Site/Project Completion

Program Mission

The Defense Environmental Restoration and Waste Management, Site/Project Completion account, provides funding for projects that are expected to be completed by 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) programs at sites where the Department anticipates continuing missions.

This account includes projects and sites under the following operations offices: Albuquerque, Idaho, Oakland, Richland, River Protection, 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.

Program Objectives

- 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 non-EM missions, such as nuclear weapons activities or scientific research.
- Address the environmental risks across the DOE complex and ensure that facilities and activities pose no undue risk to public and worker safety and health.
- Work aggressively with stakeholders and regulators to address the compliance challenges faced by the EM program.

Performance Measures

One way EM is ensuring success is to establish and manage based on sound performance measures. The EM program has been actively incorporating the requirements of the Government Performance and Results Act into its planning, budgeting, and management systems. At the programmatic level, these requirements are reflected in "corporate" performance measure and key milestone reporting and tracking. The EM management uses the corporate performance measures along with other site-specific and project-specific objectives on an annual basis to ensure that progress is being made toward EM's goal of site closure and project completion.

The chart below contains a summary of EM corporate performance measures for this program account. Detailed performance measure information can be found in the site details that follow this program overview.

EM Corporate Performance Measures [a] [b]

	FY 2000 Actuals	FY 2001 Estimate	FY 2002 Estimate	Life-cycle
Defense Site/Project Completion				
Number of Release Site Completions	38	8	3	998
Number of Facilities Decommissioned	0	0	0	124
Number of Facilities Deactivated	0	0	1	103
Volume of Transuranic Waste Shipped to WIPP for Disposal (m^3)	103	1,160	1,578	3,772
Volume of Mixed Low-Level Waste Treated (m^3)	811	150	282	6,921
Volume of Mixed Low-Level Waste Disposed (m^3)	469	400	399	1,551
Volume of Low-Level Waste Disposed (m^3)	4,344	3,186	2,340	27,857
Nuclear Material Stabilized - Pu Residue (kg bulk)	174	441	1,841	5,069
Nuclear Material Stabilized - Pu Metal/Oxides (containers)	574	510	1,508	7,646
Spent Nuclear Fuel Moved to Dry Storage (MTHM)	0	116	662	2,131

Significant Accomplishments and Program Shifts

Grand Junction Transfer: The FY 2002 request includes a transfer of all projects managed by the Grand Junction Office from the Albuquerque Operations Office to the Idaho Operations Office. The Defense-funded projects transferred include the Pinellas STAR Center Environmental Restoration project and the Maxey Flats project.

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[a] Life-cycle estimates for release sites, facilities, and high-level waste canisters include pre-1997 actuals. Waste type, nuclear materials, and spent nuclear fuel estimates are from fiscal years 1998 through 2070. In most instances, life-cycle refers to 1997-2070.

[b] This chart provides a consistent set of performance measures for the total EM program. The more detailed project-level justification provides a description of significant activities for each project including project-specific milestones, as applicable.

Funding Profile

(dollars in thousands)

	FY 2000 Comparable Appropriation	FY 2001 Original Appropriation	FY 2001 Adjustments	FY 2001 Comparable Appropriation	FY 2002 Request
Site/Project Completion, Defense	1,011,424	981,511	88,978	1,070,489	911,986
Total, Defense Site/Project Completion	1,011,424	981,511	88,978	1,070,489	911,986

Public Law Authorization:

Public Law 95-91, “Department of Energy Organization Act (1977)”

Public Law 103-62, “Government Performance and Results Act of 1993"

Public Law 106-377, “The Energy and Water Development Appropriations Act, 2001"

Public Law 106-398, “The National Defense Authorization Act for Fiscal Year 2001"

Funding by Site

(dollars in thousands)

	FY 2000	FY 2001	FY 2002	$ Change	% Change
Albuquerque Operations Office	46,236	61,535	39,532	-22,003	-35.8%
Idaho Operations Office	106,615	99,054	58,705	-40,349	-40.7%
Oakland Operations Office	2,000	1,977	762	-1,215	-61.5%
Richland Operations Office	478,560	475,745	419,586	-56,159	-11.8%
Office of River Protection	0	1,297	2,000	703	54.2%
Savannah River Operations Office	378,013	430,881	391,401	-39,480	-9.2%
Total, Defense Site/Project Completion	1,011,424	1,070,489	911,986	-158,503	-14.8%

Albuquerque

Mission Supporting Goals and Objectives

Program Mission

The mission of the Defense Environmental Restoration and Waste Management, Site/Project Completion account, carried out by the Albuquerque Operations Office, is to support cleanup activities at six geographic sites in five 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 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 as many geographic sites under its cognizance in this account. Groundwater treatment and monitoring at these sites will continue beyond FY 2006 under the responsibility of the Office of Defense Programs, which has continuing missions at these sites.

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

In achieving our highest priority goals, the Albuquerque Operations Office has plans for the use of innovative technologies at several of its installations. The Alternative Landfill Cover technology is planned for deployment at the Sandia National Laboratories-New Mexico Mixed Waste Landfill as a barrier to prevent contamination from percolating to the ground water. This technology was selected because it is as effective and half as costly as the Resource Conservation Recovery Act C approved cover. This allows Sandia to safely leave the waste in place. Once deployed at the Mixed Waste Landfill, this technology will be deployed at Sandia's Chemical Waste Landfill. The Alternative Landfill Cover was developed by the Sandia National Laboratories.

Significant Accomplishments and Program Shifts

Kansas City Plant

- Completed Resource Conservation and Recovery Act Facility Investigation Report for the 95th Terrace site (FY 2000).
- Completed southeast parking lot Resource Conservation and Recovery Act Facility Investigation Report Phase I (FY 2000).
- Completed 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 Filing Passive Treatment Iron Wall project (FY 2001).
- Complete groundwater interceptor well design and install eight new pumping wells (FY 2001).
- Planned activities for FY 2002 include continuing the Corrective Measures Study for the 95th Terrace Site, routine program management oversight and administration, and groundwater treatment and monitoring (FY 2002).

Pantex Plant

- Completed Interim Corrective Measures construction for landfill three and groundwater treatment expansion (FY 2000).
- Complete Burning Ground Characterization (FY 2001).
- Complete groundwater protection plan modification to include protection of Ogallala aquifer (FY 2001).
- Planned activities for FY 2001 include the following: groundwater monitoring; groundwater corrective measures implementation, operations and maintenance; additional deep soil remediation at ditches and playas sites; 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; natural resources damage assessment; integrated environmental database/geographic information system operations and maintenance; Comprehensive Environmental Response, Compensation and Liability Act support; program management support (FY 2001).
- Expand In-Situ Bioremediation at Solid Waste Management Unit 122b (FY 2002).
- Complete final Baseline Risk Assessment (FY 2002).

Complete Operable Unit Phase 1 Corrective Measures Construction, off-site (FY 2002).

Sandia Environmental Restoration Project

Completed significant portion of the required excavation at the Chemical Waste Landfill (FY 2000).

Completed the Classified Waste Landfill excavation (FY 2000).

Submitted to the regulators capping in place proposal for Mixed Waste Landfill (FY 2000).

Obtained approval to remove 64 release sites from the Hazardous Waste Permit and submitted no further action proposals (FY 2000).

Continue groundwater monitoring of all required units, hazardous and radioactive remediation-derived waste shipments, completion of Voluntary Corrective Measures and No Further Action proposal submitted for about six sites (FY 2001).

Complete excavation of the Chemical Waste Landfill to 12 feet (FY 2001).

Continue verification sampling and disposition of the artifacts at the Classified Waste Landfill (FY 2001).

Begin remediation for 101 septic sites (FY 2001).

Continue remedial action for the Classified Waste Landfill (FY 2002).

Continue additional excavation and backfilling activities at the Chemical Waste Landfill (FY 2002).

Continue extensive sampling and monitoring activities at landfills and other sites (FY 2002).

Pinellas Plant

Continue annual reimbursements to Lockheed Martin Corporation for retiree pension and medical and life insurance benefits (FY 2000/FY 2001).

Ongoing liability for annual employee benefit payment or lump sum buyout will continue indefinitely (FY 2002).

Funding Schedule

(dollars in thousands)

	FY 2000	FY 2001	FY 2002
AL-002 / Albuquerque Miscellaneous Programs (WERC, HBCU, ITRD, NSUC, AIP-TX/MO)	5,887	7,002	2,500
AL-003 / South Valley Superfund Site	147	1,998	457
AL-007 / Kansas City Environmental Restoration Project	2,003	3,391	1,500
AL-014 / Pantex Plant Site Remediation Project	13,511	13,369	8,000
AL-018 / Sandia ER Project	24,042	31,642	25,000
AL-019 / Pinellas Plant Close-out and Administration of Post-Employment Benefits	496	3,983	2,000

AL-033 / Missouri Agreement-in-Principle	150	150	75
Total, Albuquerque	46,236	61,535	39,532

Funding by Site

(dollars in thousands)

	FY 2000	FY 2001	FY 2002	$ Change	% Change
Albuquerque Operations Office	6,184	9,150	3,032	-6,118	-66.9%
Kansas City Plant	2,003	3,391	1,500	-1,891	-55.8%
Pantex Plant	13,511	13,369	8,000	-5,369	-40.2%
Pinellas Plant	496	3,983	2,000	-1,983	-49.8%
Sandia National Laboratories	24,042	31,642	25,000	-6,642	-21.0%
Total, Albuquerque	46,236	61,535	39,532	-22,003	-35.8%

Metrics Summary

	FY 2000	FY 2001	FY 2002
Release Site Cleanups	10	7	1
Facilities Deactivated During Period	0	0	1

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 40 release sites. Advanced technologies (Iron Filing Passive Treatment and Six-Phase Heating) are being employed to reduce soil contamination and to reduce groundwater cleanup time and cost. Activities necessary to transition to a long-term surveillance and maintenance program will also be performed when cleanup nears completion. Institutional controls and groundwater treatment and monitoring will continue indefinitely after cleanup efforts are completed. 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 247 have been either cleaned up or recommended for no further action; the remaining two need extensive cleanup activities and will impact project completion. Groundwater pump and treat will likely need to continue after cleanup actions are complete; however, technology development activities are underway through the Innovative Treatment Remediation Demonstration program to try to accelerate groundwater cleanup at the Pantex Plant.

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 and testing non-nuclear components of nuclear weapons. Major restoration efforts involve the remediation of inactive waste disposal and release sites at Albuquerque and other off-site locations. These sites have known or suspected releases of hazardous, radioactive, or mixed waste. Additional contamination has been found at the Chemical Waste Landfill, requiring unplanned remediation, thereby extending the project end date.

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.

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 after the year 2003. If needed, a new buy-out settlement will need to be renegotiated for five more years beyond 2003.

The State of New Mexico has filed a suit against the U.S. Government and other parties for natural resource damages resulting from contamination of groundwater. The State estimates that the groundwater damages could be $260,000,000. The State has also filed a claim for damages resulting from depression of real estate values and loss of tax revenues for about $2,000,000,000.

Detailed Program Justification

(dollars in thousands)

FY 2000	FY 2001	FY 2002

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 2002 has been reviewed and is appropriate to meet the goals of the sites as outlined in the EM sites' baseline planning data. 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 2002 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) **5,887** **7,002** **2,500**

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

- # Fiscal year progress report for the Innovative Treatment Remediation Demonstration Program (September 30, 2001).
- # Complete Waste Management Education and Research Consortium Annual Report (June 28, 2002), which is a contract requirement and demographic report for the President required by law.
- # Continue annual lab audits and conduct lab oversight activities.

(dollars in thousands)

FY 2000	FY 2001	FY 2002

Key Milestones

- # 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).
- # 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).
- # 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 Texas Agreement-in-Principle (September 2001).
- # Fiscal Year progress report for Innovative Treatment Remediation Demonstration (September 2001).

AL-003 / South Valley Superfund Site 147 1,998 457

The South Valley Superfund Site consists of two Operable Units that involve DOE as a Potentially Responsible Party. Remediation is complete for the San Jose 6 Operable Unit and groundwater monitoring is being conducted pursuant to the terms of the Record of Decision. For the Plant 83 Operable Unit, a pump and treat system has been in operation since 1994 for the shallow zone aquifer and since 1996 for the deep zone aquifer pursuant to the Record of Decision for that Operable Unit. The General Electric Corporation is managing the remediation and monitoring effort. Under an agreement reached with General Electric, the Air Force, and the Department of Justice, the Department of Justice has prepaid DOE's share of remediation and monitoring costs through the end of 2003.

- # Groundwater remediation and monitoring will continue, managed by General Electric using funds prepaid by the Department of Justice. The Department of Energy is providing support to the Department of Justice in defending the State lawsuit. Legal expenses to be incurred by American Car and Foundry in defending the South Valley legal action pursuant to contractual obligations are planned and included.

(dollars in thousands)

FY 2000	FY 2001	FY 2002

Key Milestones

- # Technical support for natural resource damage assessment legal actions (September 2001).
- # Technical support for natural resource damage assessment legal actions (September 2002).

AL-007 / Kansas City Environmental Restoration Project 2,003 3,391 1,500

This project evaluates potentially contaminated areas and cleans up areas found to be a threat to human health or the environment through continuing groundwater treatment and disposal and disposition of polychlorinated biphenyl contaminated soil. Where little risk to human health and the environment exists, exposure risks will be managed through institutional controls. Significant contamination in soil above the water table will be excavated and disposed in certified off-site disposal facilities. Contaminated groundwater will be treated by an ultra-violet light, hydrogen peroxide treatment system prior to discharge into the sanitary sewer system.

The schedule for the 95th Terrace Site Corrective Measures Study has moved to September 2002. Other planned activities for FY 2002 include routine Program Management oversight and administration, continuing operation of the groundwater treatment system, sampling and analysis of the groundwater monitoring wells, drilling, well maintenance, and preparation of groundwater reports to submit to the regulators. Installation of a Six-Phase Heating system to remove chlorinated solvents from the Northeast Area is also planned for FY 2002.

Key Milestones

- # Southeast parking lot Resource Conservation and Recovery Act Facility Investigation-Phase I (February 2000).
- # Groundwater treatment and monitoring - 1999 Annual Report (March 2000).
- # Interceptor Well Design Amendment (January 2001).
- # Submit groundwater treatment and monitoring - 2000 Annual Report (March 2001).
- # Develop and submit validated baseline for the environmental restoration project completion (September 2001).
- # Continue groundwater treatment (September 2001).
- # Continue groundwater sampling (September 2001).
- # Groundwater treatment and monitoring - 2001 Annual Report (March 2002).
- # 95th Terrace Site - Complete Corrective Measures Study (September 2002).

(dollars in thousands)

FY 2000	FY 2001	FY 2002

AL-014 / Pantex Plant Site Remediation Project 13,511 13,369 8,000

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, treatment of contaminated groundwater in the shallow perched aquifer (not used for human consumption or agriculture) consisting of carbon filtration and chemical precipitation, and containment technologies for closed landfills. These efforts are in accordance with the Resource Conservation and Recovery Act requirements. Recent discovery of contamination in the deep Ogallala drinking water aquifer has prompted extensive additional characterization and development of a protection program for Pantex groundwater, and will also increase project costs substantially and extend project completion depending upon the extent of damage to the Ogallala.

Continue groundwater corrective measure construction and soil assessment activities.

Metrics			
Facilities Deactivated			
During Period	0	0	1
Key Milestones			
# Complete landfill 3 corrective measures construction (September 2000).			
# Complete groundwater Operable Unit Phase I corrective measures construction (September 2000).			
# Complete Final Landfills Group III Operable Unit Resource Conservation Recovery Act Facility Investigation Report (August 2001).			
# Complete Burning Grounds Soil Investigation (August 2001).			
# Reduce waste generated from cleanup, stabilization, decontamination, and decommissioning by 10 percent (September 2001).			
# Complete expansion of the Groundwater Treatability System (September 2001).			
# Complete Final Fire Training Area Burn Pits Operable Unit Resource Conservation Recovery Act Facility Investigation Report (September 2001).			
# Develop and submit a validated updated baseline for completion of the environmental restoration project (September 2001).			
# Complete final Miscellaneous Chemical Spills Operable Unit Resource Conservation Recovery Act Facility Investigation Report (March 2002).			

(dollars in thousands)

FY 2000	FY 2001	FY 2002

AL-018 / Sandia Environmental Restoration Project 24,042 31,642 25,000

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. Project completion delay is likely due to discovery of PCBs and additional radioactive wastes at the Chemical Waste Landfill.

Continue groundwater monitoring for Technical Areas III and IV, the Mixed Waste Landfill, the Chemical Waste Landfill, Site 94, Deep Sampling Septic Tanks, and Sandia North Ground Water Wells. Initiate backfill and verification sampling at the excavated Classified Waste Landfill (Site 2). Complete data review and submit No Further Action for eight sites. Complete the Chemical Waste Landfill excavation, review and submit the draft Corrective Measures Study documents in preparation for the start of the Mixed Waste Landfill cover installation. Begin field work for non-environmental restoration sites requiring Solid Waste Management Unit assessment reports. Confirm sampling at seven sites. Post No Further Action submittal comment responses and Hazardous and Waste Amendments permit modifications for applicable sites.

Metrics			
Release Site Cleanups	10	7	1

Key Milestones

Submit Site 2 No Further Action to the New Mexico Environment Department (September 2001).

Complete Chemical Waste Landfill excavation per baseline (September 2001).

Complete site-wide characterization well plug and abandonment (September 2001).

Submit seven No Further Action proposals for review (September 2001).

Submit application for removal of sites from permit per baseline (September 2001).

Submit one No Further Actions to the New Mexico Environment Department (September 2002).

(dollars in thousands)

FY 2000	FY 2001	FY 2002

AL-019 / Pinellas Plant Close-out and Administration of Post-Employment Benefits 496 3,983 2,000

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.

Partial annual payment for Health Insurance and Benefit Contributions (September 30, 2002).

Key Milestones

Annual payment for health insurance and pension contributions (September 2000).

Annual payment for health insurance and pension contributions (September 2001).

Partial payment for health insurance and pension contributions (September 2002).

AL-033 / Missouri Agreement-in-Principle 150 150 75

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.

Provides community outreach and support of DOE environmental activities.

Key Milestones

Approve FY 2002 budget for the Kansas City Plant agreement-in-principle (September 2001).

Approved FY 2003 budget for agreement-in-principle. Partial payment for Missouri agreement-in-principle (September 2002).

Total, Albuquerque 46,236 61,535 39,532

Explanation of Funding Changes from FY 2001 to FY 2002

FY 2002 vs. FY 2001 ($000)

AL-002 / Albuquerque Miscellaneous Programs (WERC, HBCU, ITRD, NSUC, AIP-TX/MO)

	FY 2002 vs. FY 2001 ($000)
# Decrease in funding reflects the ending of the Norfolk University Grant in FY 2001 necessary to support transfer of funds to higher priorities.	-4,502
AL-003 / South Valley Superfund Site	
# Decrease in funding reflects reduction of legal expenses needed during previous year due to past contractual obligations with the plant operator.	-1,541
AL-007 / Kansas City Environmental Restoration Project	
# Decrease in funding reflects reduction in release site remedial activity due to delay in regulatory approval necessary to support transfer of funds to higher priorities.	-1,891
AL-014 / Pantex Plant Site Remediation Project	
# Decrease in funding reflects completion of all previously planned remediation at the Pantex Plant and primarily investigative activities in FY 2002.	-5,369
AL-018 / Sandia Environmental Restoration Project	
# Decrease in funding reflects support of transfer of funds to higher priorities.	-6,642
AL-019 / Pinellas Plant Close-Out and Administration of Post-Employment Benefits	
# Decrease in funding reflects support of transfer of funds to higher priorities.	-1,983
AL-033 / Missouri Agreement-in-Principle	
# Decrease in funding reflects support of transfer of funds to higher priorities.	-75
Total Funding Change, Albuquerque	-22,003

Idaho

Mission Supporting Goals and Objectives

Program Mission

The mission of the Defense Environmental Restoration and Waste Management, Site/Project Completion account, 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 waste, and other waste, while maintaining partial compliance with applicable requirements and agreements, particularly the Idaho Settlement Agreement, and perform environmental restoration according to the Federal Facility Agreement and Consent Order requirements and the Comprehensive Environmental Response, Compensation, and Liability Act.

Cleanup activities will also be supported at two Grand Junction sites, the Maxey Flats site in Kentucky, and the Pinellas Plant in Florida. These activities were transferred to the Idaho Operations Office from the Albuquerque Operations Office.

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, dispose of all of the low-level legacy waste and most of the mixed low-level waste at the Idaho National Engineering and Environmental Laboratory. 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, 4, and 5 (Test Area North, Central Facilities Area, and Power Burst Facility/Auxciliary Reactor Area).

The DOE's responsibility as a potential 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 2004, when the last potentially responsible party payment is made.

Program Objectives

One objective of this program is to complete remediation efforts, maintain 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. The principal support for Project Completion efforts has been for environmental restoration of soil and groundwater and for the treatment, storage, and disposal of transuranic and mixed low-level waste. A greater emphasis is being placed on aligning science and technology efforts according to the performance and schedule needs of the operational programs so cleanup options based on innovative technology can be considered in planning, as well as implementation and support lead EM laboratory objectives. An example of this effort is:

Improve basis for future accelerated natural attenuation, based on understanding of unexpected synergism between the bioremediation agent, at Test Area North, and the naturally occurring micro-organisms to degrade chlorinated solvents (FY 2001).

Significant Accomplishments and Program Shifts

Program Shift: FY 2002 funding for the Idaho National Engineering and Environmental Transuranic Waste PBS (ID-WM-103) has been shifted to the Defense Environmental Restoration and Waste Management Post 2006 Completion account.

Removed 696 cubic yards soil from Technical Support Facility-06/-26, treated 26.9 million gallons of water (30.8 pounds and 2.5 gallons of tri-chloroethene removed) (FY 2000/ID-ER-101).

Began construction of the New Pump and Treat Facility at Operable Unit 1-07B, injection well; completed four new groundwater wells; and completed seven boreholes at the Water Research Reactor Test Facility-13 (FY 2000/ID-ER-101).

Completed Operable Unit 1-10 Remedial Design/Remedial Action Draft workplan and completed remedial action sampling at several contaminated soil sites (FY 2000/ID-ER-101).

Begin preparation of the V-tanks remedial design/remedial action work plan and complete sampling of Technical Support Facility-03 and the Water Research Reactor Test Facility-01 burn pits (FY 2001/ID-ER-101).

Completed the Final Comprehensive Record of Decision for the Power Burst Facility (FY 2000/ID-ER-105) and the Central Facilities Area Operable Unit 4-13 (FY 2000/ID-ER-104).

Remediate the Central Facilities Area transformer yard and initiate removal of contaminated soils sites including cesium-contaminated drainfield and mercury-contaminated drain ponds (FY 2001/ID-ER-104).

Completed Operable Unit 5-12 Remedial Design/Remedial Action Scope of Work and submit draft work plan; accelerated tank remediation; remediated Auxiliary Reactor Area-07 and -08 seepage pits (FY 2000/ID-ER-105).

Complete remediation of the Auxiliary Reactor Area-16 mixed waste tank and Auxiliary Reactor Area-13 septic tank (FY 2001/ID-ER-105).

- Complete five year review of SL-1 burial ground (FY 2001/ID-ER-105).
- Complete all security work and building upgrades in CPP-651 Unirradiated Fuel Storage Facility (FY 2001/ID-OIM-105).
- Initiated systems operability testing on standby power generator upgrades for the Electrical Utilities System Upgrade Project (FY 2000/ID-OIM-106).
- Complete construction of Load Centers 1 and 3 and continue start-up and testing activities of completed systems and complete design on third substation 60 diesel generator (FY 2001/ID-OIM-106).
- Complete title design of the Health Physics Instrumentation Laboratory (FY 2000), and complete government furnished equipment specifications and initiate construction activities. Included in the funding for this project are $4,836,000 for FY 2000; and $4,291,000 for FY 2001 for the line-item (FY 2001/ID-OIM-109).
- Completed decontamination of the Process Experimental Pilot Plant incinerator (FY 2000/ID-OIM-110).
- Complete transfer of CPP-603 spent fuel basins to deactivation following confirmation that the basin's are free of spent fuel debris (FY 2001/ID-OIM-110).
- 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. Develop and implement surveillance and maintenance plans for the remaining surplus facilities at Idaho National Engineering and Environmental Laboratory (FY 2001/ID-OIM-112).
- Complete Title I (30 percent design) and initiate Title II (90 percent design) for Cathodic Protection System Expansion Line-Item Construction Project (FY 2001/ID-OIM-117).
- Completed implementation of the Integrated Safety Management System and rigorous conduct of operations at treatment, storage, and disposal facilities (FY 2000/ID-WM-101).
- Increased contaminated lead disposition and initiate the design of additional remote handled low-level waste concrete vaults located at the Radioactive Waste Management Complex (FY 2001/ID-WM-101).
- Certified 495 drums (FY 2000) and 5,577 drums (FY 2001) for shipment to the Waste Isolation Pilot Plant (ID-WM-103).
- Characterize approximately, 9,951 drums through real time radiography and radioassay, including level 1 data validation; and 9,250 drums through head space gas analysis, including level 1 data validation (FY 2001/ID-WM-103).
- Provided Resource Conservation and Recovery Act-compliant storage for transuranic waste (FY 2000/FY 2001/ID-WM-103).
- Develop remote-handled transuranic characterization and certification processes (FY 2001/ID-WM-103).

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 (FY 2000/FY 2001/ID-WM-103).

Pinellas Plant

Conduct Pinellas groundwater cleanup operations at four sites (FY 2001/ID-GJ-102, formerly AL-025).

Maxey Flats

The DOE Grand Junction Office makes required DOE Potentially Responsible Party payments for continuing leachate pumping, solidification, and disposal activities (FY 2001/FY 2002/ID-GJ-101, formerly AL-021).

Funding Schedule

(dollars in thousands)

	FY 2000	FY 2001	FY 2002
ID-ER-101 / Test Area North Remediation	7,356	7,564	8,564
ID-ER-104 / Central Facilities Area Remediation	1,589	1,872	2,821
ID-ER-105 / Power Burst Facility/Auxiliary Reactor Area	2,469	1,634	500
ID-GJ-101 / Maxey Flats Field Management Project	1,188	1,165	600
ID-GJ-102 / Pinellas STAR Center Environmental Restoration Project	2,220	3,334	6,000
ID-OIM-106 / Electrical and Utility Systems Upgrade Project, Idaho Chemical Processing Plant	12,878	905	448
ID-OIM-108 / Idaho National Engineering and Environmental Laboratory Road Rehabilitation	2,541	0	0
ID-OIM-109 / Health Physics Instrument Laboratory	4,923	4,388	2,970
ID-OIM-110 / Pre-FY 2007 Surplus Facility Deactivation Project	0	3,209	3,547
ID-OIM-112 / Pre-FY 2007 Idaho National Engineering and Environmental Laboratory Surveillance and Maintenance	1,027	2,015	4,014
ID-OIM-114 / Sitewide Idaho National Engineering and Environmental Laboratory Information Network	49	100	204
ID-OIM-115 / Site Operations Center	104	0	0
ID-OIM-117 / Cathodic Protection System Expansion	0	65	3,277
ID-PED / Preliminary Project Engineering and Design	0	499	754
ID-WM-101 / Idaho National Engineering and Environmental Laboratory Low-Level Waste/Mixed Low-Level Waste/Other Waste Program	25,690	26,239	25,006
ID-WM-103 / Idaho National Engineering and Environmental Transuranic Waste	44,581	46,065	0
Total, Idaho	106,615	99,054	58,705

Funding by Site

(dollars in thousands)

	FY 2000	FY 2001	FY 2002	$ Change	% Change
Grand Junction Office	1,188	1,165	600	-565	-48.5%
Idaho National Engineering and Environmental Laboratory	103,207	94,555	52,105	-42,450	-44.9%
Pinellas	2,220	3,334	6,000	2,666	80.0%
Total, Idaho	106,615	99,054	58,705	-40,349	-40.7%

Metrics Summary

	FY 2000	FY 2001	FY 2002
Release Site			
Cleanups	28	1	2
Low-Level Waste			
Disposal (m^3)	4,344	3,186	2,340
Mixed Low-Level Waste			
Treatment (m^3)	811	150	282
Disposal (m^3)	469	400	399
Transuranic Waste			
Shipped to WIPP for Disposal (m^3)	103	1,160	0

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.

Grand Junction

The Grand Junction Office provides oversight for Maxey Flats, Moab, Utah, and the Pinellas Plant. In FY 2000 and FY 2001 operation and maintenance of groundwater remediation systems will continue at a number of sites.

Maxey Flats

The Maxey Flats disposal 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 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 Potentially Responsible Party share of the remediation cost, which will be increased and extended to FY 2004.

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.

Detailed Program Justification

(dollars in thousands)

FY 2000	FY 2001	FY 2002

The Idaho site is managed through an incentivized integrated management and operating contract, with fixed-price subcontracts and the installations at the Albuquerque site are managed through various performance based management and operating contract, both to assure the most cost-effective services to the Government. At Idaho, contract performance is driven and measured through the Performance Evaluation Management Plan process which updates, annually, the performance requirements by defining 5-year critical outcomes, 1 to 3-year performance objectives, and current year performance criteria. The percentage of incentivized measures is increased each year. The scope planned for FY 2002 has been reviewed and is appropriate to meet many of the requirements of the Settlement Agreement with the State of Idaho and other compliance requirements while also maintaining the capability of the Idaho National Engineering and Environmental Laboratory to meet DOE mission objectives. Funds requested are appropriate to perform activities based on historical cost and engineering estimates.

ID-ER-101 / Test Area North Remediation 7,356 7,564 8,564

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 ensures implementation of the Operable Unit 1-7B groundwater cleanup action providing containment of the contaminant plume and active aquifer remediation. A new Operable Unit 1-11 will be created to encompass new sites as they are identified. Two new sites are currently planned to be assigned to Operable Unit 1-11.

Initiate cleanup of the V-tanks and placing tank content waste into approved storage. Prepare Remedial Design/Remedial Action work plan for the PM-2A tank sites, and Technical Support Facility-03 and the Water Research Reactor Test Facility-01 burn pit sites. Continue the Operable Unit 1-07B remedial action with the continuation of groundwater monitoring, new pump and treat facility operations, and monitored natural attention and in-situ bio-rededication activities. Continue the Test Area North-616 investigation and decontamination and dismantlement.

Metrics			
Release Site			
Cleanups	1	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).			

ID-ER-104 / Central Facilities Area Remediation 1,589 1,872 2,821

(dollars in thousands)

FY 2000	FY 2001	FY 2002

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. A final comprehensive Record of Decision for Operable Unit 4-13 was signed in July 2000, which details remedial activities at three sites.

- # Completes the Comprehensive Environmental Response, Compensation, and Liability Act five-year review of long-term monitoring activities at landfills; long-term monitoring sampling activities; appropriate landfill cap maintenance; remedial action report submittal, pre-final inspection report submittal, activities pertaining to potential inclusion of new site, and landfarm tilling, sampling, and watering activities.
- # Continue cleanup of drainfield Central Facilities Area 4-08.
- # Initiate cap construction at Central Facilities Area 4-08; conduct Operable Unit 4-12 Post-Record of Decision monitoring of Central Facilities Area Landfills II and III; and continue Operable Unit 4-13 Remedial Design/Remedial Action Planning.

Metrics			
Release Site			
Cleanups	13	1	0

ID-ER-105 / Power Burst Facility/Auxiliary Reactor Area 2,469 1,634 500

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 Record of Decision was approved in February 2000. The Phase I Remedial Design/Remedial Action Work Plan was completed in FY 2000 allowing field work to occur. The Phase II work involving contaminated soil remedial action will occur in FY 2003 and FY 2004.

- # The Operable Unit 5-12 remedial action for the Auxiliary Reactor Area-16 mixed waste tank will continue. The listed mixed waste containing polychlorinated biphenyl waste will be sent off-site for disposal. Maintenance and monitoring of the Stationary Low Power Reactor-1 cap completed in 1996 will continue. One round of groundwater sampling of wells in the Auxiliary Reactor Area/Power Burst Facility area will be initiated.

Metrics			
Release Site			
Cleanups	14	0	2

(dollars in thousands)

FY 2000	FY 2001	FY 2002

ID-GJ-101 / Maxey Flats Field Management Project 1,188 1,165 600

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.

Make partial payment of the obligated annual payment and perform management functions to support project.

Key Milestones

Make partial annual payment for FY 2002 (October 2001).

ID-GJ-102 / Pinellas STAR Center Environmental Restoration Project 2,220 3,334 6,000

Remediation of contaminated groundwater at the Pinellas Plant includes: Northeast site, Building 100/Old Drum Storage sites, 4.5 Acre Site, and Wastewater Neutralization/Building 200 Area. The 4.5 Acre site cleanup is regulated by the State Contamination Site Cleanup Program. The Department is currently negotiating a consent agreement for this site. The remaining sites are regulated as solid waste management units under the Hazardous and Solid Waste Amendment portion of the plant's Environmental Protection Agency Resource Conservation and Recovery Act Part B permit. The Site was sold to Pinellas County in 1995 with the DOE maintaining responsibility for groundwater clean up. When site groundwater can meet land use classification of "Industrial with unrestricted access", DOE's responsibilities will be completed.

Groundwater cleanup operations at the Northeast Site (six-phase heating, chemical oxidation and regulatory approval, and bioremediation). The six-phase heating will begin in FY 2002.

Groundwater cleanup operations at Building 100 (permeable barrier, characterization report, regulatory approval, and implement treatment technology).

Groundwater cleanup operations at 4.5 Acre Site (bioremediation operation and maintenance).

Key Milestones

Modifications to 4.5 Acre Site Treatment Systems (April 2001).

Initiate treatment of groundwater at the Wastewater Neutralization Site (June 2001).

(dollars in thousands)

FY 2000	FY 2001	FY 2002

- # Institute treatment technology for Dense Non-Aqueous Phase Liquid remediation at Northeast Site (September 2001).
- # Will initiate development of regulatory plans for Building 100 remediation technology (April 2002).

ID-OIM-106 / Electrical and Utility Systems Upgrade Project, Idaho Chemical Processing Plant 12,878 905 448

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 Operations Office and Power Engineers of Hailey, Idaho.

- # Complete construction and system operability testing for the Facility Electrical Upgrades.
- # Complete construction and system operability testing for the Electrical and Utility System Upgrade Project Priority 2 Panels.
- # Complete construction and system operability testing on the substation 60 third diesel generator.

ID-OIM-108 / Idaho National Engineering and Environmental Laboratory Road Rehabilitation 2,541 0 0

This project is necessary as a safety and health project to provide safe transportation for waste movements. The Idaho National Engineering and Environmental Laboratory has over 87 miles of paved roads within its 890 square mile boundary. In addition to this primary transportation network, over 100 miles of unpaved service roads allow access to remote areas for security, environmental experiments and sampling, maintenance activities, and emergency vehicles. This line-item construction project will rehabilitate approximately 47 miles of the site road system and 174,000 square yards of staging/parking areas to provide safe transportation for waste movements, which are directly associated with regulatory and enforceable agreement compliance.

- # Complete construction on Task IV.
- # Complete Project Closeout.
- # Included in the funding totals for this project is $2,541,000 for FY 2000 for the line-item.

ID-OIM-109 / Health Physics Instrument Laboratory 4,923 4,388 2,970

(dollars in thousands)

FY 2000	FY 2001	FY 2002

The Health Physics Instrumentation Lab project will construct a replacement to provide reliable and safe radioactive detection equipment for all programs. 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 design life, and is severely deteriorated. Deficiencies contribute to the inability to perform required functions in a safe and compliant manner. Deficiencies include inadequate design of shielded rooms for x-ray, gamma, and neutron source calibrations; inadequate environmental control; insufficient work space; and numerous asbestos, electrical code, fire protection and building structural issues. 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 has been competitively subcontracted.

- # FY 2002 activity schedule includes the delivery and installation of government furnished equipment and facility construction completion. Included in the funding totals for this project are $4,836,000 for FY 2000, $4,291,000 for FY 2001, and $2,700,000 for FY 2002 for the line-item.

Key Milestones
Physical construction complete (September 2002).

ID-OIM-110 / Pre-FY 2007 Surplus Facility Deactivation Project 0 3,209 3,547

This project provides for the deactivation of surplus 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 surplus 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 sludge removal.
- # Package 100 ton of filter waste as mixed waste and prepare for shipment to Envirocare.
- # Upgrade the Safety Analysis Reports for the inactive nuclear facilities at the Idaho Nuclear Technology and Engineering Center as required by PLN-489 that was approved by DOE/Idaho Operations Office and BBWI in June 2000. The four facilities are CPP-666 (Florinel Dissolution Process), CPP-601 (Fuel Processing Facility), CPP-627 (Decontamination Facility), and CPP-640 (Headend Pilot Plan).
- # Complete shipments of the mixed waste filter cake to Envirocare. Prepare the Resource Conservation and Recovery Act closure plan for the VES-106 system and submit to the State of Idaho for approval.
- # Provide for management of the Deactivation Program. This includes DOE requested, long-range planning for 200 deactivation projects, maintenance of five PBSs and Detailed Work Plans. Enhanced management oversight will also be provided to active projects.

(dollars in thousands)

FY 2000	FY 2001	FY 2002

- # Complete characterization of the Materials Testing Reactor canal, which was initiated in FY 2000. Obtain data to support removal and stabilization of all materials within the canal area of the Materials Testing Reactor facility.
- # Initiate the characterization of the Power Burst Facility canal. Obtain data to support removal and stabilization of materials within the canal area of the Power Burst Facility reactor.

Key Milestones

- # Submit draft decontamination and decommissioning plan for the Materials Test Reactor, Power Burst Facility, and the Test Area North (March 2001).
- # Remove and package CPP-603 fuel storage racks (September 2001).
- # Will complete sludge removal from CPP-603 basins (September 2002).

ID-OIM-112 / Pre-FY 2007 Idaho National Engineering and Environmental Laboratory Surveillance and Maintenance 1,027 2,015 4,014

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.

- # Provide surveillance and maintenance for radioactively contaminated excess facilities across the Idaho National Engineering and Environmental Laboratory, maintaining a condition that reduces the risk to the public, site personnel, and the environment. The surveillance and maintenance allows buildings and structures to remain in a safe shutdown mode as they await decontamination and decommissioning.

ID-OIM-114 / Sitewide Idaho National Engineering and Environmental Laboratory Information Network 49 100 204

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. The object of this project is to maintain a capable and reliable communications network is essential to provide for adequate emergency operations, security, automated and remote radiation monitoring, and efficiency in program operations that supports DOE missions and full utilization of information technologies. The need for this project has been confirmed by an external independent review. Project Engineering and Design funds in the amount of $650,000 are being requested under line-item 01-D-414.

- # Support initiation of preliminary design activities.

Key Milestones

Will complete title design (September 2002).

ID-OIM-115 / Site Operations Center 104 0 0

The Site Operations Center is a proposed multi–purpose facility that would replace aging facilities.

No activities.

ID-OIM-117 / Cathodic Protection System Expansion 0 65 3,277

The Idaho Nuclear Technology and Engineering Center has an extensive Cathodic Protection System installed that protects underground piping and structures from corrosion. Many of the vessels and piping contain or have contained high-level radioactive liquid wastes. These wastes contain significant amount of mixed radioactive fission products, actinides, and the Environmental Protection Agency listed chemicals. An incident or failure of these systems could cause State of Idaho Settlement Agreement milestones to be missed with significant political repercussion at State and Federal levels. A majority of the components have been in service since 1961 exceeding their design life of 20 years. An operational Cathodic Protection System is required, in order to comply with the State of Idaho Resource Conservation and Recovery Act Interim Status Part B Permit. 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. Project Engineering and Design funds in the amount of $499,000 in FY 2001 and $104,000 in FY 2002 are being requested under line-item 01-D-414.

Complete final design as requested in PBS ID-PED and initiate construction activities.

Line-item construction funding is included in this PBS for FY 2002 ($3,256,000).

Key Milestones

Will complete Architect/Engineer work (March 2002).

Will start physical construction (June 2002).

ID-PED / Preliminary Project Engineering and Design 0 499 754

This project provides for Architect-Engineering (A-E) services (Title I and Title II) on construction projects. This allows designated projects to proceed from conceptual design into preliminary design (Title I) and definitive design (Title II). The design effort will be sufficient to assure project feasibility, provides the details of the scope, provides detailed estimates of construction costs based on the approved design and working drawings and specifications, and provides construction schedules including procurements. It will also be extensive enough so that construction can physically start or long-lead procurement items can be procured in the fiscal year in which construction appropriations are received.

(dollars in thousands)

FY 2000	FY 2001	FY 2002

- # Initiate preliminary design activities for the Sitewide Idaho National Engineering and Environmental Laboratory Information Network as requested in the Project Engineering and Design datasheet 01-D-414.
- # Complete final design for the Cathodic Protection System Expansion project as requested in the Project Engineering and Design datasheet 01-D-414.

ID-WM-101 / Idaho National Engineering and Environmental Low-Level Waste/Mixed Low-Level Waste/Other Waste Program 25,690 26,239 25,006

The project provides for the centralized 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. Allows for the characterization and disposition of radioactive and hazardous waste in compliance with State and Federal regulations. Enables DOE to comply with the Idaho National Engineering and Environmental Laboratory Site Treatment Plan under the Federal Facility Compliance Act by providing on-site and off-site treatment and recycling services for disposition of Idaho National Engineering and Environmental Laboratory mixed low-level waste. This Project also provides for low-level waste volume reduction and disposal at the Idaho National Engineering and Environmental Laboratory.

- # Continue to operate waste generator services as a centralized function out of waste management.
- # Complete lead cask dismantlement commitments per the site treatment plan.
- # Continue mixed low-level waste off-site treatment and disposal activities.
- # Continue low-level waste disposal in the Radioactive Waste Management Complex Subsurface Disposal Area.
- # Continue management of mixed low-level storage facilities.
- # Continue off-site treatment and disposal of hazardous waste.
- # Continue consolidated packaging and transportation activities.
- # Close the Waste Experimental Reduction Incinerator.
- # Management of Waste with No Identified Path to Disposal for eventual disposition (i.e., Advanced Test Reactor beryllium blocks).

Metrics			
Mixed Low-Level Waste			
Disposal (m^3)	469	400	399
Treatment (m^3)	811	150	282
Low-Level Waste			

(dollars in thousands)

	FY 2000	FY 2001	FY 2002
Disposal (m^3)	4,344	3,186	2,340
Key Milestones			
# Dispose of up to 3,186 m^3 of low-level waste (September 2001).			
# Dispose of 400 m^3 of mixed low-level waste (September 2001).			
# Treat 100 m^3 of mixed low-level waste (September 2001).			
# Volume reduction up to 1,170 m^3 of low-level waste (September 2001).			
# Volume reduction up to 1,150 m^3 of low-level waste (September 2002).			

ID-WM-103 / Idaho National Engineering and Environmental Transuranic Waste **44,581** **46,065** **0**

The mission of the Transuranic Waste Project is to provide environmentally safe and compliant management of 65,000 m^3 of contact-handled and remote-handled transuranic and mixed transuranic waste retrievably stored at the Radioactive Waste Management Complex until final waste disposition is achieved by December 31, 2018. This includes the characterization, certification, and transportation of up to 3,100 m^3 of stored transuranic waste out of Idaho by December 31, 2002, to meet an enforceable agreement milestone. Capabilities to retrieve and achieve disposition of remote-handled transuranic waste will be developed. Infrastructure support for Radioactive Waste Management Complex is provided to ensure compliance with authorization basis requirements necessary to accomplish project mission and maintain facility systems, structures, and components.

Funding in FY 2002 has been shifted to the Defense Environmental Restoration and Waste Management Post 2006 Completion account.

Metrics			
Volume of Transuranic Waste Shipped to WIPP for Disposal (m^3)	103	1,160	0
Key Milestones			
# Complete 1,160 m^3 of transuranic waste to the Waste Isolation Pilot Plant (Cumulative 1,289 m^3) (September 2001).			

Total, Idaho **106,615** **99,054** **58,705**

Explanation of Funding Changes from FY 2001 to FY 2002

	FY 2002 vs. FY 2001 ($000)
ID-ER-101 / Test Area North Remediation	
# Increase in funding reflects support for cleanup of the V-Tanks and PM-2A Tanks.	1,000
ID-ER-104 / Central Facilities Area Remediation	
# Increase in funding reflects support of the cap construction at the Central Facilities Area-08 and continuation of Central Facilities Area 4-10 lead contaminated soil cleanup and disposal.	949
ID-ER-105 / Power Burst Facility/Auxiliary Reactor Area	
# Decrease in funding reflects the majority of tank field work completed in FY 2001.	-1,134
ID-GJ-101 / Maxey Flats Field Management Project	
# Decrease in funding reflects payment of a partial payment.	-565
ID-GJ-102 / Pinellas STAR Center Environmental Restoration Project	
# Increase in funding reflects full-scale operation of the Northeast Site groundwater cleanup and an increase in operation and maintenance costs.	2,666
ID-OIM-106 / Electrical and Utility Systems Upgrade Project, Idaho Chemical Plant Project	
# Decrease in funding reflects completion of construction and transition to project operability testing.	-457
ID-OIM-109 / Health Physics Instrument Laboratory	
# Decrease in funding reflects the planned construction completion of the facility.	-1,418
ID-OIM-110 / Pre-FY 2007 Surplus Facility Deactivation Project	
# Increase in funding reflects removal, packaging, and shipment of radioactive sludge from basins.	338
ID-OIM-112 / Pre-FY 2007 Idaho National Engineering and Environmental Laboratory Surveillance and Maintenance	
# Increase in funding reflects surveillance and maintenance activities reflects transfer of workscope from PBS ER-112-N.	1,999
ID-OIM-114 / Sitewide Idaho National Engineering and Environmental Laboratory Information Network	
# Increase in funding reflects progression of project from planning to design phase.	104
ID-OIM-117 / Cathodic Protection System Expansion	
# Increase in funding reflects evolution of project from design to construction phase.	3,212

	FY 2002 vs. FY 2001 ($000)
ID-PED / Preliminary Project Engineering and Design	
# Increase in funding reflects initiation of preliminary design.	255
ID-WM-101 / Idaho National Engineering and Environmental Low-Level Waste/Mixed Low-Level Waste/Other Waste Program	
# Decrease in funding reflects low-level waste volume reduction activities being deferred to provide for higher priority work scope.	-1,233
ID-WM-103 / Idaho National Engineering and Environmental Transuranic Waste	
# Decrease is due to shifting FY 2002 funds to the Defense Environmental Restoration and Waste Management Post 2006 account to support shipments of transuranic waste to the Waste Isolation Pilot Plant.	-46,065
Total Funding Change, Idaho	-40,349

Oakland

Mission Supporting Goals and Objectives

Program Mission

The mission of the Defense Environmental Restoration and Waste Management, Site/Project Completion account, 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 program management, contracts in support of multiple sites, and the administration of State and educational grants.

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.

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. 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 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, Livermore Site. Electro-osmosis is being used as an innovative remediation technology to remove volatile organic compounds from the Lawrence Livermore National Laboratory, Livermore 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). Additional innovative technologies tested at Lawrence Livermore National Laboratory Site 300 included the use of surfactant injection to help mobilize contaminants, ultra violet radiation and an electron accelerator to treat contaminated soil vapor, enhanced in-situ bioredmediation. Containerized wetlands carbon exchange resins are currently being tested for long-term application.

Significant Accomplishments and Program Shifts

- Completed 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).
- Complete construction of all phases at the Decontamination and Waste Treatment Facility, and begin operational testing (FY 2001).
- Begin full scale operation of the Decontamination and Waste Treatment Facility (FY 2002).

Funding Schedule

(dollars in thousands)

	FY 2000	FY 2001	FY 2002
OK-027 / Lawrence Livermore National Laboratory Decontamination and Waste Treatment Facility	2,000	1,977	762
Total, Oakland	2,000	1,977	762

Funding by Site

(dollars in thousands)

	FY 2000	FY 2001	FY 2002	$ Change	% Change
Lawrence Livermore National Laboratory (CA)	2,000	1,977	762	-1,215	-61.5%
Total, Oakland	2,000	1,977	762	-1,215	-61.5%

Metrics Summary

	FY 2000	FY 2001	FY 2002
The project in the Detailed Program Justification has associated metrics; however, no metrics are reportable in the 3-year budget profile.			

Site Description

Lawrence Livermore National Laboratory

The Lawrence Livermore National Laboratory is a multi-disciplinary research and development laboratory focused on national defense, which has two noncontiguous 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.

Detailed Program Justification

(dollars in thousands)

FY 2000	FY 2001	FY 2002

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 2002 has been reviewed and is appropriate to meet the goals of the site as outlined in the EM sites' baseline planning data. These activities have had an independent cost review of the scope by the Corps of Engineers and the funds requested for FY 2002 are appropriate to perform the activities based on a historical level of effort costs.

OK-027 / Lawrence Livermore National Laboratory			
Decontamination and Waste Treatment Facility	**2,000**	**1,977**	**762**

(dollars in thousands)

FY 2000	FY 2001	FY 2002

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.

- # Continue closure of old Hazardous Waste Management Facilities.
- # Complete safety analysis review.

Total, Oakland	**2,000**	**1,977**	**762**

Explanation of Funding Changes from FY 2001 to FY 2002

	FY 2002 vs. FY 2001 ($000)
OK-027 / Lawrence Livermore National Laboratory Decontamination and Waste Treatment Facility	
# Decrease in funding reflects the result of construction project completion and facility startup.	-1,215
Total, Oakland	-1,215

Hanford Site - Richland Operations Office

Mission Supporting Goals and Objectives

Program Mission

The mission of the Defense Environmental Restoration and Waste Management, Site/Project Completion account, carried out by the Hanford Site, Richland Operations Office, is the treatment, storage, and disposal of the legacy wastes and materials, and the decontamination and decommissioning of the facilities associated with the production of nuclear materials during the Cold War. This program will carry out its mission in a manner which provides for the health and safety of its workers and the general public, and is protective of the environment.

Over the past year, the Department of Energy, Richland Operations Office has formulated an expansive outcome based vision of the Hanford's Site's future that embraces priorities of regulators, stakeholders, and area Tribal Nations, while recognizing the need to make visible progress sooner, rather than later. The three elements of that vision are: 1) to restore the Columbia River corridor; 2) complete the transition of the 200 Area on the Central Plateau to long-term waste management; and 3) prepare the remainder of the site to contribute to the future welfare and well-being of its neighboring communities.

This focus on outcomes will require changes in contracting strategy and restructuring of work to more effectively align Richland and its contractors to an outcome driven approach for planning and implementing cleanup work. A key element for executing these changes is to significantly revise the current Hanford PBS structure. These changes would become effective beginning in FY 2002.

The current Richland PBS structure is based on functional/organizational units generally aligned to former DOE Environmental Management Headquarters office alignment. This structure was not outcome focused, and often required elements of multiple PBSs and multiple prime contractors to achieve cleanup of a specific site geographic area. Progress toward cleanup was difficult to demonstrate because many of the PBSs only addressed a portion of the overall cleanup requirements. For example, there were separate PBSs for facility deactivation, decontamination and decommissioning, waste site remediation and groundwater remediation that all effected the outcome of one or several facilities.

The revised Richland PBS structure can be directly aligned to a new site contracting strategy for cleanup. Key highlights of the revised structure include:

- A focus on the completion of projects. This allows the total project life-cycle to be planned and executed in a logical manner, capturing work in a continuous integrated fashion. Cleanup projects will be grouped by geographic area, and expected outcomes will be supported by required crosscutting infrastructure and integrating services. This provides a structure that enables a clearer demonstration of progress and offers a better communication of results.

- An outcome driven focus instead of functional or organizational orientation. A single contractor can be assigned responsibility for achieving a required cleanup end point, and the structure can be used to more effectively identity specific contract deliverables. Costly and time-consuming facility hand-offs, such as those from a deactivation firm to an environmental restoration contractor, would be eliminated. This will also eliminate the need to update and/or change requirements based solely on the transition of work scope between contractors.
- Under the new contracting strategy, one contractor will be responsible for the River Corridor cleanup, and another contractor will be responsible for the Central Plateau transition and completion of the Spent Nuclear Fuel project.

Successful cleanup of the River Corridor will allow more than 500 square kilometers (200 square miles) of Hanford land to be made available for other uses; provide opportunities for public access to key recreational areas; protect cultural resources; and shrink the footprint for active Hanford cleanup operations to approximately 200 square kilometers (75 square miles), the Central Plateau. The Department is transitioning the Central Plateau from primarily inactive storage to active waste treatment, storage, and disposal operations. New, state-of-the-art, environmentally compliant facilities will be used to support completion of the Hanford cleanup, as well as foster the DOE Office of River Protection tank waste mission. Some of these Central Plateau facilities, including the Canister Storage Building and Waste Receiving and Processing Facility, have already begun operation.

The Department of Energy is in the process of planning a closure-type contract for the River Corridor. The Department is pursuing an aggressive approach whereby a significant amount of cleanup could be completed by 2012. Our strategy for restoring the Columbia River Corridor is to expedite the work associated with remediating sources of radiological and chemical contamination. The “end point” might be as follow:

- Make 75 kilometers (45 miles) of river front and 550 square kilometers (215 square miles) of site land available for limited alternate uses;
- Place eight production reactors in interim safe storage (except N Reactor);
- Convert B Reactor into a museum;
- Place 323 surplus facilities in the River Corridor Decontamination and Decommissioning Program;
- Remediate all 554 accessible waste sites (except 618-10 and 618-11 burial grounds); and
- Implement groundwater remedies.

In December 2000, DOE extended the Fluor Hanford contract through FY 2006 for work in the Central Plateau and the Spent Nuclear Fuel project. High priority activities include:

- Complete Spent Nuclear Fuel Project by 2006;
- Complete plutonium stabilization by FY 2004, and accelerate deactivation of the Plutonium Finishing Plant;
- Continue mixed low-level waste treatment, retrieval of buried transuranic wastes, and preparation for shipment of transuranic waste to the Waste Isolation Pilot Plant in New Mexico; and

Optimize landlord and site services to support cleanup mission.

In addition to program budget restructuring, the Department is also converting over $95,000,000 in former Hanford indirect expenses to direct cost allocations in FY 2002. It is our belief that changing infrastructure, emergency preparedness, laboratory analytical services, information resource management, and training administration from indirect costs to direct costs is a prudent way to manage these efforts. These major activities are core functional requirements and are required for the Hanford Site to continue as a viable environmental cleanup operation. They constitute fixed infrastructure, both physical as well as resource support, necessary to execute the Hanford environmental management mission. Significant levels of activity within these areas are driven by the physical layout of Hanford, not specific amounts of individual project activity. Therefore, most of these services constitute relatively fixed costs that should be addressed separately during budget formulation and execution. In the past, funding through indirect cost allocations created an erroneous perception that their expenditures vary in proportion with cleanup project work. By directly budgeting for these activities, the perceived correlation between infrastructure and individual projects can be broken. As separate budget items, both scope and level of funding can be better evaluated and considered on the merits of activities themselves, independent of clean-up projects. Direct funding should strengthen the Department's position from a prioritization perspective because these former indirect expenses now must compete for budget authority on their own merits.

Program Goal

The program goal is to protect the public and the environment from radioactive and hazardous contamination. Under the revised PBS structure and new contracting strategy, work on the Central Plateau and the Spent Nuclear Fuel project will be performed by one contractor. This contract term will run through FY 2006. Since the high priority activities under the Central Plateau and Spent Nuclear Fuel will be completed by FY 2006, DOE is consolidating all the work under this contract in the Site/Project Completion account. This will permit work to be incentivized and cost savings achieved on any work scope can be optimally utilized to accomplish more work with increased confidence that regulatory and the Defense Nuclear Facilities Safety Board milestones and schedules can be met. This program addresses the risks associated with five Richland strategic mission outcomes: 1) moving stored spent nuclear fuel from close proximity to the Columbia River; 2) stabilizing plutonium and other nuclear material inventories, followed by; 3) the deactivation of the associated nuclear facilities that store this material; 4) management of large volumes of wastes generated as a result of site cleanup; and 5) management of the site infrastructure for the duration of the cleanup, which will go on for many years.

Under the Spent Nuclear Fuel Project, the fuel in K-Basins, adjacent to the Columbia River, 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 represent 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 94-1/2000-1 Implementation Plan. Deactivation of the K-East and K-West fuel storage basins would occur after fuel removal. The spent nuclear fuel is intended to remain in dry storage awaiting final disposition, which is currently thought to be the permanent geologic repository located offsite.

The goal of the Nuclear Materials Stabilization Program is to treat and achieve a safe interim storage configuration by 2004 for the entire inventory of about four 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 94-1/2000-1 Implementation Plan. The goal of removing the stabilized material to an off-site location as soon as possible is being pursued in cooperation with the Department's Office of Fissile Materials Disposition. 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 and disposition of about 1,865 metric tons of on-site uranium materials that fall under the Facility Transition Program will also be accomplished. Facility deactivation provides risk reduction benefits, outyear cost avoidances, and contributes toward transitioning the Hanford 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. Accelerated deactivation of facilities in the 300 Area, such as Buildings 324 and 327, will provide significant out year savings in surveillance and maintenance costs, as well as reduce environmental risks near the Richland city limits and the Columbia River. In addition to deactivation of these surplus facilities, work efforts will include initiatives to convert unneeded site assets to supporting cleanup or be redeployed to the private sector to defray cleanup costs. Due to its significant experience in nuclear facility deactivation, the Hanford cleanup program provides lessons-learned and support to cleanup of other on-site facilities as well as the complex wide environmental management program.

Hanford will continue treatment and disposal of wastes consistent with national policies for management of transuranic, low-level, low-level mixed, and hazardous wastes. Hanford will continue to receive on-site and off-site wastes for disposal in the 200 Area. Retrieved and newly generated transuranic waste will be processed and prepared for shipment to the Waste Isolation Pilot Plant in New Mexico.

The goal of the landlord and site services program is to provide the proper level of site-wide activities and readiness needed to support environmental cleanup and long-term needs. To reduce overhead costs, support personnel and operations will be consolidated in order to eliminate unnecessary off-site office leases and low occupancy on-site facilities. Excess property will be cleaned up for reuse or disposed of to further reduce costs and schedules. The long-term objective is to normalize custodial responsibilities outside of the central plateau (200 Area) and implement efficient, low-cost support services within the central plateau. Long-term activities will include the disposition of more than 1,100 facilities that are assigned to the landlord and environmental restoration projects and expected to become vacant during clean up. The surplus facilities and the associated equipment will either be cleaned up for reuse, demolished, or disposed of by other means.

Program Objectives

In FY 2002, the Spent Nuclear Fuel project will continue removal and drying operations of the corroded fuel currently stored a the K-West Basin. The Canister Storage Building, located in the Central 200 Area Plateau, will continue operations in FY 2002 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 2003.

At the Plutonium Finishing Plant, significant progress toward stabilization of plutonium bearing materials will continue in FY 2002. Specifically, stabilization of plutonium bearing solutions and polycubes will be completed, and stabilization and packaging of plutonium oxides and stabilization of residues will continue. While these treatment activities proceed, the safe and secure storage of special nuclear material in the Plutonium Finishing Plant is a primary objective. It will be achieved through the Plutonium Finishing Plant surveillance and maintenance necessary to comply with the facility safety and safeguards requirements. Safeguard needs include an obligation to comply with the International Atomic Energy Agency non-proliferation inspections.

Deactivation activities in FY 2002 will include buildings mostly in the 300 Area, such as Buildings 324 and 327. Disposition of the remaining uranium inventory from the 300 Area will continue. Until deactivation is achieved, these facilities will be maintained in a safe and secure condition through surveillance and maintenance necessary to comply with safety and safeguards requirements.

Hanford will continue processing transuranic and low-level mixed wastes in FY 2002. Transuranic waste will continue to be prepared for shipment to the Waste Isolation Pilot Plant and Hanford intends to continue the disposal of low-level and low-level mixed wastes, including low-level waste received from off-site generators.

In FY 2002, the landlord and site services program would replace Hanford’s two-way radio towers and repeaters for compliance with Federal mandate to make bandwidth available for public use. The 272 E shop would be demolished or prepared for demolition to eliminate safety risks. Three failed septic systems would be shutdown and system capacity would be increased in the 200 West Area. Maintenance or replacement activities would continue on water distribution lines and other core infrastructure systems or equipment.

Significant Accomplishments and Program Shifts

- Continued to support the International Atomic Energy Agency non-proliferation activities for vault number 3; continued progress on the Defense Nuclear Facilities Safety Board Recommendation 94-1/2000-1 Plutonium Stabilization activities by completing startup of metal and solution stabilization and Pu residue packaging and continuation of thermal stabilization of oxides; continued installation activities of the plutonium packaging and stabilization system in 2736-Z/ZB facilities; and initiated bagless transfer system operation in building 234-5Z (FY 2000/RL-CP03).
- Continue progress on the Defense Nuclear Facilities Safety Board 94-1/200-1 Plutonium Stabilization activities with continuation of solution stabilization, Pu residue packaging and thermal stabilization and packaging of oxides in 234-5Z and 2736-Z/ZB facilities; through an internal reprogramming, $5,000,000 of line-item funds were added to the Plutonium Stabilization and Handling Facility project and will result in completion of the installation of plutonium packaging and stabilization equipment in the 2736-Z/ZB facilities; and complete stabilization of metals and alloys (FY 2001/RL-CP03).
- Packaged and shipped 32.5 m^3 of bulk, 103 buckets of legacy waste to compliant storage, and 90 percent of the 297 sample cans of radioactive materials from dry storage to the 200 Areas Waste Complex; completed H-Cell clean out; packaged and shipped all accountable fissile material in hot cells; cleaned out the 324 B Cell; and transferred 667 metric tons of uranium trioxide powder to the DOE Portsmouth site in Ohio (FY 2000/RL-RC06).
- Ship approximately 235 metric tons of uranium billets and 5 metric tons of uranium dioxide to the DOE Portsmouth site in Ohio; dispose of 140 metric tons of surplus uranium as waste to the 200 Area Low-Level Burial Grounds; dispose of approximately 0.5 metric ton of thorium 232 located in 303K; close 303K with cleanup of two soil contamination spots; and demolish 303K and 3707-G buildings (FY 2001/RL-RC06).
- Completed installation and testing of all systems needed to begin moving spent nuclear fuel out of the K-West Basin in early FY 2001; and continued surveillance and maintenance activities to assure safe operation of the K-Basins, fuel conditioning facilities, and equipment, and the Canister Storage Building (FY 2000/RL-RS03).
- Initiate K-East Basin modifications in preparation for fuel removal in FY 2003; completed first shipment of spent nuclear fuel to the central plateau in December 2000; and continue the K-West Basin spent nuclear fuel removal (FY 2001/RL-RS03).
- Decommissioned and disposed of 14 vacant facilities; cleaned up two rail cars for reuse; disposed of two fuel bunkers; and managed an increased workload for inactive facilities as the number of structures grew from 60 to 70 and regulatory requirements were defined; and repaired failed infrastructure (FY 2000/RL-SS02).
- Continue to restore the water distribution system; complete emergency services renovation; complete the Plutonium Finishing Plant water system back flow prevention; begin integrated management of vegetation and animal control and dispose of a well car (FY 2001/RL-SS02).

Funding Schedule

(dollars in thousands)

	FY 2000	FY 2001	FY 2002
RL-CP02 / 200 Area Materials and Waste Management	92,486	91,957	67,607
RL-CP03 / Plutonium Finishing Plant	113,351	102,333	73,844
RL-RC06 / 300 Area Facility Transition	43,451	42,445	30,000
RL-RS03 / Spent Nuclear Fuel	192,283	192,300	163,135
RL-SS02 / Landlord and Site Services	36,989	46,710	85,000
Total, Richland Operations Office	478,560	475,745	419,586

Funding by Site

(dollars in thousands)

	FY 2000	FY 2001	FY 2002	$ Change	% Change
Hanford	478,560	475,745	419,586	-56,159	-11.8%
Total, Richland Operations Office	478,560	475,745	419,586	-56,159	-11.8%

Metrics Summary

	FY 2000	FY 2001	FY 2002
Transuranic Waste			
Shipped to WIPP for Disposal (m^3)	19	42	0
Mixed Low-Level Waste			
Treatment (m^3)	1,204	568	265
Disposal (m^3)	669	478	300
Low-Level Waste			
Disposal (m^3)	8,079	6,734	3,100
Nuclear Materials			
Stabilized - Plutonium Residue (kg Bulk)	17	321	1,491
Stabilized - Plutonium Metals/Oxides (containers)	574	500	1,428
Spent Nuclear Fuel			
Moved to Dry Storage (MTHM)	0	116	662

Site Description

Richland Operations Office--Hanford Site

The United States Department of Energy's Richland Operations Office manages the Department's Hanford Site, except for the High-Level Waste Tank Farms in Southeastern Washington State. The 1,465 square kilometer (560 square mile) site is bounded on the north by over 80 Kilometers (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 1960's 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 Plutonium Finishing Plant is one of the last production facilities that remains operational – but only to process remaining plutonium materials. Other areas of the site include the Fast Flux Test Facility (400-Area) (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 to protect the Columbia River. The cleanup is covered by commitments in a 1989 consent agreement among 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 2000	FY 2001	FY 2002

To support the site's missions, EM negotiated an extension of the current site operations contract through FY 2006 for transition work in the Central Plateau and the Spent Nuclear Fuel Project. The contract extension is performance based with 80 percent of the fee applied to the completion of specific cleanup activities and 20 percent of the fee applied to a comprehensive performance incentive. During the six-year performance period, the contractor is paid more fee for meeting multi-year performance objectives. Incremental progress and provisional fee payments will be provided to the contractor toward final completion of contract goals. A significant portion of the available fee is for stretch performance incentives, which requires the contractor to accelerate work by achieving cost and schedule efficiencies.

RL-CP02 / 200 Area Materials and Waste Management 92,486 91,957 67,607

This project provides facilities for interim compliant storage of low-level, high-level, mixed low-level, and transuranic wastes, as well as disposal of solid low-level and mixed low-level waste for on-site and off-site generators and decontamination services to customers throughout the Hanford Site. It also provides for shipment of non-radioactive hazardous waste off-site for treatment, storage, and disposal, and for the overall planning and integration support for the 200 Area Materials and Waste Management Project. Included are management operations, surveillance, monitoring, and limited maintenance of facility buildings, burial grounds, and current waste inventories, and receipt of waste from on-site and off-site generators.

This project continues to provide integrated liquid effluent management to support cleanup of the Hanford Site. It manages current and future liquid effluent streams in a safe, cost-effective, and environmentally-compliant manner. This project receives, treats, and disposes of radioactive and dangerous liquid effluents from other projects/programs, and establishes waste acceptance criteria and verify compliance with discharge limits. (Note: the 300 Area Treated Effluent Disposal Facility will be operated under PBS RL-RC05, River Corridor Waste Management, under the Defense Environmental Restoration and Waste Management, Post 2006 Completion account.)

The Waste Encapsulation and Storage Facility provides safe storage for approximately 134 million curies of highly radioactive cesium-137 and strontium-90, including daughter products, in 1,936 steel capsules, which are stored in underwater pool cells. These high-level waste capsules are planned to be transferred to the River Protection Project for final treatment (vitrification) and disposal beginning in 2013 with last shipment occurring in 2017. The contents of capsules are to be blended with high-level waste and vitrified. The vitrified waste is slated for final disposal at the national high-level waste repository. After capsule removal, the Waste Encapsulation and Storage Facility will be deactivated. As part of accomplishing a safe storage mission, aging systems and structures must be updated and made capable of functioning safely until 2017, when all the capsules are transferred out for treatment and ultimate disposal.

- # Provides for interim compliant storage of mixed low-level and transuranic wastes and disposal of solid low-level and mixed low-level waste for on-site and off-site generators.
- # Provides for shipment of non-radioactive hazardous waste off-site for treatment, storage, or disposal.

(dollars in thousands)

FY 2000	FY 2001	FY 2002

- # Provide capacity development and continue efforts to stabilize the low-level burial grounds.
- # Continue low-level, mixed low-level, transuranic, and transuranic-mixed waste processing, characterization, and verification at the Waste Receiving and Processing Facility.
- # Maintain the Waste Isolation Pilot Plant certification and prepare for shipment of transuranic waste to the Waste Isolation Pilot Plant.
- # Continue thermal treatment of mixed low-level waste by a commercial contractor.
- # Remove spent pressurized-water reactor fuel to make the T-Plant ready for receiving K-Basin sludge in the facilities canyon per Tri-Party Agreement Milestone M-91.
- # Continue limited waste treatment, headspace gas sampling, and verification activities at the T-Plant complex.
- # Continue to provide treatment and disposal of radioactive and dangerous liquid effluents through operations and maintenance of the 242-A Evaporator Facility, Liquid Effluent Retention Facility, 200 Area Effluent Treatment Facility, 200 Area Treated Effluent Disposal Facility. Activities include operations, maintenance, engineering, surveillance, reporting, and supporting activities required for compliant State and Federal regulations.
- # The 242-A Evaporator will process up to 2,000,000 gallons (about 7,192 m^3) of dilute liquid high-level tank waste.
- # The 200 area Treated Effluent Disposal Facility will process up to 108,000,000 gallons of unregulated liquid effluents.
- # The 200 Area Liquid Effluent Retention Facility/Effluent Treatment Facility will process up to 27,000,000 gallons of radioactive and dangerous liquid effluents and up to 450 barrels of secondary waste product.
- # Continue to provide safe and compliant storage as well as surveillance and maintenance activities for encapsulated cesium and strontium material.
- # Continue to maintain the Waste Encapsulation and Storage Facility systems and structures associated with capsules storage.

(dollars in thousands)

	FY 2000	FY 2001	FY 2002
Metrics			
Mixed Low-Level Waste			
Disposal (m^3)	669	478	300
Low-Level Waste			
Disposal (m^3)	8,079	6,734	3,100
Transuranic Waste			
Shipped to the Waste Isolation Pilot Plant for Disposal (m^3)	19	42	0
Mixed Low-Level Waste			
Treatment (m^3)	1,204	568	265
Key Milestones			
# Transmit T-Plant Sludge Storage Conceptual Design to Washington Department of Ecology (June 2001).			
# Complete physical activities at the T-Plant to store floor and pit sludge (September 2002).			

RL-CP03 / Plutonium Finishing Plant 113,351 102,333 73,844

The Plutonium Finishing Plant houses a large inventory of radioactive and chemical materials left from defense production at the Plutonium Finishing Plant and other DOE facilities during the Cold War. This inventory poses a serious challenge for safe facility management and requires costly monitoring and maintenance. The Plutonium Finishing Plant provides the safe and secure storage of special nuclear materials and provides basic infrastructure for nuclear material stabilization and facility deactivation. The Plutonium Finishing Plant also implements the Defense Nuclear Facilities Safety Board 94-1/2000-1 by stabilizing and repackaging remaining plutonium-bearing materials. The end state objective includes dismantlement of the Plutonium Finishing Plant complex systems and structures, thus eliminating significant hazards to workers, public, environment, and minimizing long-term surveillance and maintenance risks and costs.

- # Complete stabilization of plutonium bearing solutions and polycubes.
- # Continue annual stabilization of plutonium oxides and plutonium bearing residues.
- # Continue appropriate level surveillance and maintenance activities to ensure safe operation of the Plutonium Finishing Plant, as well as providing surveillance and monitoring of the Plutonium Finishing Plant's special nuclear materials.
- # Continue to support the International Atomic Energy Agency non-proliferation activities for vault number 3.
- # This PBS includes line-item funding for Project 98-D-453, Plutonium Stabilization and Packaging System for the Plutonium Finishing Plant, $14,550,000 in FY 2000; $6,690,000 in FY 2001; and $1,910,000 in FY 2002.

(dollars in thousands)

	FY 2000	FY 2001	FY 2002
Metrics			
Nuclear Materials			
Stabilized - Plutonium Metal/Oxides (containers)	574	500	1,428
Stabilized - Plutonium Residue (kg Bulk)	17	321	1,491
Key Milestones			
# Complete brushing and repackaging of plutonium metal inventory (March 2001).			
# Complete repackaging and shipping Rocky Flats Ash to Central Waste Complex (April 2001).			
# Complete requirements to ship Rocky Flats Ash to the Waste Isolation Pilot Plant (June 2001).			
# Determine non-fuels disposition (November 2001).			
# Determine fuels disposition (key decision) (December 2001).			
# Complete stabilization and packaging of plutonium solutions (December 2001).			
# Complete stabilization and packaging of polycubes (August 2002).			

RL-RC06 / 300 Area Facility Transition 43,451 42,445 30,000

The 300 Area Facility Transition Project encompasses a major subset of the 300 Area Accelerated Cleanup Project, which provides for the earliest possible cleanup. The 300 Area Facility Transition includes: stabilization and removal of material at the 324 and 327 Laboratory Buildings; complete Resource Conservation and Recovery Act closure plans for designated facilities and systems; storage and disposition of spent nuclear material (Uranium Disposition Project); and shutdown and cleanup of remaining facilities for turnover to decontamination and decommissioning. The aim of these efforts is to transition the facilities to a low cost surveillance and maintenance state ready for eventual deactivation and decommissioning.

- # Continue surveillance and maintenance activities at 324 and 327 Laboratory Buildings, as well as nearby minor facilities.
- # Continue Lab Building 324 closure activities.
- # Continue to maintain facilities to store 825 metric tons uranium of uncontaminated uranium fuel pending the Hanford Solid Waste Environmental Impact Statement Record-of-Decision.
- # Prepare Safety Analysis Reports and documents and Safety Analysis Report for Packaging in consideration of the remaining uranium materials for movement to 200 Areas pending the Solid Waste Environmental Impact Statement Record-of-Decision.
- # Prepare engineering studies to transition vacated facilities to the River Corridor contractor.

Key Milestones

(dollars in thousands)

	FY 2000	FY 2001	FY 2002
# Complete shipment of waste from B-Cell (M-89-02) cleanout (July 2001).			

RL-RS03 / Spent Nuclear Fuel 192,283 192,300 163,135

This project will move approximately 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 on the 200 Area Central Plateau. Continued use of current K-Basin 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 basin water; and consolidating spent nuclear fuel in the Central Hanford 200 Area pending final disposition.

- # Continue K-West Basin spent nuclear fuel removal, drying and transport to dry storage.
- # Complete K-East Basin modifications in preparation for fuel removal in FY 2003.
- # Continue surveillance and maintenance activities to assure safe operation of the K-Basins, fuel conditioning facilities and equipment, and the Canister Storage Building.
- # Complete initial receipt of Light Water Reactor fuel from 324 Building and the Fast Flux Test Facility at the 200 area interim storage area.
- # Initiate equipment acquisition and infrastructure for the 100 K-Area deactivation facilities including debris, sludge, and water removal.

Metrics			
Spent Nuclear Fuel			
Moved to Dry Storage (MTHM)	0	116	662
Key Milestones			
# Start K-West canister cleaning operations (May 2001).			
# M34-12 Complete construction of K-East Basin Integrated Water Treatment System (March 2002).			

RL-SS02 / Landlord and Site Services 36,989 46,710 85,000

This project provides Landlord and Analytical Services in support of the Hanford cleanup mission, in a safe and effective manner. Analytical Services include integrated waste and environmental sample analysis, process control support, field sampling, and expertise through on-site analytical support to the Office of River Protection, spent nuclear fuel, solid waste, liquid effluent, and environmental restoration activities. Landlord Services include utility and transportation services, integrated biological control, fabrication, and other site-wide services. The project provides the capital equipment replacements, major maintenance, and renovation of infrastructure facilities and systems. After an infrastructure function is no longer needed to support the cleanup mission, the project is responsible for final disposition.

(dollars in thousands)

FY 2000	FY 2001	FY 2002

- # Continue to provide major maintenance, replacements, and upgrades of core infrastructure facilities/systems.
- # Replace components of the 50-year old water infrastructure.
- # Continue replacement/renovation of vital Emergency Services/Preparedness equipment and facilities, roof replacements, sanitary waste water systems, overlay of site main roads and demolition of high risk, vacant facilities.
- # Provide Site wide Real Estate, Site Mapping Services and an Integrated Site Vegetation/Animal Control Program.
- # Provide surveillance, maintenance and deactivation of legacy infrastructure facilities, systems, waste sites and regulated equipment.
- # Maintain/operate the 222-S and Waste Sampling and Characterization Facility Labs to support site project needs.
- # Continue reducing costs and efficiencies through integrating the Project Hanford Management Contract site analytical services at 222-S and Waste Sampling and Characterization Facility Labs.

Total, Hanford Site, Richland Operations Office	**478,560**	**475,745**	**419,586**

Explanation of Funding Changes from FY 2001 to FY 2002

	FY 2002 vs. FY 2001 ($000)
RL-CP02 / 200 Area Materials and Waste Management	
# Decrease in funding reflects the FY 2002 conversion of $12,159,000 indirect expenses to direct charges, as well as $3,177,000 decline for FY 2002 consolidation of steam heat and laundry budget requirements in the Landlord and Site Services Project. This is partly offset by added funding for removal of pressurized water reactor fuel to make T-Plant ready for sludge removal from K-Basins. Decrease in funding is also associated with transfer of the 300 Area Treated Effluent Disposal Facility to PBS RL-RC05, River Corridor waste Management, under the Defense Environmental Restoration and Waste Management, Post 2006 Completion account..	-24,350
RL-CP03 / Plutonium Finishing Plant	
# Decrease in funding reflects the conversion of the Fluor Hanford indirect funded work to direct charges and consolidation of steam in PBS RL-SS02, Landlord and Site Services. . .	-28,489

	FY 2002 vs. FY 2001 ($000)
RL-RC06 / 300 Area Facility Transition	
# Decrease in funding reflects the conversion of the Fluor Hanford indirect funded work to direct funded work, lowering overall overheads and steam plant budgeting requirements. These have been consolidated in PBS RL-SS02, Landlord and Site Services. There is a small increase in funding for Lab Building 324 B-Cell cleanup, including design, procurement and fabrication of system for removing liner/cladding and concrete remediation. Decrease in funding is also due to focus on high priority risk reduction activities.	-12,445
RL-RS03 / Spent Nuclear Fuel	
# Decrease in funding reflects the conversion of the Fluor Hanford indirect funded work to direct funding.	-29,165
RL-SS02 / Landlord and Site Services	
# Increase in funding reflects the conversion of the Fluor Hanford indirect funded work to direct charges, which lowered overall overheads on other Fluor Hanford project work, as well as consolidation of site wide steam heat budgets, into this PBS.	38,290
Total Funding Change, Richland	-56,159

Hanford Site - River Protection

Mission Supporting Goals and Objectives

Program Mission

The mission of the Defense Environmental Restoration and Waste Management, Site/Project Completion account, carried out by the Hanford Site, Office of River Protection, is to safely operate the underground high-level waste storage tanks and to build and operate the tank waste complex to complete the cleanup of Hanford's highly radioactive tank waste.

Program Goal

The Office of River Protection is responsible for safe storage, retrieval, treatment, and disposal of 53 million gallons of highly toxic, high-level radioactive waste stored in 177 underground storage tanks located within 7 miles of the Columbia River. The waste will be retrieved from the storage tanks, separated into low-activity and high-activity fractions, and then vitrified. Low activity waste will be disposed in the Hanford central plateau, and immobilized high-level waste will be stored at Hanford pending ultimate disposal in the nation's geologic repository.

Program Objectives

The most important near-term objective is to complete design and initiate construction of the Immobilized High-Level Waste Interim Storage Facility.

Significant Accomplishments and Program Shifts

Initiate definitive design, safety documentation, and project integration (FY 2001).

Funding Schedule

(dollars in thousands)

	FY 2000	FY 2001	FY 2002
RP-PED / Preliminary Project Engineering and Design	0	1,297	2,000
Total, River Protection	0	1,297	2,000

Funding by Site

(dollars in thousands)

	FY 2000	FY 2001	FY 2002	$ Change	% Change
Office of River Protection	0	1,297	2,000	703	54.2%
Total, River Protection	0	1,297	2,000	703	54.2%

Site Description

Office of River Protection

In order to more effectively manage the River Protection Project and in response to Section 3139 of the *Strom Thurmond National Defense Authorization Act for Fiscal Year 1999*, the Secretary of Energy established the Office of River Protection at the Hanford Site in the State of Washington. The Office of River Protection is responsible for the storage, treatment and immobilization of tank waste and the operation, maintenance, engineering, and construction activities in the 200 Area tank farms. The 200 Area tank farms are located in the central plateau of the Hanford Site and are 7 miles south and 10 miles west of the Columbia River, the largest river in the Pacific Northwest. The Hanford Site is mostly flat and semi-arid with a relatively mild climate. The 200 Area had been the site of major nuclear chemical processing plants, which were shut down by the early 1990's. The 200 Area is now the focus of the Office of River Protection and includes 177 underground storage tanks (149 single-shell and 28 double-shell) containing approximately 190 million curies in more than 53 million gallons of radioactive waste from past processing operations. The Office of River Protection will manage the complex River Protection Project activities to ensure successful immobilization and disposal of high-level wastes and the ultimate protection of the Columbia River resources.

Detailed Program Justification

(dollars in thousands)

FY 2000	FY 2001	FY 2002

The site is managed through an incentivized management and operations contractor, with fixed-price subcontracts, to assure the most cost-effective services to the Government. The scope planned for FY 2002 has been reviewed and is appropriate to meet the central goals of the program. The integrated baseline and supporting documentation have had an independent review of the scope by an internal Hanford and Headquarters team. The funds requested for FY 2002 are appropriate to perform the central activities based on estimated project progress and accumulated cost management success.

(dollars in thousands)

	FY 2000	FY 2001	FY 2002
RP-PED / Preliminary Project Engineering and Design	**0**	**1,297**	**2,000**

The Immobilized High-Level Waste Interim Storage Facility will install systems, and components to enable receipt of immobilized high-level waste, produced by the vitrification facility, in the Canister Storage Building currently being constructed, (Project 96-D-406) at Hanford. Project 01-D-403 will outfit Canister Storage Building Vaults 2 and 3 for interim storage of immobilized waste. The project also includes a system for transporting immobilized high-level waste canisters from the vitrification facility to the Canister Building.

Continue preliminary design.

Total, River Protection	**0**	**1,297**	**2,000**

Explanation of Funding Changes from FY 2001 to FY 2002

	FY 2002 vs. FY 2001 ($000)
RP-PED / Preliminary Project Engineering and Design	
# Increase in funding reflects a full year of design activities.	703
Total, River Protection	703

Savannah River

Mission Supporting Goals and Objectives

Program Mission

The mission of the Defense Environmental Restoration and Waste Management, Site/Project Completion account, carried out by the Savannah River Operations Office cleanup program has as its mission the treatment and disposal of the legacy materials and wastes that resulted from the production of nuclear materials during the Cold War. This legacy includes 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 (shut down), two chemical separations facilities, deactivated fuel and target fabrication facilities, tritium processing facilities (shut down), 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, low-level, hazardous, mixed low-level, and other), deactivation, remediation, and supporting landlord requirements. This account funds 12 projects whose life-cycle will be essentially complete by FY 2006.

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 Site 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 at the Savannah River Site 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 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 the materials stabilization mission.

The Savannah River Site's canyon facilities will continue to operate to stabilize nuclear materials covered by Defense Nuclear Facilities Safety Board Recommendations 94-1 and 2000-1. H-Canyon and HB-Line will be operated to continue dissolving plutonium residues and certain spent nuclear fuel. HB-Line will also begin converting existing plutonium solution to a solid oxide. The stabilization of Rocky Flats Environmental Technology Site plutonium scrub alloy will be completed in F-Canyon and FB-Line. Receipt and stabilization of plutonium from Rocky Flats supports DOE's goal for the accelerated closure of the Rocky Flats Environmental Technology Site. Design for the project for vitrifying the americium/curium solution stored in F-Canyon will be completed, in-cell vitrification equipment will be delivered, and project construction will begin .

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 2000, 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, 230 canisters of failed or declad spent fuel, and completed dissolution of 580 containers of plutonium residues and approximately 715 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, 1,170 assemblies of Savannah River fuels, 850 items of other aluminum-clad fuel and targets, 1,800 containers of plutonium and uranium vault materials, and 461 containers of plutonium scrub alloy from Rocky Flats. The mission includes 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 (SR-NM01, SR-NM02, SR-NM03, SR-NM04, and SR-NM09).

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) (SR-HL10, SR-HL11, SR-IN01, SR-IN05, SR-IN10, SR-IN13).

Significant Accomplishments and Program Shifts

- Issued the Savannah River Site Spent Nuclear Fuel Management Record of Decision for management of aluminum-based spent fuel (FY 2000).
- Completed stabilization of received Rocky Flats sand, slag, and crucible; initiate stabilization of Experimental Breeder Reactor II spent fuel; continued declassification of Rocky Flats plutonium metal; continued characterization and repackaging of plutonium residues; and continued packaging plutonium metal into 3013 inner containers as plutonium is converted to stable metal (FY 2000).
- Completed H-Area cooling water upgrades, project complete (FY 2000).
- Completed Canyon Exhaust Fans Process Vessel Vent subproject (FY 2000).
- Started construction for replacement piping for F-Area Tank Farm Support Services Project (FY 2000).
- Mechanical completion of new F- and H-Canyon Diesel Generator Buildings (FY 2000).
- Start up and turnover operation of the new F- and H-Canyon Diesel Generator Buildings (FY 2001).
- Signed contract for sale of excess heavy water (FY 2000).
- Completed dismantlement, removal and preparation of a portion of the Muli-Purpose Processing Facility in support of the Americium/Curium project (FY 2000).

- Awarded contract for in cell design and construction activities for the Americium/Curium project (FY 2000).
- Completed the replacement of H-Canyon Exhaust Fan Numbers One and Two (FY 2000).
- Complete the replacement of F-Canyon Exhaust Fan Numbers One, Two, and Four (FY 2001).
- Complete the replacement of F-Canyon Exhaust Fan Number Three (FY 2002).
- Complete the replacement of H-Canyon Exhaust Fan Number Three (FY 2002).
- Complete 221-F modification design required for vitrification of the Americium/Curium solution (FY 2001).
- Startup of the H-Tank Farm Storm Water Upgrades Systems was completed (FY 2001).
- Complete work on subprojects for B-Area and HB-Line chillers and turnover for startup testing (FY 2001).
- Complete construction phase and startup testing of the Regulatory Monitoring and Bioassay Laboratory (FY 2001).
- Roof replacement of Building 773-A will be completed (FY 2001).
- Initiate and complete dissolution of Rocky Flats scrub alloy (FY 2001).
- Complete stabilization of the F-Area dissolved sweepings, plutonium/depleted uranium and Experimental Breeder Reactor II to metal (FY 2001).
- Complete construction of the Tank Farm Support Services F-Area (FY 2002).
- Begin receipt of Rocky Flats surplus non-pit plutonium metal and oxides for interim storage in the K-Area Nuclear Material Storage Facility (FY 2001); complete Rocky Flats plutonium receipt (FY 2003).
- Complete receipt and stabilization of the Rocky Flats scrub alloy and Hanford plutonium alloys (subject to appropriate National Environmental Policy Act review) (FY 2002).
- Complete construction phase and financial closeout of the Chlorofluorocarbon Heating, Ventilation and Air Conditioning Chiller Retrofit Project (FY 2002).
- Start up HB-Line Phase II (FY 2002).

Funding Schedule

(dollars in thousands)

	FY 2000	FY 2001	FY 2002
SR-HL10 / H-Tank Farm Storm Water System Upgrades	3,456	36	0
SR-HL11 / Tank Farm Support Services F-Area	3,711	8,867	6,280
SR-IN01 / Plantwide Fire Protection Line Item	544	0	0
SR-IN05 / Chlorofluorocarbon Heating, Ventilation and Air Conditioning Chiller Retrofit	2,167	13,489	5,180
SR-IN10 / Regulatory Monitoring and Bioassay Laboratory	13,065	3,981	0
SR-IN13 / Decontamination of Laboratory Facilities, 772-F and 773-A	4,213	1,616	1,616
SR-NM01 / F-Area Stabilization Project	194,403	204,773	201,702
SR-NM02 / H-Area Stabilization Project	148,021	159,416	155,873
SR-NM03 / Nuclear Material Storage Line Item	8,433	8,857	0
SR-NM04 / Canyon Exhaust Line Item	0	10,389	16,750
SR-NM09 / 235-F Packaging and Stabilization	0	3,991	500
SR-PED / Preliminary Project Engineering and Design	0	15,466	3,500
Total, Savannah River	378,013	430,881	391,401

Funding by Site

(dollars in thousands)

	FY 2000	FY 2001	FY 2002	$ Change	% Change
Savannah River Site	378,013	430,881	391,401	-39,480	-9.2%
Total, Savannah River	378,013	430,881	391,401	-39,480	-9.2%

Metrics Summary

	FY 2000	FY 2001	FY 2002
Nuclear Materials			
Stabilized-Plutonium Residue (kg Bulk)	157	120	350
Stabilized-Plutonium Metal/Oxides (containers)	0	10	80

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 extension that became effective October 1, 2000, the Westinghouse Savannah River Company is responsible for the site's nuclear facility operations; applied research; 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.

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; and cleaning up the site and managing the waste the Savannah River Site has produced.

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 2002 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.

Detailed Program Justification

(dollars in thousands)

	FY 2000	FY 2001	FY 2002
SR-HL10 / H-Tank Farm Storm Water System Upgrades	**3,456**	**36**	**0**

The scope of this project includes evaluation of the entire stormwater collection, retention, and outfall system related to the flooding condition surrounding Tanks 9-12H; awarding the fixed-price design contract; completing the final design work; awarding a fixed-price construction 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.

Construction is complete.

(dollars in thousands)

FY 2000	FY 2001	FY 2002

These funding levels include line-item construction funding of $2,977,000 in FY 2000; $0 in FY 2001 and FY 2002.

SR-HL11 / Tank Farm Support Services F-Area 3,711 8,867 6,280

The scope of this project includes replacement in F-Area Tank Farm of all support 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 and startup testing of this project will be completed in FY 2002.

These funding levels include line-item construction funding of $3,100,000 in FY 2000; $7,697,000 in FY 2001; and $5,040,000 in FY 2002.

SR-IN01 / Plantwide Fire Protection Line Item. 544 0 0

The project designed, installed, tested, started-up and turned over to operation a cost-effective set of fire protection upgrades to numerous existing facilities across the Savannah River Site. The upgrades were 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 was 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 provided upgrades to existing facilities in various areas across the entire plant site. Upgrades included 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 were 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 was completed in FY 2000.

SR-IN05 / Chlorofluorocarbon Heating, Ventilation and Air Conditioning Chiller Retrofit 2,167 13,489 5,180

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

Complete construction activities associated with this scope of work, turnover all equipment to operations, and financially close out the project.

These funding levels include line-item construction funding of $931,000 in FY 2000; $12,484,000 in FY 2001; and $4,244,000 in FY 2002.

(dollars in thousands)

FY 2000	FY 2001	FY 2002

SR-IN10 / Regulatory Monitoring and Bioassay Laboratory . . . 13,065 3,981 0

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.

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.

- # This project will be completed in FY 2001.
- # These funding levels include line-item construction funding of $12,220,000 in FY 2000; $3,940,000 in FY 2001; and $0 in FY 2002.

Key Milestones
Obtain startup approval for a new Regulatory Monitoring and Bioassay Facility (CD-4) (September 2001).

SR-IN13 / Decontamination of Laboratory Facilities 772-F and 773-A 4,213 1,616 1,616

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 80,000 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.

- # The schedule for this project has been extended due to reprioritization of site activities.
- # Construction activities to decontaminate Building 772-F will start in FY 2002.

(dollars in thousands)

	FY 2000	FY 2001	FY 2002
SR-NM01 / F-Area Stabilization Project	**194,403**	**204,773**	**201,702**

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 the Defense Nuclear Facilities Safety Board Recommendations 94-1 and 2000-1. Additionally, plutonium scrub alloy from the Rocky Flats Environmental Technology Site is to be stabilized using these facilities.

- # Continue secure storage of the Savannah River Site and Rocky Flats plutonium residues and stabilized plutonium.
- # Continue operation of bagless transfer and package additional metal within the inner container in accordance with DOE's long-term plutonium storage standard (DOE-STD-3013-00).
- # Continue to characterize and repackage plutonium, sand, slag, and crucible, and residues for dissolving.
- # Continue direct casting of Rocky Flats classified plutonium metal and conversion of plutonium solutions to metal.
- # Complete Americium/Curium project design and begin construction (96-EXP).
- # Continue to provide operating support to the project installing DOE-STD-3013-00 capability.
- # Continue dissolution of Savannah River sand, slag and crucible plutonium residues.
- # Continue monitored storage of depleted uranium oxide in drums and solution in tanks.
- # Continue to receive and process lab high activity waste solutions.
- # Complete stabilization of Rocky Flats scrub-alloy to plutonium metal.
- # Complete all currently planned F-Canyon dissolution campaigns and initiate orderly, safe standdown of PUREX operation.

Metrics			
Nuclear Materials			
Stabilized-Plutonium Residue (kg bulk)	157	120	350
Stabilized-Plutonium Metal/Oxides (containers)	0	10	80

Key Milestones

- # Review and approve the Am/Cm rebaseline request submitted by Westinghouse Savannah River Company (April 2001).
- # Begin dissolution of the Rocky Flats Environmental Technology Site scrub alloy (April 2001).
- # Complete dissolution of the Rocky Flats Environmental Technology Site scrub alloy (September 2001).
- # Complete Am/Cm Vitrification Project Design (November 2001).
- # Delivery of in-cell vitrification equipment (May 2002).

(dollars in thousands)

	FY 2000	FY 2001	FY 2002
SR-NM02 / H-Area Stabilization Project	**148,021**	**159,416**	**155,873**

The project scope is to convert "at risk" legacy nuclear materials identified in the Defense Nuclear Facilities Safety Board Recommendations 94-1 and 2000-1 to stable forms suitable for interim or long-term storage or disposition.

Additional nuclear materials to be processed include those within the scope of the DOE/Tennessee Valley Authority interagency agreement for transfer of uranium to the Tennessee Valley Authority for use in fuel for its power reactors.

- # Continue dissolution and processing of Mk 16/22s spent fuel.
- # Continue dissolution and processing of Sterling Forest Oxide cans (highly enriched uranium).
- # Complete refreshing and consolidating highly enriched uranium solution.
- # Continue monitored storage of depleted and enriched uranium solution.
- # Continue to dissolve plutonium residues in HB-Line, Phase I.
- # Startup HB-Line, Phase II and begin converting H-Area Pu-239 solutions to oxide.

Metrics	
Nuclear Materials *	* Metrics for PBSs SR-NM01 and SR-NM02 are combined. Separation of these metrics would create classified metrics.
Stabilized-Plutonium Residue (kg Bulk)	
Stabilized-Uranium in Other Forms (kg Bulk)	
Stabilized-Plutonium Metal/Oxides (containers)	
Key Milestones	
# Complete transfer of highly enriched uranium solution to double walled tank (September 2001).	
# Begin converting pre-existing H-Area Pu-239 solution to oxide (December 2001).	

SR-NM03 / Nuclear Material Storage Line Item	**8,433**	**8,857**	**0**

The Actinide Packaging and Stabilization subproject (S-6051), will be closed out as it has been canceled. The hole that exists for this planned, underground facility will be filled (Office of Materials Disposition determines mission usage) and financial closure will be completed. The K-Area Nuclear Material Storage subproject (S-W226) will be closed out after Phase III completion of expansion to 4,000 storage positions.

- # These funding levels include line-item construction funding of $4,000,000 in FY 2000; $0 in FY 2001; and $0 in FY 2002.
- # Complete close out of the project.

Key Milestones

(dollars in thousands)

	FY 2000	FY 2001	FY 2002
# Begin preliminary design for 235-F Stabilization subproject (August 2001).			

SR-NM04 / Canyon Exhaust Line Item 0 10,389 16,750

The Canyon Exhaust Line Item project, 92-D-140, replaces critical exhaust system components in both F and H Canyons. The canyon exhaust system controls radioactive contamination during normal operation and also provides protection against radioactive releases to the environment. This project replaces the aging critical electrical and mechanical exhaust equipment in both F- and H-Canyons consistent with the Savannah River Site Safety Criteria and Federal and State air exhaust and underground tank regulations. The project scope covers rerouting of the canyon recycle vessel vent systems; removes and replaces the six underground diesel fuel storage tanks; and, replaces the existing canyon exhaust fan and diesel houses, as well as two F-Canyon process vessel ventilation systems.

- # Complete construction; submit Authorization for Final Acceptance; and financially close out the project.
- # Complete the design and begin procurement and construction for replacement, repair, and upgrades to the old HB-Line ventilation system.
- # These funding levels include line-item construction funding of $0 in FY 2000; $8,859,000 in FY 2001; and $15,790,000 in FY 2002.

Key Milestones

- # Physical completion of H-Area Canyon Exhaust fans (June 2001).

SR-NM09 / 235-F Packaging and Stabilization 0 3,991 500

The Department of Energy committed, in the Implementation Plan for the Defense Nuclear Facilities Safety Board Recommendation 94-1, to meet the DOE Standard, Stabilization, Packaging, and Storage of Plutonium-Bearing Materials (DOE-STD-3013) by May 2002. While it was intended that the subproject, Actinide Packaging and Storage Facility, contained in Project 97-D-450, Nuclear Material Storage Project, would satisfy this need, DOE has canceled the Actinide Packaging and Storage Facility subproject. The 235-F Packaging and Stabilization project, is authorized to provide for thermal stabilization and packaging to meet DOE-STD-3013. The project includes installation of thermal stabilization and packaging equipment in Building 235-F. Modifications will be made to existing support equipment and services to accommodate the stabilization and packaging process.

- # Supports the planning and design documentation required to accomplish the Project Engineering and Design project.

	(dollars in thousands)		
	FY 2000	FY 2001	FY 2002
SR-PED / Preliminary Project Engineering and Design	**0**	**15,466**	**3,500**

This project will provide for Architect-Engineering (A-E) services (preliminary and final design) for the 235-F Packaging and Stabilization project. This allows the designated project to proceed from conceptual design into preliminary design and final design. The design effort will be sufficient to assure project feasibility, define the scope, provide detailed estimates of construction costs based on the approved design and working drawings and specifications, and provide construction schedules, including procurements. Conceptual design studies will be completed using operation and maintenance funds. The use of a Project Engineering and Design line-item will enable the project to proceed immediately upon completion of the conceptual design into preliminary and final designs. It will permit acceleration of design schedules, provide savings in construction costs based on current rates of inflation, and permit more mature cost, schedule, and technical baselines for projects when the budget is submitted. It will also be extensive enough so that construction can physically start or long-lead procurement items can be procured in the fiscal year in which appropriations are received.

Continue design of the 235-F Packaging and Stabilization project.

Total, Savannah River	**378,013**	**430,881**	**391,401**

Explanation of Funding Changes from FY 2001 to FY 2002

	FY 2002 vs. FY 2001 ($000)
SR-HL10 / H-Tank Farm Storm Water System Upgrades	
# Decrease in funding reflects completion of the construction line-item project in FY 2001. . .	-36
SR-HL11 / Tank Farm Support Services F-Area	
# Decrease in funding reflects the construction phase of the project nearing completion.	-2,587
SR-IN05 / Chlorofluorocarbon Heating, Ventilation and Air Conditioning Chiller Retrofit	
# Decrease in funding reflects completion of construction activities and financial closeout of project.	-8,309
SR-IN10 / Regulatory Monitoring and Bioassay Laboratory	
# Decrease in funding reflects the completion of construction.	-3,981
SR-NM01 / F-Area Stabilization Project	
# Insignificant decrease in funding (1.5 percent).	-3,071
SR-NM02 / H-Area Stabilization Project	
# Insignificant decrease in funding (2.2 percent).	-3,543

	FY 2002 vs. FY 2001 ($000)
SR-NM03 / Nuclear Material Storage Line Item	
# Decrease in funding reflects the cancellation of the Actinide Packaging and Storage Facility subproject and the completion of the K-Area Nuclear Material Storage Modification subproject.	-8,857
SR-NM04 / Canyon Exhaust Line Item	
# Increase in funding reflects critical safety upgrade of the old HB-Line ventilation system. . .	6,361
SR-NM09 / 235-F Packaging and Stabilization	
# Decrease in funding reflects higher priority program activities.	-3,491
SR-PED / Preliminary Project Engineering and Design	
# Decrease in funding reflects higher priority program activities.	-11,966
Total Funding Change, Savannah River	-39,480

Capital Operating Expenses & Construction Summary

Capital Operating Expenses

(dollars in thousands)

	FY 2000	FY 2001	FY 2002	$ Change	% Change
General Plant Projects	4,441	19,958	13,390	-6,568	-32.9%
Capital Equipment	13,171	9,196	16,727	7,531	81.9%
Total, Capital Operating Expense	17,612	29,154	30,117	963	3.3%

Construction Projects

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Appropriations	FY 2000	FY 2001	FY 2002	Unappropriated Balance
02-D-402 INTEC Cathodic Protection System Expansion, ID	6,000 [a]	0	0		3,256	2,245
01-D-407 Highly Enriched Uranium (HEU) Blend Down Project, SR	74,900	0	0 [b]	0 [c]	0 [c]	74,900
01-D-414 Environmental Management, Project Engineering and Design, VL	47,673	0	0	17,262 [d]	6,254	24,157
01-D-415 Packaging and Stabilization Project, SR	184,000 [e]	0	0	3,991 [f]	0	164,543

[a] The total estimated cost includes $499,000 which was appropriated under line item 01-D-414, Project Engineering and Design.

[b] 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.

[c] This project was transferred to the Office of Fissile Materials Disposition in FY 2001.

[d] Reflects a reduction of $38,000 to support the FY 2001 rescission. The original appropriation was $17,300,000.

[e] The total estimated cost includes $15,466,000 which was appropriated under line item 01-D-414, Project Engineering and Design.

[f] Reflects a reduction of $9,000 to support the FY 2001 rescission. The original appropriation was $17,300,000.

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Appropriations	FY 2000	FY 2001	FY 2002	Unappropriated Balance
99-D-402 Tank Farm Support Services, F&H Area, SR	18,582	2,745	3,100	7,697 [a]	5,040	0
99-D-404 Health Physics Instrumentation Laboratory, ID	12,777	950	4,836 [b]	4,291 [c]	2,700	0
98-D-401 H-Tank Storm Water Systems Upgrade, SR	7,097	4,120	2,977	0	0	0
98-D-453 Plutonium Stabilization and Handling System for PFP, RL	35,096	11,950	14,550 [d]	6,686 [e]	1,910	0
98-D-700 INEEL Road Rehabilitation, INEEL	10,751	8,210	2,541 [f]	0	0	0
97-D-450 Savannah River Nuclear Material Storage, SR	76,744	72,744	4,000	0	0	0
97-D-470 Regulatory Monitoring and Bioassay Laboratory, SR	31,260	15,100	12,220	3,940 [g]	0	0
96-D-406 Spent Nuclear Fuels Canister Storage and Stabilization Facility, RL	188,537	167,596	20,941	0	0	0
96-D-464 Electrical and Utility Systems Upgrade, INEEL	52,802	40,831	11,971	0	0	0
96-D-471 CFC HVAC/Chiller Retrofit, SR	44,200	26,541	931	12,484 [h]	4,244	0

[a] Reflects a reduction of $17,000 to support the FY 2001 rescission. The original appropriation was $7,714,000

[b] Reflects reduction of $164,232 to support an FY 2000 reprogramming for Laboratory Directed Research and Development. The original appropriation was $5,000,000.

[c] Reflects a reduction of $9,000 to support the FY 2001 rescission. The original appropriation was $4,300,000.

[d] 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.

[e] Reflects FY 2001 $5,000,000 internal reprogramming to accelerate equipment installation from the outyears and a reduction of $4,000 to support the FY 2001 rescission. The original appropriation was $1,690,000.

[f] Reflects reduction of $48,816 to support an FY 2000 reprogramming for Laboratory Directed Research and Development. The original appropriation was $2,590,000.

[g] Reflects a reduction of $9,000 to support the FY 2001 rescission. The original appropriation was $3,949,000.

[h] Reflects a reduction of $28,000 to support the FY 2001 rescission. The original appropriation was $12,512,000.

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Appropriations	FY 2000	FY 2001	FY 2002	Unappropriated Balance
92-D-140 F&H Canyon Exhaust Upgrades, SR	79,395	47,567	0	8,859 [a]	15,790	7,179
86-D-103 Decontamination and Waste Treatment Facility, LLNL	62,362	57,623	2,000	1,977 [b]	762	0
Subtotal, Construction Funded		455,977	80,067	67,187	39,956	273,024
Operating Expense Funded						
99-EXP Laboratory Facilities Roof and Shielded Area Restoration, 773-A & 772-F, SR [c]	14,530	2,001	4,213 [d]	1,616	1,616	5,084
96-EXP Americium/Curium Vitrification, SR	67,046	13,544	12,350	19,435	13,679	8,038
Subtotal, Operating Expense Funded		15,545	16,563	21,051	15,295	13,122
Total, Project Funding		471,522	96,630	88,238	55,251	286,146

[a] Reflects a reduction of $20,000 to support the FY 2001 rescission. The original appropriation was $8,879,000.

[b] Reflects transfer of $19,000 in FY 2001 to the Office of Security and Emergency Operations to support the safeguards and security activities with this project and a reduction of $4,000 to support the FY 2001 rescission. The original appropriation was $2,000,000.

[c] 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.

[d] 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.

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

(Changes from FY 2001 Congressional Amendment are denoted with a vertical line [|] in the left margin.)

Significant Changes

The Total Project Cost has been reduced by $20,000; $19,000 to support safeguard and security activities and $1,000 to support an FY 2001 rescission.

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 2001	2Q 2002	3Q 2002	4Q 2004	6,000	6,709
FY 2002 Budget Request (*Preliminary Estimate*)	2Q 2001	2Q 2002	3Q 2002	4Q 2004	6,000	6,689

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
2001 (PED-01-D-414)	499 [a]	499	350
2002	3,256	3,256	1,856
2003	1,119	1,119	2,644
2004	1,126	1,126	1,150

[a] Reflects an FY 2001 rescission of $1,000. The original appropriation was $500,000. The design funds are requested in the Project Engineering and Design data sheet, Project 01-D-414 (Subproject 01-01).

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 provide reliable cathodic protection as necessary to prevent underground system failures, environmental contamination, and impacts to meeting the Idaho Settlement Agreement. The project will be designed and constructed using standard components and techniques, incorporating improvements in technology that have occurred over the years. Since the scope of the project is well-defined and standard components and subsystems will be used to upgrade the system, the risk of significant changes in the preliminary baseline are relatively low.

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-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 recommendation to replace all anodes that have over five years of service as recommended by cathodic protection/corrosion engineers. A study is planned during the design phase to effectively determine the life expectance of anodes at the Idaho Nuclear Technology Engineering Center.

The vessels and piping in the 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 transfer lines in the Tank Farm and the Dry Fuel Storage Area could release into the soil high level radioactive wastes. These 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 the 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 the 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 the Idaho Nuclear Technology Engineering Center. This protection shall be provided in accordance with the most recent edition of National Association of Corrosion 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 preliminary 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 the 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 [a]

(dollars in thousands)

	Current Estimate	Previous Estimate
Design Phase [b]		
Preliminary and final design costs (design drawings and specifications)	327	308
Design management costs (0.5% of TEC)	30	31
Project management costs (3.2% of TEC)	190	192
Total, Design Costs (9.1% of TEC)	547	531
Construction Phase		
Improvements to Land	15	15
Utilities (Cathodic Protection)	2,766	2,766
Removal cost less salvage	10	10
Inspection, Design and Project Liaison, Testing, Checkout and Acceptance	460	460
Construction management costs (11.0% of TEC)	660	660
Project management costs (7.6% of TEC)	458	458
Total, Construction Costs	4,369	4,369
Contingencies		
Design Phase (0.9% of TEC)	57	73
Construction Phase (17.1% of TEC)	1,027	1,027
Total, Contingency (18.0% of TEC)	1,084	1,100
Total, Line Item Costs (TEC)	6,000	6,000

The level of confidence for completing this project within the cost range of $6,000,000 to $8,000,000 for the Total Estimated Cost identified in the Project Engineering and Design datasheet 01-D-414 is high. The preliminary design initiated in FY 2001 is expected to verify the preliminary estimates, since the scope is well defined and standard components and subsystems will be used to upgrade existing systems.

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[a] 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%; FY 2002-2.4%; FY 2003-2.8%, and FY 2004-2.9% based on Anticipated Economic Escalation Rates for DOE Construction Projects.

[b] The design funds are requested in the Project Engineering and Design data sheet, Project 01-D-414 (Subproject 01-01).

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 the INTEC Programs Division 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.

Bechtel BWXT, LLC (BBWI), as the operating contractor, will provide project management services to coordinate all project activities. BBWI will be responsible for the development of the projects technical requirements, completion of the Architectural and Engineering design, review and management of the engineering and construction activities, construction subcontracting, coordination of the activities of construction subcontractors, system operability testing, and turnover of the completed project.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 2000	FY 2001	FY 2002	Outyears	Total
Project Cost						
Facility Cost						
Design [a], [b]	0	0	350	131	123	604
Construction	0	0	0	1,725	3,671	5,396
Total Facility Cost	0	0	350	1,856	3,794	6,000
Other Project Cost						
Conceptual design costs	133	0	0	0	0	133
NEPA and Cathodic Alternatives Study	0	75	0	0	0	75
Other project-related costs	0	22	84	125	250	481
Total other project costs	133	97	84	125	250	689
Total, Project Costs	133	97	434	1,981	4,044	6,689

[a] The design costs are requested in the Project Engineering and Design data sheet, Project 01-D-414 (Subproject 01-01).

[b] 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) Task Baseline Development of the Title Design; (2) development of Project Execution Plan; (3) radiation control (technical) support; (4) NEPA Documentation; (5) design and constructibility reviews; (6) operating contractor/operator project support during construction; (7) preliminary construction management planning; (8) System Operability testing; (9) decontamination costs; (10) quality level determinations; (11) development of operational procedures, testing and startup; (12) preliminary safety analyses and reports; (13) readiness reviews for startup and operations; (14) security/escorts; (15) training of operating and maintenance personnel; (16) operations support for system outages; (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
Related annual costs (estimated life of project -- 30 years) [a]		
Annual utility costs	6	6
Annual facility operating costs	180	180
Facility maintenance and repair costs	30	30
Total related annual funding	216	216
Total operating costs (operating from 2004 through 2033)	6,480	6,480

[a] Related annual costs: Annual Facility Operating Costs – Includes operating labor costs and maintenance costs for required monthly system evaluations and documentation by facility engineer and miscellaneous other support such as supervision and administrative support. Total FTE of 1.5. Utility Costs - Addresses cover 7.5 kwh/h x 8760 x .082 $/kwh. Facility Maintenance Costs - includes the cost of 2 repairs per year @ $10K each and $5K materials.

01-D-414, Environmental Management, Project Engineering and Design (PED), Various Locations

Significant Changes

In FY 2001 the Conference Committee supported the establishment of an Office of Engineering and Construction Management to strengthen its project management capabilities. As part of the FY 2002 budget request, the Committee directed the Department to submit a line item Project Engineering and Design project data sheet for each program area which anticipates funding new construction projects in future budgets. This line item project data sheet supports architect-engineering services preliminary and final design for the period FY 2001-FY 2005.

1. Schedule History

	Fiscal Quarter				Total Estimated Cost ($000)
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete	
FY 2001 Congressional Amendment *(Preliminary and Final Design Only)*	1Q 2001	3Q 2003	N/A	N/A	64,724
FY 2002 Budget Request *(Preliminary and Final Design Only)*	"	"	"	"	47,673

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
2001	17,262 [a]	17,262	10,571
2002	6,254	6,254	12,722
2003	20,707	20,707	20,873
2004	3,450	3,450	3,507

[a] Reflects a reduction of $38,000 to support the FY 2001 rescission. The original appropriation was $17,300,000.

3. Project Description, Justification and Scope

This construction project data sheet summarizes the Environmental Management requirements for architect-engineering services preliminary design and final design for several projects. This data sheet outlines projects which will be proceeding from conceptual design into preliminary design and final design. The design effort will be sufficient to assure project feasibility, define the scope, provide detailed estimates of construction costs based on the approved design and working drawings and specifications, and provide construction schedules including procurements.

As outlined in the FY 2001 House and Senate Energy and Water Development Appropriations Bills report language, both committees support the Department in requesting "project engineering and design" funds for the purpose of achieving a 30-35 percent level of engineering design for new construction projects, prior to providing data to the Congress in support of construction funding. Such an advanced design should provide a more mature technical and cost baseline, ensuring greater likelihood of achieving project cost and schedule adherence.

Conceptual design studies are prepared for each project using operations and maintenance funds. These studies define the scope of the project and produce a rough cost estimate and schedule. Currently they are completed 9-12 months before a Congressional budget is submitted requesting line item funding for a project. The effect of this process is that the conceptual design study is at least 24 months old by the time a line-item appropriation for the project is enacted. Also, the past procedure has forced the program manager to "baseline" the design and construction costs and schedules based only on a conceptual design. The use of project engineering and design funds will: 1) enable a project to proceed immediately upon completion of the conceptual design into preliminary and final designs because only the design funds are requested, 2) provide a range for the construction cost and schedule, 3) permit acceleration of new facilities providing savings in construction costs based on current rates of inflation, and 4) permit more mature cost, schedule, and technical baselines for projects when the construction funds are requested from the Congress.

Following completion of preliminary design activities, Environmental Management personnel will determine preliminary project baselines and provide detailed funding and schedule estimates for final design, physical construction and procurements. In conformance with the guidelines currently being developed by the Department's Office of Engineering and Construction Management, at the completion of the preliminary design, the appropriate Department acquisition executive will request external independent reviews of the project requirements, scope, schedule, cost and budget. Based upon the results of this assessment, and a review of the continuing programmatic requirement for the project, the acquisition executive will either approve the project baseline and authorize proceeding to final design activities, defer the project or cancel the project.

The project baseline will be the basis for the request to Congress for authorization and appropriations for physical construction and procurement. The request will identify the project baseline and provide the acquisition executive approval to proceed with final design. For certain projects, in order to meet project schedules, construction and/or procurement activities may be required in the same year as the preliminary design, Project Baseline and Acquisition Executive approval is completed. For those projects, a report will be provided to Congress with the results of preliminary design, project baseline, external independent reviews and acquisition

executive approval. Long-lead project and/or construction start will not proceed until 30 days after the report has been submitted to Congress. Each project that proceeds to physical construction will be separated into an individual construction line item, the total estimated cost of which will identify the costs of the engineering and design activities funded through the project engineering and design account.

4. Details of Cost Estimate (Total PED)

(dollars in thousands)

	Current Estimate	Previous Estimate
Design Phase [a]		
Preliminary and Final Design Costs (Design Drawings and Specifications)	38,206	N/A
Design Management (Preliminary Design) Costs	5,067	N/A
Design Management (Final Design) Costs	10	N/A
Project Management (Preliminary Design) Costs	4,327	N/A
Project Management (Final Design) Costs	63	N/A
Total Design Costs	47,673	N/A

6. Schedule of Project Funding (Total PED)

(dollars in thousands)

	Prior Years	FY 2002	FY 2003	FY 2004	Outyears	Total
Facility Cost						
Design	10,571	12,722	20,873	3,507	0	47,673
Total PED	10,571	12,722	20,873	3,507	0	47,673
Other Project Costs [b]						
Conceptual Design Cost	4,173	0	0	0	0	4,173
NEPA Documentation Costs	80	0	0	0	0	80
Other Project-Related Costs	5,021	4,125	2,250	0	0	11,396
Total Other Project Costs	9,274	4,125	2,250	0	0	15,649
Total PED and Other Project Costs	19,845	16,847	23,123	3,507	0	63,322

[a] The Design Management and Project Management Costs are estimates based on historical records and are preliminary estimates. Any contingency reported in the FY 2001 budget is now included in the preliminary and final design costs.

[b] The other project costs include support for work package processing, waste characterization, facility design reviews, temporary modification design and control, and support of facility activities related to the project.

FY 2002 Proposed Design Project

02-01, Sitewide INEEL Information Network, Idaho National Engineering and Environmental Laboratory, Idaho

Preliminary Fiscal Quarter				Total Estimated Cost (Design Only $000)	Full Total Estimated Cost Projection ($000) [a]
A-E Work Initiated	A-E Work Completed	Physical Construction			
		Start	Complete		
1Q 2001	3Q 2001	1Q 2002	N/A	650	24,000 to 32,000

Fiscal Year	Appropriation	Obligations	Costs
2002	650	650	625 [a]
2003	0	0	25 [b]

The objective of the Sitewide Idaho National Environmental and Engineering Laboratory (INEEL) Information Network (SIINET) project is to maintain a capable and reliable communications infrastructure that supports the Department of Energy (DOE) missions at the INEEL and enables its workforce to fully utilize information technologies. Personnel health and safety, the Environmental Restoration and Waste Management (EM) mission, and national security are at jeopardy due to the age and capacity of the existing INEEL telecommunications network. In support of the EM mission and the health and safety of INEEL employees this network must remain operational for the next 35-40 years. Even with the projected funding and schedule profile, there is a high level of risk for total system failure prior to FY 2005. Further project delays are not acceptable.

The telecommunications networks that support internal and external communications are a critical resource for any business as well as the INEEL. All personnel, including offsite personnel, rely heavily upon the telecommunications system in supporting agreements, goals, milestones, and missions.

In 1992 (the time of the start of the last upgrade to the telecommunications system) there were approximately 800 local area network (LAN) connections across the INEEL site and the major telecommunications function was to support telephone systems. Currently there are over 8000 data connections to the network. In the past 2 years the data usage has more than quadrupled. More than 50 percent of the traffic over the INEEL telecommunications system is now computer generated. Two years from now projections are that the data

[a] The Full Total Estimated Cost Projection (design and construction) is a preliminary estimate based on conceptual data and should not be construed as a project baseline.

[b] Cost estimate is provided at total design costs. The ratio of 40:60 Preliminary to Final design is based on a historical average.

traffic will be seven times larger than telephone traffic. Adding to the demand for data transmission services is the improved methods for communications. In 1992 e-mail consisted of only simple text messages typed by the user. Today the e-mail system is capable of accepting rich text format attachments of unlimited size (computer generated graphics, digitized photographs, etc.). This increase in e-mail capability also increases demand on the system but improves efficiency and productivity by supporting offsite collaboration, video teleconferencing, security video transmission, and site research initiatives.

Research drivers utilizing the upgrades in intranet and internet capabilities include the Subsurface Science Initiative (SSI), Long-Term Environmental Stewardship Initiative, Waste Treatment and Disposition Initiative, Critical Infrastructure Program Initiative, and Clean Energy Demonstrations. High-speed connections to research collaborators at INRA, PNNL, NREL, Savannah River Site, ORNL, and supercomputer facilities in the complex are essential to achieving the goals outlined in the INEEL 2001-2005 Institutional Plan. The INEEL trunk radio system and paging systems have also been added to the telecommunications backbone.

Two independent networks at the INEEL provide access to communications systems within and between operating areas. Both networks provide access for voice, data, video, life safety, security, and facility management information.

FD-565 Access Network. The FD-565 network was the first access network at the INEEL. The FD-565 network is a DS-3 level T-carrier system and was the first access network at the INEEL, originally installed in 1986. The technology is outdated and the manufacturer has discontinued the system. An excessive spare parts inventory must be maintained to ensure availability. The repair cycle on failed components averages 6 to 8 weeks and the reliability of this system will degrade as available off-the-shelf used parts become scarce. Spare parts and technical support can be obtained only on a "best effort" basis until 2003, whereupon manufacturer support for the system will be discontinued completely.

The FD-565 network supports four basic functions: 1) Fire protection monitoring and reporting at the Central Facilities Area (CFA) fire station, 2) Power management for Idaho Nuclear Technology Engineering Center (INTEC), Test Area North (TAN), Test Reactor Area (TRA), and Naval Reactor Facility (NRF) substations, 3) Reporting capability for Site Security, and 4) Video teleconferencing. These functions support site operations and the probability of communications failures will increase with time because of lack of support and spare parts from the manufacturer.

Total failure of the FD-565 network would result in the following:

Fire Protection: Manpower intensive fire watches in numerous buildings would be required at NRF and TAN. Manual notification to the fire station would be required. Extended outages would violate DOE Orders, Occupational Safety and Health Act standards (OSHA), and National Fire Protection Association (NFPA) codes.

Power Management: Electronic monitoring of substation power distribution equipment at INTEC, TAN, TRA, and NRF substations would cease. Large, expensive, long lead procurement items (transformers, breakers, etc.) would be left substantially unprotected requiring a manpower intensive response. Power management personnel would be stationed in the substations at INTEC, TAN, TRA, and NRF to perform a physical watch

of the substation equipment. Personnel in the substations as directed via radio by the power dispatcher would conduct manual switching operations.

Security: Monitoring of various security systems would cease. DOE Orders require that special nuclear materials be protected at all times. Failure of the FD-565 network would require security personnel to execute compensatory measures to maintain security. Compensatory measures include calling out additional guard force personnel to maintain a continuous patrol around sensitive facilities and to man backup positions.

Video conferencing: This efficiency would be lost resulting in decreased productivity of site personnel.

SONET Access Network. The second access network is an OC-12 SONET ring network that is filled to capacity. The SONET carries much of the same information as the FD-565 and in addition carries all telephone and provides the long-haul carrier service for computer data information between the geographically separated Site and Town facilities.

The SONET backbone was commissioned (installed beginning in 1992 and completed in 1997) with the intent of replacing the older FD-565 backbone. Due to funding limitations, the network was never adequately sized for the application. Also in 1992, the OC-12 system was relatively new and considered a state-of-the-art transmission vehicle. Since that time fiber optic transmission capacity has grown by a factor of 64 (OC-768) and beyond. This additional capacity has spawned new applications and uses for networks (intranet, extranet, inernet, etc.) that were unimaginable a few years ago. The funding limitation and growth of network demand forced the INEEL to retain the outdated FD-565 network. The SONET is running at 90 percent of capacity and does not have the ability to make up for the loss of the FD-565 network. If approved as scheduled, the systems installed by the SIINET project will be operational in 2006. The OC-12 SONET ring will have been in service an average of 12 years at that time and will be similar in age to the current FD-565 network. Past history shows and current projections into the future indicate that the need for information in support of INEEL missions will continue to increase. The existing SONET network cannot fill that need.

The SIINET conceptual design calls for replacing both systems and integrating the management of separate voice and data systems. Under this design the principal asset of the system, the fiber backbone, will remain in place. Both the FD-565 and OC-12 networks use government-owned fiber optic cable (96 miles of cable) that will be reused as part of the SIINET Project. No new wide-area cable facilities will be required.

Subject matter experts from LMI, who performed an extensive technical review at the INEEL, concluded that the project “satisfies mission need and should proceed.” They noted that the current system risk “degraded reliability” and “cannot support future growth.” A peer review by the Nevada Test Site, and an external independent review by LMI conclude that the existing networks cannot be expanded and both need to be replaced to ensure that the INEEL will continue to have viable and capable communication capabilities.

An economic analysis performed by the project indicates that because of the potential losses that could occur if the old systems are not updated, the cost recovery period would be on the order of 2 to 3 years.

Some of the existing site network equipment is housed in buildings built in the 1950s and 1960s. These buildings were not designed or constructed to house high capacity and sensitive electronic equipment. An inspection of one of the dial rooms revealed several violations to OSHA standards and National Electrical Code (NEC)

codes including: loose and friable asbestos, poor designed cable vault hatches that present safety hazards, and electrical and electronic equipment without required working clearances (safety risk). Other dial rooms lack space to install any additional equipment. Two of the twelve dial rooms will be replaced and others will be expanded or modified.

As a further consideration, high-performance computing, scientific and engineering research, computational science, and a spectrum of interactions among people at dispersed sites are critical to the success of the INEEL. Access to the network is an indispensable part of the INEEL programs and is essential for conducting day-to-day work activities. All INEEL programs rely on the existing networks to sustain programmatic missions, increase operational efficiencies, and improve the delivery of information. Modern, reliable communications must be sustained if INEEL programs are to conduct work in a safe, secure, reliable, timely, and cost-effective manner.

Compliance with Project Management Order

- Critical Decision - 0: Mission Need completed August 25, 1998.
- Critical Decision - 1: Conceptual Design/Preliminary Baseline September 14, 1999.
- External Independent Review: April 14, 2000 by LMI.

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
Design Phase		
Preliminary Costs (Design Drawings and Specifications)	284	N/A
Final Costs (Design Drawings and Specifications)	244	N/A
Design Management (Preliminary Design) Costs *	7	N/A
Design Management (Final Design) Costs *	10	N/A
Project Management (Preliminary Design) Costs **	42	N/A
Project Management (Preliminary Design) Costs **	63	N/A
Total, Design Costs	650	N/A

* Design management and Project management costs are consistent with FAR 52.230.2 CAS Disclosure Statement (Public Law 100-679) for BBWI charging practices at the INEEL, which establishes direct and indirect charging practices. Design and Project management estimates above are direct charges to this project. Other sites may have different CAS Disclosure Statements.

** Project management includes activities for the project manager, design reviews, project document control, project manager supervisors, cost estimating, and conduct of operations (Standard 101 work package). The BBWI preliminary and final design Project management estimate is based on historical actuals and is consistently applied to INEEL PED data sheets.

There is high confidence in the cost estimate based on historical site data.

5. Method of Performance

Design services will be obtained through a competitive and/or negotiated contract issued by the Management and Operating contractor. Management and operating contractor staff may be utilized in areas involving security, production, proliferation, etc. concerns.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 2002	FY 2003	FY 2004	Outyears	Total
Facility cost						
PED	0	625	25	0	0	650
Total Project Costs (TPC)	0	625	25	0	0	650

Ongoing PED Design Projects

01-01, INTEC Cathodic Protection System Expansion Project, INEEL, Idaho Falls, Idaho

Preliminary Fiscal Quarter				Total Estimated Cost (Design Only $000)	Full Total Estimated Cost Projection ($000) [a]
A-E Work Initiated	A-E Work Completed	Physical Construction			
		Start	Complete		
2Q 2001	3Q 2001	3Q 2002	N/A	603	6,000 to 8,000

Fiscal Year	Appropriation	Obligations	Costs
2001	499 [b]	499	331 [c]
2002	104	104	131

[a] The Full Total Estimated Cost Projection (design and construction) is a preliminary estimate based on conceptual data and should not be construed as a project baseline.

[b] Reflects a reduction of $1,000 to support the FY 2001 rescission. The original appropriation was $500,000.

[c] Cost estimate is provided at total design costs. The ratio of 40:60 Preliminary to Final design is based on a historical average.

2003	0	0	141

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 provide reliable cathodic protection as necessary to prevent underground system failures, environmental contamination, and impacts to meeting the Idaho Settlement Agreement. The project will be designed and constructed using standard components and techniques, incorporating improvements in technology that have occurred over the years. Since the scope of the project is well-defined and standard components and subsystems will be used to upgrade the system, the risk of significant changes in the preliminary baseline are relatively low.

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-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 recommendation to replace all anodes that have over five years of service as recommended by cathodic protection/corrosion engineers. A study is planned during the design phase to effectively determine the life expectance of anodes at the Idaho Nuclear Technology Engineering Center.

The vessels and piping in the 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 transfer lines in the Tank Farm and the Dry Fuel Storage Area could release into the soil high level radioactive wastes. These 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 the 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 the 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 the Idaho Nuclear Technology Engineering Center. This protection shall be provided in accordance with the most recent edition of National Association of Corrosion 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 preliminary 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 the 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.

Compliance with Project Management Order

- Critical Decision - 0: Mission Need approved July 28, 1998.
- Critical Decision - 1: Planned for 3rd Quarter 2001.
- External Independent Review: Completed August 15, 2000, by LMI.

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
Design Phase [a]		
Preliminary Costs (Design Drawings and Specifications)	180	198
Final Costs (Design Drawings and Specifications)	203	185
Design Management (Preliminary Design) Costs *	12	12
Design Management (Final Design) Costs *	18	18
Project Management (Preliminary Design) Costs **	76	76
Project Management (Final Design) Costs **	114	114
Total, Design Costs	603	603

* Design management and project management costs are consistent with FAR 52.230.2 CAS Disclosure Statement (Public Law 100-679) for Bechtel BWXT Idaho, LLC (BBWI) charging practices at the INEEL, which establishes direct and indirect charging practices. Design and Project management estimates above are direct charges to this project. Other sites may have different CAS Disclosure Statements.

** Project management includes activities for the project manager, design reviews, project document control, project manager supervisors, cost estimating, and conduct of operations (Standard 101 work package). The BBWI preliminary and final design project management estimate is based on historical actuals and is consistently applied to INEEL Project Engineering and Design data sheets.

There is high confidence in the cost estimate based on historical site cost data.

5. Method of Performance

Design services will be obtained through competitive and/or negotiated contracts. Management and operating contractor staff may be utilized in areas involving security, production, proliferation, etc. concerns.

[a] Any contingency reported in the FY 2001 budget is now included in the preliminary and final design costs.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 2002	FY 2003	FY 2004	Outyears	Total
Facility Cost						
Preliminary Design	286	0	0	0	0	286
Final Design	45	131	141	0	0	317
Total PED	331	131	141	0	0	603
Other Project Costs [a]						
Conceptual Design Cost	133	0	0	0	0	133
NEPA Documentation Costs	75	0	0	0	0	75
Other Project-Related Costs	126	125	250	0	0	501
Total Other Project Costs	334	125	250	0	0	709
Total PED and Other Project Costs	665	256	391	0	0	1,312

01-02, Immobilized High-Level Waste Interim Storage Facility, ORP, Richland, Washington

A-E Work Initiated	A-E Work Completed	Physical Construction		Total Estimated Cost (Design Only $000)	Full Total Estimated Cost Projection ($000) [b]
		Start	Complete		
4Q 2001	4Q 2004	4Q 2004	2Q 2007	11,420	81,300 to 109,100

Fiscal Year	Appropriation	Obligations	Costs
2001	1,297 [c]	1,297	1,240
2002	2,000	2,000	2,000
2003	4,673	4,673	4,673
2004	3,450	3,450	3,507

[a] The other project costs include support for work package processing, waste characterization, facility design reviews, temporary modification design and control, and support of facility activities related to the project.

[b] The Full Total Estimated Cost Projection (design and construction) is a preliminary estimate based on conceptual data and should not be construed as a project baseline.

[c] Reflects a reduction of $3,000 to support the FY 2001 rescission. The original appropriation was $1,300,000.

This design subproject is requesting the second year of funding which provides preliminary and final architect-engineering services associated with the Immobilization High-Level Waste Interim Storage Facility at Richland. Preliminary Design is expected to be completed by September 2002. Funding will be requested for long-lead procurement in FY 2003.

The Immobilized High-Level Waste Interim Storage Facility will install systems, structures, and components in vaults 2 and 3 of the Canister Storage Building to enable receipt and storage of immobilized high-level waste. This project also includes a system for transporting immobilized high-level waste canisters from the Waste Treatment and Immobilization Plant to the Canister Storage Building.

Critical Decision 0, Approved Mission Need, was completed in December 1996 through the Energy Systems Acquisition Review Process with DOE/HQ approval. The Conceptual Design Report for the project was completed in April 1998. Critical Decision 0 and the Conceptual Design Report were completed under DOE O430.1A. Validation of the FY 2001 budget request occurred May 25, 1999, and is cited as Critical Decision 1, although that doesn't exist under DOE O430.1A. Remaining Critical Decisions will be completed under the requirements of DOE O413.3.

Compliance with Project Management Order

- Critical Decision - 0: Mission Need Completed December 26, 1996.
- Critical Decision - 1: Conceptual Design/Preliminary Baseline May 25, 1999.
- External Independent Review: Site Review final report issued on May 5, 2000.

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
Design Phase [a]		
Preliminary and Final Design Costs (Design Drawings and Specifications)	9,120	8,895
Design Management (Preliminary Design) Costs	620	385
Project Management (Preliminary Design) Costs	1,680	1,340
Total Design Costs	11,420	10,620

The Design Management and Project Management Costs are estimates based on historical records and are preliminary estimates. The estimate is based on a conceptual design; therefore, there is a moderate degree of confidence in the estimate.

[a] Any contingency reported in the FY 2001 budget is now included in the preliminary and final design costs.

5. Method of Performance

The CH2M Hill Hanford Group will manage the project for the Office of River Protection. A design agent from the onsite architect/engineer pool will perform preliminary design and engineering and inspection during the construction of the Immobilized High-Level Waste Interim Storage Facility Project. Detailed design and construction will be performed by a competitively selected architect-engineer/construction manager with fixed-price contracts utilized to the maximum extent possible.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 2002	FY 2003	FY 2004	Outyears	Total
Facility Cost						
Design	1,240	2,000	4,673	3,507	0	11,420
Total PED	1,240	2,000	4,673	3,507	0	11,420
Other Project Costs [a]						
Conceptual Design Cost	1,040	0	0	0	0	1,040
NEPA Documentation Costs	5	0	0	0	0	5
Other Project-Related Costs	895	0	0	0	0	895
Total Other Project Costs	1,940	0	0	0	0	1,940
Total PED and Other Project Costs	3,180	2,000	4,673	3,507	0	13,360

[a] The other project costs include support for work package processing, waste characterization, facility design reviews, temporary modification design and control, and support of facility activities related to the project.

01-03, 235-F Packaging and Stabilization Project, Savannah River Site, Aiken, South Carolina

A-E Work Initiated	A-E Work Completed	Physical Construction		Total Estimated Cost (Design Only $000)	Full Total Estimated Cost Projection ($000) [a]
		Start	Complete		
2Q 2001	2Q 2004	2Q 2004	1Q 2008	35,000	112,000 to 184,000

Fiscal Year	Appropriation	Obligations	Costs
2001	15,466 [b]	15,466	9,000
2002	3,500	3,500	9,966
2003	16,034	16,034	16,034

In the Implementation Plans for Defense Nuclear Facilities Safety Board Recommendations 94-1 and 2000-1, the Department of Energy committed to meet DOE -STD-3013, Packaging and Storage of Plutonium Bearing Materials. While it was intended that the Actinide Packaging and Storage Facility subproject, part of the 97-D-450, Nuclear Materials Storage Project, would satisfy this need, DOE has canceled the Actinide Packaging and Storage Facility subproject. The 235-F Packaging and Stabilization project will provide the packaging and stabilization capability in Building 235-F.

Upon completion of the conceptual design, Congressionally approved FY 2001 funding in the Project, Engineering and Design, Various Locations (subproject 01-03), data sheet is being used to initiate the preliminary design. The FY 2002 request will be used to initiate final design.

The Critical Decision-1, Approved Preliminary Baseline Range, under DOE Order 413.3, Program and Project Management for the Acquisition of Capital Assets, was approved via an ESAAB presentation to the Assistant Secretary for Environmental Management on February 13, 2001. Preliminary design was authorized to start on February 13, 2001. The associated long-lead procurement and construction funding is requested through a construction line-item project data sheet, 01-D-415, 235-F Packaging and Stabilization project.

[a] The Full Total Estimated Cost Projection (design and construction) is a preliminary estimate based on conceptual data and should not be construed as a project baseline.

[b] Reflects a reduction of $34,000 to support the FY 2001 rescission. The original appropriation was $15,500,000.

Compliance With Project Management Order

- Critical Decision - 0: Mission Need was approved June 2, 2000.
- Critical Decision - 1: Preliminary Baseline Range was approved February 13, 2001.
- Critical Decision - 2: Performance Baseline to be approved July 2002.
- External Independent Review: Planned for January 2002.

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
Design Phase [a]		
Preliminary and Final Design Costs (Design Drawings and Specifications)	28,175	39,421
Design Management (Preliminary Design) Costs	4,410	10,559
Project Management (Preliminary Design) Costs	2,415	3,520
Total Design Costs	35,000	53,500

This design cost estimate has a medium to high degree of confidence.

5. Method of Performance

Design services will be obtained through competitive and/or negotiated contracts. Management and operating contractor staff may be utilized in areas involving security, production, proliferation, etc. concerns.

[a] Any contingency reported in the FY 2001 budget is now included in the preliminary and final design costs.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 2002	FY 2003	FY 2004	Outyears	Total
Facility Cost						
Design	9,000	9,966	16,034	0	0	35,000
Total PED	9,000	9,966	16,034	0	0	35,000
Other Project Costs [a]						
Conceptual Design Cost	3,000	0	0	0	0	3,000
NEPA Documentation Costs	0	0	0	0	0	0
Other Project-Related Costs	4,000	4,000	2,000	0	0	10,000
Total Other Project Costs	7,000	4,000	2,000	0	0	13,000
Total PED and Other Project Costs	16,000	13,966	18,034	0	0	48,000

[a] The other project costs include support for work package processing, waste characterization, facility design reviews, temporary modification design and control, and support of facility activities related to the project. (Does not include funding data on all subprojects. This section will be updated prior to finalization.)

01-D-415, 235-F Packaging and Stabilization Project, Savannah River Site, Aiken, South Carolina (SR-NM09)

(Changes from FY 2001 Congressional Notification are denoted with a vertical line [|] in the left margin.)

Significant Changes

Conceptual Design was completed in January 2001. The Preliminary Baseline Range results are included.

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 Congressional Amendment [a]	3Q 2001	3Q 2003	3Q 2003	2Q 2007	70,000 to 180,000 [a]	TBD
FY 2002 Budget Request (Preliminary Estimate)	2Q 2001	2Q 2004	2Q 2004	1Q 2008	184,000 [b]	250,000

[a] All data based on a parametric analysis during the pre-conceptual phase. Preliminary and final design costs of $53,500,000 included in Project 01-D-414, Project Engineering and Design (subproject 01-03). $126,000,000 is required for construction of long-lead procurement.

[b] Total estimated cost data is based on completion of the conceptual design. Preliminary and final design costs of $35,000,000 included in Project 01-D-414, Project Engineering and Design (subproject 01-03). Funds in the amount of $149,000,000 are required for construction and long-lead procurement.

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Cost
2001	3,991 [a b c]	3,991	3,991
2001 (PED)	15,466 [d]	15,466	9,009
2002	0	0	0
2002 (PED)	3,500	3,500	9,957
2003	24,009	24,009	24,009
2003 (PED)	16,034	16,034	16,034
2004	47,000	47,000	44,000
2005	42,000	42,000	42,000
2006	32,000	32,000	32,000
2007	0	0	3,000

3. Project Description, Justification and Scope

In the Implementation Plans for the Defense Nuclear Facilities Safety Board Recommendation 94-1 and 2000-1, the Department of Energy committed to meet DOE-STD-3013, Standard, Stabilization, Packaging, and Storage of Plutonium-Bearing Materials. This project will provide for thermal stabilization and packaging to meet DOE-STD-3013. The project includes installation of thermal stabilization and packaging equipment in Building 235-F. Modifications will be made to existing support equipment and services to accommodate the stabilization and packaging process.

In FY 2002, funding in Project 01-D-414, Project Engineering and Design, (subproject 01-03), will be utilized to continue design of building modifications and design on the Plutonium Stabilization and Packaging System.

[a] For long-lead procurement.

[b] Reflects an FY 2001 Rescission of $9,000. The original appropriation was $4,000,000.

[c] Cost will be incurred contingent upon approval of long-lead procurement by the acquisition executive as required in DOE Order 413.3.

[d] Reflects an FY 2001 Rescission of $34,000. The original appropriation was $15,500,000.

Compliance with Project Management Order

- Critical Decision - 0: Mission Need was approved June 2000.
- Critical Decision - 1: Preliminary Baseline Range was approved February 2001.
- An External Independent Review is planned for January 2002.
- Critical Decision - 2: Performance Baseline to be approved July 2002.

4. Details of Cost Estimate [a]

(dollars in thousands)

	Current Estimate	Previous Estimate
Design Phase [b]		
Preliminary and final design costs	25,500	28,000
Design management costs	6,000	7,500
Project management costs	3,500	2,500
Total, engineering, design, inspection, and administration of construction costs	35,000	38,000
Construction Phase		
FY 2001 Advance Procurement	4,000	4,000
FY 2002 Advance Procurement	0	0
Outyear Advance Procurement	26,000	TBD
Construction	119,000	TBD
Total, Construction Costs	149,000	TBD
Total, Line Item Costs (TEC)	184,000	180,000

The design management and project management costs are estimates based on historical data. The current estimate is based on completion of the conceptual design. This estimate has a medium to high degree of confidence.

[a] The 235-F Packaging and Stabilization project will be baselined at completion of preliminary design. Current estimate is based on completion of conceptual design.

[b] Design phase costs are included in project 01-D-414, Project Engineering and Design (subproject 01-03).

5. Method of Performance

Design, construction, and procurement may be accomplished by the Management and Operating contractor. Specific scopes of work within this project may be accomplished by fixed-price contracts awarded on the basis of competitive bidding.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 2000	FY 2001	FY 2002	Outyears	Total
Project Cost						
Facility Cost						
Design	0	0	9,009	9,957	16,034	35,000 [a]
Construction	0	0	3,991 [b]	0	145,009	149,000
Total Facility Costs	0	0	13,000	9,957	161,043	184,000
Other Project Costs						
R&D necessary to complete project	0	0	0	0	0	0
Conceptual design costs	0	800	2,000	0	0	2,800
Other project-related costs (Construction & Long Lead Proc.)	0	0	2,000	0	57,200	59,200
Other project-related costs (PED) [a]	0	0	0	500	3,500	4,000
Total other project costs	0	800	4,000	500	60,700	66,000
Total, Project Costs	0	800	17,000	10,457	221,743	250,000

7. Related Annual Funding Requirements

(dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs	20,000	N/A
Annual facility maintenance/repair costs	3,000	N/A
Annual utility costs	8,000	N/A

[a] These design costs are requested in the Project Engineering and Design data sheet, Project 01-D-414.

[b] Supports long-lead procurement.

Total related annual funding (operating from *FY 2007 through FY 2018*) [c]	31,000	N/A

[a] Related Annual Funding Requirements are based on parametric analysis completed during the preconceptual design. Includes security costs.

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

(Changes from FY 2001 Congressional Budget Request are denoted with a vertical line [|] in the left margin.)

Significant Changes

The total estimated cost and other project cost estimate has been reduced by $17,000 and $1,059,000, respectively, due to lower costs associated with final design support, construction efforts, and permitting.

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 1999 Budget Request *(Preliminary Estimate)*	2Q 1999	2Q 2000	3Q 2000	3Q 2002	22,073	32,014
FY 2000 Budget Request *(Preliminary Estimate)*	"	"	"	"	18,599	23,966
FY 2001 Budget Request *(Preliminary Estimate)*	"	"	"	"	"	23,937
FY 2002 Budget Request (*Preliminary Estimate)*	"	1Q 2000	"	"	18,582	22,861

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
1999	2,745	2,745	534
2000	3,100	3,100	1,514
2001	7,697 [a]	7,697	10,200
2002	5,040	5,040	6,334

[a] Reflects an FY 2001 Rescission of $17,000. The original appropriation was $7,714,000.

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, 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 60 repairs of underground piping in F-Area have been required at a cost of $6 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 2002 funds will be used to complete 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).

| Compliance with Project Management Order

| • Critical Decision - 0: Completed - March 1996

| • Critical Decision - 1: Completed - March 1998

| • Critical Decision - 2: Completed - July 1999

| • Critical Decision - 3: Completed - June 2000

| • Critical Decision - 4: Scheduled for - September 2002

| • External Independent Review: Completed - February 1999; review completed by Burns & Roe.

|

4. Details of Cost Estimate [a]

(dollars in thousands)

	Current Estimate	Previous Estimate
Design phase		
Preliminary and final design costs (5.3% of total estimated cost (TEC))	993	453
Design management costs	130	121
Project management costs	186	192
Total, engineering, design, inspection, and administration of construction costs (7.0% of TEC)	1,309	766
Construction phase		
Utilities (55,000 feet of rack mounted service piping @ approximately $226/ft.)	12,128	12,770
Inspection, design and project liaison, testing, checkout and acceptance	336	336
Construction management costs (5.4% of TEC)	1,005	1,005
Project management costs (3.9% of TEC)	724	724
Total, construction costs	14,193	14,835
Contingencies		
Design phase (1.3% of TEC)	245	245
Construction phase (15.3% of TEC)	2,835	2,753
Total, contingencies (16.6% of TEC)	3,080	2,998
Total, line item costs (TEC)	18,582	18,599

The project team has a high level of confidence in the estimate.

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. Increase in contingency is due to efficiencies identified.

[a] 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 2000	FY 2001	FY 2002	Total
Project cost					
Facility cost					
Design	534	1,020	0	0	1,554
Construction	0	494	10,200	6,334	17,028
Total facility costs (Federal and Non-Federal)	534	1,514	10,200	6,334	18,582
Other project costs					
Conceptual design cost	489	0	0	0	489
Plant Engineering and Design	375	708	469	759	2,311
Other project-related costs [a]	529	255	546	149	1,479
Total other project costs	1,393	963	1,015	908	4,279
Total project costs (TPC)	1,927	2,477	11,215	7,242	22,861

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 *(operating from FY 2003 through FY 2028)*	200	400

[a] In FY 2000, $963,000 will be used to support final design, construction efforts and permitting; $1,923,000 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 2001 Congressional Budget Request are denoted with a vertical line [|] in the left margin.)

Significant Changes

Section 1. Construction Schedule History Total Estimated Cost (TEC) and Total Project Cost, Section 2. Financial Schedule, Section 4. Details of Cost Estimate, and Section 6. Schedule of project funding has been adjusted to include the estimated impact of implementation of Conduct of Operations and maintenance work control procedures. Idaho National Engineering and Environmental Laboratory EM Program Baseline Change Proposal #00-01M-12 cost and schedule changes have been included in this FY 2002 submittal.

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 1999 Budget Request *(Conceptual Estimate)*	2Q 1999	3Q 2000	4Q 2000	3Q 2002	11,900	12,670
FY 2000 Budget Request *(Conceptual Estimate)*	"	"	"	"	"	"
FY 2001 Budget Request *(Title I Estimate)*	"	"	"	4Q 2002	12,950	13,830
FY 2002 Budget Request (*Title I Baseline)*	"	"	"	"	12,777	13,634

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
1999	950	950	560
2000	4,836 [a]	4,836	417
2001	4,291 [b]	4,291	4,791
2002	2,700	2,700	4,370
2003	0	0	2,639

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 50-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:

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."

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[a] Reflects reduction of $164,232 to support an FY 2000 approved reprogramming for Laboratory Directed Research and Development. The original appropriation was $5,000,000.

[b] Reflects reduction of $9,000 to support an FY 2001 Rescission. The original appropriation was $4,300,000.

- 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.
- The cost estimate is based on preliminary building layouts and construction techniques associated with radioactive shielding as developed by the operating program.
- The construction schedule is consistent with historical construction at the Idaho National Engineering and Environmental Laboratory.
- 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:

- 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.
- Absence of environmental testing capabilities to meet American National Standards Institute N323.
- 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.
- 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 the current Health Physics Instrumentation Laboratory (CFA-633) in 1991.
- 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, as identified by Tiger Team Corrective Action Plan Number EGG1/RP.89.1CP01, "Upgrade HPIL Capabilities for Space and Testing Standards." The shielding does not meet as Low As Reasonably Achievable requirements.

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 HPIL Capabilities for Space and Testing Standards."

The Logistics Management Institute performed an Independent Assessment of the project and issued a Final Report in June 1999. Section 9 of the report, Summary of Conclusions and Recommendations states, “Overall, the HPIL project satisfies the DOE mission need and justification requirement and should proceed while implementing the recommendations in this external independent review.” The report goes on to state, “On balance, the Health Physics Instrumentation Laboratory project is well conceived and is currently headed in the right direction. If implemented as planned, it will achieve its objective efficiently and effectively.” The report concludes the Health Physics Instrumentation Laboratory project supports the overall Department of Energy mission, and will support the Nuclear Regulatory Commission Regions I and IV and National Aeronautics and Space Administration. The project is justified for replacement of the existing 50-year-old Health Physics Instrumentation Laboratory building that contains “numerous operational limitations, safety hazards, and code deficiencies.

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 provide 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 be maintained at the Idaho National Engineering and Environmental Laboratory to verify instrument calibrations.

The FY 2002 and carryover funds will be used to complete the project construction and project management support, contract management, and Environmental Safety and Health and Quality Assurance functions; support the construction subcontract including testing and turnover of the facility and procurement and installation of the Automated Irradiator Systems, and to train the operators, write procedures, turnover the project to operations, draft as-built drawings, and final closeout.

The final activity will be to load radiation sources into the test wells for facility operation.

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	83
Project management costs (1.7% of TEC)	223	223
Total, engineering, design, inspection, and administration of construction costs (7.5% of TEC)	964	964
Construction phase		
Improvements to Land	371	371
Buildings	5,307	5,307
Utilities	275	275
Standard Equipment	2,537	2,537
Inspection, design and project liaison, testing, checkout and acceptance	270	270
Construction management costs (3% of TEC)	516	516
Project management costs (1.6% of TEC)	245	245
Total, construction costs	9,521	9,521
Contingencies		
Design phase (1.3% of TEC)	168	168
Construction phase (16.6% of TEC)	2,124	2,297
Total, contingencies (approximately 19% of TEC)	2,292	2,465
Total, line item costs (TEC)	12,777 [a]	12,950

The level of confidence for completing this project within the current estimate is high, since the final A-E Design has been completed and construction has been initiated.

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. Project Management at Department of Energy Idaho Operations Office shall be performed by the Office of

[a] The Conceptual Design is 100 percent complete. Escalation rates applied to this cost estimate were FY 1999-2.4 percent; FY 2000-2.8 percent; FY 2001-2.7 percent; and FY 2002-2.8 percent.

Infrastructure Management. Safety, environmental, and other project support shall be furnished to the project on matrix basis by the Department of Energy Idaho Operations Office organization.

Bechtel BWXT Idaho, LLC (BBWI), as the operating contractor, will provide project management services to coordinate all project activities. BBWI will be responsible for the 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, 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 2000	FY 2001	FY 2002	Out Years	Total
Project cost						
Facility cost						
Design	560	417	0	0	0	1,132
Construction	0	0	4,791	4,370	2,639	11,818
Total facility costs	560	417	4,791	4,370	2,639	12,777
Other project costs						
Conceptual design costs	200	0	0	0	0	200
NEPA documentation costs [a]	55	20	10	10	0	95
Other project-related costs [b]	112	103	87	260	0	562
Total other project costs	367	123	97	270	0	857
Total project costs (TPC)	927	540	4,888	4,640	2,639	13,634

[a] NEPA documentation cost – NEPA cost for this period includes environmental checklist verification that facility descoping did not change the Approved Funding Of No Significant Impact/Environmental Assessment on HPIL. Environmental activities during this period includes state air permit preparation and preliminary storm water pollution plan development.

[b] 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 HPIL facility tours. System Operational testing, operational readiness reviews, move-in costs and operationally funded configuration management activities for the completed facility are also included.

7. Related Annual Funding Requirements

(FY 2003 dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs	988	988
Annual facility maintenance and repair costs	216	216
Annual Utility Costs	212	212
Total related annual funding	1,416	1,416
Total operating costs (operating from FY 2003 through FY 2023)	29,736	29,736

98-D-453, Plutonium Stabilization and Handling System for PFP, Hanford Site, Washington (RL-CP03)

(Changes from FY 2001 Congressional Budget Request are denoted with a vertical line [|] in the left margin.)

Significant Changes

The total estimated cost increased $396,000 and the total project cost increased $2,086,000 due to additional design and construction costs identified in more detailed reviews conducted in August of 2000.

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 1998 Budget Request (Preliminary Estimate)	2Q 1998	3Q 1999	1Q 1999	4Q 2000	27,200	38,270
FY 1999 Budget Request (Current Baseline Estimate)	"	"	"	"	36,600	44,100
FY 2000 Budget Request (Current Baseline Estimate)	3Q 1998	4Q 1999	3Q 1999	3Q 2003	38,600	46,100
FY 2001 Budget Request (Current Baseline Estimate)	"	"	"	"	34,700	39,800
FY 2001 Internal Reprogramming (Current Baseline Estimate)	"	4Q 2000	"	"	34,700	39,800
FY 2002 Budget Request (Current Baseline Estimate)	"	1Q 2001	3Q 2000	"	35,096	41,886

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
1998	1,251 [a]	1,251	1,251
1999	10,699 [b]	10,699	2,324
2000	14,550 [c]	14,550	14,233
2001	6,686 [d]	6,686	14,963
2002	1,910	1,910	1,176
2003	0	0	1,149

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 September 1996, 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 FY 1998 Energy and Water Development Appropriation Act required the Department to conduct

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[a] 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.

[b] 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.

[c] 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.

[d] Reflects FY 2001 $5,000,000 internal reprogramming to accelerate equipment installation from the outyears and FY 2001 rescission of $4,000. The original appropriation was $1,690,000.

independent assessments for certain construction projects and provide Congress a response and Corrective Action Plan (CAP). In March 1999, the "Final Report of the External Independent Review for the Plutonium Stabilization and Handling System for the Plutonium Finishing Plant" was issued. A Departmental Response and CAP were provided to Congress in February 2000. All of the corrective actions identified in the CAP have been completed.

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.

This project provides Stabilization and Packaging Equipment 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 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. After additional study, it was concluded that the extent of vault modification could be reduced which would free up funding to purchase a second Bagless Transfer System (BTS). The second BTS placed in 234-5Z Facility will reduce facility costs and As Low As Reasonably Achievable concerns with having to provide additional packaging to transport material from 234-5Z to 2736-ZB for insertion into the first BTS.

The Stabilization and Packaging Equipment will be installed in the Plutonium Finishing Plant Plutonium Storage Vault complex, Building 2736-ZB, and an additional BTS will be installed in 234-5Z. Deliverables associated with the Stabilization and Packaging Equipment procurement include the following:

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

The Stabilization and Packaging Equipment 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 to be installed in 234-5Z will be managed so that detailed design, equipment procurement, and installation of this new equipment will be complete, and operations started by October 2001. Initial operations of the 234-5Z BTS were started in September of 2000.

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

- Additional ventilation fans and exhaust filtration in support of the new process room and equipment;
- Addition of support services for the equipment such as bottled gas supplies for package welding, nitrogen glovebox inerting, off gas treatment, stack constant air monitoring capability, and electrical supply upgrades;
- Rearrangement of facility functions currently housed in the proposed location for the equipment;
- Upgrade of laboratory equipment for calorimetry, material handling, radiography;
- Architectural modifications of office areas and air locks to allow more efficient operations.
- Minimal modification of selected Plutonium Finishing Plant vault fixtures to store the new standardized package;
- Modification of vault security equipment related to storage fixtures;
- Minimal upgrade of cooling capacity to accommodate the standardized containers in an efficient configuration. Additional studies have concluded that passive ventilation will provide adequate cooling for the stored material eliminating the need for a major HVAC system upgrades.

Modifications in 234-5Z Building include:

- Connection of additional glove boxes to existing ventilation system;
- Addition of bottled gas supply for welding and inerting for use with the BTS, and;
- Modifying of existing excess glove box from another facility to house the BTS.

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 change to the plan to perform local procurement of the packaging equipment at the end of the second quarter FY 1999 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 complete design of the new equipment and initiate procurement, installation and testing of stabilization and packaging equipment; to complete design of facility infrastructure modifications, and commence construction; and to test equipment prior to the start of operations. The FY 2000 appropriation was also used to purchase the second BTS unit and install it in 234-5Z, and to prepare for the installation of the BTS unit in 2736-ZB in FY 2001. Funding was made available for the 2736-ZB BTS unit through a reduction in cost of the 3013 Outer Can Welder equipment, and reduction in scope of vault modifications. A recently completed FY 2001 internal

reprogramming supports the installation of the outer can welding equipment by March 2001, and installation of the remainder of the Stabilization and Packaging Equipment, including the second BTS, by August 2001 along with some vault upgrades required to store repackaged stabilized material.

The most current (December 15, 2000) schedule of critical decisions is as shown below:

CD-0	Mission Need	CD #0	issued	01/96
CD-1	Approval of Preliminary Baseline	CD #1	issued	01/97
CD-2	Approval of Performance Baseline	CD #2	issued	06/30/00
CD-3	Start of Construction	CD #3		
CD-3a		Limited Authorization	issued	08/24/00
CD-3b		Full Release	proposed	03/30/01
CD-4	Completion/Start of Operations	CD #4		
CD-4a		BTS in 234-5Z building	issued	09/00
CD-4b		Outer Can Welder	proposed	04/01
CD-4c		Stabilize and Packaging Equipment, inclusive of BTS in 2736-ZB	proposed	09/01
CD-4d		1st vault	proposed	09/01
CD-4e		2nd vault	proposed	04/02
CD-4f		3rd vault	proposed	04/03

There has been a recent increase in design costs to the 2736-ZB Facility. Definitive design was delayed approximately three months due to a variety of issues that complicated the design effort. Contributors to the engineering and design scope growth include uncertainties concerning the fire hazard analysis, determination of a representative radiological source term finalizing the process features (i.e., the convenience can design, blending and sampling equipment, extent and location of lag storage, etc.), the validation and incorporation of improvements identified using the mock-up of the glove box operations, and the implementation of design and optimization changes which increased the design effort.

The Fiscal Year (FY) 2002 contingency estimate is $1,334,000. The majority of the cost of the project has been obligated in previous years. Design is estimated to be 95 percent complete and the initial construction bid packages complete, which should increase project certainty and provide a lower risk for the remaining procurements and installation activities.

The total estimated cost has increased $396,000 and the total project cost has increased $2,086,000 due to additional design and construction costs identified in more detailed reviews conducted in August of 2000. The scope of work for FY 2002 includes the following activities: continuation of seismic qualified vault upgrades (final design, fabrication, and installation) to hold DOE Standard 3013 compliant outer containers; installation of procured equipment, (e.g., stabilization furnaces, bagless transfer system located in building 2736-ZB, emissions stack, nitrogen tank, and calorimeter); the 2736-ZB facility modification supporting utilities; and project management and reporting functions.

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
Design phase		
Preliminary and final design costs (19.3% of total estimated cost (TEC))	6,762	5,090
Design management costs (4.3% of TEC)	1,500	920
Total, engineering, design, inspection, and administration of construction costs (23.5% of TEC)	8,262	6,010
Construction phase		
Buildings and improvements to land	8,000	6,690
Specialized equipment	13,700	11,300
Inspection, design and project liaison, testing, checkout and acceptance	2,000	1,500
Project management	0	1,300
Construction management (5.1% of TEC)	1,800	2,200
Total, construction costs	25,500	22,990
Contingencies		
Design phase (0.1% of TEC)	40	500
Construction phase (3.7% of TEC)	1,294	5,200
Total, contingencies (3.8% of TEC)	1,334	5,700
Total, line item costs (TEC)	35,096	34,700

The level of confidence in this cost estimate is high because the majority of the funding has been obligated in previous years, the design is 95 percent complete and the initial construction bid packages have been completed.

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 2000	FY 2001	FY 2002	Outyears	Total
Project cost						
Facility cost						
Design	3,575	7,534	3,378	0	0	14,487
Construction	0	6,699	11,585	1,176	1,149	20,609
Total facility costs (Federal and Non-Federal)	3,575	14,233	14,963	1,176	1,149	35,096
Other project costs						
Conceptual design cost	900	0	0	0	0	900
NEPA documentation costs	30	0	0	0	0	30
Other project-related costs	1,960	2,170	1,480	130	120	5,860
Total other project costs	2,890	2,170	1,480	130	120	6,790
Total project costs (TPC)	6,465	16,403	16,443	1,306	1,296	41,886

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 *(operating from FY 2001 through FY 2005)*	34,009	34,009

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

(Changes from FY 2001 Congressional Budget Request are denoted with a vertical line [|] in the left margin.)

Significant Changes

The total estimated cost decreased from $45,000,000 to $44,200,000 due to a reduced requirement for funds nearing the end of project completion. The total project cost remains unchanged.

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
FY 2002 Budget Request (Current Baseline Estimate)	"	"	"	"	44,200	"

[a] Current subprojects total $44,200,000; 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	2,697
2001	12,484 [a]	12,484	11,119
2002	4,244	4,244	7,481

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

[a] Reflects an FY 2001 Rescission of $28,000. The original appropriation was $12,512,000.

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 Project:

Subproject 10: A Area

TEC	Previous	FY 1999	FY 2000	FY 2001	FY 2002	Construction Start - Completion Dates
1,371	0	0	0	500	871	4th Qtr. FY 2001 - 1st Qtr. FY 2002

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

The design/build contract for this project is scheduled to be awarded in January 2001. The contingency will be determined by a risk based analysis, a determination of the confidence level for the project, and an evaluation of the known versus unknown factors. No independent reviews will be performed on this project.

Compliance with Project Management Orders

- Critical Decision - 1: Approval of Mission Need - March 1994
- Critical Decision - 2: Approve Baseline - December 2000
- Critical Decision - 3: Start Construction - December 2000
- Critical Decision - 4: Completion/Acceptance - December 2001 (Planned)

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	4,577	3,373	4th Qtr. FY 2000 - 3rd Qtr. FY 2002

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

The design/build contract for this project is scheduled to be awarded in December 2000. The contingency is determined by a risk based analysis, a determination of the confidence level for the project, and an evaluation of the known versus unknown factors. No independent reviews have been or will be performed on this project.

Compliance with Project Management Orders

- Critical Decision - 1: Approval of Mission Need - March 1994
- Critical Decision - 2: Approve Baseline - July 2000
- Critical Decision - 3: Start Construction - July 2000
- Critical Decision - 4: Completion/Acceptance - February 2002 (Planned)

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	4th Qtr. FY 2000 - 3rd Qtr. FY 2001

Replace one 160-ton chiller in HB-Line.

The design/build contract for this project was awarded in November 2000. The contingency is determined by a risk based analysis, a determination of the confidence level for the project, and an evaluation of the known versus unknown factors. No independent reviews have been or will be performed on this project.

Compliance with Project Management Orders

- Critical Decision - 1: Approval of Mission Need - March 1994
- Critical Decision - 2: Approve Baseline - September 1999
- Critical Decision - 3: Start Construction - December 2000
- Critical Decision - 4: Completion/Acceptance - June 2001 (Planned)

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.

This project is currently in construction and is planned to be completed in March 2001. The contingency was determined by a risk based analysis, a determination of the confidence level for the project, and an evaluation of the known versus unknown factors. No independent reviews have been performed on this project.

Compliance with Project Management Orders

- Critical Decision - 1: Approval of Mission Need - March 1994
- Critical Decision - 2: Approve Baseline - September 1999
- Critical Decision - 3: Start Construction - September 1999
- Critical Decision - 4: Completion/Acceptance - April 2001 (Planned)

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 - 1st Qtr. FY 2001

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

This project has completed construction and has been turned over to operations. The project is scheduled to be closed out in the first quarter of FY 2001. The contingency was determined by a risk based analysis, a determination of the confidence level for the project, and an evaluation of the known versus unknown factors. No independent reviews have been performed on this project.

Compliance with Project Management Orders

- Critical Decision - 1: Approval of Mission Need - March 1994
- Critical Decision - 2: Approve Baseline - May 1999
- Critical Decision - 3: Start Construction - May 1999
- Critical Decision - 4: Completion/Acceptance - May 2000

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.

This project has been completed and was closed out in September 1998. The contingency was determined by a risk based analysis, a determination of the confidence level for the project, and an evaluation of the known versus unknown factors. No independent reviews have been performed on this project.

Compliance with Project Management Orders

- Critical Decision - 1: Approval of Mission Need - March 1994
- Critical Decision - 2: Approve Baseline - January 1998
- Critical Decision - 3: Start Construction - January 1998
- Critical Decision - 4: Completion/Acceptance - August 1998

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 - 1st Qtr. FY 2000

Replace three chillers with a total capacity of 540 tons.

This project has been completed and was closed out in January 2000. The contingency was determined by a risk based analysis, a determination of the confidence level for the project, and an evaluation of the known versus unknown factors. No independent reviews have been performed on this project.

Compliance with Project Management Orders

- Critical Decision - 1: Approval of Mission Need - March 1994
- Critical Decision - 2: Approve Baseline - June 1998
- Critical Decision - 3: Start Construction - June 1998
- Critical Decision - 4: Completion/Acceptance - June 1999

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.

This project has been completed and was closed out in September 1999. The contingency was determined by a risk based analysis, a determination of the confidence level for the project, and an evaluation of the known versus unknown factors. No independent reviews have been performed on this project.

Compliance with Project Management Orders

- Critical Decision - 1: Approval of Mission Need - March 1994
- Critical Decision - 2: Approve Baseline - February 1996
- Critical Decision - 3: Start Construction - February 1996
- Critical Decision - 4: Completion/Acceptance - April 1999

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 - 2nd Qtr. FY 2000

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

This project has been completed and was closed out in March 2000. The contingency was determined by a risk based analysis, a determination of the confidence level for the project, and an evaluation of the known versus unknown factors. No independent reviews have been performed on this project.

Compliance with Project Management Orders

- Critical Decision - 1: Approval of Mission Need - March 1994
- Critical Decision - 2: Approve Baseline - March 1997
- Critical Decision - 3: Start Construction - March 1997
- Critical Decision - 4: Completion/Acceptance - May 1999

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 - 1st Qtr. FY 1999

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.

This project has been completed and was closed out in September 1998. The contingency was determined by a risk based analysis, a determination of the confidence level for the project, and an evaluation of the known versus unknown factors. No independent reviews have been performed on this project.

Compliance with Project Management Orders

- Critical Decision - 1: Approval of Mission Need - March 1994
- Critical Decision - 2: Approve Baseline - August 1997
- Critical Decision - 3: Start Construction - August 1997
- Critical Decision - 4: Completion/Acceptance - May 1998

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.

This project has been completed and was closed out in September 1999. The contingency was determined by a risk based analysis, a determination of the confidence level for the project, and an evaluation of the known versus unknown factors. No independent reviews have been performed on this project.

Compliance with Project Management Orders

- Critical Decision - 1: Approval of Mission Need - March 1994
- Critical Decision - 2: Approve Baseline - February 1996
- Critical Decision - 3: Start Construction - February 1996
- Critical Decision - 4: Completion/Acceptance - June 1996

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.

This project has been completed and was closed out in September 1999. The contingency was determined by a risk based analysis, a determination of the confidence level for the project, and an evaluation of the known versus unknown factors. No independent reviews have been performed on this project.

Compliance with Project Management Orders

- Critical Decision - 1: Approval of Mission Need - March 1994
- Critical Decision - 2: Approve Baseline - February 1996
- Critical Decision - 3: Start Construction - February 1996
- Critical Decision - 4: Completion/Acceptance - June 1998

No additional New Start projects are planned beyond FY 2001.

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.

This project complies with the Life Cycle Asset Management order.

4. Details of Cost Estimate [a]

(dollars in thousands)

	Current Estimate	Previous Estimate
Design phase		
Preliminary and final design costs (8.3% of total estimated cost (TEC))	3,690	3,795
Design management costs	1,516	1,658
Total, engineering, design, inspection, and administration of construction costs (11.8% of TEC)	5,206	5,453
Construction phase		
Other (major utilities/comp items, specialized facilities, etc.)	30,768	31,113
Inspection, design and project liaison, testing, checkout and acceptance	1,067	1,020
Construction management (10.6% of TEC)	4,676	4,909
Total, construction costs	36,511	37,042
Contingencies		
Design phase (0.3% of TEC)	143	287
Construction phase (5.3% of TEC)	2,340	2,218
Total, contingencies (5.6% of TEC)	2,483	2,505
Total, line item costs (TEC)	44,200	45,000

FY 2002 is the last year of funding; therefore, there is a high confidence level.

5. Method of Performance

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

[a] 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 2000	FY 2001	FY 2002	Total
Project cost					
Facility cost					
Design	3,704	426	1,219	0	5,349
Construction	19,199	2,271	9,900	7,481	38,851
Total facility costs (Federal and Non-Federal) [a]	22,903	2,697	11,119	7,481	44,200
Other project costs					
Other project-related costs	6,978	938	1,648	936	10,500
Total other project costs	6,978	938	1,648	936	10,500
Total project costs (TPC)	29,881	3,635	12,767	8,417	54,700

7. Related Annual Funding Requirements

(FY 2000 dollars in thousands)

	Current Estimate [b]	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

[a] The line item total estimated cost is $44,200,000 which includes design, procurement, and construction.

[b] 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 2001 Congressional Budget Request are denoted with a vertical line [|] in the left margin.)

Significant Changes

- # Reflects completion of subproject S-W312 Process Vessel Vent Fans.
- # Reflects incorporation of Baseline Change Proposal (BCP) S-4404/0034 increasing the total estimated cost (TEC) to $79,395,000 and increasing the total project cost (TPC) to $104,926,000, and extending Physical Construction by 28 months until 2nd quarter 2004. This increase is due to an inaccessible duct located in 221-H canyon exhaust tunnel leaking and causing 221-H isotopes to be drawn from the tunnel into the Old HB-Line exhaust ventilation system in 292-H. Protection of site workforce and the environment from an unfiltered ground release of radioactive isotopes is compromised by this condition. The long-term solution to this issue is the relocation of the Old HB- Line exhaust ventilation equipment from 292-H to the interior of 221-H.

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 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 *(Preliminary Estimate)*	4Q 1992	1Q 1995	4Q 1995	"	126,600	157,000
FY 1999 Budget Request *(Current Baseline Estimate)*	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 *(Current Baseline Estimate)*	"	"	"	"	56,446	75,427
FY 2002 Budget Request *(Current Baseline Estimate)*	"	"	"	2Q 2004	79,395	104,926

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
1992	3,500.[a]	0	0
1993	12,500	2,000	0
1994	15,000	9,000	0
1995	-1,000.[b]	19,000	0
1996	-2,700.[c]	-2,700	1,950
1997	-5,400.[d]	-5,400	5,411
1998	0	0	3,731
1999	25,667.[e]	25,667	13,203
2000	0	0	20,360
2001	8,859.[f]	8,859	11,771
2002	15,790	15,790	15,790
2003	6,308	6,308	6,308
2004	871	871	871

[a] Reflects an FY 1992 Omnibus reprogramming reduction of $8,500,000 against the original appropriation of $12,000,000.

[b] Reflects an FY 1995 general reduction of $1,000,000.

[c] Reflects an FY 1996 uncosted reduction of $2,700,000.

[d] Reflects an FY 1997 uncosted reduction of $1,900,692 and a reprogramming reduction of $3,500,000.

[e] Reflects an FY 1999 reprogramming of $22,000,000 (Source: Actinide Packaging and Storage Facility subproject.)

[f] Reflects an FY 2001 rescission of $20,000. The original appropriation was $8,879,000.

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 2000	FY 2001	FY 2002	Outyears	Construction Start - Completion Dates
75,352	43,524	0	8,859	15,790	7,179	2nd Qtr. FY 1997 - 2nd Qtr. FY 2004

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.

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, 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 project will relocate Old HB-Line exhaust ventilation equipment from 292-H to the interior of 221-H including the installation of new high-efficiency particulate air filter equipment, exhaust fans, inlet and outlet dampers, and associated instrumentation, controls, power supply and associated infrastructure, i.e., fire protection, lighting, contamination control and monitoring, etc. Decontamination of portions of the 221-H Old HB-Line and demolition and removal of equipment in old HB-Line and 292-H necessary to install new equipment, tie-in the new system and remove the old system from service are included in the scope of work. The leaking duct in the 221-H exhaust tunnel will be abandoned in place and the penetrations into 292-H will be permanently sealed.

The FY 2001 funds will be used to initiate design, demolition and removal, and infrastructure installation of the Old HB-Line ventilation relocation and to continue with replacement of canyon exhaust fans. The FY 2002 funds will be used to complete exhaust fan replacements and continue with installation of high-efficiency particulate air filters, Old HB-Line ventilation equipment. Outyear funds will be used to complete installation of the Old HB-Line ventilation equipment, system tie-in and testing, demolition and removal of 292-H equipment and capping of the exhaust tunnel penetrations.

Subproject W312: Process Vessel Vent System Fans

TEC	Previous	FY 2000	FY 2001	FY 2002	Outyears	Construction Start - Completion Dates
4,043	4,043	0	0	0	0	1st Qtr. FY 1999 -- 4th Qtr. FY 2000

This subproject replaced 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 used 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.

This subproject was completed in the 4th Quarter 2000 with a total estimated cost under run of $1,573,000 and a total project cost under run of $2,045,000. These under runs were transferred to subproject S-4404 via baseline change proposal S-4404/0032 and S-W312/005 which was approved on September 1, 2000.

Compliance with Project Management Order

- Critical Decision - 0: Approval of Mission Need - August 1995.
- Critical Decision - 1: Approve Baseline Range - August 1995.
- Critical Decision - 2: Approve Performance Baseline - August 1995.

- Critical Decision - 3: Start Construction - March 1996.
- Critical Decision - 4: Start Operations - December 2001 (Planned)

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
Design phase		
Preliminary and final design costs (22.1% of total estimated cost (TEC))	17,549	9,593
Design management costs	3,098	1,814
Total, engineering, design, inspection, and administration of construction costs (26.0% of TEC)	20,647	11,407
Construction phase		
Buildings and improvements to land	36,463	26,185
Specialized equipment	7,597	5,443
Inspection, design and project liaison, testing, checkout and acceptance	3,039	2,173
Construction management (4.5% of TEC)	3,545	2,654
Total, construction costs	50,644	36,455
Contingencies		
Design phase (2.6% of TEC)	2,026	2,108
Construction phase (7.7% of TEC)	6,078	6,476
Total, contingencies (10.2% of TEC)	8,104	8,584
Total, line item costs (TEC)	79,395	56,446

Due to emergent issues, there is a low degree of confidence in this estimate.

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 2000	FY 2001	FY 2002	Outyears	Total
Project cost						
Facility cost						
Design	9,754	5,899	1,400	1,797	3,823	22,673
Construction	14,541	14,461	10,371	13,993	3,356	56,722
Total facility costs (Federal and Non-Federal)	24,295	20,360	11,771	15,790	7,179	79,395
Other project costs						
Conceptual design cost.[a]	5,000	0	200	0	0	5,200
Other project-related costs.[b]	7,850	2,288	3,114	2,593	4,486	20,331
Total other project costs	12,850	2,288	3,314	2,593	4,486	25,531
Total project costs (TPC)	37,145	22,648	15,085	18,383	11,665	104,926

7. Related Annual Funding Requirements

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

[a] 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.

[b] 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 2001 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.
- # Reflects transfer of $19,000 in FY 2001 to the Office of Security and Emergency Operations to support the safeguards and security activities associated with this project, and $4,000 for the FY 2001 government-wide recission.

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.[a]	"	"	4Q 2000	59,300	60,069

[a] 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 1996 Budget Request (*Title* I) . .	"	"	"	1Q 2000	75,227	76,119
FY 1997 Budget Request (*Title I*) . .	"	"	"	"	75,227	76,119
FY 1999 Budget Request (*Current Estimate*)	"	"	"	4Q 2002	62,362	63,131
FY 2000 Budget Request (*Current Estimate*)	3Q 1994	3Q 1988	2Q 1998	2Q 2003	62,362	63,131
FY 2001 Budget Request (*Current Estimate*)	3Q 1994	3Q 1988	2Q 1998	2Q 2003	62,362	63,131
FY 2002 Budget Request *(Current Estimate)*	3Q 1994	3Q 1998	2Q 1998	4Q 2003	62,362	63,131

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Prior Years	57,623 [a]	57,623	44,383. [b]
2000	2,000	2,000	5,186
2001	1,977. [c]	1,977	8,525
2002	762	762	3,141
2003	0	0	1,127

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

[a] $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. Reduction of $500,000 of current year funds in FY 1997. Prior Year funds used as an offset for FY 1999 uncosted reduction, $1,040,000. Original appropriation was $4,752,000.

[b] Includes other project costs.

[c] Reduction of $19,000 represents a transfer to the Office of Security and Emergency Operations to support safeguards and security activities associated with this project and $4,000 for the FY 2001 government-wide recission.

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 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.

Original contingency rates were calculated by taking into account project risk at each phase of the project. Overall contingency was 13 percent in 1996, low for a project of this type. Each year, contingency is reevaluated and distributed based on existing conditions. Current contingency on outstanding workscope is 8 percent, which is on the low side of the contingency allowance per Chapter 11 of DOE G 430.1-1. The project has passed CD-3 and is in the construction phase. Validation reviews have been conducted each year. A GAO audit was conducted in 1996. A fixed price contract for the final construction phase is in place. The current project “Estimate at Completion” is within the total estimated cost. There are no technical issues to be addressed.

It is anticipated that design and construction will be accomplished in seven phases to meet project schedule and cost. 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 Building 284.

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 284

Building 284 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 (Design drawings and specifications)	3,440	3,352
Design management costs (1.1% of TEC)	684	540
Project management costs (1.6% of TEC)	988	887
Total design costs (8.2% of TEC)	5,112	4,779
Construction Phase		
Land and land rights (environmental)	6,495	5,789
Improvements to land	1,609	1,712
Building	18,718	17,455
Special Equipment	4,092	4,784
Utilities	7,303	6,998
Standard Equipment	862	862
Removal less salvage (RCRA)	2,601	2,601
Inspection, design and project liaison, testing, checkout and acceptance	2,979	2,762
Construction management (1.3% of TEC)	840	696
Project management (3.0% of TEC)	1,885	1,575
Total, Construction costs	47,384	45,234
Contingencies		
Design phase (0.0% of TEC)	0	706
Construction phase (1.5% of TEC)	950	2,727
Total, Contingencies (1.5% of TEC)	950	3,433
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 2000	FY 2001	FY 2002	FY 2003	Outyears	Total
Project Cost							
Facility Cost							
Design	5,225	260	0	0	0	0	5,485
Construction	30,242	4,926	8,525	3,141	1,127	0	47,961
Inventories/Unrecoverable	8,916	0	0	0	0	0	8,916
Total, Facility Costs (Federal and Non-Federal)	44,383	5,186	8,525	3,141	1,127	0	62,362
Other project costs							
Conceptual design cost.[a]	315	0	0	0	0	0	315
Other project-related costs.[b]	454	0	0	0	0	0	454
Total, Other project cost	769	0	0	0	0	0	769
Total, Project Costs (TPC)	45,152	5,186	8,525	3,141	1,127	0	63,131

[a]FY 1992 General Reduction of $2,060,000

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

[a] 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.

[b] 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.

[c] 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.

[d] 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 2001 Congressional Budget Request are denoted with a vertical line [|] in the left margin.)

Significant Changes

None.

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 2000 Budget Request *(Preliminary Estimate)*	2Q 2000	4Q 2000	3Q 2000	2Q 2002	14,660 [a]	15,700 [a]
FY 1999 Schedule Change	3Q 1999	"	4Q 1999	"	"	"
FY 2001 Budget Request *(Preliminary Estimate)*	"	4Q 2001	"	2Q 2003	14,530	"
FY 2002 Budget Request *(Preliminary Estimate)*	"	"	"	4Q 2003	"	"

2. Financial Schedule (Operating Expense Funded)

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
1999	2,001	2,001	1,045
2000 [b]	4,213	4,213	2,946
2001	1,616	1,616	3,367
2002	1,616	1,616	1,939
2003	5,084	5,084	5,233

[a]The estimate is based on the completed Conceptual Design Report.

[b]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.

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 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, 80,000 square feet, is about 60 percent of the roof area of 773-A.

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 2002 funding will be used to complete the A-Area work and remove the F-Area fan room equipment.

Compliance with Project Management Order

- Critical Decision - 0: Approved Mission Need - December 1995
- Critical Decision - 1: Approved Preliminary Baseline Range - October 1997
- Critical Decision - 2: Approved Performance Baseline - 773-A - February 1999
  - 772-F - November 2000
- Critical Decision - 3: Approved Start of Construction - 773-A - July 1999
- An External Independent Review completed July 1999 concluded the project was justified.

4. Details of Cost Estimate [a]

(dollars in thousands)

	Current Estimate	Previous Estimate
Design phase		
Engineering design and inspection (4.8% of total estimated cost (TEC))	696	696
Project management	386	386
Total, engineering, design, inspection and administration of construction costs (7.4% of TEC)	1,082	1,082
Construction phase		
Buildings	10,276	10,276
Construction management costs (4.9% of TEC)	713	713
Total, construction costs	10,989	10,989
Contingencies		
Construction phase (16.9% of TEC)	2,459	2,459
Total, contingencies (16.9% of TEC)	2,459	2,459
Total, line item costs (TEC)	14,530	14,530

This project has two parts. One is the Savannah River Technology Center Building (773-A) Roof Repairs and Ventilation Components Repairs (Flex Fan Connections, and Secondary containment for duct flanges). For this job, the confidence level on the estimate is high since: 1) the estimate is based on final design; and 2) work in progress has been accomplished within their budgets.

The confidence level on the estimate for the other piece of work, which is the Decontamination of the Shielded Areas in Building 772-F, is medium. Design activities began earlier in November. These activities include: 1) the re-survey of the Shielded Actual Conditions (Contamination Levels); 2) re-evaluation of the Facility Acceptance Criteria; and 3) re-evaluation and final decision of the decontamination technics to be applied. These factors will be included in the early phase of the design to determine the final design estimate for the job.

5. Method of Performance

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

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

[a] 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 2000	FY 2001	FY 2002	Outyears	Total
Project cost						
Facility cost						
Design	125	410	339	98	110	1,082
Construction	920	2,536	3,028	1,841	5,123	13,448
Total, facility costs (Federal and Non-Federal)	1,045	2,946	3,367	1,939	5,233	14,530
Other project costs						
Conceptual design cost	358	0	0	0	0	358
Other project-related costs [a]	61	205	163	163	220	812
Total other project costs	419	205	163	163	220	1,170
Total project costs (TPC)	1,464	3,151	3,530	2,102	5,453	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

[a] 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.

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

(Changes from FY 2001 Congressional Notification are denoted with a vertical line [|] in the left margin.)

Significant Changes

This operating expense data sheet supports the FY 2001 notification submitted to Congress on June 12, 2000, which reflected the following significant changes.

Baseline Change Proposal S-5997-0021 was approved in July 2000 and Baseline Change Proposal S-5997 / 0016 was approved in August 2000 by DOE-SR increasing the total estimated cost to $67,484,528. Baseline Change Proposal 21 used $257,000 of contingency for refurbishment of the shielded windows. Baseline Change Proposal 16 increased the engineering contracts baseline due to the In-Cell Vitrification Equipment contract bid higher than anticipated and realigned the other project costs and total estimated costs in accordance with capital guidelines and maintained the current schedule baseline. Internal Level 3 Baseline Change Proposals were approved by the Westinghouse Savannah River Company which adjusted the total estimated cost to $67,045,529.

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)*	2Q 1996	2Q 1997			26,000	36,700
FY 1997 Budget Request *(Preliminary Estimate)*	"	"	3Q 1996	2Q 1998	29,230	40,500
FY 1998 Budget Request *(Preliminary Estimate)*	"	"	"	2Q 1999	"	"
FY 1999 Budget Request *(Title I Baseline)*	"	3Q 1998	"	2Q 2000	34,044	60,278
FY 2000 Budget Request *(Current Baseline Estimate)*	"	2Q 2000	"	2Q 2001	40,349	80,021
FY 2001 Budget Request *(Current Baseline Estimate)*	"	3Q 2000	"	4Q 2002	58,655	117,535
FY 2001 Budget Notification *(Current Baseline Estimate)*	"	1Q 2002	"	1Q 2004	63,089	129,415

	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 2002 Budget Request *(Current Baseline Estimate)*.[a]	"	"	"	"	67,046	"

2. Financial Schedule (Operating Expense Funded)

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
1996.[b]	3,067	3,067	3,067
1997	5,640	5,640	5,640
1998	2,336	2,336	2,336
1999	2,501	2,501	2,501
2000	12,350	12,350	12,350
2001	19,435	19,435	19,435
2002	13,679	13,679	13,679
2003	6,938	6,938	6,938
2004	1,100	1,100	1,100

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 243 Am and 244 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

[a] The cost and schedule estimates have been revised per incorporation of approved baseline change proposals.

[b] Correction made to the total estimated cost for $3,288,000, accounting error in FY 1996.

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). All research and development work activities are now complete and the Savannah River Technology Center issued WSRC-TR-2000-00257TL, Revision 0, August 23, 2000, for the Am/Cm 5 inch Cylindrical Induction Melter System Design Basis. 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) was approved in February 2000.

The project is undergoing significant scope changes during FY 2001. The americium/curium material was recently declared (July 2000) as excess (rather than an asset), with the waste product now needing to be acceptable for disposal in the high-level waste repository. Also, additional work is being done to accommodate engineering upgrades per Instrumentation, Systems, and Automation Society (ISA) Standard 84.01 and safety authorization base upgrades based on ongoing backfit analyses. Performance by the vitrification equipment vendor is also causing cost and schedule challenges. Accordingly, DOE intends under this stabilization project to investigate, evaluate, and pursue cost-effective alternatives to the vitrification project as currently planned.

The FY 2002 funds will be used to complete pretreatment checkout, complete project design, complete equipment qualification runs and start vitrification construction.

Compliance with Project Management Order

- Critical Decision - 1A: Approved - October 8, 1998
- Critical Decision - 2A: Approved - September 7, 1999
- Critical Decision - 2B: Approved - February 28, 2000
- Critical Decision - 3A: Approved - June 2, 2000, Pretreatment Construction
- Independent Reviews done April 1998, February 1999, June 1999, March 2001
- EM-5 Review done August 1999
- Critical Decision - 3B: Projected December 2001

4. Details of Cost Estimate.[a]

(dollars in thousands)

	Current Estimate	Previous Estimate
Design phase		
Preliminary and final design costs (17.4% of total estimated cost (TEC))	11,695	11,737
Design management costs	2,028	3,529
Total, engineering, design, inspection, and administration of construction costs (20.5% of TEC)	13,723	15,266
Construction phase		
Other (major utilities/comp items, specialized facilities, etc.)	34,050	22,831
Removal costs less salvage	1,312	1,395
Inspection, design and project liaison, testing, checkout and acceptance	1,632	1,830
Construction management (5.1% of TEC)	3,409	3,816
Total, construction costs	40,403	29,872
Contingencies		
Design phase (2.9% of TEC)	1,938	4,362
Construction phase (16.4% of TEC)	10,982	13,589
Total, contingencies (19.3% of TEC)	12,920	17,951
Total, line item costs (TEC)	67,046	63,089

Due to emergent issues, there is a low degree of confidence in this estimate.

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.

In-Cell Vitrification Equipment design, fabrication, and qualification runs will be performed by a subcontractor. Pretreatment and remaining vitrification design will be performed by on-site forces. Construction installation will be executed by on-site forces with limited specialty contractors.

[a] 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 2000	FY 2001	FY 2002	Outyears	Total
Project cost						
Facility cost						
Design.[a]	7,726	4,712	2,823	400	0	15,661
Construction	5,818	7,638	16,612	13,279	8,038	51,385
Total facility costs (Federal and Non-Federal)	13,544	12,350	19,435	13,679	8,038	67,046
Other project costs						
R&D necessary to complete project [a]	20,956	1,161	0	0	0	22,117
Conceptual design cost.[b]	3,469	0	0	0	0	3,469
NEPA documentation costs.[c]	100	0	0	0	0	100
Other project-related costs.[d]	7,649	2,192	4,820	8,422	13,600	36,683
Total other project costs	32,174	3,353	4,820	8,422	13,600	62,369
Total project costs (TPC)	45,718	15,703	24,255	22,101	21,638	129,415

7. Related Annual Funding Requirements

(FY 2002 dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs (staff, utilities, etc.).[e]	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 *(operating from FY 2002 through FY 2003)*	6,600	2,600

[a] Includes cost associated with the development of the vitrification process.

[b] The conceptual design was originally completed in November 1995. A new conceptual and preliminary design was prepared for an alternate melter system.

[c] Includes cost associated in complying with National Environmental Policy Act of 1969.

[d] Includes all costs associated with the process development, training, procedures and facility support during construction of the project including Radcon protection.

[e] The operating life of this facility will be approximately 15 months. The staffing costs associated with this are expected to be $6,000,000.