FY 2000).
- # Complete Building 324 B-Cell rack 2A size reduction and packaging of waste (FY 2000).
- # Commence K-West Basin fuel removal, drying, and transport to the Canister Storage Building for dry storage (FY 2001).
- # Complete K-East Basin modifications in preparation for K-East Basin fuel removal in FY 2002 (FY 2001).
- # Commence design work for K-Basin sludge and debris removal system and sludge pretreatment system (FY 2001).
- # Continue stabilization of 2,045 liters of plutonium bearing solutions (FY 2001).

- # Continue stabilization of 500 containers of plutonium metals and oxides (FY 2001).
  
- # Begin operations of the bagless transfer system for packaging plutonium bearing materials provided in line-item construction project 98-D-453 (FY 2001).
  
- # Complete brushing and repackaging of plutonium metal inventory (FY 2001).
  
- # Continue limited clean out of Building 324 B Cell radiological contamination based on available funding (FY 2001).

### Funding Schedule

(dollars in thousands)

	FY 1999 Current Appropriation	FY 2000 Current Appropriation	FY 2001 Request
RL-TP01 / B-Plant Sub-Project . . . . .	2,716	0	0
RL-TP04 / 300 Area/Special Nuclear Materials Sub-Project . . . . .	4,444	2,687	2,550
RL-TP05 / Plutonium Finishing Plant Deactivation . . . . .	105,976	120,750	109,836
RL-TP08 / 324/327 Facility Transition Project . . . . .	31,547	32,872	22,624
RL-TP10 / Accelerated Deactivation . . . . .	1,738	2,076	2,229
RL-TP12 / Transition Project Management . . . . .	12,034	18,960	20,286
RL-TP14 / Surplus Facility 300 Area Revitalization . . . . .	628	664	605
RL-WM01 / Spent Nuclear Fuels Project . . . . .	170,378	190,409	191,337
<b>Total, Richland Operations Office . . . . .</b>	<b>329,461</b>	<b>368,418</b>	<b>349,467</b>

### Funding by Site

(dollars in thousands)

	FY 1999	FY 2000	FY 2001	\$ Change	% Change
Hanford . . . . .	329,461	368,418	349,467	-18,951	-5.1%
<b>Total, Richland Operations Office . . . . .</b>	<b>329,461</b>	<b>368,418</b>	<b>349,467</b>	<b>-18,951</b>	<b>-5.1%</b>

## Metrics Summary

	FY 1999	FY 2000	FY 2001
Nuclear Materials Stabilized			
Plutonium Residue (kg Bulk) . . . . .	0	29	0
Plutonium Metal/Oxides (containers) . . . . .	150	400	500
Spent Nuclear Fuel			
Moved to Dry Storage (MTHM) . . . . .	0	0	233

## Site Description

### Richland Operations Office--Hanford Site

The United States Department of Energy's Richland Operations Office manages the Department's Hanford Site, in Southeastern Washington State. The 1,465 square kilometer (560 square mile) site is bounded on the north by over 50 miles of the Columbia River, and to the south by Rattlesnake Ridge. The flat plateau containing the Hanford site is the only section of the mid-Columbia River that is not confined by gorges, and is known as the Hanford Reach. The Department leases some of Hanford's land to the State of Washington which in turn leases it to US Ecology and Energy Northwest (formerly Washington Public Power Supply System).

Hanford was established in secrecy during World War II to produce plutonium for the nation's nuclear weapons. Peak production years were reached in the 1960s when nine production reactors were in operation along the river. The last to be decommissioned was N-Reactor and its fuel in the K-Basins is now being relocated to higher ground in the central plateau, known as the 200-Area. The 200-Area had been the site of major nuclear chemical processing plants which were all shut down by the early 1990s. The 200-Area is now the core of major waste management operations, and includes 177 underground storage tanks containing the high-level waste from past processing operations. A major effort to immobilize these wastes by vitrification is underway by a privatization contractor. The Plutonium Finishing Plant is one of the last production facilities that will remain operational -- to process remaining plutonium materials. Other areas of the site include the Fast Flux Test Facility (400-Area) which does not currently have an operating mission (currently budgeted and managed by the Office of Nuclear Energy); research and development activities by Pacific Northwest National Laboratories in the 300-Area; and support facilities in the 1100-Area, most of which have been turned over to the local community.

The Hanford mission is now site cleanup and environmental restoration, including the groundwater/vadose zone

**Environmental Management/Defense  
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Richland**

**FY 2001 Congressional Budget**

integration project to protect the Columbia River. The cleanup is covered by a 1989 consent agreement between the Department of Energy, the Environmental Protection Agency, and the Washington State Department of Ecology. This Tri-Party Agreement contains enforceable milestones to bring Hanford into compliance with the Comprehensive Environmental Response, Compensation, and Liability Act and the Resource Conservation and Recovery Act. Most of the Hanford budget is directed at compliance with these milestones. Additionally, the Defense Nuclear Facilities Safety Board takes great interest in safety at Hanford and has issued recommendations which are the basis for the Defense Nuclear Facilities Safety Board commitments that are also high priority items within this budget.

### Detailed Program Justification

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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The site is managed through an incentivized management and integration contract, with fixed-price subcontracts, to assure the most cost-effective services to the Government. The scope of work planned for FY 2001 has been reviewed and is appropriate to meet the goals of the site as outlined in the *Accelerating Cleanup: Paths to Closure*. Nearly 100 percent of the project funding included in this section of the budget had an independent cost review of the scope, and the funds requested for FY 2001 are appropriate to perform the activities based on estimated project progress and accumulated cost management success.

#### RL-TP01 / B-Plant Sub-Project

This project deactivated and maintained B Plant and its ancillary facilities in a safe and cost-effective surveillance and maintenance status through FY 1998. It was turned over to the Environmental Restoration project during FY 1999.

# No activity in FY 2001.

RL-TP01 .....	2,716	0	0
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(dollars in thousands)

FY 1999	FY 2000	FY 2001
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**RL-TP04 / 300 Area/Special Nuclear Materials Sub-Project**

This project’s main objective is to complete deactivation and closure of the 300 Area Fuel Supply Shutdown complex. It includes regulatory compliant surveillance and maintenance of 1,800 metric tons of low-enriched uranium until it is dispositioned; isolating Building 313; closure of two remaining Resource Conservation and Recovery Act permitted treatment, storage, disposal systems; deactivation and stabilization activities at the Fuel Supply Shutdown complex; and disposition of the remaining low-enriched uranium.

# Continue the minimum level of surveillance and maintenance activities in order to assure safe operation of the associated facilities until risk and mortgage reducing deactivation is initiated in the future.

RL-TP04 .....	4,444	2,687	2,550
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<p>Metrics</p> <p>This project has associated metrics; however, no metrics are reportable in the 3-year budget profile.</p>
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**RL-TP05 / Plutonium Finishing Plant Deactivation**

Provides for safe and secure storage of special nuclear materials at the Plutonium Finishing Plant complex, and provides the basic infrastructure for nuclear material stabilization and facility deactivation. Implements the Defense Nuclear Facilities Safety Board Recommendation 94-1 by stabilizing and repackaging remaining plutonium-bearing materials at the Plutonium Finishing Plant.

# Continue the minimum level of surveillance and maintenance activities to assure safe operation of the associated facilities, as well as provide surveillance, monitoring, and safeguards for the stored special nuclear material.

# Support International Atomic Energy Agency non-proliferation activities at the Plutonium Finishing Plant. Approximately one metric ton of excess plutonium oxide is stored in the vaults under international safeguards. The International Atomic Energy Agency routinely inspects this material to ensure it is not diverted toward nuclear weapons applications.

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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# Continue stabilization of plutonium nitrate solutions.			
# Continue stabilization of plutonium metals and oxides.			
# Begin operation of the plutonium bagless transfer and packaging system provided in line-item construction project 98-D-453. This Project Baseline Summary contains \$10,699,000 in FY 1999, \$14,550,000 in FY 2000, and \$1,690,000 in FY 2001 for the line item construction project.			
# Complete brushing and repackaging of plutonium metal inventory.			
RL-TP05 .....	105,976	120,750	109,836

Metrics			
Nuclear Material Stabilized			
Plutonium Solution (liters) .....	16	255	2,045
Plutonium Residue (kg bulk) .....	0	29	0
Plutonium Metal/Oxides (containers) .....	150	400	500
Key Milestones			
# Complete core samples data package for Tank 241-Z-361 (May 2000).			
# Begin packaging of plutonium materials via bagless transfer system (October 2000).			
# Complete brushing and repackaging of plutonium metal inventory (March 2001).			

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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**RL-TP08 / 324/327 Facility Transition Project**

This project provides for planning, deactivation, and maintenance of a minimum safe status for the 324/327 facilities, cleanout of the B-Cell in the 324 building, and legacy waste removal from the 327 building. The 324 facility B Cell cleanout is of particular concern, since the facility represents a highly active dispersable hazardous and radioactive material source located adjacent to Hanford’s southern boundary with the City of Richland and the Columbia River.

- # Continue surveillance and maintenance activities in order to assure safe operation of the associated facilities until deactivation activities can be initiated.
- # Continue limited contamination cleanout and closure of Building 324 B Cell to address the risks posed by the presence of unmitigated radiological contamination.

RL-TP08 .....	31,547	32,872	22,624
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<p>Metrics</p> <p>This project has associated metrics; however, no metrics are reportable in the 3-year budget profile.</p>
<p>Key Milestones</p> <ul style="list-style-type: none"> <li># Complete Building 324 B-Cell rack 2A size reduction and packaging of waste (September 2000).</li> <li># Continue limited clean out of Building 324 B-Cell radiological contamination based on available funding (September 2001).</li> </ul>

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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**RL-TP10 / 200 Area Accelerated Deactivation**

This project provides for minimum safe surveillance and maintenance and deactivation of all Hanford contaminated facilities primarily within the central plateau 200 Area. There are 48 contaminated excess facilities that will eventually be included under this project, but most are not slated for transition to a safe, inexpensive condition until after FY 2001.

- # Continue minimum safe surveillance and maintenance on 222T, 222-U, 224-T, PUREX tunnels, and 231-Z.

RL-TP10 .....	1,738	2,076	2,229
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<p>Metrics</p> <p>This project has associated metrics; however, no metrics are reportable in the 3-year budget profile.</p>
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**RL-TP12 / Transition Project Management**

This project provides centralized program, project, and business management to plan, execute and control the Facility Stabilization Project. Tasks include common safeguards and security, environmental, safety and health and radiation control, quality assurance, systems engineering, support for technology development implementation, procurement, planning, integration of operations and project management of the Fluor Daniel Hanford contractor.

- # Prepare planning documents including FY 2002 multi-year work plans, FY 2003 Project Baselines Summaries and project priorities lists.
- # Continue to provide centralized integration of Environmental activities, including tri-party agreement implementation, regulator interface, facility compliance and Resource Conservation and Recovery Act permitting.
- # Continue development of plutonium disposition strategies at Hanford.
- # Provide continued program direction and integration to achieve progress within the overall Hanford cleanup context.

RL-TP12 .....	12,034	18,960	20,286
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Richland**

**FY 2001 Congressional Budget**

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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<p>Metrics</p> <p>This project has associated metrics; however, no metrics are reportable in the 3-year budget profile.</p>
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**RL-TP14 / Hanford Surplus Facility Program 300 Area Revitalization Project**

This project reduces the risk to the public, workers and environment of excess facilities near the Richland city limits and Columbia River in the 300 Area by removing, isolating, or stabilizing contaminants, providing surveillance and maintenance to assure releases do not occur, and keeping facilities from further deterioration until final disposition of the facilities is determined. There are 36 contaminated excess facilities that will eventually be included under this project.

- # Continue the minimum level of surveillance and maintenance activities in order to assure safe operation of seven facilities: 321, 321B, 321C, 321D, 3706, 3706A, and 377.

RL-TP14 .....	628	664	605
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<p>Metrics</p> <p>This project has associated metrics; however, no metrics are reportable in the 3-year budget profile.</p>
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**RL-WM01 / Spent Nuclear Fuels Project**

This project will move 2,100 metric tons of degrading spent nuclear fuel from wet storage in the K-East and K-West Basins near the Columbia River to safe, dry interim storage in the 200 Area Central Plateau. Continued use of these facilities far past their design lives threatens Hanford with a loss of radioactive storage basin water into the surrounding soil, and from there potentially into the Columbia River. This project includes: removing and repackaging of spent nuclear fuel, fuel drying, transport and staging, removal of sludge and debris from the K-Basins for appropriate disposition, treating and conditioning the water in the basins, and consolidating spent nuclear fuel in the Central Hanford 200 Area pending final disposition.

(dollars in thousands)

FY 1999	FY 2000	FY 2001
---------	---------	---------

- # Continue the minimum level of surveillance and maintenance activities to assure safe operation of the K-Basins, fuel conditioning facilities and equipment, and the canister storage building.
- # Commence K-West Basin fuel removal, drying, and transport to the Canister Storage Building for dry storage.
- # Commence design work for the K-Basin sludge and debris removal system, and sludge pretreatment system.
- # Complete K-East Basin modifications in preparation for K-East Basin fuel removal in FY 2002.

RL-WM01 ..... 170,378 190,409 191,337

Metrics			
Spent Nuclear Fuel			
Moved to Dry Storage (MTHM) .....	0.0	0.0	233.0
Key Milestones			
# Start K-West canister cleaning operations (May 2001).			
# Complete phased startup initiative testing for K-West Basin (August 2000).			
# Remove first multi-canister overpak from K-West Basin (November 2000).			

Total, Richland ..... 329,461 368,418 349,467

### Explanation of Funding Changes from FY 2000 to FY 2001

FY 2001 vs. FY 2000 (\$000)
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#### RL-TP04 / 300 Area/Special Nuclear Materials Sub-Project

# No significant change. .... -137

#### RL-TP05 / Plutonium Finishing Plant Deactivation

# Decrease reflects funding a large part of the plutonium packaging system construction project in FY 2000 ..... -10,914

FY 2001 vs. FY 2000 (\$000)
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**RL-TP08 / 324/327 Facility Transition Project**

# Decrease reflects limited progress in Building 324 B-Cell cleanout ..... -10,248

**RL-TP10 / Accelerated Deactivation**

# No significant change ..... 153

**RL-TP12 / Transition Project Management**

# Increase due to anticipated uranium disposition activities ..... 1,326

**RL-TP14 / Hanford Surplus Facility Program 300 Area Revitalization Project**

# No significant change ..... -59

**RL-WM01 / Spent Nuclear Fuels Project**

# No significant change ..... 928

Total Funding Change, Richland ..... -18,951

# **Savannah River**

## **Mission Supporting Goals and Objectives**

### **Program Mission**

The Savannah River Site is a key U.S. Department of Energy facility in accomplishing the mission of the Defense Environmental Management, Site/Project Completion account .

The Savannah River Cleanup Program mission is elimination of the legacy resulting from the production of nuclear materials during the Cold War. These legacy materials include contaminated facilities and land areas, many of which still contain nuclear materials and wastes. The Savannah River Site, located near Aiken, South Carolina, covers over 300 square miles and includes five nuclear reactors, two chemical separations facilities, fuel and target fabrication facilities, tritium processing facilities, a heavy water facility, two high-level waste tank farms, low-level waste storage and disposal facilities, a high-level waste treatment facility, the Savannah River Technology Center, and numerous administrative and technical support facilities. These facilities have varying degrees of environmental contamination (soil and groundwater); the majority of which will require some remedial action to address environmental and health risks.

The Savannah River Cleanup program is composed of the following major elements: spent nuclear fuel management, nuclear materials stabilization and storage, waste management (high-level, transuranic, hazardous, mixed low-level, and other), deactivation, remediation, and supporting landlord requirements.

### **Program Goal**

The Savannah River Site is committed to managing the spent nuclear fuel, stabilizing and storing nuclear materials, and managing all types of wastes using currently available (or near-term) technology and facilities. Eventually, the nuclear materials will be dispositioned, and the remaining spent nuclear fuel and wastes will be sent to geologic repositories. To the extent possible (to be determined through technical analyses, National Environmental Policy Act review, and the regulatory process), Savannah River is assisting other sites in eliminating their Cold War “legacies”. Savannah River Site personnel will continue planned stabilization of certain spent nuclear fuel and other nuclear materials (currently scheduled to be received or already received at Savannah River) in the F- and H-Area facilities. Achievement of this effort depends on attainment of productivity enhancements through 2006.

## **Program Objectives**

Although DOE has ceased production of nuclear materials for defense purposes and all Savannah River Site reactors are shut down, there remains a significant amount of legacy nuclear material in the "pipeline", both at Savannah River and across the DOE complex. The program objective is to stabilize these legacy nuclear materials, in various enrichments, concentrations, compounds, forms, and storage configurations, through further treatment/handling in order to place them in a form which can be safely stored until disposition or disposal. Stabilization means that changes must be made (conversion from a liquid to a solid, removal of reactive and other constituents, repackaging, etc.) in the form and/or storage conditions for nuclear materials such that they can be stored with minimal risk to workers, the public, and/or the environment until disposition. As long as significant quantities of nuclear materials in liquid or unstable forms continue to reside in the production facilities, most attributes of an operating facility must be maintained including: security, radiation protection, material control and accountability, trained and certified operator and maintenance personnel, essential safety system operation, emergency response capability, sampling and monitoring, configuration management, fire protection, and maintenance of the safety authorization basis, etc. Thus, the cost of continuing to store these materials in their current condition (surveillance and maintenance part of the budget) is very high and approaches the total cost of operating the facilities for the "cleanup" mission.

In July 1997, the Secretary of Energy approved the operation of both the F-Canyon and H-Canyon for the stabilization of "at risk" nuclear materials. The dual canyon strategy uses existing processes and facilities specifically designed for these materials, thus optimizing the site's capability for the completion of materials stabilization. Accordingly, the strategy would result in the expeditious stabilization of Savannah River Site nuclear materials in accordance with Defense Nuclear Facilities Safety Board Recommendation 94-1.

The Savannah River Site's F-Canyon and FB-Line will complete the stabilization of certain plutonium bearing materials covered by Defense Nuclear Facilities Safety Board Recommendation 94-1. H-Canyon and HB-Line will be operated to continue dissolving plutonium residues and certain spent nuclear fuel. The stabilization of certain Rocky Flats Environmental Technology Site plutonium residues and scrub alloy will be completed. Receipt and stabilization of plutonium residues from Rocky Flats supports DOE's goal for the accelerated closure of the Rocky Flats Environmental Technology Site. Development and installation of equipment for vitrifying the americium/curium solution stored in F-Canyon will continue.

The two chemical processing canyons at the Savannah River Site, and the related support facilities, have the capability to stabilize the Savannah River Site legacy materials (as well as some of the legacy materials from other sites in the DOE complex) for interim storage and eventual disposition. As of the end of FY 1999, these facilities had stabilized 3,500 gallons of Plutonium-242 solutions, 80,000 gallons of Plutonium-239 solutions, 16,000 corroding targets from the Savannah River Site-Reactor basins, 153 canisters of failed or de-clad spent fuel, and completed dissolution of 330 containers of plutonium residues and approximately 500 Mk-16/22 spent fuel assemblies. Remaining materials to be stabilized in the canyons include 9,000 gallons of Plutonium-239 bearing solutions, 60,000 gallons of enriched uranium bearing solutions, 3,800 gallons of americium/curium solution, 1,600 gallons of neptunium solutions, 1,400 assemblies of Savannah River fuels, 900 items of other aluminum-clad fuel and targets, 1,800 containers of plutonium and uranium vault materials, and up to 800 containers of plutonium residues from Rocky Flats. Proposed missions include stabilizing about 19 metric tons

of heavy metal of additional spent nuclear fuel to address potential health and safety vulnerabilities. Nuclear materials stabilized in the canyons will be stored at Savannah River until dispositioned.

Spent nuclear fuel that does not require stabilization for health and safety reasons will require additional treatment or packaging to prepare it for disposal in a geologic repository. The Alternative Technology Project is evaluating a melt and dilute option (preferred) and a co-dispose option (backup) that would provide a suitable form for disposal without separating the fissile element.

Deactivation will begin once the bulk nuclear materials are stabilized/removed from a facility and consists of activities such as removal of hazardous chemicals, flushing and cleanout of systems and equipment to the point that little contamination or safety risk to workers, the public, and the environment exists. As this is achieved, the attributes of an operating nuclear facility described above (security, radiation protection, material control and accountability, etc.) can be eliminated or substantially curtailed resulting in major reductions in surveillance and maintenance costs. Although additional deactivation would result in significant savings, extensive deactivation of the reactors (C-, P- and R-Areas), heavy water production (D-Area) ,and fuel fabrication facilities (M-Area) has resulted in major reductions in the annual surveillance and maintenance costs for these facilities.

Deactivation is yet to be substantially undertaken in K- and L-Areas, Separations (F- and H-Areas), and the waste management facilities in F-, H-, and S-Areas since these facilities are operating and/or still contain substantial quantities of nuclear materials or wastes.

The High-Level Waste program includes funding for construction line-item projects, such as the Tank Farm Support Services F-Area (99-D-402). The Landlord program includes support for construction line-item projects, such as Chlorofluorocarbon Heating, Ventilation and Air Conditioning Chiller Retrofit (96-D-471), Regulatory Monitoring and Bioassay Laboratory (97-D-470), Canyon Exhaust Upgrades (92-D-140), and an operating expense funded project, Laboratory Facilities Roof and Shielded Area Restoration 773-A and 772-F (99-EXP).

## **Performance Measures**

Performance Measures are provided at an aggregate level after the Savannah River Site Funding table, as well as, at the project level in the Detailed Program Justification.

The Executive Budget Summary and the Metrics Summary provide a consistent set of high-level performance measures. The more detailed project-level justification provides a description of significant activities for each project including detailed project performance measures and key project milestones, as applicable.

## **Significant Accomplishments and Program Shifts**

- # Completed the replacement of F-Canyon Process Vessel Vent System Number One (FY 1999).
- # Completed the replacement of H-Canyon Exhaust Fan Number Four (FY 1999).
- # Started construction of new F- and H-Canyon Diesel Generator Buildings (FY 1999).

- # Completed dissolution of Savannah River plutonium sweepings and turnings (FY 1999).
- # Initiated stabilization of Rocky Flats sand, slag, and crucible (FY 1999).
- # Deferred construction of the Actinide Packaging and Storage Facility subproject and conducted optimization analysis for surplus plutonium disposition missions that may come to Savannah River (FY 1999).
- # Completed detailed design and began construction activities of the K-Area Nuclear Material Storage Modifications subproject (FY 1999).
- # Issued the Savannah River Site Spent Nuclear Fuel Management Draft Environmental Impact Statement with preferred alternative for management of aluminum-based spent fuel and the Final Environmental Impact Statement (FY 1999); issue the Record of Decision (FY 2000).
- # Began characterization cabinet operation for characterization/repackaging Savannah River Site plutonium residues for dissolution in HB-line (FY 1999).
- # Complete stabilization of received Rocky Flats sand, slag, and crucible; initiate stabilization of Experimental Breeder Reactor II spent fuel (subject to ongoing National Environmental Policy Act review); continue declassification of Rocky Flats plutonium metal (subject to ongoing National Policy Act review); continue characterization and repackaging of plutonium residues; and continue packaging plutonium metal into 3013 inner containers as plutonium is converted to stable metal (FY 2000).
- # Begin receipt of Rocky Flats surplus non-pit plutonium metal and oxides for interim storage in the K-Area Nuclear Material Storage Facility (FY 2000); complete Rocky Flats plutonium receipt (FY 2002) [subject to ongoing National Environmental Policy Act review].
- # Complete H-Area cooling water upgrades, project complete (FY 2000).
- # Start construction for replacement piping for F-Area Tank Farm (FY 2000).
- # Continue construction for replacement service piping for F-Area Tank Farm (FY 2001).
- # Complete the replacement of F-Canyon Process Vessel Vent System Number Two (FY 2000).
- # Complete the replacement of H-Canyon Exhaust Fan Numbers One and Two (FY 2000) and Fan Number Three (FY 2001).
- # Mechanical completion of new F- and H-Canyon Diesel Generator Buildings (FY 2000).
- # Complete the replacement of F-Canyon Exhaust Fan Number Four (FY 2000) and Numbers One, Two, and Three (FY 2001).
- # Sign contract for sale of excess heavy water (FY 2000).
- # Complete receipt and stabilization of the Rocky Flats scrub alloy and Hanford plutonium alloys (subject to appropriate National Environmental Policy Act review (FY 2001).
- # Continue dissolution of plutonium residues in the HB-Line Phase I and Mark 16/22 fuel in H-Canyon

(FY 2001).

- # Begin demonstration of the melt and dilute technology for aluminum based spent fuel in the L-Area Experimental Facility using irradiated spent nuclear fuel assemblies (FY 2001).
- # Complete stabilization of the F-Area dissolved sweepings, plutonium/depleted uranium and Experimental Breeder Reactor II to metal (FY 2001).
- # Complete dismantlement, removal and preparation of a portion of the Multi-Purpose Processing Facility in support of the Americium/Curium project (FY 2000).
- # Award contract for in cell design and construction activities for the Americium/Curium project (FY 2000).
- # Complete facility checkout of existing equipment necessary for pretreatment in support of the Americium/Curium project (FY 2000).
- # Complete 221-F modification design required for vitrification of the Americium/Curium solution (FY 2001).

## Funding Schedule

(dollars in thousands)

	FY 1999 Current Appropriation	FY 2000 Current Appropriation	FY 2001 Request
SR-HL09 / Tank Farm Service Upgrades . . . . .	1,001	0	0
SR-HL10 / H-Tank Farm Storm Water System Upgrades . . . . .	3,479	3,903	217
SR-HL11 / Tank Farm Support Services F-Area . . . . .	3,064	4,078	8,996
SR-IN01 / Plantwide Fire Protection Line Item . . . . .	1,225	544	0
SR-IN04 / Domestic Water Line Item . . . . .	290	0	0
SR-IN05 / Chlorofluorocarbon Heating, Ventilation and Air Conditioning Chiller Retrofit Line Item . . . . .	10,395	2,185	13,853
SR-IN06 / Radio Trunking System Line Item . . . . .	130	0	0
SR-IN10 / Regulatory Monitoring and Bioassay Laboratory . . . . .	7,435	13,073	4,445
SR-IN13 / Laboratory Facilities Roof and Shielded Area Restoration 773-A and 772-F . . . . .	2,001	4,245	2,102
SR-NM01 / F-Area Stabilization Project . . . . .	188,554	204,386	207,670
SR-NM02 / H-Area Stabilization Project . . . . .	143,255	150,127	159,254
SR-NM03 / Savannah River Nuclear Material Storage Line Item . . . . .	41,213	8,554	7,644
SR-NM04 / Canyon Exhaust Line Item . . . . .	32,777	0	10,758
SR-NM08 / Highly Enriched Uranium Blend Down Project . . . . .	0	0	37,932
SR-SF01 / K-Area Spent Nuclear Fuel Project . . . . .	28,826	0	0
SR-SF04 / Heavy Water - D-Area . . . . .	8,353	0	0
SR-SF06 / Alternate Technology Project . . . . .	7,581	4,000	0
<b>Total, Savannah River . . . . .</b>	<b>479,579</b>	<b>395,095</b>	<b>452,871</b>

## Funding by Site

(dollars in thousands)

	FY 1999	FY 2000	FY 2001	\$ Change	% Change
Savannah River Site . . . . .	479,579	395,095	452,871	57,776	14.6%
<b>Total, Savannah River . . . . .</b>	<b>479,579</b>	<b>395,095</b>	<b>452,871</b>	<b>57,776</b>	<b>14.6%</b>

## Metrics Summary

	FY 1999	FY 2000	FY 2001
Nuclear Material Stabilized			
Plutonium Residue (kg Bulk) . . . . .	169	128	199
Plutonium Metal/Oxides (containers) . . . . .	125	0	0
Other Nuclear Material in Other Forms (handling units) . . . . .	438	132	457

## Site Description

### Savannah River

The complex covers 198,344 acres, or 310 square miles encompassing parts of Aiken, Barnwell, and Allendale counties in South Carolina, bordering the Savannah River.

The site is owned by the U.S. Department of Energy and operated by an integrated team led by Westinghouse Savannah River Company. Under the contract that went into effect October 1, 1996, the Westinghouse Savannah River Company is responsible for the site’s nuclear facility operations; Savannah River Technology Center; environment, safety, health, and quality assurance; and all of the site’s administrative functions. The team also includes Bechtel Savannah River Incorporated (parent company: Bechtel National Incorporated), which is responsible for environmental restoration, project management, engineering and construction activities; Babcock and Wilcox Savannah River Company (parent company Babcock and Wilcox Government Group), which is responsible for facility decontamination and decommissioning; and British Nuclear Fuels Limited Savannah River Corporation (parent company British Nuclear Fuels Limited Incorporated), which is responsible for the site’s solid waste program. Wackenhut Services, Incorporated is responsible for the site’s physical security program.

While the changing world has caused a downsizing of the site’s original defense mission, the future of the Savannah River Site lies in several areas: reducing the nuclear danger, supporting U.S. non-proliferation objectives, transferring applied environmental technology to government and non-government entities; cleaning up the site and managing the waste the Savannah River Site has produced; and forming economic and industrial alliances.

## Detailed Program Justification

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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The Savannah River Site is managed through an incentivized Management and Integration contract, with fixed-price subcontracts, to assure the most cost-effective services to the Government. The funds requested for FY 2001 are appropriate to perform the activities based on the use of the “Activity-Based Costing Methodology.” All construction line-item projects were validated and many projects received an independent cost estimate review.

### **SR-HL09 / Tank Farm Service Upgrades (96-D-408)**

The Tank Farm Services Upgrade project has four parts. Parts 1 and 2: H-Area West Hill service piping and gang valve house upgrades will replace buried service piping with easy access, above-ground trenches and pipe racks, thereby eliminating costly repairs to leaking, buried pipes. These upgrades will also replace the existing gang valve house (which services Tanks 35-37) with 3 new gang valve houses. Part 3: H-Area East Hill cooling water upgrades will replace worn out cooling water pumps and install additional cooling water pumps and heat exchangers to increase cooling water capacity and reliability to support the additional demands of In-Tank Precipitation and Extended Sludge Processing (SR-HL04). Part 4: F-Area electrical upgrades will alleviate overload conditions on a transformer and automatic transfer switch which cause power interruptions and associated unplanned work outages.

# The project will be completed in FY 2000 using prior year funds.

SR-HL09 .....	1,001	0	0
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(dollars in thousands)

FY 1999	FY 2000	FY 2001
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**SR-HL10 / H-Tank Farm Storm Water System Upgrades (98-D-401)**

The scope of this project includes evaluation of the entire stormwater collection, retention, and outfall system related to flooding condition surrounding Tanks 9-12H; awarding the design fixed-price contract; completing the detailed design work; awarding a construction fixed-price contract for diversion line replacements and the storm water pumping and monitoring system; and completing construction including installation of new manholes, storm water piping and diversion boxes, and modification to Diversion Box 907-1H and Retention Basin 281-8H.

# Startup will be completed in FY 2001.

# These funding levels include line item construction funding of \$3,120,000 in FY 1999, \$2,977,000 in FY 2000, and \$0 in FY 2001.

SR-HL10 .....	3,479	3,903	217
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**SR-HL11 / Tank Farm Support Services F-Area (99-D-402)**

The scope of this project includes replacement in F-Area Tank Farm of all service lines to Tanks 25-28, 33-34, and 44-47, as well as to the 242-16F evaporator. The existing underground service piping systems will be abandoned in place and not removed in order to minimize cost, radiological waste generation, and personal radiation exposure.

# Construction will continue in FY 2001 for a scheduled project completion in FY 2002.

# These funding levels include line-item construction funding of \$2,745,000 in FY 1999, \$3,100,000 in FY 2000, and \$7,714,000 in FY 2001.

SR-HL11 .....	3,064	4,078	8,996
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(dollars in thousands)

FY 1999	FY 2000	FY 2001
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**SR-IN01 / Plantwide Fire Protection Line Item (90-D-149)**

The project is to design, install, test, start-up and turnover to operation a cost-effective set of fire protection upgrades to numerous existing facilities across the Savannah River Site. The upgrades are designed to reduce the probability or consequences of a fire that could threaten public health or welfare, pose an undue hazard to site personnel, prevent unacceptable DOE program delays, or cause excessive property damage. The scope of the project has been redefined to limit remaining project work to primarily address only life safety issues as defined by national codes and standards relative to fire protection.

The project provides upgrades to existing facilities in various areas across the entire plant site. Upgrades include new or additional provisions to water supply and distribution systems, sprinkler suppression systems, standpipe and hose stations, manual and automatic fire alarm and detection systems, passive protection features, emergency lighting systems, and elevator recall functions. Upgrades will, or have been accomplished in 100 C-, K-, and L-Areas; Defense Waste Processing Facility (S-Area); and miscellaneous A-Area, N-Area, G-Area and other areas of the Site.

# Project will be completed in FY 2001 using prior year funds.

SR-IN01 .....	1,225	544	0
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**SR-IN04 / Domestic Water Line Item**

# Construction project has been completed and in the process of close out.

SR-IN04 .....	290	0	0
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(dollars in thousands)

FY 1999	FY 2000	FY 2001
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**SR-IN05 / Chlorofluorocarbon Heating, Ventilation and Air Conditioning Chiller Retrofit Line Item (96-D-471)**

Project provides for replacement or retrofit of refrigeration chillers containing chlorofluorocarbons that are located in various facilities sitewide.

- # Complete work on subprojects for B-Area and HB-Line chillers and turnover for startup testing.
- # Continue work on S-Area Chiller replacement subproject.
- # These funding levels include line-item construction funding of \$8,000,000 in FY 1999, \$931,000 in FY 2000, and \$12,512,000 in FY 2001.

SR-IN05 .....	10,395	2,185	13,853
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**SR-IN06 / Radio Trunking System Line Item**

- # Construction project has been completed and in the process of close out.

SR-IN06 .....	130	0	0
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**SR-IN10 / Regulatory Monitoring and Bioassay Laboratory (97-D-470)**

This project will design, build and equip a new Regulatory Monitoring and Bioassay Laboratory for the Environmental Monitoring and Health Physics Technology departments of the Environmental, Safety, Health and Quality Assurance Division at the Savannah River Site. The new facility will continue to provide full compliance with Occupational Safety and Health Administration, radiation protection requirements, industrial hygiene and environmental protection requirements as detailed in Federal and state regulations and DOE Orders.

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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The Regulatory Monitoring and Bioassay Laboratory will house the equipment and personnel to support site requirements to sample, prepare and analyze environmental media (air, water, soil) for radiological, chemical and biological parameters; develop technologies to clean and monitor the environment; and determine, evaluate and document personnel exposure to radioactive materials. The new laboratory and support facilities will include laboratory modules, sample preparation areas, analytical instrument rooms, mechanical and electrical support services, storage space, and offices for technical and administrative personnel. The structural, mechanical, electrical and architectural design provisions will consider expansion capability for additional laboratory modules and associated support features.

- # Complete construction phase and startup testing.
- # Final year of construction funding.
- # These funding levels include line-item construction funding of \$7,000,000 in FY 1999, \$12,220,000 in FY 2000; and \$3,949,000 in FY 2001.

SR-IN10 .....	7,435	13,073	4,445
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**SR-IN13 / Laboratory Facilities Roof and Shielded Area Restoration 773-A and 772-F (99-EXP)**

The project will decontaminate areas of the service floor of 772-F and decontaminate and replace the roof of 773-A. Approximately 15,000 square feet of the area in Building 772-F will be decontaminated. The project will also replace parts of the 773-A roof equipment to preclude any additional contamination from occurring due to leaking exhaust components.

At Building 773-A, approximately 150,000 square feet of roofing area will be replaced. Leaks through the contaminated roofing are currently contaminating interior laboratory modules requiring significant expense to decontaminate work areas.

- # Roof replacement of Building 773-A will be completed in FY 2001.
- # Construction activities to decontaminate Building 772-F will start in FY 2002.

SR-IN13 .....	2,001	4,245	2,102
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(dollars in thousands)

FY 1999	FY 2000	FY 2001
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### **SR-NM01 / F-Area Stabilization Project**

This project involves the safe management of Savannah River Site nuclear materials and the conversion of “at risk” nuclear materials into stable forms suitable for interim to long-term storage using the F-Canyon, FB-Line, 235-F, and supporting facilities in response to Defense Nuclear Facilities Safety Board Recommendation 94-1. Additionally, a limited quantity of certain off-site nuclear materials from the Rocky Flats Environmental Technology Site are to be stabilized using these facilities.

Additional nuclear materials proposed to be stabilized in the F-Canyon facilities include a limited quantity of Hanford Site plutonium residues and metal.

- # Provides for the surveillance, maintenance, and operation of the F-Canyon, FB-Line, 235-F, related facilities, and associated nuclear materials.
- # Initiate and complete dissolution of Rocky Flats scrub alloy.
- # Begin dissolving Rocky Flats plutonium fluoride residues (subject to completion of appropriate National Environmental Policy Act review).
- # Begin and complete dissolution of Hanford plutonium alloys (subject to completion of appropriate National Environmental Policy Act review).
- # Continue Americium/Curium Vitrification Project activities.
- # Fund various capital equipment and general plant projects in support of F-Area surveillance and maintenance activities.
- # Receive and process laboratory waste resolutions.

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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- # Building 235-F and FB-Line vaults will remain operational storing residues and stabilized nuclear materials.
- # Building 235-F process and laboratory areas will be maintained in a safe and environmentally sound shutdown condition awaiting deactivation.
- # Complete stabilization of the F-Area dissolved sweepings, plutonium/depleted uranium and Experimental Breeder Reactor II to metal.

SR-NM01 ..... 188,554 204,386 207,670

Metrics			
Nuclear Material Stabilized			
Plutonium Residue (kg bulk) .....	169	128	199
Plutonium Metal/Oxides (containers) .....	125	0	0
Other Nuclear Material in Other Forms (handling units) .....	438	132	457
Nuclear Material Made Disposition Ready			
Other Nuclear Material in Solution Form (liters) .....	6,200	0	0
Key Milestones			
# Complete FY 1999 Nuclear Material Inventory Assessment (February 2000)			

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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**SR-NM02 / H-Area Stabilization Project**

The purpose of the H-Area Stabilization project is to stabilize “at risk” nuclear materials remaining in the nuclear weapons materials processing pipeline at the end of the Cold War and to deinventory H-Canyon and HB-Line for transition to minimum surveillance and maintenance and eventual decontamination and decommissioning. These activities are in response to the Defense Nuclear Facilities Safety Board Recommendation 94-1. Other drivers are the Plutonium and Highly Enriched Uranium Vulnerability Studies, and the Record of Decision associated with the Disposition of Surplus Highly Enriched Uranium Final Environmental Impact Statement.

Stabilization or preparation for disposition of highly enriched uranium solutions, neptunium solutions, plutonium solutions, plutonium residues, and certain spent and unirradiated nuclear fuel require operation of H-Canyon and/or HB-Line.

The following stabilization activities for H-Area will be supported:

- # Continue dissolving plutonium residues in HB-Line Phase I.
- # Continue preparation to start up HB-Line Phase II.
- # Continue dissolving Mark-16 and 22 and, subject to completion of appropriate National Environmental Policy Act review, other spent fuel in preparation for blending the resulting solution to low enriched or depleted uranium for transfer to Tennessee Valley Authority or disposition.

SR-NM02 .....	143,255	150,127	159,254
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Metrics	
Nuclear Material Stabilized *	* Metrics for PBSs SR-NM01 and SR-NM02 are combined. Separation of these metrics would create classified metrics.
Plutonium Residue (kg Bulk) .....	
Uranium in Other Forms (kg Bulk) .....	
Plutonium Metal/Oxides (containers) .....	
Other Nuclear Material in Other Forms (handling units) .....	

**SR-NM03 / Savannah River Nuclear Material Storage Line  
Item (97-D-450)**

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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This project addresses interim and long-term storage, packaging, and stabilization of Savannah River Site materials, and subject to decisions made pursuant to the National Environmental Policy Act reviews, Rocky Flats and Hanford nuclear materials awaiting disposition.

This project consists of three subprojects:

The Actinide Packaging and Storage Facility, which was planned to repackage and store Savannah River Site material and, subject to a decision pursuant to the National Environmental Policy Act review, store Hanford plutonium. The Department is considering termination of this subproject if the evaluation of the 235-F Stabilization subproject (or other alternatives) appears economically superior to meet the Defense Nuclear Facilities Safety Board 94-1 commitment to stabilize and package plutonium in accordance with DOE-STD-3013.

The K-Area Nuclear Material Storage Modification subproject is planned to store stabilized plutonium from Rocky Flats. This subproject, which will be completed in FY 2000, is needed to accelerate shipments of plutonium from Rocky Flats to the Savannah River Site to support closure of Rocky Flats by 2006.

The 235-F Stabilization subproject, which would provide for stabilization and repackaging of Savannah River Site material (this subproject has not been validated or baselined, and does not yet have a firm funding profile or schedule). The subproject will be validated if a decision is made to pursue this subproject to meet the Defense Nuclear Facilities Safety Board 94-1 commitments to stabilize and package plutonium in accordance with DOE-STD-3013. Additionally, the 235-F subproject will examine the feasibility of modifying existing Savannah River Site facilities to provide the consolidated plutonium storage at the Savannah River Site envisioned in the scope of the Actinide Packaging and Storage Facility design.

The FY 2001 funding will support activities such as conducting environmental permit surveillance, erosion control, and water handling for the existing Actinide Packaging and Storage Facility construction site.

The following activities will be minimally supported for the 235-F Stabilization subproject:

# Conceptual design

**Environmental Management/Defense  
Environmental Restoration and Waste  
Management/Site/Project Completion/  
Savannah River**

**FY 2001 Congressional Budget**

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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- # Long-lead procurement
- # Detail design
- # Preparation of safety documentation
- # Security assessment
- # These funding levels include line-item construction funding of \$35,184,000 in FY 1999; \$4,000,000 in FY 2000; and \$0 in FY 2001.

SR-NM03 .....	41,213	8,554	7,644
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Key Milestones		
#	Complete construction of K-Area Nuclear Material Storage Phase II (December 2000).	

**SR-NM04 / Canyon Exhaust Line Item (92-D-140)**

This project replaces the aging critical electrical and mechanical exhaust equipment in both F- and H-Canyons that will provide for reliable contamination control consistent with the Savannah River Site safety criteria and Federal and state air exhaust and underground tank regulations. The project scope is divided into three design packages: design package-1 covers the rerouting of the canyon recycle vessel vent systems; design package-2 removes and replaces the six underground diesel fuel storage tanks; and, design package-3 replaces the existing canyon exhaust fan and diesel houses as well as two F-Canyon process vessel ventilation systems. FY 2001 funding is required to complete the project. (This funding level reflects plant and operating expense funds).

- # Complete Canyon Exhaust Fans in F- and H-Area.
- # Complete Canyon Exhaust Fans subproject.
- # These funding levels include line-item construction funding of \$25,667,000 in FY 1999; \$0 in FY 2000; and \$8,879,000 in FY 2001.

SR-NM04 .....	32,777	0	10,758
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(dollars in thousands)

FY 1999	FY 2000	FY 2001
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Key Milestones

- # Complete Canyon Exhaust detail design (June 2000).
- # Physical completion of F-Area Canyon Exhaust fans (June 2001).
- # Physical completion of H-Area Canyon Exhaust fans (August 2001).

**SR-NM08 / Highly Enriched Uranium Blend Down Project**

The purpose of the Highly Enriched Uranium Blend Down Project is to provide the infrastructure to support the Office of Materials Disposition's Off-Specification Fuel Program. This program entails blending DOE surplus highly enriched uranium down to low enriched solution for transfer to the Tennessee Valley Authority for manufacture into fuel for the Tennessee Valley Authority commercial power reactors. Since the highly enriched uranium has been reprocessed and contaminants are present, any reactor fuel made from down blended product will be "off-specification".

The Tennessee Valley Authority is currently conducting reactor operations with lead test assemblies made from representative material for licensing purposes. The Department of Energy and the Tennessee Valley Authority have signed a Memorandum of Understanding and DOE subsequently signed a Letter of Intent to proceed. Both parties will agree to final terms in an interagency agreement that is expected to be finalized in FY 2000.

This program will further three important DOE goals, namely, stabilization of highly enriched uranium solutions in accordance with commitments in the Department's Implementation Plan for Defense Nuclear Facilities Safety Board Recommendation 94-1, disposition of surplus highly enriched uranium and nuclear non-proliferation. Also, it will significantly reduce Tennessee Valley Authority's costs as compared to virgin fuel. These savings will be shared by DOE and the Tennessee Valley Authority according to terms specified in the existing Memorandum of Understanding and the proposed Interagency Agreement.

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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The project scope includes building a solution loading station to enable transfer of low enriched uranium solution from H-Area tanks to shipping containers, analytical laboratory modification, and safeguards and security and storage/operating area upgrades to support uranium movements, handling, processing, and storage.

The Office of Materials Disposition began this project and provided \$650,000 conceptual funding in FY 1999. Upon execution of the Interagency Agreement between DOE and the Tennessee Valley Authority, the Tennessee Valley Authority will provide advance funding of \$10,000,000 to be recovered from program savings. The Office of Environmental Management will provide FY 2001 funding.

SR-NM08 .....	0 <sup>a</sup>	0 <sup>b</sup>	37,932
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**SR-SF01 / K-Area Spent Nuclear Fuel Project**

The K-Reactor Spent Nuclear Fuel project provides basin storage of the Savannah River Site spent nuclear fuel awaiting stabilization, as well as storage for heavy water and nuclear materials awaiting disposition. K-Area also serves as an administrative and operational support location for all spent nuclear fuel storage activities.

- # Safely manage the spent nuclear fuel stored in the basin.
- # A mission for interim storage of special nuclear material from DOE Rocky Flats has been added to the scope of this (K-Reactor spent nuclear fuel) project. With addition of this mission, the K-Reactor area will not be available for deactivation in FY 2002 as previously planned. Storage of Rocky Flats plutonium is scheduled to continue until FY 2012. This change in mission required this Project Baseline Summary to be moved to the Post 2006 Completion account in FY 2000.

SR-SF01 .....	28,826	0	0
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<sup>a</sup>\$650,000 provided by the Office of Materials Disposition.

<sup>b</sup>\$10,000,000 to be provided by the Tennessee Valley Authority upon Interagency Agreement completion.

(dollars in thousands)

FY 1999	FY 2000	FY 2001
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**SR-SF04 / Heavy Water - D-Area**

The heavy water processing project provides for the consolidated storage of heavy water into K-Reactor. The K-Reactor was previously modified to provide storage of 3,000 drums of heavy water.

# The heavy water processing project has previously been included in the Site/Project Completion account with the cost of operations offset by heavy water sales revenue. Previously, heavy water rework and Dupont water operations in D-Area were scheduled to cease by December 2000. Recent events surrounding the sale of heavy water placed the Heavy Water program into the Post 2006 Completion account in FY 2000 since the heavy water deliveries will continue through FY 2008. This change in mission required the Project Baseline Summary to be moved to the Post 2006 Completion account in FY 2000.

SR-SF04 .....	8,353	0	0
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(dollars in thousands)

FY 1999	FY 2000	FY 2001
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**SR-SF06 / Alternate Technology Project**

The purpose of the Alternative Technology project is to develop alternative treatment and packaging technologies for aluminum-based research reactor spent nuclear fuel, with specific focus on melt and dilute (preferred) and direct co-disposal with high-level waste (backup) technologies, that would put the spent nuclear fuel in a form suitable for geologic disposal without necessarily separating the fissile materials.

# Funding for the Alternate Technology project was reduced for FY 2000, but increased for FY 2001. Funding for the companion Treatment and Storage Facility Project was eliminated in FY 2001 to allow time for the completion of research and development activities prior to project initiation. The L-Area Experimental Facility will be completed in FY 2001 and will operate to demonstrate the technology using irradiated fuel. Conceptual design for the design-only line item project 00-D-401, Spent Nuclear Fuel Treatment and Storage Facility, will be completed in FY 2002. Plans are to resume the project in FY 2003 with initiation of the design of the construction project. The goal of the design-only project is to provide a well established baseline for the construction project. The most current schedule for completion of the Alternate Technology project indicates an FY 2008 activity completion. This change in schedule requires this Project Baseline Summary to be moved to the Post 2006 Completion account in FY 2001.

SR-SF06 .....	7,581	4,000	0
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Key Milestones			
#	Complete L-Area Experimental Facility validation testing (September 2000).		

Total, Savannah River .....	<u>479,579</u>	<u>395,095</u>	<u>452,871</u>
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## Explanation of Funding Changes from FY 2000 to FY 2001

FY 2001 vs.  
FY 2000  
(\$000)

<b>SR-HL10 / H-Tank Farm Storm Water System Upgrades</b>	
# Construction line-item project is completed in FY 2000 .....	-3,686
<b>SR-HL11 / Tank Farm Support Services F-Area</b>	
# Increase in funding level based on construction schedule .....	4,918
<b>SR-IN01 / Plantwide Fire Protection Line Item</b>	
# Project will be completed and closed out .....	-544
<b>SR-IN05 / Chlorofluorocarbon Heating, Ventilation and Air Conditioning Chiller Retrofit Line Item</b>	
# Increase due to current construction schedule and new scope for B-Area chillers .....	11,668
<b>SR-IN10 / Regulatory Monitoring and Bioassay Laboratory</b>	
# Decrease in funding level due to the completion of construction .....	-8,628
<b>SR-IN13 / Laboratory Facilities Roof and Shielded Area Restoration 773-A and 772-F</b>	
# Decontamination work in Building 772-F is delayed .....	-2,143
<b>SR-NM01 / F-Area Stabilization Project</b>	
# Increase in funding for the Americium/Curium project .....	3,284
<b>SR-NM02 / H-Area Stabilization Project</b>	
# Increase in funding due to increased activity on HB-Line Phase II startup .....	9,127
<b>SR-NM03 / Savannah River Nuclear Material Storage Line Item</b>	
# Decrease in funding level reflects completion of the K-Area Nuclear Material Storage Modification subproject in FY 2000 .....	-910
<b>SR-NM04 / Canyon Exhaust Line Item</b>	
# No FY 2000 funds were requested due to the FY 1999 reprogramming that increased this project by \$26,300,000. This permits accelerated replacement of vital safety equipment which has been failing. FY 2001 funding will permit completion of the project .....	10,758

FY 2001 vs. FY 2000 (\$000)
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**SR-NM08 / New Blend Down Project**

# Increase in funding to initiate a new project to support the Office of Materials Disposition's Off-Specifications Fuel Program and the Defense Nuclear Facilities Safety Board 94-1 requirements .....	37,932
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**SR-SF06 / Alternate Technology Project**

# Decrease reflects movement of the project to the Post 2006 Completion account .....	-4,000
<b>Total Funding Change, Savannah River .....</b>	<b><u>57,776</u></b>

**Major Issues**

# The Savannah River Site program is predicated on the ability to achieve substantial efficiencies. This may require a restructuring of the Savannah River contractor workforce.

# **Multi-Site**

## **Mission Supporting Goals and Objectives**

### **Program Mission**

The mission carried out by the Multi-Site program is to integrate crosscutting activities across the DOE complex.

### **Program Goal**

The goal of the Multi-Site program is to allow the Environmental Management (EM) program to better coordinate EM-wide and the Department of Energy (DOE)-wide program efforts and avoid overlaps and inconsistencies.

### **Program Objectives**

The activities of the Multi-Site program focused attention on several areas that impacted the Environmental Management goals and planned efforts which cut across the Department of Energy complex.

### **Performance Measures**

There are no Performance Measures associated with the Multi-Site activities.

### **Significant Accomplishments and Program Shifts**

- # Provided EM and others with technical support required for congressional and Departmental initiatives and corrected deficiencies that surfaced during the year (FY 1999/FY 2000).

## Funding Schedule

(dollars in thousands)

	FY 1999 Current Appropriation	FY 2000 Budget Request	FY 2001 Request
HQ-PM-PC / Policy and Management .....	1,188	457	0
<b>Total, Multi-Site Activities .....</b>	<b>1,188</b>	<b>457</b>	<b>0</b>

## Funding by Site

(dollars in thousands)

	FY 1999	FY 2000	FY 2001	\$ Change	% Change
Multi-Site .....	1,188	457	0	-457	-100.0%
<b>Total, Multi-Site .....</b>	<b>1,188</b>	<b>457</b>	<b>0</b>	<b>-457</b>	<b>-100.0%</b>

## Detailed Program Justification

(dollars in thousands)

	FY 1999	FY 2000	FY 2001
<b>HQ-PM-PC / Policy and Management</b>			
<p>The activities funded by this Project Baseline Summary furnished EM and others the technical support required for congressional and Departmental initiatives associated with the EM program that surfaced during the year.</p> <p># No activity.</p>			
HQ-PM-PC .....	1,188	457	0
<b>Total, Multi-Site</b>	<b>1,188</b>	<b>457</b>	<b>0</b>

## Explanation of Funding Changes from FY 2000 to FY 2001

Environmental Management/Defense  
 Environmental Restoration and Waste  
 Management/Site/Project Completion/  
 Multi-Site

FY 2001 Congressional Budget

FY 2001 vs.  
FY 2000  
(\$000)

**HQ-PM-PC / Policy and Management**

**Environmental Management/Defense  
Environmental Restoration and Waste  
Management/Site/Project Completion/  
Multi-Site**

**FY 2001 Congressional Budget**

FY 2001 vs. FY 2000 (\$000)
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# Activities were completed in FY 2000 .....	-457
Total, Multi-Site .....	<u>-457</u>

# Capital Operating Expenses & Construction Summary

## Capital Operating Expenses

(dollars in thousands)

	FY 1999	FY 2000	FY 2001	\$ Change	% Change
General Plant Projects . . . . .	8,550	3,379	19,958	16,579	490.6%
Accelerator Improvement Projects . . . . .	0	0	0	0	0%
Capital Equipment . . . . .	14,697	12,526	9,796	-2,730	-21.8%
<b>Total, Capital Operating Expense . . . . .</b>	<b>23,247</b>	<b>15,905</b>	<b>29,754</b>	<b>13,849</b>	<b>87.1%</b>

## Construction Projects

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Appropriations	FY 1999	FY 2000	FY 2001	Unappropriated Balance
01-D-402 INTEC Cathodic Protection System Expansion, ID . . . . .	6,000	0	0	0	500	5,500
01-D-407 Highly Enriched Uranium (HEU) Blend Down Project, SR . . . . .	74,900	0	0	0 <sup>a</sup>	27,932	46,968
99-D-402 Tank Farm Support Services, F&H Area, SR . . . . .	18,599	0	2,745	3,100	7,714	5,040
99-D-404 Health Physics Instrumentation Laboratory, ID . . . . .	12,950	0	950	5,000	4,300	2,700
98-D-401 H-Tank Storm Water Systems Upgrade, SR . . . . .	8,934	1,000	3,120	2,977	0	1,837
98-D-453 Plutonium Stabilization and Handling System for PFP, RL . . . . .	34,700	3,136	10,699 <sup>b</sup>	14,550	1,690	4,625
98-D-700 INEEL Road Rehabilitation, INEEL . . . . .	10,800	500	7,710	2,590	0	0

<sup>a</sup> The Tennessee Valley Authority has agreed to contribute \$10,000,000 under authority of Section 301 of the Energy and Water Development Appropriations Act of 1993: \$7,500,000 total estimated cost, \$2,500,000 other project cost.

<sup>b</sup> Reflects FY 1999 reduction of \$16,115,000 from new budget authority to meet the uncoded reduction included in the FY 1999 Energy and Water Development Appropriation.

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Approp- riations	FY 1999	FY 2000	FY 2001	Unapprop- riated Balance
97-D-450 Savannah River Nuclear Material Storage, SR . . . . .	TBD	35,400	35,184 <sup>a b</sup>	4,000	0	TBD
97-D-470 Regulatory Monitoring and Bioassay Laboratory, SR . . . . .	31,269	8,100	7,000	12,220	3,949	0
96-D-406 Spent Nuclear Fuels Canister Storage and Stabilization Facility, RL . . . . .	188,537	125,416	42,180 <sup>c</sup>	20,941	0	0
96-D-408 Waste Management Upgrades, VL (Kansas City Plant and Savannah River Subprojects) . . . . .	10,732	10,732	0 <sup>d</sup>	0	0	0
96-D-464 Electrical and Utility Systems Upgrade, INEEL . . . . .	52,802	29,937	10,894 <sup>e</sup>	11,971	0	0
96-D-471 CFC HVAC/Chiller Retrofit, SR . . . . .	45,000	18,541	8,000	931	12,512	5,016
95-D-456 Security Facilities Consolidation, INEEL . . . . .	15,100	14,615	485	0	0	0

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<sup>a</sup> \$2,160,000 will be recast to EM from FY 1997 Office of Fissile Materials Disposition unobligated funds, Project 97-D-140. The EM appropriation for FY 1999 was \$79,184,000.

<sup>b</sup> Reflects an FY 1999 reprogramming which decreases the funding for the Actinide Packaging and Storage Facility subproject by \$44,000,000. The mission of this subproject will be reevaluated in light of DOE's preferred alternatives for the Department's plutonium disposition mission.

<sup>c</sup> Reflects an FY 1999 internal reprogramming of \$3,500,000.

<sup>d</sup> Reflects FY 1999 Conference Mark which transfers \$4,512,000 from project 96-D-408, Waste Management Upgrades to project 93-D-187, High-Level Waste Removal from Filled Waste Tanks at the Savannah River Site.

<sup>e</sup> Reflects an FY 1999 internal reprogramming in the amount of \$650,000. The original appropriation was \$11,544,000.

**Environmental Management/Defense Environmental  
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Construction Summary**

**FY 2001 Congressional Budget**

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Approp- riations	FY 1999	FY 2000	FY 2001	Unapprop- riated Balance
92-D-140 F&H Canyon Exhaust Upgrades, SR . . . . .	56,446	21,900	25,667 <sup>f</sup>	0	8,879	0
86-D-103 Decontamination and Waste Treatment Facility, LLNL . . . . .	62,362	53,911	4,752 <sup>b</sup>	2,000	2,000	(301)
Subtotal, Construction Funded . . . . .		<u>323,188</u>	<u>159,386</u>	<u>80,280</u>	<u>69,476</u>	<u>71,385</u>
Operating Expense Funded						
99-EXP Laboratory Facilities Roof and Shielded Area Restoration, 773-A & 772-F, SR <sup>c</sup> . . . . .	14,530	0	2,001	4,245 <sup>d</sup>	2,102	6,182
96-EXP Americium/Curium Vitrification, SR . . . . .	58,655	14,331	2,501	21,003	14,063	6,757
Subtotal, Operating Expense Funded		<u>14,331</u>	<u>4,502</u>	<u>25,248</u>	<u>16,165</u>	<u>12,939</u>
Total, Project Funding . . . . .		<u>337,519</u>	<u>163,888</u>	<u>105,528</u>	<u>85,641</u>	<u>84,324</u>

<sup>a</sup> Reflects an FY 1999 reprogramming in the amount of \$22,000,000.

<sup>b</sup> Prior year funds used as an offset for FY 1999 uncosted reduction, \$1,040,000.

<sup>c</sup> This project was included in the FY 2000 as a new start, 00-EXP. Due to the urgent need to address the deteriorating condition of Building 773-A roofs, the project was accelerated into FY 1999. The follow-on activities in FY 2000 and beyond have also been accelerated.

<sup>d</sup> FY 2000 funding increased by \$1,471,000 from the Congressional budget submission due to the acceleration of the project from FY 2000 into FY 1999.

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Restoration and Waste Management/Site/Project  
Completion/Capital Operating Expenses &  
Construction Summary**

**FY 2001 Congressional Budget**

# 01-D-402, INTEC Cathodic Protection System Expansion Project, Idaho National Engineering and Environmental Laboratory, Idaho Falls, Idaho (ID-OIM-117)

## 1. Construction Schedule History

	Fiscal Quarter				Total Estimated Cost (\$000)	Total Project Cost (\$000)
	A-E Work Initiated	A-E Work Completed	Mobilization Start	Physical Construction Complete		
FY 2001 Budget Request (Preliminary Estimate) . . . . .	2Q 2001	2Q 2002	3Q 2002	4Q 2004	6,000	6,709

## 2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Cost
2001	500	500	350
2002	3,256	3,256	1,856
2003	1,119	1,119	2,644
2004	1,125	1,125	1,150

## 3. Project Description, Justification and Scope

The Cathodic Protection System Expansion Project will upgrade the existing cathodic protection system located at Idaho Nuclear Technology Engineering Center at the Idaho National Engineering and Environmental Laboratory. This project is necessary to continue to provide reliable cathodic protection as necessary to prevent underground system failures, environmental contamination, and impacts to meeting the Idaho Settlement Agreement.

The existing cathodic protection system has been in operation at this facility, since 1961 and must remain operational until at least 2035. Currently the majority of this cathodic protection system has exceeded its 20-

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year design life. At present, there exists at Idaho Nuclear Technology Engineering Center over 4 miles of metallic underground radioactive waste piping, 1.1 miles of underground off-gas lines, over 5 miles of other metallic underground piping systems, and several underground metallic fuel storage structures that must be protected from external corrosion. Visual inspection of underground metallic piping, which is anywhere from 6 to 20 feet below grade, would require extensive excavation and destructive examination to determine the extent of corrosion to the pipe. This type of inspection would be cost prohibitive and would not provide a comprehensive condition status. In order for the Department of Energy to protect the environment, comply with CFRs, and meet all mandatory and legal agreements, a well-maintained impressed cathodic protection system is required to be operational until at least 2035.

Idaho Nuclear Technology Engineering Center at the Idaho National Engineering and Environmental Laboratory has an extensive cathodic protection system installed to prevent metallic underground piping and structures from corrosion. The High Level Liquid Waste Tank Farm Resource Conservation and Recovery Act interim status document requires, a fully operating cathodic protection system that meets the criteria contained in 40 CFR 264, and 265. The Cathodic Protection System Expansion Project incorporates replacing anodes that have exceeded their design life in numerous areas of the Idaho Nuclear Technology Engineering Center, adding additional anodes where required for complete protection, and installing permanent reference electrodes for more accurate survey readings.

The anodes installed in the Tank Farm and the Dry Fuel Storage Area have exceeded their design life of 20 years. Annual surveys of these areas have revealed reduced voltage drops indicative of anode wear. Leaks from underground tanks, piping, or vaults could occur from these areas and would result in a Resource Conservation and Recovery Act violation. Without a properly functioning cathodic protection system, the risk of a structural or piping failure increases.

The 1996 annual cathodic protection system survey revealed out-of-tolerance operating conditions for the Tank Farm. Negative out-of-tolerance readings indicate that full protection to steel structures is not being obtained. With negative out-of-tolerance readings, partial protection to the underground structures will occur. When underground structures receive partial protection they are subject to corrosion at a higher rate than at full protection. The 1996 survey also indicated some positive out-of-tolerance readings from possible anode and/or cable failures.

In 1997 a cathodic protection/corrosion engineer was contracted by the operating contractor to evaluate the condition of the Tank Farm cathodic protection system and provide short and long-term recommendations for cathodic protection system repairs at the Tank Farm. Short-term recommendations have been incorporated and the long-term recommendations are included in the scope of this project and include the replacement of all anodes that have over five years of service as recommended by cathodic protection/corrosion engineers.

The vessels and piping in the Idaho Nuclear Technology Engineering Center Tank Farm contain or have contained high level radioactive liquid wastes that resulted from the chemical reprocessing of spent nuclear fuels. A structural failure of structures or transfer line in the Idaho Chemical Processing Plant Tank Farm and the Dry

Fuel Storage Area could release into the soil these high level radioactive wastes. Those wastes contain significant amounts of mixed radioactive fission products, actinides, and Environmental Protection Agency listed hazardous and toxic chemicals. A liquid released into the soil could theoretically migrate to the groundwater below and contaminate the Snake River Plain Aquifer. Any contamination of the groundwater with high level liquid waste would be virtually impossible to reverse and, therefore, must be viewed in terms of the negative impact on the aquifer, its entire ecosystem, and public perception thereof. In addition, any release would require the suspension of compliance agreement activities. The Settlement Agreement between the Department of Energy and the State of Idaho requires that the Tank Farm be emptied by 2012. Other underground metallic systems must remain operational until at least 2035. The Idaho Nuclear Technology Engineering Center Fire Water System provides fire protection to facilities at Idaho Nuclear Technology Engineering Center and a loss of the system due to corrosion and leaks would result in a increased risk of life safety issues to Idaho Nuclear Technology Engineering Center facilities and personnel. An incident or failure of any of these systems would likely cause Settlement Agreement milestones to be missed with significant legal and political repercussions at State and Federal levels.

Cathodic protection does not eliminate corrosion but merely transfers the corrosion from protected structures or piping elsewhere. In a properly working system this corrosion occurs at the sacrificial anode which accounts for their wear while a cathodic protection system is operating. When anodes are depleted cathodic protection can be lost and the formally protected structures become unprotected, allowing corrosion to occur. A carbon steel pipe that is protected by the cathodic protection system and considered fully protected according to National Association of Corrosion Engineers criteria may be subjected to the loss of 1.4 mil of material per year. Fully protected to National Association of Corrosion Engineers means that the structure being protected meets one of the three criteria contained in National Association of Corrosion Engineers Standard RPO-169-92 for steel and cast iron piping. The majority of piping at Idaho Nuclear Technology Engineering Center is constructed of carbon steel. The Idaho Nuclear Technology Engineering Center Tank Farm piping is constructed from corrosion resistant materials (stainless steel) and employs a cathodic protection system for additional corrosion protection.

All underground piping systems and structures which have a cathodic protection system must be electrically bonded (e.g., piping is connected together by a common ground). If underground structures or piping systems become unbonded from the cathodic protection system, "Stray corrosion currents" can occur, resulting in a greatly accelerated corrosion rate. Past experience at the Idaho Nuclear Technology Engineering has shown that stainless steel piping not bonded while nearby cathodic protection systems are operating, failed within six weeks of operation.

This project will support the continued operation of the Tank Farm for the near future and operation of the underground utilities and dry fuel storage for the next 30 years, while maintaining compliance with the Settlement Agreement between the Department of Energy and the State of Idaho. Cathodic protection shall be provided on all underground metallic structures throughout Idaho Nuclear Technology Engineering Center. This protection shall be provided in accordance with the most recent edition of National Association of Corrosion

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Engineers International requirement RPO-169, Standard Recommended Practice – Control of External Corrosion on Underground or Submerged Metallic Piping Systems.

The Cathodic Protection Center Expansion Line Item Project will include installing reference electrode wells in the Dry Fuel Storage Area CPP-749. Use of these wells will provide accurate monitoring of CPP-749 underground metal irradiated dry fuel storage vaults. Additional anode replacements and/or new anodes may be required in this area based on the studies performed during conceptual design.

The underground fire water system at Idaho Nuclear Technology Engineering Center requires additional rectifiers and anodes to be added to the underground fire water system. This project will bond all piping found not connected to the present cathodic protection system. Some of the existing fire water system has degraded over the years due to corrosion. The potential exists for unbonded piping to be found in the existing system. Cathodic protection system is required for propane lines and tanks at Idaho Nuclear Technology Engineering Center. Currently this system is incomplete and will require all lines not bonded to the existing cathodic protection system to have a test bond lead attached to the lines.

#### 4. Details of Cost Estimate <sup>a</sup>

	(dollars in thousands)	
	Current Estimate	Previous Estimate
Design Phase		
Preliminary and final design costs (design drawings and specifications) . . . . .	308	N/A
Design management costs (0.5% of TEC) . . . . .	31	N/A
Project management costs (3.2% of TEC) . . . . .	192	N/A
<b>Total, Design Costs (8.8% of TEC) . . . . .</b>	<b>531</b>	<b>N/A</b>
Construction Phase . . . . .		
Improvements to Land . . . . .	15	N/A
Utilities (Cathodic Protection) . . . . .	2,766	N/A
Removal cost less salvage . . . . .	10	N/A
Inspection, Design and Project Liaison, Testing, Checkout and Acceptance . . . . .	460	N/A
Construction management costs (11.0% of TEC) . . . . .	660	N/A
Project management costs (7.6% of TEC) . . . . .	458	N/A
<b>Total, Construction Costs . . . . .</b>	<b>4,369</b>	<b>N/A</b>

<sup>a</sup> The estimate comes from the completed Conceptual Design Report. It was prepared utilizing the INEEL Cost Estimating Guide (DOE/ID 10473). Escalation rates applied to this cost estimate are FY 2001 - 2.3 percent; FY 2002 - 2.4 percent; FY 2003 - 2.8 percent; and FY 2004 - 2.9 percent based on anticipated economic escalation rates for DOE Construction Projects.

(dollars in thousands)

	Current Estimate	Previous Estimate
Contingencies		
Design Phase (1.2% of TEC)	73	N/A
Construction Phase (17.1% of TEC)	1,027	N/A
Total, Contingency (18.3% of TEC) . . . . .	1,100	N/A
Total, Line Item Costs (TEC) . . . . .	6,000	N/A

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## **5. Method of Performance**

The Department of Energy Idaho Operations Office will be responsible for implementation of the project. DOE-Idaho project management will be performed by Office of Infrastructure Management personnel. Review of contractor furnished safety, environmental, and other project support will be furnished to the project on an as needed basis by the DOE-Idaho organization.

The site maintenance and operating contractor project management will provide the project management services to coordinate all project activities. The project management will be responsible for, development of the projects technical requirements, completion of the Architectural and Engineering design, review and management of the engineering and construction activities, coordination of long-lead procurement of construction materials and equipment, construction subcontracting, quality assurance, coordination of the activities of construction subcontractors, system operability testing, and turnover of the completed project. Portions of the project may be performed by firm-fixed price contracts, areas containing contaminated soil will be evaluated for the best procurement method for the situation.

## 6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 1999	FY 2000	FY 2001	Outyears	Total
Project Cost						
Facility Cost						
Design . . . . .	0	0	0	350	254	604
Construction . . . . .	0	0	0	0	5,396	5,396
Total Facility Cost . . . . .	0	0	0	350	5,650	6,000
Other Project Cost						
Conceptual design costs . . . . .	0	133	0	0	0	133
NEPA and Cathodic Alternatives Study . . . . .	0	0	75	0	0	75
Other project-related costs . . . . .	0	0	42	84	375	501
Total other project costs . . . . .	0	133	117	84	375	709
Total, Project Costs . . . . .	0	133	117	434	6,025	6,709 <sup>a</sup>

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<sup>a</sup> Design - The design costs are based upon the Conceptual Design Report (CDR). The conceptual design cost estimate was prepared utilizing the INEEL Cost Estimating Guide (DOE/ID 10473). Construction - The construction costs are based upon the CDR. The conceptual design cost estimate was prepared utilizing the INEEL Cost Estimating Guide (DOE/ID 10473). NEPA documentation - The NEPA costs represent operating funding which was spent in the development of the Environmental Checklist, the Environmental Assessment, and the Permit to Construct. Other project related costs funds are required to support the following activities: (1) project planning; (2) development of Project Execution Plan, Storm Water Pollution Plan, Health and Safety Plans, etc.; (3) document control; (4) project controls and reporting; (5) design and constructibility reviews; (6) operating contractor design and construction support; (7) construction management planning; (8) QA/inspection planning; (9) quality and safety audits; (10) quality level determinations; (11) development of operational procedures, testing and startup; (12) safety analyses and reports; (13) readiness reviews for startup and operations; (14) as-building of plant drawings; (15) training of operating and maintenance personnel; (16) general technical support; (17) Occupational Safety Reviews and Facility transfer; (18) Project completion reports including lessons learned; (19) financial closure of project; and (20) file transfer and records storage of completed project.

## 7. Related Annual Funding Requirements

(dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs . . . . .	180	N/A
Annual facility maintenance/repair costs . . . . .	30	N/A
Annual utility costs . . . . .	6	N/A
<b>Total related annual funding (operating from FY 2004 through FY 2033) <sup>a</sup> . . . . .</b>	<b>216</b>	<b>N/A</b>

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<sup>a</sup> Related annual costs: Annual facility operating costs - Includes operating labor costs and maintenance costs for required monthly system evaluation and documentation by facility engineer and miscellaneous other support such as supervision, administrative support. Total Full-Time Equivalent of 1.5. Utility costs cover 7.5 kwh/h x 8760 x .082 \$/kwh. Facility maintenance costs include the cost of two repairs per year at \$10,000 each and \$5,000 materials.

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# 01-D-407, Highly Enriched Uranium (HEU) Blend Down Project Savannah River Site, Aiken, South Carolina (SR-NM08)

## 1. Construction Schedule History

	Fiscal Quarter				Total Estimated Cost (\$000)	Total Project Cost (\$000)
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
FY 2001 Budget Request (Preliminary Estimate) . . . . .	2Q 2000	3Q 2001	3Q 2000	3Q 2003	74,900	99,600

## 2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Cost
2000	7,500 <sup>a</sup>	7,500	7,500
2001	27,932 <sup>b</sup>	27,932	27,932
2002	30,300 <sup>c</sup>	30,300	30,300
2003	9,168	9,168	9,168

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<sup>a</sup> The Tennessee Valley Authority has agreed to contribute \$10,000,000 under authority of Section 301 of the Energy and Water Development Appropriations Act of 1993: \$7,500,000 total estimated cost, \$2,500,000 other project cost.

<sup>b</sup> An additional \$10,000,000 is required in operating funds totaling the \$37,932,000 request.

<sup>c</sup> Beginning in FY 2002, funding will be requested in the Other Nuclear Security Activities Appropriation (Fissile Materials Disposition).

### 3. Project Description, Justification and Scope

In the aftermath of the Cold War, significant quantities of weapons-usable highly enriched uranium have become surplus to national defense needs both in the United States and Russia. The Department issued a Record of Decision on the Disposition of Surplus Highly Enriched Uranium Environmental Impact Statement in July 1996. This decision calls for DOE to disposition 174 metric tons of surplus highly enriched uranium by blending it down to low-enriched uranium and recovering its economic value by using it as fuel in power reactors to the extent feasible. This 174 metric tons highly enriched uranium includes a quantity of “off-specification” highly enriched uranium that is a product of DOE uranium reprocessing operations. The reprocessed highly enriched uranium contains fission products and other contaminants not present in virgin uranium. This project is only intended to support disposition of a portion of the off-specification highly enriched uranium.

Included in the off-specification highly enriched uranium are solutions and spent reactor fuel at the Savannah River Site that are required to be stabilized in accordance with the Department’s Implementation Plan for Defense Nuclear Facilities Safety Board Recommendation 94-1. Also included are unirradiated fuel at the Savannah River Site and Oak Ridge made from reprocessed highly enriched uranium, and some reprocessed highly enriched uranium metal at Oak Ridge. These particular off-specification materials total approximately 34 metric tons.

The DOE and the Tennessee Valley Authority entered into a Memorandum of Understanding in January 1997 to pursue a program to down-blend this 34 metric tons (approximately) of DOE off-specification surplus highly enriched uranium to low-enriched uranium for use as fuel in Tennessee Valley Authority reactors. Up to 24 metric tons of the highly enriched uranium would be processed through H-Canyon at the Savannah River Site to remove impurities and then down-blended to low-enriched uranium at the Savannah River Site and delivered to the Tennessee Valley Authority as low-enriched uranium solution. The resulting low-enriched uranium solution would then be converted to nuclear fuel by vendors under contract to the Tennessee Valley Authority. The remainder of the 34 metric tons may not require H-Canyon processing and would be delivered to Tennessee Valley Authority’s vendor as highly enriched uranium, which would be down-blended by the vendor, then converted to fuel.

Subsequent to the formulation of the FY 2000 budget request, the Nuclear Regulatory Commission indicated that existing tanker trucks could not be used to transport the low-enriched uranium solutions from the Savannah River Site. Consequently, new 250-gallon solution transport containers are being developed and licensed for this purpose. As a result of this and other recent developments, several capital improvements are needed at the Savannah River Site. The Conceptual Design Report includes the following scope:

- C **Highly Enriched Uranium Material Feed Segment, K-Area Subsegment.** The 105-K assembly area will be modified to provide transitional services for removing the U-AL ingots and fuel tubes from their current storage configurations, packaging into ingot tubes/bundles, and loading these into shipping containers mounted on a trailer for shipment to H-Area. This includes rooms from denesting contaminated fuel bundles and for worker change/cool down.

**C Highly Enriched Uranium Material Feed Segment, H-Canyon Material Transfer Subsegment.**

This subsegment covers the transfer of H-Canyon highly enriched uranium feedstock materials from building 105-K to H-Canyon. New infrastructure includes: an unloading dock in H-Canyon to receive trailers from building 105-K; jib crane; transfer sling; and new rail car to move material within H-Canyon.

- **Highly Enriched Uranium Material Segment, Shipping Container Subsegment.** This subsegment provides the shipping containers and related infrastructure for shipping the highly enriched uranium feed stock from 105-K to H-Canyon. It includes flatbed trailers, stainless steel containers sized to ship ingots and fuel tubes in critically safe amounts and configurations, and handling cranes mounted to the flatbed trailers.
- **Purified Highly Enriched Uranium Production Segment.** This segment includes installing tanks, monitoring equipment, process equipment, and jumpers, and reconfiguring certain aspects of the process to achieve throughput improvements.
- **Low-Enriched Uranium Production/Loading Segment.** This segment consists of the infrastructure to enable receiving natural uranium blendstock, storing highly enriched uranium solution, blending highly enriched uranium and natural uranium, and filling the 250-gallon shipping containers with low-enriched uranium for transport to Tennessee Valley Authority's vendors. This infrastructure includes: a new building with a loading dock to accept flat bed trailers (each carrying 9 shipping containers), and equipment to fill the containers; a Personnel Change Room/Remote Instrument/Control Room; and tanks to facilitate solution transfers, blending, and storage.
- **Feed/Product Chemical Analysis Segment.** The C-Lab will perform isotopic composition and chemical impurities analyses to support the off-specification fuel program. The facility will utilize both new and existing laboratory space and equipment to perform this activity. New infrastructure will include hoods, cabinets, and analytical equipment and physical modifications for safeguards and security purposes. Some existing lab space will have to be demolished prior to installing the new equipment.
- **Support Services Segment/Safeguards and Security Subsegment.** This segment provides the facilities and services required to protect and maintain accountability for the transportation of category 1 quantities of highly enriched uranium from 105-K to H-Canyon and for transportation within H-Canyon. This will primarily be accomplished by enhancing monitoring and alarm capabilities.

The Tennessee Valley Authority has agreed to contribute \$10,000,000 in FY 2000 to perform design, begin construction and early operations of the project and program. The \$10,000,000 is an advance on expected future savings-sharing payments from the Tennessee Valley Authority to DOE. Because of the Tennessee Valley Authority contribution, DOE does not need appropriated funds to start this capital improvement project

in FY 2000. <sup>a</sup> The contractor is following the DOE Project Management Improvement Plan. The project is in the conceptual stage. The contractor approved Conceptual Design Report includes a conceptual level estimate that is subject to increase (or decrease) when the project is baselined (at 35 percent design) in February 2001 and a Project Baseline Package is developed.

This represents a new mission for the Savannah River Site. Life cycle costs of this overall program will require appropriations estimated at approximately \$300,000,000 to provide infrastructure improvements and operations at DOE facilities, and to dispose of low-level radioactive waste from the project start until FY 2013. A portion of these amounts (depending on future market prices for uranium) will be repaid by the end of the project from DOE-Tennessee Valley Authority shared fuel savings. These actions satisfy Defense Nuclear Facilities Safety Board Recommendation 94-1 stabilization/disposition objectives for a portion of the material and meet non-proliferation objectives of the July 1996 Record of Decision for all the material. The alternative disposition path of blending all the off-specification highly enriched uranium to waste and disposing of it (to satisfy these same objectives) would cost DOE a rough order magnitude estimate of \$900,000,000. Compared to this alternative, this is a good investment for DOE to move forward with reducing the stockpile of surplus highly enriched uranium, satisfying Defense Nuclear Facilities Safety Board objectives and supporting national non-proliferation goals.

H-Canyon processing and solution storage tanks will reach operational capacity and all H-Canyon material stabilization operations, including Defense Nuclear Facilities Safety Board commitments, will be curtailed in February 2002. Under the current project schedule, sufficient work will be completed (low-enriched uranium loading station) to allow shipment of low-enriched uranium solutions to begin in June 2002, thus minimizing the period H-Canyon operations are curtailed. The Office of Fissile Materials Disposition will fund the incremental cost (standby mode to operations) of doing additional processing in H-Canyon for the rest of the highly enriched uranium that is not covered by Defense Nuclear Facilities Safety Board Recommendation 94-1.

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<sup>a</sup> Congressional approval for a new project start will be obtained prior to the expenditure of the \$10,000,000 contributed by the Tennessee Valley Authority.

## 4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
<b>Design Phase</b>		
Preliminary and final design costs (design drawings and specifications) . . . . .	9,600	N/A
Design management costs (1.4% of TEC) . . . . .	1,050	N/A
Project management costs (2.5% of TEC) . . . . .	1,850	N/A
<b>Total, Design Costs (16.7% of TEC) . . . . .</b>	<b>12,500</b>	<b>N/A</b>
<b>Construction Phase</b>		
Improvements to Land . . . . .	500	N/A
Buildings . . . . .	5,000	N/A
Special Equipment . . . . .	8,000	N/A
Other Structures . . . . .	10,600	N/A
Utilities . . . . .	300	N/A
Standard Equipment . . . . .	4,000	N/A
Removal cost less salvage . . . . .	1,000	N/A
Inspection, Design and Project Liaison, Testing, Checkout and Acceptance . . . . .	1,000	N/A
Construction management costs (4.9% of TEC) . . . . .	4,100	N/A
Project management costs (4.5% of TEC) . . . . .	3,700	N/A
<b>Total, Construction Costs . . . . .</b>	<b>38,200</b>	<b>N/A</b>
<b>Contingencies</b>		
Design Phase (5.3% of TEC) . . . . .	4,000	N/A
Construction Phase (27.0% of TEC) . . . . .	20,200	N/A
<b>Total, Contingencies (32.3% of TEC) . . . . .</b>	<b>24,200</b>	<b>N/A</b>
<b>Total, Line Item Costs (TEC) . . . . .</b>	<b>74,900</b>	<b>N/A</b>

## 5. Method of Performance

Design of the facilities will be by the management and integration contractor and subcontractor as appropriate. To the extent feasible, construction and procurement of equipment will be accomplished by fixed-price contracts awarded on the basis of competitive bids.

## 6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 1999	FY 2000	FY 2001	Outyears	Total
Project Cost						
Facility Cost						
Design . . . . .	0	0	4,000	7,000	5,500	16,500
Construction . . . . .	0	0	3,500	20,932	33,968	58,400
Total Facility Cost (Federal and non-Federal) . . . . .	0	0	7,500	27,932	39,468	74,900
Other Project Cost						
Conceptual design costs . . . . .	0	650	950	0	0	1,600
NEPA and other project related cost . . . . .	0	0	1,550	10,000	11,550	23,100
Total Other Project Costs		650	2,500	10,000	11,550	24,700
Total Project Cost (TPC) . . . . .	0	650	10,000	37,932	51,018	99,600
Less Non-Agency Contribution . . . . .			10,000			10,000
Net Cost . . . . .	0	650	0	37,932	51,018	89,600

## 7. Related Annual Funding Requirements

(dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs . . . . .		N/A
Annual facility maintenance/repair costs . . . . .		N/A
Annual utility costs . . . . .		N/A
Total related annual funding <sup>a</sup> . . . . .	TBD	N/A
Total operating costs (operating from FY 2000 through FY 2013) . . . . .	176,200	

<sup>a</sup> FY 2000 to FY 2003 operations cost is \$56,700,000 to support the incremental costs for preparation to operate the facilities for the Highly Enriched Uranium Off-Specification program.

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# 99-D-402, Tank Farm Support Services, F Area, Savannah River Site, Aiken, South Carolina (SR-HL11)

(Changes from FY 2000 Congressional Budget Request are denoted with a vertical line [ | ] in the left margin.)

## Significant Changes

# Design cost estimate has been reduced by \$778,000 due to award of the Design Subcontract at lower than anticipated cost. This reduction is offset by an increase in construction estimated cost due to an increase in General and Administrative rates in FY 2000 and outyears.

### 1. Construction Schedule History

	Fiscal Quarter				Total Estimate d Cost (\$000)	Total Project Cost (\$000)
	A-E Work Initiated	A-E Work Completed	Physical Constructio n Start	Physical Constructio n Complete		
FY 1999 Budget Request ( <i>Preliminary Estimate</i> ) . . . . .	2Q 1999	2Q 2000	3Q 2000	3Q 2002	22,073	32,014
FY 2000 Budget Request ( <i>Preliminary Estimate</i> ) . . . . .	“	“	“	“	18,599	23,966
FY 2001 Budget Request ( <i>Preliminary Estimate</i> ) . . . . .	“	“	“	“	“	23,937

### 2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
1999	2,745	2,745	534
2000	3,100	3,100	4,466
2001	7,714	7,714	7,637
2002	5,040	5,040	5,962

### 3. Project Description, Justification and Scope

The service systems for the Type III (horizontal cooling coil bunch) and IIIA (vertical cooling coils) Tanks in the F-Area Tank Farm provide such systems as steam, plant air, instrument air, breathing air, flush water, cooling water, inhibited water, bearing water, and domestic water to facility components. The tanks and associated

process facilities served by the service systems are expected to support long-term operations for waste processing, waste removal, and tank closure at the Savannah River Site.

The purpose of this plant modification is to replace existing direct buried service piping with new below grade trench contained pipelines or new above ground piping systems. The replacement piping for the F-Area Tank Farm shall include all service lines provided to Tanks 25-28, Tanks 33-34, Tanks 44-47, and the 242-16F evaporator. The existing underground service piping systems will be abandoned in place rather than be removed to minimize cost, radiological waste generation, and personal radiation exposure in support of As Low As Reasonably Achievable.

The service piping for F-Area Tank Farm has been in place since the late 1960s and early 1970s. These lines have been developing leaks that are hard to locate and expensive to repair. Over the past 7 years, approximately 100 repairs of underground piping in F- and H-Area have been required at a cost of \$8 million. These leaks also result in unscheduled facility outages which have significant operational costs and performance impacts. Relocation of service piping above grade will provide accessibility, minimize future maintenance costs, and provide service reliability necessary to support waste transfer.

| The FY 2001 funds will be used to continue construction.

The scope of this project was rebaselined in FY 1998. Scope of work proposed for H-Area has been deleted and appropriate adjustments to cost and schedule completed. Consistent with long-term high-level waste program strategy, the H-Area scope of work can be more effectively managed as part of the proposed High-Level Waste Removal from Filled Waste Tanks line item (93-D-187).

## 4. Details of Cost Estimate <sup>a</sup>

(dollars in thousands)		
	Current Estimate	Previous Estimate
Design phase		
Preliminary and final design costs (2.4% of total estimated cost (TEC)) . . . . .	453	1,550
Design management costs (0.7% of TEC) . . . . .	121	452
Project management costs (1.0% of TEC) . . . . .	192	0
Total, engineering, design, inspection, and administration of construction costs (5.8% of TEC) . . . . .	766	2,002
Construction phase		
Utilities (55,000 feet of rack mounted service piping @ approximately \$226/ft.) . . . . .	12,770	11,651
Inspection, design and project liaison, testing, checkout and acceptance . . . . .	336	0
Construction management costs (5.4% of TEC) . . . . .	1,005	1,846
Project management costs (3.9% of TEC) . . . . .	724	0
Total, construction costs . . . . .	14,835	13,497
Contingencies		
Design phase (1.3% of TEC) . . . . .	245	417
Construction phase (14.8% of TEC) . . . . .	2,753	2,683
Total, contingencies (16.1% of TEC) . . . . .	2,998	3,100
Total, line item costs (TEC) . . . . .	18,599	18,599

## 5. Method of Performance

Design will be performed by a fixed-price contractor for the management and integration contractor at the Savannah River Site. Construction and procurement will be accomplished utilizing fixed-price subcontracts awarded on the basis of competitive bidding, where possible.

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<sup>a</sup> The DOE escalation rates (percent per year) are not segregated due to conceptual nature of estimate.

## 6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 1999	FY 2000	FY 2001	Outyears	Total
Project cost						
Facility cost						
Design .....	0	534	477	0	0	1,011
Construction .....	0	0	3,989	7,637	5,962	17,588
Total facility costs (Federal and Non-Federal) .....	0	534	4,466	7,637	5,962	18,599
Other project costs						
Conceptual design cost <sup>a</sup> .....	489	0	0	0	0	489
Plant Engineering and Design .....	0	375	457	469	397	1,698
Other project-related costs <sup>b</sup> .....	0	529	857	897	868	3,151
Total other project costs .....	489	904	1,314	1,366	1,265	5,338
Total project costs (TPC) .....	489	1,438	5,780	9,003	7,227	23,937

## 7. Related Annual Funding Requirements

(FY 2003 dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs .....	50	200
Annual facility maintenance and repair costs .....	150	100
Programmatic effort related to facility .....	0	0
Other annual costs .....	0	100
Total related annual funding ( <i>operating from FY 2003 through FY 2028</i> ) .....	200	400

<sup>a</sup> The conceptual design is complete at a cost of \$489,000.

<sup>b</sup> In FY 2000, \$1,314,000 will be used to support final design, construction efforts and permitting; \$2,631,000 in subsequent years will be used to support construction and startup testing.

# 99-D-404, Health Physics Instrumentation Laboratory, Idaho Falls, Idaho (ID-OIM-109)

(Changes from FY 2000 Congressional Budget Request are denoted with a vertical line [ | ] in the left margin.)

## Significant Changes

Schedule of project funding has been adjusted to include the estimated impact of implementation of Conduct of Operations and maintenance work control procedures.

### 1. Construction Schedule History

	Fiscal Quarter				Total Estimated Cost (\$000)	Total Project Cost (\$000)
	A-E Work Initiated	A-E Work Completed	Mobilization Start	Physical Construction Complete		
FY 1999 Budget Request (Preliminary Estimate) . . . . .	2Q 1999	3Q 2000	4Q 2000	3Q 2002	11,900	12,670
FY 2000 Budget Request (Preliminary Estimate) . . . . .	“	“	“	“	“	“
FY 2001 Budget Request (Title I Baseline) . . . . .	“	“	“	“	12,950	13,830

### 2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Cost
1999	950	950	560
2000	5,000	5,000	3,220
2001	4,300	4,300	4,800
2002	2,700	2,700	4,370

### 3. Project Description, Justification and Scope

This project provides for the design, procurement, and construction activities to provide for a Health Physics Instrumentation Laboratory at the Idaho National Engineering and Environmental Laboratory. Because of the nature of business at the Idaho National Engineering and Environmental Laboratory, radioactive detection services and personnel dosimeters are required to ensure a safe and healthful workplace for Idaho National Engineering and Environmental Laboratory workers. This project replaces a fifty year old deteriorated facility currently used for the servicing, calibrating, and testing of radiation detection instruments used in radioactive environments. The purpose of the Health Physics Instrumentation Laboratory is to provide, repair, and maintain radiation detection instruments; evaluate newly developed instruments; and research and develop new methods of radiation detection. The project will also support needs for the irradiation, calibration, quality control, and quality assurance of electronic dosimeters.

This facility provides laboratories for the neutron, gamma, alpha, and beta calibration and irradiation of instrumentation. A low energy x-ray system will provide for low energy photon characterization and irradiation. The primary sources that will be used for the isotopic calibrations are Cesium-137, Plutonium-239, Californium-252, and Cobalt-60. Several other low activity isotopes will be used for general characterization of the instruments.

The facility will respond to site users' requirements by providing quick response for calibration, irradiation, and turn around of dosimeters and radiological instrumentation. The assumptions used to develop project, scope, schedule, and cost are:

- a. The Health Physics Instrumentation Laboratory replacement facility is required to meet American National Standards Institute N232 guidelines as specified by DOE Order 5480.11. "Radiation Protection for Occupational Workers."
- b. The facility replacement is based on code requirements for safe/handling of radioactive sources, operations associated with equipment testing and calibration, functional layout of the building and shielding requirements for each radioactive source and surrounding areas.
- c. The cost estimate is based on preliminary building layouts and construction techniques associated with radioactive shielding as developed by the operating program.
- d. The construction schedule is consistent with historical construction at the Idaho National Engineering and Environmental Laboratory.
- e. Studies may be required during the execution of this project to ensure that all requirements associated with this facility are met and scope may need to be modified as studies recommend.

The continued use of the existing Health Physics Instrumentation Laboratory facility results in excessive maintenance and operational costs. The current deficiencies with American National Standards Institute, National Electrical Code, and Occupational Safety and Health Act standards as well as DOE Orders, require significant resources of time and money to correct. Continued expenditure of the resources is not a viable

solution due to the age of the facility, which is planned for future demolition. The inadequate space, design, structure, systems, and age of the current Health Physics Instrumentation Laboratory facility pose the following operational limitations and inherent safety and code deficiencies:

- a. Inadequate number and design of shielded rooms for performance of x-ray, gamma, and neutron source calibrations. These calibrations are required to be performed under compliance with American National Standards Institute N323.N42.17A and N43.5 guidelines.
- b. Absence of environmental testing capabilities to meet American National Standards Institute N232.
- c. Inadequate environmental control, leading to wide fluctuations in temperature throughout the facility. American National Standards Institute N323 and MIL-SID-45662A require a properly controlled environment for the calibration of radiation detection instruments.
- d. Significant safety concerns such as asbestos in walls, floor tiles, and ceiling materials throughout the building: inadequate coverage by fire sprinkler system, in violation of National Fire Protection Association Standards; numerous electrical safety problems, in violation of Occupational Safety and Health Act Standard 1910.303 and National Electrical Code; lead based paint on all painted surfaces; and significant roof leakage. Numerous deficiencies were identified in the Occupancy Readiness Review conducted on CFA-633 in 1991.
- e. Lack of proper shielding in rooms used for performing calibrations, significantly increasing personnel radiation exposure rates at several locations accessible to personnel during performance of calibrations, identified by Tiger Team Corrective Action Plan Number EGG1/RP.89.1CP01 "Upgrade Health Physics Instrument Laboratory Capabilities for Space and Testing Standards." The shielding does not meet as Low As Reasonably Achievable requirements.
- f. Insufficient work space to consolidate all Idaho National Engineering and Environmental laboratory instrument calibrations in the existing Health Physics Instrumentation Laboratory to obtain site-wide standardization of calibrations. This issue was raised in Tiger Team Corrective Action Plan Number EGG1/RP.8.1CP01 "Upgrade Health Physics Instrumentation Laboratory Capabilities for Space and Testing Standards."

The deficiencies noted above contribute to the inability of the existing Health Physics Instrumentation Laboratory to perform its function in a compliant manner. Due to the age and deteriorated condition of the building, future additions and modifications are cost prohibitive. The facility has been identified for closure and demolition; however, until a replacement facility can be provided for the Health Physics Instrumentation Laboratory operations, the CFA-633 phase out cannot occur. Construction of a Health Physics Instrumentation Laboratory facility will eliminate the excessive maintenance and repair expense necessary to bring the existing facility into compliance and will avoid the additions to the deteriorated building that would be required to comply with American National Standards Institute N323. A Health Physics Instrumentation Laboratory type facility would still be required onsite regardless of obtaining offsite calibration services. The onsite facility would be required to provide a centralized service for performing as-found inspections, shipping,

receiving, and verification of the instrumentation calibration. All offsite suppliers use a disclaimer that states the calibrations were performed to the required specification, but do not warranty that the instrument remains properly calibrated after shipping. In addition, differing atmospheric conditions can impact the accuracy of the instruments. These situations require that some calibration capability must be maintained at the Idaho National Engineering and Environmental laboratory to verify instrument calibrations. During the design phase of this project, Idaho National Engineering and Environmental Laboratory mission needs will be reviewed and changes made to effectively address facility requirements.

The requested FY 2000 budget appropriation will authorize the subcontractors to start physical construction.

#### 4. Details of Cost Estimate

	(dollars in thousands)	
	Current Estimate	Previous Estimate
Design Phase		
Preliminary and final design costs (design drawings and specifications) . . . . .	658	658
Design management costs (<1% of TEC) . . . . .	83	40
Project management costs (1.7% of TEC) . . . . .	223	189
Total, Engineering, design, inspection and administration of construction costs (7.5% of TEC) . . . . .	964	887
Construction Phase . . . . .		
Improvements to Land . . . . .	371	378
Buildings . . . . .	5,307	4,648
Utilities . . . . .	275	212
Standard Equipment . . . . .	2,537	2,465
Inspection, Design and Project Liaison, Testing, Checkout and Acceptance . . . . .	270	299
Construction management costs (3% of TEC) . . . . .	516	218
Project management costs (1.6% of TEC) . . . . .	245	208
Total, Construction Costs . . . . .	9,521	8,428
Contingencies		
Design Phase (1.3% of TEC) . . . . .	168	181
Construction Phase (17.7% of TEC) . . . . .	2,297	2,404
Total, Contingency (approximately 19.0% of TEC) . . . . .	2,465	2,585
Total, Line Item Costs (TEC) . . . . .	12,950	11,900

## 5. Method of Performance

The Department of Energy Idaho Operations Office shall be responsible for implementation of the project, including selection of principal contractors and approval of specified procurement actions. DOE Idaho Operations Office project management shall be performed by the Office of Infrastructure Management. Safety, environmental, and other project support shall be furnished to the project on matrix basis by the DOE Idaho Operations Office organization.

The managing and operating contractor shall provide project management services to coordinate all project activities. The managing and operating contractor shall be responsible for the development of the project's technical requirements, completion of the architectural and engineering design, review and management of the engineering and construction activities, coordination of long-lead procurement of construction materials and equipment, construction subcontracting, coordination of the activities of construction subcontractors, checkout of systems, and turnover of the completed project.

## 6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 1999	FY 2000	FY 2001	Outyears	Total
Project Cost						
Facility Cost						
Design . . . . .	0	560	572	0	0	1,132
Construction . . . . .	0	0	2,648	4,800	4,370	11,818
Total Facility Cost . . . . .	0	560	3,220	4,800	4,370	12,950
Other Project Cost						
Conceptual design costs . . . . .	200	0	0	0	0	200
NEPA documentation costs <sup>a</sup> . . . . .	30	25	20	10	10	95
Other project-related costs <sup>b</sup> . . . . .	50	62	103	110	260	585

<sup>a</sup> NEPA documentation cost - NEPA cost for this period includes environmental checklist verification that facility descopeing did not change the approved Finding of No Significant Impact/Environmental Assessment on Health Physics Instrument Laboratory. Environmental activities during this period include state air permit preparation and preliminary storm water pollution plan development.

<sup>b</sup> Other project related costs - This category includes the costs associated with the preparation of the Project Execution Plan, project validation and revalidation, operational funded design reviews, safety, quality, program support of other facility alterations and existing health Physics Instrument Laboratory facility tours. System Operational testing, operational readiness reviews, move-in costs, and operationally funded configuration management activities for the completed facility are also included.

Total other project costs . . . . .	280	87	123	120	270	880
Total, Project Costs . . . . .	280	647	3,343	4,920	4,640	13,830

## 7. Related Annual Funding Requirements

(FY 2003 dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs . . . . .	988	0
Annual facility maintenance/repair costs . . . . .	216	1,416
Annual utility costs . . . . .	212	0
Total related annual funding (operating from FY 2003 through FY 2023) . . . . .	1,416	1,416

# 98-D-453, Plutonium Stabilization and Handling System for PFP, Richland, Washington (RL-TP06)

(Changes from FY 2000 Congressional Budget Request are denoted with a vertical line [ | ] in the left margin.)

## Significant Changes

- # The procurement of the Stabilization and Packaging System equipment is now planned as a combination of local design and fabrication of stabilization equipment plus procurement packaging equipment.
- # Elimination of office trailers and reduced cost of miscellaneous equipment resulted in the reduction of this project's total estimated cost.

## 1. Construction Schedule History

	Fiscal Quarter				Total Estimate d Cost (\$000)	Total Project Cost (\$000)
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
FY 1998 Budget Request ( <i>Preliminary Estimate</i> ) . . . . .	2Q 1998	3Q 1999	1Q 1999	4Q 2000	27,200	38,270
FY 1999 Budget Request ( <i>Current Baseline Estimate</i> ) . . . . .	"	"	"	"	36,600	44,100
FY 2000 Budget Request ( <i>Current Baseline Estimate</i> ) . . . . .	3Q 1998	4Q 1999	3Q 1999	3Q 2003	38,600	46,100
FY 2001 Budget Request ( <i>Current Baseline Estimate</i> ) . . . . .	"	"	"	"	34,700	39,800

## 2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
1998	1,251 <sup>a</sup>	1,251	1,251
1999	10,699 <sup>b</sup>	10,699	2,324
2000	14,550 <sup>c</sup>	14,550	16,060
2001	1,690	1,690	4,890
2002	3,530	3,530	3,520
2003	2,980	2,980	6,655

## 3. Project Description, Justification and Scope

In May 1994, the Defense Nuclear Facilities Safety Board (DNFSB) issued Recommendation 94-1 which urged the U.S. Department of Energy to remediate liquids and solids containing fissile material to a form more suitable for safe interim storage within a reasonable time period. The Department of Energy accepted DNFSB Recommendation 94-1, and outlined its corrective actions in a February 1995 Implementation Plan. In January 1995, Department of Energy Technical Standard DOE-STD-3013-96 was issued as the basis for 50-year storage of surplus plutonium with a plutonium content greater than 50 percent by weight. An update to this standard was issued in December 1999. This standard requires that the plutonium-bearing material with plutonium content greater than 30 percent by weight, be thermally stabilized at 950°C with a loss-on-ignition of less than 0.5 percent by weight. Following thermal stabilization, the material must be packaged in a standardized package configuration capable of keeping the material in a safe and stable state for the full time period. A national consensus team has designed the packages with two welded stainless steel containers surrounding a stainless steel convenience can compatible with mechanized handling.

The Plutonium Finishing Plant currently does not have a system capable of stabilizing or packaging large quantities of plutonium-bearing solids to these specifications. Vault fixtures in the Plutonium Finishing Plant secure vaults and related laboratory equipment are not large enough to accommodate the standardized containers, and the cooling capacity of vault air conditioning units is at maximum.

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<sup>a</sup> Reflects FY 1998 Internal Reprogramming of \$5,000,000 by the Richland Operations Office from the original appropriation of \$8,136,000, and use of \$1,885,000 to meet the uncosted reduction in the FY 1999 Energy and Water Development Appropriation.

<sup>b</sup> Reflects FY 1999 reduction of \$16,115,000 from the original appropriation of \$26,814,000 to meet the uncosted reduction included in the FY 1999 Energy and Water Development Appropriation.

<sup>c</sup> Reflects FY 2000 reduction of \$2,310,000 from the original appropriation of \$16,860,000 to meet the general reduction included in the FY 2000 Energy and Water Development Appropriation.

**Environmental Management/Defense Environmental  
Restoration and Waste Management/Site/Project  
Completion/98-D-453 -- Plutonium Stabilization and  
Handling System for PFP**

**FY 2001 Congressional Budget**

This project provides a Stabilization and Packaging System that is capable of stabilizing and packaging the current inventory of greater than 30 percent plutonium-bearing material stored in the plant's vaults. To accommodate the container configuration, this project will also modify selected Plutonium Finishing Plant vault fixtures and upgrade nondestructive assay measurement systems, such as calorimetry and isotopic measurement systems, to measure package plutonium content. The stabilization and packaging capability, and corresponding vault and equipment modifications are critical to the Department of Energy's commitment to safely store plutonium.

The scope of this project is to procure and install the Stabilization and Packaging System equipment, to modify selected Plutonium Finishing Plant vault fixtures, and to upgrade nondestructive assay measurement systems. Facility infrastructure will be modified to support this new stabilization and packaging system and the standardized container configuration.

The Stabilization and Packaging System will be installed in the Plutonium Finishing Plant Plutonium Storage Vault complex, Building 2736-ZB. Deliverables associated with the Stabilization and Packaging System procurement include the following:

- C Engineering, analysis, design, fabrication, delivery, and testing of the Stabilization and Packaging System equipment;
- C Utility interface requirements;
- C System safety basis;
- C Operating, maintenance, and training procedures and manuals;
- C Testing and startup procedures;
- C Design, testing and procurement of a small initial quantity of standardized package components;
- C Personnel training and technical assistance during startup.

The Stabilization and Packaging System will have the capability to receive and unload plutonium containers; stabilize plutonium oxides; package plutonium metals and oxides; meet material control and accountability requirements; and provide radiological containment and shielding. The design, fabrication and procurement of the can welding equipment will be managed so that detailed design, equipment procurement, and installation will be complete, and operations started by October 2000.

This project also makes the necessary facility modifications to support installation and operation of the Stabilization and Packaging System and storage of the standardized containers. Modifications to 2736-ZB Building include:

- C Capacity and control upgrade of the ventilation fan and exhaust filtration systems;
- C Addition of support services for the Stabilization and Packaging System such as bottled gas supplies for package inerting and welding, dry air for glovebox inerting, off gas treatment, stack constant air monitoring capability, electrical supply upgrades and closed loop cooling for laser welder;

- C Rearrangement of facility functions currently housed in the proposed location for the Stabilization and Packaging System;
- C Upgrade of laboratory equipment for calorimetry, gamma spectroscopy, radiography;
- C Architectural modifications of office areas and air locks to allow Stabilization and Packaging System operations.
- C Modification of selected Plutonium Finishing Plant vault fixtures to store the new standardized package;
- C Modification of vault security equipment related to storage fixtures;
- C Upgrade of cooling capacity to accommodate the standardized containers in an efficient configuration.

The FY 1998 appropriation was used to begin definitive design required prior to procurement, and to compile the technical specification for the procurement. The FY 1999 appropriation was used to initiate preliminary design. A path forward change at the end of the second quarter to local procurement packaging equipment, led to return of the project to the conceptual phase during third quarter FY 1999, with its completion by the end of the fiscal year. The FY 2000 appropriation was used to procure, install and test stabilization and packaging equipment; to complete facility infrastructure modifications, to complete a portion of the vault modifications required for startup of equipment; and to test equipment prior to the start of operations. The FY 2001 and subsequent outyear budget request levels are required to complete installation of the stabilization equipment by February 2001 and vault modifications after the equipment is operational.

## 4. Details of Cost Estimate

(dollars in thousands)		
	Current Estimate	Previous Estimate
Design phase		
Preliminary and final design costs ( 14.7% of total estimated cost (TEC)) . . . . .	5,090	2,810
Design management costs (2.7% of TEC) . . . . .	920	790
Total, engineering, design, inspection, and administration of construction costs (17.3% of TEC) . . . . .	6,010	3,600
Construction phase		
Buildings and improvements to land . . . . .	6,690	5,900
Specialized equipment . . . . .	11,300	18,800
Inspection, design and project liaison, testing, checkout and acceptance . . . . .	1,500	1,000
Project management . . . . .	1,300	0
Construction management (6.3% of TEC) . . . . .	2,200	2,000
Total, construction costs . . . . .	22,990	27,700
Contingencies		
Design phase (1.4% of TEC) . . . . .	500	700
Construction phase (15.0% of TEC) . . . . .	5,200	6,600
Total, contingencies (16.4% of TEC) . . . . .	5,700	7,300
Total, line item costs (TEC) . . . . .	34,700	38,600

## 5. Method of Performance

Design and inspection will be performed by the onsite engineer-construction contractor. Construction work will be performed to the maximum extent possible by fixed-price contractors, however a majority of the construction must be performed by security-cleared, facility-trained forces due to ongoing facility operations. The operating contractor will provide project management during design, procurement, and construction of the project.

## 6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 1999	FY 2000	FY 2001	Outyears	Total
Project cost						
Facility cost						
Design .....	1,251	2,324	3,300	0	0	6,874
Construction .....	0	0	12,760	4,890	10,176	27,826
Total facility costs (Federal and Non-Federal) .....	1,251	2,324	16,060	4,890	10,176	34,700
Other project costs						
Conceptual design cost .....	900	0	0	0	0	900
NEPA documentation costs .....	0	30	0	0	0	30
Other project-related costs .....	690	1,170	1,830	230	250	4,170
Total other project costs .....	1,590	1,200	1,830	230	250	5,100
Total project costs (TPC) .....	2,841	3,524	17,890	5,120	10,425	39,800

## 7. Related Annual Funding Requirements

(FY 2001 dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs (staff, utilities, etc.) .....	5,307	5,307
Annual facility maintenance and repair costs .....	900	900
Programmatic operating expenses directly related to the facility .....	20,000	20,000
Other annual costs .....	7,802	7,802
Total related annual funding ( <i>operating from FY 2001 through FY 2005</i> ) .....	34,009	34,009

# 97-D-470, Regulatory Monitoring and Bioassay Laboratory (formerly Environmental Monitoring Laboratory), Savannah River Site, Aiken, South Carolina (SR-IN10)

(Changes from FY 2000 Congressional Budget Request are denoted with a vertical line [ | ] in the left margin.)

## Significant Changes

- # Date physical construction starts was changed from 2nd Quarter FY 1999 to the 4th Quarter FY 1999 to reflect dates in approved baseline change proposal S-5798/008.
- # The total estimated cost and total project cost increased from \$30,280,000 to \$31,269,000 and \$33,400,000 to \$34,389,000, respectively. This adjustment is the result of an increase in General and Administrative rates.

## 1. Construction Schedule History

	Fiscal Quarter				Total Estimate d Cost (\$000)	Total Project Cost (\$000)
	A-E Work Initiated <sup>a</sup>	A-E Work Completed <sup>b</sup>	Physical Constructio n Start	Physical Construction Complete		
FY 1997 Budget Request ( <i>Preliminary Estimate</i> ) . . . . .	2Q 1997	3Q 1998	4Q 1998	2Q 2000	30,280	33,690
FY 1998 Budget Request ( <i>Current Baseline Estimate</i> ) . . . . .	“	“	“	“	“	“
FY 1999 Budget Request ( <i>Current Baseline Estimate</i> ) . . . . .	“	4Q 1998	4Q 1999	2Q 2001 <sup>c</sup>	“	33,400
FY 2000 Budget Request ( <i>Current Baseline Estimate</i> ) . . . . .	“	“	2Q 1999	“	“	“

<sup>a</sup> Date original design for Project 97-D-470 started. Architect/engineer design terminated in 4th Quarter FY 1997 in order to merge with line-item Project 97-D-473, Health Physics Site Support Facility.

<sup>b</sup> Does not include support for the construction procurement cycle. Includes 8 months of abandoned Environmental Monitoring Laboratory design and 8 months of new Title I and II design, excluding procurement bid cycle.

<sup>c</sup> Project extended one year due to rebaselining the project, preparing a new definitive design and increasing construction time due to an increase in the facility size.

## 2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
1997	2,500	2,500	1,455
1998	5,600	5,600	1,400
1999	7,000	7,000	1,353
2000	12,220	12,220	16,169
2001	3,949	3,949	10,892

## 3. Project Description, Justification and Scope

This project combines Project 97-D-473, Health Physics Site Support Facility with Project 97-D-470, Environmental Monitoring Laboratory, into a single laboratory facility. The Environmental Monitoring Laboratory project is renamed Regulatory Monitoring and Bioassay Laboratory. This project will efficiently design, build, and equip a new laboratory providing essential environmental monitoring and personnel bioassay analyses capabilities for the Savannah River Site. This facility will provide continued full compliance with the Occupational Safety and Health Administration requirements, radiation protection requirements, industrial hygiene and environmental protection requirements as detailed in Federal and state regulations and DOE Orders. It will house sections for the equipment and personnel to support site requirements to sample, prepare, and analyze environmental media (air, water, soil, and biota) for radiological, chemical and biological parameters, develop technologies to clean and monitor the environment, and for the determination, evaluation, and documentation of personnel exposure to radioactive materials. Also, it will include laboratory modules, sample preparation areas, analytical instrument rooms, mechanical and electrical support services, important personnel dosimetry records retention area, laboratory storage space, and offices for technical and administrative personnel. The structural, mechanical, electrical and architectural design provisions will consider the facilitation of potential structural and internal modifications in support of future growth or additional laboratory modules and support features. The facility size will be approximately 72,700 square feet with three construction bid alternatives for an additional 7,800 square feet. The actual facility size will be determined during the construction solicitation/award process. The facility will be divided into three major functional areas: 1) laboratory, 2) office and administration, and 3) service and general use basement. The laboratory section includes; sampling rooms, non-radiological laboratory modules, radiochemistry laboratory models, radio-analytical counting rooms, in-vitro bioassay laboratories and storage rooms. In addition, a partial

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<sup>a</sup> Project extended 6 months to reduce scope and allow time for an additional construction procurement cycle because initial construction bids were over budget.

basement (under the laboratory area) will be provided to include laboratory exhaust hood duct system, mechanical equipment, and some storage and general use area. The office and administration area includes space for management and staff, data management, publication rooms and vital records retention rooms. A Wastewater Treatment Facility is provided to neutralize and treat laboratory wastewater.

The 735-A support laboratory operated by the Environmental Monitoring Section of the Environmental Protection Department and the Health Protection Department is 42-years old and is at the end of its life cycle. The 735-11A laboratory, while much newer, has also experienced significant overall deterioration. General deterioration is evident in both buildings due to high volumes of laboratory samples being processed via slow evaporation of concentrated nitric and hydrochloric acids; ventilation system failures have occurred and are documented. These are expected to become prevalent within the next 5 years creating occupational safety and health concerns. Current operations are being performed in facilities that have the following deficiencies: 1) facilities provide inconsistent and unreliable neutralization capabilities for acidic waste water; 2) facilities cannot accommodate large amounts of automated instrumentation and computers; 3) facilities do not allow adequate sample segregation; and 4) there is inadequate space to store and process bioassay samples for the current (and projected) workforce. Existing facility renovation or expansion is not practical nor cost-effective. Renovation would be ineffective since the existing facility does not have adequate space to continue performing the types, quantities, or quality of required analyses. No other suitable space is available on site meeting the requirements and criteria of a laboratory. Renovation would exceed the time and cost to build a new facility.

Sudden and unexpected loss of the site bioassay processing and environmental monitoring capability could occur due to a significant physical failure in building or heating, ventilation, and air conditioning integrity in the existing facility adversely impacting most site support operations. DOE Orders 5400.1, "General Environmental Protection Program"; 5400.5 and pending rule to 10 CFR 834, "Radiation Protection of the Public and the Environment" require the Savannah River Site to conduct programs that quantify the impact of Savannah River Site activities, in any, on the public, environment, and natural resources. Without the Regulatory Monitoring and Bioassay Laboratory, the activities needed to ensure compliance with environmental, Federal, and state requirements would be jeopardized. For example, 13 major facilities risk potential shutdown if air emissions are not analyzed to ensure compliance with the Clean Air Act or effluents to ensure compliance with the Clean Water Act. Failure to comply with Federal or state environmental requirements would leave the site subject to enforcement actions, both civil and criminal. This facility will house the environmental activities requiring fast turnaround quality control and contractor oversight and analysis of samples containing levels of radioactivity that present a potential contamination risk to off-site commercial laboratories. Off-site commercial laboratories are used to analyze samples, verify and validate data for both compliance and noncompliance environmental programs that do not require rapid turnaround. Privatization of environmental activities is not cost-effective and has been eliminated as an option. With regards to worker protection, personnel would be restricted from performing radiological work pending resolution of bioassay assessments. Site work covered by bioassay programs include high-level and low-level waste processing and storage, Defense Waste Processing Facility operations, reactor fuel storage, tritium production and handling, H-Area and F-Area canyons, environmental remediation projects, and other occasional process and incidental site functions. Administration

and support of multiple services contracts would be difficult, costly, and error prone. Experience has shown that turnaround times from commercial services are too long to respond effectively to incidents with potential uptakes.

Outsourcing the entire Savannah River Site bioassay analysis to commercial services has been reviewed as an alternative to new construction. The Savannah River Site bioassay laboratory is the largest processor of actinide bioassay samples in the United States, and it may not be possible to subcontract to a single, existing commercial laboratory. In addition, there is little demand for actinide bioassay sample processing outside the DOE complex; therefore, commercial laboratories have limited capacity and little experience in performing these analyses. If multiple laboratories were utilized, the analytical techniques and statistical treatment of the data could be inconsistent making final result comparisons and dose assignments more difficult to perform and defend. In addition, the Savannah River Site has experienced problems with three different subcontractor laboratories in the past 6 years that performed a small portion of our analyses. Although contracted turnaround times were specified for 3 weeks, results were often not reported for many months (and in some cases greater than 6 months). In addition, it was difficult to obtain the actual hard copy and electronic counting records for quality assurance and dose assessment purposes, and considerable manpower was expended resolving data discrepancies. Historically, many of the DOE sites have had similarly poor service from off-site bioassay laboratories which has resulted in the canceling of contracts and development of on-site capabilities. Problems at Hanford and Sandia within the past decade have resulted in Federal criminal investigations for fraud and mismanagement. Recently, DOE Headquarters issued a communique describing problems that resulted from the Mound Facility using an off-site contract laboratory to perform their bioassay analyses. In previous and current cost assessments of outside laboratories, it has been shown that there is no clear cost advantage to subcontract these services. This along with the increased risk in subcontracting, as mentioned above, has led to a management decision to consolidate all bioassay sample analyses on site.

The gross annual operating cost for this facility is estimated to be \$1,800,000. This includes operations, building maintenance, equipment repair and utility costs.

| FY 2001 funds will be used for the fixed-price construction and inspection services. Construction activities include: complete building structure, interior finishes, mechanical and electrical systems, and install fixed laboratory equipment.

## 4. Details of Cost Estimate <sup>a</sup>

(dollars in thousands)		
	Current Estimate	Previous Estimate
Design phase		
Preliminary and final design costs ( 11.0% of total estimated cost (TEC)) <sup>b</sup> . . . . .	3,435	2,237
Design management costs (2.5% of TEC) . . . . .	773	580
Total, engineering, design, inspection, and administration of construction costs (13.5% of TEC) . . . . .	4,208	2,817
Construction phase		
Buildings & improvements to land . . . . .	21,940	19,574
Specialized equipment . . . . .	933	2,085
Other (major utilities/comp items, specialized facilities, etc.) . . . . .	751	338
Inspection, design and project liaison, testing, checkout and acceptance . . . . .	297	597
Construction management (4.1% of TEC) . . . . .	1,283	1,238
Total, construction costs . . . . .	25,204	23,832
Contingencies		
Design phase (0% of TEC) . . . . .	0	114
Construction phase (5.9% of TEC) . . . . .	1,857	3,517
Total, contingencies (5.9% of TEC) . . . . .	1,857	3,631
Total, line item costs (TEC) . . . . .	31,269	30,280

## 5. Method of Performance

This project will be managed by the management and integration contractor. The design and construction shall be accomplished by fixed-price subcontracts awarded on the basis of competitive bidding.

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<sup>a</sup> The Department of Energy (DOE) February 1997 escalation rates (percent per year) used for this estimate are as follows: FY 1997 2.7%; FY 1998 2.8%; FY 1999 2.6%; FY 2000 2.7%; FY 2001 2.8%. The above estimate includes \$581,070 for escalation.

<sup>b</sup> Includes abandoned design and project support cost for Project 97-D-470 (estimated at \$1,131,000).

## 6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 1999	FY 2000	FY 2001	Outyears	Total
Project cost						
Facility cost						
Design .....	2,855	1,353	0	0	0	4,208
Construction .....	0	0	16,169	10,892	0	27,061
Total facility costs (Federal and Non-Federal) .....	2,855	1,353	16,169	10,892	0	31,269
Other project costs <sup>a</sup>						
Conceptual design cost <sup>b</sup> .....	964	0	0	0	0	964
NEPA documentation costs <sup>c</sup> .....	100	0	0	0	0	100
Other project-related costs <sup>d</sup> .....	458	391	717	490	0	2,056
Total other project costs .....	1,522	391	717	490	0	3,120
Total project costs (TPC) .....	4,377	1,744	16,886	11,382	0	34,389

<sup>a</sup> Reflects adjustments to overhead costs.

<sup>b</sup> Includes \$964,000 spent to prepare Functional Design Criteria, scope of work, preliminary drawings, conceptual estimate, conceptual design report, and a Task Order Proposal Request for architect/engineer services. An estimated \$360,000 will be spent to rebaseline the combined projects (revise Functional Criteria and Task Order for architect/engineer services).

<sup>c</sup> Includes \$40,000 for National Environmental Policy Act documentation, \$50,000 for site characterization, \$10,000 to revise existing documentation.

<sup>d</sup> Includes startup, equipment setup/checkout, training, and procedure safety documentation preparation, operational readiness/assessment.

**Environmental Management/Defense Environmental  
Restoration and Waste Management/Site/Project  
Completion/97-D-470 -- Regulatory Monitoring and  
Bioassay Laboratory (formerly Environmental  
Monitoring Laboratory)**

**FY 2001 Congressional Budget**

## 7. Related Annual Funding Requirements

(FY 2001 dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs (staff, utilities, etc.) <sup>a</sup> .....	1,000	1,000
Annual facility maintenance and repair costs <sup>b</sup> .....	565	565
Other annual costs <sup>c</sup> .....	235	235
<b>Total related annual funding (operating from FY 2001 through FY 2026) .....</b>	<b>1,800</b>	<b>1,800</b>

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<sup>a</sup> Includes salaries, benefits, overhead staffing, janitorial services and supplies (6 FTE).

<sup>b</sup> Includes repair of equipment; heating, ventilation, and air conditioning; etc. (1.4 FTE).

<sup>c</sup> Includes electric power, fuel, oil and water.

# 96-D-471, CFC HVAC/Chiller Retrofit, Savannah River Site, Aiken, South Carolina (SR-IN05)

(Changes from FY 2000 Congressional Budget Request are denoted with a vertical line [ | ] in the left margin.)

## Significant Changes

# The total project cost increased from \$54,000,000 to \$54,700,000 due to addition of hydrochloroflouorocarbon-22 removal in B-Area.

### 1. Construction Schedule History

	Fiscal Quarter				Total Estimated Cost (\$000)	Total Project Cost (\$000)
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
FY 1996 Budget Request (Preliminary Estimate) . . . . .	1Q 1996	Various	Various	Various	45,000	58,500
FY 1997 Budget Request (Preliminary Estimate) . . . . .	"	"	"	"	"	"
FY 1998 Budget Request (Title I Baseline) . . . . .	"	2Q 2000	3Q 1996	3Q 2002	"	"
FY 1999 Budget Request (Current Baseline Estimate) . . . . .	2Q 1996	3Q 2000	"	"	"	"
FY 2000 Budget Request (Current Baseline Estimate) . . . . .	"	"	"	"	"	54,000
FY 2001 Budget Request (Current Baseline Estimate) . . . . .	"	"	"	"	" a	54,700

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<sup>a</sup> Current subprojects total \$45,000,000; future subprojects have a total estimated cost of \$0.

## 2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
1996	1,500	1,500	699
1997	8,541	8,541	3,982
1998	8,500	8,500	11,535
1999	8,000	8,000	6,687
2000	931	931	4,562
2001	12,512	12,512	12,307
2002	5,016	5,016	5,228

## 3. Project Description, Justification and Scope

### DRIVERS

Current legislation banned chlorofluorocarbon production in December 1995. Continued chlorofluorocarbon use is allowed under strict maintenance and operation regimens. However, the free market pricing mechanisms and DOE policy severely discourage procurement of replacement chlorofluorocarbons. Additionally, hydrochlorofluorocarbon-22 refrigerant phaseout is included in the international agreements. In order to continue operations, the DOE must eventually end its reliance upon chlorofluorocarbons for all cooling applications.

### CHLOROFLUOROCARBON MISSION

Due to the regulatory requirements, as well as the related impending chlorofluorocarbon and hydrochlorofluorocarbon-22 shortages, it is imperative that action be taken to preserve EM mission capability by instituting refrigerant management for conserving this limited resource pending replacement by non ozone-depleting refrigerant, to reduce the continued cost of operation through increased energy efficiency, and to protect the environment from further damage. Ultimately, this program will eliminate the use of ozone-depleting refrigerants to ensure compliance with the Environmental Protection Agency Stratospheric Ozone Protection Amendment of the Clean Air Act.

This project provides for the elimination of the use of ozone-depleting chlorofluorocarbons and hydrochlorofluorocarbon-22 to ensure compliance with the Environmental Protection Agency stratospheric ozone protection amendment of the Clean Air Act at the Savannah River Site. A project of this type cannot be fully detailed in advance due to changing mission requirements, unexpected catastrophic equipment failures, environmental compliance schedules, etc. The subprojects identified are examples of chillers under consideration. This approach is based upon similar endeavors by other federal agencies, such as the General Services Administration. In general, the estimated funding for each location and listed subprojects is preliminary in nature and primarily indicative of the size of the subproject and the relative magnitude of the requirements. It should be noted also that the continuing study of requirements will result in changes in scope of some of the subprojects.

Refrigerant and cooling requirements are the principal use for ozone-depleting substances at the Savannah River Site (with Halon fire suppression and specialized solvent cleaning operations comprising the remaining usage).

The program will eliminate the large scale use of chlorofluorocarbons used in refrigeration and cooling in chillers, direct expansion air conditioners, process coolers, and other refrigeration equipment. (Halon and solvent cleaning usage is already being addressed by site waste minimization activities and the use of non-chlorofluorocarbon based fire protection methodologies.) Small window and wall slot air conditioners and other equipment with refrigerant charges of 10 pounds or less will be replaced when leaks are detected or at the end of their useful life with new equipment utilizing non ozone-depleting refrigerants, and are not addressed under this program. The ultimate disposal or destruction of chlorofluorocarbon refrigerants is not considered as part of this effort.

The principal ozone-depleting refrigerants found on the Savannah River Site include R-22, R-11, R-12, R-113, R-114, R-502, and R-503. Replacement non ozone-depleting refrigerants/systems are already commercially available, and no development activity is required. However, since some non-chlorofluorocarbon refrigerant replacements are generally of a higher toxicity, additional ventilation and monitoring systems may be required for some of the modified systems to comply with industry standards.

Aging control systems may also require upgrade in order to interface with modern replacement systems. Asbestos and other potential contaminants found during equipment replacement/retrofit may require abatement, containment, or remediation. In modifying existing systems, required utilities and distribution connections and demolition and disposal may be necessary for non-salvageable components and systems.

The following legislative actions have been considered in the formulation of the Chlorofluorocarbon Heating, Ventilation, and Air Conditioning Chiller Retrofit Project:

- # Title VI of the Clean Air Act, as amended, which mandates a curtailment of ozone-depleting substance production.
- # Title III of the Clean Air Act, as amended, waives the Government's sovereign immunity under Section 302(e) and subjects "...any agency, department, or instrumentality of the United States and any officer, agent, or employee thereof" to the provisions of the Act. The Federal Enforcement provisions outlined in Section 113 include civil and criminal penalties for knowingly violating the provisions.
- # The Refrigerant Recycling Rule as given in 58 FR 28660 allows a maximum leakage of 15 percent per annum of a refrigerant system's charge of Chlorofluorocarbon working fluid.
- # Title 40 of the Federal Regulations addresses air pollution in general. The Environmental Protection Agency final rule (40 CFR 82, "Production and Consumption Controls," 12/10/93) accelerates the phase-out of Class I substances.
- # Executive Order 12856 of 1993 addresses federal compliance with right-to-know laws and pollution prevention requirements, and stipulates 50 percent reduction in leakage/emission of Emergency Planning and Community Right-to-Know Act chemicals by December 31, 1991, including some Chlorofluorocarbons.
- # The National Pollution Prevention Act of 1990.

# Executive Order 12843 addresses procurement policies for ozone-depleting substances.

This project has been planned to provide a consistent prioritized method for the application of scarce capital resources to address the replacement or conversion of equipment reliant upon ozone-depleting refrigerants. The project will utilize a consistent strategy for assessment of requirements to maintain credibility, and a funding approach based on technical and budget priorities to systematically reduce risk and insult to the ozone and environment while protecting worker and public safety and maintaining critical program activities.

The subprojects identified in this section (new starts) represent the highest priority efforts given the current equipment conditions, site mission status, environmental and/or regulatory compliance information, etc. However, site requirements, unexpected regulatory or safety driven issues, or equipment failures may result in a re-prioritization of the activities proposed under this project. This reprioritization may result in subproject(s) being substituted for those identified as New Starts. Subproject additions/substitution/deletions will be controlled and tracked through the Baseline Change Control process. Subproject changes will be discretely identified once approved through the Baseline Change Control process.

The following is a brief description and justification for each of the chiller subprojects proposed for:

FY 2001 Proposed Projects: (New Starts)

Subproject 10: A Area

TEC	Previous	FY 1999	FY 2000	FY 2001	FY 2002	Construction Start - Completion Dates
2,171	0	0	0	500	1,671	4th Qtr. FY 2001 - 3rd Qtr. FY 2002

Replace various small refrigeration units on walk-in freezers and refrigerators.

FY 2000 Projects:

Subproject 06: S Area

TEC	Previous	FY 1999	FY 2000	FY 2001	FY 2002	Construction Start - Completion Dates
8,250	0	0	300	4,605	3,345	2nd Qtr. FY 2001 - 2nd Qtr. FY 2002

Replace six chillers with a total capacity of 2,540 tons.

Subproject 15: HB-Line

TEC	Previous	FY 1999	FY 2000	FY 2001	FY 2002	Construction Start - Completion Dates
1,100	0	40	100	960	0	1st Qtr. FY 2001 - 3rd Qtr. FY 2001

Replace one 160-ton chiller in HB-Line.

Subproject 14: B Area

TEC	Previous	FY 1999	FY 2000	FY 2001	FY 2002	Construction Start - Completion Dates
7,278	0	300	531	6,447	0	3rd Qtr. FY 2000 - 3rd Qtr. FY 2001

Consolidation of chillers into a central chiller plant providing approximately 2,000 tons of cooling.

FY 1999 Projects:

Subproject 13: New Special Recovery

TEC	Previous	FY 1999	FY 2000	FY 2001	FY 2002	Construction Start - Completion Dates
1,555	0	1,555	0	0	0	2nd Qtr. FY 2000 - 3rd Qtr. FY 2000

Replace one 225-ton chiller in New Special Recovery Facility.

FY 1998 Projects:

Subproject 07: 299-H

TEC	Previous	FY 1999	FY 2000	FY 2001	FY 2002	Construction Start - Completion Dates
1,063	1,063	0	0	0	0	4th Qtr. FY 1998 - 4th Qtr. FY 1998

Replace one 100-ton chiller.

Subproject 08: 235-F

TEC	Previous	FY 1999	FY 2000	FY 2001	FY 2002	Construction Start - Completion Dates
2,638	1,305	1,333	0	0	0	1st Qtr. FY 1999 - 4th Qtr. FY 1999

Replace three chillers with a total capacity of 540 tons.

Subproject 12: Tritium, Phase III

TEC	Previous	FY 1999	FY 2000	FY 2001	FY 2002	Construction Start - Completion Dates
1,900	200	1,700	0	0	0	1st Qtr. FY 1999 - 3rd Qtr. FY 1999

Replace two 658-ton chillers.

FY 1997 Projects:

Subproject 04: F-Canyon / Analytical Laboratories

TEC	Previous	FY 1999	FY 2000	FY 2001	FY 2002	Construction Start - Completion Dates
9,172	6,100	3,072	0	0	0	1st Qtr. FY 1998 - 3rd Qtr. FY 1999

Replace ten chillers with a total capacity of 3,720 tons. Consolidation of chillers into a central chiller plant will be considered.

Subproject 05: H-Canyon

TEC	Previous	FY 1999	FY 2000	FY 2001	FY 2002	Construction Start - Completion Dates
2,294	2,294	0	0	0	0	1st Qtr. FY 1998 - 4th Qtr. FY 1998

Replace two 350-ton chillers in 221-H. Replace one 10-ton chiller and convert one 160-ton chiller in 221-HBL to a non-chlorofluorocarbon refrigerant.

FY 1996 Projects:

Subproject 02: Tritium, Phase I

TEC	Previous	FY 1999	FY 2000	FY 2001	FY 2002	Construction Start - Completion Dates
677	677	0	0	0	0	2nd Qtr. FY 1996 - 4th Qtr. FY 1996

Replacement of one 445-ton chiller in Building 234-H which is currently inoperable.

Subproject 03: Tritium, Phase II

TEC	Previous	FY 1999	FY 2000	FY 2001	FY 2002	Construction Start - Completion Dates
6,902	6,902	0	0	0	0	2nd Qtr. FY 1997 - 2nd Qtr. FY 1999

Consolidate eight chillers into a central four chiller plant providing 1,350 tons of cooling.

No additional New Start projects are planned beyond FY 2001.

NOTE: Total estimated cost values for completed projects and projects scheduled to complete in FY 1999 do not reflect DOE contingency.

## EXECUTION CONSIDERATIONS

The two principal options for addressing existing Chlorofluorocarbon dependent chiller/heating, ventilation, and air conditioning systems are: 1) conversion (retrofits) and 2) replacement.

- # Conversion (retrofit) of the equipment to use alternative non-ozone depleting refrigerants such as hydrochlorofluorocarbon or hydrofluorocarbon. Conversion needs to consider the impact on the materials utilized in chiller construction (e.g., corrosive effect of alternative refrigerants upon chiller seals) and the impact on equipment performance.
- # Replacement of the equipment with new non-chlorofluorocarbon dependent equipment.

Consideration/evaluation of the conversion versus replacement decision include:

- # Age of the chillers;
- # Performance of the existing chillers; machine capability; relative efficiency, maintainability, and reliability;
- # Life cycle cost analyses;
- # Spare part availability;
- # Current system capacity margin and future growth requirements; system impact on the site and facility mission and mission urgency;
- # Accessibility issues and structural modifications that may be necessary to accommodate a replacement.

In summary, as equipment approaches the end of its useful life, replacement may appear to be an obvious choice. However, the decision for replacement will not be made until installation costs have been adequately addressed (i.e., removal of existing equipment, accessibility for the placement of new equipment, equipment tie-in points, and new support equipment). The final decision to convert or replace can only be made following a case-by-case engineering evaluation which considers all of the above factors. Private industry involvement and practices will be employed to the greatest extent possible.

## 4. Details of Cost Estimate <sup>a</sup>

(dollars in thousands)		
	Current Estimate	Previous Estimate
Design phase		
Preliminary and final design costs (8.4% of total estimated cost (TEC)) . . . . .	3,795	2,489
Design management costs (3.7% of TEC) . . . . .	1,658	1,192
Total, engineering, design, inspection, and administration of construction costs (12.1% of TEC) . . . . .	5,453	3,681
Construction phase		
Other (major utilities/comp items, specialized facilities, etc.) . . . . .	31,113	27,407
Inspection, design and project liaison, testing, checkout and acceptance . . . . .	1,020	898
Construction management (10.9% of TEC) . . . . .	4,909	3,897
Total, construction costs . . . . .	37,042	32,202
Contingencies		
Design phase (0.6% of TEC) . . . . .	287	939
Construction phase (4.9% of TEC) . . . . .	2,218	8,178
Total, contingencies (5.6% of TEC) . . . . .	2,505	9,117
Total, line item costs (TEC) . . . . .	45,000	45,000

## 5. Method of Performance

Installation of replacement equipment and system conversions (retrofits) will be performed to the greatest extent feasible through competitive bid solicitations.

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<sup>a</sup> The DOE escalation rates (percent per year) used for this estimate are as follows: FY 1996-3.2%; FY 1997-2.7%; FY 1998-2.8%; FY 1999-3.0%; FY 2000-3.0%; FY 2001-3.0%. The above estimate includes \$2,433,257 for escalation.

## 6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 1999	FY 2000	FY 2001	FY 2002	Total	
Project cost							
Facility cost							
Design .....		2,928	776	426	1,219	391	5,740
Construction .....		13,288	5,911	4,136	11,088	4,837	39,260
Total facility costs (Federal and Non-Federal) <sup>a</sup> .....		16,216	6,687	4,562	12,307	5,228	45,000
Other project costs							
Other project-related costs .....		4,680	2,298	1,173	1,409	140	9,700
Total other project costs .....		4,680	2,298	1,173	1,409	140	9,700
Total project costs (TPC) .....		20,896	8,985	5,735	13,716	5,368	54,700

## 7. Related Annual Funding Requirements

(FY 2000 dollars in thousands)

	Current Estimate <sup>b</sup>	Previous Estimate
Annual facility operating costs (staff, utilities, etc.) .....	0	0
Annual facility maintenance and repair costs .....	0	0
Programmatic effort related to facility .....	0	0
Other annual costs .....	0	0
Total related annual funding (operating from FY 2000 through FY 2023) .....	0	0

<sup>a</sup> The line item TEC is \$45,000 which includes design, procurement, and construction.

<sup>b</sup> Replacement of the chillers will result in a reduction in maintenance and energy costs of approximately \$3,400,000.

# 92-D-140, F&H Canyon Exhaust Upgrades, Savannah River, South Carolina (SR-NM04)

(Changes from FY 1999 Reprogramming Request are denoted with a vertical line [ | ] in the left margin.)

## Significant Changes

# Reflects a reduction of \$202,000 to the total estimated cost and a reduction of \$323,000 to the total project cost due to pension contribution reductions and a Department of Energy/Savannah River Chief Financial Officer directed change for efficiency challenges.

### 1. Construction Schedule History

	Fiscal Quarter				Total Estimate d Cost (\$000)	Total Project Cost (\$000)
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
FY 1992 Budget Request . . . . .	1Q 1992	3Q 1993	4Q 1993	1Q 1998	207,000	215,250
FY 1993 Budget Request . . . . .	3Q 1992	2Q 1994	2Q 1994	4Q 1998	"	"
FY 1994 Budget Request ( <i>Preliminary Estimate</i> ) . . . . .	4Q 1992	1Q 1995	4Q 1995	"	126,600	157,000
FY 1999 Budget Request ( <i>Current Baseline Estimate</i> ) . . . . .	2Q 1996	3Q 1999	2Q 1997	2Q 2000	25,567	39,067
FY 1999 Reprogramming Request . . . .	"	"	"	4Q 2001	56,648	75,750
FY 2001 Budget Request ( <i>Current Baseline Estimate</i> ) . . . . .	"	"	"	"	56,446	75,427

## 2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
1992	3,500. <sup>a</sup>	0	0
1993	12,500	2,000	0
1994	15,000	9,000	0
1995	-1,000. <sup>b</sup>	19,000	0
1996	-2,700. <sup>c</sup>	-2,700	1,950
1997	-5,400. <sup>d</sup>	-5,400	5,411
1998	0	0	3,731
1999	25,667. <sup>e</sup>	25,667	13,203
2000	0	0	19,641
2001	8,879	8,879	12,510

## 3. Project Description, Justification and Scope

There are two subprojects within the 92-D-140 line item construction project. They are S-4404 Canyon Exhaust and S-W312 Process Vessel Vent system fans.

Subproject S-4404: Canyon Exhaust

TEC	Previous	FY 1999	FY 2000	FY 2001	Outyears	Construction Start - Completion Dates
52,403	21,900	21,624	0	8,879	0	2nd Qtr. FY 1997 - 4th Qtr. FY 2001

This project will replace degraded obsolete exhaust equipment. The canyon exhaust systems form the heart of the safety of Operations personnel, and as such, must be highly reliable to provide appropriate contamination control for personnel and environmental protection. The canyon exhaust system is the primary barrier to radioactive release during normal operations, operations accidents, and natural phenomena accidents. These exhaust facilities are required to:

- a. Maintain negative pressure throughout the facilities to confine radioactive contamination.

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<sup>a</sup> Reflects an FY 1992 Omnibus reprogramming reduction of \$8,500,000 against the original appropriation of \$12,000,000.

<sup>b</sup> Reflects an FY 1995 general reduction of \$1,000,000.

<sup>c</sup> Reflects an FY 1996 uncosted reduction of \$2,700,000.

<sup>d</sup> Reflects an FY 1997 uncosted reduction of \$1,900,692 and a reprogramming reduction of \$3,500,000.

<sup>e</sup> Reflects an FY 1999 reprogramming of \$22,000,000 (Source: Actinide Packaging and Storage Facility subproject.)

- b. Monitor the potential release of radioactive materials to the environment from facility exhaust.
- c. Achieve and maintain safe shutdown conditions in combination with existing sand filters during accident situations.

Operating personnel in both F- and H-Areas have had difficulty maintaining the required air flows and differential pressures needed for adequate contamination control within the canyons. Personnel safety and environmental regulatory requirements are the driving force behind the need to replace the existing equipment in both exhaust facilities with modern, reliable equipment.

The emergency power generating systems will be replaced and reconfigured to provide reliable standby power to exhaust fans. The system will be arranged to allow the normal fan power to be supplied from the utility power or from the diesel generators. The new diesel fuel tanks will be in compliance with state and federal regulations for diesel storage.

This project has been divided into three phases:

Phase One: Rerouting of FB-Line exhaust duct from third and fourth levels to F-Canyon exhaust sand filter (Status: Completed in mid-1997). Rerouting of the F-Canyon recycle vessel vent to F-Canyon exhaust sand filter (Status: Completed in late 1997).

Phase Two: Replacement of F- and H-Area diesel fuel tanks in compliance with state and federal regulations for diesel storage (Status: Completed in early 1998).

Phase Three: Construct new F- and H-Area Diesel Generator Buildings and replace existing canyon exhaust fans.

The canyon systems are over 45 years old and nearing the end of their design life. Deteriorating performance reduces system reliability and results in curtailment of operations when equipment is not functioning properly.

This project will replace the six existing diesel generators with a total of four refurbished diesel generators (two in F-Area and two in H-Area), and construct new Diesel Generator buildings, 254-13F and 254-19H. Also included is the replacement of the 750 kVA and 1,000 kVA substations, switchgear, motor control centers, buses, the two Old HB-Line exhaust fans and the eight canyon exhaust fans in F- and H-Areas. This project will add pneumatically operated dampers in the air supply ducts of the Old HB-Line facility and install an excitation support system and electrical interlocks to various supply and exhaust fans.

The FY 2001 funds will be used to accelerate replacement of H-Canyon exhaust fans and diesel generator building construction.

**Subproject W312: Process Vessel Vent System Fans**

TEC	Previous	FY 1999	FY 2000	FY 2001	Outyears	Construction Start - Completion Dates
4,043	0	4,043	0	0	0	1st Qtr. FY 1999 -- 4th Qtr. FY 2000

This subproject will replace both F-Canyon Process Vessel Vent system fans, motors, baseplates and purchase two new fans and motors in Building 292-1F. It will make no changes to Process Vessel Vent system functions, requirements, or operating parameters. It will also use a single baseplate for each fan/motor

assembly; repair existing pedestals, as required, to permit new assemblies to be mounted properly; reuse all existing electrical, instrumentation, controls, inlet/exhaust ducts (elbows), dampers, etc.; obtain necessary containers for proper burial of excess fans, motors, construction debris, etc.; use temporary shielding, mockups, and other prudent means to keep exposures during construction as low as reasonably achievable; and startup, test, and turn over completed assemblies to operations.

#### 4. Details of Cost Estimate

	(dollars in thousands)	
	Current Estimate	Previous Estimate
Design phase		
Preliminary and final design costs ( 17.0% of total estimated cost (TEC)) . . . . .	9,593	9,593
Design management costs (3.2% of TEC) . . . . .	1,814	1,814
Total, engineering, design, inspection, and administration of construction costs (20.2% of TEC) . . . . .	11,407	11,407
Construction phase		
Buildings and improvements to land . . . . .	26,185	26,185
Specialized equipment . . . . .	5,443	5,443
Inspection, design and project liaison, testing, checkout and acceptance . . . . .	2,173	2,173
Construction management (4.7% of TEC) . . . . .	2,654	2,654
Total, construction costs . . . . .	36,455	36,455
Contingencies		
Design phase (3.7% of TEC) . . . . .	2,108	2,108
Construction phase (11.8% of TEC) . . . . .	6,476	6,678
Total, contingencies (15.6% of TEC) . . . . .	8,584	8,786
Total, line item costs (TEC) . . . . .	56,446	56,648

#### 5. Method of Performance

Construction of the facilities and modifications, design, procurement, and inspection of engineered equipment will be performed by a fixed-price contractor or Savannah River Site direct-hire forces.

## 6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 1999	FY 2000	FY 2001	Outyears	Total
Project cost						
Facility cost						
Design .....	4,829	4,925	2,338	1,423	0	13,515
Construction .....	6,263	8,278	17,303	11,087	0	42,931
Total facility costs (Federal and Non-Federal) .....	11,092	13,203	19,641	12,510	0	56,446
Other project costs						
Conceptual design cost. <sup>a</sup> .....	5,000	0	0	0	0	5,000
Other project-related costs. <sup>b</sup> .....	4,809	3,041	4,252	1,879	0	13,981
Total other project costs .....	9,809	3,041	4,252	1,879	0	18,981
Total project costs (TPC) .....	20,901	16,244	23,893	14,389	0	75,427

## 7. Related Annual Funding Requirements

Due to the nature of this project, there are no associated annual operating costs.

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<sup>a</sup> Includes preparation of the Project Objectives Letter, Functional Performance Requirements, Functional Design Criteria, Conceptual Design and Estimate and the Conceptual Design Report, and Design Review for the initial validation.

<sup>b</sup> Includes Environmental Impact Statement, Line Management Review support, testing and startup.

# 86-D-103, Decontamination and Waste Treatment Facility, Livermore, California (OK-027)

(Changes from FY 2000 Congressional Budget Request and denoted with a vertical line [ | ] in the left margin)

## Significant Changes

Update project completion date to reflect latest approved baseline change.

### 1. Construction Schedule History

	Fiscal Quarter				Total Estimated Cost (\$000)	Total Project Cost (\$000)
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
FY 1986 Budget Request (Preliminary Estimate) . . . . .	2Q 1986	N/A	3Q 1987	1Q 1989	11,600	12,369
FY 1987 Budget Request (Preliminary Estimate) . . . . .	1Q 1986	"	2Q 1987	1Q 1990	36,400	37,169
FY 1988 Budget Request (Preliminary Estimate) . . . . .	3Q 1986	"	4Q 1987	3Q 1991	40,900	41,669
FY 1989 Budget Request (Preliminary Estimate) . . . . .	"	3Q 1990	1Q 1988	"	41,300	42,069
FY 1990 Budget Request (Preliminary Estimate) . . . . .	"	On Hold	"	"	41,300	42,069
FY 1991 Budget Request (Preliminary Estimate) . . . . .	"	"	"	1Q 1993	41,300	41,300
FY 1992 Budget Request (Preliminary Estimate) . . . . .	"	"	2Q 1988	2Q 1996	59,300	60,069
FY 1993 Budget Request (Preliminary Estimate) . . . . .	"	"	"	2Q 1999	59,300	60,069
FY 1994 Budget Request (Preliminary Estimate) . . . . .	"	3Q 1998	"	4Q 2000	59,300	60,069
FY 1995 Budget Request (Preliminary Estimate) . . . . .	3Q 1994. <sup>a</sup>	"	"	4Q 2000	59,300	60,069
FY 1996 Budget Request (Title I) . .	"	"	"	1Q 2000	75,227	76,119

<sup>a</sup> BCP issued to rebaseline project for restart. These dates are represented in the rebaseline document.

	Fiscal Quarter				Total Estimated Cost (\$000)	Total Project Cost (\$000)
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
FY 1997 Budget Request ( <i>Title I</i> ) . . .	"	"	"	"	75,227	76,119
FY 1999 Budget Request ( <i>Current Estimate</i> ) . . . . .	"	"	"	4Q 2002	62,362	63,131
FY 2000 Budget Request ( <i>Current Estimate</i> ) . . . . .	3Q 1994	3Q 1988	2Q 1998	2Q 2003	62,362	63,131
FY 2001 Budget Request ( <i>Current Estimate</i> ) . . . . .	3Q 1994	3Q 1988	2Q 1998	2Q 2003	62,362	63,131

## 2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Prior Years	42,661 <sup>a</sup>	42,661	25,226 <sup>b</sup>
1998	11,250 <sup>c</sup>	11,250	8,549
1999	3,712 <sup>d</sup>	3,712	10,608
2000	2,000	2,000	10,593
2001	2,000	2,000	6,051
2002	739	739	1,235
2003	0	0	100

## 3. Project Description, Justification and Scope

This project has experienced a number of scope changes since its inception. The original scope in FY 1986 consisted of a Liquid Waste Processing Facility, a Decontamination Facility, an operational Support Building, mechanical/electrical utility upgrades, and site preparation. The project was located in the southeast corner of the laboratory and the Total Project Cost was \$11,700,000. Between 1987 and 1990, the location of the site was changed to the northeast corner of the laboratory, due to the potential for seismic activity. The scope was

<sup>a</sup> \$25,000 approved FY 1990 reprogramming for the Waste Isolation Pilot Plant: FY 1992 General Reduction of \$2,060,000; and prior year funds used for FY 1994/FY 1996 General Reduction

<sup>b</sup> Includes other project costs

<sup>c</sup> Reduction of \$500,000 of current year funds in FY 1997

<sup>d</sup> Prior year funds used as an offset for FY 1999 uncosted reduction, \$1,040,000. Original appropriation was \$4,752,000.

increased to include a Solid Waste Processing Building, an incinerator and burn pan, a boiler and chiller plant, a Reactive Materials Building, and a Storage Building. The Total Project Cost increased to \$40,900,000. In 1990, the Lawrence Livermore National Laboratory Director adopted the recommendation of an internal laboratory panel to delete the incinerator and burn pan from the scope of the project due to public opposition. In 1993, a new baseline was approved which deleted the incinerator and the decontamination building, and added the Real Time Radiography Building, the Transuranic handling facility, and the upgrade of Building 494 for mixed waste process development and engineering, increasing the Total Project Cost to \$74,769,000. In 1993, DOE Oakland did an Integrated Waste Management Study which evaluated the waste management needs of Lawrence Livermore National Laboratory and concluded that the scope of the Decontamination and Waste Treatment Facility did not meet these needs. This resulted in the Alternative Design Review, which further evaluated the laboratory's waste management needs and compared various options for meeting these needs. The Baseline Change Proposal approved in December 1996, is based on deleting the portion of scope associated with the Mixed Waste Management Facility. In addition, Resource Conservation and Recovery Act closure of the old processing areas will be required within 180 days of moving to the new facility. This revised baseline represents the final path forward for the design and construction of the facility.

The scope is described in the Construction Project Data Sheet which follows.

This project will enhance, improve, and expand hazardous waste and mixed waste management at the Laboratory through the construction of approximately 79,100 square feet of new, state-of-the-art facilities for decontamination and waste treatment processes and 5,090 square feet of modifications to an existing building. This project will provide new, centralized and integrated facilities for Hazardous Waste Management operations that will meet the requirements for Low Hazards Category 3 Facility. The project will include the design and construction of new buildings on a nine-acre site located in the northeast sector of the Laboratory; it will share the site with existing Hazardous Waste Management Building 693.

It is anticipated that design and construction will be accomplished in seven phases to meet project schedule and funding constraints. A brief description of project scope by phase follows.

- Phase 1 - Site improvements. This phase includes debris removal, excavation, grading, trenching, electrical service, underground utilities, partial paving, curb and gutter, and sidewalks.
- Phase 2 - Mixed Waste Management Facility. This phase has been deleted.
- Phase 3A - Decontamination and Waste Treatment Facility. This phase consists of construction of the Truck Bay, Solid Waste Processing Building, Chemical Exchange Warehouse, High Curie Waste Storage, Radwaste Storage Building, and modifications to existing Building 280.
- Phase 3B - Decontamination and Waste Treatment Facility. This phase consists of construction of the Liquid Waste Processing Building, Reactive Materials Building and Classified Waste Storage Building.
- Phase 4 - Decontamination and Waste Treatment Facility. This phase consists of construction of the Operational Support Building.

Phase 5 - Final site improvements. This phase consists of all remaining site work for the project, such as final grading, paving, parking facility, fencing, landscaping, and exterior lighting.

Phase 6 - Resource Conservation and Recovery Act Closure of existing facilities which are no longer required.

The proposed Decontamination and Waste Treatment Facility at Lawrence Livermore National Laboratory will continue to meet the goals of Lawrence Livermore National Laboratory's waste management program while significantly enhancing Lawrence Livermore National Laboratory's waste management capabilities. Enhanced capabilities provided by the revised scope include the following: repackaging of radioactive, mixed and transuranic wastes, decontamination and size reduction, treatment of mixed, reactive, sewer diversion wastes and proper storage of radioactive, mixed, hazardous, and high-curie waste.

- < Designing mitigative and preventive features to meet current requirements of DOE Orders and Lawrence Livermore National Laboratory Health and Safety standards in accordance with the hazardous classification.
- < Consolidating the liquid waste operation into a centralized hazardous waste management facility which will optimize manpower and facility utilization.

In 1990, the Resource Conservation and Recovery Act land disposal restrictions became effective, prohibiting the land disposal of untreated hazardous and mixed radioactive wastes. DOE disposal facilities (such as the Nevada Test Site) that previously accepted untreated mixed waste will no longer be permitted to accept such wastes. The proposed Decontamination and Waste Treatment Facility will be capable of treating a portion of land disposal restricted mixed and hazardous wastes.

#### **a. Liquid Waste Processing Building**

The existing Liquid Waste Facility (514) is an old engine test building constructed in the 1940's for use by the U.S. Navy. The facility has been modified to process radioactive and hazardous liquid wastes through a single process line. Some of the present equipment and much of the present piping is deteriorated and requires expensive repair to maintain operations. The present location, which is separated from the other Hazardous Waste Management facilities, has insufficient space to allow for the additional expansion required to provide complying facilities. Due to the limited treatment technology employed, and excessive volume of end product that is produced it is difficult to solidify for disposal. The present radioactive and mixed wastes solidification building does not meet the ventilation, contamination, and confinement requirements of DOE Order 6430.1A. Continuing maintenance and improvement has not alleviated the situation. In addition to the liquid waste processing systems, the new building will house the analytical laboratory, maintenance shop, and a silver recovery facility. The advantages of the facility include:

- < Siting the new facility in a location which meets the seismic requirement of Resource Conservation and Recovery Act and the State.
- < Providing sufficient treatment to assure meeting the new restrictive discharge limits established by regulators.

- < Providing more efficient technology to minimize disposal volume to comply with environmental regulations and DOE Orders.
- < Providing close capture ventilation and spill containment systems to comply with the environmental regulations which limit air emissions and prohibit liquid discharges to the environment.

## **b. Waste Receiving, Classification, and Solid Waste Processing Building**

### Receiving and Classification Area

Receiving and classification is currently being performed in an open shed with limited space resulting in many containers being stored outdoors and the remainder receiving only minimal weather protection. There are no facilities to properly segregate incompatible wastes, and nothing to contain spills or container ruptures as required by Resource Conservation and Recovery Act, California hazardous wastes regulations, and DOE Orders. An open area is still used. Although spills are contained, they would mix with rainwater. The new facility will provide the space necessary to receive, segregate, and store chemical and radioactive containers of all types and sizes until the proper analysis and classification is completed and a determination made on the treatment, packaging, and shipping methods required to properly prepare them for ultimate safe disposal. A work station will be included in the facility for maintaining incoming and outgoing shipping documentation and inputting data to the central computer through a terminal.

### Solid Waste Processing Area

Radioactive solid waste processing consists of packaging and compacting of low-level waste and transuranic waste and is presently done in the Building 612, Dry Waste Facility which is seismically deficient and cannot meet the As Low As Reasonably Achievable requirements of DOE Order 6430.1A. Specific advantages of the new facility are:

- < Meeting the Uniform Building Code and Lawrence Livermore National Laboratory seismic requirements.
- < Increases processing capability with safer handling and control.
- < Provides transuranic size reduction, packaging, and container inspection capability.
- < Designing mitigative and preventive features to meet current requirements of DOE Orders and Lawrence Livermore National Laboratory Health and Safety standards in accordance with the hazard classification.

## **c. Storage Building**

### Radioactive Waste Storage Area

Radioactive and mixed wastes stored at the present Hazardous Waste Management site are stored outside exposing them to the weather. The radioactive waste storage area is required at the new Decontamination and Waste Treatment Facility in order to provide safe and compliant storage of those materials.

### Chemical Exchange Warehouse

The Chemical Exchange Warehouse will house the cost cutting program which allows for programmatic chemical users to share chemicals and not continue to purchase chemicals that are not needed, i.e., if an experiment only requires a small quantity of a chemical, they may find the chemical at the Chemical Exchange Warehouse and avoid purchasing a new container full. Excess chemicals from a program are turned into the Chemical Exchange Warehouse for reassignment as necessary.

#### Building 280 Modifications

Building 280 will house the transuranic, transuranic mixed, and high curie waste.

#### **d. Operational Support Building**

This facility will provide the following:

- < Central support for the four major operational functions; waste receiving and shipping, mixed aqueous waste treatment, solid waste processing and storage.
- < Bring together the supervisory, administrative, technical support, and operational personnel currently housed in dispersed locations.
- < Provide a training room to meet the requirements of 40 CFR 264.16 for training of personnel in handling hazardous waste.

#### **e. Standby Generator**

The standby generator is necessary to supply standby electrical power to critical facilities and operations in the Decontamination and Waste Treatment Facility during and following an earthquake. It must be invulnerable to damage to assure sustained electric power to equipment in the moderate hazard facilities which must continue to operate, i.e., ventilation, fire protection, and alarm systems, and also allow the safe shut-down of critical hazardous waste processing systems.

## 4. Details of Cost Estimate

(dollars in thousands)		
	Current Estimate	Previous Estimate
Design Phase		
Preliminary and final design costs (5.4% of total estimated cost (TEC)) . . . . .	3,352	3,391
Design management costs (2.4% of TEC) . . . . .	1,427	1,489
Total, Engineering, design, inspection, and administration of construction costs (7.8% of TEC) . . . . .	4,779	4,880
Construction Phase		
Buildings and improvements to land . . . . .	35,416	35,021
Specialized equipment . . . . .	4,784	4,775
Inspection, design and project liaison, testing, checkout and acceptance . . . . .	2,762	2,539
Construction management (3.5% of TEC) . . . . .	2,272	2,198
Total, Construction costs . . . . .	45,234	44,533
Contingencies		
Design phase (1.0% of TEC) . . . . .	706	605
Construction phase (5.5% of TEC) . . . . .	2,727	3,428
Total, Contingencies . . . . .	3,433	4,033
Unrecoverable Costs		
Design . . . . .	5,356	5,356
Project Management . . . . .	1,393	1,393
Permit . . . . .	2,167	2,167
Total, Unrecoverable Costs . . . . .	8,916	8,916
Total, line item costs (TEC) . . . . .	62,362	62,362

## 5. Method of Performance

Current estimate based on re-baseline cost estimate. Escalation is applied according to Lawrence Livermore National Laboratory Cost Estimating Procedures and Lawrence Livermore National Laboratory approved escalation rates.

Contracting arrangements are as follows:

Design will be on the basis of a negotiated architect-engineer contract. Major equipment requiring long-lead time will be purchased by Lawrence Livermore National Laboratory early in the project on the basis of competitive bidding. To the extent feasible, construction will be accomplished by a fixed-price contract awarded on the basis of competitive bidding. Minor architect-engineering work and activation will be performed by Lawrence Livermore National Laboratory forces.

## 6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 1998	FY 1999	FY 2000	FY 2001	Outyears	Total
Project Cost							
Facility Cost							
Design . . . . .	3,756	991	478	260	0	0	5,485
Construction . . . . .	12,554	7,558	10,130	10,333	6,051	1,335	47,961
Inventories/Unrecoverable . . . . .	8,916	0	0	0	0	0	8,916
Total, Facility Costs (Federal and Non-Federal) . . . . .	25,226	8,549	10,608	10,593	6,051	1,335	62,362
Other project costs							
Conceptual design cost. <sup>a</sup> . . . . .	315	0	0	0	0	0	315
Other project-related costs. <sup>b</sup> . . . . .	454	0	0	0	0	0	454
Total, Other project cost . . . . .	769	0	0	0	0	0	769
Total, Project Costs (TPC)	25,995	8,549	10,608	10,593	6,051	1,335	63,131

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<sup>a</sup>FY 1992 General Reduction of \$2,060,000

<sup>b</sup>Funding of \$454,000 in the classification represents Research and Development costs required to develop project and seismic criteria.

## 7. Related Annual Funding Requirements

(FY 2000 dollars in thousands)		
	Current Estimate	Previous Estimate
Annual facility operating costs. <sup>a</sup> . . . . .	1,155	1,155
Annual facility maintenance/repair costs. <sup>b</sup> . . . . .	1,026	1,026
Programmatic operating expenses directly related to the facility. <sup>c</sup> . . . . .	4,820	4,820
Capital equipment not related to construction but related to the programmatic effort in the facility. <sup>d</sup> . . . . .	400	400
GPP or other construction related to the programmatic effort in the facility . . . . .	200	200
<b>Total Related Annual Funding . . . . .</b>	<b>7,601</b>	<b>7,601</b>
<b>Total Operating costs (Operating from FY 2000 through FY 2020)</b>	<b>152,020</b>	<b>152,020</b>

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<sup>a</sup> Based on projected space recharge of \$10.00 per square foot - operating costs of the facility in 2000 are estimated to be \$1,155,000 per year including escalation. The funds for these costs are a normal part of the past and current programs.

<sup>b</sup> Labor is estimated for 7.6 Full Time Equivalents to support the operations of approximately \$135,000 per year for a total annual cost of \$1,026,000. The funds for these personnel are a normal part of the past and current programs.

<sup>c</sup> This estimate is for 30 Hazardous Waste Management operating and support personnel at \$4,050,000 in FY 2000, and for an estimated annual cost of \$770,000 for chemicals, drums, pumps, spare parts, equipment replacement, etc. The operating funds for these personnel are a normal part of the past and current programs.

<sup>d</sup> This is an average annual estimate which includes both the small items needed for continuous operation of the facility and the occasional large item (over \$200,000) which cannot be described at this time, but can be predicted as needed to maintain technical excellence in efforts conducted in the facility (\$400,000)

# 99-EXP, Laboratory Facilities Roof and Shielded Area Restoration, 773-A & 772-F, Savannah River Site, Aiken, South Carolina (SR-IN13)

(Changes from FY 1999 Schedule Change are denoted with a vertical line [ | ] in the left margin.)

## Significant Changes

- # The decrease in total estimated cost and increase in other project costs are the result of escalation changes and the Savannah River Site Outyear Budget Essential Site Services Pool liquidation change.
- # The funding level in FY 2001 changed from \$7,296,000 to \$2,102,000 due to a rebaselining which extended the schedule 1 year.

## 1. Construction Schedule History

	Fiscal Quarter				Total Estimate d Cost (\$000)	Total Project Cost (\$000)
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
FY 2000 Budget Request ( <i>Preliminary Estimate</i> ) . . . . .	2Q 2000	4Q 2000	3Q 2000	2Q 2002	14,660 <sup>a</sup>	15,700 <sup>a</sup>
FY 1999 Schedule Change . . . . .	3Q 1999	"	4Q 1999	"	"	"
FY 2001 Budget Request ( <i>Preliminary Estimate</i> ) . . . . .	"	4Q 2001	"	2Q 2003	14,530	"

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<sup>a</sup>The estimate is based on a completed Conceptual Design Report estimate.

## 2. Financial Schedule (Operating Expense Funded)

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
1999	2,001	2,001	1,045
2000 <sup>b</sup>	4,245	4,245	4,805
2001	2,102	2,102	2,243
2002	4,939	4,939	4,800
2003	1,243	1,243	1,637

## 3. Project Description, Justification and Scope

The main objective of this operating expense funded project is the decontamination of the existing Central Laboratory, Building 772-F, and the Savannah River Technology Center's main laboratory, Building 773-A, at the Savannah River Site, in order that operational and maintenance requirements can be accomplished in a cost-effective manner.

This project has two primary objectives. The first objective is to decontaminate the 772-F Service Floor Shielded Areas, which are high radiation and contamination areas, to a level that would allow operational and maintenance personnel to access the area as a respirator class area for routine work. Also, it will decontaminate the fan and filter room areas to the contamination level of a Radiological Buffer Area so that frequent access required for maintenance and surveillance can be easily accomplished. The shielded areas of 772-F became contaminated due to corrosion of the high activity drain lines from laboratory modules. A completed project (S-4383) replaced the leaking drain lines with fully jacketed drain lines, with leak detection, to prevent additional contamination from entering the shielded areas. The Building 772-F fan and filter room areas on the service floor have become contaminated during equipment replacement and maintenance in the area. Procedural changes are now in place to prevent these areas from becoming recontaminated. Reducing the levels of radiation and contamination is necessary to provide radiological working conditions in areas such that they may be utilized for their intended purpose, and to decrease the overall radiation exposure to personnel performing tasks in these areas. Personnel performing tasks in respirators will be more productive than when using the presently employed breathing air system. This will result in reduced costs associated with maintaining appropriate radiological controls.

The second objective of the operating expense funded project is to decontaminate the 773-A roof and equipment on the roof and replace the roofing system on portions of Building 773-A such that it may be utilized for its intended purpose. The new roofing system may be similar/equivalent to the original roofing system on 773-A. The Savannah River Technology Center's laboratory 773-A building, which is the main Savannah River

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<sup>a</sup>FY 2000 funding increased by \$1,471,000 from the Congressional budget submission due to acceleration of the A-Area project scope from FY 2000 into FY 1999. The A-Area follow-on activities in FY 2000 and beyond have been accelerated also.

**Environmental Management/Defense Environmental  
Restoration and Waste Management/Site/Project  
Completion/99-EXP/Laboratory Facilities Roof and  
Shielded Area Restoration, 773-A & 772-F**

**FY 2001 Congressional Budget**

Technology Center laboratory building, has been in operation since the early 1950's. Over the years, portions of the roof have become radioactively contaminated due to stack releases and exhaust leaks from process systems. The roof has deteriorated from wear and weather which has resulted in rain water leaks into the building. This project will include decontamination of the roof and equipment on the roof, the removal of existing roofing system, the installation of a cleaned sealed replacement roof, and the replacement and/or repair of associated ventilation equipment. The project will include the necessary work to remove or fix in place transferable contamination that could become airborne or become assimilated into the roof water run off. Systems and procedures are now in place to mitigate the chances of future stack releases and other operational concerns that would recontaminate the roof areas. The area to be covered with the new roofing system per this project is about 60 percent of the roof area of 773-A. This is about 150,000 square feet and based on recent costs for replacement of a clean roof, the cost alone would be about \$2,400,000.

However, since the roof is deteriorated, contamination exists on portions of the roof, and decontamination of the roof is necessary for operational reasons; the roof will be replaced as part of this project. No roof structural members will need replacing with this project. There will also be incidental repairs to ventilation equipment in order to prevent future contamination of the roof. This will involve replacement of leaking flexible seals with new units of the same type and will add secondary shields on roof duct work to contain leaks in this area. This is a minor part of the project and is not considered a betterment to the ventilation system since repairs are needed for the ventilation system to serve its designated purpose.

Improved radiological working conditions and lower overall radiation exposure to personnel performing tasks on the roof will result from the reduction in levels of radiation and contamination. In addition, the leaking rainwater cleanups and subsequent impacts on laboratory operations will be eliminated as will the potential for the spread of contamination to clean laboratories and the environment.

| FY 2001 funding will be used to complete the roof replacement for 773-A.

## 4. Details of Cost Estimate <sup>a</sup>

	(dollars in thousands)	
	Current Estimate	Previous Estimate
Design phase		
Engineering design and inspection (4.8% of total estimated cost (TEC)) . . . . .	696	772
Project management (2.7% of TEC) . . . . .	386	412
Total, engineering, design, inspection and administration of construction costs ( 7.4% of TEC)	1,082	1,184
Construction phase		
Buildings . . . . .	10,276	10,316
Construction management costs (4.9% of TEC) . . . . .	713	720
Total, construction costs . . . . .	10,989	11,036
Contingencies		
Construction phase (16.9% of TEC) . . . . .	2,459	2,440
Total, contingencies (16.9% of TEC) . . . . .	2,459	2,440
Total, line item costs (TEC) . . . . .	14,530	14,660

## 5. Method of Performance

For Building 772-F, fixed-price subcontractors awarded on the basis of competitive bidding will perform the design and construction.

For Building 773-A, fixed-price subcontractors awarded on the basis of competitive bidding will perform construction and design work was performed by the Westinghouse Savannah River Company.

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<sup>a</sup> The DOE escalation rates (% per year) used for this estimate are as follows: FY 2000 through FY 2001 are 4.0 percent. The above estimate includes \$1,552,000 for escalation.

## 6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 1999	FY 2000	FY 2001	Outyears	Total
Project cost						
Facility cost						
Design .....	0	125	545	287	125	1,082
Construction .....	0	920	4,260	1,956	6,312	13,448
Total, facility costs (Federal and Non-Federal) .....	0	1,045	4,805	2,243	6,437	14,530
Other project costs						
Conceptual design cost .....	343	15	0	0	0	358
Other project-related costs <sup>a</sup> .....	0	61	213	393	145	812
Total other project costs .....	343	76	213	393	145	1,170
Total project costs (TPC) .....	343	1,121	5,018	2,636	6,582	15,700

## 7. Related Annual Funding Requirements

(FY 2000 dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs .....	NA	NA
Annual facility maintenance and repair costs .....	NA	NA
Programmatic operating expenses directly related to the facility .....	NA	NA
Capital equipment not related to construction but related to the programmatic effort in the facility .....	NA	NA
GPP or other construction related to the programmatic effort in the facility .....	NA	NA
Utility costs .....	NA	NA
Other costs .....	NA	NA
Total related annual funding .....	NA	NA

<sup>a</sup> The other project costs include Radiological Control Operations support for area surveys. It also includes support for work package processing, waste characterization, facility design reviews, temporary modification design and control, and support of facility activities related to the project. Startup costs and management of the other project costs is also included in this estimate.

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# 96-EXP, Americium/Curium Vitrification, Savannah River Site, South Carolina (SR-NM01)

(Changes from FY 2000 Congressional Budget Request are denoted with a vertical line [ | ] in the left margin.)

## Significant Changes

- # Preliminary design has been completed on the project based upon the successful demonstration of the recently developed process flowsheet.
- # The project is being re-baselined upon the completed preliminary design. The new baseline will be submitted in March 2000 and will reflect actual FY 2000 and projected FY 2001 budget requests. This project data sheet reflects a total estimated cost increase from \$40,349,000 to \$58,655,000, and a total project cost increase from \$80,021,000 to \$117,535,000.

## 1. Construction Schedule History

	Fiscal Quarter				Total Estimate d Cost (\$000)	Total Project Cost (\$000)
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
FY 1996 Budget Request ( <i>Preliminary Estimate</i> ) .....	2Q 1996	2Q 1997			26,000	36,700
FY 1997 Budget Request ( <i>Preliminary Estimate</i> ) .....	"	"	3Q 1996	2Q 1998	29,230	40,500
FY 1998 Budget Request ( <i>Preliminary Estimate</i> ) .....	"	"	"	2Q 1999	"	"
FY 1999 Budget Request ( <i>Title I Baseline</i> ) .....	"	3Q 1998	"	2Q 2000	34,044	60,278
FY 2000 Budget Request ( <i>Current Baseline Estimate</i> ) .....	"	2Q 2000	"	2Q 2001	40,349	80,021
FY 2001 Budget Request ( <i>Current Baseline Estimate</i> ). <sup>a</sup> .....	"	3Q 2000	"	4Q 2002	58,655	117,535

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<sup>a</sup>The cost and schedule estimates are being re-baselined. This effort will be completed in February 2000.

## 2. Financial Schedule (Operating Expense Funded)

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
1996	6,355	6,355	6,355
1997	5,640	5,640	5,640
1998	2,336	2,336	2,336
1999	2,501	2,501	2,501
2000	21,003	21,003	21,003
2001	14,063	14,063	14,063
2002	5,378	5,378	5,378
2003	1,379	1,379	1,379

## 3. Project Description, Justification and Scope

This project proposes the vitrification of the F-Canyon americium/curium solutions into borosilicate glass via a melter to be installed in the Multi-Purpose Processing Facility of the 221 F-Canyon. This project would provide for the development and design of the vitrification process, the design of the associated building infrastructure interfaces and the construction and installation of the equipment. This project would provide for the refurbishing of the existing Multi-Purpose Processing Facility to accommodate the new equipment.

Approximately 15,000 liters of solution containing the valuable isotopes <sup>243</sup>Am and <sup>244</sup>Cm have been accumulated in the 221 F-facility from recovery campaigns that began in the mid-1970s. These solutions have been identified in several documents as a vulnerability and, as such, require stabilization. These documents include the Defense Nuclear Facilities Safety Board Recommendation 94-1 and the Plutonium Environment, Safety and Health Vulnerability Assessment Report. There is no reasonable method to transport this material in solution from outside of F-Canyon. Due to intense radiation source of the material, a heavily shielded, remotely operated facility is required for handling and processing. There is no existing operable process to convert this solution to a solid form for safe storage or transport to the National Heavy Element and Advanced Neutron Sources Programs at the Oak Ridge National Laboratory. An analysis of several alternatives has resulted in this project to develop the process to stabilize the solutions by vitrification into a glass form. The facility most suitable for installing vitrification equipment to stabilize this solution is the Multi-Purpose Processing Facility.

An extensive research and development program was implemented at the Savannah River Site to stabilize the americium/curium solution as DOE had no existing stabilization capability. During the development process, the initial melter concept was determined unsuitable. Problems due to geometry (heat distribution) and operations characteristics (continuous feed/pour and offgas generation) were encountered. Since January 1998, development work has focused on a new melter concept (cylindrical, batch feed/pour). This new concept has been successfully demonstrated on surrogate material resulting in project design recommencement. Based upon the new design a total project rebaseline (cost and schedule) will be completed in March 2000.

| The FY 2001 funds will be used to complete design, continue construction, procure materials, and provide  
| design field construction support.

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## 4. Details of Cost Estimate.<sup>a</sup>

(dollars in thousands)		
	Current Estimate	Previous Estimate
Design phase		
Preliminary and final design costs ( 19.7% of total estimated cost (TEC)) . . . . .	11,559	12,024
Design management costs (4.3% of TEC) . . . . .	2,520	1,775
Total, engineering, design, inspection, and administration of construction costs (24.0% of TEC) . . . . .	14,079	13,799
Construction phase		
Other (major utilities/comp items, specialized facilities, etc.) . . . . .	18,773	12,464
Removal costs less salvage . . . . .	1,505	0
Inspection, design and project liaison, testing, checkout and acceptance . . . . .	3,761	2,325
Construction management (1.8% of TEC) . . . . .	1,036	746
Total, construction costs . . . . .	25,075	15,535
Contingencies		
Design phase (3.9% of TEC) . . . . .	2,293	3,841
Construction phase (29.3% of TEC) . . . . .	17,208	7,174
Total, contingencies (33.2% of TEC) . . . . .	19,501	11,015
Total, line item costs (TEC) . . . . .	58,655	40,349

## 5. Method of Performance

Design and construction shall be performed by the management and integration contractor or subcontractor under the direction of the management and integration contractor.

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<sup>a</sup> The DOE escalation rates (percent per year) are not segregated due to preconceptual nature of estimate.

## 6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 1999	FY 2000	FY 2001	Out Years	Total
Project cost						
Facility cost						
Design .....	8,848	2,165	5,359	0	0	16,372
Construction .....	5,483	336	15,644	14,063	0	42,283
Total facility costs (Federal and Non-Federal) .....	14,331	2,501	21,003	14,063	0	58,655
Other project costs						
R&D necessary to complete project. <sup>a</sup> .....	13,739	4,500	4,495	1,200	851	24,785
Conceptual design cost. <sup>b</sup> .....	300	3,169	1,354	0	0	4,823
NEPA documentation costs. <sup>c</sup> .....	100	0	0	0	0	100
Other project-related costs. <sup>d</sup> .....	5,321	2,328	926	7,937	12,660	29,172
Total other project costs .....	19,460	9,997	6,775	9,137	13,511	58,550
Total project costs (TPC) .....	33,791	12,498	27,778	23,200	20,268	117,535

## 7. Related Annual Funding Requirements

(FY 2002 dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs (staff, utilities, etc.). <sup>e</sup> .....	6,000	2,400
Annual facility maintenance and repair costs .....	500	100
Programmatic effort related to facility .....	0	0
Other annual costs .....	100	100
Total related annual funding ( <i>operating from FY 2002 through FY 2003</i> ) .....	6,500	2,600

<sup>a</sup> Includes cost associated with the development of the vitrification process.

<sup>b</sup> The conceptual design was originally completed in November 1995. A new conceptual and preliminary design was prepared for an alternate melter system.

<sup>c</sup> Includes cost associated in complying with National Environmental Policy Act of 1969.

<sup>d</sup> Includes all costs associated with the process development, training, procedures and facility support during construction of the project including Radcon protection.

<sup>e</sup> The operating life of this facility will be approximately 15 months. The staffing costs associated with this are expected to be \$6,000,000.

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