Site/Project Completion

Program Mission

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

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

The FY 2000 budget request will enable the EM program to continue its goal of completing its cleanup mission at as many sites as possible by 2006. This goal is part of the strategies identified in the *Accelerating Cleanup: Paths To Closure* document, whereby EM sites are working aggressively to reduce outyear costs by completing projects as soon and as efficiently as possible, thereby reducing life-cycle costs and schedules.

Program Objectives

- To continue environmental cleanup projects that are expected to be completed by 2006 at EM sites where overall site cleanup will not be fully accomplished by 2006.
- To continue environmental cleanup projects at DOE sites where all EM projects are expected to be completed 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, and the necessary waste management activities to handle newly generated wastes from these missions.

Performance Measures

EM has moved aggressively towards developing and implementing a performance-based budget that clearly demonstrates the program and project results expected for the resources requested. Building upon past experience, the FY 2000 budget was enhanced by aligning performance measures by project within the specific appropriation and program accounts. These performance measures can be found in the site details that follow.

Significant Accomplishments and Program Shifts

The FY 2000 budget request fully reflects the project-oriented structure that EM has developed as a key component of the effort to accelerate cleanup and reduce costs. All EM activities have been organized into projects which have a defined scope, schedule, cost, and end state. Through the strategies identified in the *Accelerating Cleanup: Paths to Closure* document, EM sites are working to sequence projects and track progress, thereby reducing life-cycle costs and schedules. Specific accomplishments and program shifts may be found in the site details that follow.

Funding Profile

(dollars in thousands)

	FY 1998	FY 1999	FY 2000	$ Change	% Change
Albuquerque Operations Office	101,687	56,412	46,835	-9,577	-17.0%
Chicago Operations Office	4,497	0	0	0	0.0%
Idaho Operations Office	103,675	108,569	108,961	392	0.4%
Oakland Operations Office	56,402	51,914	51,191	-723	-1.4%
Richland Operations Office	285,146	330,637	376,296	45,659	13.8%
Savannah River Operations Office	413,520	481,915	397,636	-84,279	-17.5%
Total, Site/Project Completion, Defense	964,927	1,029,447	980,919	-48,528	-4.7%

Public Law Authorization:

Public Law 105-245, “The Energy and Water Development Appropriations Act, 1999"

Public Law 95-91, “Department of Energy Organization Act (1997)”

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

Public Law 105-261, “Strom Thurmond National Defense Authorization Act for Fiscal Year 1999"

Albuquerque

Mission Supporting Goals and Objectives

Mission

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

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

Program Goal

The Albuquerque Operations Office goal is to complete cleanup of all geographic sites under its cognizance in this account by FY 2006. The cleanup of the Kansas City Plant and the Sandia National Laboratories/California sites will be completed in FY 1999; the cleanup of the Pantex Plant will be completed in FY 2001; the Sandia National Laboratories/New Mexico site will be completed in FY 2003, and the cleanup and transition of the Kansas City Plant to the Office of Defense Programs is planned to be completed in FY 2004. These sites have continuing Defense Programs missions. The assumption is that any required surveillance and maintenance and ground water monitoring activities will be funded by Defense Programs, although this has not been discussed formally with Defense Programs yet. Groundwater remediation, the only remaining cleanup activity at the Pinellas Plant will continue to about FY 2014. The DOE's responsibility as a potentially responsible party for the Comprehensive Environmental Response, Compensation, and Liability Act-required remedial action activities at the Maxey Flats Disposal Site will be satisfied by FY 2002, when the last potentially responsible party payment is made.

Program Objectives

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

The objective of the program is to have all identified Environmental Restoration sites remediated and waste disposed of in an on-site disposal cell or at an off-site location. Nearly all of the land is expected to be available for other programmatic uses by around FY 2003, with monitoring continuing at several sites.

Performance Measures

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

Significant Accomplishments and Program Shifts

Kansas City Plant

- Transferred the Kansas City Waste Management activities to the Office of Defense Programs (FY 1998).
- Installed Iron Filing Wall for in-situ groundwater treatment and containment (FY 1998).
- Received Environmental Protection Agency acceptance to use industrial standards for ground water and soil cleanup in lieu of residential standards (FY 1998).
- Completed interim remediation (test cell tanks) at Motor Vehicle Repair Sump Site (FY 1998).
- Completed interim remediation at Trichlorethylene Still Area location (FY 1998).
- Completed and implemented a Transition Plan for long-term surveillance and maintenance responsibilities following completion of the restoration program to the landlord (Defense Programs) in FY 2004 (FY 1998).
- Complete all Environmental Protection Agency required investigative activities for the 95th Terrace Site and resubmit the Resource Conservation and Recovery Act Facility Investigation Report proposing no further action (FY 1999).
- Complete groundwater treatment analysis to determine effectiveness of Iron Filing Wall for in-situ treatment and containment of contaminated plume (FY 1999).
- Complete transition from Environmental Protection Agency Consent Order to State (Missouri) Post Closure Permit (FY 1999).

Pantex Plant

- Submitted a petition to delete the Pantex Plant from the National Priorities List pursuant to the Environmental Protection Agency's interim policy change. The deletion will eliminate dual reporting and response actions under the Comprehensive Environmental Response, Compensation, and Liability Act and the Resource Conservation and Recovery Act, allowing the Environmental Restoration Program regulation under the Resource Conservation and Recovery Act Part B Permit. (FY 1998)

- Completed Phase IV groundwater treatability study; installed six borings, five perched monitoring wells, and four extraction wells; and completed treatability report. (FY 1998)
- Cleaned up or recommended no further action for 246 of 249 release sites (FY 1998). Remediation or recommendation for no further action will be completed for the 3 remaining major sites in FY 2001.
- Treated, stored, and disposed of newly generated mixed low-level waste according to Site Treatment Plans for Sandia Laboratories and Pantex (FY 1998).
- Supported construction of new Hazardous Waste Treatment and Processing Facility at Pantex (FY 1998).
- Transition waste management responsibilities for newly generated waste at Pantex to Defense Programs (FY 1999).
- Completed Landfills Corrective Measures Study, six final Resource Conservation and Recovery Act Facility Investigation Reports, and Groundwater Corrective Measures Study (FY 1998) and start Corrective Measure Implementation for Groundwater, Landfills; start and complete Burning Grounds Interim Corrective Measures, High Explosives/Radiation Sites, and Biovent Treatability Study (FY 1999).
- Completed remediation of depleted uranium contamination at Firing Site #5 (FY 1998).
- Completed accelerated remediation for nine release sites (FY 1998).
- Conducted site-wide risk assessments to support closure of 15 release sites (FY 1998).
- Complete additional Resource Conservation and Recovery Act Facility Investigation at Old Sewage Treatment Plant, and complete three final Resource Conservation and Recovery Act Facility Investigation Reports (FY 1999).

Sandia Environmental Restoration Project

- Constructed and operated Corrective Action Management Unit; continued remediation of Chemical Waste Landfill, Foothills Test Area, Tijeras Arroyo, and Central Coyote Test Area (FY 1998).
- Completed remediation of the Sandia/California Navy Landfill (FY 1998).
- Submitted to State Regulator 16 release sites for No Further Action (FY 1998).
- Conducted assessment of Technical Area 315 Groundwater; continued remediation of Technical Areas 1 and 2 (Classified Waste Landfill) and Canyons Test Area (FY 1998).
- Complete site-wide characterization (FY 1999).
- Submit to State regulators 26 release sites for No Further Action (FY 1999).
- Complete remediation of Sandia/California Fuel Oil Spill (FY 1999).

Conduct assessment of Sandia North groundwater and remediation of Technical Area 2 and conduct assessment and remediation of Southwest Test Area and Canyons Test Area and Mixed Waste Landfill (FY 1999).

Transfer waste management activities at Sandia National Laboratories to Defense Programs (FY 1999).

Pinellas Plant

Completed closeout of administrative activities and vacated the Pinellas Site; continued long-term groundwater remediation activities. (FY 1998).

Program Shift

The Office of Defense Programs has taken financial and programmatic responsibility for the waste management activities in FY 1999.

The completion end dates for Sandia National Laboratories and Kansas City Plant are being extended beyond previous baseline schedules due to new scope being identified at both locations that will take longer to complete than previously believed.

Funding Schedule

(dollars in thousands)

	FY 1998	FY 1999	FY 2000	$ Change	% Change
AL-002 / Albuquerque Miscellaneous Programs	16,245	7,100	4,600	-2,500	-35.2%
AL-007 / Environmental Restoration, Kansas City	3,513	1,756	1,100	-656	-37.4%
AL-014 / Pantex Plant Site Remediation Project	11,161	11,299	15,000	3,701	32.8%
AL-015 / Pantex Waste Operations	12,082	0	0	0	0.0%
AL-017 / Sandia National Laboratories Waste Management	19,908	0	0	0	0.0%
AL-018 / Sandia ER Project	28,460	27,260	19,435	-7,825	-28.7%
AL-019 / Pinellas Plant Close-out and Administration of Post-Employment Benefits	-451	501	3,000	2,499	498.8%
AL-021 / Maxey Flats Field Management Project	8,000	1,200	1,200	0	0.0%
AL-025 / Ground Water Clean-Up (Pinellas)	2,769	2,296	2,500	204	8.9%
AL-029 / TA-21 Cleanup	0	5,000	0	-5,000	-100.0%
Total, Albuquerque	101,687	56,412	46,835	-9,577	-17.0%

Funding By Site

(dollars in thousands)

	FY 1998	FY 1999	FY 2000	$ Change	% Change
Kansas City Plant	3,513	1,756	1,100	-656	-37.4%
Los Alamos National Laboratory	0	5,000	0	-5,000	-100.0%
Maxey Flats	8,000	1,200	1,200	0	0.0%
Pantex Plant	23,243	11,299	15,000	3,701	32.8%
Pinellas Plant	2,318	2,797	5,500	2,703	96.6%
Sandia National Laboratories	48,368	27,260	19,435	-7,825	-28.7%
South Valley	0	0	0	0	0.0%
Albuquerque Operations Office	16,245	7,100	4,600	-2,500	-35.2%
Total, Albuquerque	101,687	56,412	46,835	-9,577	-17.0%

Metrics Summary

	FY 1998	FY 1999	FY 2000
Remedial Action/Release Site			
# Assessments	3.0	1.0	0.0
# Cleanups	41.0	15.0	10.0
Transuranic Waste			
# Storage (m^3)	25.5	0.0	0.0
Mixed Low-Level Waste			
# Storage (m^3)	146.4	0.0	0.0
# Treatment (m^3)	73.5	0.0	0.0
# Disposed On-site/Commercial (m^3)	5.0	0.0	0.0
# Shipped to DOE Disposal Site (m^3)	1.0	0.0	0.0
Low-Level Waste			
# Storage (m^3)	998.3	0.0	0.0
# Treatment (m^3)	72.7	0.0	0.0
# Shipped to DOE Disposal Site (m^3)	512.1	0.0	0.0
Hazardous Waste			
# Disposed (MT)	414.9	0.0	0.0

Site Description

Kansas City Plant

The Kansas City Plant is part of a Federal complex located in south Kansas City, Missouri. In FY 1993, the Department shut down several facilities across the country and consolidated the production of

non-nuclear components for nuclear weapons at the Kansas City Plant. The site is comprised of 43 release sites, all of which will be completed by the end of FY 2004. This will complete remediation actions required by State and Federal regulators. Advanced technologies are being employed to reduce soil contamination (microwave enhanced volatilization technology) and to reduce groundwater cleanup time and cost (Iron Filing Trench treatment wall). Activities necessary to transition to a steady state Environmental Restoration Program will also be accomplished in FY 2004. Institutional controls and groundwater treatment and monitoring will continue indefinitely beyond FY 2000. Beginning in FY 1998, the Office of Defense Programs took financial and programmatic responsibility for waste management activities.

Pantex Plant

The Pantex Plant is located near Amarillo, Texas, and has responsibility for dismantlement and maintenance of the Nation's nuclear weapons stockpile and storage of plutonium from dismantled weapons. At the Pantex Plant, the EM activities consist primarily of storage, treatment, and disposal of various waste types and cleanup of contaminated soils and ground water. 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 is comprised of 249 release sites, of which 246 have been either cleaned up or recommended for no further action; the remaining three need extensive cleanup activities and will be completed in FY 2001, which will complete the remediation of this site. Ground water pump and treat will likely need to continue well past this date; however, technology development activities are underway through the Innovative Technology Research and Development program to try to accelerate groundwater cleanup at the Pantex Plant. Beginning in FY 1999, the Office of Defense Programs has financial and programmatic responsibility for waste management activities.

Sandia National Laboratories-California

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

Sandia National Laboratories-New Mexico

The Sandia National Laboratories-New Mexico site located in Albuquerque, New Mexico, is a research and development facility with a primary mission of developing, engineering, and testing non-nuclear components of nuclear weapons. In FY 1999, disposal of more than 90 percent of its historical/legacy low-level waste and mixed low-level waste will be completed. Major restoration efforts involve the

remediation of inactive waste disposal and release sites at Albuquerque and a number of other remote locations. These sites have known or suspected releases of hazardous, radioactive, or mixed waste.

Another major initiative will be to close out remediation activities at all of the release sites by FY 2003. The original baseline, which is reflected in this budget, will be adjusted because additional contamination has been found at the chemical and classified waste landfills requiring additional remediation. In FY 1999, waste management activities have been transferred to the Office of Defense Programs.

Pinellas Plant

In September 1997, remediation of the Pinellas Plant was completed and the site was transferred to Pinellas County. In December 1998, DOE completed all remaining administrative closeout activities at Pinellas and vacated the site, except for continuing groundwater remediation to be overseen by the Grand Junction Office. In FY 1999 and FY 2000, DOE will continue annual payments for Pinellas post-contract medical, pension, and other contractor worker retirement benefits. In FY 1998 and FY 1999, operation and maintenance of groundwater remediation systems at the Building 100 and Old Drum Storage Sites, the Northeast Site, 4.5 Acre Site, and the Wastewater Neutralization/Building 200 Area will continue. Bio-remediation will take place at the Northeast Site and Building 100, and will continue into FY 2000.

South Valley

The Department is a potentially responsible party at the South Valley site in New Mexico. The one release site at South Valley was completed in FY 1996. Currently ground water monitoring and ground water remediation system operation and maintenance activities are ongoing at this site. The Government has reached a liability buy-out settlement under which DOE will no longer have any financial liability for the project until the end of year 2003.

Maxey Flats

The Maxey Flats site in Kentucky is another site where DOE is responsible for contributing a potentially responsible party payment for the cleanup of the site. Maxey Flats is considered one release site. Environmental Management's last potential responsible party payment is expected in FY 2002, ending the DOE's responsibility at the site.

Detailed Program Justification

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
The sites are managed through an incentivized integrated contract, with fixed-price subcontracts, to assure the most cost-effective services to the Government. The scope Planned for FY 2000 has been reviewed and is appropriate to meet the goals of the site as outlined in the *Accelerating Cleanup: Paths to Closure*. Most of the projects included in this section of the budget have had an independent cost review of the scope, and the funds requested for FY 2000 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, AIP-TX/MO)			
Provides financial assistance for grants, cooperative agreements, innovative remediation technologies, and other analytical research.			
# Continuation of multi-year grants and cooperative agreements with the Norfolk State University Center for Materials Research, Waste Management Education and Research Consortium, and Historically Black Colleges and Universities consortium.			
# Continuation of the Innovative Treatment Remediation Demonstration Program, which is a cooperative effort among DOE, the Environmental Protection Agency, and industry to generate full-scale and real-world treatment and performance data for selected innovative technologies to accelerate their acceptance and use nationwide.			
# Continuation of agreements-in-principle with the States of Texas and Missouri.			
AL-002	16,245	7,100	4,600

Metrics
No quantifiable corporate performance measures are associated with this project.

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
AL-007 / Environmental Restoration (Kansas City Plant)			
This project evaluates potentially contaminated areas and cleans up areas found to be a threat to human health or the environment.			
# Activities at the Kansas City Plant will be limited to groundwater treatment and monitoring to keep contamination out of Indian Creek and Blue River.			
AL-007	3,513	1,756	1,100
Metrics			
Remedial Action			
Cleanups	5.0	0.0	0.0
AL-014 / Pantex Plant Site Remediation Project			
This project provides for cleanup of contaminated soils and groundwater resulting from production and testing of explosive components for nuclear weapons. Remediation methodologies incorporated in this effort include excavation and off-site disposal of soils contaminated with high explosives/radionuclides, recirculation and filtration of groundwater, and a Resource Conservation and Recovery Act landfill cap. These efforts are in accordance with and meet the Resource Conservation and Recovery Act requirements.			
# Complete site-wide risk assessment.			
# Complete groundwater, landfills and high explosive/radiation corrective measures.			
# Complete additional Resource Conservation and Recovery Act Facility Investigation Characterization for Active Firing Sites.			
# Complete Burning Grounds Interim Corrective Measures, and begin post-remediation long-term surveillance and maintenance.			
# Complete four Final Resource Conservation and Recovery Act Facility Investigation Reports.			
# Implement Field Scale Soil Composting System.			
# Conduct groundwater remediation and monitoring.			
AL-014	11,161	11,299	15,000

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
Metrics			
Remedial Action			
Assessments	2.0	1.0	0.0
Cleanups	24.0	0.0	1.0

AL-015 / Pantex Waste Operations

Responsibility for management of all newly generated waste was transferred to the Office of Defense Programs in FY 1999.

No activity.

AL-015	12,082	0	0

Metrics			
Mixed Low-Level Waste			
Storage (m^3)	65.8	0.0	0.0
Treatment (m^3)	23.5	0.0	0.0
Low-Level Waste			
Storage (m^3)	186.4	0.0	0.0
Treatment (m^3)	51.4	0.0	0.0
Shipped to DOE Disposal Site (m^3)	360.4	0.0	0.0
Hazardous Waste			
Disposed (MT)	227.2	0.0	0.0

AL-017 / Sandia National Laboratories Waste Management

Responsibility for management of all newly generated waste was transferred to the Office of Defense Programs in FY 1999.

No activity.

AL-017	19,908	0	0

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
Metrics			
Transuranic Waste			
Storage (m^3)	25.5	0.0	0.0
Mixed Low-Level Waste			
Storage (m^3)	80.6	0.0	0.0
Treatment (m^3)	50.0	0.0	0.0
Disposed On-site/Commercial (m^3)	5.0	0.0	0.0
Shipped to DOE Disposal Site (m^3)	1.0	0.0	0.0
Low-Level Waste			
Storage (m^3)	811.9	0.0	0.0
Treatment (m^3)	21.3	0.0	0.0
Shipped to DOE Disposal Site (m^3)	151.7	0.0	0.0
Hazardous Waste			
Disposed (MT)	187.7	0.0	0.0

AL-018 / Sandia ER Project

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

- # Complete Corrective Action Management Unit operations, continue remediation of Chemical Waste Landfill.
- # Complete assessment of Tech Area 2 Groundwater, and complete remediation of canyons and southwest test areas.
- # Complete compliance monitoring of Sandia/California.
- # Continue assessment/remediation of Mixed Waste Landfill.
- # Complete remediation of Foothills Test Area, Tijeras Arroyo, Central Coyote Test Area, and Tech Area 315 groundwater.

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
# Continue remediation of Tech Area I, and complete septic system remediations.			
# Submit four release sites for no further action.			
AL-018	28,460	27,260	19,435

Metrics			
Remedial Action			
Cleanups	12.0	15.0	9.0

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

This project oversees final contract closeout/transition activities; employee reduction-in-force requirements; and administration of DOE liabilities associated with contractor employee benefits.

# DOE would reimburse Lockheed Martin Corporation for payments the firm makes to former Pinellas contractor employees, primarily for pension, medical, life insurance, and retirement benefits.			
# The FY 1998 estimate reflects a deobligation of new Budget Authority. Activities were funded in FY 1998 using prior year carryover.			
AL-019	-451	501	3,000

Metrics
No quantifiable corporate performance measures are associated with this project.

AL-021 / Maxey Flats Field Management Project

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

# Make required Consent Decree potential responsible party payment to the Maxey Flats Steering Committee.			
AL-021	8,000	1,200	1,200

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
Metrics			
No quantifiable corporate performance measures are associated with this project.			

AL-025 / Ground Water Clean-Up (Pinellas)

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

- # Conduct operation and maintenance of remediation systems at the Building 100 and Old Drum Storage Sites, the Northeast Site, 4.5 acre site, and the Wastewater Neutralization/Building 200 Area.
- # Conduct site-wide groundwater monitoring activities.
- # Conduct bio-remediation at the Northeast Site and Building 100.

AL-025	2,769	2,296	2,500
Metrics			
Remedial Action Assessments	1.0	0.0	0.0

AL-029 / TA-21 Cleanup

This project was created by Congress in FY 1999 for the purpose of preparing a detailed project plan, including cost and schedule, having the plan independently assessed, and submitting the plan with the FY 2000 budget request.

AL-029	0	5,000	0
Metrics			
No quantifiable corporate performance measures are associated with this project.			
Total, Albuquerque	101,687	56,412	46,835

Explanation of Funding Changes from FY 1999 to FY 2000

	FY 2000 vs. FY 1999 ($000)
AL-002 / Albuquerque Miscellaneous Programs	
# Decrease reflects less financial assistance for grants, cooperative agreements, and analytical research as programs are completed	-2,500
AL-007 / Environmental Restoration (Kansas City Plant)	
# Reflects completion of remediation activities and transition to long-term monitoring and surveillance at the Kansas City Plant	-656
AL-014 / Pantex Plant Site Remediation Project	
# Increase is for completion of all remediations at the Pantex Plant	3,701
AL-018 / Sandia ER Project	
# Reflects completion of Sandia-Livermore remediation activities in FY 1999. At Sandia-Albuquerque, reflects completion of most remediation activities except for work on two landfills and a disposal cell	-7,825
AL-019 / Pinellas Plant Close-Out and Administration of Post-Employment Benefits	
# Reflects total cost of post-employment benefits. Used prior year carryover to fund the project at a level above the budget authority reflected in FY 1999, and at the same level shown in FY 2000	2,499
AL-025 / Ground Water Clean-Up (Pinellas)	
# Reflects slight increase in operation and maintenance costs	204
AL-029/ TA-21 Cleanup	
# Reflects completion of Congressionally Mandated Report in FY 1999 and continued characterization of material disposal areas, decontamination and decommissioning project planning, and close-out of other release sites	-5,000
Total Funding Change, Albuquerque	-9,577

Chicago

Mission Supporting Goals and Objectives

Mission

The mission of the Defense funded Environmental Management (EM) Site/Project Completion program carried out by the Chicago Operations Office is to support projects that will be completed by FY 2006 at sites or facilities where a Department of Energy mission such as the Office of Science or Nuclear Energy research will continue. Chicago Operations Office managed activities have been conducted at three sites in two states. These include the Ames Laboratory in Iowa; and the Argonne National Laboratory-East site in Illinois. The Chicago Operations Office manages, coordinates, tracks, and assists in the implementation of programs among various sites. The majority of activities managed by the Chicago Operations Office have been funded in the Non-Defense account. The FY 1999 and the FY 2000 Defense account budget requests include no funding for Chicago activities. All defense-related efforts were completed by the end of FY 1998.

Program Goal

The Chicago Operations Office is committed to ensuring its facilities and activities pose no undue risk to the public, worker health and safety, maintaining compliance with applicable environmental and other requirements, and working aggressively to clean up as many sites as possible by 2006 to reduce outyear costs and, reducing life cycle costs and schedules.

Program Objectives

Beginning in FY 1999, there are no defense-funded activities remaining at the Chicago Operations Office. All activities will be supported under the non-defense EM Site/Project Completion account. All prior defense-funded activities; e.g., Site A, have been completed. The Chicago Operations Office proactively employs innovative and alternative technologies, wherever appropriate and applicable, to address remedial as well as decontamination and decommissioning problems in order to reduce cost and risk, and to improve the schedule.

Performance Measures

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

Significant Accomplishments and Program Shifts

FY 1998 accomplishments under defense funding included quarterly monitoring well and surface water sampling related to the remediated Chemical Disposal Site at Ames Laboratory. Ongoing monitoring also continued at Site A/Plot M. At Argonne National Laboratory - East, decontamination and decommissioning activities consisted of: (1) assessment of 22 facilities including the Argonne Thermal Source Reactor, Building 579, the 60" Cyclotron and the Building 301 Hot Cells; (2) completion of four facility cleanups including two facilities at the Chicago Pile 5 Test Reactor, deploying innovative technologies, and two at the Argonne Thermal Source Reactor; (3) completion of further application recommendations for 22 Chicago Pile 5 Test Reactor technology demonstrations; and (4) continuation of surveillance and maintenance. Use of technology development initiatives include a large scale demonstration project and a public/private sector partnership. These demonstrations allow rapid comparison of a variety of commercially-available and innovative technologies and possible use of lower-cost technologies for the Chicago Pile 5 Test Reactor decommissioning. Cost sharing is provided by private industry and utilities, and results of the demonstrations are being considered for use at other Argonne National Laboratory-East facilities, and at other DOE facilities, such as Hanford, Oak Ridge, and Idaho National Engineering and Environmental Laboratory, as well as at private and utility sites.

Funding Schedule

(dollars in thousands)

	FY 1998	FY 1999	FY 2000	$ Change	% Change
CH-AMESRA / Ames Remedial Actions	103	0	0	0	0.0%
CH-ANLEDD / Argonne National Laboratory-East Decontamination and Decommissioning	4,075	0	0	0	0.0%
CH-ANLEPM-D / Argonne National Laboratory-East Program Management	78	0	0	0	0.0%
CH-CHOOSM-D / Surveillance and Maintenance Activities	221	0	0	0	0.0%
CH-COPS-D / Chicago Operations Program Support	20	0	0	0	0.0%
Total, Chicago	4,497	0	0	0	0.0%

Funding By Site

(dollars in thousands)

	FY 1998	FY 1999	FY 2000	$ Change	% Change
AMES Laboratory (Iowa State University) (IA)	103	0	0	0	0.0%
Argonne National Laboratory - East (IL)	4,153	0	0	0	0.0%

Chicago Operations Office (IL)	241	0	0	0	0.0%
Total, Chicago	4,497	0	0	0	0.0%

Site Description

AMES Laboratory (Iowa State University)

Ames Laboratory is an Energy Research laboratory in Ames, Iowa that conducts basic and applied research in the preparation, characterization, and evaluation of properties of metals and their alloys, especially rare earth metals. Ames Laboratory also performs materials research, high-performance computing, and environmental research. It seeks solutions to energy-related problems through the exploration of physics, chemistry, engineering, applied mathematics, and materials sciences.

Argonne National Laboratory - East

Argonne National Laboratory - East is a research laboratory occupying a 700 acre tract of land located approximately 22 miles southwest of downtown Chicago in DuPage County, Illinois. It is an Office of Science multidisciplinary research and development laboratory that conducts basic and applied research to support the development of energy-related technologies. Energy-related research projects include safety studies for light-water reactors, developing components and materials for fission and fusion reactors, superconductivity research, improvements in coal power, synchrotron radiation sources, and waste heat utilization. Further research includes medical radioisotope technology, environmental research, genetics research, materials engineering, ceramics, carcinogenesis, and the biological effects of ionizing radiation. Argonne-East is the home for the Advanced Photon Source facility which provides experiment capability, with the use of photons, for industry, government, and academic scientists to create advances in pharmaceuticals, adhesives, food processing, and many other applications.

Site A/Plot M

Site A/Plot M is the former site of early activities by the Manhattan Engineering District between 1942 and 1956. The site is located within the Palos Forest Preserve in Cook County, Illinois and is owned by the Forest Preserve District of Cook County. Site A contained two experimental nuclear reactors and associated research laboratories. Plot M was used for the burial of radioactive waste from experimental research at Site A. Initial work involved research and the development of radioisotopes and fission products for uses in defense and non-defense activities. Removals of radiological hot spots and soils contaminated with heavy metals were completed in October 1996. Site A/Plot M is currently undergoing monitoring of groundwater, soil, and air to affirm that there is no significant spread of contamination. Responsibility for surveillance and monitoring was transferred to the Grand Junction Project Office in Spring 1998.

Detailed Program Justification

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
CH-AMESRA / AMES Remedial Actions			
Include quarterly monitoring well and surface water sampling to the remediated Chemical Disposal Site at Ames Laboratory. All activities are funded under non-defense in FY 1999 and beyond.			
CH-AMESRA	103	0	0

Metrics
No quantifiable corporate performance measures are associated with this project.

CH-ANLEDD-D/ Argonne National Laboratory-East Decontamination and Decommissioning			
This project conducts facility decontamination and decommissioning at the Argonne National Laboratory-East to reduce risk and comply with Atomic Energy Act provisions. All activities are funded under non-defense in FY 1999 and beyond.			
CH-ANLEDD-D	4,075	0	0

Metrics
No quantifiable corporate performance measures are associated with this project.

CH-ANLEPM-D/ Argonne National Laboratory-East Program Management			
This project provides program management support activities to provide a safe and effective environmental management program to reduce environmental and health risks. All activities are funded under non-defense in FY 1999 and beyond.			
CH-ANLEPM-D	78	0	0

Metrics
No quantifiable corporate performance measures are associated with this project.

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
CH-CHOOSM-D / Surveillance and Maintenance Activities			
Responsibility for surveillance and maintenance activities for Site A/Plot M were transferred to the DOE Grand Junction Project office in FY 1998.			
CH-CHOOSM-D	221	0	0
Metrics No quantifiable corporate performance measures are associated with this project.			
CH-COPS-D / Chicago Operations Program Support (Defense)			
All Chicago funding is under non-defense in FY 1999 and beyond.			
CH-COPS-D	20	0	0
Metrics No quantifiable corporate performance measures are associated with this project.			
Total, Chicago	4,497	0	0

Explanation of Funding Changes from FY 1999 to FY 2000

	FY 2000 vs. FY 1999 ($000)
# No significant changes	0
Total Funding Change, Chicago	0

Idaho

Mission Supporting Goals and Objectives

Mission

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

Program Goal

The goal of this portion of the Idaho program is to complete, by 2006, cleanup of several waste streams and release sites, dispose of all Idaho National Engineering and Environmental Laboratory low-level legacy waste in FY 1999, dispose of most of the Idaho National Engineering and Environmental Laboratory mixed low-level waste by FY 2006, satisfy the Settlement Agreement requirement to ship 3,100 m^3 of transuranic waste off-site for disposal (by December 31, 2002), and have a major portion of the Idaho National Engineering and Environmental Laboratory-managed spent nuclear fuel in stable, dry storage awaiting final disposition. 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.

Program Objectives

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

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

technologies such as advanced transuranic waste characterization systems will improve throughput and increase efficiency.

Performance Measures

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

Significant Accomplishments and Program Shifts

- Completed first and second In-Situ Vitrification Planar Melts at Test Area North V-Tanks (FY 1998) and initiate Operable Unit 1-07B Stage 2 treatability study field demonstrations (FY 1999, Waste Area Group 1).
- Completed Operable Unit 1-10 Comprehensive Remedial Investigation/Feasibility Study and Proposed Plan (FY 1998, Waste Area Group 1) and Initiate Operable Unit 1-10 Remedial Design/Remedial Action activities (FY 1999, Waste Area Group 1).
- Completed Operable Unit 4-13 Remedial Investigation Baseline Risk Assessment (FY 1998) and complete Operable Unit 4-13 Comprehensive Record of Decision and Proposed Plan (FY 1999, Waste Area Group 4).
- Complete assessment of all Waste Area Group 4 release sites and facilities (FY 1999).
- Completed Operable Unit 5-12 Comprehensive Remedial Investigation/Feasibility Study (FY 1998) and draft Record of Decision and submit for regulatory review (FY 1999, Waste Area Group 5).
- Completed Operable Unit 10-04 Comprehensive Remedial Investigation/Feasibility Study (FY 1998). Implement Operable Unit 10-04 Remedial Investigation/Feasibility Study Work Plan field activities (FY 1999) (Waste Area Group 10).
- Completed deactivation of the ROVER Facility (FY 1998) and Old Waste Calcining Facility (FY 1999, OIM-110).
- Reduce security requirement by completing installation of Security System Alarm System at the Idaho Nuclear Technology and Engineering Center (FY 1998) and complete construction of security facility remodeling, security system operating and project turnover (FY 1999, OIM-105).
- Complete the deactivation design for the Nuclear Technology and Engineering Center Fuel Processing Complex (CPP-601), Hot Chemistry Laboratory (CPP-627), and Headend Processing Plant (CPP-640) (FY 1999, OIM-112).
- Completed Sitewide Electrical Distribution Systems Upgrade (FY 1998, OIM-107).

- Complete segments of the Electrical Utilities System Upgrade Project e.g.., replacement of electrical panels, correct overloaded circuits, and test the reliability of the system (FY 1999, OIM-106).
- Continued Storage Waste Examination Pilot Plant production examination operations, selective intrusive waste sampling and analysis, and head space gas sampling to characterize and certify transuranic waste for disposal at the Waste Isolation Pilot Plant near Carlsbad, New Mexico (FY 1998/FY 1999, ID-WM-103).
- Disposed of 34 m^3 of mixed low-level waste and 3,264 m^3 of low-level waste, and safely stored 1,714 m^3 of mixed low-level waste and 6,035 m^3 of low-level waste in compliance with environmental regulations and DOE Orders (FY 1998). Dispose of 50 m^3 of mixed low-level waste and 6,500 m^3 of low-level waste, and safely store 1,123 m^3 of mixed low-level waste and 2,000 m^3 of low-level waste in compliance with environmental regulations and DOE Orders (FY 1999, ID-WM-101).
- Characterize and validate 68 m^3 of non-mixed transuranic waste designated for disposal at the Waste Isolation Pilot Plant. Approximately 64,990 m^3 of transuranic waste will be safely stored at the Idaho National Engineering and Environmental Laboratory in compliance with environmental regulations and DOE Orders (FY 1999, ID-WM-103).
- Meet Idaho Settlement Agreement, Federal Facility Compliance Agreement, Federal Facility Agreement/Consent Order, and other regulatory requirements in a safe and environmentally acceptable manner (FY 2000).
- Comply with Federal Facilities Agreement/Consent Order schedules and milestones for the assessment and cleanup of Test Area North, Test Reactor Area, Idaho Nuclear Technology Engineering Center, Central Facilities Area, Power Burst Facility, Radioactive Waste Management Complex, and Pit 9 Remediation and for site-wide monitoring (FY 2000).

Funding Schedule

(dollars in thousands)

	FY 1998	FY 1999	FY 2000	$ Change	% Change
ID-ER-101 / Test Area North Remediation	9,200	4,107	10,458	6,351	154.6%
ID-ER-104 / Central Facilities Area Remediation	1,768	871	2,038	1,167	134.0%
ID-ER-105 / Power Burst Facility/Auxiliary Reactor Area	1,241	871	2,213	1,342	154.1%
ID-LRP-101-PC / Environmental Engineering and Science Center	0	8,939	0	-8,939	-100.0%
ID-OIM-105 / Security Facilities Consolidation Project	864	840	0	-840	-100.0%
ID-OIM-106 / Electrical and Utility Systems Upgrade Project, Idaho Nuclear Technology and Engineering Center (formerly Idaho Chemical Processing Plant)	17,541	13,584	12,879	-705	-5.2%
ID-OIM-107 / Idaho National Engineering and Environmental Laboratory Electrical Distribution Upgrade	3,105	0	0	0	0.0%
ID-OIM-108 / Idaho National Engineering and Environmental Laboratory Road Rehabilitation	600	8,079	2,716	-5,363	-66.4%
ID-OIM-109 / Health Physics Instrument Laboratory	0	1,049	7,310	6,261	596.9%
ID-OIM-110 / Pre-FY 2007 Surplus Facility Deactivation Project	7,250	6,503	7,288	785	12.1%
ID-OIM-112 / Pre-FY 2007 Idaho National Engineering and Environmental Laboratory Surveillance and Maintenance	3,853	4,330	4,189	-141	-3.3%
ID-OIM-114 / Sitewide Idaho National Engineering and Environmental Laboratory Information Network	0	0	50	50	>999.9%
ID-OIM-115 / Site Operations Center	0	0	1,306	1,306	>999.9%
ID-WM-101 / Idaho National Engineering and Environmental Laboratory Low-Level Waste/Mixed Low-Level Waste/Other Waste Program	21,855	25,632	22,191	-3,441	-13.4%
ID-WM-103 / Idaho National Engineering and Environmental Transuranic Waste	36,398	33,764	36,323	2,559	7.6%
Total, Idaho	103,675	108,569	108,961	392	0.4%

Funding By Site

(dollars in thousands)

	FY 1998	FY 1999	FY 2000	$ Change	% Change
Idaho National Engineering and Environmental Laboratory	103,675	108,569	108,961	392	0.4%
Total, Idaho	103,675	108,569	108,961	392	0.4%

Metrics Summary

	FY 1998	FY 1999	FY 2000
Remedial Action/Release Site			
Assessments	0.0	0.0	58.0
Cleanups	0.0	0.0	37.0
Facility Deactivation			
Deactivations	1.0	1.0	1.0
Transuranic Waste			
Storage (m^3)	65,000.0	64,990.0	63,975.0
Shipped to DOE Disposal Site (m^3)	0.0	10.0	1,015.0
Mixed Low-Level Waste			
Storage (m^3)	1,714.4	1,123.0	697.0
Treatment (m^3)	225.8	113.0	113.0
Disposed On-site/Commercial (m^3)	12.7	50.0	50.0
Shipped to DOE Disposal Site (m^3)	21.4	0.0	0.0
Low-Level Waste			
Storage (m^3)	6,035.0	2,000.0	3,385.0
Treatment (m^3)	3,690.4	5,200.0	1,464.0
Disposed On-Site/Commercial (m^3)	3,264.4	6,500.0	4,329.0
Shipped to DOE Disposal Site (m^3)	2.0	0.0	0.0

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. 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 advanced engineering technology and systems to private industry. These activities have resulted in an inventory of high-level waste and an inventory 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. Finally discontinued activities at the Idaho National Engineering and Environmental Laboratory have left a number of surplus facilities. The deactivation program provides for the deactivation of these surplus facilities placing them in a safe, stable, low-cost condition, requiring minimal surveillance and maintenance.

Detailed Program Justification

(dollars in thousands)

FY 1998	FY 1999	FY 2000

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

(dollars in thousands)

FY 1998	FY 1999	FY 2000

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

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

- **#** Operate Groundwater Test Facility for Operable Unit 1-07B Phase B Hot Spot Containment and removal; construct and operate Phase C Dissolved Phase Plume Treatment Units..
- **#** Begin active remediation of non-radionuclide contaminated surface soil sites.
- **#** Perform Operable Unit 1-07B Stage 2 treatability study field demonstrations for in-situ, chemical oxidation and natural attenuation.
- **#** Implementation of field cleanup activities at the Water Research Reactor Test Facility diesel oil spill sites, grade and restrict access to several burn pits, and implement mercury spill cleanup.
- **#** Submit Operable Unit 1-10 Draft Remedial Action Work Plan to DOE for review and approval.

ID-ER-101	9,200	4,107	10,458

Metrics			
Remedial Action			
Assessments	0.0	0.0	24.0
Cleanups	0.0	0.0	13.0

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
ID-ER-104 / Central Facilities Area Remediation (Waste Area Group 4)			
Waste Area Group 4 consists of 52 potential release sites which require assessment as stipulated by the Federal Facilities Agreement/Consent Order and the Comprehensive Environmental Response, Compensation, and Liability Act. A Record of Decision for Operable Unit 4-13, to be submitted in June 1999, will detail the final remedial actions which must be performed at the various release sites. Funding supports all regulatory requirements and completion of all remedial activities by 2003.			
# Continue long-term groundwater and landfill soil monitoring at Operable Unit 4-12.			
# Implement the Remedial Design/Remedial Action Work Plan for Operable Unit 4-13 including cleanup or removal of soil contamination sites including cesium-contaminated drainfields, lead-contaminated transformer storage yards, and radium-contaminated dry wells.			
# Initiate Remedial Design/Remedial Action activities at 10 remaining release sites.			
ID-ER-104	1,768	871	2,038

Metrics			
Remedial Action			
Assessments	0.0	0.0	16.0
Cleanups	0.0	0.0	10.0

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
ID-ER-105 / Power Burst Facility/Auxiliary Reactor Area (Waste Area Group 5)			
Waste Area Group 5 has 13 Operable Units listed in the Federal Facility Agreement/Consent Order. Activities associated with Waste Area Group 5 are legally required by the Federal Facilities Agreement/Consent Order and the Comprehensive Environmental Response, Compensation, and Liability Act. Operable Unit 5-12 consists of 4 sites and the comprehensive Remedial Investigation/Feasibility Study required to complete the Waste Area Group 5 cleanup. The Remedial Investigation/Feasibility Study recommendations support preparation of a Comprehensive Record of Decision for Operable Unit 5-12. The Operable Unit 5-12 Comprehensive Record of Decision is a Federal Facilities Agreement/Consent Order milestone due October 1999. Funding supports regulatory requirements and completion of all investigations and remedial actions by FY 2006.			
# Prepare the Remedial Design Scope of Work for Operable Unit 5-12.			
# Prepare and implement the Remedial Design/Remedial Action Work Plan for Operable Unit 5-12.			
ID-ER-105	1,241	871	2,213

Metrics			
Remedial Action			
Assessments	0.0	0.0	18.0
Cleanups	0.0	0.0	14.0

ID-LRP-101-PC			
Provides for activities under the Idaho Long-Range Plan, including complex-wide integration and systems engineering support.			
# This activity is being funded in the Defense Science and Technology Development account in FY 2000.			
# Consolidating this program allows for a comprehensive, complex-wide program for verifying and accelerating deployment of environmental cleanup technologies and furtherance of DOE's environmental stewardship mission.			
ID-LRP-101-PC	0	8,939	0

(dollars in thousands)

FY 1998	FY 1999	FY 2000

Metrics
No quantifiable corporate performance measures are associated with this project.

ID-OIM-105 / Security Facilities Consolidation Project (95-D-456)

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

No activity, project completed. Included in the funding totals for this project baseline summary are $602,000 for FY 1998; and $485,000 for FY 1999 for the line item.

ID-OIM-105	864	840	0

Metrics
No quantifiable corporate performance measures are associated with this project.

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

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

Complete construction of the Electrical Distribution System and Standby Power System.

Continue replacement of electrical panels and service entrances in specific facilities to correct overloaded equipment, grounding problems, and code violations.

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
# Complete testing on the Electrical Distribution System and Standby Power System.			
# Continues funding for construction of the Electrical and Utility Systems Upgrade Project, 96-D-464. Included in the funding totals for this PBS are $14,985,000 for FY 1998; $11,544,000 for FY 1999; and $11,971,000 for FY 2000 for the line-item.			
ID-OIM-106	17,541	13,584	12,879

Metrics
No quantifiable corporate performance measures are associated with this project.

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

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

# No activity planned; project complete. Included in the funding totals for this project baseline summary are $2,927,000 for FY 1998 for the line-item.			
ID-OIM-107	3,105	0	0

Metrics
No quantifiable corporate performance measures are associated with this project.

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
ID-OIM-108 / Idaho National Engineering and Environmental Laboratory Road Rehabilitation (98-D-700)			
This project consists of the line item construction project to rehabilitate approximately 45 miles of the site road system and 27,000 square yards of parking area to provide safe transportation for waste movements, which are directly associated with regulatory and enforceable agreement compliance. The original cost estimate and scope was validated by a DOE and site management and operating contractor team, and competitively subcontracted.			
# Project construction will continue with completion planned in FY 2001.			
# Continues funding for construction of the Idaho National Engineering and Environmental Laboratory Road Rehabilitation, 98-D-700. Included in the funding totals for this PBS are $500,000 for FY 1998; $7,710,000 for FY 1999; and $2,590,000 for FY 2000 for the line item.			
ID-OIM-108	600	8,079	2,716

Metrics
No quantifiable corporate performance measures are associated with this project.

ID-OIM-109 / Health Physics Instrument Laboratory (99-D-404)

The Health Physics Instrumentation Laboratory project is a line item construction project which provides for the design, procurement, and construction of the new facility in order to provide reliable and safe radioactive detection equipment for all programs at the Idaho National Engineering and Environmental Laboratory. Laboratory operations will include repair, calibration, dosimeter irradiation, and research and development required to support radiation detection equipment needs for the site. This new facility will replace an existing facility which is beyond its original design life and is significantly deteriorated. Original cost estimate and scope were validated by a DOE and site management and operating contractor team, and the construction phase will be competitively subcontracted.

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
# Complete title design activities and initiate construction with completion planned in FY 2002.			
# Continues funding for construction of the Health Physics Instrumentation Laboratory, 99-D-404. Included in the funding totals for this PBS are $0 for FY 1998; $950,000 for FY 1999; and $7,200,000 for FY 2000 for the line item.			
ID-OIM-109	0	1,049	7,310

Metrics
No quantifiable corporate performance measures are associated with this project.

ID-OIM-110 / Pre-FY 2007 Surplus Facility Deactivation Project

This project provides for the deactivation of surplus facilities which reduces 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 DOE.

# Increase deactivation activities at CPP-601, Security Training Facility.			
# Completion of the title design for CPP-603 wet spent nuclear fuel deactivation project on schedule.			
ID-OIM-110	7,250	6,503	7,288

Metrics			
Facilities Deactivation			
Deactivations	1.0	1.0	1.0

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

This project provides surveillance and maintenance of radioactively contaminated surplus facilities to maintain in a condition reducing the risk to site personnel and the environment.

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
# Continue surveillance and maintenance activities in CPP-601, CPP-640, CPP-627, CPP-621, and CPP-691 at a level consistent with the deactivation work.			
# Start surveillance and maintenance in CPP-603.			
ID-OIM-112	3,853	4,330	4,189

Metrics

No quantifiable corporate performance measures are associated with this project.

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

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

# Initiate project support activities for this new activity for FY 2000.			
ID-OIM-114	0	0	50

Metrics

No quantifiable corporate performance measures are associated with this project.

ID-OIM-115 / Site Operations Center

This project will potentially provide a new multi-purpose, multi-user facility that will house a cafeteria, conference rooms, bus depot, and office space. Worker health and safety issues are in jeopardy due to the current aging and deteriorating facilities, which may have to be closed. This activity is being done in anticipation of a FY 2001 line-item construction project. However, depending on conditions of the facilities, actions may need to be taken prior to FY 2001.

# Identify a preferred path forward for the Central Facilities Area Site Operations Center.			
ID-OIM-115 / Site Operations Center	0	0	1,306

(dollars in thousands)

FY 1998	FY 1999	FY 2000

Metrics
No quantifiable corporate performance measures are associated with this project.

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

The project provides for the daily management, treatment, storage and disposal of mixed low-level waste, low-level waste, hazardous waste, industrial waste cubing system, and special case waste for the Idaho National Engineering and Environmental Laboratory. This project enables DOE to comply with the Idaho National Engineering and Environmental Laboratory and other DOE Site Treatment Plans under the Federal Facility Compliance Act by providing incineration, stabilization, macroencapsulation, sizing/sorting/segregation, and lead cask dismantlement services for treatment of the Idaho National Engineering and Environmental Laboratory and other DOE Complex sites' mixed low-level waste at the Waste Reduction Operations Complex through FY 2003 and commercial treatment of the Idaho National Engineering and Environmental Laboratory mixed low-level waste between FY 2004 and FY 2006 using the Advanced Mixed Waste Treatment Project. This project also provides low-level waste volume reduction, where possible, through incineration, compaction, and size reduction at the Waste Reduction Operations Complex and disposal in the active pit of the Radioactive Waste Management Complex Subsurface Disposal Area. Other DOE Complex or commercial low-level waste disposal facilities will be utilized after FY 2006 for contact-handled low-level waste. This project also enables the Idaho National Engineering and Environmental Laboratory to comply with the Resource Conservation and Recovery Act treatment and disposal requirements for hazardous waste using commercial treatment, storage, and disposal facilities.

- # Continue lead cask dismantlement at Test Area North.
- # Continue mixed low-level waste incineration, stabilization, and sizing at the Waste Reduction Operations Complex.
- # Continue low-level waste volume reduction activities at the Waste Reduction Operations Complex.

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
# Continue contact handled and remote handled low-level waste disposal in the Radioactive Waste Management Complex Subsurface Disposal Area.			
# Continue to operate and maintain one storage facility for hazardous waste.			
# Continue off-site treatment and disposal of hazardous waste.			
# Consolidated project control and reporting will be provided.			
ID-WM-101	21,855	25,632	22,191

Metrics			
Mixed Low-Level Waste			
Storage (m^3)	1,714.4	1,123.0	697.0
Treatment (m^3)			
Disposed On-site/Commercial (m^3)	225.8	113.0	113.0
Shipped to DOE Disposal Site (m^3)	12.7	50.0	50.0
Low-Level Waste	21.4	0.0	0.0
Storage (m^3)	6,035.0	2,000.0	3,385.0
Treatment (m^3)			
Disposed On-site/Commercial (m^3)	3,690.4	5,200.0	1,464.0
Shipped to DOE Disposal Site (m^3)	3,264.4	6,500.0	4,329.0
Hazardous Waste			
Disposed (MT)	65.0	65.0	65.0
Other Waste			
Disposed (m^3)	0.0	0.0	0.0

(dollars in thousands)

FY 1998	FY 1999	FY 2000

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

The mission of the Transuranic Waste program is to safely store, treat, and prepare for disposal approximately 65,000 m^3 of transuranic mixed waste located at the Idaho National Engineering and Environmental Laboratory Radioactive Waste Management Complex. Most of the waste was shipped from the Rocky Flats Plant for interim storage until disposal at a transuranic waste repository. The Radioactive Waste Management Complex operations include waste characterization and certification of transuranic waste to meet the Waste Isolation Pilot Plant waste acceptance criteria. This project is needed to meet the Idaho Settlement Agreement requirement to ship a minimum of 3,100 m^3 of transuranic waste out of the state by December 31, 2002. The remaining waste will be treated in the planned, privatized Advanced Mixed Waste Treatment Project to meet the Waste Isolation Pilot Plant Waste Acceptance Criteria or other appropriate disposal facility requirements before it is shipped for disposal. The Advanced Mixed Waste Treatment Project capital asset acquisition project (ID-WM-104) is discussed in the Defense EM Privatization account; and the Advanced Mixed Waste Treatment Project production operations project (ID-WM-105) is discussed in the Defense Post 2006 Completion account. All stored transuranic waste is planned to be removed from Idaho by December 31, 2015, but no later than December 31, 2018, as required by the Agreement.

- Ship 1,015.0 m^3 of transuranic waste to the Waste Isolation Pilot Plant for disposal.
- Safely store approximately 63,975 m^3 of transuranic mixed waste in compliance with environmental regulations and DOE orders.
- Provide transuranic waste characterization and certification-related support activities for disposal at Waste Isolation Pilot Plant by completing examination of at least 5,000 drums of transuranic waste at the Stored Waste Examination Pilot Plant.

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
# Provide for compliance with the requirements in the Idaho Settlement Agreement for transuranic and transuranic mixed waste, such as safety analyses reports, transuranic database maintenance, and annual updates of the Resource Conservation and Recovery Act permits.			
ID-WM-103	36,398	33,764	36,323

Metrics			
Transuranic Waste			
Storage (m^3)	65,000.0	64,990.0	63,975.0
Disposed (m^3)	0.0	10.0	1,015.0

Total, Idaho	103,675	108,569	108,961

Explanation of Funding Changes from FY 1999 to FY 2000

	FY 2000 vs. FY 1999 ($000)
ID-ER-101 / Test Area North Remediation	
# Funding increase required to construct and operate Operable Unit 1-07B Phase C Dissolved Phase Plume Treatment Units. Also, implementation of field cleanup activities at the Water Research Reactor Test Facility diesel oil spill sites, grade and restrict access to several burn pits, and implement mercury spill cleanup	6,351
ID-ER-104 / Central Facilities Area Remediation	
# Increase in funding due to initiation of cleanup activities in support of Operable Unit 4-13 contaminated soil sites per Record of Decision; initiation of Remedial Design/Remedial Action activities at 10 remaining release sties	1,167
ID-ER-105 / Power Burst Facility/Auxiliary Reactor Area	
# Increase in funding required to begin implementation of cleanup activities at Operable Unit 5-12 per Record of Decision	1,342
ID-LRP-101-PC / Environmental Engineering and Science Center	
# Funding for this activity is requested in the Defense Science and Technology budget in FY 2000 to consolidate complex-wide program	-8,939

	FY 2000 vs. FY 1999 ($000)
ID-OIM-105 / Security Facilities Consolidation Project	
# Decrease in funding due to project completion	-840
ID-OIM-106 / Electrical and Utility Systems Upgrade Project	
# Decrease in funding consistent with project baseline funding profile and scope of work	-705
ID-OIM-108 / Idaho National Engineering and Environmental Laboratory Road Rehabilitation	
# Decrease represents winding down of the project toward 2001 completion date	-5,363
ID-OIM-109 / Health Physics Instrument Laboratory	
# Increase represents the transition from design to construction	6,261
ID-OIM-110 / Pre-FY 2007 Surplus Facility Deactivation Project	
# Increase reflects completion of title design for CPP-603 and increased deactivation activities at CPP-601	785
ID-OIM-112 / Pre-FY 2007 Idaho National Engineering and Environmental Laboratory Surveillance and Maintenance	
# Decrease reflects surveillance and maintenance requirements relative to progression of deactivation work	-141
ID-OIM-114 / Sitewide Idaho National Engineering and Environmental Laboratory Information Network	
# Initiation of project support activities for new initiative in FY 2000	50
ID-OIM-115 / Site Operations Center	
# Develop path forward in anticipation of FY 2001 line-item construction project (multi-purpose support facility) to replace aging and deteriorating facilities.	1,306
ID-WM-101 / Idaho National Engineering and Environmental Low-Level Waste/Mixed Low-Level Waste/Other Waste Program	
# Decrease reflects one year deferral of funding for commercial macroencapsulation for mixed low-level waste; cessation of operation of the industrial waste cubing system; and a reduction of low-level waste Performance Assessment/Composite Analysis maintenance-related activities	-3,441

	FY 2000 vs. FY 1999 ($000)
ID-WM-103 / Idaho National Engineering and Environmental Transuranic Waste	
# Increased funding will enable the Idaho National Engineering and Environmental Laboratory to successfully meet the Idaho Settlement Agreement milestone to ship 3,100 cubic meters of transuranic waste out of Idaho by December 31, 2002. Includes upgrading Real-Time Radiography System to maintain examination throughput rates; utility and drainage upgrades to Resource Conservation and Recovery Act storage modules; and building a second Transuranic Package Transporter loading facility to support current shipping schedules of transuranic waste to the Waste Isolation Pilot Plant	2,559
Total Funding Change, Idaho	392

Oakland

Mission Supporting Goals and Objectives

Mission

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

Program Goal

EM programmatic goals are to have cleanup completed at the Lawrence Livermore National Laboratory site by 2006, and at the recently identified Separations Process Research Unit site by 2014, and 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; develop demonstrate, test and evaluate new cleanup technologies. These program activities are conducted taking an integrated approach to assessing work and meeting schedules, while balancing risk, mortgage reduction, compliance, cost efficiencies, stakeholder input and implementation of enhanced performance mechanisms. Financial responsibility for newly generated waste will be returned to the generating DOE program by FY 2003. The Lawrence Livermore National Laboratory will be cleaned up and all legacy waste will be characterized and shipped off-site by FY 2006. 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. The Separations Process Research Unit will be cleaned up and all legacy wastes will be characterized and shipped off-site by FY 2014.

The Oakland Operations Office has identified several innovative technologies to be evaluated and used at the Lawrence Livermore National Laboratory. For example, field demonstrations using innovative

technologies, in situ hydrous pyrolysis, Electrical Resistance Tomography, and biofiltration began in FY 1998 at the Lawrence Livermore National Laboratory main site. Another innovative approach being considered is the Engineered Plume Collapse strategy which will demonstrate a system of these and other technologies to remove organic contaminants from ground water more rapidly than baseline conventional pump and treat approach. The current Interim Record of Decision for Building 834 at Lawrence Livermore National Laboratory Site 300 specifies an evaluation of various technologies for remediation of trichloroethylene plume and dense non-aqueous phase liquid sources. To date, surfactant testing has been completed and analyses are ongoing. At the Lawrence Livermore National Laboratory main site the Expedited Technology Demonstration Project was implemented in FY 1998 using a molten salt treatment methodology.

Performance Measures

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

Significant Accomplishments and Program Shifts

- At the Livermore Main Site, continued operation of 4 permanent treatment facilities and 8 portable treatment units; began operation of portable treatment units at three new locations Treatment Facility D-East, Treatment Facility D-Southeast, and treatment facility-Building 518; and started Phase I in-site groundwater treatment facility at Trailer 5475 (FY 1998).
- Continue maintenance and operation of treatment facility and portable treatment units; install a soil vapor extraction treatment facility at TR 5475; start Phase II of groundwater in situ system at TR 5475; and complete one release site at the Livermore Main Site (FY 1999).
- Continue environmental restoration activities, i.e. groundwater monitoring and treatment system operation for containment and contaminant source removal and implementation of other cleanup actions, to ensure compliance with Federal Facility Agreements at both of the Lawrence Livermore National Laboratory sites (FY 2000).
- Completed and submitted Remedial Design Report #4 for Trailer 5475 and East Taxi Strip at Livermore Site and completed 6 release sites at the Livermore Main Site (FY 1998).
- Prepare closure documentation for Buildings 514 and 612 at the Livermore Main Site (FY 1999).
- Completed closure and cap construction of Pit 6 Operable Unit at the Lawrence Livermore National Laboratory Site 300 (FY 1998).
- Complete a Site-Wide Feasibility Study for the Lawrence Livermore National Laboratory Site 300 and complete 4 release sites (FY 1999).
- Completed Site 300 Building 815/Operable Unit 4 Final Action Memorandum and completed 7 release sites at Site 300 (FY 1998).

- Begin interim action groundwater treatment system at Building 815/Operable Unit 4 and treatability study for contaminant removal at Building 854/Operable Unit 6 at Site 300 (FY 1999).
- At the Livermore Main Site, completed construction of Decontamination and Waste Treatment Facility Phases 4 and 3A and started construction on Phase 3B (FY 1998) and continue construction of Phase 3B and start construction of Phase 5 (FY 1999).
- Activate and begin operational testing of the Decontamination and Waste Treatment Facility at the Lawrence Livermore National Laboratory Main Site (FY 2000).
- Completed construction on the Explosive Waste Treatment Facility at Site 300 (FY 1998) and begin operations (FY 1999).
- Initiated the testing of the effectiveness of Molten Salt Oxidation on mixed waste at the Livermore Site (FY 1998).
- Complete testing activities of Molten Salt Oxidation at Livermore site (FY 1999).
- Treated approximately 50,000 gallons of aqueous mixed low-level waste and 27,000 gallons of low-level waste, disposal of 778 cubic meters of low-level waste, 209 cubic meters of mixed low-level waste, and 4,666 cubic meters of hazardous waste (FY 1998).
- Manage over 1,800 cubic meters of newly generated solid waste; treat about 32,000 gallons of aqueous mixed low-level waste/low-level waste and dispose of approximately 573 cubic meters of low-level waste at the Nevada Test Site and over 149 cubic meters mixed low-level waste at a commercial treatment, storage, and disposal facility (FY 1999).
- Build an overhead crane in the high activity waste storage area at the Livermore Site (FY 1999).
- Issue an Environmental Assessment or Categorical Exclusion for the Large Container Processing Unit to meet National Environmental Protection Act requirements at the Livermore Site (FY 1999).
- Initiate surveillance and maintenance responsibility for the Separations Process Research Unit facilities (FY 2000).
- Continue storage, treatment, and some offsite disposal of waste(low-level, mixed low-level, and transuranic waste) at Lawrence Livermore National Laboratory (FY 2000).

Funding Schedule

(dollars in thousands)

	FY 1998	FY 1999	FY 2000	$ Change	% Change
OAK-001 / Lawrence Livermore National Laboratory Main Site Remediation	12,299	11,475	10,500	-975	-8.5%
OK-002 / Lawrence Livermore National Laboratory Site 300 Remedial Action	9,255	9,843	11,800	1,957	19.9%
OK-021 / Lawrence Livermore National Laboratory Base Program	19,778	21,434	21,891	457	2.1%
OK-026 / Lawrence Livermore National Laboratory General Plant Projects	375	395	1,700	1,305	330.4%
OK-027 / Lawrence Livermore National Laboratory Decontamination and Waste Treatment Facility	11,250	4,752	2,000	-2,752	-57.9%
OK-040 / State Grants	2,192	2,700	800	-1,900	-70.4%
OAK-041 / Accelerated Waste Treatment	1,253	1,315	2,000	685	52.1%
OAK-SPRU / Separations Process Research Unit	0	0	500	500	>999.9%
Total, Oakland	56,402	51,914	51,191	-723	-1.4%

Funding By Site

(dollars in thousands)

	FY 1998	FY 1999	FY 2000	$ Change	% Change
Lawrence Livermore National Laboratory (CA)	54,210	49,214	49,891	677	1.4%
Separations Process Research Unit (NY)	0	0	500	500	>999.9%
Oakland Operations Office (CA)	2,192	2,700	800	-1,900	-70.4%
Total, Oakland	56,402	51,914	51,191	-723	-1.4%

Metrics Summary

	FY 1998	FY 1999	FY 2000
Remedial Action/Release Site			
Cleanups	13.0	5.0	7.0
Transuranic Waste			
Storage (m^3)	292.0	300.0	300.0
Mixed Low-Level Waste			
Storage (m^3)	599.0	550.0	550.0
Treatment (m^3)	196.0	149.0	149.0
Disposed On-site/Commercial (m^3)	209.0	149.0	149.0
Low Level Waste			
Storage (m^3)	1,618.0	1,655.0	1,655.0
Treatment (m^3)	101.0	43.0	43.0
Shipped to DOE Disposal Site (m^3)	778.0	573.0	573.0
Hazardous Waste			
Disposal On-site/Commercial (MT)	4,666.0	2,859.0	2,859.0

Site Description

Lawrence Livermore National Laboratory

The Lawrence Livermore National Laboratory is a multi-disciplinary research laboratory specializing in weapons research and development which has two geographic locations in northern California. The Livermore Site is approximately one square mile and is located 40 miles east of San Francisco, near the City of Livermore. Site 300 is comprised of about 11 square miles and is located 15 miles southeast of the Livermore Site. Both the Livermore Site and Site 300 are on the Environmental Protection Agency's National Priorities List. Environmental Restoration activities at the Lawrence Livermore National Laboratory are focused on identifying contaminated ground water 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, 1 at the Livermore Site, 8 at Site 300, and a total of 193 release sites. As of FY 2000, 139 release sites for the Livermore Site and Site 300 will be completed. 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. In addition, characterization of a large portion of the legacy transuranic waste inventory is dependent on the completion of the Large Container Packaging Unit in FY 2001. Completion of the Decontamination and Waste Treatment Facility in FY 2000 will provide new, centralized, and integrated facilities for the treatment of all Lawrence Livermore National Laboratory waste.

Separations Process Research Unit

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

Oakland Operations Office

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

Detailed Program Justification

(dollars in thousands)

FY 1998	FY 1999	FY 2000

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

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
OAK-001 / Lawrence Livermore National Laboratory Main Site Remediation			
The mission of this project is to identify existing contamination from past operations, control contaminated groundwater migration, and effectively remediate soil and groundwater where contaminants exceed regulatory limits at the Livermore Site. This project consists of one operable unit and 120 release sites.			
# Continue operation and maintenance of treatment facilities; site monitoring and sampling requirements; risk analysis; and regulatory reporting to meet Record of Decision Federal Facility Agreement requirements.			
# Complete expansion at Treatment Facility B (one well hookup); initiate Phase 3 in situ groundwater treatment at TR 5475; install a miniportable treatment unit at Treatment Facility E-Southwest; and at Treatment Facility East-Southeast; and a solar powered water treatment systems at Treatment Facility 518 North Facility A-East.			
# Complete two release sites.			
OAK-001	12,299	11,475	10,500

Metrics			
Remedial Action/Release Site			
Cleanups	6.0	1.0	2.0

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

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

Continue operation and maintenance of treatment facilities; site monitoring and sampling requirements; risk analysis; and regulatory reporting to meet Federal Facility Agreement requirements.

Complete Site 300 Site-Wide Draft Record of Decision and submit to regulators.

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
# Complete installation of portable treatment units, nitrate/perchlorate treatment systems and expand well fields at Building 815.			
# Continue pilot treatment systems at Building 832 and characterization investigation field work at Building 812, Building 865, and Sandia Test Area.			
# Install Off-site treatment system at Eastern General Services Area to accelerate plume collapse.			
# Complete five release sites.			
OK-002	9,255	9,843	11,800

Metrics			
Remedial Action/Release Site			
Cleanups	7.0	4.0	5.0

OK-021 / Lawrence Livermore National Laboratory Base Program

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

- Review new procedures and processes associated with the activation and operation of the Decontamination and Waste Treatment Facility.
- Prepare safety and closure documentation for the obsolete Treatment, Storage, and Disposal Facilities.
- Plan, coordinate, and execute movement of materials, equipment, systems, and staff to the Decontamination and Waste Treatment Facility.
- Activate and operate (start up testing) the Decontamination and Waste Treatment Facility.

OK-021	19,778	21,434	21,891

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
Metrics			
Transuranic Waste			
Storage (m^3)	292.0	300.0	300.0
Mixed Low-Level Waste			
Storage (m^3)	599.0	550.0	550.0
Treatment (m^3)	196.0	149.0	149.0
Disposed On-site/Commercial (m^3)	209.0	149.0	149.0
Low Level Waste			
Storage (m^3)	1,618.0	1,655.0	1,655.0
Treatment (m^3)	101.0	43.0	43.0
Shipped to DOE Disposal Site (m^3)	778.0	573.0	573.0
Hazardous Waste			
Disposed On-site/Commercial (m^3)	4,666.0	2,859.0	2,859.0

OK-026 / Lawrence Livermore National Laboratory General Plant Projects

The mission of the General Plant Projects is to support waste management operations by providing small capital improvements to property, purchase new/improved technology equipment, perform coded compliance updates, and/or upgrade existing buildings and utilities to meet current or new regulations and requirements.

Procure long-lead equipment items such as air handling units.

OK-026	375	395	1,700

Metrics
No quantifiable corporate performance measures are associated with this project.

OK-027 / Lawrence Livermore National Laboratory Decontamination and Waste Treatment Facility (86-D-103)

The construction of the Decontamination and Waste Treatment Facility at the Lawrence Livermore National Laboratory is to 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.

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
# Complete the activation of the Decontamination and Waste Treatment Facility.			
# Continues funding and construction of the Decontamination and Waste Treatment Facility construction line item 86-D-103. Included in the funding totals for this program baseline summary are $11,250 for FY 1998, $4,752 (prior year funds used as an offset for FY 1999 uncosted reduction) for FY 1999, and $2,000 for FY 2000 for the line item.			
OK-027	11,250	4,752	2,000

Metrics
No quantifiable corporate performance measures are associated with this project.

OK-040-D / State Grants

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

# State agencies participate in meetings, review and comment on documents, and concur on environmental restoration actions.			
# Provide funds to support activities related to tribal colleges and universities, center for environmental excellence, independent review and Hispanic scholarships.			
OK-040	2,192	2,700	800

Metrics
No quantifiable corporate performance measures are associated with this project.

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
OAK-041 / Accelerated Waste Treatment			
There are two subprojects associated with the mission of this project to accelerate waste treatment. The first subproject completed in FY 1998 is the Expedited Technology Demonstration Project which includes the demonstration of the Molten Salt Oxidation technology. The second subproject is the Large Container Processing Unit which will be used to resize the waste stored in oversize containers to a manageable size for shipment to the Waste Isolation Pilot Plant.			
# Prepare and obtain approval of the Environmental Assessment and Resource Conservation and Recovery Act permits.			
# Prepare the Preliminary Safety Analysis Report for the Large Container Processing Unit.			
# Issue a Request for Proposal for a Contractor to design and build the Large Container Processing Unit.			
OAK-041	1,253	1,315	2,000
Metrics No quantifiable corporate performance measures are associated with this project.			
OAK-SPRU / Separations Process Research Unit			
The mission of this project is to remove radiological and hazardous contamination from the Separations Process Research Unit . Approximately 26 release site are to be decontaminated and decommissioned.			
# First year of funding for surveillance and maintenance of these facilities in anticipation of decontamination and decommissioning.			
OAK-SPRU	0	0	500
Metrics No quantifiable corporate performance measures are associated with this project.			
Total, Oakland	56,402	51,914	51,191

Explanation of Funding Changes from FY 1999 to FY 2000

	FY 2000 vs. FY 1999 ($000)
OAK-001 / Lawrence Livermore National Laboratory Main Site Remediation	
# Decrease in funding request is due to reduced costs of treatment facility installation and build-outs and near-term completion of ROD commitments to control contaminant plume migration	-975
OK-002 / Lawrence Livermore National Laboratory Site 300 Remedial Action	
# Increase in costs are for the finalization of the site-wide ROD, implementation of interim actions, development and implementation of a remedial design and construction schedule that will install source control remedies at all the Operable Units, application of destructive removal technologies such as hydrous pyrolysis, electro-kinetics and in situ chemical injection of oxidation reactants, and completion of source investigations	1,957
OK-021 / Lawrence Livermore National Laboratory Base Program	
# Slight increase in funding to ensure safe and compliant operations for treatment, storage and disposal of wastes at the Lawrence Livermore National Laboratory	457
OK-026 / Lawrence Livermore National Laboratory General Plant Projects	
# Increase in cost to procure long-lead equipment items with varied costs such as air handling units	1,305
OK-027 / Lawrence Livermore National Laboratory Decontamination and Waste Treatment Facility	
# Decrease in costs consistent with Decontamination and Waste Treatment Facility (construction project for processing transuranic waste, mixed low-level waste, low-level waste, hazardous waste, and other waste) nearing completion at the Lawrence Livermore National Laboratory	-2,752
OK-040-D / State Grants	
# Activities will continue but will be funded at a reduced level. However, similar activities are being funded in the Non-Defense Environmental Management appropriation	-1,900

	FY 2000 vs. FY 1999 ($000)
OAK 041 / Accelerated Waste Treatment	
# Increase in cost for preparation and obtaining an Environmental Assessment and Resource Conservation and Recovery Act permits preparing the preliminary Safety Analysis Report and to issue a Request for Procurement for a contractor to design and build the large container processing units	685
OAK-SPRU / Separations Process Research Unit	
# First year of funding requested for EM to assume surveillance and maintenance responsibility of Separation Process Research Unit facilities to be decontamination and decommissioning	500
Total, Oakland	-723

Richland

Mission Supporting Goals and Objectives

Mission

The Richland Operations Office manages the Department of Energy's Hanford Site in Southeast Washington State. The site mission under the Defense Environmental Management, Site/Project Completion account is to safely store and stabilize inventories of spent nuclear fuel and special nuclear materials. Included in this mission is deactivation of the nuclear facilities associated with these materials in order to reduce the risks posed by aging facilities and reduce the high annual costs for maintaining such facilities.

Program Goal

The Hanford Site will address the urgent risks associated with stored Spent Nuclear Fuel in close proximity to the Columbia River, plutonium and other nuclear material inventories requiring stabilization, and the deactivation of the associated nuclear facilities that exist to maintain these inventories.

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

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

Deactivation of other former defense nuclear facilities that fall under the Facility Transition Program will be accomplished. Deactivation of these facilities provides risk reduction benefits as well as outyear cost avoidances. Significant deactivation completions already accomplished are the Plutonium-Uranium Extraction facility that reduced the annual surveillance and maintenance costs from about $34 million to less than $1 million a year, the B-Plant which reduced the annual surveillance and maintenance costs from

about $19 million to less than $1 million per year, and the N-Reactor. The deactivation of facilities in the 300 Area, such as Buildings 324 and 327, which contain upwards of 1.5 million curies of dispersable radioactive material, will provide significant outyear savings in surveillance and maintenance costs. In addition to deactivation of these surplus facilities, some will be considered for economic transition to the private sector. With significant experience in nuclear facility deactivation, Richland provides lessons-learned and support to other facilities on-site as well as complex wide.

Program Objectives

In FY 2000, the Spent Nuclear Fuel project will make significant progress in preparations for the commencement of spent fuel removal from the K-East and K-West basins. Specifically the K-West system for removing fuel from the basin will be installed and tested in support of commencing fuel removal in early FY 2001. For K-East basin, the fuel retrieval system installation will begin to support a fuel retrieval start date in FY 2002. While awaiting fuel removal, the safe and contained storage of the spent nuclear fuel in the K-Basins is a primary objective achieved through the surveillance and maintenance of the facilities necessary to comply with the facility safety requirements.

At the Plutonium Finishing Plant, significant progress toward stabilization of plutonium bearing materials will be made in FY 2000. Specifically, stabilization of up to 600 kilograms of plutonium residues are expected, 160 liters of plutonium bearing solutions will be stabilized, and about 238 containers of plutonium metals and oxides will be stabilized. While stabilization activities proceed, the safe and secure storage of the special nuclear material in the Plutonium Finishing Plant is a primary objective. It will be achieved through surveillance and maintenance of the Plutonium Finishing Plant necessary to comply with the facility safety requirements and safeguards requirements. Safeguards requirements include obligations to comply with International Atomic Energy Agency non-proliferation inspections.

Planning for the deactivation and transition of facilities that fall under the Facility Transition Program will be accomplished. Specifically, this will include buildings mostly in the 300 area - such as Buildings 324 and 327. While these facilities await deactivation and transition, the safe and secure maintenance of the facilities will be achieved through surveillance and maintenance of the facilities necessary to comply with the facility safety requirements and safeguards requirements.

Performance Measures

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

Significant Accomplishments and Program Shifts

- Completed N-Reactor deactivation (FY 1998).

- # Completed negotiation of spent nuclear fuel Tri-Party Agreement milestones and resolved dispute resolution (FY 1998).
- # Completed construction of the Spent Nuclear Fuel canister storage building superstructure (FY 1998).
- # Completed manufacture of the Spent Nuclear Fuel stabilization equipment prototype (FY 1998).
- # Completed Spent Nuclear Fuel Project baseline validation (FY 1998).
- # Completed B-Plant deactivation (FY 1998)
- # Restarted limited plutonium operations at the Plutonium Finishing Plant (FY 1998).
- # Completed size reduction and shipment of Building 324 B-Cell rack 1B and low-level waste to the Hanford burial grounds per Tri-Party Agreement requirements (FY 1998).
- # Completed resolution of Building 324 fire hazard concerns (FY 1998).
- # Completed final Building 324/327 Stabilization/Deactivation Project Plan per Tri-Party Agreement Milestone (FY 1998).
- # Transferred 236 legacy waste buckets stored in Building 327 hot-cells to the Hanford burial grounds (FY 1998).
- # Completed transfer of all Building 324 cesium inventory to the Waste Encapsulation and Storage Facility in the Central Hanford 200 Area for interim storage (FY 1998).
- # Complete Spent Nuclear Fuel stabilization facility pre-operational acceptance test (FY 1999).
- # Complete Spent Nuclear Fuel project safety designs (FY 1999).
- # Restart plutonium stabilization activities at the Plutonium Finishing Plant (FY 1999).
- # Complete cold installation for the vertical denitration calciner and commence prototype vertical denitration calciner stabilization operations at the Plutonium Finishing Plant (FY 1999).
- # Complete installation of three additional plutonium stabilization furnaces at the Plutonium Finishing Plant (FY 1999).
- # Complete design and initiate procurement of automated Plutonium stabilization and packaging system (FY 1999).
- # Complete size reduction and shipment of Building 324 B-Cell racks 1A and 2A and low-level waste to the Hanford burial grounds per Tri-Party Agreement requirements (FY 1999).
- # Complete fuel retrieval, drying, transport and storage system testing to support commencement of fuel removal from the K-West basin in early FY 2001 (FY 2000).
- # Complete K-East modification and begin K-East Fuel Retrieval System installation in preparation for K-East basin fuel removal in FY 2002 (FY 2000).

- # Continue stabilization of 160 liters of plutonium bearing solutions, and about 238 containers of plutonium metals and oxides (FY 2000).
- # Commence stabilization of about 600 kilograms of plutonium bearing residues and plutonium bearing polycube materials (FY 2000).
- # Continue surveillance and maintenance of spent nuclear fuel facilities and all facilities and material that fall under the Facility Transition Program (FY 2000).

Funding Schedule

(dollars in thousands)

	FY 1998	FY 1999	FY 2000	$ Change	% Change
RL-ER09 / N Reactor Deactivation	15,772	0	0	0	0.0%
RL-TP01 / B-Plant Sub-Project	20,460	2,716	0	-2,716	-100.0%
RL-TP03 / Plutonium-Uranium Extraction Sub-Project	-67	0	0	0	0.0%
RL-TP04 / 300 Area/Special Nuclear Materials Sub-Project	3,677	4,444	3,658	-786	-17.7%
RL-TP05 / Plutonium Finishing Plant Deactivation	57,724	104,136	136,197	32,061	30.8%
RL-TP08 / 324/327 Facility Transition Project	21,068	31,547	27,908	-3,639	-11.5%
RL-TP10 / Accelerated Deactivation	2,114	1,738	1,741	3	0.2%
RL-TP12 / Transition Project Management	10,776	15,148	15,191	43	0.3%
RL-TP14 / Surplus Facility 300 Area Revitalization	735	508	646	138	27.2%
RL-WM01 / Spent Nuclear Fuels Project	152,887	170,400	190,955	20,555	12.1%
Total, Richland	285,146	330,637	376,296	45,659	13.8%

Funding By Site

(dollars in thousands)

	FY 1998	FY 1999	FY 2000	$ Change	% Change
Hanford	285,146	330,637	376,296	45,659	13.8%
Total, Richland	285,146	330,637	376,296	45,659	13.8%

Metrics Summary

	FY 1998	FY 1999	FY 2000
Facility Deactivation			
Buildings Deactivated During Period	26.0	0.0	16.0
Buildings in Post-Deactivation Monitoring	28.0	5.0	21.0
Buildings Not Yet Deactivated/Monitored	0.0	165.0	149.0
Nuclear Material			
Stabilized - Pu Residue (kg)	0.0	0.0	600.0
Stabilized - U in Other Forms (kg)	0.0	78.0	9.0
Stabilized - Pu Solution	0.0	40.0	160.0
Stabilized - Pu Metal/Oxides/Other	0.0	238.0	238.0
Spent Nuclear Fuel			
In Stabilization Process (Not Stabilized) (MTHM)	2,105.7	2,100.6	2,100.6
In Stabilization Process (Not Stabilized) (m^3)	276.4	276.0	276.0

Site Description

Hanford

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

Hanford was established in secrecy during World War II to produce plutonium for the nation’s nuclear weapons. Peak production years were reached in the 1960s when 9 production reactors were in operation along the river. The last to be decommissioned was N-Reactor and its fuel in the K-Basins is now being relocated to higher ground in the central plateau, known as the 200-Area. The 200-Area had been the site of major nuclear chemical processing plants which were all shut down by the early 1990s. The 200-Area is now the core of major waste management operations, and includes 177 underground storage tanks containing the high-level waste from past processing operations. A major effort to immobilize these wastes by vitrification is underway by a privatization contractor. The Plutonium Finishing Plant is one of the last production facilities that will remain operational -- to process remaining plutonium materials. Other areas of the site include the Fast Flux Test Facility (400-Area) which does not currently have a mission (currently budgeted and managed by the Office of Nuclear Energy); research

and development activities by Pacific Northwest National Laboratories in the 300-Area; and support facilities in the 1100-Area, most of which have been turned over to the local communities.

The Hanford mission is now site cleanup and environmental restoration, including the groundwater/vadose zone integration project to protect the Columbia River. The cleanup is covered by a 1989 consent agreement between the Department of Energy, the Environmental Protection Agency, and the Washington State Department of Ecology. This Tri-Party Agreement contains enforceable milestones for bringing 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 budget items.

Detailed Program Justification

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
The site is managed through an incentivized integrated contract, with fixed-price subcontracts, to assure the most cost-effective services to the Government. The scope Planned for FY 2000 has been reviewed and is appropriate to meet the goals of the site as outlined in the *Accelerating Cleanup: Paths to Closure.* Nearly 100 percent of the projects' funding included in this section of the budget had an independent cost review of the scope, and the funds requested for FY 2000 are appropriate to perform the activities based on estimated project progress and accumulated cost management success.			
RL-ER09 / N Reactor Deactivation			
This project involved the deactivation of 88 facilities; cleanout and stabilization of the N Basin; cleanout and stabilization of the Emergency Dump Basin; removal of fuel spacers from silos; operation of the N Reactor waste pool; and surveillance and maintenance.			
# Project completed in FY 1998. No further activity.			
RL-ER09	15,772	0	0

Metrics
No quantifiable corporate performance measures are associated with this project.

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
RL-TP01 / B-Plant Sub-Project			
This project deactivated and maintained B Plant and its ancillary facilities in a safe and cost-effective surveillance and maintenance status through FY 1998. It will be turned over to the Environmental Restoration project during FY 1999.			
# B-Plant deactivation completed in FY 1998. B-Plant closeout activities and punch-list items are completed in FY 1999. No further activity in FY 2000.			
# This project included $2,400,000 in FY 1998 for line-item 97-D-451, B-Plant Safety Class Ventilation Upgrade.			
RL-TP01	20,460	2,716	0

Metrics			
Facility Deactivation			
Buildings Deactivated During Period	26.0	0.0	0.0
Buildings in Post Deactivation Monitoring	28.0	0.0	0.0

RL-TP03 / Plutonium-Uranium Extraction Facility Sub-Project			
This project deactivated and maintained the Plutonium-Uranium Extraction and its ancillary facilities in a safe and cost-effective surveillance through FY 1997, at which time the project was transitioned to Long-Term Surveillance and Maintenance project, RL-ER05.			
# Project completed in FY 1997. No further activity. Negative Budget Authority in FY 1998 represents deobligation of prior year carryover funds for transfer to other activities within this budget.			
RL-TP03	-67	0	0

Metrics
This project has associated corporate performance measures; however, no measures are reportable in the three year budget profile.

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
RL-TP04 / 300 Area/Special Nuclear Materials Sub-Project			
This project's main objective is to complete deactivation and closure of the 300 Area Fuel Supply Shutdown complex. It includes regulatory compliant surveillance and maintenance of 1200 metric tons of special nuclear material until it is dispositioned; isolating Building 313; closure of two remaining Resource Conservation and Recovery Act permitted treatment, storage, disposal systems; complete deactivation and stabilization activities of the systems/buildings in the Fuel Supply Shutdown complex; and disposition of the remaining low enriched spent nuclear fuel.			
# Continue surveillance and maintenance activities for maintaining facility safety bases.			
RL-TP04	3,677	4,444	3,658

Metrics			
Facility Deactivation			
Buildings Deactivated During Period	0.0	0.0	16.0
Buildings in Post Deactivation Monitoring	0.0	2.0	18.0
Buildings Not Yet Deactivated/Monitored	0.0	16.0	0.0

RL-TP05 / Plutonium Finishing Plant Deactivation

Provides for safe and secure storage of special nuclear materials at the Plutonium Finishing Plant complex, and provides the basic infrastructure on which nuclear material stabilization and facility deactivation are dependent. Implements the Defense Nuclear Facility Safety Board Recommendation 94-01 by stabilizing, repackaging, and removing all remaining plutonium-bearing materials from the Plutonium Finishing Plant. In addition, implements deactivation of the Plutonium Finishing Plant complex.

- # Begin processing plutonium solutions through the vertical denitration calciner.
- # Initiate plutonium residue cementation and stabilization of polycube material.
- # Complete design, procurement, installation, test, and personnel training for the new Plutonium Stabilization and Handling System.

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
# Continues funding and construction of the Plutonium Stabilization and Handling System for Plutonium Finishing Plant construction line-item (98-D-453). Included in the totals for this project are $3,136,000 for FY 1998; $10,699,000 for FY 1999; and $16,860,000 for FY 2000 for the line-item.			
# Continue thermal stabilization of plutonium oxides.			
# Continue surveillance and maintenance activities related to facility and related systems, as well as surveillance and monitoring of stored nuclear material.			
# Support International Atomic Energy Agency non-proliferation activities at the Plutonium Finishing Plant. Approximately one metric ton of excess plutonium oxide is stored in the Plutonium Finishing Plant vaults, under international safeguards. This material is routinely inspected by the International Atomic Energy Agency to ensure it has not been diverted toward any nuclear weapons application.			
RL-TP05	57,724	104,136	136,197

Metrics			
Facility Deactivation			
Buildings Not Yet Deactivated	0.0	52.0	52.0
Buildings in Post Deactivation Monitoring	0.0	3.0	3.0
Nuclear Material Stabilization			
Stabilized - Pu Residue (kg)	0.0	0.0	600.0
Stabilized - U in Other Forms (kg)	0.0	78.0	9.0
Stabilized - Pu Solution	0.0	40.0	160.0
Stabilized - Pu Metal/Oxides/Other	0.0	238.0	238.0
Spent Nuclear Fuel			
In Stabilization Process (Not Stabilized) (MTHM)	0.0	0.6	0.6

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
RL-TP08 / 324/327 Facility Transition Project			
This project provides for planning, deactivation, and maintenance of a minimum safe status for the 324/327 facilities, cleanout of the B-Cell in the 324 building, and legacy waste removal from the 327 building. The 324 facility B Cell cleanout is of particular concern, since the facility represents a highly active dispersable hazardous and radioactive material source located adjacent to Hanford's southern boundary with the City of Richland residences and institutions.			
# Continue surveillance and maintenance activities at Buildings 324 and 327.			
RL-TP08	21,068	31,547	27,908
Metrics			
Facility Deactivation			
Buildings Not Yet Deactivated	0.0	14.0	14.0
RL-TP10 / Accelerated Deactivation			
This project provides for deactivation of all Hanford contaminated facilities outside the 300 Area that are not covered in any other Hanford Environmental Management project. There are 48 non-mobile contaminated facilities that will eventually be included under this project, but most are not slated for transition to a safe, inexpensive state until after 2001. Initially, 8 non-mobile facilities will be assessed and characterized, have inventories (including spent nuclear fuel) removed, and develop regulatory, deactivation and post-deactivation plans to achieve shutdown endpoints.			
# Continue surveillance and maintenance activities.			
# Develop Building 231 End Point Criteria, necessary regulatory documentation and deactivation plans.			
# Provides planning necessary for deactivation of three radioactively contaminated facilities; 222T, 222U, and 2704C.			
RL-TP10	2,114	1,738	1,741

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
Metrics			
Facility Deactivation			
Buildings Not Yet Deactivated	0.0	47.0	47.0

RL-TP12 / Transition Project Management

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

- **#** Support technical development of the 200 Area Canyon Entombment Project.
- **#** Provide Fluor Daniel Hanford, Inc. project management direction.

RL-TP12	10,776	15,148	15,191

Metrics
No quantifiable corporate performance measures are associated with this project.

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

This project reduces the risk to the public, workers and environment of up to 156 excess facilities in the 300 Area by removing, isolating, or stabilizing contaminants, providing surveillance and maintenance to assure releases do not occur, and keeping facilities from further deterioration until final disposition of the facilities is determined.

- **#** Continue minimum safe facility surveillance and maintenance.
- **#** Initiate 300 Area facility assessments and develop a 300 Area project plan.

RL-TP14	735	508	646

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
Metrics			
Facility Deactivation			
Buildings Not Yet Deactivated	0.0	36.0	36.0

RL-WM01 / Spent Nuclear Fuels Project

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

- **#** Complete fuel retrieval, drying, transport and storage system testing to support commencement of fuel removal from the K-West basin in early FY 2001.
- **#** Complete K-East modification and begin K-East basin Fuel Retrieval System installation in preparation for K-East basin fuel removal in early FY 2002.
- **#** Continues funding and construction of the Spent Nuclear Fuel Canister and Storage and Stabilization Facility line-item (96-D-406). Included in the funding totals are $21,744,000 in FY 1998; $38,680,000 in FY 1999; and $24,441,000 for FY 2000 for the line-item.

RL-WM01	152,887	170,400	190,955
Metrics			
Spent Nuclear Fuel			
In Stabilization Process (Not Stabilized) (m^3)	276.4	276.0	276.0
In Stabilization Process (Not Stabilized) (MTHM)	2,105.7	2,100.0	2,100.0
Total, Richland	285,146	330,637	376,296

Explanation of Funding Changes from FY 1999 to FY 2000

	FY 2000 vs. FY 1999 ($000)
RL-TP01 / B-Plant Sub-Project	
# Decrease is due to completion of post-deactivation activities in FY 1999	-2,716
RL-TP04 / 300 Area/Special Nuclear Materials Sub-Project	
# The decrease is due to deferring Building 313-S isolation and completion of deactivation activities in the 300 Area	-786
RL-TP05 / Plutonium Finishing Plant Deactivation	
# The increase is due to Plutonium Stabilization and packaging system acquisition, installation, testing, and training, as well as accelerated plutonium solution stabilization	32,061
RL-TP08 / 324/327 Facility Transition Project	
# Decrease reflects deferral of Building 324 B-Cell cleanout	-3,639
RL-TP10 / Accelerated Deactivation	
# No significant change	3
RL-TP12 / Transition Project Management	
# No significant change	43
RL-TP14 / Hanford Surplus Facility Program 300 Area Revitalization Project	
# Increase due to deactivation planning for facilities in the 300 Area revitalization project	138
RL-WM01 / Spent Nuclear Fuels Project	
# Increase will complete major facility construction and installation of retrieval and processing equipment, system acceptance testing, operator training, procedure development, other preparations needed to start spent nuclear fuel retrieval, drying, and relocation operations in early FY 2001	20,555
Total Funding Change, Richland	45,659

Savannah River

Mission Supporting Goals and Objectives

Mission

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

The Savannah River Cleanup Program has as its mission the elimination of the legacy 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, two chemical separations facilities, fuel and target fabrication facilities, tritium processing facilities, a heavy water facility, two high-level waste tank farms, low-level waste storage and disposal facilities, a high-level waste treatment facility, the Savannah River Technology Center, and numerous administrative and technical support facilities. These facilities have varying degrees of environmental contamination (soil and groundwater); the majority of which will require some remedial action to address environmental and health risks.

The Savannah River Cleanup program is composed of the following major elements: spent nuclear fuel management, nuclear materials stabilization, waste management (high-level, transuranic, hazardous, mixed low-level, and other), deactivation, remediation, and supporting landlord requirements. This account funds all activities whose life-cycle will be completed by FY 2006.

Program Goal

The Savannah River Site is committed to managing the spent nuclear fuel, stabilizing nuclear materials, and managing all types of wastes using currently available (or near-term) technology and facilities. Eventually, the nuclear materials would be dispositioned, and the remaining spent nuclear fuel and wastes would 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 may be able to assist other sites in eliminating their Cold War “legacies”. Savannah River Site personnel will complete stabilization of all spent nuclear fuel and all other nuclear materials (currently scheduled to be received or already received at Savannah River) requiring stabilization in FY 2006. Achievement of this effort depends on attainment of productivity enhancements through 2006.

Program Objectives

Although DOE has ceased production of nuclear materials for defense purposes, and all Savannah River Site reactors are shut down, there remains a significant amount of legacy nuclear materials 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 that require 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, all the 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, maintenance of the safety authorization basis, etc. Thus, the cost of continuing to store these materials in their current condition (surveillance and maintenance part of the budget) is very high and approaches the 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. This dual canyon strategy uses existing processes and facilities specifically designed for these materials, thus optimizing the site's capability for the completion of materials stabilization. Accordingly, the strategy would result in the expeditious stabilization of Savannah River Site nuclear materials in accordance with Defense Nuclear Facilities Safety Board Recommendation 94-1.

The Savannah River Site's F-Canyon and FB-Line will complete stabilization of the Savannah River Site plutonium bearing materials covered by the Defense Nuclear Facilities Safety Board Recommendation 94-1 for processing in these facilities by 2004, and the stabilization of certain Rocky Flats Environmental Technology Site plutonium residues and scrub alloy will be complete by 2002. Receipt and stabilization of a limited amount of these plutonium residues from Rocky Flats supports DOE's goal for the accelerated closure of the Rocky Flats Environmental Technology Site. Development and installation of equipment for vitrifying the americium/curium into borosilicate glass form will be ongoing with stabilization of the americium/curium solution projected to be complete in 2002. H-Canyon will continue to dissolve Mark 16/22 spent fuel. Activities for startup of HB-Line Phase II will also continue.

The two chemical processing canyons at the Savannah River Site, and the related support facilities, provide 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 1998, these facilities had stabilized 3,500 gallons of Pu-242 solutions, 80,000 gallons of Pu-239 solutions, 16,000 corroding targets from the L-Reactor basin, and 144 canisters of failed or de-clad spent fuel. Remaining materials to be stabilized in the canyons include 34,000 liters of Pu-239 bearing solutions, 230,000 liters of enriched uranium bearing solutions, 14,000 liters of americium/curium solution, 6,000 liters of neptunium solutions, 1,900 assemblies of Savannah River fuels, 900 items of other aluminum-clad fuel and targets, and 2,200 containers of plutonium and uranium vault materials, and

over 3,000 containers of plutonium residues from Rocky Flats. Proposed missions include stabilizing about 19 metric tons of heavy metal of additional spent nuclear fuel to address potential health and safety vulnerabilities. Nuclear materials stabilized in the canyons will be stored in the Savannah River Nuclear Material Storage Facility when this facility becomes available, until dispositioned.

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

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

The High-Level Waste program includes funding for construction line-item projects, such as Waste Management Upgrades (96-D-408); H-Tank Farm Storm Water Systems Upgrades (98-D-401); and Tank Farm Support Services F and H Area (99-D-402). The Landlord program includes support for construction line-item projects, such as Plantwide Fire Protection, (90-D-149); Chlorofluorocarbon Heating, Ventilation and Air Conditioning Chiller Retrofit (96-D-471) and Regulatory Monitoring and Bioassay Laboratory (97-D-470).

Performance Measures

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

Significant Accomplishments and Program Shifts

- Restarted HB-Line Phase 1 (FY 1998).
- Restarted H-Canyon, first cycle (FY 1998) and restart H-Canyon second cycle (FY 1999).
- Initiated stabilization of Savannah River Site plutonium sweepings (FY 1998) and dissolution of Savannah River Site plutonium sweepings and turnings (FY 1999).

- Completed dissolution of Savannah River Site sand, slag and crucible (FY 1998), and initiate stabilization of Rocky Flats sand, slag and crucible (FY 1999).
- Completed stabilization of remaining Savannah River Site Taiwan Research Reactor spent fuel (FY 1998).
- Continued dissolution of Savannah River Site Mark 16-22 spent fuel (FY 1998).
- Sign contract for sale of excess heavy water (FY 1999).
- Defer construction of the Actinide Packaging and Storage Facility subproject and conduct optimization analysis for surplus plutonium disposition missions that may come to Savannah River (FY 1999).
- Complete detailed design and begin construction activities of the K-Area Nuclear Material Storage Modifications subproject (FY 1999).
- Completed service piping and gang valve systems for three high-level waste tanks (FY 1998).
- Issue draft Savannah River Site spent nuclear fuel management Environmental Impact Statement with preferred alternative treatment for disposal of aluminum-based spent fuel and issue the final Environmental Impact Statement and Record of Decision (FY 1999).
- Begin characterization cabinet operation for characterization/repackaging Savannah River Site plutonium residues for dissolution in HB-line (FY 1999).
- Begin the K-Area Nuclear Materials Storage Modifications subproject construction activities (FY 1999).
- Complete F-Tank Farm electrical upgrades (FY 1999).
- Complete stabilization of Rocky Flats scrub alloy; continue stabilization of Rocky Flats sand, slag, and crucible; complete stabilization of remaining Experimental Breeder Reactor-II spent fuel (subject to the ongoing National Environmental Policy Act); continue declassification of Rocky Flats plutonium metal (subject to the ongoing National Environmental Policy Act); continue characterization and repackaging of plutonium residues; continue dissolution and blending down to low enriched uranium MK-16/22 spent fuel; begin dissolution of additional spent fuel (subject to the ongoing National Environmental Policy Act); begin stabilization of plutonium scrap and mixed scrap; and continue packaging plutonium metal into 3013 inner containers (FY 2000).

Funding Schedule

(dollars in thousands)

	FY 1998	FY 1999	FY 2000	$ Change	% Change
SR-HL09 / Tank Farm Service Upgrades	3,660	1,099	0	-1,099	-100.0%
SR-HL10 / H-Tank Farm Storm Water System Upgrades	1,110	3,633	4,430	797	21.9%
SR-HL11 / Tank Farm Support Services F-Area	0	3,243	4,314	1,071	33.0%
SR-IN01 / Plantwide Fire Protection Line Item	1,257	1,490	637	-853	-57.2%
SR-IN02 / Operations Support Facility Line Item	4,760	0	0	0	0.0%
SR-IN04 / Domestic Water Line Item	540	0	0	0	0.0%
SR-IN05 / Chlorofluorocarbon Heating, Ventilation and Air Conditioning Chiller Retrofit Line Item	10,287	9,702	2,043	-7,659	-78.9%
SR-IN06 / Radio Trunking Line Item	230	0	0	0	0.0%
SR-IN07 / Site Road Infrastructure Line Item	2,776	0	0	0	0.0%
SR-IN08 / High Level Drain Lines Line Item	476	0	0	0	0.0%
SR-IN10 / Regulatory Monitoring and Bioassay Laboratory	6,103	7,542	12,994	5,452	72.3%
SR-IN13 / Decontamination of Laboratory Facility 772-F and 773-A	0	0	2,774	2,774	>999.9%
SR-NM01 / F-Area Stabilization Project	173,799	181,939	206,565	24,626	13.5%
SR-NM02 / H-Area Stabilization Project	132,816	136,304	152,651	16,347	12.0%
SR-NM03 / Savannah River Nuclear Material Storage Line Item	21,292	90,060	7,505	-82,555	-91.7%
SR-NM04 / Canyon Exhaust Line Item	1,826	5,819	0	-5,819	-100.0%
SR-SF01 / K-Reactor Spent Nuclear Fuel Project	29,393	25,845	0	-25,845	-100.0%
SR-SF04 / Heavy Water - D Area	16,133	11,140	0	-11,140	-100.0%
SR-SF06 / Alternate Technology Project	4,592	3,985	3,723	-262	-6.6%
SR-SF07 / Disassembly Basin Upgrade Line Item	2,470	114	0	-114	0.0%
Total, Savannah River	413,520	481,915	397,636	-84,279	-17.5%

Funding By Site

(dollars in thousands)

	FY 1998	FY 1999	FY 2000	$ Change	% Change
Savannah River Site	413,520	481,915	397,636	-84,279	-17.5%
Total, Savannah River	413,520	481,915	397,636	-84,279	-17.5%

Metrics Summary

	FY 1998	FY 1999	FY 2000
Nuclear Material			
Stabilized - Pu Residue (kg Bulk)	0.0	225.0	1,390.0
Stabilized - U in Other Forms Made Disposition-Ready	0.0	0.0	85,608.0
Stabilized - Pu Metal/Oxides	80.0	94.0	0.0
Stabilized - Other Nuclear Material Forms (Handling Units)	147.0	459.0	432.0
Spent Nuclear Fuel			
In Stabilization Process (Not Stabilized) (m^3)	55.3	26.2	0.0
In Stabilization Process (Not Stabilized) (MT)	4.3	2.9	0.0
Made Disposition-Ready - During the Period (m^3)	12.0	16.2	0.0

Site Description

Savannah River

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

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

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

Detailed Program Justification

(dollars in thousands)

FY 1998	FY 1999	FY 2000

The Savannah River Site is managed through an incentivized integrated contract, with fixed-price subcontracts, to assure the most cost-effective services to the Government. The scope planned for FY 2000 has been reviewed and is appropriate to meet the goals of the site as outlined in the *Accelerating Cleanup: Paths to Closure* report. The funds requested for FY 2000 are appropriate to perform the activities based on the use of the "Activity-Based Costing Methodology" and on an independent review of the programmatic assumptions and projected scope. All construction line-item projects were validated and many projects received an independent cost estimate review.

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

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

- # H-Area East Hill Cooling Upgrades: Award a fixed-price construction subcontract to complete construction.
  - ▸ Complete construction, including installation of heat exchangers and the internal heat exchanger for Tank 50, replacement of three cooling tower water pumps, and the addition or replacement of three chromate cooling water pumps.

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
▸ Prior year funds utilized.			
▸ These funding levels include line-item construction funding of $3,100,000 in FY 1998.			
SR-HL09	3,660	1,099	0

Metrics

No quantifiable corporate performance measures are associated with this project.

SR-HL10 / H-Tank Farm Storm Water System Upgrades (98-D-401)

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

# Complete construction including new manholes, storm water piping, and modifications to Diversion Box 907-1H and Retention Basin 281-8H for project 98-D-401, H-Tank Farm Storm Water System Upgrades.			
# These funding levels include line-item construction funding of $1,000,000 in FY 1998; $3,120,000 in FY 1999, and $2,977,000 in FY 2000.			
SR-HL10	1,110	3,633	4,430

Metrics

No quantifiable corporate performance measures are associated with this project.

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
SR-HL11 / Tank Farm Support Services F-Area (99-D-402)			
The scope of this project includes replacement in F-Area Tank Farm of all service lines to Tanks 25-28, 33-34, and 44-47, as well as to the 242-16F evaporator. The existing underground service piping systems will be abandoned in place and not removed, in order to minimize cost, radiological waste generation, and personal radiation exposure.			
# Award construction subcontract.			
# Start construction on the replacement service piping to Tanks 25-28, 33-34, and 44-47, as well as the 242-16F evaporator for project 99-D-402, Tank Farm Support Services F-Area.			
# These funding levels include line-item construction funding of $2,745,000 in FY 1999 and $3,100,000 in FY 2000.			
SR-HL11	0	3,243	4,314

Metrics
No quantifiable corporate performance measures are associated with this project.

SR-IN01 / Plantwide Fire Protection Line Item (90-D-149)

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

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
The project will provide upgrades to existing facilities in various areas across the entire plant site. Upgrades include new or additional provisions to water supply and distribution systems, sprinkler suppression systems, standpipe and hose stations, manual and automatic fire alarm and detection systems, passive protection features, emergency lighting systems, and elevator recall functions. Upgrades will, or have been accomplished in 100-C, K, and L Areas; Defense Waste Processing Facility (S-Area); and miscellaneous A-Area, N-Area, G-Area and other areas of the Site.			
# Complete project and close-out of all fire protection systems for the small tasks subproject.			
# Complete project and financial closure for the Plantwide Fire Protection construction line item and all subprojects within the line item.			
# No line-item construction funds are requested for this project.			
SR-IN01	1,257	1,490	637

Metrics
No quantifiable corporate performance measures are associated with this project.

SR-IN02 / Operations Support Facility Line Item (92-D-150)

This project constructed office buildings to house operations support personnel at the Savannah River Site.			
# No activity. Project was completed in FY 1996. Funds were inadvertently recast into this project baseline summary at yearend. Funds should have been recast into SR-SF02, L-Reactor Spent Nuclear Fuel, for operational support of L-Reactor.			
SR-IN02	4,760	0	0

Metrics
No quantifiable corporate performance measures are associated with this project.

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
SR-IN04 / Domestic Water Line Item (93-D-147)			
Project encompasses upgrades to the site domestic water treatment, storage and distribution systems to comply with the State of South Carolina's Department of Health and Environmental Controls drinking water regulation.			
# No activity. Project was completed in FY 1998.			
# No line-item construction funds are requested for this project.			
SR-IN04	540	0	0

Metrics
No quantifiable corporate performance measures are associated with this project.

SR-IN05 / Chlorofluorocarbon Heating, Ventilation and Air Conditioning Chiller Retrofit Line Item (96-D-471)			
Project provides for replacement or retrofit of refrigeration chillers containing chlorofluorocarbons that are located in various facilities sitewide.			
# Complete facility plans for the replacement of the chiller at the Defense Waste Processing Facility and start design.			
# Complete facility plans for A-Area.			
# Complete design of HB-Line.			
# These funding levels include line-item construction funding of $8,500,000 in FY 1998; $8,000,000 in FY 1999, and $931,000 in FY 2000.			
SR-IN05	10,287	9,702	2,043

Metrics
No quantifiable corporate performance measures are associated with this project.

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
SR-IN06 / Radio Trunking Line Item (95-D-156)			
The radio trunking system incorporates the use of a computer controlled radio repeater system that automatically assigns unused radio channels to each user as needed.			
Most conventional plant radios will be replaced with the trunked radios and transferred to the radio trunking system. Site security and emergency systems will be converted to trunked capability first.			
# No activity. Project was completed in FY 1998.			
# No line-item construction funds are requested for this project.			
SR-IN06	230	0	0
Metrics No quantifiable corporate performance measures are associated with this project.			
SR-IN07 / Site Road Infrastructure Line Item (95-D-155)			
This project upgrades the Savannah River Site bridges 603-IG; 603-2G; 603-3G and 603-7G. Permit packages will be prepared, traffic surveys performed, design and specifications reviewed, and preparation of the Savannah River Site traffic coordination plans.			
# No activity. Project was completed in FY 1998.			
# These funding levels include line-item construction funding of $2,713,000 in FY 1998.			
SR-IN07	2,776	0	0
Metrics No quantifiable corporate performance measures are associated with this project.			

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
SR-IN08 / High Level Drain Lines Line Item (93-D-148)			
The High Level Drain Lines project provided for the replacement of a high-level radioactive drain line system in the Analytical Laboratory, including the demolition and removal of the existing drain system.			
# No activity. Project was completed in FY 1998.			
# No line-item construction funds are requested for this project.			
SR-IN08	476	0	0

Metrics
No quantifiable corporate performance measures are associated with this project.

SR-IN10 / Regulatory Monitoring and Bioassay Laboratory (97-D-470)

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

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
# Construction of the laboratory is projected to be 95 percent complete.			
# Utilities will be installed, including the sanitary sewer; all will be fully operational.			
# Major components, such as heating, ventilation and air conditioning, fume hoods, fire protection systems and laboratory modules will be installed and contractor testing will be initiated.			
# The parking lot will be completed.			
# These funding levels include line-item construction funding of $5,600,000 in FY 1998; $7,000,000 in FY 1999, and $12,200,000 in FY 2000.			
SR-IN10	6,103	7,542	12,994

Metrics
No quantifiable corporate performance measures are associated with this project.

SR-IN13 / Decontamination of Laboratory Facility 772-F and 773-A (00-EXP)

The project will decontaminate areas of the service floor of 772-F and decontaminate and replace the roof of 773-A. Approximately 15,000 square feet of the area in Building 772-F will be decontaminated. The project will also replace parts of the 773-A roof equipment to preclude any additional contamination from occurring due to leaking exhaust components. At 773-A, approximately 40,000 square feet of contaminated roofing area will be replaced, as well as approximately 110,000 square feet of non-contaminated leaking roof area will be replaced. Leaks through the contaminated roofing are currently contaminating interior laboratory modules, requiring significant expense to decontaminate work areas.

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
# This project is a new start operating expense funded line-item project.			
# The initial task will be to obtain a fixed-price architect/engineer to complete the "state-of-the-art" decontamination study and to create two specifications for obtaining two subcontractors for installation work scheduled to begin in early FY 2001.			
# Award of the contract is expected in late FY 2000.			
# Perform design and begin urgent roof repairs to Building 773-A.			
SR-IN13	0	0	2,774

Metrics
No quantifiable corporate performance measures are associated with this project.

SR-NM01 / F-Area Stabilization Project

This project involves converting the Savannah River Site "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. Additionally, a limited quantity of certain off-site nuclear materials from the Rocky Flats Environmental Technology Site are to be stabilized using these facilities. The majority of the Savannah River Site materials stabilization activities are in accordance with the Department's commitments in response to the Defense Nuclear Facilities Safety Board Recommendation 94-1 (Improved Schedule for Remediation in the Defense Nuclear Facilities Complex). Additional nuclear materials proposed to be processed in the F-Canyon facilities include a limited volume of spent nuclear fuel that represents a potential health and safety vulnerability. Stabilization of this spent nuclear fuel is not a DOE Defense Nuclear Facilities Safety Board 94-1 commitment. A decision for the management of these fuels is projected for 1999 following the completion of the Savannah River Site Spent Nuclear Fuel Management Environmental Impact Statement.

Continue modifications to the F-Canyon Multi-purpose Processing Facility in preparation for vitrification of americium/curium.

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
# Continue to transfer depleted uranium material to H-Area.			
# Continue characterization activities on material in inventory for stabilization and/or repackaging.			
# Continue the stabilization of the Rocky Flats Environmental Technology Site plutonium residues and scrub alloy.			
SR-NM01	173,799	181,939	206,565

Metrics			
Nuclear Material			
Stabilized - Pu Residue (kg Bulk)	0.0	225.0	1,390.0
Stabilized - U in Other Forms Made Disposition-Ready	0.0	0.0	85,608.0
Stabilized - Pu Metals/Oxides	80.0	94.0	0.0
Stabilized - Other Nuclear Material Forms (Handling Units)	147.0	459.0	432.0

SR-NM02 / H-Area Stabilization Project

The purpose of the H-Area Stabilization project is to stabilize "at risk" nuclear materials and spent fuel followed by the deinventory of HB-Line and H-Canyon and transition them to minimum surveillance and maintenance status until they can be turned over for final decontamination and decommissioning. To accomplish this, nuclear materials that remained in the processing pipeline at the end of the Cold War must be converted to stable forms. These activities will take place in accordance with the Department's implementation plan for Defense Nuclear Facilities Safety Board Recommendation 94-1 and the Savannah River Site Interim Management of Nuclear Materials Environmental Impact Statement. Other drivers for these activities are the Plutonium and Highly Enriched Uranium Vulnerability Assessments and Materials Disposition Environmental Impact Statements.

The following stabilization activities remain for H-Area:

- Reprocess Mark-16 and 22 spent nuclear fuel and separate the highly enriched uranium for blending to low enriched uranium.
- Reprocess miscellaneous spent nuclear fuels.
- Dissolve Pu-239 residues in HB-Line.
- Convert Pu-239 solution to oxide in HB-Line.
- Deinventory HB-Line vault.

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
▸ Blend existing highly enriched uranium solutions and those created from processing of Mark-16 and 22 spent fuels with depleted uranium solutions to create low enriched uranium for potential use in commercial reactor fuel.			
▸ Convert Neptunium-237 solutions to oxide in HB-Line.			
▸ Dissolve low assay Pu-238 residues.			
# Continue to reprocess Mark-16 and 22 spent nuclear fuel and separate the highly enriched uranium for blending to low enriched uranium.			
# Continue dissolving plutonium scrap and residues in HB-Line.			
# Continue preparations for startup of HB-Line Phase II.			
Note: The Department is planning to submit an FY 1999 reprogramming that will increase the funding by $17,748,000. This will permit hiring of personnel to start up HB-Line (Phase II) to stabilize nuclear materials. If the reprogramming is not endorsed, Savannah River will postpone the start-up of Phase II up to 6 months.			
SR-NM02	132,816	136,304	152,651

Metrics	
Nuclear Material Stabilization *	* Metrics for PBSs SR-NM01 and SR-NM02 are combined. Separation of these metrics would create classified metrics.
Stabilized - Pu Residue (kg Bulk)	
Stabilized - U in Other Forms Made Disposition-Ready	
Stabilized - Pu Metals/Oxides	
Stabilized - Other Nuclear Material Forms (Handling Units)	

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

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
This project will provide interim and long-term storage and handling capability for stabilized Savannah River Site , Rocky Flats and Hanford nuclear materials awaiting disposition (should a decision be made pursuant to National Environmental Policy Act reviews). This project consists of two subprojects: the Actinide Packaging and Storage Facility which will store (and repackage, as necessary) the stabilized plutonium, and the K-Area Nuclear Materials Storage Modifications subproject will store stabilized plutonium from Rocky Flats which is needed to sufficiently accelerate Rocky Flats shipments to the Savannah River Site for closure by 2006.			
# Finish subcontract construction work on the K-Area Nuclear Materials Storage Modifications subproject.			
# Startup and operate the K-Area Nuclear Materials Storage Modifications subproject.			
# These funding levels include line-item construction funding of $18,000,000 in FY 1998; $79,184,000 in FY 1999, and $4,000,000 in FY 2000.			
Note: The Department is planning to submit an FY 1999 reprogramming that decreases the funding for the Actinide Packaging and Storage Facility subproject by $44,000,000. This will permit the mission of this subproject to be re-evaluated in light of DOE's preferred alternatives for the Department's plutonium disposition mission. If the reprogramming is not endorsed, Savannah River shall defer all construction until the mission re-evaluation is complete.			
SR-NM03	21,292	90,060	7,505

Metrics
No quantifiable corporate performance measures are associated with this project.

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

(dollars in thousands)

FY 1998	FY 1999	FY 2000

This project replaces the aging critical electrical and mechanical exhaust equipment in both F- and H-Canyons that will provide for reliable contamination control consistent with the Savannah River Site safety criteria and Federal and State air exhaust and underground tank regulations. The project scope is divided into three design packages: design package-1 covers the rerouting of the canyon recycle vessel vent systems, design package-2 removes and replaces the six underground diesel fuel storage tanks, and design-package-3 replaces the existing canyon exhaust fan and diesel houses. FY 1999 funding is required to continue the project and cover procurements which substantially exceeded the original cost estimates. (This funding level reflects plant and operating expense funds).

- **#** 292-F and H fan replacement work will be completed and financial closure will occur.
- **#** These funding levels include line-item construction funding of $3,667,000 in FY 1999. (See note below.)

Note: The Department is planning to submit an FY 1999 reprogramming that will increase funding for this critical project by $26,252,000. This will permit accelerated replacement of vital safety equipment. If the reprogramming is not endorsed, Savannah River may have to shut down one or both of the canyons due to failure of the fans and motors.

SR-NM04	1,826	5,819	0

Metrics

No quantifiable corporate performance measures are associated with this project.

SR-SF01 / K-Reactor Spent Nuclear Fuel Project

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

- **#** Safely manage the spent nuclear fuel stored in the basin.

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
# A mission for interim storage of special nuclear material from DOE Rocky Flats has been added to the scope of this (K-Reactor spent nuclear fuel) project. With addition of this mission, the K-Reactor area will not be available for deactivation in FY 2002 as previously planned. Storage of Rocky Flats plutonium is scheduled to continue until FY 2012. This change in mission requires this Project Baseline Summary to be moved to the Post 2006 Completion account in FY 2000.			
SR-SF01	29,393	25,845	0

Metrics			
Spent Nuclear Fuel Stabilized			
In Stabilized Process (Not Stabilized) (m^3)	55.3	26.2	0.0
In Stabilized Process (Not Stabilized) (MT)	4.3	2.9	0.0
Made Disposition-Ready - During the Period (m^3)	12.0	16.2	0.0

SR-SF04 / Heavy Water - D Area

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

# The Heavy Water Processing project has previously been included in the Site/Project Completion account with the cost of operations offset by heavy water sales revenue. Previously, heavy water rework (RW) and Dupont water (DW) operations in D-Area were scheduled to cease by December 2000. Recent events surrounding the sale of heavy water places the Heavy Water program into the Post 2006 Completion account in FY 2000 because the tritium removal and heavy water deliveries will continue through FY 2008.			
SR-SF04	16,133	11,140	0

Metrics
No quantifiable corporate performance measures are associated with this project.

(dollars in thousands)

	FY 1998	FY 1999	FY 2000
SR-SF06 / Alternate Technology Project			
The purpose of the Alternative Technology project is to develop alternative treatment and packaging technologies for aluminum-based research reactor spent nuclear fuel, with specific focus on direct co-disposal with high-level waste and melt and dilute/poison technologies, that would put the spent nuclear fuel in a form suitable for geologic disposal without necessarily separating the fissile materials.			
# The Alternate Technology project will support the Spent Nuclear Fuel Treatment and Storage initiative, resolve any remaining technical issues (e.g., reducing off-gas contamination), and support the repository licensing process requirements. Additional confirmatory development of the "melt and dilute" technology will be supported.			
SR-SF06	4,592	3,985	3,723

Metrics
No quantifiable corporate performance measures are associated with this project.

SR-SF07 / Disassembly Basin Upgrade Line Item (95-D-158)

This project provides for modifications to the L-Area basin to permit receipt and storage of research reactor fuels in a number of different type of transportation casks. The legal weight truck subproject provides the capability to handle the legal weight truck and National Lead, Incorporated, casks in L-Area without negating the current capability to process other type fuel transportation casks.

The High Flux Isotope Reactor subproject provides modular storage racks and associated equipment to allow the storage of 60 high flux isotope reactor cores. These racks are being installed in the bucket storage area of the 105-L Reactor Area Disassembly Basin. Fuel handling tools will be supplied to unload the fuel casks and place the fuel element on a fuel carrier.

No activity. Project will be completed in FY 1999.

	(dollars in thousands)		
	FY 1998	FY 1999	FY 2000
SR-SF07	2,470	114	0

Metrics
No quantifiable corporate performance measures are associated with this project.

Total, Savannah River	413,520	481,915	397,636

Explanation of Funding Changes from FY 1999 to FY 2000

	FY 2000 vs. FY 1999 ($000)
SR-HL09 / Tank Farm Service Upgrades	
# The Tank Farm Service Upgrade project will be completed in FY 2000 using prior year funding	-1,099
SR-HL10 / H-Tank Farm Storm Water System Upgrades	
# Increase in funding level based on construction schedule	797
SR-HL11 / Tank Farm Support Services F-Area	
# Increase in funding level based on construction schedule	1,071
SR-IN01 / Plantwide Fire Protection Line Item	
# Project will be completed and closed out	-853
SR-IN05 / Chlorofluorocarbon Heating, Ventilation and Air Conditioning Chiller Retrofit Line Item	
# Decrease in funding due to delays in project schedule	-7,659
SR-IN10 / Regulatory Monitoring and Bioassay Laboratory	
# Increase in funding level based on construction schedule	5,452
SR-IN13 / Decontamination of Laboratory Facility 772-F and 773-A	
# Funds support first year funding for design activities of an operating expense funded project including critical roof repairs to Building 773-A	2,774
SR-NM01 / F-Area Stabilization Project	
# Additional funding required to continue construction of the F-Canyon Multi-Purpose Processing Facility stabilization project and continue development needed to support the vitrification of americium/curium solution	24,626
SR-NM02 / H-Area Stabilization Project	

	FY 2000 vs. FY 1999 ($000)
# Additional funds required for preparations for startup of HB-Line Phase II	16,347
SR-NM03 / Savannah Nuclear Material Storage Line Item	
# Decrease in funding level based on deferring the Actinide Packaging and Storage Facility subproject until its mission is re-evaluated in light of the potential plutonium disposition missions	-82,555
SR-NM04 / Canyon Exhaust Line Item	
# No FY 2000 funds are requested due to a planned FY 1999 reprogramming that will increase this project by $26,252,000. This will permit accelerated replacement of vital safety equipment which has been failing	-5,819
SR-SF01 / K-Reactor Spent Nuclear Fuel Project	
# Project moved to the Post 2006 Completion account because of extended mission to store plutonium from the Rocky Flats Environmental Technology Site	-25,845
SR-SF04 / Heavy Water - D Area	
# Decrease in activity due to deinventory the 400 Area. Project moved to the Post 2006 Completion account due to long-term delivery schedule of the heavy water	-11,140
SR-SF06 / Alternate Technology Project	
# Decrease due to focus on development of a single, relatively mature, technology	-262
SR-SF07 / Disassembly Basin Upgrade Line Item	
# Project closed out in FY 1999	-114
Total Funding Change, Savannah River	-84,279

Major Issues

Site budgets are being challenged by ongoing nuclear materials stabilization activities, new initiatives to support other Environmental Management site closures, and new emerging programs (e.g., alternative spent nuclear fuel treatment capabilities). Key to accomplishing the programmatic objectives in FY 2000 is the successful reprogramming of funds in FY 1999 from the Savannah River Nuclear Materials Storage Project (97-D-450) to support H Canyon nuclear materials stabilization programs and for the safety upgrades to canyon exhaust systems provided in the Upgraded Canyon Exhaust System upgrade project (92-D-140). Should this reprogramming be unsuccessful, nuclear materials stabilization activities in H Canyon would likely be extended by two years, failing to address commitments made in response to the Defense Nuclear Facilities Safety Board Recommendation 94-1. If the upgrades provided in the Upgraded Canyon Exhaust System project are deferred, one or both canyons may be shut down to provide assurance of safe conditions.

Given the Department's recent decisions to name the Savannah River Site as the preferred location for surplus plutonium immobilization, plutonium conversion to mixed-oxide fuels and for surplus plutonium pit disassembly and conversion, the storage requirements that were to be addressed by the Actinide Packaging and Storage Facility subproject need to be reexamined. Should all of these missions be located at Savannah River, optimization of the suite of plutonium storage, immobilization and conversion needs is necessary. The optimization analyses must be completed in a timely manner to allow for completion of plutonium stabilization and interim storage of the inventory of plutonium currently stored at the Savannah River Site.

Capital Operating Expenses & Construction Summary

Capital Operating Expenses

(dollars in thousands)

	FY 1998	FY 1999	FY 2000	$ Change	% Change
General Plant Projects	13,478	11,400	7,440	-3,960	-34.7%
Accelerator Improvement Projects	0	0	0	0	0%
Capital Equipment	24,003	10,044	10,186	142	1.4%
Total, Capital Operating Expense	37,481	21,444	17,626	-3,818	-17.8%

Construction Projects

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Appropriations	FY 1998	FY 1999	FY 2000	Unappropriated Balance
99-D-402 Tank Farm Support Services, F&H Area, SR	18,599	0	0	2,745	3,100	12,754
99-D-404 Health Physics Instrumentation Laboratory, ID	11,900	0	0	950	7,200	3,750
98-D-401 H-Tank Storm Water Systems Upgrade, SR	8,934	0	1,000	3,120	2,977	1,837
98-D-453 Plutonium Stabilization and Handling System for PFP, RL	38,600	0	3,136 [a b]	10,699 [c]	16,860	7,905
98-D-700 INEEL Road Rehabilitation, INEEL	10,800	0	500	7,710	2,590	0

[a] Reflects FY 1998 Internal Reprogramming of $5,000,000 by the Richland Operations Office from the original appropriation of $8,136,000.

[b] Does not reflect prior year uncosted reduction of $1,885,000 included in the FY 1999 Energy and Water Development Appropriation.

[c] Reflects FY 1999 reduction of $16,115,000 from new budget authority to meet uncosted reduction included in the FY 1999 Energy and Water Development Appropriation.

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Appropriations	FY 1998	FY 1999	FY 2000	Unappropriated Balance
97-D-450 Savannah River Nuclear Material Storage, SR	184,000	17,400	18,000	81,344 [d e]	4,000	63,256
97-D-451 B-Plant Safety Class Ventilation Upgrades, RL	4,317	1,917	2,400	0	0	0
97-D-470 Regulatory Monitoring and Bioassay Laboratory, SR	30,280	2,500	5,600	7,000	12,220	2,960
96-D-406 Spent Nuclear Fuels Canister Storage and Stabilization Facility, RL	188,537	103,672	21,744	38,680	24,441	0
96-D-408 Waste Management Upgrades, VL (Kansas City Plant and Savannah River Subprojects)	10,732	7,632	3,100	0 [c]	0	0
96-D-461 Electrical Distribution Upgrade, INEEL	10,756	7,829	2,927	0	0	0
96-D-464 Electrical and Utility Systems Upgrade, INEEL	53,452	14,952	14,985	11,544	11,971	0
96-D-471 CFC HVAC/Chiller Retrofit, SR	45,000	10,041	8,500	8,000	931	17,528
95-D-155 Upgrade Site Road Infrastructure, SR	10,500	7,787	2,713	0	0	0
95-D-456 Security Facilities Consolidation, INEEL	15,100	14,013	602	485	0	0
92-D-140 F&H Canyon Exhaust [d] Upgrades, SR	30,067	21,900	0	3,667	0	4,500

[a] $2,160,000 of the $8,500,000 will be recast to EM from FY 1997 Office of Fissile Materials Disposition unobligated funds, Project 97-D-140. The EM appropriation for FY 1999 is $79,184,000.

[b] The Department is planning to submit an FY 1999 reprogramming that decreases the funding for the Actinide Packaging and Storage Facility subproject by $44,000,000. The mission of this subproject will be reevaluated in light of DOE's preferred alternatives for the Department's plutonium disposition mission.

[c] Reflects FY 1999 Conference Mark which transfers $4,512,000 from project 96-D-408, Waste Management Upgrades to project 93-D-187, High-Level Waste Removal from Filled Waste Tanks at the Savannah River Site.

[d] An FY 1999 reprogramming is being prepared in the amount of $22,000,000.

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Appropriations	FY 1998	FY 1999	FY 2000	Unappropriated Balance
92-D-172 Hazardous Waste Treatment and Processing Facility, Pantex Plant, AL	6,000	1,000	5,000	0	0	0
86-D-103 Decontamination and Waste Treatment Facility, LLNL	62,362	42,661	11,250	3,712 [a]	2,000	2,739
Subtotal, Construction Funded		253,304	101,457	179,656	88,290	117,229
Operating Expense Funded						
00-EXP Laboratory Facilities Roof and Shielded Area Restoration, 773-A & 772-F, SR	14,660	0	0	0	2,774	11,886
96-EXP Americium/Curium Vitrification, SR	40,349	11,995	2,336	3,701	11,940	10,377
Subtotal, Operating Expense Funded		11,995	2,336	3,701	14,714	22,263
Total, Project Funding		265,299	103,793	183,357	103,004	139,492

[a] Prior year funds used as an offset for FY 1999 uncosted reduction, $1,040,000. Original appropriation was $4,752,000.

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

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

Significant Changes

- Tank Farm Support Services scopes of work have been adjusted to facilitate improved project management and work execution between this line item and the 93-D-187, "High-Level Waste Removal from Filled Waste Tanks" line item.
- All F Tank Farm Support Service work scope has been transferred into this line item.
- All H Tank Farm Support Service work scope has been consolidated into the 93-D-187 line item.
- The net effect of the adjusted work scope is a reduction in the total estimated cost and total project cost from $22,073,000 to $18,599,000 and $32,014,000 to $23,966,000, respectively. These reductions were due to a revised conceptual design and more detailed estimate that includes the above described work scope.

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

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design			
1999	1,322	1,322	1,322
2000	404	404	404
2001	441	441	441
2002	252	252	252
Construction			
1999	1,423	1,423	0
2000	2,696	2,696	4,119
2001	7,311	7,311	7,311
2002	4,750	4,750	4,750

3. Project Description, Justification and Scope

The service systems for the Type III (horizontal cooling coil bunch) and IIIA (vertical cooling coils) Tanks in the F-Area Tank Farm provide such systems as steam, plant air, instrument air, breathing air, flush water, cooling water, inhibited water, bearing water, and domestic water to facility components. The tanks and associated process facilities served by the service systems are expected to support long-term operations for waste processing, waste removal, and tank closure at the Savannah River Site.

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

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

The FY 2000 funds will be used to complete definitive design, award the construction fixed-price contract, and begin 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 System Upgrades line item (93-D-187).

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))	1,550	1,875
Design management costs (2.4% of TEC)	452	200
Total, engineering, design, inspection, and administration of construction costs (10.8% of TEC)	2,002	2,075
Construction phase		
Other (major utilities/comp items, specialized facilities, etc.)	11,651	13,179
Inspection, design and project liaison, testing, checkout and acceptance	0	1,098
Construction management (9.9% of TEC)	1,846	900
Total, construction costs	13,497	15,177
Contingencies		
Design phase (2.2% of TEC)	417	600
Construction phase (14.4% of TEC)	2,683	4,221
Total, contingencies (16.7% of TEC)	3,100	4,821
Total, line item costs (TEC)	18,599	22,073

5. Method of Performance

Design will be performed by a fixed-price contractor for the Management and Operating 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.

[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 1998	FY 1999	FY 2000	FY 2001	Outyears	Total
Project cost							
Facility cost							
Design	0	0	1,322	404	441	252	2,419
Construction	0	0	0	4,119	7,311	4,750	16,180
Total facility costs (Federal and Non-Federal)	0	0	1,322	4,523	7,752	5,002	18,599
Other project costs							
Conceptual design cost [a]	246	243	0	0	0	0	489
Other project-related costs [b]			904	1,314	1,366	1,294	4,878
Total other project costs	246	243	904	1,314	1,366	1,294	5,367
Total project costs (TPC)	246	243	2,226	5,837	9,118	6,296	23,966

7. Related Annual Funding Requirements

(FY 2003 dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs	200	200
Annual facility maintenance and repair costs	100	100
Programmatic effort related to facility	0	0
Other annual costs	100	100
Total related annual funding *(operating from FY 2003 through FY 2028)*	400	400

[a] The conceptual design will be completed at an approximate cost of $489,000.

[b] In FY 2000, $1,314,000 will be used to support final design, construction efforts and permitting; $2,660,000 in outyears 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 1999 Congressional Budget Request are denoted with a vertical line [|] in the left margin.)

1. Construction Schedule History

	Fiscal Quarter				Total Estimated Cost ($000)	Total Project Cost ($000)
	A-E Work Initiated	A-E Work Completed	Physical Construct Start	Physical Construct Complete		
FY 1999 Budget Request (*Preliminary Estimate*)	2Q 1999	3Q 2000	4Q 2000	3Q 2002	11,900	12,670
FY 2000 Budget Request (*Preliminary Estimate*)	"	"	"	"	"	"

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design			
1999	950	950	900
2000	179	179	229
2001	0	0	0
2002	0	0	0
Construction			
1999	0	0	0
2000	7,021	7,021	1,871
2001	3,069	3,069	6,600
2002	681	681	2,300

3. Project Description, Justification and Scope

This project provides for the design, procurement, and construction activities to provide for a new Health Physics Instrument 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 will provide a new facility for the servicing, calibrating, and testing of radiation detection instruments used in radioactive environments. The purpose of the Health Physics Instrument Laboratory is to provide, repair, and maintain radiation detection instruments; evaluate newly developed instruments; and research and develop new methods of radiation detection. The project will also support needs for the irradiation, calibration, quality control, and quality assurance of electronic dosimeters.

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

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

a. The new Health Physics Instrument Laboratory facility will be required to meet American National Standards Institute N232 guidelines as specified by DOE Order 5480.11. "Radiation Protection for Occupational Workers."

b. The new facility is based on code requirements for safe/handling of radioactive sources, operations associated with equipment testing and calibration, functional layout of the building and shielding requirements for each radioactive source and surrounding areas.

c. The cost estimate is based on preliminary building layouts and construction techniques associated with radioactive shielding as developed by the operating program.

d. The construction schedule is consistent with historical construction at the Idaho National Engineering and Environmental Laboratory.

e. Studies may be required during the execution of this project to ensure that all requirements associated with this facility are met and scope may need to be modified as studies recommend.

The continued use of the existing Health Physics Instrument 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 Instrument Laboratory facility pose the following operational limitations and inherent safety and code deficiencies:

a. Inadequate number and design of shielded rooms for performance of x-ray, gamma, and neutron source calibrations. These calibrations are required to be performed under compliance with American National Standards Institute N323. N42.17A and N43.5 guidelines.

b. Absence of environmental testing capabilities to meet American National Standards Institute N323.

c. Inadequate environmental control, leading to wide fluctuations in temperature throughout the facility. American National Standards Institute N323 and MIL-SID-45662A require a properly controlled environment for the calibration of radiation detection instruments.

d. Significant safety concerns such as asbestos in walls, floor tiles, and ceiling materials throughout the building: inadequate coverage by fire sprinkler system, in violation of National Fire Protection Association Standards; numerous electrical safety problems, in violation of Occupational Safety and Health Act Standard 1910.303 and National Electrical Code; lead based paint on all painted surfaces;

and significant roof leakage. Numerous deficiencies were identified in the Occupancy Readiness Review conducted on CFA-633 in 1991.

e. Lack of proper shielding in rooms used for performing calibrations, significantly increasing personnel radiation exposure rates at several locations accessible to personnel during performance of calibrations, identified by Tiger Team Corrective Action Plan Number EGG1/RP.89.1.CP01 "Upgrade Health Physics Instrument Laboratory Capabilities for Space and Testing Standards." The shielding does not meet As Low As Reasonably Achievable requirements.

f. Insufficient work space to consolidate all Idaho National Engineering and Environmental Laboratory instrument calibrations in the existing Health Physics Instrumentation Laboratory to obtain site-wide standardization of calibrations. This issue was raised in Tiger Team Corrective Action Plan Number EGG1/RP.8.1.CP01 "Upgrade Health Physics Instrument Laboratory Capabilities for Space and Testing Standards."

The deficiencies noted above contribute to the inability of the existing Health Physics Instrumentation Laboratory to perform its function in a compliant manner. Due to the age and deteriorated condition of the building, future additions and modifications are cost prohibitive. The facility has been identified for closure and demolition; however, until a replacement facility can be provided for the Health Physics Instrumentation Laboratory operations, the CFA-633 phase out cannot occur. Construction of a new 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 on-site regardless of obtaining off-site calibration services. The on-site facility would be required to provide a centralized service for performing as-found inspections, shipping, receiving, and verification of the instrumentation calibration. All off-site suppliers use a disclaimer that states the calibrations were performed to the required specification, but do not warranty that the instrument remains properly calibrated after shipping. In addition, differing atmospheric conditions can impact the accuracy of the instruments. These situations require that some calibration capability must be maintained at the Idaho National Engineering and Environmental Laboratory to verify instrument calibrations. During the design phase of this project, Idaho National Engineering and Environmental Laboratory mission needs will be reviewed and changes made to effectively address facility requirements.

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

4. Details of Cost Estimate.[a]

(dollars in thousands)

	Current Estimate	Previous Estimate
Design Phase		
Preliminary and final design costs (design drawings and specifications)	658	659
Design management costs (<1% of TEC)	40	236
Project management costs (1.6% of TEC)	189	0
Total, Engineering, design, inspection and administration of construction costs (7.5% of TEC)	887	895
Construction Phase		
Improvements to Land	378	378
Buildings	4,648	5,087
Utilities	212	0
Other (major utilities, specialized facilities, etc)	0	194
Specialized Equipment	0	2,237
Standard Equipment	2,465	0
Inspection, Design and Project Liaison, Testing, Checkout and Acceptance	299	299
Construction management costs (2% of TEC)	218	225
Project management costs	208	0
Total, Construction Costs	8,428	8,420
Contingencies		
Design Phase (2.0% of TEC)	242	775
Construction Phase (19.7% of TEC)	2,343	1810
Total, Contingency (approximately 21.7% of TEC)	2,585	2,585
Total, Line Item Costs (TEC)	11,900	11,900

5. Method of Performance

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

Lockheed Martin Idaho Technologies Company, as operating contractor, shall provide project management services to coordinate all project activities. Lockheed Martin Idaho Technologies Company shall be responsible for the development of the project's technical requirements, completion of the architectural and engineering design, review and management of the engineering and construction activities, coordination of long-lead procurement of construction materials and equipment, construction

[a] The Conceptual Design is 100 % 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.

subcontracting, coordination of the activities of construction subcontractors, checkout of systems, and turnover of the completed project.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 1999	FY 2000	FY 2001	Outyears	Total
Project Cost						
Facility Cost						
Design	0	900	229	0	0	1,129
Construction	0	0	1,871	6,600	2,300	10,771
Total Facility Costs (Federal and Non-Federal)	0	900	2,100	6,600	2,300	11,900
Other Project Costs						
Conceptual design costs	200	0	0	0	0	200
NEPA documentation costs .[a]	30	25	20	10	10	95
Other project-related costs .[b]	50	75	90	110	150	475
Total Other Project Costs	280	100	110	120	160	770
Total Project Costs (TPC)	280	1,000	2,210	6,720	2,460	12,670

7. Related Annual Funding Requirements

(FY 2003 dollars in thousands)

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

[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 Health Physics Instrument Laboratory. 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 Health Physics Instrument Laboratory facility tours. System Operational testing, operational readiness reviews, move-in costs and operationally funded configuration management activities for the completed facility are also included.

98-D-401, H-Tank Farm Storm Water System Upgrade, Aiken, South Carolina (SR-HL10)

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

Significant Changes

The total project cost has been reduced from $13,321,000 to $12,155,000. The reduction is the result of completion of conceptual design resulting in better defined workscope and cost estimate.

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	2Q 1999	2Q 1999	4Q 2000	12,000	14,860
FY 1999 Budget Request *(Preliminary Estimate)*	"	"	"	"	8,934	13,321
FY 2000 Budget Request *(Title I Baseline)*	"	"	3Q 1999	"	"	12,155
FY 2001 Budget Request *(Current Baseline Estimate)*	"	"	"	2Q 2001	"	"

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design			
1998	400	400	294
1999	150	150	204
2000	25	25	70
2001	24	24	31
Construction			
1998	600	600	0
1999	2,970	2,970	1,910
2000	2,952	2,952	4,588
2001	1,813	1,813	1,837

3. Project Description, Justification and Scope

This project alleviates existing flooding problems surrounding tanks 9-12H and the potential for unsafe tank top loading conditions, as well as the flooding of the ditch located at the base of West Hill on the south side of H-Tank Farm. The removal of storm water from tanks 9-12H top area will increase safety margins and minimize rain water infiltration to these waste tanks. This project considers the entire storm water system that affects or is affected by this flooding situation, including storm water runoff from the West Hill north slope, storm water runoff from all zones that exit the diversion box 907-1H, the capacity of the retention basin 281-8H and flow into Four Mile Creek.

The flooding conditions in the waste tank 9-12H area must be eliminated in order to prevent the spread of radioactive contamination violating South Carolina Hazardous Waste Management Regulations (SCHWMR) R.61-79.265.31. This flooding condition impacts the waste tanks' annulus pans and primary spaces; spreads radioactive contamination; creates unsafe conditions; violates As Low As Reasonably Achievable principles and creates additional waste volume. If the flooding condition surrounding tanks 9-12H is not corrected, the potential for injury to personnel and tank top overloading will continue to exist. In addition, this project will increase the storage basin operating capacity by 100 percent (~4,000,000 gallons) allowing the storage of the design basis storm water volume precluding uncontrolled discharge to the local outfall. This project will also provide features that will reduce or eliminate overflow from existing manholes. The FY 1998 funds will be used to develop a design Task Order Proposal Request, award the design fixed-price contract, and complete the detailed design work. In addition, a construction fixed-price contract specification will be prepared for a FY 1999 Construction Start. FY 2000 funds will be used to complete construction of the H-Tank Farm Storm Water System Upgrades barring unforseen site conditions which require substantial application of contingency. FY 2001 funds will be used to complete construction.

The gross annual facility costs are estimated to be $400,000 upon completion of the facility in FY 2001.

4. Details of Cost Estimate.[a]

(dollars in thousands)

	Current Estimate	Previous Estimate
Design phase		
Preliminary and final design costs (4.7% of total estimated cost (TEC))	419	437
Design management costs (0.5% of TEC)	46	47
Total, engineering, design, inspection, and administration of construction costs (5.2% of TEC)	465	484
Construction phase		
Other (major utilities/comp items, specialized facilities, etc.)	5,219	5,116
Inspection, design and project liaison, testing, checkout and acceptance	815	899
Construction management (4.2% of TEC)	373	373
Total, construction costs	6,407	6,388
Contingencies		
Design phase (1.5% of TEC)	134	212
Construction phase (21.6% of TEC)	1,928	1,850
Total, contingencies (23.1% of TEC)	2,062	2,062
Total, line item costs (TEC)	8,934	8,934

5. Method of Performance

Design will be performed by a fixed-price contractor for the Management and Operating 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.

[a] The DOE escalation rates used for this estimate are as follows: FY 1997-1.9 percent; FY 1998-2.6 percent; FY 1999-2.7 percent; and FY 2000-2.8 percent. The above estimate includes $462,000 for escalation.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 1998	FY 1999	FY 2000	FY 2001	Outyears	Total
Project cost							
Facility cost.[a]							
Design	0	294	204	70	31	0	599
Construction	0	0	1,910	4,588	1,837	0	8,335
Total facility costs (Federal and Non-Federal)	0	294	2,114	4,658	1,868	0	8,934
Other project costs							
Conceptual design cost	280	0	0	0	0	0	280
Other project-related costs.[b]	0	70	1,209	1,327	335	0	2,941
Total other project costs	280	70	1,209	1,327	335	0	3,221
Total project costs (TPC)	280	364	3,323	5,985	2,203	0	12,155

7. Related Annual Funding Requirements

(FY 2001 dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs	200	200
Annual facility maintenance and repair costs	100	100
Programmatic effort related to facility	0	0
Other annual costs	100	100
Total related annual funding *(operating from FY 2001 through FY 2033)*	400	400

[a] Total cost of construction is $8,934,000, these funds will be used for design, construction, and project management.

[b] $2,941,000 will support final design, preliminary construction planning efforts, permitting, construction, and startup testing.

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

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

Significant Changes

- The procurement of the Stabilization and Packaging System equipment is now planned as a phased procurement which expedites receipt and startup of packaging equipment, and then receipt and startup of stabilization equipment.
- The project total funding estimate was repriced due to introduction of Hanford site adders.

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

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design			
1998	3,136 [a]	1,251 [b]	824
1999	1,164 [b]	1,164	1,591
2000	0	1,885	1,885
Construction			
1999	9,535 [b]	9,535	7,240
2000	16,860	14,975	16,250
2001	5,100	5,100	5,120
2002	2,805	4,690	3,200
2003	0	0	2,490

3. Project Description, Justification and Scope

In May 1994, the Defense Nuclear Facilities Safety Board issued Recommendation 94-1 which urged the U.S. Department of Energy to remediate liquids and solids containing fissile material to a form more suitable for safe interim storage within a reasonable time period. The Department of Energy accepted DNFSB Recommendation 94-1, and outlined its corrective actions in a February 1995 Implementation Plan. In January 1995, Department of Energy Technical Standard DOE-STD-3013-96 was issued as the basis for 50-year storage of surplus plutonium with a plutonium content greater than 50 percent by weight. This standard requires that the plutonium-bearing material be thermally stabilized at 1000°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 standardized packages with two welded stainless steel containers surrounding a stainless steel convenience can compatible with mechanized handling.

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

This project provides an automated Stabilization and Packaging System that is capable of stabilizing and packaging the current inventory of >50 percent plutonium-bearing material stored in the plant's vaults. To accommodate the new standardized container configuration, this project will also modify selected

[a] Reflects FY 1998 Internal Reprogramming of $5,000,000 by the Richland Operations Office from the original appropriation of $8,136,000.

[b] Reflects FY 1999 reduction of $16,115,000 from new budget authority and $1,885,000 from prior year to meet uncosted reduction included in the FY 1999 Energy and Water Development Appropriation.

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 in the standardized container.

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

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

- Engineering, analysis, design, fabrication, delivery, and testing of the Stabilization and Packaging System 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 System will have the capability to receive and unload plutonium containers; stabilize plutonium oxides; package plutonium metals and oxides; meet material control and accountability requirements; and provide radiological containment and shielding. Detailed design, equipment procurement, and installation of the system will be complete by September 2000, and will be ready for beneficial use by May 2001. Stabilization equipment will be installed by March 2001 and available for beneficial use by July 2001.

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

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

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

The FY 1998 appropriation was used to begin definitive design required prior to Stabilization and Packaging System procurement, and to compile the technical specification for the procurement. Procurement will be initiated as early as possible in FY 1999. The FY 1999 appropriation will be used to complete definitive design, provide procurement of long-lead items for the packaging equipment, complete the infrastructure design, and initiate construction of infrastructure modifications. The FY 2000 appropriation will be used to install and test the Stabilization and Packaging System packaging equipment, initiate installation of the Stabilization and Packaging System stabilization equipment, and complete facility infrastructure modifications.

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
Design phase		
Preliminary and final design costs (7.3% of total estimated cost (TEC))	2,810	2,250
Design management costs (2.0% of TEC)	790	260
Total, engineering, design, inspection, and administration of construction costs (9.3% of TEC)	3,600	2,510
Construction phase		
Buildings and improvements to land	5,900	5,750
Specialized equipment	18,800	18,430
Inspection, design and project liaison, testing, checkout and acceptance	1,000	340
Construction management (5.2% of TEC)	2,000	2,670
Total, construction costs	27,700	27,190
Contingencies		
Design phase (1.8% of TEC)	700	1,000
Construction phase (17.1% of TEC)	6,600	5,900
Total, contingencies (18.9% of TEC)	7,300	6,900
Total, line item costs (TEC)	38,600	36,600

5. Method of Performance

Design and inspection will be performed by the onsite engineer-construction contractor. Construction work will be performed to the maximum extent possible by fixed-price contractors. 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 1998	FY 1999	FY 2000	FY 2001	Outyears	Total
Project cost							
Facility cost							
Design	0	824	1,591	1,885	0	0	4,300
Construction	0	0	7,240	16,250	5,120	5,690	34,300
Total facility costs (Federal and Non-Federal)	0	824	8,831	18,135	5,120	5,690	38,600
Other project costs							
Conceptual design cost	900	0	0	0	0	0	900
NEPA documentation costs	0	0	30	0	0	0	30
Other project-related costs	250	440	1,200	3,840	340	500	6,570
Total other project costs	1,150	440	1,230	3,840	340	500	7,500
Total project costs (TPC)	1,150	1,264	10,061	21,975	5,460	6,190	46,100

7. Related Annual Funding Requirements

(FY 2001 dollars in thousands)

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

98-D-700 INEEL Road Rehabilitation, Idaho National Engineering and Environmental Laboratory, Idaho Falls, Idaho (ID-OIM-108)

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

1. Construction Schedule History

	Fiscal Quarter				Total Estimated Cost ($000)	Total ProjectCost ($000)
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
FY 1998 Budget Request *(Preliminary Estimate)*	2Q 1998	2Q 1999	3Q 1999	3Q 2001	10,800	11,400
FY 1999 Budget Request *(Preliminary Estimate*)	”	”	”	”	”	”
FY 2000 Budget Request (*Current Baseline*)	”	”	”	”	”	”

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design			
1998	500	500	221
1999	43	43	132
2000	0	0	0
2001	0	0	0
Construction			
1998	0	0	0
1999	7,667	7,667	6,001
2000	2,590	2,590	4,151
2001	0	0	295

3. Project Description, Justification and Scope

This project provides for the design, procurement, and rehabilitation of approximately 45 miles of existing roadways and approximately 27,000 square yards of parking areas within the Idaho National Engineering and Environmental Laboratory. The rehabilitation actions include the redesign and construction of intersections to reduce safety concerns during waste transportation and other vehicle traffic, widening of roadways, modification of drainage patterns, resloping of shoulders, and renovation of roadways and parking lots. The following methods of construction will be utilized according to the degree of deterioration:

a. Excavation and reconstruction of the roadway from the base up through the paved surface.

b. Base removal and construction, on sections of roadways where base deterioration has occurred, and application of an asphalt overlay.

c. Application of an asphalt overlay to the roadway.

d. Application of an open graded plant mix seal coat.

e. Application of a seal coat, including crack repair.

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. Road construction projects are part of a continuing program to preserve/extend the useful life and upgrade the Idaho National Engineering and Environmental Laboratory transportation infrastructure. This project is necessary to provide for safe and effective programmatic support. During the 1980's, the Idaho National Engineering and Environmental Laboratory received sufficient funding to sustain the road program; however, no significant projects have been completed since 1990.

This project is necessary to continue to provide support for all present and future Idaho National Engineering and Environmental Laboratory activities. It supports DOE's mission to provide safe and environmentally compliant transportation routes for waste shipments in support of the October 17, 1995 court order and transportation of soil borrow to meet various Idaho National Engineering and Environmental Laboratory regulatory and compliance issues under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), and other authorities. The project directly supports the Sitewide specific planning goal of providing roads which meet the State of Idaho Highway Construction Specifications, American Association of State Highway and Transportation Officials, and the Idaho National Engineering and Environmental Laboratory engineering standards.

The Idaho National Engineering and Environmental Laboratory uses the U.S. Army Corps of Engineers' computerized pavement management system, "PAVER," to assess the condition of the paved roadway network. This information will be used in conjunction with the transportation routes addressed above to determine priorities and rehabilitation efforts.

The Lockheed Martin Idaho Technologies Company Retirement Unit Catalog (CFO-FSD-CNM-98-002)

was used for making the correct funding determination and proper capitalization decision. The project is a Betterment and Improvement to property record units or retirement units that cost $25,000 or more and extends the useful life of the record/retirement unit.

The requested FY 2000 budget appropriation will be used to complete construction activities.

4. Details of Cost Estimate [a]

(dollars in thousands)

	Current Estimate	Previous Estimate
Design Phase		
Preliminary and final design costs (design drawings and specifications)	364	364
Design management costs (< 1% of TEC)	7	93
Project management costs (< 1% of TEC)	86	0
Total, Engineering, design, inspection and administration of construction costs (4.3% of TEC)	457	457
Construction Phase		
Improvements to land	7,510	7,510
Inspection, design and project liaison, testing, checkout and acceptance	209	209
Other (major utilities/comp items, specialized facilities, etc.)	0	132
Construction management costs (5.0% of TEC)	542	542
Project management costs	132	0
Total, Construction Costs	8,393	8,393
Contingencies		
Design Phase (<1% of TEC)	86	86
Construction Phase (17.3% of TEC)	1,864	1,864
Total, Contingency (approximately 18.1% of TEC)	1,950	1,950
Total, Line Item costs (TEC)	10,800	10,800

5. Method of Performance

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

[a] The Conceptual Design is 100% complete. Escalation rates applied to this cost estimate were FY 1998-2.5%; FY 1999-2.7%;FY 2000-2.9%;and FY 2001-3.0%.

The design, project management, and construction management shall be performed by the operating contractor. Construction and procurement shall be accomplished by fixed price contracts awarded on the basis of competitive bidding. Inspection may be performed by another agent. Check-out of systems, and maintenance of the completed project shall be performed by the operating contractor.

The Idaho National Engineering and Environmental Laboratory operating contractor Project Manager shall be responsible for the entire project: design, all construction activities at the Idaho National Engineering and Environmental Laboratory site, construction subcontracting, direction of the activities of construction subcontractors, and performance and management of construction activities as required to complete the project in a timely, safe, and cost-effective manner.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 1999	FY 2000	FY 2001	Outyears	Total
Project Cost						
Facility Cost						
Design [a]	221	322	0	0	0	543
Construction [b]	0	5,811	4,151	295	0	10,257
Total Facility Costs (Federal and Non-Federal)	221	6,133	4,151	295	0	10,800
Other Project Costs [c]						
Conceptual design costs	0	0	0	0	0	0
NEPA documentation costs	0	0	0	0	0	0
Other project-related costs	44	256	200	100	0	600
Total Other Project Costs	44	256	200	100	0	600
Total Project Costs (TPC)	265	6,389	4,351	395	0	11,400

[a] Design - The cost is based upon the conceptual design that was completed in March 1996. The Conceptual Design cost estimate was prepared utilizing the Idaho National Engineering and Environmental Laboratory Cost Estimating Manual and DOE Order 5700.2D.

[b] Construction - The cost is based upon the conceptual design that was completed in March 1996. The Conceptual Design cost estimate was prepared utilizing the Idaho National Engineering and Environmental Laboratory Cost Estimating Manual and DOE Order 5700.2D.

[c] Other Project Related Costs - This category includes the costs associated with the hazardous waste determination, Operating Contractor Construction Support, Quality and Safety audits, document control, design and constructability reviews, Facility Acceptance Review, and project closeout.

7. Related Annual Funding Requirements

(FY 2001 dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility maintenance/repair costs	153	153
Total related annual funding (operating from FY 2001 thru FY 2021)	153	153

97-D-450, Savannah River Nuclear Material Storage (formerlyActinide Packaging and Storage Facility), Savannah River Site, Aiken, South Carolina (SR-NM03)

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

Significant Changes

- The DOE has concluded it prudent to halt further progress on the Actinide Packaging and Storage Facility subproject and conduct a systems engineering evaluation of plutonium material management functions and planned facilities at the Savannah River Site, considering benefits and efficiencies available through designing and constructing facilities with an eye toward shared systems, economies of scale, and improved safety margins. Such systems engineering evaluations have been supported by the Defense Nuclear Facilities Safety Board, and the Savannah River Site has recently initiated efforts to take a fresh look at current storage availability and the magnitude of the future plutonium mission at the Savannah River Site.

  Existing storage capacity at the Savannah River Site and storage capability proceeding in K-Area will support receipt of Rocky Flats non-pit material and materials currently at the Site. If the evaluation reveals that an alternative to the Actinide Packaging and Storage Facility can be accommodated, this could affect the Fissile Materials Disposition program in two ways: (1) an amended Record of Decision to move the Hanford material to the Savannah River Site would have to be developed, and (2) an alternative to the Actinide Packaging and Storage Facility subproject for the receipt and storage of materials for the Immobilization and Associated Processing Facility, project number 00-D-142, would have to be addressed.

- The DOE is planning to submit a reprogramming action to reapply the Actinide Packaging and Storage Facility subproject funds to other urgent requirements.

- If the reevaluation reveals that the Actinide Packaging and Storage Facility subproject is still required, the Department will proceed with project activities in FY 2001 based on a revised, integrated storage design. This will delay facility operations by approximately 3 years.

- The narrative contained in the following pages generally reflects the previously proposed mission of the Actinide Packaging and Storage Facility subproject prior to the decision to demobilize.

The K-Area Nuclear Material Storage Modifications subproject (S-W226) total estimated cost has been reduced by $14,000,000 from $41,000,000 to $27,000,000. The procurement of the 9975 shipping containers will be the responsibility of Rocky Flats. This change results in a reduction in the total estimated cost and total project cost of this project from $198,000,000 to $184,000,000 and $245,900,000 to $231,900,000, respectively.

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 1997 Budget Request *(Preliminary Estimate)*	1Q 1997	1Q 1998	2Q 1998	3Q 2001	109,838	138,753
FY 1999 Budget Request *(Title I Baseline)*	"	2Q 1998	"	"	198,000	245,900
FY 2000 Budget Request *(Current Baseline Estimate)*	"	"	"	3Q 2004	184,000	231,900

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design			
1997	16,585 [a]	16,585	8,625
1998	5,008	5,008	8,687
1999	0	0	2,435
2000	0	0	925
Outyears	0	0	921
Construction			
1997	815 [a]	815	789
1998	12,992	12,992	9,017
1999	81,344 [b] [c]	81,344	73,154
2000	4,000	4,000	17,112
Outyears	63,256	63,256	62,335

[a] As a result of the Record of Decision for the Storage and Disposition of Weapons-Usable Fissile Materials dated January 14, 1997, the Actinide Packaging and Storage Facility storage capacity for stabilized Special Nuclear Material will be increased from 2,000 to 5,000 positions to accommodate the receipt of additional surplus plutonium (pending completion of National Environmental Policy Act documentation). The cost, schedule, and technical impact of this change is reflected herein. Additional FY 1997 funding of $9,500,000 is contained within the Office of Fissile Materials Disposition appropriation, Project 97-D-140, Consolidated Spent Nuclear Materials Storage Facility. The balance of the Office of Fissile Materials Disposition funding for the expansion of the Actinide Packaging and Storage Facility vault ($8,500,000) is included in EM's budget for FY 1999. The original appropriation for FY 1997 was $7,900,000.

[b] $2,160,000 of the $8,500,000 will be recast to EM from FY 1997 Office of Fissile Materials Disposition unobligated funds, Project 97-D-140. The EM appropriation for FY 1999 is $79,184,000.

[c] The Department is planning to submit an FY 1999 reprogramming that decreases the funding for the Actinide Packaging and Storage Facility subproject by $44,000,000. The mission of this subproject will be reevaluated in light of DOE's preferred alternatives for the Department's plutonium disposition mission.

3. Project Description, Justification and Scope

Actinide Packaging and Storage Facility Subproject S-6061:

TEC	Previous	FY 1998	FY 1999	FY 2000	Outyears	Construction Start - Completion Dates
157,000	17,400	16,000	60,344 [a]	0	63,256	TBD

The Department of Energy committed, in the Implementation Plan for the Defense Nuclear Facilities Safety Board Recommendation 94-1, to meet the DOE Criteria for Safe Storage of Plutonium Metal and Oxides (DOE-STD-3013) by May 2002. The existing vaults in the Savannah River Site facilities are not sufficient or capable of meeting the commitments in the Defense Nuclear Facilities Safety Board Recommendation 94-1 Implementation Plan; therefore, the Actinide Packaging and Storage Facility must be constructed. The Savannah River Site has determined that a new Actinide Packaging and Storage Facility is the safest (to the worker and environment), and the most economical option compared to the major modification and refurbishing of existing Savannah River Site facilities and to a "no action" option. A life cycle cost estimate demonstrated that a new Actinide Packaging and Storage Facility has the lowest total associated cost with a payback period of approximately 10 years.

The Actinide Packaging and Storage Facility will provide for thermal stabilization, repackaging, and safe, secure, cost-effective storage of the special nuclear material to meet DOE-STD-3013-96, Criteria for Preparing and Packaging Plutonium Metals and Oxides for Long-Term Storage. The facility will be constructed in F-Area with a hardened and buried structure of approximately 50,000 square feet containing the Material Access Area. Included in the Material Access Area are the contaminated waste water collection tanks, truck bay, safe havens, and elevator vestibule. The Material Access Areas will be supported above grade by several soft structures including an Entry Control Facility, and Auxiliary Mechanical Equipment Building, and various technical support structures. These structures total approximately 47,000 square feet and contain heating, ventilation, and air conditioning support equipment, diesel generators, maintenance areas, instrumentation, security equipment, and other administrative functions. All structures will be designed to meet applicable National standards and DOE Orders.

Specifically, the facility will consist of process areas and equipment for truck unloading/loading, material confirmation, shipping, packaging and unpackaging, accountability measurements, safety evaluation, International Atomic Energy Agency inspections, repackaging, waste management, a vault room with automated accessible storage bays, and full support and administration functions. For vault surveillance and container handling, automation will be used to minimize exposure. Additionally, a bagless transfer operation will be used to minimize exposure for the transfer of special nuclear material from the existing containers to containers designed for interim storage. Due to the importance and significance of the International Atomic Energy Agency Program, equipment and instrumentation costs will be estimated and tracked separately from all other control accounts on this subproject. Most of the special nuclear material in the Actinide Packaging and Storage Facility will be under international safeguards which will be

[a] The Department is planning to submit an FY 1999 reprogramming that decreases the funding for the Actinide Packaging and Storage Facility subproject by $44,000,000. The mission of this subproject will be reevaluated in light of DOE's preferred alternatives for the Department's plutonium disposition mission.

conducted by the International Atomic Energy Agency. Domestic safeguards instrumentation will be used, where possible, but additional instrumentation will be provided specifically for international safeguards. The estimated cost of these additional items is summarized in Section 4 of this data sheet.

Utilities and services required will include electricity, potable process water, chemical storage, steam, compressed air, standard and high-efficiency particulate air filtered ventilation, and communications.

The FY 1999 funding will be utilized to demobilize the project and evaluate the path forward. Outyear funding will be utilized to support integration with other plutonium disposition activities.

This subproject will:

(1) Provide safe and secure interim storage for special nuclear material until final dispositioning options are selected.

(2) Provide a cost-effective central storage facility to consolidate current special nuclear material inventory which meets the DOE standard for storage of plutonium metals and oxides and the time table recommended by the Defense Nuclear Facilities Safety Board.

(3) Enable the deinventory of the canyon facilities and thereby reduce staffing and security requirements.

(4) Reduce worker radiation exposure by providing automation (where feasible) for container storage retrieval and positioning.

(5) Provide a location for International Atomic Energy Agency inspection to meet non-proliferation objectives.

K-Area Nuclear Material Storage Modifications Subproject S-W226:

TEC	Previous	FY 1998	FY 1999	FY 2000	Outyears	Construction Start - Completion Dates
27,000	0	2,000	21,000	4,000	0	4th Qtr. FY 1998 - 4th Qtr. FY 2000

Existing K-Area facilities will be modified to provide cost-effective interim storage of non-pit plutonium metals and oxides from Rocky Flats. Modifications will include dismantling and removing unused process equipment in four building areas: Stack Area, Crane Maintenance Area, Crane Wash Area, and Process Room. These areas total approximately 30,000 square feet, are within the security areas that existed for reactor operations, and are adjacent to a currently active Material Access Area for Highly Enriched Uranium storage. Security systems in the four building areas will be reactivated and upgraded to support using these Material Access Areas for interim plutonium storage. Existing systems including the K-Area security perimeter, security control system, and building water/power ventilation support systems will be utilized by this project. Building modifications will provide for truck unloading/loading, material confirmation, shipping, accountability measurements, and storage in the Material Access Areas. The plutonium stored in K-Area will not be subject to International Atomic Energy Agency controls. (NOTE: The 9975 canister purchase will be the responsibility of Rocky Flats, and therefore has been removed from the cost baseline of subproject S-W226.

FY 1999 funding will be used to continue design, construction activities, ready the facility for the receipt and storage of the initial shipments. FY 2000 funding will be used to complete construction activities.

This subproject will:

(1) Provide secure interim storage for special nuclear material until dispositioned.

(2) Enable early shipments from Rocky Flats and facilitate an early closure of the Rocky Flats facilities (FY 2006).

(3) Provide the necessary confirmatory and accountability equipment to support safeguards requirements.

4. Details of Cost Estimate [a]

(dollars in thousands)

	Current Estimate	Previous Estimate
Design phase		
Preliminary and final design costs (9.8% of total estimated cost (TEC))	18,010	19,210
Design management costs (1.2% of TEC)	2,275	1,790
Project management costs (0.2% of TEC)	426	0
Total, engineering, design, inspection, and administration of construction costs (11.3% of TEC)	20,711	21,000
Construction phase		
Buildings & improvements to land	75,362	85,149
Specialized equipment (safeguard equipment and IAEA equipment)	6,659	2,731
Other (major utilities/comp items, specialized facilities, etc.)	42,570	48,691
Removal cost less salvage	1,721	5,190
Inspection, design and project liaison, testing, checkout and acceptance	2,489	3,843
Construction management (2.9% of TEC)	5,264	5,294
Project management (1.1% of TEC)	2,068	0
Total, construction costs	136,133	150,898
Contingencies		
Design phase (0.5% of TEC)	882	1,005
Construction phase (14.3% of TEC)	26,274	25,097
Total, contingencies (14.8% of TEC)	27,156	26,102
Total, line item costs (TEC)	184,000	198,000

5. Method of Performance

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

[a] Department of Energy established escalation rates were used as provided in June 1996.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 1998	FY 1999	FY 2000	Outyears	Total
Project cost						
Facility cost						
Design	8,625	8,687	2,435	925	921	21,593
Construction	789	9,017	73,154	17,112	62,335	162,407
Total facility costs [a] (Federal and Non-Federal)	9,414	17,704	75,589	18,037	63,256	184,000
Other project costs						
R&D necessary to complete project [b]	3,653	0	0	0	0	3,653
Conceptual design cost	658	0	0	0	0	658
Other project-related costs [c]	2,020	10,327	7,882	15,000	8,360	43,589
Total other project costs	6,331	10,327	7,882	15,000	8,360	47,900
Total project costs (TPC)	15,745	28,031	83,471	33,037	71,616	231,900

7. Related Annual Funding Requirements

(FY 2004 dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs (staff, utilities, etc.)	22,843	27,943
Annual facility maintenance and repair costs	4,214	3,514
Programmatic effort related to facility	0	100
Other annual costs	7,443	2,443
Total related annual funding *(operating from TBD through TBD)*	34,500	34,000

[a] The line item TEC is $184,000,000 which includes $22,000,000 in government furnished Plutonium Stabilization and Packaging System equipment.

[b] These costs include development of the Laser Sampling system, Digital Radiography Inspection system and container assay equipment.

[c] These costs include technical support during design and construction preparation of operating procedures and operator training, startup testing, and execution of the Operational Readiness Review/Operational Readiness Evaluation.

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

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

Significant Changes

- # Date physical construction starts was changed from 4th Quarter FY 1999 to the 2nd Quarter FY 1999 to reflect dates in approved baseline change proposal Baseline Change Proposal-004.
- # The other project costs for "Prior Years" were previously overstated and have been reduced by $500,000. Outyear other project costs funding requirements were also modified to reflect project needs, but overall other project costs requirements have remained within the $3,120,000 baseline.

1. Construction Schedule History

	Fiscal Quarter				Total Estimated Cost ($000)	Total Project Cost ($000)
	A-E Work Initiated [a]	A-E Work Completed [b]	Physical Construction Start	Physical Construction Complete		
FY 1997 Budget Request *(Preliminary Estimate)*	2Q 1997	3Q 1998	4Q 1998	2Q 2000	30,280	33,690
FY 1998 Budget Request *(Current Baseline Estimate)*	"	"	"	"	"	"
FY 1999 Budget Request *(Current Baseline Estimate)*	"	4Q 1998	4Q 1999	2Q 2001 [c]	"	33,400
FY 2000 Budget Request *(Current Baseline Estimate)*	"	"	2Q 1999	"	"	"

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

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

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

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design			
1997	2,500	2,500	1,455
1998	431	431	1,400
1999	0	0	76
Construction			
1997	0	0	0
1998	5,169	5,169	0
1999	7,000	7,000	8,570
2000	12,220	12,220	12,681
2001	2,960	2,960	6,098

3. Project Description, Justification and Scope

This project combines Project 97-D-473, Health Physics Site Support Facility with Project 97-D-470, Environmental Monitoring Laboratory, into a single laboratory facility. The Environmental Monitoring Laboratory project is renamed Regulatory Monitoring and Bioassay Laboratory. This project will efficiently design, build, and equip a new laboratory providing essential environmental monitoring and personnel bioassay analyses capabilities for the Savannah River Site. This facility will provide continued full compliance with the Occupational Safety and Health Administration requirements, radiation protection requirements, industrial hygiene and environmental protection requirements as detailed in Federal and state regulations and DOE Orders. It will house sections for the equipment and personnel to support site requirements to sample, prepare, and analyze environmental media (air, water, soil, and biota) for radiological, chemical and biological parameters, develop technologies to clean and monitor the environment, and for the determination, evaluation, and documentation of personnel exposure to radioactive materials. Also, it will include laboratory modules, sample preparation areas, analytical instrument rooms, mechanical and electrical support services, important personnel dosimetry records retention area, laboratory storage space, and offices for technical and administrative personnel. The structural, mechanical, electrical and architectural design provisions will consider the facilitation of potential structural and internal modifications in support of future growth or additional laboratory modules and support features. The facility size will be approximately 81,000 square feet, and will be finalized during definitive design. The facility will be divided into three major functional areas: 1) laboratory, 2) office and administration, and 3) service and general use basement. The laboratory section includes; sampling rooms, non-radiological laboratory modules, radiochemistry laboratory models, radio-analytical counting rooms, in-vitro bioassay laboratories and storage rooms. In addition, a partial basement (under the laboratory area) will be provided to include laboratory exhaust hood duct system, mechanical equipment, and some storage and general use area. The office and administration area includes space for management and staff, data management, publication rooms and vital records retention rooms. A Wastewater Treatment Facility is provided to neutralize and treat laboratory wastewater.

The 735-A support laboratory operated by the Environmental Monitoring Section of the Environmental Protection Department and the Health Protection Department is 42-years old and is at the end of its life cycle. The 732-11A laboratory, while much newer, has also experienced significant overall deterioration. General deterioration is evident in both buildings due to high volumes of laboratory samples being processed via slow evaporation of concentrated nitric and hydrochloric acids; ventilation system failures have occurred and are documented. These are expected to become prevalent within the next 5 years creating occupational safety and health concerns. Current operations are being performed in facilities that have the following deficiencies: 1) facilities provide inconsistent and unreliable neutralization capabilities for acidic waste water; 2) facilities cannot accommodate large amounts of automated instrumentation and computers; 3) facilities do not allow adequate sample segregation; and 4) there is inadequate space to store and process bioassay samples for the current (and projected) workforce. Existing facility renovation or expansion is not practical nor cost-effective. Renovation would be ineffective since the existing facility does not have adequate space to continue performing the types, quantities, or quality of required analyses. No other suitable space is available on site meeting the requirements and criteria of a laboratory. Renovation would exceed the time and cost to build a new facility.

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

Outsourcing the entire Savannah River Site bioassay analysis to commercial services has been reviewed as an alternative to new construction. The Savannah River Site bioassay laboratory is the largest

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

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

FY 2000 funds will be used for the fixed-price construction and inspection services. Construction activities include: complete building structure, interior finishes, mechanical and electrical systems, and install fixed laboratory equipment.

4. Details of Cost Estimate [a]

(dollars in thousands)

	Current Estimate	Previous Estimate
Design phase		
Preliminary and final design costs (7.4% of total estimated cost (TEC)) [b]	2,237	1,780
Design management costs (1.9% of TEC)	580	0
Total, engineering, design, inspection, and administration of construction costs (9.3% of TEC)	2,817	1,780
Construction phase		
Buildings & improvements to land	19,574	17,955
Specialized equipment	2,085	3,330
Other (major utilities/comp items, specialized facilities, etc.)	338	1,800
Inspection, design and project liaison, testing, checkout and acceptance	597	1,865
Construction management (4.1% of TEC)	1,238	550
Total, construction costs	23,832	25,500
Contingencies		
Design phase (0.4% of TEC)	114	196
Construction phase (11.6% of TEC)	3,517	2,804
Total, contingencies (12.0% of TEC)	3,631	3,000
Total, line item costs (TEC)	30,280	30,280

5. Method of Performance

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

[a] The Department of Energy (DOE) February 1997 escalation rates (percent per year) used for this estimate are as follows: FY 1997 2.7%; FY 1998 2.8%; FY 1999 2.6%; FY 2000 2.7%; FY 2001 2.8%. The above estimate includes $844,520 for escalation.

[b] Includes abandoned design and project support cost for Project 97-D-470 (estimated at $1,131,000).

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 1998	FY 1999	FY 2000	FY 2001	Outyears	Total
Project cost							
Facility cost							
Design	1,455	1,400	76	0	0	0	2,931
Construction	0	0	8,570	12,681	6,098	0	27,349
Total facility costs (Federal and Non-Federal)	1,455	1,400	8,646	12,681	6,098	0	30,280
Other project costs [a]							
Conceptual design cost [b]	604	360	0	0	0	0	964
NEPA documentation costs [c]	100	0	0	0	0	0	100
Other project-related costs [d]	316	230	450	400	660	0	2,056
Total other project costs	1,020	590	450	400	660	0	3,120
Total project costs (TPC)	2,475	1,990	9,096	13,081	6,758	0	33,400

[a] Reflects adjustments to overhead costs.

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

[c] Includes $40,000 for National Environmental Policy Act documentation, $50,000 for site characterization, $10,000 to revise existing documentation.

[d] Includes startup, equipment setup/checkout, training, and procedure safety documentation preparation, operational readiness/assessment.

7. Related Annual Funding Requirements

(FY 2001 dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs (staff, utilities, etc.) [a]	1,000	230
Annual facility maintenance and repair costs [b]	565	250
Other annual costs [c]	235	540
Total related annual funding *(operating from FY 2001 through FY 2026)*	1,800	1,020

[a] Includes salaries, benefits, overhead staffing, janitorial services and supplies (6 FTE).

[b] Includes repair of equipment; heating, ventilation, and air conditioning; etc. (1.4 FTE).

[c] Includes electric power, fuel, oil and water.

96-D-406, Spent Nuclear Fuels Canister Storage and Stabilization Facility, Richland, Washington (RL-WM01)

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

Significant Changes

Total project cost increases from $203,114,000 to $233,798,000 due to the following: 1) Canister Storage Building capital equipment not related to construction costs increased for the addition of a sample/weld station in the facility; 2) Canister Storage Building operating costs increased to operate the new sample/weld station; and 3) Cold Vacuum Drying Safety Analysis Report costs increased to modify safety/environmental permit documentation to incorporate modified multiple canister overpacks design, and to address consideration of aluminum hydroxide issues. Some of the increase was offset by cancellation of the Hot Conditioning System. Evolutions of the project safety basis and modification of the multiple canister overpacks design indicate that the Hot Conditioning System is no longer necessary prior to interim storage.

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	1Q 1998	2Q 1996	2Q 1998	135,800	180,780
FY 1997 Budget Request *(Preliminary Estimate.)*	"	"	3Q 1996	"	111,416	146,263
FY 1998 Budget Request (*Current Baseline Estimate)*	"	"	2Q 1996	1Q 1999	120,416	157,278
FY 1999 Budget Request (*Current Baseline Estimate)*	"	"	"	2Q 2000	165,397	203,114
FY 2000 Budget Request *(Current Baseline Estimate)*	"	4Q 1998	"	3Q 2000	188,537	233,798

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design			
1996	23,500 [a]	23,500	20,893
1997	16,500	16,500	15,791
1998	10,500 [b]	10,500	12,187
1999	8,697	8,697	10,326
2000	3,845	3,845	3,845
Construction			
1996	19,500	19,500	11,149
1997	44,172	44,172	35,798
1998	11,244 [b]	11,244	26,731
1999	29,983	29,983	31,221
2000	20,596	20,596	20,596

3. Project Description, Justification and Scope

This Major System Acquisition project consists of all the activities necessary to safely stabilize and store approximately 2,100 metric tons of spent N-Reactor fuel currently stored at the 100 K East and West facilities. There are three specific subprojects within this Major System Acquisition as follows:

a. Subproject #01 - Canister Storage Building (W-379)

TEC	Previous	FY 1998	FY 1999	FY 2000	Construction Start - Completion Dates
123,739	84,951	6,118	17,131	15,539	2nd Qtr. FY 1996 - 2nd Qtr. FY 2000

The Canister Storage Building originated from Hanford's canceled waste vitrification plant project. It is being modified to provide long-term, dry storage for spent nuclear fuel removed from the 100 K East and West basins. The fuel will be stored in Multiple Canister Overpacks at the Canister Storage Building. The Canister Storage Building also includes an annex to facilitate final sealing of the Multiple Canister Overpacks.

This facility is envisioned to consist of 2,900 square meters (31,580 square feet), of which approximately 2,310 square meters (23,160 square feet) will be available for storage and 590 square meters (6,420

[a] Reflects appropriation of $42,000,000 with addition of $1,000,000 for FY 1996 internal reprogramming to provide for additional concrete pouring required to maintain higher heat control to store both Spent Nuclear and Tank Waste Remediation System Canisters.

[b] Reflects appropriation of $16,744,000 with addition of $5,000,000 from FY 1998 internal reprogramming to provide for design, procurement, and safety analysis of the Cold Vacuum Drying processing equipment.

square feet) for loading, handling and service areas. The Nuclear Regulatory Commission Equivalency Requirement Implementation necessitates that the Canister Storage Building be designed and constructed to withstand tornado loadings which has resulted in the design and construction of hardened elements..

Following cold conditioning, fuel will be taken to the vault area where it will be placed, via a Multiple Canister Overpack handling machine, in storage tubes and cooled by natural outside air circulation. The fuel could remain in storage for up to 40 years or until a suitable repository becomes available.

Cost increases experienced in FY 1998 in areas of Title III design, Safeguards and Security System, the structural systems in response to the Nuclear Regulatory Commission equivalency and tornado hardening requirements have required the project to defer work scope from FY 1998 into FY 1999 for project to stay within the FY 1998 funding authorization. The work scope that is being deferred includes the remaining fabrication of the storage tubes, all shield plug fabrication planned for FY 1998 , vaults 2 and 3 insulation concrete, all as built work and all remaining equipment.

Currently, spent Hanford N-Reactor fuel is stored in unlined, concrete water-filled basins that are not seismically qualified and are located approximately 93.3 meters (100 yards) from the Columbia River. Any significant seismic event could cause a very serious hazard to the environment and potentially place the health and well being of the surrounding community in jeopardy.

The FY 2000 appropriation will be used to complete Canister Storage Building construction, including the procurement and installation of tube shield plugs and impact absorbers.

Planned conditioning provides facilities and process equipment which increases N-Reactor spent nuclear fuel stability in preparation for dry stockpiling at Hanford's Canister Storage Building.

This conditioning activity now consists of only a cold vacuum drying and process.

b. Subproject #02 - Cold Vacuum Drying Facility (W-441)

TEC	Previous	FY 1998	FY 1999	FY 2000	Construction Start - Completion Dates
58,149	12,604	15,094	21,549	8,902	1st Qtr. FY 1997 - 3rd Qtr. FY 2000

Spent nuclear fuel presently stored in K-basins will be removed from existing storage canisters, washed to minimize loose particulate (sludge), and repacked into Multiple Canister Overpack's prior to removal from the Basins. The Multiple Canister Overpack's then will be transferred to a cold vacuum drying facility located in the 100 K Area. Bulk water will be removed and the fuel vacuum dried. Next, the Multiple Canister Overpack's will be transported to the Canister Storage Building, located in the central 200 area, where containers can ~~will~~ be stored up to 40 years.

FY 2000 appropriation will be used for construction closeout.

c. Subproject #03 - Hot Conditioning Facility (W-484)

TEC	Previous	FY 1998	FY 1999	FY 2000	Construction Start - Completion Dates
6,649	6,117	532	0	0	

This subproject has been canceled. Evaluations of project safety basis and modification of the Multiple Canister Overpack design indicate that hot conditioning was no longer necessary prior to interim storage. Budget authorized is being reallocated to the Canister Storage Building and Cold Vacuum Drying.

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
Design phase		
Preliminary and final design costs (17.6% of total estimated cost (TEC)	33,189	28,789
Design management costs (15.4 % of TEC)	28,960	25,401
Total, engineering, design, inspection, and administration of construction costs (33.0% of TEC)	62,149	54,190
Construction phase		
Buildings and improvements to land	82,204	64,701
Specialized equipment	24,168	34,116
Other (major utilities/comp items, specialized facilities, etc.)	0	0
Removal cost less salvage	2,700	2,700
Project management	0	0
Inspection, design and project liaison, testing, checkout and acceptance	0	0
Construction management (5.5% of TEC)	10,299	6,998
Total, construction costs	119,371	108,515
Contingencies		
Design phase (0.5% of TEC)	893	921
Construction phase (3.2% of TEC)	6,124	1,771
Total, contingencies (3.7 % of TEC)	7,017	2,692
Total, line item costs (TEC)	188,537	165,397

5. Method of Performance

Design and inspection shall be performed under a negotiated contract with an architect/engineer. Construction and procurement will be accomplished by fixed-price contracts and subcontracts awarded on the basis of competitive bidding.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 1998	FY 1999	FY 2000	Outyears	Total
Project cost						
Facility Cost						
Design	36,684	12,187	10,326	3,845	0	63,042
Construction	46,947	26,731	31,221	20,596	0	125,495
Total facility costs (Federal and Non-Federal)	83,631	38,918	41,547	24,441	0	188,537
Other project costs						
Conceptual design cost	2,970	245	0	0	0	3,215
NEPA documentation costs	1,104	0	0	0	0	1,104
Other project-related costs	16,506	12,921	9,745	1,770	0	40,942
Total other project costs	20,580	13,166	9,745	1,770	0	45,261
Total project costs	104,211	52,084	51,292	26,211	0	233,798

7. Related Annual Funding Requirements

(FY 2001 dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs (staff, utilities, etc.)	2,230	2,743
Annual facility maintenance and repair costs	0	0
Other annual funding	2,230	2,743
Total related annual funding (operating from FY 2001 through FY 2041)	4,460	5,486

96-D-464 Electrical and Utility Systems Upgrade, Idaho National Engineering and Environmental Laboratory, Idaho Falls, Idaho (ID-OIM-106)

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

Significant Changes

The Idaho Chemical Process Plant has been renamed to better reflect the mission to the Idaho National Technology and Engineering Center.

Increase the number of new standby generators required from one to two. This was driven by a change in the operational requirements for the Coal Fired Steam Generating Facility standby generator to operate as a stand-alone unit. Originally this unit was to be relocated to the Standby Power Facility and paralleled with the other three Idaho Nuclear Technology and Engineering Center generators.

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	4Q 1998	3Q 1997	1Q 2002	75,000.[a]	92,800.[b]
FY 1997 Budget Request *(Preliminary Estimate)*	"	"	"	"	62,280	76,690
FY 1998 Budget Request *(Current Estimate)*	"	"	"	"	53,452	67,849
FY 1999 Budget Request *(Current Estimate)*	"	"	"	"	53,452	67,849
FY 2000 Budget Request *(Current Estimate)*	"	"	"	"	53,452	67,849

[a] Preliminary Estimate was based on conceptual design, as submitted in the FY 1996 Construction Project Data Sheet.

[b] Current baseline estimate is the latest baseline which reflects the approved changes to the Title II baseline.

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs.[a]
Design			
1996	3,912	3,912.[b]	2,228
1997	3,000	3,000	3,152
1998	2,220	2,220	2,526
1999	279	279	353
2000	1,183	1,183	508
2001	0	0	723
2002	0	0	518
Construction			
1996	600	600	528
1997	7,440	7,440	4,287
1998	12,765	12,765	7,577
1999	11,265	11,265	11,424
2000	10,788	10,788	8,565
2001	0	0	5,851
2002	0	0	3,796
Outyears	0	0	1,416

3. Project Description, Justification and Scope

The Electrical and Utility Systems Upgrade project will upgrade the Idaho National Technology & Engineering Center utility systems by correcting high risk life-safety, health, and environmental deficiencies. Correction of these deficiencies will reduce safety and health risks and provide safe and reliable utilities to support the Idaho Nuclear Technology and Engineering Center mission. The Idaho Nuclear Technology and Engineering Center electrical and utility supply and distribution system provides the infrastructure necessary to support plant operations. This system is outdated, overloaded, and not in compliance with Code of Federal Regulations (CFR) for Occupational Safety and Health Act requirements, DOE orders, or national codes and standards. These factors, combined with plant-wide growth, have over utilized the capacity of the distribution systems and increased the potential health and safety risks associated with long-term use and maintenance of the Idaho Nuclear Technology and Engineering Center utility systems.

The scope of this project includes upgrades to normal and standby power/electrical systems and other utility systems. The system upgrades, improvements, and corrections listed in order of priority, include:

[a]The amounts in this column have been updated to reflect actual costs through FY-1998 and the most current estimates to complete.

[b]Directed reduction of $440,000 in FY 1996 to meet the uncosted reduction imposed by Congress.

a. installation of a new 13.8 kilovolt-amperes (kVA) high voltage electrical ductbank and manhole system (approximately 15,000 linear feet) to separate high-voltage power circuits from low voltage power, instrumentation, alarm, and communication circuits to correct life-safety and code compliance problems that put maintenance and construction personnel at risk;

b. upgrading, relocating, or new installation of seven 13.8 kVA/13.9 kVA substations and seven 13.8 kVA/480V or 2.4 kVA load centers to eliminate overloaded conditions on existing electrical distribution equipment;

c. upgrading the existing standby power network and control system and installation of two new 2,000 kVA (nominal) diesel generators (a replacement for an old, unreliable unit and one additional new unit) to provide paralleling, synchronizing, load sharing; and load shedding capabilities to provide reliable standby power during normal (commercial) power outages to equipment which provides for containment and control of radioactive and fissile materials, environmental monitoring, security functions, and personnel and property protection;

d. replacement of approximately two hundred 20-40 year old panelboards and associated switchgear in existing buildings that are inadequately rated to safely interrupt and predict against potentially explosive levels of short circuit energy that presents a significant fire hazard;

e. Reconfiguration of electrical service equipment in existing buildings to eliminate multiple electric service entrances that violate code and constitute maintenance and fire-response safety hazards.

The conceptual design has identified major items of scope, and additional deficiencies were found during studies and design efforts. These will be prioritized and completed under this project as funding allows.

The Idaho Nuclear Technology and Engineering Center electrical and utility systems provide the infrastructure services required to support the safe operation and maintenance of the site facilities. Electrical and Utility Systems Upgrade Project feasibility studies and various operating contractor self assessment studies have shown that the electrical and utility systems at the Idaho Nuclear Technology and Engineering Center, because of its age, use, and the rapid growth in utility requirements, are unsafe, unreliable, or violate CFR Occupational Safety and Health Act requirements, DOE orders, DOE Idaho Operations Office A-E Standards, and industry codes and standards, with significant life-safety and health implications. These utility systems are also rapidly approaching severe overload conditions. These high risk deficiencies, along with the system overload, jeopardize the ability of the electrical and utility systems to support the DOE mission at the Idaho Nuclear Technology and Engineering Center to safely receive, inspect, store, and condition for disposal, spent nuclear fuel, and to manage radioactive wastes generated from fuel handling activities while protecting the safety of the workers, the public, and the environment.

Although the mission of the Idaho Nuclear Technology and Engineering Center was changed in 1992 by the DOE from fuel reprocessing to waste management, utility requirements are still projected to increase since the existing facilities, including the inactive fuel reprocessing facilities, will continue to use essentially the same operational quantities of electrical power and other utilities to maintain safe confinement conditions until they are decommissioned. Important equipment such as heating and ventilation fans are still required to operate to maintain pressure boundaries; radiation and environmental monitoring equipment is required to operate to protect the safety and health of the workers; and a standby power system is required to operate to provide power to important equipment and instrumentation in case of loss of commercial normal power.

Upgrades to the electrical and utility systems thoughout the Idaho Nuclear Technology and Engineering Center complex have been delayed for many years. The last upgrade to the electrical utility infrastructure, the Utility Replacement and Expansion Project (UREP), was completed in FY 1984 at a cost of $10,500,000. The UREP was originally designed to provide the necessary electrical power requirements through 1989. This increased the electrical capacity from 4 MVA to 14 MVA. The Idaho National Engineering and Environmental Laboratory Electrical Upgrade (FY 1993) Project installed a new 26 MVA substation to replace the overloaded 14 MVA substation. The Idaho National Engineering and Environmental Laboratory Electrical Upgrade Project, however, did not provide any new electrical ductbanks or smaller unit substations for distribution of this power to the Idaho Nuclear Technology and Engineering Center facilities.

The Idaho Nuclear Technology and Engineering Center electrical power distribution system is approaching its design capacity. In April 1992, the Idaho Nuclear Technology and Engineering Center power usage reached its highest level (13 MVA, 93 percent of rated 14 MVA capacity) since the plant began operations, even though all fuel reprocessing has been discontinued. Eight existing 13.8 kV feeders in the electrical power distribution system are overloaded or at rated capacity. These feeders are expected to become overloaded as new facilities and equipment loads are added to support the new Idaho Nuclear Technology and Engineering Center missions. The majority of the Idaho Nuclear Technology and Engineering Center electrical manholes presently contain a mixture of high-voltage power, low-voltage power, and low-voltage non-power (communication, alarms, security) circuits without proper separation, which is prohibited by the National Electric Code (NEC) and other safety codes. Several of the existing distribution centers exceed their rated capacities during peak load periods. Several distribution centers have insufficient electrical current interrupting ratings which constitute a potential explosion and fire hazards. In many facilities, power is supplied to multiple service entrances at different locations within a building. This presents a hazard to maintenance and emergency (e.g. fire) response personnel when trying to electrically isolate systems or the facility itself. Many of the service entrance panels or switchgear and internal distribution panels are not adequately protected against short circuit conditions. Many panels, raceways, and conductors are not installed in accordance with safe NEC required practices. Two of the four primary standby power generators have connected loads that exceed their continuous ratings. Such deficiencies represent potential safety hazards to operations and maintenance personnel. Also, many of these 40 year old facilities have deteriorating and obsolete equipment with spare parts no longer available from suppliers.

Upgrades to the Idaho Nuclear Technology and Engineering Center electrical and utility distribution system are essential to: (1) provide for safe operation of site facilities that are key to the Idaho Nuclear Technology and Engineering Center mission, (2) provide a safe work place for employees, (3) minimize risk of property damage as well as damage to the environment, and (4) provide adequate capacity to support the DOE mission.

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
Design Phase		
Preliminary and final design costs (design drawings and specifications)	7,252	7,252
Design management costs (3.2% of TEC)	1,720	1,720
Project management costs (1.5% of TEC)	794	0
Total, Engineering, design, inspection, and administration of constuction costs (18.3% of TEC)	9,766	8,972
Construction Phase		
Buildings	2,246	0
Specialized equipment	0	2,446
Other (major utilities/comp items, specialized facilities, etc)	22,481	0
Removal cost less salvage	0	22,281
Inspection, design and project liaison, testing, checkout and acceptance	4,154	4,693
Construction management costs (7% of TEC)	3,737	6,776
Project management costs	2,784	0
Total, Construction Costs	35,402	36,196
Contingencies		
Design Phase (< 1.0% of TEC)	242	828
Construction Phase (15.0% of TEC)	8,042	7,456
Total, Contingency (approximately 15.5% of TEC)	8,284	8,284
Total, Line Item costs (TEC)	53,452	53,452

5. Method of Performance

Design will be performed by the operating contractors Facility Engineering (design) Organization. Construction and procurement will be accomplished by fixed price contracts and subcontracts awarded on the basis of competitive bidding to the maximum extent possible. Some time and material construction contracts or force account construction work under operating contractor, direct management, may be utilized for work in areas of radiological or hazardous waste contamination. Title III inspection will be accomplished by the operating contractor.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 1999	FY 2000	FY 2001	Outyears	Total
Project Cost.[a]						
Facility Cost						
Design	7,906	353	508	723	518	10,008
Construction	12,392	11,424	8,565	5,851	5,212	43,444
Total Facility Costs (Federal and Non-Federal)	20,298	11,777	9,073	6,574	5,730	53,452
Other Project Costs						
Conceptual design costs	5,395	0	0	0	0	5,395
NEPA documentation costs	83	0	0	0	0	83
Other project-related costs	3,934	2,066	1,205	1,158	556	8,919
Total Other Project Costs	9,412	2,066	1,205	1,158	556	14,397
Total Project Costs (TPC)	29,710	13,843	10,278	7,732	6,286	67,849

7. Related Annual Funding Requirements

(FY 1999 dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs	800	800
Annual facility maintenance/repair costs	750	750
Total related annual funding (operating from FY 1999 through FY 2038)	1,550	1,550

[a]Revision of costs based on detailed estimate to complete prepared January 24, 1997.

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

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

Significant Changes

The total project cost reduced from $58,500,000 to $54,000,000 due to clearer defined estimates as a result of experience gained from execution of subprojects.

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)*	"	"	"	"	" [a]	54,000

[a] Current subprojects total $37,628,000; future subprojects have a total estimated cost of $7,372,000.

2. Financial Schedule

Fiscal Year	Appropriations	Obligations	Costs
Design			
1996	700	700	633
1997	850	850	887
1998	1,500	1,500	1,408
1999	800	800	821
2000	770	770	502
2001	0	0	369
2002	0	0	0
Construction			
1996	800	800	66
1997	7,691	7,691	3,095
1998	7,000	7,000	10,127
1999	7,200	7,200	5,968
2000	161	161	2,339
2001	8,342	8,342	5,774
2002	9,186	9,186	13,011

3. Project Description, Justification and Scope

DRIVERS

Current legislation banned chlorofluorcarbon production in December 1995. Continued chlorofluorcarbon use is allowed under strict maintenance and operation regimens. However, the free market pricing mechanisms and DOE policy severely discourage procurement of replacement chlorofluorcarbons. In order to continue operations, the DOE must eventually end its reliance upon chlorofluorcarbons for all cooling applications.

CHLOROFLUORCARBON MISSION

Due to the regulatory requirements, as well as the related impending chlorofluorcarbon shortages, it is imperative that action be taken to preserve EM mission capability by instituting chlorofluorcarbon management for conserving this limited resource pending replacement by non-chlorofluorcarbons, 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 chlorofluorcarbons 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 chlorofluorcarbons to ensure compliance with the Environmental Protection Agency stratospheric ozone protection amendment of the Clean Air Act at the Savannah River Site. A project of this type cannot be fully detailed in advance due to changing mission requirements, unexpected catastrophic equipment failures, environmental compliance schedules, etc. The subprojects identified are examples of chillers under consideration. This approach is

based upon similar endeavors by other federal agencies, such as the General Services Administration. In general, the estimated funding for each location and listed subprojects is preliminary in nature and primarily indicative of the size of the subproject and the relative magnitude of the requirements. It should be noted also that the continuing study of requirements will result in changes in scope of some of the subprojects.

Refrigerant and cooling requirements are the principal use for ozone-depleting substances (chlorofluorcarbons) at the Savannah River Site (with Halon fire suppression and specialized solvent cleaning operations comprising the remaining usage). The program will eliminate the use of chlorofluorcarbons 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-chlorofluorcarbon 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-chlorofluorcarbon refrigerants, and are not addressed under this program. The ultimate disposal or destruction of chlorofluorcarbon refrigerants is not considered as part of this effort.

The principal chlorofluorcarbon refrigerants found on the Savannah River Site include R-11, R-12, R-113, R-114, R-502, and R-503. Replacement non-chlorofluorcarbon refrigerants/systems are already commercially available, and no development activity is required. However, since some non-chlorofluorcarbon 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 Chlorofluorcarbon 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 Chlorofluorcarbon 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 Chlorofluorcarbons.
- # The National Pollution Prevention Act of 1990.
- # Executive Order 12843 addresses procurement policies for ozone-depleting substances.

The Chlorofluorocarbon Heating, Ventilation, and Air Conditioning-Chiller Retrofit 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 chlorofluorcarbon 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 2000 Proposed Projects: (New Starts)

Subproject 06: S Area

TEC	Previous	FY 1998	FY 1999	FY 2000	Outyears	Construction Start - Completion Dates
8,250	0	0	0	500	7,750	2nd Qtr. FY 2000 - 2nd Qtr. FY 2002

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

FY 1999 Projects:

Subproject 13: New Special Recovery/HB Line Areas

TEC	Previous	FY 1998	FY 1999	FY 2000	Outyears	Construction Start - Completion Dates
3,300	0	0	463	431	2,406	2nd Qtr. FY 2000 - 4th Qtr. FY 2001

Replace two chillers in HB Line and one in New Special Recovery Facility.

FY 1998 Projects:

Subproject 07: 299-H

TEC	Previous	FY 1998	FY 1999	FY 2000	Outyears	Construction Start - Completion Dates
1,063	700	363	0	0	0	4th Qtr. FY 1998 - 1st Qtr. FY 1999

Replace one 400 ton chiller.

Subproject 08: 235-F

TEC	Previous	FY 1998	FY 1999	FY 2000	Outyears	Construction Start - Completion Dates
2,638	364	900	1,374	0	0	1st Qtr. FY 1999 - 4th Qtr. FY 1999

Replace two chillers with a total capacity of 350 tons.

Subproject 12: Tritium, Phase III

TEC	Previous	FY 1998	FY 1999	FY 2000	Outyears	Construction Start - Completion Dates
1,900	0	300	1,600	0	0	1st Qtr. FY 1999 - 3rd Qtr. FY 1999

Convert two 658-ton chillers to a non-chlorofluorcarbon refrigerant.

FY 1997 Projects:

Subproject 04: F-Canyon / Analytical Laboratories

TEC	Previous	FY 1998	FY 1999	FY 2000	Outyears	Construction Start - Completion Dates
9,172	3,500	1,543	4,129	0	0	1st Qtr. FY 1998 - 3rd Qtr. FY 1999

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

Subproject 05: H-Canyon

TEC	Previous	FY 1998	FY 1999	FY 2000	Outyears	Construction Start - Completion Dates
2,771	800	1,971	0	0	0	1st Qtr. FY 1998 - 4th Qtr. FY 1998

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

FY 1996 Projects:

Subproject 02: Tritium, Phase I

TEC	Previous	FY 1998	FY 1999	FY 2000	Outyears	Construction Start - Completion Dates
677	677	0	0	0	0	2nd Qtr. FY 1996 - 4th Qtr. FY 1996

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

Subproject 03: Tritium, Phase II

TEC	Previous	FY 1998	FY 1999	FY 2000	Outyears	Construction Start - Completion Dates
7,857	4,000	3,423	434	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.

Additional New Start projects beyond FY 2000 have a total estimated cost of $7,372,000.

EXECUTION CONSIDERATIONS

The two principal options for addressing existing Chlorofluorcarbon 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-chlorofluorcarbon dependent equipment.

Consideration/evaluation of the conversion versus replacement decision include:

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

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

4. Details of Cost Estimate [a]

(dollars in thousands)

	Current Estimate	Previous Estimate
Design phase		
Preliminary and final design costs (5.5% of total estimated cost (TEC))	2,489	2,192
Design management costs (2.6% of TEC)	1,192	0
Total, engineering, design, inspection, and administration of construction costs (8.2% of TEC)	3,681	2,192
Construction phase		
Other (major utilities/comp items, specialized facilities, etc.)	27,407	32,263
Inspection, design and project liaison, testing, checkout and acceptance	898	1,428
Construction management (8.7% of TEC)	3,897	0
Total, construction costs	32,202	33,691
Contingencies		
Design phase (2.1% of TEC)	939	548
Construction phase (18.2% of TEC)	8,178	8,569
Total, contingencies (20.3% of TEC)	9,117	9,117
Total, line item costs (TEC)	45,000	45,000

5. Method of Performance

Installation of replacement equipment and system conversions (retrofits) will be performed to the greatest extent feasible through competitive solicitations or competitively selected service contracts. Procurement will be accomplished to the maximum extent practical through competitively bid solicitations and contracts.

[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 1998	FY 1999	FY 2000	FY 2001	Outyears	Total
Project cost							
Facility cost							
Design	1,520	1,408	821	502	369	0	4,620
Construction	3,161	10,127	5,968	2,339	5,774	13,011	40,380
Total facility costs (Federal and Non-Federal) [a]	4,681	11,535	6,789	2,841	6,143	13,011	45,000
Other project costs							
Other project-related costs	3,128	1,710	1,185	1,264	910	803	9,000
Total other project costs	3,128	1,710	1,185	1,264	910	803	9,000
Total project costs (TPC)	7,809	13,245	7,974	4,105	7,053	13,814	54,000

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	1,953
Programmatic effort related to facility	0	0
Other annual costs	0	1,421
Total related annual funding *(operating from FY 2000 through FY 2023)*	0	3,374

[a] The line item TEC is $45,000 which includes design, procurement, and construction.

[b] Replacement of the chillers will result in less maintenance and energy costs of approximately $3,400,000.

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

(Changes from FY 1999 Congressional Budget Request and denoted with a vertical line [|] in the left margin)

Significant Changes

Update project completion date to reflect latest approved baseline change.

1. Construction Schedule History

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

[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 2000 Budget Request (*Current Request*)	3Q 1994	3Q 1998	2Q 1998	2Q 2003	62,362	63,131

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design			
Prior Years	3,756 [a]	3,756	3,756
1998	1,116.[b]	1,116	1,116
1999	585	585	585
2000	28.[c]	28	28
2001	0	0	0
2002	0	0	0
2003	0	0	0
Construction			
Prior Years	38,905	38,905	21,470.[d]
1998	10,134	10,134	10,872
1999	3,127 [c]	3,127	15,563
2000	1,972	1,972	6,355
2001	2,000	2,000	2,114
2002	739	739	426
2003	0	0	77

3. Project Description, Justification and Scope

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

[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

[b]Reduction of $500,000 of current year funds in FY 1997

[c]Prior year funds used as an offset for FY 1999 uncosted reduction, $1,040,000. Original appropriation was $4,752,000.

[d]Includes other project costs

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.

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

Phase 1 - Site improvements. This phase includes debris removal, excavation, grading, trenching, electrical service, underground utilities, partial paving, curb and gutter, and sidewalks.

Phase 2 - Mixed Waste Management Facility. This phase has been deleted.

Phase 3A - Decontamination and Waste Treatment Facility. This phase consists of construction of the Truck Bay, Solid Waste Processing Building, Chemical Exchange Warehouse, High Curie Waste Storage, Radwaste Storage Building, and modifications to existing Building 280.

Phase 3B - Decontamination and Waste Treatment Facility. This phase consists of construction of the Liquid Waste Processing Building, Reactive Materials Building and Classified Waste Storage Building.

Phase 4 - Decontamination and Waste Treatment Facility. This phase consists of construction of the Operational Support Building.

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

Phase 6 - Resource Conservation and Recovery Act Closure of existing facilities.

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

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

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

a. Liquid Waste Processing Building

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

- Siting the new facility in a location which meets the seismic requirement of Resource Conservation and Recovery Act and the State.
- Providing sufficient treatment to assure meeting the new restrictive discharge limits established by regulators.
- Providing more efficient technology to minimize disposal volume to comply with environmental regulations and DOE Orders.
- Providing close capture ventilation and spill containment systems to comply with the environmental regulations which limit air emissions and prohibit liquid discharges to the environment.

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

Receiving and Classification Area

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

Solid Waste Processing Area

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

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

c. Storage Building

Radioactive Waste Storage Area

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

Chemical Exchange Warehouse

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

Building 280 Modifications

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

d. Operational Support Building

This facility will provide the following:

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

e. Standby Generator

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

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
Design Phase		
Preliminary and final design costs (5.4% of total estimated cost (TEC))	3,391	3,063
Design management costs (2.4% of TEC)	1,489	1,481
Total, Engineering, design, inspection, and administration of construction costs (7.8% of TEC	4,880	4,544
Construction Phase		
Buildings and improvements to land	35,021	33,751
Specialized equipment	4,775	4,775
Inspection, design and project liaison, testing, checkout and acceptance	2,539	1,740
Construction management (3.5% of TEC)	2,198	2,107
Total, Construction costs	44,533	42,373
Contingencies		
Design phase (1.0% of TEC)	605	918
Construction phase (5.5% of TEC)	3,428	5,611
Total, Contingencies	4,033	6,529
Unrecoverable Costs		
Design	5,356	5,356
Project Management	1,393	1,393
Permit	2,167	2,167
Total, Unrecoverable Costs	8,916	8,916
Total, line item costs (TEC)	62,362	62,362

5. Method of Performance

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

Contracting arrangements are as follows:

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

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 1998	FY 1999	FY 2000	FY 2001	Outyears	Total
Project Cost							
Facility Cost							
Design	3,756	1,116	585	28	0	0	5,485
Construction	12,554	6,776	17,563	8,215	2,114	739	47,961
Inventories/Unrecoverable	8,916	0	0	0	0	0	8,916
Total, Facility Costs (Federal and Non-Federal)	25,226	7,892	18,148	8,243	2,114	739	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)	25,995	7,892	18,148	8,243	2,114	739	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)

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

(Changes from FY 1999 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]

2. Financial Schedule (Operating Expense Funded)

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design			
2000	734	734	360
2001	450	450	824
Construction			
2000	2,040	2,040	2,040
2001	8,516	8,516	8,516
2002	2,920	2,920	2,920

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

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

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 is about 60 percent of the roof area of 773-A. This is about 150,000 square feet and based on recent costs for replacement of a clean roof the cost alone would be about $2,400,000.

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

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

If funding for this project is not received in FY 2000, the roof areas of 773-A will continue to deteriorate and increase the potential for the spread of contamination, as well as continue to have a negative impact on laboratory missions, operations, and maintenance. The continuing exposure of personnel to high levels of radiation and contamination for normal maintenance and surveillance activities will also continue to have a negative impact to personnel safety in both 772-F and 773-A.

The execution of this project will improve present physical working conditions in the Savannah River Technology Center's main laboratory building and in the Analytical Labs 772-F building. These improved working conditions will put these facilities in a better position to support current and future short- and long-term lab missions.

FY 2000 funding will be used to obtain a fixed-price architect/engineer and to initiate and award the subcontracts for the construction phase of the project.

4. Details of Cost Estimate [a]

(dollars in thousands)

	Current Estimate	Previous Estimate
Design phase		
Engineering design and inspection (5.3% of total estimated cost (TEC))	772	NA
Project management (2.8% of TEC)	412	NA
Total, engineering, design, inspection and administration of construction costs (8.1% of TEC)	1,184	NA
Construction phase		
Buildings	10,316	NA
Construction management costs (4.9% of TEC)	720	NA
Total, construction costs	11,036	
Contingencies		
Construction phase (16.6% of TEC)	2,440	NA
Total, contingencies (16.6% of TEC)	2,440	NA
Total, line item costs (TEC)	14,660	NA

5. Method of Performance

The design, procurement, and construction will be performed by fixed-price subcontractors awarded on the basis of competitive bidding.

[a] The DOE escalation rates (% per year) used for this estimate are as follows: FY 1999 through FY 2001 are 4.0 percent. The above estimate includes $1,907,000 for escalation.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 1998	FY 1999	FY 2000	FY 2001	Outyears	Total
Project cost							
Facility cost							
Design	0	0	0	360	824	0	1,184
Construction	0	0	0	2,040	8,516	2,920	13,476
Total, facility costs (Federal and Non-Federal)	0	0	0	2,400	9,340	2,920	14,660
Other project costs							
Conceptual design cost	300	43	30	0	0	0	373
Other project-related costs [a]	0	0	0	160	370	137	667
Total other project costs	300	43	30	160	370	137	1,040
Total project costs (TPC)	300	43	30	2,560	9,710	3,057	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 1999 Congressional Budget Request are denoted with a vertical line [|] in the left margin.)

Significant Changes

- # Detailed design and construction activities on portions of the project have been deferred to allow additional time for the process and equipment development. It is estimated that the project will undergo a rebaselining in the 3rd Quarter FY 1999. The rebaselining will provide definitive impacts to the baselines.
- # The significant changes to the cost and schedule baselines are a result of the deferment of design and construction activities and additional research and development effort due to the difficulties in the adaptation of a commercial melter to produce stable glass with highly radioactive aqueous feed.

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)*.[a]	"	2Q 2000	"	2Q 2001	40,349	80,021

[a] The design and construction activities on portions of the project have been deferred pending further research and development work. The cost and schedule estimates are not definitive and will be confirmed with a planned rebaselining in the 3rd Quarter FY 1999.

2. Financial Schedule (Operating Expense Funded)

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design			
1996	5,483	5,483	5,483
1997	4,007	4,007	4,007
1998	1,348	1,348	1,348
1999	2,500	2,500	2,500
2000	3,929	3,929	3,929
2001	373	373	373
Construction			
1996	872	872	872
1997	1,633	1,633	1,633
1998	988	988	988
1999	1,201	1,201	1,201
2000	8,011	8,011	8,011
2001	10,004	10,004	10,004

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 Sources Programs at the Oak Ridge National Laboratory. An analysis of several alternatives has resulted in this project to develop the process to stabilize the solutions by vitrification into a glass form. The facility most suitable for installing vitrification equipment to stabilize this solution is the Multi-Purpose Processing Facility.

An extensive research and development program was implemented at the Savannah River Site to stabilize the americium/curium solution as DOE had no existing stabilization capability. During the development process, the initial melter concept was determined unsuitable. Problems due to geometry (heat distribution) and operations characteristics (continuous feed/pour and offgas generation) were

encountered. Since January 1998, development work has focused on a new melter concept (cylindrical, batch feed/pour). This new concept has been successfully demonstrated on surrogate material resulting in project design recommencement. Based upon the new design a total project rebaseline (cost and schedule) will be complete in June 1999.

The FY 2000 funds will be used to continue design for this project, procure materials, and continue with construction.

4. Details of Cost Estimate.[a]

(dollars in thousands)

	Current Estimate	Previous Estimate
Design phase		
Preliminary and final design costs (29.8% of total estimated cost (TEC))	12,024	9,186
Design management costs (4.4% of TEC)	1,775	1,174
Total, engineering, design, inspection, and administration of construction costs (34.2% of TEC)	13,799	10,360
Construction phase		
Other (major utilities/comp items, specialized facilities, etc.)	12,464	0
Removal costs less salvage	0	12,640
Inspection, design and project liaison, testing, checkout and acceptance	2,325	0
Construction management (1.8% of TEC)	746	0
Total, construction costs	15,535	12,640
Contingencies		
Design phase (9.5% of TEC)	3,841	7,400
Construction phase (17.8% of TEC)	7,174	3,644
Total, contingencies (27.3% of TEC)	11,015	11,044
Total, line item costs (TEC)	40,349	34,044

5. Method of Performance

Design and construction shall be performed by the Management and Operating contractor or subcontractor under the direction of the Management and Operating contractor.

[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 1998	FY 1999	FY 2000	FY 2001	Total
Project cost						
Facility cost						
Design	9,490	1,348	2,500	3,929	373	17,640
Construction	2,505	988	1,201	8,011	10,004	22,709
Total facility costs (Federal and Non-Federal)	11,995	2,336	3,701	11,940	10,377	40,349
Other project costs						
R&D necessary to complete project.[a]	8,830	4,909	4,700	1,600	0	20,039
Conceptual design cost.[b]	300	0	2,000	0	0	2,300
NEPA documentation costs.[c]	100	0	0	0	0	100
Other project-related costs.[d]	3,285	2,036	3,068	5,000	3,844	17,233
Total other project costs	12,515	6,945	9,768	6,600	3,844	39,672
Total project costs (TPC)	24,510	9,281	13,469	18,540	14,221	80,021

7. Related Annual Funding Requirements

(FY 2002 dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs (staff, utilities, etc.).[e]	2,400	2,400
Annual facility maintenance and repair costs	100	100
Programmatic effort related to facility	0	0
Other annual costs	100	100
Total related annual funding *(operating from FY 2002 through FY 2002)*	2,600	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 design is being prepared for an alternate melter system.

[c] Includes cost associated in complying with National Evironmental 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 6 months. The staffing costs associated with this are expected to be $2,400,000 (12 FTEs).