Readiness in Technical Base and Facilities

Program Mission

The **Readiness in Technical Base and Facilities (RTBF)** mission is to ensure that the right facilities and infrastructure are in place to manufacture and certify the 21st century nuclear weapons stockpile; and that all sites within the weapons complex are implementing the technologies and methods necessary to make construction, operation, and maintenance of DP facilities safe, secure, reliable and cost effective. The RTBF program provides the physical and operational infrastructure at the national laboratories, the Nevada Test Site, production sites and other DP sites required to conduct the scientific, technical, and manufacturing activities of the Stockpile Stewardship program. Readiness in Technical Base and Facilities is broken into the following eight subcategories (or budget elements): Operations of Facilities, Program Readiness, Special Projects, Material Recycle and Recovery, Containers, Storage, Nuclear Weapons Incident Response, and Construction.

Program Strategic Performance Goal

NS 1-2: Develop the scientific, design, engineering, testing, and manufacturing capabilities needed for long-term stewardship of the stockpile.

Performance Indicator

Demonstrate that the ability to conduct underground nuclear testing, if necessary, is adequate to meet policy requirements. (NS 1-2)

Performance Standards

Blue: Not Applicable

Green: All FY 2003 planned program milestones and deliverables are met; or, for any FY 2003 planned program milestone or deliverable not met, a corrective action plan or adjusted program plan is in place.

Yellow: Major FY 2003 planned program milestones or deliverables are not met, and corrective action plan or adjusted program plan is under development.

Red: Major FY 2003 planned program milestones or deliverables are not met, and corrective action plan or adjusted program plan is not in place and is not achievable within fiscal year or within Weapons Activities appropriation.

Annual Performance Results and Targets

FY 2001 Results	FY 2002 Target (Revised Final)	FY 2003 Proposed Target
Maintained the ability to conduct underground nuclear testing, if necessary, consistent with Administration's 24-36 month policy requirement.	Maintain the ability to conduct underground nuclear testing, if necessary, consistent with Administration's 24-36 month policy requirement, and conduct a study as requested by the Nuclear Posture Review to refine test scenarios and evaluate the cost/benefit tradeoffs to sustain the optimum test readiness that best supports the New Triad.	Maintain the ability to conduct underground nuclear testing, if necessary, consistent with Administration's 24-36 month policy requirement, and implement the recommendation from the study as requested by the Nuclear Posture Review to refine test scenarios and evaluate the cost/benefit tradeoffs to sustain the optimum test readiness that best supports the New Triad

Program Strategic Performance Goal

NS 4-1: Attract and retain the best laboratory and production workforce.

Performance Indicators

Provide challenging and rewarding work in a safe and secure environment. (NS 4-1)

Meet targets for hiring and retaining critical personnel. (NS 4-1)

Performance Standards

Blue: Not Applicable

Green: All FY 2003 planned program milestones and deliverables are met; or, for any FY 2003 planned program milestone or deliverable not met, a corrective action plan or adjusted program plan is in place.

Yellow: Major FY 2003 planned program milestones or deliverables are not met, and corrective action plan or adjusted program plan is under development.

Red: Major FY 2003 planned program milestones or deliverables are not met, and corrective action plan or adjusted program plan is not in place and is not achievable within fiscal year or within Weapons Activities appropriation.

Annual Performance Results and Targets

FY 2001 Results	FY 2002 Target (Revised Final)	FY 2003 Proposed Target
No previous measures.	Meet targets included in workforce site plans and contracts for hiring and retaining critical personnel. (NS 4-1-1)	Meet FY 2003 targets included in workforce site plans for hiring and retaining critical personnel. (NS 4-1-1) Minimized the number of vacant critical skill positions and reduce the average age of the critically skilled workforce through recruitment and retention of a new generation of nuclear weapons stewards. (NS 4-1-2)

Program Strategic Performance Goal

NS 4-2: Provide state-of-the-art facilities and infrastructure supported by advanced scientific and technical tools to meet operational and mission requirements.

Performance Indicators

Ensure necessary facilities are available to perform our mission. (NS 4-2)

Meet or exceed environmental, safety, and health requirements. (NS 4-2)

Implement the Integrated Safety Management Program. (NS 4-2)

Complete construction activities on schedule and within budget. (NS 4-2)

Performance Standards

Blue: Not Applicable

Green: All FY 2003 planned program milestones and deliverables are met; or, for any FY 2003 planned program milestone or deliverable not met, a corrective action plan or adjusted program plan is in place.

Yellow: Major FY 2003 planned program milestones or deliverables are not met, and corrective action plan or adjusted program plan is under development.

Red: Major FY 2003 planned program milestones or deliverables are not met, and corrective action plan or adjusted program plan is not in place and is not achievable within fiscal year or within Weapons Activities appropriation.

Annual Performance Results and Targets

FY 2001 Results	FY 2002 Target (Revised Final)	FY 2003 Proposed Target
Ensured the physical infrastructure and facilities were operational, safe, secure, compliant and that a defined	Meet established facility operating plans and construction schedules to ensure the physical infrastructure and facilities	Meet established facility operating plans and construction schedules to ensure the physical infrastructure

Annual Performance Results and Targets

FY 2001 Results	FY 2002 Target (Revised Final)	FY 2003 Proposed Target
state of readiness was sustained at all needed facilities. (NS 4-2) Completed the milestones listed in the corrective action plan for the Departmental challenge of managing physical assets. (NS4-2/FMFIA)	are operational, safe, secure, compliant and that a defined state of readiness is sustained at all needed facilities. (NS 4-2-1) Complete Defense related project management improvement campaign. (NS4-2/FMFIA-project management)	and facilities are operational, safe, secure, compliant and that a defined state of readiness is sustained at all needed facilities. (NS 4-2-1)

Significant Accomplishments and Program Shifts

As part of the recently completed Nuclear Posture Review (NPR), DoD and the NNSA are directed to work to refine test scenarios and evaluate cost/benefit tradeoffs to determine, implement and sustain the optimum test readiness time that best supports the New Triad. Within the FY 2002 appropriation, a study is underway to implement that direction from the NPR. The conclusions of that study will lead to a final determination on the specific test readiness posture to be implemented through a National Security Policy Directive. Pending completion of this study and specific policy change, the FY 2003 budget contains $15 million to begin implementing that readiness posture.

The National Nuclear Security Agency (NNSA) continues to support various technology partnerships within campaigns as a means to reach the goals and objectives of the Stockpile Stewardship Program; however, there is no longer a specific Technology Partnership decision unit in the budget. Ongoing Technology Partnership activities are budgeted for in the campaign which they support.

FY 2001 Accomplishments

- Implemented corrective action recommended on Defense Nuclear Facility Safety Board (DNFSB) reports, reduced maintenance backlogs, and maintained reliability of utility systems and environmental monitoring.
- Completed refurbishments, construction projects and building upgrades.
- Continued work on Wet Chemistry, Metal Production, and salvage operations start-up.
- Ensured interim stored materials within the Y-12 9206 Complex remains within applicable safety envelopes and in full compliance.
- Repackaged pits at Pantex to meet established goal and procured AL-R8 SI containers to support pit repackaging program.
- Performed packaging operations to support off-site shipments of materials, and refurbished containers to support dismantlement receipts.
- Supported repackaging of an average of 200 pits per month.
- Completed Materials Management Plan.

FY 2002 Planned Accomplishments

- Start up of the Hydrogen Fluoride Supply System and chemical recovery operations.
- Complete two highly enriched uranium shipments from Los Alamos to Y-12.
- Implement corrective action recommended on DNFSB reports, reduced maintenance backlogs, and maintained reliability of utility systems and environmental monitoring.
- Complete scheduled refurbishments, construction projects and building upgrades.
- Repackage pits at Pantex to meet established goal and procure AL-R8 SI containers to support pit repackaging program.
- Perform packaging operations to support off-site shipments of materials, and refurbished containers to support dismantlement receipts.
- Support repackaging of an average of 200 pits per month.

Funding Profile

(dollars in thousands)

Readiness in Technical Base & Facilities	FY 2001 Comparable Appropriation	FY 2002 Original Appropriation	FY 2002 Adjustments	FY 2002 Comparable Appropriation	FY 2003 Request
Operations of Facilities	882,842	897,800	5,421 [a]	903,221	949,920
Program Readiness	175,131	192,000	305 [a]	192,305	208,089
Special Projects	63,942	60,385	(22,476) [b]	37,909	37,744
Material Recycle & Recovery	83,461	90,310	3,958 [a]	94,268	98,816
Containers	22,633	8,199	(209) [a]	7,990	17,721
Storage	15,618	10,643	(245) [a]	10,398	14,593
Nuclear Weapons Incident Response	85,774	88,923	1,000 [c]	89,923	91,000
Construction	165,158	204,864	(5,998) [d]	198,866	270,346
Total, Readiness in Technical Base and Facilities	1,494,559	1,553,124	(18,244)	1,534,880	1,688,229

Public Law Authorization:

Public Law 107-107, National Defense Authorization Act, FY 2002
Public Law 107-66, Energy and Water Development Appropriations Act for FY2002

[a] Adjustments reflect use of limited reprogramming authority from the conference report accompanying P.L. 107-66.

[b] Adjustments reflect use of limited reprogramming authority from the conference report accompanying P.L. 107-66, -$9,230,000 and a comparability adjustment moving the aviation function from Special Projects to Secure Transportation Asset, Operations and Maintenance, -$13,246,000.

[c] Adjustments reflects comparability adjustment from Other Defense Programs for BASIS, +$1,000,000.

[d] Adjustments reflects a general reduction of -$5,998,000 from P.L. 107-66.

Funding by Site

(dollars in thousands)

Readiness in Technical Base & Facilities	FY 2001	FY 2002	FY 2003	$ Change	% Change
Albuquerque Operations Office					
Albuquerque Operations Office	28,077	17,294	11,776	-5,518	-31.9%
Kansas City	136,239	125,722	141,474	15,752	12.5%
Los Alamos National Laboratory	331,534	316,145	343,882	27,737	8.8%
Pantex	102,308	121,327	122,576	1,249	1.0%
Sandia National Laboratories	221,408	298,867	325,724	26,857	9.0%
Total, Albuquerque Operations Office	819,566	879,355	945,432	66,077	7.5%
Chicago Operations Office					
Argonne National Laboratory	90	95	0	-95	-100.0%
Brookhaven National Laboratory	0	30	0	-30	-100.0%
Total Chicago Operations Office	90	125	0	-125	-100.0%
Idaho Operations Office	1,600	1,374	0	-1,374	-100.0%
National Energy Technology Laboratory	350	0	0	0	N/A
Nevada Operations Office	154,145	122,873	121,462	-1,411	-1.1%
Oak Ridge Operations Office					
Y-12 National Security Complex	282,388	269,127	307,056	37,929	14.1%
Oak Ridge Operations Office	11,927	2,931	5,664	2,733	93.2%
Oak Ridge National Laboratory	13,702	14,194	14,240	46	0.3%
Total, Oak Ridge Operations Office	308,017	286,252	326,960	40,708	14.2%
Oakland Operations Office					
Lawrence Livermore National Laboratory	66,722	80,473	85,785	5,312	6.6%
Oakland Operations Office	400	0	0	0	N/A
Total Oakland Operations Office	67,122	80,473	85,785	5,312	6.6%
Savannah Operations Office					
Savannah River	676	4,710	0	-4,710	-100.0%
Savannah River Site	111,556	93,452	103,832	10,380	11.1%
Total, Savannah River Operations Office	112,232	98,162	103,832	5,670	5.8%
Headquarters and Other	31,437	66,266	104,758	38,492	58.1%
Total, Readiness in Technical Base and Facilities	1,494,559	1,534,880	1,688,229	153,349	10.0%

Operations of Facilities

Mission Supporting Goals and Objectives

Operations of Facilities includes NNSA's share of the cost to operate and maintain "NNSA-owned" programmatic facilities in a state of readiness, at which each facility is operationally ready to execute programmatic tasks identified in Campaigns and Directed Stockpile Work (DSW). This category includes NNSA's share of all costs necessary to operate the physical infrastructure and facilities in a safe, secure, reliable, and "ready for operations" manner, and that a defined state of readiness is sustained at all needed facilities. These facility-specific activities include, but are not limited to, maintenance; utilities; environment, safety and health; efforts to address some of the Defense Nuclear Facilities Safety Board (DNFSB) concerns, and implementation of rules (such as the new Safety Bases Rule 10CFR830, Nuclear Safety Management).

Infrastructure support is also included under Operations of Facilities. These include: facility-related costs which are not associated with the ongoing operations of facilities such as conceptual design reports, and other project related costs for line items, National Environmental Policy Act (NEPA) activities, institutional capital equipment and general plant projects; Stockpile Management Restructuring Initiative which includes operating support costs related to production facility downsizing such as component rebuilds, process transfer/downsizing, qualification and process prove-in, and facility shutdown; and facility startup/standby/Decommissioning & Decontamination (D&D) which includes costs associated with maintaining facilities in a standby status for possible further use, or decontaminating and decommissioning.

Funding Schedule

(dollars in thousands)

	FY 2001	FY 2002	FY 2003	$ Change	% Change
Lawrence Livermore National Laboratory	44,953	42,026	42,401	375	0.9%
Los Alamos National Laboratory	294,856	286,902	306,874	19,972	7.0%
Sandia National Laboratories	160,076	152,610	171,148	18,538	12.1%
Nevada Test Site	47,905	50,725	56,347	5,622	11.1%
Y-12 National Security Complex	78,858	82,007	75,544	-6,463	-7.9%
Savannah River Site	75,191	74,053	83,035	8,982	12.1%
Kansas City Plant	94,552	91,590	97,933	6,343	6.9%
Pantex Plant	73,029	108,761	94,051	-14,710	-13.5%
All Other Sites	13,422	14,547	22,587	8,040	55.3%
Subtotal, Operations of Facilities	882,842	903,221	949,920	46,699	5.2%

Performance Measures

Performance will be demonstrated by:

- # Maintaining the capability to resume underground nuclear testing in accordance with the Presidential Decision Directive 15 through a combined experimental and test readiness program.
- # Availability of facilities as required to support accomplishment of DSW and Campaign objectives in a safe and environmentally sound manner.
- # Completing capacity expansion for reservoir assemblies at Kansas City Plant (KCP), neutron generator production at (Sandia National Laboratory), and neutron tube target production at Los Alamos National Laboratory (LANL) consistent with scope identified in project 99-D-122 Rapid Reactivation, to support DSW.
- # Continuing development of the conceptual design for Chemistry and Metallurgy Research Facility (CMR) Replacement.
- # Completing safety improvements to Corral Hollow Road adjacent to Site 300 at Lawrence Livermore National Laboratory (LLNL).
- # Completing quarterly laboratory self-assessments of maintenance, and environmental safety and health in accordance with laboratory contracts.
- # Maintaining the safety and readiness at the Superblock complex at LLNL.
- # In FY 2002, complete system upgrades and activate the 10 KG spherical tank vacuum system at the High Explosives Test Facilities (HEAF) at LLNL; and complete integration of FXR x-ray beam into the containment chamber and begin installation of multi-diagnostic systems in CFF. In FY03, revise and reissue the Facilities Safety Plan and continue installation and activation of all multi-diagnostic systems in CFF; and configure Bunker 851 as required for program needs.
- # Perform annual safety procedures and prepare the annual facility operations plan for LINAC and Light Gas Guns.
- # Finishing construction and commencing operations in the Strategic Computing Complex by 3rd quarter FY 2002; fully operating the Beryllium Technology Facility to support DSW; completing the fire water loop upgrade at TA-55, maintaining LANSCE linear accelerator operational (beams available) 80 percent of time when beam is scheduled for delivery; and operating the LANL plutonium handling facilities (TA-55 and CMR) to support the Pit Manufacturing and Certification Campaign.
- # Supporting the Integrated Project Team for the Microsystems and Engineering Sciences Applications Complex (MESA) at SNL; providing necessary process exploration, development and migration leading to new microsystem capabilities; supporting prototype fabrication processes and parts; and, providing for microsystems infrastructure readiness to respond to weapon requirements and options, particularly as it supports delivery of custom radiation-hardened integrated circuit technologies and quality control level 1 parts for the W76 Life Extension Program.
- # Continuing operations of the JASPER gas gun facility in support of stockpile experiments at Nevada Test Site (NTS); and maintaining the U1a complex and Device Assembly Facility to support scheduled

subcritical experiments. Funding for the National Center for Counterterrorism is included as a separate subactivity.

- Completion of NNSA Safety Authorization Basis Upgrade efforts to support timely and effective implementation of 10 CFR 830.
- Maintaining unique radiation simulation capabilities to support the radiation-hardness qualification programs for all systems.
- Maintaining the unique microelectronics development and production capability to produce radiation-hardened integrated circuits and microsystems to support all the stockpile requirements.
- Complete CDRs for Engineering Technology Complex Upgrade, Energetic Materials Processing Center, Hydrogen Isotope Research Capability.

Detailed Program Justification

(dollars in thousands)

	FY 2001	FY 2002	FY 2003
Lawrence Livermore National Laboratory	44,953	42,026	42,401

Includes NNSA's share of the operation of the following programmatic facilities:

- *Superblock Complex* includes the Plutonium Facility (B332), the Tritium Facility (B331), the Hardened Engineering Test Building (HETB, B334), and the High Energy Radiography Facility (HERF, B239).
- *High Explosive Test Facilities* include the High Explosives Application Facility (HEAF) and the firing bunkers at Site 300 including Bunker 801 (includes the Contained Firing Facility (CFF)), Bunker 812, Bunker 850, and Bunker 851.
- *Physics Facilities includes the Linear Accelerator (LINAC)* in B194 and the light gas guns (LGG) in B341.
- *Engineering Facilities* include the High Bay in B131 and the Engineering Test Facilities at Site 300 including thermal, vibration, and shock testing complexes.
- *Nevada Test Site (NTS) Facility* Support includes the oversight and program management of the Management and Operations (M&O) Contractor for NTS facilities including the Joint Actinide Shock Physics Experimental Research (JASPER) facility, the Device Assembly Facility (DAF), the Big Explosives Experimental Facility (BEEF), and the Nevada Energetic Materials Operations Facility (NEMOF).
- *Facilities Support* includes high explosives (HE) technician support at Site 300 and the costs associated with offsite assignees.

(dollars in thousands)

FY 2001	FY 2002	FY 2003

Los Alamos National Laboratory 294,856 286,902 306,874

Includes NNSA's share of the operations of both programmatic and institutional/infrastructure facilities:

- *Engineering and Tritium Facilities* include engineering testing facilities, engineering high explosives facilities, engineering assembly and storage, engineering machine shops, and tritium facilities.
- *Dynamic Experiments Facilities* include dynamic experiments facilities such as the Dual-Axis Radiographic Hydro Test facility (DARHT), firing sites, the high explosives detonator facility, and the high explosive science facility.
- *Los Alamos Neutron Science Center* (LANSCE) includes the LANSCE accelerator readiness, the Weapons Neutron Research facility (WNR), and the Lujan Center.
- *Nuclear Facilities* includes nuclear materials technology facilities including TA-55, the Chemistry Metallurgy Research facility (CMR), and TA-18. In FY 2003, $62.5 million is requested for TA-55 and $29.7 million for CMR. These facilities are essential to the Pit Manufacturing and Certification campaign.
- *Other Direct Funded Facilities* include other project costs; general plant projects; engineering studies; waste processing activities such as transuranic waste characterization, pollution prevention /waste minimization, and waste disposition; excess facility surveillance and maintenance; facility deactivation and demolition; and other programmatic and institutional initiatives.
- *Waste Management Facilities* includes the waste management facility operations, including the Radioactive Liquid Waste Treatment Facility (TA-50); the Solid Radioactive Waste Management Facility (TA-54); the Radioactive Materials, Research, Operations, and Development facility; the Waste Characterization, Reduction, and Repackaging facility; and the Radioassay and Non-Destructive Test facility.

(dollars in thousands)

	FY 2001	FY 2002	FY 2003
Sandia National Laboratories	160,076	152,610	171,148

Includes NNSA share of the operations of several programmatic support test and manufacturing facilities as well as institutional and other infrastructure support.

Microelectronics research and development facilities include microelectronics and semiconductor facilities and cleanrooms to understand new semiconductor device technologies, photonics-based microsystems, sensors, micromachines, and advanced packaging and microsystems integration. Microelectronics support under operation of facilities sustains the DOE capability to produce radiation-hardened microelectronics for stockpile systems, including design, test, reliability and failure analysis (capability to resolve SFIs).

Radiation testing facilities include pulsed power gamma-ray and x-ray accelerators, and neutron reactors capable of providing a unique suite of hostile environments simulators required to maintain, qualify, and certify the radiation hardness of stockpile system components. These include Saturn, HERMES, SPHINX, Z, the Annular Core Research Reactor, the Sandia Pulsed Reactor, the Gamma Irradiation Facility, and the Radiation Metrology Laboratory.

Normal and abnormal environment testing facilities include those capabilities necessary to qualify and certify weapon systems in the extreme environments to which they may be exposed. These include the Tonopah Test Range to assess performance in full-scale drop tests for bombs and the Albuquerque Full-scale Experiment Complex that evaluates performance of the entire system (which includes the centrifuge complex, rocket sled track, drop tower/water impact complex, aerial cable site, explosives site, vibration facility, vibro-acoustics facility, mechanical shock complex, radiant heat facility, and the Lurance Canyon burn site). In addition some of the other direct-funded facilities provide for component and subsystem level testing critical to the development and understanding the design of systems. These include electromagnetic test facilities; Sandia testing capabilities in California and Albuquerque for structural analysis, modal analysis, mass properties analysis, material characterization, and aero-thermal dynamics and aerodynamics; and the Kauai Test Facility readiness to support instrumented rocket systems assessment.

Neutron Generator Production facilities include the maintenance and expansion of the capability to produce neutron generators, a limited life component, for every system within the stockpile. Integral to this is the Primary Standards Laboratory responsible for the metrology oversight, certification of standards, and development of new standards and proficiency testing for the entire Nuclear Weapons Complex.

Other Direct Funded Facilities also includes the Z facility refurbishment to meet the multi-Laboratory demands and the costs required to support operations at the Z facility.

Institutional and other infrastructure includes the costs such as expense-funded construction; conceptual design reports, other project costs for line items; institutional capital equipment; general plant projects; decommissioning and demolition projects; and waste management.

(dollars in thousands)

	FY 2001	FY 2002	FY 2003
Nevada Test Site	**47,905**	**50,725**	**56,347**
Nevada Test Site Facility Operations	47,905	40,725	46,347
National Center for Counterterrorism	0	10,000	10,000

Includes NNSA's share of the operations of the Device Assembly Facility, Big Explosives Experiment Facility, U1a Experimental Complex, Joint Actinide Shock Physics Experimental Research Facility, general plant projects, and other NTS support facilities.

Y-12 National Security Complex	78,858	82,007	75,544

Includes operation of facilities used for the production of materials contained in secondaries. This includes the following buildings: 9201-1, 9201-5, 9201-5N, 9202, 9204-2, 9204-2E, 9204-4, 9206, 9212, 9215, 9720-5, 9995, 9998. These costs include maintenance, environmental, safety, health programs, waste management, and utilities.

Savannah River Site	75,191	74,053	83,035

Includes operation of SRS facilities required to provide tritium and non-tritium loaded reservoirs to meet the requirements of the Nuclear Weapons Stockpile Memorandum, to conduct reservoir surveillance operations, gas transfer system testing, and to manage existing tritium inventories. These activities are carried out in the following buildings: 232, 233, 234 and 238. These costs include maintenance, environmental, safety, health programs, waste management, and utilities.

Kansas City Plant	94,552	91,590	97,933

Includes operations of facilities at the Kansas City Plant to manufacture and procure nonnuclear components for nuclear weapons, including electrical, electronic, electromechanical, mechanical, plastic, and nonfissionable metal. These costs include maintenance, environmental, safety, health programs, waste management, and utilities.

Pantex Plant	73,029	108,761	94,051

Facility operations at the Pantex Plant include the fabrication of chemical explosives; development work in support of the design laboratory, pit storage; and nuclear weapons assembly, disassembly, testing, quality assurance, repair, retirement, and disposal. The bulk of the Pantex operations are located in Zone 4, Zone 11, and Zone 12. These costs include maintenance, environmental, safety, health programs, waste management, and utilities.

All Other Sites	13,422	14,547	22,587

Includes NNSA's share of miscellaneous facility related costs at the Oak Ridge National Laboratory and Headquarters.

Total, Operations of Facilities	**882,842**	**903,221**	**949,920**

Explanation of Funding Changes from FY 2002 to FY 2003

		FY 2003 vs. FY 2002 ($000)
Operations of Facilities		
#	Livermore National Laboratory: no significant change.	375
#	Los Alamos National Laboratory: Increase supports initiating the DARHT 2nd Axis Operations and resumption of work on the Electrical Infrastructure which was deferred in FY02.	19,972
#	Sandia National Laboratory: Increase supports the refurbishment of the Z machine to allow cost-effective/higher precision operations (up to 400 shots/year) in support of weapon deliverables and also increase to support warm-standby operations of Z; More fully supports the warm standby requirement for the two microelectronics laboratories, supporting deliverables and R&D in rad-hard microelectronics, photonics, radar electronics, and microsystem development; Reconstitution/warm standby support for Experimental Test and Evaluation Facilities in Albuquerque and California. These include the Area 3 facilities, TCR Operations, SURF Operations, and others; Defense Program Capital Equipment (CE) needs to sustain CE investments comparable to industry. SNL's programmatic CE investment moved to Campaigns, DSW, and RTBF programs.	18,538
#	Nevada Test Site: funding for the National Center for Counter Terrorism is included as a separate activity with $10 million in FY 02 and $10 million in FY 03	5,622
#	Oak Ridge Y-12 National Security Complex: reflects the ramp down of efforts to implement corrective actions within the fire protection program and facilities. . . .	-6,463
#	Savannah River: reflects increases for recapitalization and increased operating support for ongoing construction projects	8,982
#	Kansas City Plant: the increase is associated with increased activities in facilities management, escalation of maintenance activities and increased procured utility costs.	6,343

	FY 2003 vs. FY 2002 ($000)
# Pantex Plant: the decrease reflects a definitional change to move Production Assurance, Operational Quality Assurance and Laboratory/Technical Support activities into Program Readiness; the completion of ongoing construction line items reflecting a reduction in other project costs; and the completion of the fire bio implementation.	-14,710
# All Other NNSA-Funded Facilities: reflects a slight increase at ORNL to cover escalation and an increase in funding held at HQ pending final site allocation decisions.	8,040
Total Funding Change, Operations of Facilities	**46,699**

Capital Operating Expenses & Construction Summary

Capital Operating Expenses [a]

(dollars in thousands)

	FY 2001	FY 2002	FY 2003	$ Change	% Change
General Plant Projects	44,725	46,067	47,449	1,382	N/A
Capital Equipment	37,249	38,366	39,517	1,151	3.00%
Total, Capital Operating Expenses	81,974	84,433	86,966	2,533	3.00%

Major Items of Equipment (TEC $2 million or greater)

	Total Estimated Cost (TEC)	Prior Year Approp-riations	FY 2001	FY 2002	FY 2003	Acceptance Date
Automated Storage/Retrieval System	2,540	0	0	0	2,540	FY 2003
High Speed Milling Machine (Five-Axis capable)	4,800	0	4,800	0	0	FY 2001
Total, Major Items of Equipment . . .	7,340	0	4,800	0	2,540	

[a] Since funds are appropriated for Operations and Maintenance, which includes operating expenses, capital equipment and general plant projects, we no longer budget separately for capital equipment and general plant projects. FY 2002 and FY 2003 funding shown reflects estimates based on actual FY2001 obligations.

Program Readiness

Mission Supporting Goals and Objectives

Program Readiness includes select activities that support more than one facility, campaign, or DSW activity, but are essential to achieving the objectives of the Stockpile Stewardship Program. The activities may vary from site to site due to the inherent differences in site activities and organizational structure. Ongoing activities support Nevada Test Site readiness and maintenance of nuclear test capability, manufacturing process capabilities required to support the stockpile, critical skill needs consistent with Chiles Commission recommendations, and pulsed power science and technology.

Funding Schedule

(dollars in thousands)

	FY 2001	FY 2002	FY 2003	$ Change	% Change
Nevada Test Site Readiness	50,077	45,958	36,592	-9,366	-20.4%
Enhanced Test Readiness	0	0	15,000	15,000	100.0%
Manufacturing Processes	99,333	89,204	86,032	-3,172	-3.6%
Critical Production and Engineering Skills	2,344	8,515	14,600	6,085	71.5%
Pulsed Power Science and Other Technical Support	17,306	48,628	55,865	7,237	14.9%
TA-18 Relocation	6,071	0	0	0	N/A
Total, Program Readiness	175,131	192,305	208,089	15,784	8.2%

Performance Measures

Performance will be demonstrated by:

- Maintaining the capability to resume underground nuclear testing in accordance with the Presidential Decision Directive through a combined experimental and test readiness program.
- Begin implementation of the Enhanced Test Readiness plan developed in FY 2002.
- Addressing critical skill issues at the plants, laboratories, and the Nevada Test Site.
- Ensuring that manufacturing processes are available to support manufacturing requirements as scheduled.
- Ensuring continuous operation of classified computing capability for production and manufacturing.
- Maintaining and advancing the science of pulsed power technologies to meet the needs defined in Campaigns for High Energy Density Physics, ICF, and Nuclear Survivability.
- Developing and enhancing the advanced technologies for nuclear weapons modern material management systems integrated with treaty obligations to include pit monitoring and warhead monitoring demonstrations.

Detailed Program Justification

(dollars in thousands)

	FY 2001	FY 2002	FY 2003
Nevada Test Site readiness	50,077	45,958	36,592

Includes most of the unique test readiness activities required to maintain the Nevada Test Site (NTS) to support the test readiness mission as well as the stockpile stewardship mission. Activities include archiving, test readiness exercises, resumption planning, logistical support for laboratory experiments conducted at NTS, and other activities required to maintain the NTS in compliance with state regulations. In addition to these unique test readiness activities, there are other experimental and direct stockpile activities included in DSW and campaigns, which also contribute to the test readiness posture.

As part of the recently completed Nuclear Posture Review (NPR), DoD and the NNSA are directed to work to refine test scenarios and evaluate cost/benefit tradeoffs to determine, implement and sustain the optimum test readiness time that best supports the New Triad. Within the FY 2002 appropriation, a study is underway to implement that direction from the NPR. The conclusions of that study will lead to a final determination on the specific test readiness posture to be implemented through a National Security Policy Directive.

Enhanced Test Readiness	0	0	15,000

Pending completion of the study mentioned above and a specific policy change, the FY 2003 budget contains $15 million to begin implementing that change in FY 2003.

Manufacturing Processes	99,333	89,204	86,032

Manufacturing processes provide the operations infrastructure to assure that the Y-12 National Security Complex can maintain minimum capability to support the nuclear weapons in the stockpile. Directed stockpile schedules and campaign program plans define manufacturing requirements. To support these requirements, key materials streams (or produce families) define the infrastructure. Within these material streams, there are specific manufacturing processes that support specific weapons components and/or generic to all manufacturing needs. The preservation of these processes as a manufacturing asset requires that identified pieces of equipment and resources remain operationally available for the projected needs of the future.

Sustenance of critical production and engineering skills	2,344	8,515	14,600

Hire critical skills to sustain production and engineering capabilities in support of directed stockpile work including the B61-7, W76, and W80 life extension programs, and to address Chiles Commission recommendations. In FY 2003, personnel would perform technical apprenticeships, and knowledge preservation and development projects. Also includes Production Assurance, Operational Quality Assurance, and Laboratory/Technical Support activities at the Pantex Plant.

	(dollars in thousands)		
	FY 2001	FY 2002	FY 2003
Microsystems Infrastructure, Pulsed Power Science and other technical support	17,306	48,628	55,865

Microsystems Infrastructure, Pulsed Power Science, and other technical support includes microsystems infrastructure readiness to support activities directly related to construction or tooling needed for microsystems to be successfully deployed in nuclear weapons; maintain the capabilities to design and improve pulsed power machines in support of ICF, weapon physics and weapon effects; provide the Z facility supporting technologies required to field experiments on Z; defense nuclear materials stewardship to research, develop, test, and evaluate advanced technologies for material management systems to enhance the safety, security, and accountability of nuclear weapons and materials during storage, handling and transportation; knowledge preservation and management program; support of the arming and firing hardware for nuclear testing and subcritical experimentation; and technical support to Headquarters.

TA-18 Relocation	6,071	0	0

TA-18 Relocation expenses included the preparation of environmental documentation and engineering/cost studies for the four alternative sites to reach a decision on the siting of the TA-18 missions by March 2002. In FY 2001, the Congress provided an additional $6.1 million to support the relocation of the TA-18 capabilities currently at LANL. Design activities, begun in FY 2000, are expected to be completed in FY 2004 within Project Engineering and Design (PED) 01-D-103.

Total, Program Readiness	**175,131**	**192,305**	**208,089**

Explanation of Funding Changes from FY 2002 to FY 2003

	FY 2003 vs. FY 2002 ($000)
Program Readiness	
■ The **decrease in Nevada Test Readiness** reflects the completion of the study directed by the Nuclear Posture Review, the completion of some test readiness activities such as the safety basis and NESS updates, and reduced funding for procurement of field test neutron generators and completion of safety basis and NESS updates	-9,366
■ Pending completion of a study underway in FY 2002 and a specific policy change, **the increase in Enhanced Test Readiness** provides for funding to begin to implement a possible change in the enhanced test readiness posture at National laboratories and the test site	15,000
■ **Decrease in Manufacturing Process** reflects a reduction in manufacturing process support for the W87 LEP and the completion of the replacement of the nitrogen re-circulation control system	-3,172

Program Readiness	FY 2003 vs. FY 2002 ($000)
▪ **Increase in sustenance of critical production and engineering skills** reflects a definitional adjustment to move Production Assurance, Operational Quality Assurance, and Laboratory/Technical Support activities from Operations of Facilities at the Pantex Plant	6,085
▪ **Increase in pulsed power technology development** and support of advanced applications and experimentation on the Z facility; increase in Knowledge Management Program support; increase in limited access projects; and maintenance of the other technical support activities	7,237
Total Funding Change, Program Readiness	**15,784**

Capital Operating Expenses & Construction Summary

Capital Operating Expenses [a]

(dollars in thousands)

	FY 2001	FY 2002	FY 2003	$ Change	% Change
General Plant Projects	476	490	505	15	3.00%
Capital Equipment	811	835	860	25	3.00%
Total, Capital Operating Expenses	1,287	1,326	1,365	40	3.00%

Major Items of Equipment (TEC $2 million or greater)

	Total Estimated Cost (TEC)	Prior Year Approp-riations	FY 2001	FY 2002	FY 2003	Acceptance Date
Radio Conversion	17,700	13,000	4,700	0	0	FY 2002
Total, Major Items of Equipment	17,700	13,000	4,700	0	0	

[a] Since funds are appropriated for Operations and Maintenance, which includes operating expenses, capital equipment and general plant projects, we no longer budget separately for capital equipment and general plant projects. FY 2002 and FY 2003 funding shown reflects estimates based on actual FY2001 obligations.

Special Projects

Mission Supporting Goals and Objectives

Special Projects includes activities which require special control or visibility, or do not fit easily into other budget categories.

Funding Schedule

(dollars in thousands)

	FY 2001	FY 2002	FY 2003	$ Change	% Change
Laboratory Critical Skills Development	5,707	5,211	5,375	164	3.1%
Los Alamos County School District	8,000	8,000	8,000	0	0.0%
New Mexico Educational Enrichment Foundation	3,000	6,900	0	-6,900	-100.0%
Criticality Experiments	3,540	3,614	3,800	186	5.1%
RTBF Engineering and Technical Support	14,760	6,045	9,217	3,172	52.5%
LANL Land Transfer Activities	0	1,878	3,900	2,022	107.7%
Other Support	28,935 [a]	6,261 [a]	7,452	1,191	19.0%
Total, Special Projects	63,942	37,909	37,744	-165	-0.4%

[a] Includes a comparability adjustment of -$9,587,000 in FY 2001 and -$13,246,000 in FY 2002 reflecting a movement of the aviation contract services from the Special Projects account to the Secure Transportation Asset, Operations and Maintenance account.

Performance Measures

Performance will be demonstrated by:

- Completing the full endowment of $25 million over the 5 years to the Northern New Mexico Educational Foundation in FY 2002.
- Continuing support for Los Alamos County School District.
- Providing for pension liabilities at former Defense Program sites.
- Continue to meet land transfer milestones.
- Conduct criticality safety experiments, baselining, and training in support of DNFSB Recommendation 97-2.

Detailed Program Justification

(dollars in thousands)

	FY 2001	FY 2002	FY 2003
Laboratory Critical Skills Development	5,707	5,211	5,375

The Laboratory Critical Skills Development program focuses on meeting Chiles Commission critical skills needs at the three weapons laboratories. (Previously reported as Education.)

Los Alamos County School District	8,000	8,000	8,000

Support to Los Alamos County School District to enhance teacher salaries and provide education enrichment activities.

New Mexico Educational Enrichment Foundation	3,000	6,900	0

Funding to fully endow the New Mexico Education Enrichment Foundation. With the FY 2002 increment, the Department will complete its commitment to provide a total of $25 million over the past several years to fully endow the Foundation by FY 2002.

Criticality Experiments	3,540	3,614	3,800

Costs associated with the conduct of criticality safety experiments, baselining, and training in support of DNFSB Recommendation 97-2.

RTBF Engineering and Technical Support.	14,760	6,045	9,217

Engineering and technical support for RTBF activities; for example, independent reviews and internal reviews such as the 30-Day Review and the Chiles Commission; internal reviews; condition assessment surveys; R&D Tracking System; resolution of findings, issues, and concerns from external independent reviews; Federal Laboratory Consortium with National Institute of Science and Technology, and independent cost estimating requirements.

LANL Land Transfer Activities	0	1,878	3,900

Landlord cost associated with conveyance and transfer of land at LANL to the County of Los Alamos and San Ildefonso Pueblo, as directed by P.L. 105-119. Landlord expenses associated with this program are estimated at about $22 million.

Other Support	28,935	6,261	7,452

Other support includes pension liabilities, special access programs, systems engineering support, and information system upgrades.

Total, Special Projects	**63,942**	**37,909**	**37,744**

Explanation of Funding Changes from FY 2002 to FY 2003

	FY 2003 vs. FY 2002 ($000)
Special Projects	
# Reflects completion of the full endowment of the New Mexico Education Foundation, and continues support for Los Alamos County School District at the FY 2002 funding level; and, maintains the Laboratory Critical Skills Development program at approximately the FY 2002 funding level as the former direct Education program.	-6,736
# Full support for criticality safety experiments, baselining, and training in accordance with DNFSB Recommendation 97-2; full landlord support for land transfer implementation at LANL; engineering and technical support for RTBF, and pension liabilities in Special Access Programs, Information Systems Upgrades, and START III studies/support	6,571
Total Funding Change, Special Projects	**-165**

Capital Operating Expenses & Construction Summary

Capital Operating Expenses [a]

(dollars in thousands)

	FY 2001	FY 2002	FY 2003	$ Change	% Change
General Plant Projects	1,893	1,950	2,008	58	3.00%
Capital Equipment	5,031	5,182	5,337	155	3.00%
Total, Capital Operating Expenses	6,924	7,132	7,346	214	3.00%

[a] Since funds are appropriated for Operations and Maintenance, which includes operating expenses, capital equipment and general plant projects, we no longer budget separately for capital equipment and general plant projects. FY 2002 and FY 2003 funding shown reflects estimates based on actual FY2001 obligations.

Material Recycle and Recovery

Mission Supporting Goals and Objectives

Includes the recycle and recovery of plutonium, enriched uranium, and tritium from fabrication and assembly operations, limited life components, and dismantlement of weapons and components. Supports the development and implementation of new processes or improvements to existing processes for fabrication and recovery operations and for material stabilization, conversion, and storage. Involves the process of recycling and purifying the above materials to meet specifications for safe, secure, and environmentally acceptable storage, including meeting the directive schedule for tritium reservoir refills. Provides for repackaging of pits from dismantled weapons for long-term storage at Pantex and the processing of certain pits that are not considered suitable for long-term storage. Also includes the cost of Central Scrap Management Office (CSMO) management of receipts, storage, and shipments of enriched uranium scrap; and deactivation of Building 9206 at the Y-12 Plant.

Funding Schedule

(dollars in thousands)

	FY 2001	FY 2002	FY 2003	$ Change	% Change
Material Recycle & Recycle	83,461	94,268	98,816	4,548	4.8%
Total, Material Recycle & Recycle	83,461	94,268	98,816	4,548	4.8%

Performance Measures

Performance will be demonstrated by:

- # Recovering and recycling material from fabrication and assembly operations, limited life components, and dismantlement/disposal of weapons and weapon components.
- # Supporting DNFSB recommendations 94-1/2000-1, operation of the Special Recovery Line, and material accountability at LANL.
- # Supporting commercial processing of HEU scrap at Y-12 National Security Complex; completing the nondestructive assay profile and removing pyrophoric material from the Building 9206, receiving CSMO enriched uranium scrap as well as uranium material returned from university test reactors and Los Alamos National Laboratory.
- # **Continue deactivation activities in Building 9206 at the Y-12 National Security Complex.**
- # Continue the repackaging of pits into AL-R8 sealed inserts for long-term storage in accordance with DNFSB 99-1.

Detailed Program Justification

(dollars in thousands)

	FY 2001	FY 2002	FY 2003
Material Recycle and Recovery	83,461	94,268	98,816

Includes the recycle and recovery of plutonium, enriched uranium, and tritium from fabrication and assembly operations, limited life components, and dismantlement of weapons and components. Involves the process of recycling and purifying the above materials to meet specifications for safe, secure, and environmentally acceptable storage, including meeting the directive schedule for tritium reservoir refills. Also includes the cost of Central Scrap Management Office (CSMO) management of receipts, storage, and shipments of enriched uranium scrap; and deactivation of Building 9206 at the Y-12 Plant.

The increase in FY 2003 funding supports Y-12's Enriched Uranium Operations (EUO).

Total, Material Recycle and Recovery	**83,461**	**94,268**	**98,816**

Explanation of Funding Changes from FY 2002 to FY 2003

Material Recycle and Recovery	FY 2003 vs. FY 2002 ($000)
# The increase in funding primarily supports Y-12's Enriched Uranium Operations (EUO) to process two groups of HEU including an inventory of uncharacterized and unmeasured uranium hexafluoride (UF_6); and uranium-zirconium (U-Zr) scrap.	4,548
Total Funding Change, Material Recycle and Recovery	**4,548**

Capital Operating Expenses & Construction Summary

Capital Operating Expenses [a]

(dollars in thousands)

	FY 2001	FY 2002	FY 2003	$ Change	% Change
General Plant Projects	0	0	0	0	N/A
Capital Equipment	1,271	1,309	1,348	39	3.00%
Total, Capital Operating Expenses	1,271	1,309	1,348	39	3.00%

[a] Since funds are appropriated for Operations and Maintenance, which includes operating expenses, capital equipment and general plant projects, we no longer budget separately for capital equipment and general plant projects. FY 2002 and FY 2003 funding shown reflects estimates based on actual FY2001 obligations.

Containers

Mission Supporting Goals and Objectives

Containers includes research and development, design, recertification and maintenance, off-site transportation certification of component containers in accordance with Federal regulations, off-site transportation authorization of non-certifiable nuclear materials transportation configuration; test and evaluation, production/procurement, fielding and maintenance, and decontamination and disposal to provide adequate quantities of containers to support the nuclear weapons mission (transportation and storage).

Funding Schedule

(dollars in thousands)

	FY 2001	FY 2002	FY 2003	$ Change	% Change
Containers	22,633	7,990	17,721	9,731	121.8%
Total, Containers	22,633	7,990	17,721	9,731	121.8%

Performance Measures

Performance will be demonstrated by:

- Recertifying and maintaining transportation and storage containers in a timely manner.
- Procuring containers to support repackaging of pits in support of DNFSB Recommendation 99-1.

FY 2002 Item of Congressional Interest: The FY 2001 Supplemental Appropriation provided for the purchase of containers late in FY 2001. These containers will support packaging requirements in FY 2002.

Detailed Program Justification

(dollars in thousands)

	FY 2001	FY 2002	FY 2003
Containers	22,633	7,990	17,721

Includes research and development, design, recertification and maintenance, off-site transportation certification of component containers in accordance with Federal regulations, off-site transportation authorization of non-certifiable nuclear materials transportation configuration; test and evaluation, production/procurement, fielding and maintenance, and decontamination and disposal to provide adequate quantities of containers to support the nuclear weapons mission (transportation and storage).

Total, Containers	**22,633**	**7,990**	**17,721**

Explanation of Funding Changes from FY 2002 to FY 2003

Containers	FY 2003 vs. FY 2002 ($000)
# Increase supports procurement for additional containers at Pantex to meet requirements of DNFSB 99-1. The FY 2001 Supplemental Appropriation provided for the purchase of containers late in FY 2001. These containers will support packaging requirements in FY 2002.	9,731
Total Funding Change, Containers	**9,731**

Storage

Mission Supporting Goals and Objectives

Includes cost of receipt, storage and inventory management of nuclear materials, nonnuclear material, highly enriched uranium, enriched lithium, and weapon components from dismantled weapons; does not include the cost of temporary storage of materials awaiting processing, staging for dismantlement, or any other interim storage.

Funding Schedule

(dollars in thousands)

	FY 2001	FY 2002	FY 2003	$ Change	% Change
Storage	15,618	10,398	14,593	4,195	40.3%
Total, Storage	15,618	10,398	14,593	4,195	40.3%

Performance Measures

Performance will be demonstrated by:

Storing weapons and weapon components for the foreseeable future in a safe, secure, and cost-effective manner.

Detailed Program Justification

(dollars in thousands)

	FY 2001	FY 2002	FY 2003
Storage	15,618	10,398	14,593

Includes cost of receipt, storage and inventory management of nuclear materials, nonnuclear material, highly enriched uranium, enriched lithium, and weapon components from dismantled weapons; does not include the cost of temporary storage of materials awaiting processing, staging for dismantlement, or any other interim storage.

Total, Storage	**15,618**	**10,398**	**14,593**

Explanation of Funding Changes from FY 2002 to FY 2003

Storage	FY 2003 vs. FY 2002 ($000)
# The increase supports repackaging pits into sealed inserts at Pantex Plant.	4,195
Total Funding Change, Storage	**4,195**

Capital Operating Expenses & Construction Summary

Capital Operating Expenses [a]

(dollars in thousands)

	FY 2001	FY 2002	FY 2003	$ Change	% Change
General Plant Projects	1,497	1,542	1,588	46	3.00%
Capital Equipment	0	0	0	0	N/A
Total, Capital Operating Expenses	1,497	1,542	1,588	46	3.00%

[a] Since funds are appropriated for Operations and Maintenance, which includes operating expenses, capital equipment and general plant projects, we no longer budget separately for capital equipment and general plant projects. FY 2002 and FY 2003 funding shown reflects estimates based on actual FY2001 obligations.

Construction

Mission Supporting Goals and Objectives

Construction includes the cost of new and ongoing line-item construction projects which support the nuclear weapons complex, but are not directly attributable to a specific campaign or DSW. Individual construction project data sheets provide detailed information on each project.

Construction increases $71,480,000 from the FY 2002 comparable appropriation. The funding requested supports the mortgages for all ongoing projects, including $75,000,000 for the Microsystems and Engineering Sciences Applications (MESA) project at Sandia National Laboratories, as well as initiating five new line items. In response to the direction included in the FY 2002 conference report, the Office of Management, Budget and Evaluation is finalizing Departmental reporting methodologies to implement the new congressional requirements concerning the elimination of excess facilities. NNSA will report the elimination of excess facilities for these new construction projects consistent with this guidance.

- 03-D-101, Sandia Underground Reactor Facility (SURF) will provide a modern, secure, underground facility to house the existing Sandia Pulse Reactor at significantly reduced security costs.
- 03-D-103, Project Engineering and Design, will initiate design for four new subprojects: a new Chemistry and Metallurgy Research (CMR) facility at Los Alamos National Laboratory; Building 12-64 Production Bays Upgrade at Pantex; Cleaning and Loading Modifications at the Savannah River Site; and the Energetic Materials Processing Center at Site 300 and the Tritium Facility Modernization, both at Lawrence Livermore National Laboratory.
- 03-D-121, Gas Transfer Capacity Expansion will provide the Kansas City Plant (KCP) with the required resources to support new designs in reservoir production in addition to the existing production schedules.
- 03-D-122, SMO Purification Prototype Facility will re-establish the process controls and process-prove-in capability at the Y-12 Plant.
- 03-D-123, SNM Component Requalification Facility will provide the Pantex Plant with Pit Recertification/Requalification capabilities as required for first user W76 program and W80 future work.

Funding Schedule

(dollars in thousands)

	FY 2001	FY 2002	FY 2003	$ Change	% Change
Construction	165,158	198,866	270,346	71,480	35.9%
Total, Construction	165,158	198,866	270,346	71,480	35.9%

Detailed Program Justification

	(dollars in thousands)		
	FY 2001	FY 2002	FY 2003
03-D-101, Sandia Underground Reactor Facility (SURF), SNL	0	0	2,000
03-D-103, Project Engineering and Design, VL	0	0	15,539
03-D-121, Gas Transfer Capacity Expansion, KC	0	0	4,000
03-D-122, Purification Prototype Facility, Y-12	0	0	20,800
03-D-123, SNM Component Requalification Facility, PX	0	0	3,000
02-D-103, Project Engineering and Design, VL	0	22,647	27,245
02-D-105, Engineering Technology Complex Upgrade, LLNL	0	4,674	10,000
02-D-107, Electrical Power Systems Safety, Communications and Bus Upgrades, NV	0	3,451	7,500
01-D-103, Project Engineering and Design, VL	22,133	16,379	6,164
01-D-107, Atlas Relocation to the Nevada Test Site, NV	7,689	3,300	4,123
01-D-108, Microsystems and Engineering Sciences Applications, SNL	9,500	63,500	75,000
01-D-124, Highly Enriched Uranium Materials Facility, Y-12	17,710	0	25,000
01-D-126, Weapons Evaluation Test Laboratory, SNL	2,993	7,700	8,650
01-D-800, Sensitive Compartmented Information Facility, LLNL	1,993	12,993	9,611
99-D-103, Isotope Sciences Facility, LLNL	4,964	4,400	4,011
99-D-104, Protection of Real Property (Roof Reconstruction - PH II), LLNL	2,780	2,800	5,915
99-D-106, Model Validation and Systems Certification Test Center, SNL	5,189	4,955	0
99-D-108, Renovate Existing Roadways, NV	1,870	0	0
99-D-125, Replace Boilers and Controls, KC	12,971	300	0
99-D-127, SMRI-Kansas City Plant, KC	23,514	22,200	29,900
99-D-128, SMRI-Pantex Plant, PX	4,987	3,300	407

	(dollars in thousands)		
	FY 2001	FY 2002	FY 2003
98-D-123, SMRI-Tritium Facility Modernization and Consolidation, SR	30,699	13,700	10,481
98-D-124, SMRI-Y-12 Consolidation	0	6,850	0
97-D-123, Structural Upgrades, KC	2,858	2,817	0
96-D-102, Stockpile Stewardship Facility Revitalization, Phase VI, VL	0	2,900	1,000
95-D-102, CMR Upgrades Project, LANL	13,308	0	0
Total, Construction	**165,158**	**198,866**	**270,346**

Explanation of Funding Changes from FY 2002 to FY 2003

		FY 2003 vs. FY 2002 ($000)
Construction		
#	Initiates five new construction starts: Sandia Underground Reactor Facility (SURF) at SNL, Gas Transfer Capacity Expansion at KC, Purification Prototype Facility at Y-12, SNM Component Requalification at PX, and the FY 2003 Project Engineering and Design line item at various locations	45,339
#	Increase for MESA supports start of physical construction in FY 2003	11,500
#	Supports follow-on funding to complete design and other activities initiated under the Project Engineering and Design line items for FY 2001and FY 2002	33,409
#	Supports mortgages for ongoing projects at planned levels	-18,768
Total Funding Change, Construction		**71,480**

03-D-101, Sandia Underground Reactor Facility (SURF), Sandia National Laboratories, Albuquerque, New Mexico

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 2003 Budget Request *(Title I Performance Baseline)*	3Q 2001	4Q 2002	4Q 2003	3Q 2006	28,406 [a]	31,096

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design [b]			
2001	2,696	2,696	764
2002	510	510	1,952
2003	0	0	490
Construction			
2003	2,000	2,000	1,800
2004	8,000	8,000	5,100
2005	12,000	12,000	12,940
2006	3,200	3,200	5,360

3. Project Description, Justification and Scope

This project provides funding for the construction of the Sandia Underground Reactor Facility (SURF). Project Engineering and Design funding under line item 01-D-103 was provided for Architect-Engineering (A-E) services to develop and complete preliminary and final (Title I and Title II) design of SURF. This design effort will be completed during FY 2002.

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[a] The TEC includes the cost of preliminary and final design ($3,206,000), which was appropriated in 01-D-103, Project Engineering and Design.

[b] Design funding was appropriated in 01-D-103, Project Engineering and Design (PED).

The objective of the Sandia Underground Reactor Facility (SURF) project is to provide a modern, secure, underground facility to house the existing Sandia Pulse Reactor (SPR) at significantly less annual security costs than are being incurred today. The Special Nuclear Materials (SNM) used to fuel the SPR demand a high level of security. While the actual SPR has undergone sequential modernization through the years, the existing facility, in which the SPR is now housed, is many decades old and was not designed to maintain the currently required high level of security in an efficient or cost effective manner. As a result, the direct cost to maintain this level of security at the existing SPR facility, in its current configuration, is approximately $10 million per year. The SPR facility supports the National Nuclear Security Administration's (NNSA) life extension mission, and therefore the capabilities provided by the SPR must be maintained. SPR is a unique and essential tool for the development and certification of weapon components and subsystems. The security costs associated with sustaining SPR capabilities in the existing SPR facility are, however, no longer affordable. Thus, a more cost-effective means of meeting NNSA's life extension responsibilities is required as soon as possible. The SURF design will require a smaller protective force and inherently will be more responsive to future changes in security requirements.

There are generally more than five hundred operations conducted using the SPR each year. These tests support the assessment and surveillance of the Nation's nuclear weapons stockpile, the identification of potentially defective or inadequate components, the scheduling of needed repairs and replacements, and the development of repair and replacement components. The SPR is an essential tool for the proper implementation of the Stockpile Stewardship Program, and any loss of this capability would be significant. However, it was concluded that SPR operations could be suspended, for approximately two years beginning in FY 2000, without an insurmountable impact on the weapons program. During this two-year hiatus, the SPR fuel materials are being stored in a high security vault as a means of reducing annual security costs. SPR must, however, be made operationally available again, from mid-FY 2003 through FY 2007, in order to meet currently scheduled life extension requirements. The new facility construction will not interfere with existing operations and will not compromise security. After completion of the new facility and project closeout, the SPR program will relocate the reactor into the new underground facility as soon as mission requirements allow for a temporary suspension of reactor operations.

Analyses have demonstrated that the preferred approach is to construct a new underground facility that meets current DOE directives of nuclear facilities. Cost analysis shows that significant savings in SPR security costs of approximately $6 million per year will be realized. The reduction in security personnel needs for the SPR will allow a redistribution of forces and significant Sandia site security savings.

The Sandia Underground Reactor Facility (SURF) will be constructed in Technical Area V (TA-V) close to the existing SPR facility and control room to minimize infrastructure costs. The SURF will be approximately 17,500 gross square feet in size. The new facility replicates the space that is currently allocated to reactor functions. The major difference between existing space configuration and the new facility is the area devoted to security. The facility will use conventional methods to construct a below-grade structure to house the reactor operations and security features. An upper level transfer facility will provide a minimally hardened structure for entrance into the underground portion of the facility. The lower facility will be approximately forty feet below-grade and will be accessed using a stairway and elevator core.

Project Milestones:

FY 2001: Start Design (using funds appropriated in 01-D-103)	3Q
FY 2002: Complete Design (using funds appropriated in 01-D-103)	4Q
FY 2003: Construction Start	4Q
FY 2006: Construction Complete	3Q

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
Total, Design Phase (10.2% of TEC) [a]	3,206	N/A
Construction Phase		
Improvements to Land	490	N/A
Buildings	12,828	N/A
Special Equipment	848	N/A
Utilities	716	N/A
Standard Equipment	35	N/A
Massive Delay Barrier Doors	2,060	N/A
Inspection, Design and Project Liaison, Testing, Checkout and Acceptance	1,568	N/A
Construction Management (1.3% of TEC)	375	N/A
Project Management (2.0% of TEC)	568	N/A
Total Construction Costs (68.6% of TEC)	19,488	N/A
Contingencies		
Construction Phase (20.1% of TEC)	5,712	N/A
Total, Line Item Costs (TEC)	28,406	N/A

5. Method of Performance

Design services were obtained through competitive solicitation as a Cost plus Fixed Fee contract in Project Engineering and Design line item 01-D-103. Construction services will be obtained through competitive solicitation as a Firm Fixed Price contract. M&O contractor staff will be utilized in areas involving security, production, or proliferation concerns.

[a] Design funding was appropriated in 01-D-103, Project Engineering and Design (PED).

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 2002	FY 2003	FY 2004	Outyears	Total
Project Costs						
Facility Costs						
Design [a]	764	1,952	490	0	0	3,206
Construction	0	0	1,800	5,100	18,300	25,200
Total, Line item TEC	764	1,952	2,290	5,100	18,300	28,406
Total Facility Costs (Federal and Non-Federal)	764	1,952	2,290	5,100	18,300	28,406
Other Project Costs						
Conceptual design costs	1,211	0	0	0	0	1,211
Other project-related costs [b]	437	498	223	161	160	1,479
Total, Other Project Costs	1,648	498	223	161	160	2,690
Total Project Cost (TPC)	2,412	2,450	2,513	5,261	18,460	31,096

7. Related Annual Funding Requirements

(FY 2006 dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs	100	N/A
Annual security costs [c]	6,510	N/A
Programmatic operating expenses directly related to the facility [d]	3,000	N/A
Total related annual funding (operating from FY 2006 through FY 2025)	9,610	N/A

[a] Design funding was appropriated in 01-D-103, Project Engineering and Design (PED).

[b] Including tasks such as Project Execution Plan, Pre-Title I Development, Design Criteria, Safeguards and Security Analysis, Architect/Engineer Selection, Value Engineering Study, Independent Cost Estimate, Energy Conservation Report, Fire Hazards Assessment, Site Surveys, Soils Reports, Permits, Administrative Support, Operations and Maintenance Support, ES&H Monitoring, Operations Testing, Energy Management Control System Support, Readiness Assessment.

[c] Annual security costs for SPR operations without the SURF project would be approximately $13,400,000 annually.

[d] Includes the cost of operators and testing done on SPR.

03-D-103, National Nuclear Security Administration
Project Engineering and Design (PED),
Various Locations

1. Construction Schedule History

	Fiscal Quarter				Total Estimated Cost ($000)
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete	
FY 2003 Budget Request (*A-E and technical design only)*	1Q 2003	4Q 2006	TBD	TBD	63,709 [a]

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
2003	15,539	15,539	11,640
2004	28,170	28,170	28,584
2005	20,000	20,000	21,485
2006	0	0	2,000

3. Project Description, Justification and Scope

This project provides for Architect-Engineering (A-E) services (Title I and Title II) for several National Nuclear Security Administration (NNSA) construction projects, allowing designated projects to proceed from conceptual design into preliminary design (Title I) and definitive design (Title II). The design effort will be sufficient to assure project feasibility, define the scope, provide detailed estimates of construction costs based on the approved design and working drawings and specifications, and provide construction schedules, including procurements. The designs will be extensive enough to establish performance baselines and to support construction or long-lead procurements in the fiscal year in which line item construction funding is requested and appropriated.

Conceptual design studies are prepared for each project using Operations and Maintenance funds prior to receiving design funding under a PED line item. These conceptual design studies define the scope of the project and produce a rough cost estimate and schedule.

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[a] The TEC estimate is for design only for the subprojects currently included in this data sheet.

FY 2003 PED design projects are described below. While not anticipated, some changes may occur due to continuing conceptual design studies or developments occurring after submission of this data sheet. These changes will be reflected in subsequent years. Preliminary estimates for the cost of Title I and II design and engineering efforts for each subproject are provided, as well as very preliminary estimates of the Total Estimated Cost (including physical construction) of each subproject.

FY 2003 Proposed Design Projects

03-01: Chemistry and Metallurgy Research Building Replacement (CMRR) Project, LANL

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
3Q 2003	4Q 2006	2Q 2005	TBD	55,000	350,000-500,000

Fiscal Year	Appropriations	Obligations	Costs
2003	10,000	10,000	8,000
2004	25,000	25,000	24,500
2005	20,000	20,000	20,500
2006	0	0	2,000

This subproject includes the preliminary and final (Title I and Title II) design for the proposed Chemistry and Metallurgy Research Building Replacement (CMRR) Project at Los Alamos National Laboratory. The existing Chemistry and Metallurgy Research (CMR) Building is a Hazard Category 2 nuclear facility that is over fifty years old. CMR actinide chemistry research capabilities are vital to fulfil several critical LANL missions, including but not limited to, pit rebuild, pit surveillance and pit certification. In January 1999, DOE approved a strategy for managing risks at the CMR facility. This approval committed DOE and LANL on a course to upgrade and temporarily continue to operate the CMR facility through approximately 2010 with operational limitations. This approval also committed DOE and LANL to develop long-term facility and site plans to ensure continuous mission support beyond the year 2010. It was acknowledged that mission support beyond 2010 may require new facilities. The design project includes the preliminary and final (Title I and Title II) design for the proposed Chemistry and Metallurgy Research Building Replacement (CMRR) Project.

03-02: Building 12-64 Production Bays Upgrade, PX

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
4Q 2003	3Q 2005	4Q 2005	4Q 2006	2,809	21,000-25,000

Fiscal Year	Appropriations	Obligations	Costs
2003	1,139	1,139	570
2004	1,670	1,670	1,404
2005	0	0	835

This subproject includes the preliminary and final (Title I and Title II) design for the Pantex Building 12-64 Production Bays Upgrade. This project will lessen the bay shortfall by modifying the bays in building 12-64 and bringing these bays up to the same operational/capacity level as other bays at Pantex. The modifications to each of the 17 bays include:

1. Task exhaust installation
2. Remove and replace dehumidifier system
3. Remove and replace HVAC
4. Remove and replace roof
5. Seamless flooring installation
6. UV Detection System installation
7. High speed deluge system installation
8. Lightening Bond installation
9. Installation of new hoists
10. Removal of asbestos on piping
11. Upgrade of restrooms and break area

The building 12-64 Production Bays Upgrade will provide a crucial asset in meeting the DOE's objective of maintaining confidence in the nuclear weapons stockpile. This project will provide modifications to an existing facility to increase capacity to meet the impact of changing weapon complexity, projected workload, and the Stockpile Life Extension Program (SLEP) activities, specifically the first production unit for the W-76.

03-03: Energetic Materials Processing Center, LLNL

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
3Q 2003	4Q 2004	1Q 2005	3Q 2007	4,400	44,000-64,000

Fiscal Year	Appropriations	Obligations	Costs
2003	2,900	2,900	2,320
2004	1,500	1,500	1,930
2005	0	0	150

This subproject includes the preliminary and final (Title I and Title II) design for the proposed Energetic Materials Processing Center (EMPC) project replaces existing facilities and energetic material (EM) processing equipment that is quickly becoming obsolete and inadequate to meet the requirements at Lawrence Livermore National Laboratory (LLNL). The new facility will be located at LLNL Site 300 and used to support the Stockpile Stewardship Program. As currently planned, the facility will provide a total of approximately 40,000 gross square feet of space for EM machining, radiography, pressing, assembly, and inspection with separate control rooms, magazines, and a machining/office support building. LLNL will be able to process EM more efficiently using modern processing methods. By incorporating modern EM protection and safety philosophies, the EMPC will be designed to provide level 1 protection to personnel in and around the facility for an accidental detonation of up to 227 kilograms (TNT equivalent) of Class 1 Division 1 explosives.

03-04: Tritium Facility Modernization, LLNL

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
1Q 2003	4Q 2004	3Q 2005	1Q 2007	1,500	9,400-11,000

Fiscal Year	Appropriations	Obligations	Costs
2003	1,500	1,500	750
2004	0	0	750

This subproject includes the preliminary and final (Title I and Title II) design for the proposed Tritium Facility Modernization (TFM) project which will modernize the hydrogen isotope capabilities at LLNL in order to meet future program requirements. The project will upgrade hydrogen isotope capabilities at Building 331 (Tritium Facility), and will provide LLNL the capability to perform hydrogen isotope work at cryogenic temperatures as

well as very high pressures. This will improve the capability of Building 331 to support inertial confinement fusion programs and conduct weapons physics experiments. Portions of the tritium safety systems will be upgraded to modern technology as part of this project.

4. Details of Cost Estimate [a]

(dollars in thousands)

	Current Estimate	Previous Estimate
Design Phase [b]		
Preliminary and Final Design Costs (Design Drawings and Specifications)	54,125	N/A
Design Management Costs (10% of TEC)	6,371	N/A
Project Management Costs (5% of TEC)	3,213	N/A
Total, Design Costs (100% of TEC)	63,709	N/A
Total, Line Item Costs (TEC)	63,709	N/A

5. Method of Performance

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

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 2003	FY 2004	FY 2005	Outyears	Total
Project Cost						
Facility Cost						
Project Engineering and Design	0	11,640	28,584	21,485	2,000	63,709
Total, Line item TEC	0	11,640	28,584	21,485	2,000	63,709
Total, Facility Costs (Federal and Non-Federal)	0	11,640	28,584	21,485	2,000	63,709

[a] This cost estimate is based upon direct field inspection and historical cost estimate data, coupled with parametric cost data and completed conceptual studies and designs, when available. The cost estimate includes design phase activities only. Construction activities will be requested as individual line items upon completion of Title I design.

[b] The percentages for Design Management; Project Management; and Design Phase Contingency are estimates base on historical records and are preliminary estimates.

	(dollars in thousands)					
Other Project Costs						
Conceptual design costs	5,250	0	0	0	0	5,250
Other project-related costs	16,700	5,750	3,800	3,400	15,000	44,650
Total, Other Project Costs	21,950	5,750	3,800	3,400	15,000	49,900
Total, Project Cost (TPC)	21,950	17,390	32,384	24,885	17,000	113,609

03-D-121 Gas Transfer Capacity Expansion, Kansas City Plant, Kansas City, Missouri

This project is requested in FY 2003 concurrent with a request for design funding in line-item 02-D-103, Preliminary Engineering and Design, in order to prepare existing facility space and support long lead procurements (gloveboxes, welders, weld finishers, coordinate measuring machine, miscellaneous production equipment, etc.) that must be placed from 6 to 18 months in advance of the time they are needed for installation. In addition, information gained through procurements is needed to complete design.

The TEC and TPC presented are preliminary estimates that are based upon conceptual design. Current project plans provide for a review and approval of Critical Decision 3A, Long Lead Procurement, in 3Q 2002 in support of the FY 2003 construction request. Completion of the entire project performance baseline will be provided at the completion of preliminary design that is scheduled for 2Q 2003 to support the FY 2004 budget request.

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 2003 Budget Request *(Preliminary Estimate)*	3Q 2002	4Q 2003	1Q 2003	2Q 2006	30,200 [a]	30,900

[a] The TEC includes the cost of preliminary and final design ($995,000) appropriated in 02-D-103, Project Engineering and Design (PED). This is a preliminary baseline estimate. The performance baseline will be established following completion of preliminary design and Critical Decision 2, currently planned for 2Q 2003.

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design [a]			
2002	300	300	300
2003	695	695	695
Construction			
2003	4,000	4,000	1,505
2004	10,300	10,300	7,500
2005	10,400	10,400	10,000
2006	4,505	4,505	10,200

3. Project Description, Justification and Scope

Project Description

This project will provide the Kansas City Plant (KCP) with the required resources to support new designs in reservoir production in addition to the existing production schedules. It will provide the capital equipment and the facility modifications required to expand the current reservoir facility for new gas transfer system production.

The project will expand the current reservoir production department by approximately 25,000 square feet by extending the existing boundaries across an aisle and into the current Model Shop. This expansion area will house new machining, welding, and assembly equipment, a cleaning facility, and enlarged inspection facilities. Equipment such as mills, lathes, welders, furnaces, wire EDM, coordinate measuring machine, cleaning equipment and inspection equipment will be procured as part of this project. The capital equipment plan includes both installation of new equipment and relocation of some existing equipment to improve production efficiency.

In addition to this expansion, the A-Room will be expanded within the existing Reservoir facility by approximately 1,300 square-foot; a 225 square-foot H-Room will be constructed within the Special Processes Building; and a 910 square-foot M-Room will be constructed within the test cells.

Project Justification

The W76 6.2 study has concluded that a need exists for a revised Acorn design and the W87 program is currently planning to implement Acorn during the Limited Life Component Exchange activities. SLEP program guidance indicates that the B61 also will require a new Acorn design.

[a] Design will be accomplished in 02-D-103, Project Engineering and Design (PED).

The current gas transfer systems production facilities are not adequate to supply the proposed products. The new generation of gas transfer systems identified in SLEP program guidance require two to six times the work of the existing reservoirs that they will replace. This increased workload creates an extensive capacity overload for the existing reservoir facility. The overload covers many years, and cannot be accommodated with existing facilities or a larger staff. Due to security requirements, it is not appropriate to outsource these products.

The current reservoir facility and equipment are at capacity and are inadequate to support the new designs in reservoir production in addition to the existing production schedules. Reservoir workload has already doubled from the original non-nuclear reconfiguration scope and the facility is currently operating two shifts. Additional floor space, beyond the current reservoir facility boundaries, is required for additional equipment. An adjacent facility for machining and inspecting new Acorn system designs, and for meeting peak reservoir production demands, is required. The expanded capacity is required in FY 2006 in order to meet planned schedules for the W76. Failure to have the facility will prevent the KCP from meeting this program schedule. The W76 program has an FY 2007 First Production Unit (FPU) from the KCP, and the W87 system has an FPU date of FY 2008 from the KCP. Design must begin in FY 2002 and construction in FY 2003 in order to have the facility operational in FY 2006. This expansion will accommodate all reservoir scenarios envisioned in SLEP guidance and the Master Nuclear Schedule.

Relationships to Other Projects

This project will utilize floor space originally planned for the SMRI Model Shop/Tool Room consolidation. If this line item is funded, the Tool Room will be consolidated into the current Model Shop area. This will result in a slight increase to the KCP SMRI footprint, but not in excess of the SMRI target of approximately 2.3 million square feet. The schedule and funding requirements for this project includes the Model Shop/Tool Room consolidation.

As a result of the change to the plant footprint, the Structural Upgrades Line item will require a baseline change to include the required upgrades in the retained area that will now be the consolidated Model Shop/Tool Room.

Project Milestones

FY 2002:	A-E Work Initiated	3Q
FY 2003:	Physical Construction Starts and long lead requirement	1Q
FY 2004:	A-E Work Completed	2Q
FY 2006:	Physical Construction Complete	2Q

4. Details of Cost Estimate

	(dollars in thousands) Current Estimate	Previous Estimate
Total, Design Phase (4.1% of TEC) [a]	995	N/A
Construction Phase		
Buildings	3,305	N/A
Standard Equipment	19,245	N/A
Inspection, Design and Project Liaison, Testing, Checkout and Acceptance	465	N/A
Construction Management (2.6% of TEC)	795	N/A
Project Management (1.0% of TEC)	290	N/A
Total, Construction Costs (79.8% of TEC)	24,100	N/A
Contingencies		
Construction Phase (16.9% of TEC)	5,105	N/A
Total, Line Item Costs (TEC) [b]	30,200	N/A

5. Method of Performance

Design and inspection will be performed under a KCP negotiated architect-engineer contract. Construction will be accomplished by fixed-price contract awarded on the basis of competitive proposals and administered by Honeywell.

[a] The TEC includes the cost of preliminary and final design ($995,000) which was appropriated in 02-D-103, Project Engineering and Design (PED). This is a preliminary baseline estimate. The performance baseline will be established following completion of preliminary design and Critical Decision 2, currently planned for 2Q 2003

[b] . Escalation rates were taken from the Departmental Price Change Index, January 2000 update. Overhead rates were calculated at a factor of 17% for procurement, 36% for facilities engineering services, and 97% for internal labor.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 2001	FY 2002	FY 2003	Outyears	Total
Project Costs						
Facility Costs						
Design [a]	0	0	300	695	0	995
Construction	0	0	0	1,505	27,700	29,205
Total, Line Item TEC [b]	0	0	300	2,200	27,700	30,200
Total Facility Costs (Federal and Non-Federal)	0	0	300	2,200	27,700	30,200
Other Project Costs						
Conceptual design cost	0	0	175	0	0	175
Other project-related costs	28	72	100	100	225	525
Total Other Project Costs	28	72	275	100	225	700
Total Project Cost (TPC) [b]	28	72	575	2,300	27,925	30,900

7. Related Annual Funding Requirements

(FY 2003 dollars in thousands)

	Current Estimate	Previous Estimate
Related annual costs (estimated life of project--30 years)		
Annual facility operating costs	7,000	N/A
Total related annual funding (operating from FY 2006 through FY 2036)	7,000	N/A

[a] Design will be accomplished in 02-D-103, Project Engineering and Design (PED).

[b] The TEC includes the cost of preliminary and final design ($995,000) which was appropriated in 02-D-103, Project Engineering and Design (PED). This is a preliminary baseline estimate. The performance baseline will be established following completion of preliminary design and Critical Decision 2, currently planned for 2Q 2003.

03-D-122, Purification Prototype Facility Y-12 National Security Complex,
Oak Ridge, Tennessee

This project is requested in FY 2003 concurrent with a request for design funding in line-item 01-D-103, Project Engineering and Design, in order to commence site preparation and support long lead procurements (gloveboxes and processing equipment) that must be placed from 6 to 18 months in advance of the time they are needed for installation. In addition, information gained through procurements is needed to complete design.

The TEC and TPC presented are preliminary estimates that are based upon conceptual design, and do not reflect an anticipated increase in the design TEC of $3,010,000 which may require a reprogramming action. Current project plans provide for a review and approval of Critical Decision 3A, Long Lead Procurement, in 3Q 2002 in support of the FY 2003 construction request. Completion of the entire project performance baseline will be provided at the completion of preliminary design that is scheduled for 4Q 2002 to support the FY 2004 budget request.

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 2003 Budget Request *(Preliminary Estimate)*	2Q 2002	3Q 2003	1Q 2003	4Q 2004	31,283[a]	41,053

[a] The TEC includes the cost of preliminary and final design ($6,783,000), which was appropriated in 01-D-103, Project Engineering and Design. It is anticipated that the design TEC for this project will increase by $3,010,000 and a reprogramming action may be required. The performance baseline will be established following completion of preliminary design and Critical Decision 2, currently scheduled for 4Q 2002.

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design [b]			
2001	6,783	0	0
2002	0	6,783	6,783
2003	0	0	0
Construction			
2003	20,800	20,800	16,000
2004	3,700	3,700	8,500

3. Project Description, Justification and Scope

Currently, only a small, development-scale purification facility and capability exist at Y-12 National Security Complex. The previous full-scale purification production facility was shut down in the late 1980s. Given the length of time that has passed since the initial startup of this facility and its operation, there is a need to reestablish and define the operating parameters and controls and process prove-in requirements for this production process, in advance of the completion of the construction of a long-term, full-scale production facility.

Prior to building a full-scale production purification facility, the Purification Prototype Facility project would design, procure, construct, test and checkout and re-establish the process controls and process-prove-in requirement via a prototype facility, simulating production-scale operations. While this facility would not contain all of the process elements required for full-scale, long-term production operations, the prototype process equipment provided for this facility would be designed, fabricated and installed utilizing modular concepts, which would afford the relocation of this equipment to a full-scale, long-term production facility to be constructed later. The environment safety and health requirements, maintainability, and operational reliability of the full-scale, long-term facility will benefit from the experience and design basis acquired in this prototype facility. The execution of this smaller prototype facility can be expedited, which will afford, upon it's completion, a manufacturing capability and capacity supportive of the current near-term SLEP needs.

Operations performed within the Purification Prototype Facility will include: 1) dissolution, filtration, and recrystallization; and 2) powder processing in a nitrogen atmosphere.

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[b] $6,783,000 of design funding was appropriated in 01-D-103, Project Engineering and Design (PED). It is anticipated that the design TEC for this project will increase by $3,010,000 and a reprogramming action may be required.

For estimating and scheduling purposes, the assumed siting for this facility is 9720-40.

Project Milestones:

FY 2002:	Initiate Design	2Q
	Completion of Preliminary Design	4Q
FY 2003:	Initiate Physical Construction	1Q
	Complete Design and long lead procurement	3Q
FY 2004:	Complete Physical Construction	4Q

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
Total, Design Phase (21.7% of TEC) [a]	6,783	N/A
Construction Phase		
Improvements to land	996	N/A
Buildings	4,106	N/A
Special facilities	4,926	N/A
Utilities	1,499	N/A
Inspection, design & project liaison, testing, checkout, and acceptance	5,042	N/A
Construction Management (5% of TEC)	1,575	N/A
Project Management (8.1% of TEC)	2,543	N/A
Total Construction Costs (66.1% of TEC)	20,687	N/A
Contingencies		
Construction Phase (12.2% of TEC)	3,813	N/A
Total, Line Item Costs (TEC)	31,283	N/A

5. Method of Performance

Design services will be obtained through competitive and/or negotiated contracts. The M&O contractor staff may be utilized in areas involving security, production, proliferation, etc. concerns. To the extent feasible,

[a] $6,783,000 of design funding was appropriated in 01-D-103, Project Engineering and Design (PED). It is anticipated that the design TEC for this project will increase by $3,010,000 and a reprogramming action may be required.

procurement and construction will be accomplished by fixed-price contracts awarded on the basis of competitive bidding. All contracts will be administered by the operating contractor.

Best value practices will be used for design and construction services.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 2001	FY 2002	FY 2003	Outyears	Total
Project Costs						
Facility Costs						
Design [a]	0	0	6,783	0	0	6,783
Construction	0	0	0	16,000	8,500	24,500
Total, Line Item TEC	0	0	6,783	16,000	8,500	31,283
Total, Facility Costs (Federal and Non-Federal)	0	0	6,783	16,000	8,500	31,283
Other Project Costs						
Other project-related costs	0	5,369	1,042	1,619	1,740	9,770
Total, Other Project Costs	0	5,369	1,042	1,619	1,740	9,770
Total, Project Cost (TPC)	0	5,369	7,825	17,619	10,240	41,053

7. Related Annual Funding Requirements

(FY 2002 dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs	0	N/A
Annual facility maintenance/repair costs	0	N/A
Programmatic operating expenses directly related to the facility	0	N/A
Other costs	0	N/A
Total related annual funding (operating from FY 2005 through FY 2054)	0	N/A

[a] $6,783,000 of design funding was appropriated in 01-D-103, Project Engineering and Design (PED). It is anticipated that the design TEC for this project will increase by $3,010,000 and a reprogramming action may be required.

03-D-123, SNM Component Requalification Facility, Pantex Plant, Amarillo, Texas

This project is requested in FY 2003 concurrent with a request for design funding in line-item 02-D-103, Preliminary Engineering and Design, in order to support long lead procurements (primarily gloveboxes and associated equipment) that must be placed from 6 to 18 months in advance of the time they are needed for installation. In addition, information gained through procurements is needed to complete design.

The TEC and TPC presented are preliminary estimates that are based upon conceptual design. Current project plans provide for a review and approval of Critical Decision 3A, Long Lead Procurement, in 3Q 2002 in support of the FY 2003 construction request. Completion of the entire project performance baseline will be provided at the completion of preliminary design that is scheduled for 2Q 2003 to support the FY 2004 budget request.

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 2003 Budget Request *(Preliminary Estimate)*	2Q 2002	2Q 2004	2Q 2004	2Q 2005	11,300 [a]	13,300

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design [b]			
2002	950	950	760
2003	450	450	550
2004	0	0	90
Construction			
2003	3,000	3,000	1,700
2004	6,900	6,900	4,500
2005	0	0	3,700

[a] The TEC includes the cost of preliminary and final design ($1,400,000), which was appropriated in 02-D-103, Project Engineering and Design (PED). This is a preliminary baseline. The performance baseline will be established following completion of the design and Critical Decision 2 currently scheduled for 2Q 2003.

[b] Design funding was appropriated in 02-D-103, Project Engineering and Design (PED).

3. Project Description, Justification and Scope

This project consists of the design and construction of additions and modifications necessary to convert a portion of building 12-86 into the SNM Component Requalification Facility (SNMCRF).

The Department of Energy (DOE) has given the mission assignment to the Pantex Plant to develop the capability to process pits through recertification and/or requalification (re: Record of Decision: Programmatic Environmental Impact Statement for Stockpile Stewardship and Management). In total, approximately 350 pits per year will require either recertification or requalification. These 350 pits will be reused to rebuild War Reserve weapons that are required to maintain the enduring stockpile. Since the recertification and requalification processes are less extensive than reuse, recertification and requalification of 350 pits per year is equivalent to the workload criterion established in the Stockpile Stewardship and Management Program. The process to recertify/requalify existing SNM components is a much more desirable alternative than manufacturing new components. The recertification/ requalification concept is more environmentally prudent. The number of pits proposed for recertification or requalification will complement the approximately 20 new pits per year which will be manufactured by Los Alamos National Laboratory (reference the Programmatic Environmental Impact Statement Stewardship and Management).

Project Milestones

FY 2002:	A-E Work Initiated		2Q
FY 2003:	Completion of Design		2Q
	Procurement of Long Lead Equip.	2Q	
FY 2004:	A-E Work Complete		2Q
	Construction Start	2Q	
FY 2005:	Complete Construction		2Q

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
Total, Design Phase (11.0% of TEC) [a]	1,400	N/A
Construction Phase		
Improvements to Land	50	N/A
Buildings	2,900	N/A
Other Structures	240	N/A
Utilities	100	N/A
Standard Equipment	3,510	N/A
Removal Cost Less Salvage	60	N/A
Construction Management (2.6% of TEC)	300	N/A
Project Management (8.6% of TEC)	975	N/A
Total Construction Costs (71.9% of TEC)	8,135	N/A
Contingencies		
Construction Phase (15.6% of TEC)	1,765	N/A
Total, Line Item Costs (TEC) [b]	11,300	N/A

5. Method of Performance

The design services (Title I, II, III) will be accomplished by an outside A-E firm and will be administered by the Operating Contractor (BWXT Pantex LLC). BWXT Pantex LLC will perform equipment design and procurement.

The construction services of this project will be performed by an outside construction contractor operating under a contract to be awarded on the basis of competitive bids. This contract will be administered by the Operating Contractor (BWXT Pantex LLC).

Construction Management Services will be performed by the DOE Operating Contractor (BWXT Pantex LLC).

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[a] Design funding was appropriated in 02-D-103, Project Engineering and Design (PED).

[b] The TEC includes the cost of preliminary and final design ($1,400,000), which was appropriated in 02-D-103, Project Engineering and Design (PED). This is a preliminary baseline. The performance baseline will be established following completion of the design and Critical Decision 2 currently scheduled for 2Q 2003.

Best value practices will be used for design and construction services.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 2001	FY 2002	FY 2003	Outyears	Total
Project Costs						
Facility Costs						
Design [a]	0	0	760	550	90	1,400
Construction	0	0	0	1,700	8,200	9,900
Total, Line Item TEC [b]	0	0	760	2,250	8,290	11,300
Total, Facility Costs (Federal and Non-Federal)	0	0	760	2,250	8,290	11,300
Other Project Costs						
Conceptual design costs	0	100	500	0	0	600
NEPA documentation costs	0	0	40	60	30	130
Other ES&H costs	0	0	20	40	35	95
Other project-related costs	0	20	120	200	835	1,175
Total, Other Project Costs	0	120	680	300	900	2,000
Total, Project Cost (TPC)	0	120	1,440	2,550	9,190	13,300 [b]

7. Related Annual Funding Requirements

(FY2003 dollars in thousands)

	Current Estimate	Previous Estimate
Related annual costs (estimated life of project--30 years)		
Facility operating costs	360	N/A
Facility maintenance and repair costs	200	N/A
Programmatic operating expenses directly related to the Facility	1500	N/A
Capital equipment not related to construction but related to the programmatic effort in the facility	350	N/A
Utility costs	150	N/A

[a] Design funding was appropriated in 02-D-103, Project Engineering and Design (PED).

[b] The TEC includes the cost of preliminary and final design ($1,400,000), which was appropriated in 02-D-103, Project Engineering and Design (PED). This is a preliminary baseline. The performance baseline will be established following completion of the design and Critical Decision 2 currently scheduled for 2Q 2003.

(FY2003 dollars in thousands)

	Current Estimate	Previous Estimate
Total related annual costs (operating from FY 2004 through FY 2033)	2,560	N/A

02-D-103, National Nuclear Security Administration, Project Engineering and Design (PED), Various Locations

(Changes from FY 2002 Congressional Budget are denoted with a vertical line [?] in the left margin.)

Significant Changes

This data sheet includes ten new subprojects not originally included in the FY 2002 Congressional Budget which results in an increase in the Total Estimated Cost (TEC) of $63,395,000. In addition, several projects have been deferred which has extended the completion date of this line item by one year. Most of these changes are the result of a reprioritization of design funding needs as project and program managers gained a better understanding of executing construction projects under the Project Engineering and Design (PED) funding approach using a separate line item to fund design and establish performance baselines prior to submitting construction line item requests.

1. Construction Schedule History

	Fiscal Quarter				Total Estimated Cost ($000) [a]
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete	
FY 2002 Budget Request (*A-E and technical design only)*	1Q 2002	4Q 2004	N/A	N/A	19,880
FY 2003 Budget Request (*A-E and technical design only)*	1Q 2002	4Q 2005	N/A	N/A	83,275

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
2002	22,647[b]	22,647	17,978
2003	27,245	27,245	29,214
2004	25,283	25,283	25,455
2005	8,100	8,100	9,818

[a] The Total Estimated Cost reflected here is the design total for all the subprojects currently included in this data sheet.

b Original appropriation of $27,830,000 was reduced by $183,000 as part of the Weapons Activities general reduction.

(dollars in thousands)

2006	0	0	810

3. Project Description, Justification and Scope

This project provides for Architect-Engineering (A-E) services (Title I and Title II) for several National Nuclear Security Administration (NNSA) construction projects, allowing designated projects to proceed from conceptual design into preliminary design (Title I) and definitive design (Title II). The design effort will be sufficient to assure project feasibility, define the scope, provide detailed estimates of construction costs based on the approved design and working drawings and specifications, and provide construction schedules, including procurements. The designs will be extensive enough to establish performance baselines and to support construction or long-lead procurements in the fiscal year in which line item construction funding is requested and appropriated.

Conceptual design studies are prepared for each project using Operations and Maintenance funds prior to receiving design funding under a PED line item. These studies define the scope of the project and produce a rough cost estimate and schedule.

FY 2002 PED design projects are described below. While not anticipated, some changes may occur due to continuing conceptual design studies or developments occurring after submission of this data sheet. These changes will be reflected in subsequent years. Preliminary estimates for the cost of Title I and II design and engineering efforts for each subproject are provided, as well as very preliminary estimates of the Total Estimated Cost (including physical construction) of each subproject.

FY 2002 Proposed Design Projects

02-01: Test Capabilities Revitalization, SNL

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
3Q 2002	4Q 2005 [a]	1Q 2004	TBD	9,000	80,000-100,000

Fiscal Year	Appropriations	Obligations	Costs
2002	3,090	3,090	2,472
2003	3,500	3,500	3,768
2004	500	500	800
2005	2,000	2,000	1,850
2006	0	0	200

a/ Design will be done as a series of separate designs addressing the various physical testing facilities in TA-III.

This subproject provides the preliminary and final (Title I and Title II) design for the proposed Sandia Test Capabilities Revitalization (TCR) project. The TCR project will support urgently needed renovation and renewal work on the physical testing facilities and infrastructure at Sandia National Laboratories (SNL) required to support nuclear weapons refurbishment work. All of the physical test facilities are decades old and in need of very significant repair and maintenance. Some of them are in need of outright reconstitution in order to enable them to meet currently scheduled stockpile refurbishment requirements, or even the minimum anticipated demands over the next few decades. The goal of the proposed Test Capabilities Revitalization (TCR) project is to ensure that SNL is fully prepared to meet the physical testing demands of the stockpile refurbishment mission under any circumstances. An operational "fit-for-use" survey of existing physical testing capabilities, cross-referenced against currently scheduled or reliably anticipated stockpile refurbishment requirements, has revealed the need to renovate, rebuild, or otherwise revitalize up to three dozen different physical testing facilities, the bulk of which are located in Sandia's Technical Area III (TA-III). The objective of the proposed TCR project is to redress the aging and deterioration of physical testing facilities and infrastructure in an orderly, integrated, efficient, organized, and cost-effective manner, through a single comprehensive construction line item.

02-02: Nevada Test Site (NTS) Facility Consolidation, NV

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
4Q 2004	4Q 2005	1Q 2006	TBD	2,800	29,000-32,000

Fiscal Year	Appropriations	Obligations	Costs
2002	0	0	0
2003	0	0	0
2004	200	200	180
2005	2,600	2,600	2,360
2006	0	0	260

This subproject, originally planned for design start in FY 2002, has been deferred until FY 2004. It provides the preliminary and final (Title I and Title II) design for the Nevada Test Site Facility Consolidation, which will provide for planned consolidation of administrative, engineering, training, and emergency management functions at the Nevada Test Site. These functions will be consolidated in new, state-of-the-art, energy efficient, multi-purpose buildings in Area 23 and Area 6. Coincident with the implementation of the new buildings, at least an equivalent quantity of existing facility space will be disposed. The new multi-purpose buildings will be tailored to the current and projected NTS programs and will result in long-term operational and maintenance savings.

As currently envisioned, this project phase will encompass approximately 80,000 square feet of space; 40,000 representing replacements of cafeteria space in Areas 6 and Area 23, and the remaining 40,000 square feet accounting for administrative, engineering, training and emergency management functions. This project will also include the costs of disposing of the aging facilities that house the functions that will be replaced.

02-03: Exterior Communications Infrastructure Modernization (ECIM), SNL

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
2Q 2002	1Q 2004	2Q 2004	TBD	2,500	22,500-28,000

Fiscal Year	Appropriations	Obligations	Costs
2002	1,000	1,000	800
2003	1,500	1,500	1,550
2004	0	0	150

This subproject provides the preliminary and final (Title I and Title II) design of the proposed Exterior Communications Infrastructure Modernization (ECIM) project. The objectives of this project are to modernize and integrate the exterior communications duct bank system that provides data, voice, dedicated security communications and facility control systems connectivity within Tech Area I of the Sandia National Laboratories (SNL) New Mexico site. The original duct bank system, much of which is still used today, was installed in the 1950s. It is composed of collapsing clay and ceramic duct banks mixed with direct burial cables. Manholes often flood and remain filled with water for long periods of time. Some of the 50-year-old copper cables are constructed with hazardous lead sheathing and deteriorating paper composites that have become unreliable. Optical fiber cables installed in the 1970s have become inadequate in capacity, brittle, and difficult to maintain and service.

The infrastructure system currently supports a workforce of approximately 9,000 people at the SNL/NM site. Many of SNL's current and emerging capabilities rely heavily on the communications infrastructure. Ideally, this infrastructure system enables the high-speed, high-fidelity transmission of data within and between buildings, and across sites, in support of a multitude of mission activities. SNL/NM invested $30 million to modernize the interior cabling systems within most large buildings on the site from 1992 through 1996. Eighty percent of interior telecommunication cabling has been completed, thereby permitting modern internal connectivity and enhanced maintenance cost effectiveness. However, these enabled facilities now communicate with each other with an aging, failing, and incapable inter-building cabling system. The ECIM project addresses these issues and integrates voice, data, security and access control telecommunications systems as well as providing the flexibility to adjust to future requirements. The new exterior infrastructure will provide a combination of new and renovated exterior duct banks, manholes, cabling and building termination equipment within Tech Area I of the SNL/NM site.

02-04: Replacement of Function Tester, SRS

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
3Q 2003	1Q 2006	1Q 2006	4Q 2008	6,000	19,000-20,000

Fiscal Year	Appropriations	Obligations	Costs
2002	0	0	0
2003	800	800	720
2004	1,700	1,700	1,610
2005	3,500	3,500	3,320
2006	0	0	350

This subproject, which will replace the existing Function Test Facility located in 232-H and originally planned for design start in FY 2002, has been deferred until FY 2003. This building is over 40 years old and employs obsolete technology. It is being deactivated to reduce operating and maintenance costs. Two other function testers are currently located in 233-H. The number of required function tests to support reservoir surveillance in the future will require the use of a third tester to ensure that there is no backlog of testing. It is proposed to locate a new function tester in 233-H near the existing two testers. The new tester will make use of existing support systems where practical. The capability of a real time mass spectrometer will be included.

02-05: LIGA Technologies Facility, SNL

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
1Q 2003	1Q 2005	1Q 2005	4Q 2007	3,000	34,000-37,000

Fiscal Year	Appropriations	Obligations	Costs
2002	0	0	0
2003	1,500	1,500	1,350
2004	1,500	1,500	1,500
2005	0	0	150

This subproject provides the preliminary and final (Title I and Title II) design for the proposed Sandia National Laboratories LIGA Technologies Facility (LTF) project at Sandia National Laboratories in Livermore, California (SNL/CA). The LTF is needed for the research and development (R&D) and the prototyping of LIGA and LIGA-like microdevices necessary to meet current and future programmatic requirements of refurbishing and modernizing the current nuclear weapon stockpile. LIGA, an acronym from the German words for lithography, electroforming and molding, is a microfabrication process involving x-ray lithography,

electrodeposition, and replication. The reduced size and weight of microsystems parts fabricated using the LIGA process permits the replacement of critical components, as well as the addition of new capabilities including safety improvements, without unacceptably impacting the weapon system performance.

LTF is necessary because existing facilities at SNL/CA lack a sufficient quantity of high quality, dedicated cleanroom space and support infrastructure. These facilities are necessary not only to develop and prototype LIGA microparts, but also to reduce the risk associated with weaponization by conducting R&D to obtain fundamental understanding of processing and the associated performance of LIGA systems in the weapons environment.

As currently planned, the LTF will provide process and process support cleanrooms, functional areas, and laboratory environments of the appropriate size and with the necessary technical performance characteristics essential for LIGA and LIGA-like part and device microfabrication, assembly, aging, and testing. It will also consolidate the various LIGA processes and related support areas currently located in three separate primary labs and numerous secondary laboratories scattered throughout SNL/CA into a common and efficiently structured facility.

02-06: North Las Vegas Fire Alarm System, NV

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
4Q 2002	4Q 2003	1Q 2004	3Q 2005	400	6,000-6,500

Fiscal Year	Appropriations	Obligations	Costs
2002	400	400	320
2003	0	0	80

This subproject provides the preliminary and final (Title I and Title II) design for the installation of a new fire alarm notification system to replace the existing obsolete system. The current fire alarm system at the North Las Vegas Facility (NLVF) is outdated and requires continual (almost daily) repair and concurrent testing to maintain an operational system. The manufacturer of the existing fire alarm system currently provides only minimal support to the installed model. For years, repairs have been accomplished by pursuing alternative markets where parts are salvaged from old buildings and refurbished. However, these alternative supplies are rapidly being exhausted. At the present rate, it is projected that available parts and spare conductors will be unavailable in the very near future. A failure after that point will take zones (buildings) off line and will, therefore, place building occupants at risk.

02-07: Replace Oil Based Protective Interrupting Devices, NTS

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
4Q 2002	4Q 2004	1Q 2005	2Q 2007	2,480 [a]	23,000-25,000

Fiscal Year	Appropriations	Obligations	Costs
2002	497	497	398
2003	200	200	279
2004	1,783	1,783	1,625
2005	0	0	178

This subproject provides the preliminary and final (Title I and Title II) design for the Replace Oil Based Protective Interrupting Devices project. It is part of an ongoing, multi-year construction program needed to maintain the Nevada Test Site (NTS) in a state of readiness to support DOE's strategic objectives. Previous line item projects have upgraded other aspects of the NTS Power Distribution and Transmission System, which includes eight substations and one switching center. This project will design replacement protective interrupting devices within critical transmission stations on the 138kV-power transmission loop at the NTS. The project, as currently envisioned, will replace existing oil circuit breakers and circuit switchers with gas circuit breakers; replace oil circuit reclosers, oil fused cutouts and vacuum circuit breakers with air circuit breakers, fused cutouts, and gas circuit breakers or air circuit breakers as required. These components are all critical parts of the power protection system, and having an average age of over 30 years, are past their useful life, are difficult to maintain, and are a potential environmental hazard as they begin to fail.

02-08: Beryllium Manufacturing Facility, Y-12

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
3Q 2002	2Q 2005	1Q 2005	1Q 2008	24,600	150,000-200,000

Fiscal Year	Appropriations	Obligations	Costs
2002	7,700	7,700	6,160
2003	10,000	10,000	10,540
2004	6,900	6,900	7,210

a/ It is anticipated that the design TEC required for this project will increase by $900,000 which may require a reprogramming action or additional funding in the outyears.

2005	0	0	690

This subproject provides the preliminary and final (Title I and Title II) design for the proposed Beryllium Facility at the Y-12 Plant, and is one of the individual subprojects that replaces the Special Materials Complex subproject at Y-12 (see 01-D-103).

The Beryllium Facility will: 1) consolidate all beryllium operations at Y-12; 2) provide long-term capability and capacity to support the Stockpile; 3) benefit from knowledge and experience gained from early/expedited prototype efforts of the NNSA Y-12 Special Materials Capabilities Program and; 4) will comply with the new ACGIH limit for suspended beryllium in air. Beryllium operations at Y-12 are currently performed in multiple, aging facilities that require extensive administrative controls to maintain compliance; the new facility would eliminate the use of respirators during normal operations.

The Beryllium Manufacturing Facility would contain blank forming, machining, laboratory analysis, inspection and certification operations in addition to other supporting functions. Primary operations would be enclosed in gloveboxes to protect workers from exposure to beryllium and the facility would be equipped with secondary and tertiary confinement ventilation systems.

This project is being done in support of the remanufacturing requirements for the Nuclear Weapons Complex. This project will provide modern facilities that are designed to the latest standards for worker and environmental protection.

02-09: Purification Production Facility, Y-12

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
4Q 2002	4Q 2004	1Q 2005	2Q 2006	15,410	60,000-80,000

Fiscal Year	Appropriations	Obligations	Costs
2002	2,210	2,210	1,768
2003	4,000	4,000	4,042
2004	9,200	9,200	8,680
2005	0	0	920

This subproject provides the preliminary and final (Title I and Title II) design for the proposed Purification Production Facility at the Y-12 Plant, and is one of the individual subprojects that replaces the Special Materials Complex subproject at Y-12 (see 01-D-103).

The Purification Production Facility would provide a full-scale, long-term purification production process capability. This production facility will benefit in design, construction and operation from the experience and knowledge gained through the expedited, early design and construction of the Purification Prototype Facility. Currently, only a development-scale facility and capability for this process exists at Y-12. This development-

scale facility may not meet the production needs to support the enduring stockpile. The Department will reestablish the long-term capability and capacity in this new facility with new equipment better suited to meet the current environment, safety and health requirements, maintainability, and operational reliability.

Operations performed within the Purification Production Facility will include: 1) dissolution, filtration, and recrystallization; 2) powder processing in a nitrogen atmosphere, and; 3) drying, machining and inspection. The purification process will use flammable liquid acetonitrile (ACN) and will require special design features, including an adjoining tank farm to store ACN.

This project is being done in support of the remanufacturing requirements of future stockpile refurbishments. Currently the plant cannot meet these goals in the special materials area and this project is needed to provide those capabilities.

02-10 Building 12-44 Production Cells Upgrade, PX

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Complete d	Physical Construction Start	Physical Construction Complete		
4Q 2002	3Q 2004	2Q 2004	3Q 2005	2,600	10,000-12,000

Fiscal Year	Appropriations	Obligations	Costs
2002	1,500	1,500	1,200
2003	1,100	1,100	1,290
2004	0	0	110

This subproject provides the preliminary and final (Title I and Title II) design for the Pantex Building 12-44 Production Cells Upgrade (5 Cells). This project will lessen the cell shortfall by modifying five cells in building 12-044. The upgrade will bring these cells up to the same operational/capacity level as other cells at Pantex. The modifications to each of the five cells include:

1.1 Task exhaust installation
1.2 Contaminated Waste Isolation installation
1.3 Dehumidifier installation
1.4 HVAC replacement

The Building 12-44 Production Cells Upgrade will provide a crucial asset in meeting the DOE's objective of maintaining confidence in the nuclear weapons stockpile. This project will provide modifications to an existing facility to increase capacity to meet the impact of changing weapon complexity, projected workload, and the stockpile refurbishment activities. The W-76 program is the first user to benefit from this additional capacity with other programs to follow.

02-11: SNM Component Requalification Facility, PX

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
2Q 2002	2Q 2004	2Q 2004	2Q 2005	1,400	11,000-13,000

Fiscal Year	Appropriations	Obligations	Costs
2002	950	950	760
2003	450	450	550
2004	0	0	90

This subproject provides the preliminary and final (Title I and Title II) design for the Pantex SNM Component Requalification Facility (SNMCRF). The SNMCRF will be constructed within a section of Building 12-86 which will be reconfigured to meet DOE Order 6430.1A requirements for a hazard Category II Non-Reactor Nuclear Facility, as determined by DOE-STD-1027-92 for hazard potentials and quantities of radioactive material in the facility. Radioactive materials will be handled and process-staged in the SNMCRF. The SNMCRF will be constructed as a vault with Class 5 vault doors at each entrance to establish a new security area that will control and detect unauthorized access into the facility.

The DOE has given the mission assignment to the Pantex Plant to develop the capability to process pits through recertification and/or requalification in the Record of Decision on the Programmatic Environmental Impact Statement for Stockpile Stewardship and Management. In total, approximately 350 pits per year will require either recertification or requalification. These 350 pits will be reused to rebuild War Reserve weapons that are required to maintain the enduring stockpile. The process to recertify/requalify existing SNM components is a much more desirable alternative than manufacturing new components. The recertification/requalification concept is more environmentally prudent as well.

02-12: U1A Support Facilities, NTS

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
3Q 2002	4Q 2003	TBD	TBD	4,000	20,000-22,000

Fiscal Year	Appropriations	Obligations	Costs
2002	4,000	4,000	3,000
2003	0	0	1,000

This subproject was added specifically by Congress in the FY 2002 Appropriations Act for modernization of the surface support facilities for the U1A Complex at the Nevada Test Site. The modernization activities required at the U1A Complex do not require the typical Architect-Engineering (A-E) services (Title I and Title II) that would normally be supported in a Project Engineering and Design line item and, therefore, this funding may have to be reprogrammed to more appropriately support the activities directed by Congress.

02-13: Gas Transfer Capacity Expansion, KC

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
3Q 2002	4Q 2003	1Q 2003	2Q 2006	995	30,000-35,000

Fiscal Year	Appropriations	Obligations	Costs
2002	300	300	300
2003	695	695	695
2004	0	0	0

This subproject provides the preliminary and final (Title I and Title II) design for the proposed Gas Transfer Expansion project at the Kansas City Plant. This project will provide the KCP with the required equipment and facility resources to support new designs in reservoir production in addition to the existing production schedules for stockpile refurbishments. It will provide the capital equipment and the facility modifications required to expand the current reservoir facility for new gas transfer system production.

As currently planned, the project will expand the current reservoir production department by approximately 13,000 square feet by extending the existing boundaries across an aisle and into the current Model Shop. This expansion area will house new weld and weld finishing equipment, and enlarge inspection facilities. The capital equipment plan includes both installation of new equipment and relocation of some existing equipment to

improve production efficiency. In addition the A-Room will be expanded within the existing Reservoir facility by approximately 800 square-feet.

02-14: Acorn Loading and Cleaning Modifications (CALM), SRS

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Complete d	Physical Construction Start	Physical Construction Complete		
2Q 2002	4Q 2004	1Q 2004	4Q 2007	8,000	30,000-37,000

Fiscal Year	Appropriations	Obligations	Costs
2002	1,000	1,000	800
2003	3,500	3,500	3,250
2004	3,500	3,500	3,500
2005	0	0	350

This subproject provides the preliminary and final (Title I and Title II) design for the Acorn Loading and Cleaning Modification (CALM) project. Planned stockpile refurbishment activities will require additional Acorn type tritium reservoirs. New Acorn reservoirs for the W76 and W80 weapon systems begin production loading in FY06. Starting in FY08, the projected number of required loadings exceeds the Acorn loading capacity of the Tritium Facilities. This proposed line item will modify an existing reservoir loading line to enable loading of Acorn reservoirs. Also, an additional facility for cleaning Acorn reservoirs prior to loading will be provided. The objective is to provide the loading and cleaning capacity necessary to support stockpile refurbishment requirements. In addition, the loading line will be modified to enable loading of the new proposed W87 reservoir. Impacts to on-going production activities will be minimized.

4. Details of Cost Estimate [a]

(dollars in thousands)

	Current Estimate	Previous Estimate
Design Phase [b]		
Preliminary and Final Design Costs (Design Drawings and Specifications)	62,428	14,860
Design Management Costs (15% of TEC)	12,491	3,155
Project Management Costs (10% of TEC)	8,356	1,865
Total, Design Costs (100% of TEC)	83,275	19,880
Total, Line Item Costs (TEC)	83,275	19,880

5. Method of Performance

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

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 2002	FY 2003	FY 2004	Outyears	Total
Project Costs						
Facility Costs						
Project Engineering and Design	0	17,978	29,214	25,455	10,628	83,275
Total, Line item TEC	0	17,978	29,214	25,455	10,628	83,275
Total, Facility Costs (Federal and Non-Federal)	0	17,978	29,214	25,455	10,628	83,275
Other Project Costs						
Conceptual design costs	9,778	0	0	0	0	9,778
Other project-related costs	2,613	6,697	4,548	2,045	2,450	18,353
Total, Other Project Costs	12,391	6,697	4,548	2,045	2,450	28,131
Total, Project Cost (TPC)	12,391	24,675	33,762	27,500	13,078	111,406

[a] This cost estimate is based upon direct field inspection and historical cost estimate data, coupled with parametric cost data and completed conceptual studies and designs, when available. The cost estimate includes design phase activities only. Construction activities will be requested as individual line items upon completion of Title I design.

[b] The percentages for Design Management; Project Management; and Design Phase Contingency are estimates base on historical records and are preliminary estimates.

02-D-105, Engineering Technology Complex Upgrade, Lawrence Livermore National Laboratory, Livermore, California

Funding for this line item was not requested in FY 2002, but was appropriated in P.L.107-66. The construction funding provided is being used concurrent with design funding included under line item 01-D-103 in order to make important upgrades to Lawrence Livermore's engineering technology capability by supporting long lead procurements needed to optimize the construction schedule and meet the milestone dates.

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 2003 Budget Request (*Preliminary Estimate*)	2Q 2002	4Q 2003	4Q 2002	4Q 2006	26,700 [a]	27,700

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design [b]			
2002	2,250	2,250	1,200
2003	0	0	1,050
Construction			
2002	4,674 [c]	4,674	400
2003	10,000	10,000	8,200
2004	9,776	9,776	8,650
2005	0	0	5,500
2006	0	0	1,700

[a] The TEC includes the cost of preliminary and final design ($2,250,000), which was appropriated in 01-D-103, Project Engineering and Design (PED). This is a preliminary estimate. The performance baseline will be established following completion of preliminary design and Critical Decision 2 currently scheduled for the fourth quarter of FY 2002.

[b] Design funding was appropriated in 01-D-103, Project Engineering and Design (PED).

[c] Appropriation of $4,750,000 was reduced by $76,000 for the FY 2002 Weapons Activities general reduction.

3. Project Description, Justification and Scope

The Building 321 Complex at Lawrence Livermore National Laboratory (LLNL) currently supports the weapons program by manufacturing parts for research programs important to the Stockpile Stewardship Program including the National Ignition Facility (NIF), Lasers, Computations, and the Weapons Program. Services of programmatic importance include diamond turning of small classified targets; dimensional inspection of a variety of parts with tolerances measured in the millionths of an inch; and characterization of various unique weapons materials. Parts that are manufactured in the complex include items that contain toxic or controlled materials; that are classified; or that can not be manufactured commercially. To provide these essential services, new capabilities to fabricate, measure, inspect, and test critical parts must be developed. State-of-the-art fabrication technology integrated with ultra-precise topological measurement and mapping capabilities will provide analysts with exact dimensional representations of key components of interest. To enable this capability, the complex will be upgraded to contain precisely-controlled temperature, vibration, and cleanliness environments. New laboratories will enable the production of small classified laser targets to meet demands, a weapons hydro-assembly area will be established, resulting in an efficient operation and a higher quality product, and the Shell Measurement Laboratory will provide metrology data for weapons components to weapons physicists involved in the stockpile stewardship effort.

The Building 321 Complex was constructed in 1956 to provide fabrication services to research programs at LLNL. Existing equipment and facilities will not adequately meet anticipated program requirements. This project will address the issue of technological obsolescence, as well as correcting a number of code compliance issues including seismic design, accessibility and gender-based standards and current stringent environmental, safety and health (ES&H) requirements. The project will provide for improved and cost effective operations by consolidating and reorganizing laboratories and shops and maintaining all of the programmatic functions in a contiguous complex.

The Engineering Technology Complex Upgrade (ETCU) project will revitalize and enhance capabilities of both facilities and equipment and consolidate existing research activity, prototype fabrication, and metrology space. The buildings that comprise the Building 321 Complex include Buildings 321A through E. This project will upgrade and increase the capabilities in metrology and ultra-precision machining in Building 321C and upgrade the general infrastructure of the Building 321 Complex to make this 4-decades-old shop facility capable of providing state-of-the-art service to the programs for at least the next 25 years, while assuring compliance with ES&H requirements. The project will utilize existing structures and major utilities and will be coordinated with a separate roofing project to completely re-roof the building. Three wings (A, B, and C) of Building 321 will undergo structural retrofit to meet current seismic standards. C-Wing will undergo interior reconfiguration to improve space utilization and operation efficiency for Numerical Control Machining, Ultra-precision Machining, and Inspection. General infrastructure and building systems (mechanical, electrical, telecommunication, computer networks, fire protection, equipment ventilation and alarms) for the entire building will be upgraded or replaced as required by code and future capacity demands. Rest room facilities will be modified to reflect workplace diversity and to comply with accessibility standards. Other architectural improvements include integrating a modified pedestrian entrance and providing a site-screen and canopy for the corporation yard.

The facility also requires upgrades to meet current code requirements. Building 321C does not meet current DOE seismic requirements for a Low Hazard facility and general fire-protection code requirements. A

changing workforce since the buildings were completed necessitates upgrades to accommodate present gender mix as well as accessibility standards. Asbestos is present in flooring, ceilings, and insulation in parts of the Complex. Much of the building's heating and air-conditioning equipment is beyond its useful life, and portions of the complex have no air conditioning. The ventilation equipment controlling hazardous material release requires upgrading due to age and obsolescence. Present communications networks lack the capacity for future data transfer demands. All of these deficiencies will be addressed in this project.

Project Milestones:

FY 2002:	Start Design	2Q
	Initiate long lead procurement	4Q
FY 2003:	Complete Design	3Q
	Replace roof equipment on Building 321	4Q

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
Total, Design Phase (8.4% of TEC) [a]	2,250	N/A
Construction Phase		
Buildings	11,900	N/A
Standard Equipment	6,610	N/A
Inspection, Design and Project Liaison, Testing, Checkout and Acceptance	1,040	N/A
Construction Management (3.4% of TEC)	910	N/A
Project Management (2.6% of TEC)	690	N/A
Total Construction Costs (79.2% of TEC)	21,150	0
Contingencies		
Construction Phase (12.4% of TEC)	3,300	N/A
Total, Line Item Costs (TEC)	26,700	0

5. Method of Performance

Design will be performed by a combination of AE firms and LLNL forces. Major construction will be accomplished by fixed-price contracts awarded on the basis of competitive bidding. Selected minor construction and activation will be done by LLNL forces.

[a] Design funding was appropriated in 01-D-103, Project Engineering and Design (PED).

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 2002	FY 2003	FY 2004	Outyears	Total
Project Cost						
Facility Costs						
Design [a]	0	1,200	1,050	0	0	2,250
Construction	0	400	8,200	8,650	7,200	24,450
Total, Line item TEC	0	1,600	9,250	8,650	7,200	26,700
Total Facility Costs (Federal and Non-Federal)	0	1,600	9,250	8,650	7,200	26,700
Other Project Costs						
Conceptual design costs	370	0	0	0	0	370
NEPA documentation costs	20	0	0	0	0	20
Other project-related costs	90	20	20	200	280	610
Total, Other Project Costs	480	20	20	200	280	1,000
Total Project Cost (TPC)	480	1,620	9,270	8,850	7,480	27,700

7. Related Annual Funding Requirements

(FY 2006 dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs	1,360	N/A
Total related annual funding (operating from FY 2006 through FY 2025)	1,360	N/A

[a] Design funding was appropriated in 01-D-103, Project Engineering and Design (PED).

02-D-107, Electrical Power Systems Safety, Communications and Bus Upgrades, Nevada Test Site, Nye County, Nevada

(Changes from FY 2002 Congressional Budget are denoted with a vertical line [?] in the left margin.)

Significant Changes

The Total Project Cost decreased by $200,000 due to a reduction in the actual costs incurred for pre-design documentation and other project related costs.

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 2002 Budget Request	1Q 2002	3Q 2003	4Q 2002	2Q 2005	16,531 [a]	16,896
FY 2003 Budget Request *(Preliminary Estimate)*	2Q 2002	3Q 2003	4Q 2002	2Q 2005	16,531 a	16,696

[a] The TEC includes the cost of preliminary and final design ($2,693,000) which was appropriated in 01-D-103, Project Engineering and Design. This is a preliminary baseline estimate. The performance baseline will be established following completion of preliminary design and Critical Decision-2 currently scheduled for the third quarter of FY 2002.

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design [a]			
2002	2,693	2,693	1,000
2003	0	0	1,693
Construction			
2002	3,451	3,451	3,444
2003	7,500	7,500	6,807
2004	2,887	2,887	2,556
2005	0	0	1,031

3. Project Description, Justification and Scope

A safe, reliable power system at the Nevada Test Site (NTS) is a critical element of the science-based Stockpile Stewardship program. This project is necessary to support the increased demands for safety and reliability in the power system for sub-critical experiments and planned gas gun experiments, as well as emergency management, test readiness, other weapons experiments, work for other national security organizations, and other experimental programs. It is part of an ongoing, multi-year construction program needed to maintain the NTS in a state of readiness to support DOE's strategic objectives. Previous line item projects have upgraded various aspects of the NTS Power Distribution and Transmission System, which includes eight substations and one switching center. These projects (the Power Systems Distribution project, 90-D-102, and the 138kV Substation Modernization project, 96-D-102) provided for a Supervisory Control and Data Acquisition (SCADA) System at all but one of the substations, and SCADA fiber optics communications systems and relay upgrades at all of the substations.

Most of the NTS transmission facilities and systems are already between 35 and 40 years old. As such, during the next decade as many critical components of the 138 kV transmission system experience failure, vital replacement components (e.g., transformers, circuit switchers, oil circuit breakers, etc.) will no longer be manufactured or even available for purchase. Over the past several years increased outages due to the equipment failure have demonstrated that these facilities have reached the end of their expected useful life span. In fact, in 1998 at Mercury Distribution Substation, a "flash-over" incident occurred and "substation configuration" was a major contributing factor. This project will correct this and other hazardous conditions.

Timely upgrades on obsolete portions of the power system must be made to maintain the ability to meet the following minimum criteria for the NTS Power Transmission and Distribution System.

[a] Design funding was appropriated in 01-D-103, Project Engineering and Design (PED).

1. Maintain all basic safety requirements in accordance with the American National Standards Institute (ANSI), the Institute of Electrical & Electronic Engineers (IEEE) and the Occupational Safety and Health Act (OSHA).

2. Maintain voltage levels at 95% or more of nominal on the entire 138 kV system during normal operating condition and above 90% during emergency or single outage conditions of limited duration. The voltage levels are in accordance with ANSI/IEEE Standards 141 and ANSI C84.1 which have been adopted for the NTS power system.

3. Act as a *de facto* public utility in providing adequate and reliable power to the users of the NTS, which have no other source of power.

4. Provide sufficient capacity to ensure reliable service to existing loads while allowing additional moderate-sized loads to come on line.

5. Ensure adequate system fault protection.

The Electrical Power Systems Safety, Communications and Bus Upgrades project will provide for the complete reconstruction of Mercury Distribution Substation and the upgrade of Jackass Flats Substation and Mercury Switching Center. The substations and the switching center are located within the primary power transmission loop at the Nevada Test Site (NTS). The project will mitigate safety and environmental issues that now exist in the Mercury Distribution Substation and take it off the radial feed from the Mercury Switching Center and place it on the 138 kilovolt (kV) loop. In addition, this project will improve the connection between the NTS power system and Valley Electric Association transmission lines, one of two external power sources available to the test site, at the Jackass Flats Substation. Another key element of this project will include adding a transfer bus scheme at the Mercury Switching Center by reusing the existing radial feeder gas circuit breaker and associated bay which will become available when the new Mercury Distribution Substation is built. Mercury Switching Center serves as either the back-up or primary point of connection for commercial power.

Specifically, the upgrades supported by this project will include the following:

1. Mercury Distribution Substation - The upgrade to this substation will require complete reconstruction. The substation will be constructed on the 138 kV loop and be located near the existing substation. The new substation will include new 138 kV gas circuit breakers; a new indoor 15 kV metal-clad switchgear lineup; and two new dual rated 138 kV-12.47/4.16 kV, 10 MVA oil-filled transformers with automatic load tap changer (LTC). In addition, the new substation will include a new control house, new substation Supervisory Control and Data Acquisition (SCADA) components which will tie into the existing SCADA system, and miscellaneous relaying and hardware required for a complete substation installation. The existing substation and realted appurtenances will be de-energized and demolished.

2. Jackass Flats Substation - New gas circuit breakers and a new 138 kV-69 kV, 20 MVA oil-filled transformer with automatic LTC will replace four existing 138 kV oil circuit breakers, one existing 69 kV oil circuit breaker, one existing 69 kV disconnect switch, and the existing 138 kV-69 kV, 20 MVA

transformer. It will also rearrange the existing bus configuration into a more efficient and safer layout. The twelve existing obsolete 138 kV gang operated disconnect switches will be replaced and the new upgrades will be tied to the existing SCADA system.

3. Mercury Switching Center - This is the main switching station at the NTS, and it serves as a back-up or primary connection point for commercial power from Valley Electric Association or Nevada Power Company and provides power to the NTS transmission and distribution system. The upgrade will include modifications to the existing Mercury Distribution Substation gas circuit breaker and associated structure and hardware, which will be converted into a transfer bus scheme, once the new Mercury Distribution Substation is built. The controls, hardware and protection devices associated with the gas circuit breaker will be developed into a transfer bus breaker scheme. It could then be used as a replacement for any of the other three existing breakers and would be used during maintenance or breaker temporary outage. This will permit relay settings to be consistent with other system breaker settings and offer full circuit protection.

Project Milestones:

FY 2002:	Complete long-lead procurement	3Q
FY 2003:	Complete design	3Q
	Construction request for proposals released	3Q

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
Total, Design Phase (16.3% of TEC) [a]	2,693	2,693
Construction Phase		
Improvements to Land	9,520	9,520
Inspection, Design and Project Liaison, Testing, Checkout and Acceptance	503	503
Construction Management (5.7% of TEC)	938	938
Project Management (3.9% of TEC)	645	645
Total Construction Costs (70.2% of TEC)	11,606	11,606
Contingencies		
Construction Phase (13.5% of TEC)	2,232	2,232

[a] Design funding was appropriated in 01-D-103, Project Engineering and Design (PED).

(dollars in thousands)

	Current Estimate	Previous Estimate
Total, Line Item Costs (TEC) [b]	16,531	16,531

5. Method of Performance

Design engineering services and other related functions will be performed by the on-site performance based management contractor. To the extent feasible, construction and procurement will be accomplished by fixed-priced contracts and subcontracts awarded on the basis of competitive bidding. Inspection, contract administration, surveying, and related project functions will be accomplished by the performance-based management contractor.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 2002	FY 2003	FY 2004	Outyears	Total
Project Cost						
Facility Costs						
Design [b]	0	1,000	1,693	0	0	2,693
Construction	0	3,500	6,807	2,500	1,031	13,838
Total, Line item TEC	0	4,500	8,500	2,500	1,031	16,531
Total Facility Costs (Federal and Non-Federal)	0	4,500	8,500	2,500	1,031	16,531
Other Project Costs						
Conceptual design costs	165	0	0	0	0	165
Other project related costs	0	0	0	0	0	0
Total, Other Project Costs	165	0	0	0	0	165
Total Project Cost (TPC)	165	4,500	8,500	2,500	1,031	16,696

[a] Escalation rates taken from the FY 2000 DOE escalation multiplier tables.

[b] Design funding was appropriated in 01-D-103, Project Engineering and Design (PED).

7. Related Annual Funding Requirements

(FY 2002 dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs	0	0
Total related annual funding (operating from FY 2002 through FY 2035)	0	0

01-D-103, National Nuclear Security Administration Project Engineering and Design (PED), Various Locations

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

Significant Changes

The design start and completion dates for the TA-18 Mission Relocation subproject, as well as the design funding profile, have been modified due to delays in evaluating siting alternatives. A final siting decision is anticipated late in the second quarter of FY 2002. The design completion date for this PED line item has slipped due to the delay in this subproject.

The Total Estimated Cost (TEC) for this line item is reduced by $26,590,000 as a result of the following changes:

- The Special Materials Complex (SMC) subproject at Y-12 was originally planned as a single large project to provide for both critical near-term weapons refurbishments and long-term production capabilities. The Department has completed programmatic evaluations of the previous SMC strategy, as discussed in this data sheet in the FY 2002 Congressional Budget. The evaluations have indicated that to meet near-term production requirements, address current management capabilities and reduce overall risk, the SMC should be divided into four smaller projects. Under this approach, the projects will be more easily managed by focusing each project on the establishment of distinct, separate capabilities, reducing interdependencies and optimizing individual project schedules. Only one of the four subprojects that replace the SMC, the Purification Prototype Facility, will begin design in FY 2002 in this line item utilizing funds appropriated in FY 2001 for the SMC subproject. Two of the subprojects replacing the SMC will start design during FY 2002 and are included in the FY 2002 PED line item, 02-D-103, and one will start design after FY 2003. (Net TEC decrease: -$26,800,000)

- The TEC for design of the Sandia Underground Reactor Facility (SURF) increased by $210,000 due to increases identified during preliminary design.

1. Construction Schedule History

	Fiscal Quarter				Total Estimated Cost ($000)
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete	
FY 2001 Budget Request (*A-E and technical design only)*	1Q 2001	2Q 2002	N/A	N/A	14,500
FY 2002 Budget Request *(A-E and technical design only)*	1Q 2001	4Q 2003	N/A	N/A	110,665
FY 2001 Congressional Budget Supplemental *(A-E and technical design only)*	1Q 2001	4Q 2003	N/A	N/A	82,676
FY 2003 Budget Request *(A-E and technical design only)*	2Q 2001	2Q 2005	N/A	N/A	56,086

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
2001	22,133 [a] [b]	14,352	8,583
2002	16,379	24,160	25,212
2003	6,164	6,164	9,648
2004	11,410	11,410	10,361
2005	0	0	2,282

3. Project Description, Justification and Scope

This is the third year of a pilot project to provide for Architect-Engineering (A-E) services (Title I and Title II) for several National Nuclear Security Administration (NNSA) construction projects. This allows designated projects to proceed from conceptual design into preliminary design (Title I) and definitive design (Title II). The design effort will be sufficient to assure project feasibility, define the scope, provide detailed estimates of construction costs based on the approved design and working drawings and specifications, and provide

[a] The FY 2001 Energy and Water Development appropriation for design and other non-design activities increased the requested appropriation from $14,500,000 to $35,500.000. This was reduced by $78,000 for a rescission enacted by Section 1403 of the FY 2001 Consolidated Appropriations Act.

[b] The FY 2001 Congressional Budget Supplemental transferred $13,289,000 of the FY 2001 appropriation to 01-D-108 ($9,500,000) and 01-D-107 ($3,789,000).

construction schedules, including procurements. The designs will be extensive enough to establish performance baselines and to support construction or long-lead procurements in the fiscal year in which line item construction funding is requested and appropriated.

Conceptual design studies are prepared for each project using Operations and Maintenance funds prior to receiving design funding under a PED line item. These conceptual design studies define the scope of the project and produce a rough cost estimate and schedule. Currently they are completed 9-12 months before a Congressional budget is submitted requesting line item funding for a project. The effect of this process is that the conceptual design study is at least 24 months old by the time a line-item appropriation for the project is enacted. The use of a PED line item will enable a project to proceed immediately upon completion of the conceptual design into preliminary and final designs. It will permit acceleration of new facilities, provide savings in construction costs based on current rates of inflation, and permit more mature cost, schedule, and technical baselines for projects when the budget is submitted to Congress.

NNSA has made decisions as to which sub-projects should proceed to Title I design efforts to best support the Stockpile Stewardship mission; the amount of funding to be applied to each of these subprojects is reflected in this data sheet. The FY 2003 request provides funding to continue one subproject not fully funded in previous fiscal years. New NNSA design requests are included in a new FY 2003 PED line item, 03-D-103.

Following completion of Title I design activities, NNSA will determine preliminary Title I project baselines, providing detailed funding and schedule estimates for Title II and physical construction. NNSA will request external independent experts to assess the project scope, schedule and budget. Based upon the results of this assessment, and a review of the continuing programmatic requirement for the project, NNSA will either cancel further action on the subproject, or set final Title I performance baselines for the project and proceed to Title II activities. The Title I baseline will be the basis for the request to Congress for authorization and appropriations for physical construction, though some projects may require construction funding for long lead procurements prior to establishment of the performance baseline. Each project that proceeds to physical construction will be separated into an individual construction line item, the total estimated cost (TEC) of which will include the costs of the engineering and design activities funded through the PED line item.

Following are the NNSA subprojects funded within this PED line item. Design has been completed for one subproject, is ongoing for two projects, and will begin during FY 2002 for four projects. While not anticipated, some changes may occur due to continuing conceptual design studies or developments occurring after submission of this data sheet. These changes will be reflected in subsequent years.

FY 2001 Design Projects

01-01: Microsystems and Engineering Sciences Applications (MESA), SNL

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
2Q 2001	1Q 2003	3Q 2003	4Q 2009	14,956 [a]	375,000 - 400,000

Fiscal Year	Appropriations	Obligations	Costs
2001	10,456	10,456	6,673
2002	4,500	4,500	8,283

This subproject provides for preliminary and final design of the Microsystems and Engineering Sciences Applications (MESA) Complex at Sandia National Laboratories in Albuquerque, a proposed state-of-the-art national complex that will provide for the design, integration, prototyping and fabrication, and qualification of microsystems into weapon components, subsystems, and systems within the stockpile. The supporting infrastructure upgrades associated with the MESA Complex, which were funded in this line item in the FY 2001 Energy and Water Development Appropriations Act, have been transferred to line item 01-D-108, Microsystems and Engineering Sciences Applications (MESA) Complex.

The design of the MESA Complex proceeds from the Conceptual Design which was completed in FY 2000. It includes the following elements:

- Supporting infrastructure upgrades (systems upgrades and site utility upgrades);
- Retooling of equipment in Sandia's existing Microelectronics Development Lab (MDL);
- Construction of new facilities: Microsystems Fabrication (MicroFab) Microsystems Laboratory (MicroLab) and Weapons Integration Facility (WIF). MicroFab will provide cleanrooms that replace the Compound Semiconductor Research Lab (CSRL) and transition cleanroom space for prototyping new devices. MicroLab will be used to conduct research and development critical to the development of microsystems components as well as rapid prototyping and testing of these components. The WIF will include a classified portion (WIF-C) that will facilitate design, system integration, and the qualification of weapons systems, and an unclassified portion (WIF-U) that will enable collaboration and close proximity between partners from industry and academia and Sandia scientists and engineers, which will encourage and provide the environment necessary for process development and information transfer;
- New tooling for the MicroFab and MicroLab; and
- Integration of classified and unclassified supercomputing, visualization and ultra-high speed telecommunications resources to the MESA Complex.

[a] Congress provided $20,000,000 in the FY 2001 appropriation for design and supporting infrastructure upgrades for MESA. The total TEC for design is $15,000,000. This was reduced by $44,000 for a rescission enacted by Section 1403 of the FY 2001 Consolidated Appropriations Act. Funding for the infrastructure upgrades originally appropriated here in FY 2001 has been transferred to line item 01-D-108 as part of the FY 2001 Congressional Budget Supplemental.

01-02: Special Materials Complex, Y-12

The Special Materials Complex (SMC) subproject at Y-12 was originally planned as a single large project to provide for both critical near-term weapons refurbishments and long-term production capabilities. Programmatic evaluations of the previous SMC strategy indicated that to meet near-term production requirements, address current management capabilities and reduce overall risk, the SMC should be divided into four smaller projects. Under this approach, the projects will be more easily managed by focusing each project on the establishment of distinct, separate capabilities, reducing interdependencies and optimizing individual project schedules. This data sheet reflects NNSA's current plan to replace the SMC PED design subproject with the following four subprojects:

- Purification Prototype Facility, Y-12 (included in this line item, subproject 09)
- Beryllium Manufacturing Facility, Y-12 (included in 02-D-103)
- Purification Production Facility, Y-12 (included in 02-D-103)
- SMO Production Support Facilities, Y-12 (scheduled for design after FY 2003)

01-03: Electrical Power Systems Safety, Communications and Bus Upgrades, NTS (formerly Buss Upgrades for Substations)

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
2Q 2002	3Q 2003	4Q 2002	2Q 2005	2,693	16,000-18,000

Fiscal Year	Appropriations	Obligations	Costs
2001	0	0	0
2002	2,693	2,693	1,000
2003	0	0	1,693

This subproject provides for preliminary and final (Title I and Title II) design of the proposed Electrical Power Systems Safety, Communications and Bus Upgrades project. A safe, reliable power system at the Nevada Test Site (NTS) is a critical element of the science-based Stockpile Stewardship program. This project is necessary to support the increased demands for safety and reliability in the power system for sub-critical experiments and planned gas gun experiments, as well as emergency management, test readiness, other weapons experiments, work for other national security organizations, and other experimental programs. It is part of an ongoing, multi-year construction program needed to maintain the NTS in a state of readiness to support DOE's strategic objectives.

The Electrical Power Systems Safety, Communications and Bus Upgrades project will provide for the complete reconstruction of Mercury Distribution Substation and the upgrade of Jackass Flats Substation and Mercury Switching Center. The substations and the switching center are located within the primary power transmission loop at the Nevada Test Site (NTS). The project will mitigate safety and environmental issues that now exist in the Mercury Distribution Substation and take it off the radial feed from the Mercury Switching Center and place it on the 138 kilovolt (kV) loop. In addition, this project will improve the connection between the NTS power

system and Valley Electric Association transmission lines, one of two external power sources available to the test site, at the Jackass Flats Substation. Another key element of this project will include adding a transfer bus scheme at the Mercury Switching Center by reusing the existing radial feeder gas circuit breaker and associated bay which will become available when the new Mercury Distribution Substation is built. Mercury Switching Center serves as either the back-up or primary point of connection for commercial power.

| Construction funding was appropriated concurrent with this design funding, in line item 02-D-107 to support long-lead procurements that must be placed from 6 to 18 months in advance of the time they are needed for installation. In addition, the detailed specifications from the vendors for these items are needed in order to complete the preliminary design. The long-lead procurements include transformers with load tap changers (12-18 months), gas circuit breakers (9-12 months), and 15kV metal-clad switchgear (6-9 months).

01-04: Engineering Technology Complex Upgrade, LLNL

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
2Q 2002	4Q 2003	4Q 2002	4Q 2006	2,250	26,000-28,000

Fiscal Year	Appropriations	Obligations	Costs
2001	0	0	0
2002	2,250	2,250	1,200
2003	0	0	1,050

| This subproject provides for Architect-Engineering (A-E) services to develop and complete preliminary and final (Title I and Title II) design of the proposed Engineering Technology Complex Upgrade (ETCU) project. The Building 321 Complex at Lawrence Livermore National Laboratory (LLNL) currently supports the weapons program by manufacturing parts for research programs important to the Stockpile Stewardship Program including the National Ignition Facility (NIF), Lasers, Computations, and the Weapons Program. Services of programmatic importance include diamond turning of small classified targets; dimensional inspection of a variety of parts with tolerances measured in the millionths of an inch; and characterization of various unique weapons materials.

The Building 321 Complex was constructed in 1956 to provide fabrication services to research programs at LLNL. Existing equipment and facilities will not adequately meet anticipated program requirements. This project will address the issue of technological obsolescence, as well as correcting a number of code compliance issues including seismic design, accessibility and gender-based standards and current stringent environmental, safety and health (ES&H) requirements. The project will provide for improved and cost effective operations by consolidating and reorganizing laboratories and shops and maintaining all of the programmatic functions in a contiguous complex.

| Construction funding was appropriated for this project concurrent with this design funding in 02-D-105 in order to support long lead procurements needed to optimize the construction schedule and meet the milestone dates.

01-05: Stockpile Quality Evaluation and Surveillance Upgrades, Y-12 Plant

This project has been deferred.

01-06: Atlas Relocation to the Nevada Test Site, NTS

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
2Q 2001	1Q 2002	1Q 2002	3Q 2003	1,200 [a]	12,189

Fiscal Year	Appropriations	Obligations	Costs
2001	1,200	1,200	1,146
2002	0	0	54

The FY 2001 Appropriation Act designated $5,000,000 for proof of concept and completion of facility operational capability for the Atlas pulsed power machine at the Nevada Test Site in this line item. Of this amount, construction costs totaling $3,789,000 have been transferred to line item, 01-D-107, Atlas Relocation to the Nevada Test Site. This subproject supported the design efforts of a joint team of Los Alamos National Laboratory (LANL), Bechtel Nevada (BN), personnel from other laboratories, and NNSA Nevada Operations Office staff in the development and implementation of the plan to relocate Atlas to an optimum site at the Nevada Test Site (NTS). The design has been completed and the project is proceeding with construction under line item 01-D-107.

01-07: TA-18 Mission Relocation, LANL

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
3Q 2002	2Q 2005	TBD	TBD	24,998 [b]	150,000-250,000

Fiscal Year	Appropriations	Obligations	Costs
2001	998	0	0
2002	6,426	7,424	5,940
2003	6,164	6,164	6,415
2004	11,410	11,410	10,361
2005	0	0	2,282

[a] Original appropriation was $5,000,000. This was reduced by $11,000 for a rescission enacted by Section 1403 of the FY 2001 Consolidated Appropriations Act. A total of $3,789,000 in construction funding has been transferred to line item 01-D-107 as part of the FY 2001 Congressional Budget Supplemental.

[b] Original appropriation was $1,000,000. This was reduced by $2,000 for a rescission enacted by Section 1403 of the FY 2001 Consolidated Appropriations Act.

The FY 2001 Appropriations Act designated $1,000,000 for initiation of design activities for relocation of TA-18 Nuclear Materials Handling Facility at LANL.

This subproject provides for preliminary and final design associated with the Los Alamos National Laboratory Technical Area (TA)-18 Mission Relocation Project. The goal of this proposed project is to provide a secure, modern location for conducting general purpose nuclear materials handling activities currently conducted at TA-18. The need for this project is based on the projected large capital investment for security and infrastructure upgrades required over the next 10 years to remain at TA-18. The Department is currently conducting environmental, engineering, cost and other technical studies to evaluate alternative siting options for TA-18 missions, including remaining at the present location. Presently, four alternative sites are under evaluation and a final siting decision is anticipated late in the second quarter of FY 2002. Because of the varying degree of work projected for each alternative, it is premature to provide details on the scope of activities that would be encompassed by this proposed project. However, it is anticipated that the project will include capabilities to house and operate critical assemblies, store associated special nuclear material, and provide infrastructure to support criticality training and detection development activities.

TA-18 is the sole remaining facility in the United States capable of performing general purpose nuclear materials handling experiments and conducting training essential to important national security missions including: the continued safe and efficient handling and processing of fissile materials; the development of technologies vital to implementing arms control and nonproliferation agreements; the development of emergency response technologies to respond to terrorist attacks, etc; training for criticality safety professionals, fissile material handlers, emergency responders, International Atomic Energy Agency professionals and others.

01-08: Sandia Underground Reactor Facility (SURF), SNL

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
3Q 2001	4Q 2002	4Q 2003	3Q 2006	3,206 [a]	18,000 - 23,000

Fiscal Year	Appropriations	Obligations	Costs
2001	2,696	2,696	764
2002	510	510	1,952
2003	0	0	490

This subproject provides for preliminary and final (Title I and Title II) design of the proposed Sandia Underground Reactor Facility (SURF). The objective of the Sandia Underground Reactor Facility (SURF) project is to provide a modern, secure, underground facility to house the existing Sandia Pulse Reactor (SPR)

[a] Original amount allocated to this subproject was reduced by $4,000 for a rescission enacted by Section 1403 of the FY 2001 Consolidated Appropriations Act.

at significantly less annual security costs than are being incurred today. The Special Nuclear Materials (SNM) used to fuel the SPR demand a high level of security. While the actual SPR has undergone sequential modernization through the years, the existing facility, in which the SPR is now housed, is many decades old and was not designed to maintain the currently required high level of security in an efficient or cost effective manner. As a result, the cost to maintain this level of security at the existing SPR facility, in its current configuration, is approximately $10 million per year.

In order to support the Stockpile Life Extension Program (SLEP) mission, the capabilities provided by the SPR need to be maintained. By producing fast neutron environments that serve as a necessary test bed for assessing and verifying the response and robustness of weapon components and subsystems to such radiation, SPR is a unique and essential tool for the development and certification of weapon components and subsystems. The security costs associated with sustaining SPR capabilities in the existing SPR facility are, however, no longer affordable and a more cost effective means of meeting the SLEP requirements is required as soon as possible. The SURF will require a smaller protective force and will be inherently responsive to future changes in security requirements. Cost analysis shows that significant savings in security costs of approximately $6 million per year will be realized.

SURF will be constructed in Technical Area V (TA-V) close to the existing SPR facility and control room to minimize infrastructure costs. The new facility construction will not interfere with existing operations and will not compromise security. After completion of the new facility, the reactor will be relocated into the new underground facility as soon as reactor operations can be disrupted.

The performance baseline has been established for this project and construction funding is being requested in FY 2003 under line item 03-D-101.

01-09: Purification Prototype Facility, Y-12

Fiscal Quarter				Total Estimated Cost (Design Only ($000)	Preliminary Full Total Estimated Cost Projection ($000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
2Q 2002	3Q 2003	1Q 2003	4Q 2004	6,783 [a]	30,000 - 35,000

Fiscal Year	Appropriations	Obligations	Costs
2001	6,783	0	0
2002	0	6,783	6,783
2003	0	0	0

[a] Original amount allocated to this subproject was reduced by $17,000 for a rescission enacted by Section 1403 of the FY 2001 Consolidated Appropriations Act. It is anticipated that the design TEC for this subproject will increase by $3,010,000 and a reprogramming action may be required.

This subproject provides for preliminary and final (Title I and Title II) design of the proposed Purification Prototype Facility at the Y-12 Plant, and is one of the individual subprojects that replaces the Special Materials Complex subproject at Y-12 (also see 02-D-103).

Currently, only a small, development-scale purification facility and capability exist at Y-12. The previous full-scale purification production facility was shut down in the late 1980s. Given the length of time that has passed since the initial startup of this facility and its operation, there is a need to re-establish and define the operating parameters and controls and process prove-in requirements for this production process, in advance of the completion of the construction of a long-term, full-scale production facility.

Prior to building a full-scale production purification facility, the Purification Prototype Facility project would design, procure, construct, test, and checkout and re-establish the process controls and process-prove-in requirements via a prototype facility, simulating production-scale operations. While this facility would not contain all of the process elements required for full-scale, long-term production operations, the prototype process equipment provided for this facility would be designed, fabricated and installed utilizing modular concepts, which would afford the relocation of this equipment to a full-scale, long-term production facility to be constructed later. The environment safety and health requirements, maintainability, and operational reliability of the full-scale, long-term facility will benefit from the experience and design basis acquired in this prototype facility. The execution of this smaller prototype facility can be expedited, which will afford, upon its completion, a manufacturing capability and capacity supportive of the current near-term SLEP needs.

Operations performed within the Purification Prototype Facility will include 1) dissolution, filtration, and recrystallization: and, 2) powder processing in a nitrogen atmosphere.

Construction funding for this project is being requested in FY 2003 under line item 03-D-122.

4. Details of Cost Estimate [a]

(dollars in thousands)

	Current Estimate	Previous Estimate
Design Phase		
Preliminary and Final Design Costs (Design Drawings and Specifications)	43,505	63,135
Design Management Costs (8.7% of TEC)	4,880	6,100
Project Management Costs (13.7% of TEC)	7,701	13,441
Design Phase Contingency (current estimates include contingency based on risk analysis)	0	0
Total Design Costs (100% of TEC)	56,086	82,676
Total, Line Item Costs (TEC)	56,086	82,676

5. Method of Performance

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

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 2001	FY 2002	FY 2003	Outyears	Total
Project Cost						
Facility Costs						
Design	0	8,583	25,212	9,648	12,643	56,086
Total, Line item TEC	0	8,583	25,212	9,648	12,643	56,086
Total Facility Costs (Federal and Non-Federal)	0	8,583	25,212	9,648	12,643	56,086
Other Project Costs						
Conceptual design costs	2,510	6,320	30			8,860
Other project-related costs	4,135	8,325	4,280	620	100	17,460
Total, Other Project Costs	6,645	14,645	4,310	620	100	26,320
Total Project Cost (TPC)	6,645	23,228	29,522	10,268	12,743	82,406

[a] This cost estimate is based upon direct field inspection and historical cost estimate data, coupled with parametric cost data and completed conceptual studies and designs, when available.

01-D-107, Atlas Relocation to the Nevada Test Site, Nevada

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

Significant Changes

The Project name has been changed to more accurately describe the scope included in this capital project. Reference to Atlas operations at LANL was originally included under the project description in Section 3 of this data sheet; however, the operations costs of Atlas at LANL were never in the defined scope of the relocation project and were always funded within Readiness in Technical Base and Facilities and the Dynamic Materials Properties Campaign. This discrepancy was identified as part of the External Independent Review of the project. In addition to changing the project name, the project description has been edited to clarify reference to Atlas operations at LANL.

The Total Project Cost (TPC) for this project increased by $2,385,000 as the result of the detailed Title II Engineering Design cost estimate. In addition, an External Independent Review determined that some of the costs that had previously been included within Other Project Costs (OPC) correctly belonged within the TEC of the project. The change resulting from this finding is a reduction in OPCs of $1,738,000 with a corresponding increase to the TEC. The total increase to TEC of $4,123,000 reflects both of these changes and represents the Title I performance baseline for this project .

1. Construction Schedule History

	Fiscal Quarter				Total Estimated Cost ($000)	Total Project Cost ($000)
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
FY 2001 Supplemental Budget Request (*Preliminary Estimate*)	NA	NA	1Q 2002	3Q 2003	12,189 [a]	17,874
FY 2003 Budget Request (*Title I Performance Baseline*)	2Q 2001	1Q 2002	1Q 2002	3Q 2003	16,312	20,259

[a] The TEC includes the cost of preliminary and final design ($1,200,000), which was appropriated in 01-D-103, Project Engineering and Design (PED).

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design [a]			
2001	1,200	1,200	1,146
2002	0	0	54
Construction			
2001	7,689 [b]	3,789	78
2002	3,300	7,200	10,855
2003	4,123	4,123	4,179

3. Project Description, Justification and Scope

This project will relocate Atlas to an optimum site at the Nevada Test Site (NTS), including construction project implementation at the NTS, and disassembly, reassembly and recommissioning of the pulse power system at the NTS. The schedule for facility construction at the NTS, disassembly, reassembly and recommissioning, will be coordinated with Atlas Operations at LANL to provide minimum downtime of the machine. The central role for Atlas in the Stockpile Stewardship program is to provide experimental data to validate the physics models in the newly emerging suite of certification codes.

Justification

Atlas provides the Stockpile Stewardship Program with unique capability to produce the high quality scientific data needed to validate the new ASCI codes used for primary and secondary certification. Successful certification in the future requires the best available computational models, especially models for materials properties and hydrodynamics, validated by experimental data.

The certification Campaigns, Primary Certification and Secondary Certification and Nuclear Systems Margins, require high confidence in modeling of the underlying physics. Recent experience has shown the new ASCI codes can successfully simulate analytical test problems while failing to properly predict the behavior of a simple, large scale, feature in a strengthless Pegasus/Atlas implosion. Data from Pegasus experiments led to hydrodynamic code improvements that, in turn, led to greater confidence that the code can ultimately be used for certification. The central role for Atlas is to provide experimental data to validate the physics models in the newly emerging suite of certification codes.

Moving Atlas to the Nevada Test Site optimizes Defense Programs' investment in the NTS by applying NTS expertise in facility operations and management to Atlas operations, and engages NTS experimental and

[a] Design funding was appropriated in 01-D-103, Project Engineering and Design (PED).

[b] The FY 2001 Supplemental transferred $3,789,000 from 01-D-103, PED, to this line item and appropriated an additional $3,900,000.

diagnostic scientists in advanced experiments that contribute to stockpile stewardship data needs, sub-critical experiments and test readiness.

Project Milestones

FY 2002:	Award Building Fabrication and Erection Contract	4Q
	Complete Machine Disassembly	3Q
	Complete Building Construction	4Q
	Begin Machine Reassembly	4Q
FY 2003:	Complete Machine Reassembly	2Q
	Complete Startup	3Q

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
Total, Design Phase (7.4% of TEC) [a]	1,200	1,200
Construction Phase		
Improvements to Land	0	100
Buildings	6,040	2,000
Utilities	0	300
Inspection, Design and Project Liaison, Testing, Checkout and Acceptance	6,121	6,650
Title III Services	99	0
Construction Management (0% of TEC)	0	150
Project Management (4.5% of TEC)	737	150
Total Construction Costs (79.7% of TEC)	12,997	9,350
Contingencies		
Construction Phase (13.0% of TEC)	2,115	1,639
Total Contingencies (13.0% of TEC)	2,115	1,639
Total, Line Item Costs (TEC)	16,312	12,189

5. Method of Performance

[a] Design funding was appropriated in 01-D-103, Project Engineering and Design (PED).

Design shall be performed under a negotiated Best Value architect/engineer contract. Building fabrication and erection and procurement shall be accomplished by fixed-price contracts based on competitive bidding and best value award.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 2001	FY 2002	FY 2003	Outyears	Total
Project Cost						
Facility Costs						
Design [a]	0	1,146	54	0	0	1,200
Construction	0	78	10,855	4,179	0	15,112
Total, Line item TEC	0	1,224	10,909	4,179	0	16,312
Total Facility Costs (Federal and Non-Federal)	0	1,224	10,909	4,179	0	16,312
Other Project Costs						
NEPA documentation costs	0	23	0	0	0	23
Other project-related costs [b]	0	1,262	853	1,809	0	3,924
Total, Other Project Costs	0	1,285	853	1,809	0	3,947
Total Project Cost (TPC)	0	2,509	11,762	5,988	0	20,259

7. Related Annual Funding Requirements

	Current Estimate	Previous Estimate
Annual facility operating costs [c]	12,907	12,907
Programmatic operating expenses directly related to the facility [d]	27,103	27,103

[a] Design funding was appropriated in 01-D-103, Project Engineering and Design (PED).

[b] Includes tasks such as Project Execution Plan, Pre-Title I Development, Design Criteria, Safeguards and Security Analysis, Architect/Engineer Selection, Value Engineering Study, Independent Cost Estimate, Energy Conservation Report, Fire Hazards Assessment, Site Surveys, Soil Reports, Permits, Administrative Support, Operations and Maintenance Support, ES&H Monitoring, Operations Testing, Energy Management Control System Support, Readiness Assessment.

[c] Includes the following RTBF costs: operations support, warm standby, pulsed power maturation.

[d] Includes Science & Technology Base, Physics R&D, Machine Operations, Target Fabrication, and University Participation.

	Current Estimate	Previous Estimate
Utility costs [a]	0	0
Total related annual funding (estimate based on operating life of FY 2004 through FY 2023)	40,010	40,010

[a] Included within annual facility operating costs in RTBF.

01-D-108, Microsystems and Engineering Sciences Applications (MESA) Complex, Sandia National Laboratories, Albuquerque, New Mexico

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

Significant Changes

At the time the FY 2001 Congressional Budget Supplemental was submitted, this line item only included funding for infrastructure upgrades (includes systems upgrades to the existing MDL and utilities upgrades to reroute existing utilities in preparation for the MESA complex) and long lead procurements associated with retooling the MDL in order to support radiation hardened integrated circuits (rad-hard IC) production. The Total Estimated Cost for these activities was $68,000,000.

The FY 2002 Appropriations Act provided $67,000,000 for MESA, which was reduced by $3,500,000 as part of the Weapons Activities general reduction. The FY 2002 funding will be used to complete the Site Utilities and Systems Upgrades infrastructure projects ($14.6M), and begin retooling of the existing Microelectronics Development Laboratory (MDL), which includes procurement and installation of radiation hardened tools and critical microsystem tools ($48.9M).

Construction funding for the entire MESA complex is now included in this data sheet. The Total Estimated Cost/Total Project Costs reflect current estimates based on progress to date on design and the currently anticipated schedule for this project. The performance baseline will be established following Critical Decision 2 scheduled for later this fiscal year.

In response to the direction included in the FY 2002 conference report, the Office of Management, Budget and Evaluation is finalizing Departmental reporting methodologies to implement the new congressional requirements concerning the elimination of excess facilities. NNSA will report the elimination of excess facilities for the MESA project consistent with this guidance. The TPC for MESA does include the cost of disposing of the Compound Semiconductor Research Lab (CSRL).

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 2002 Budget Request (*Preliminary Estimate*)	N/A	N/A	2Q 2002	TBD	51,000 [a]	51,000
FY 2001 Congressional Budget Supplemental	N/A	N/A	2Q 2002	TBD	68,000 [b]	68,000
FY 2003 Budget Request *(Preliminary Estimate*)	2Q 2001	1Q 2003	3Q 2003	4Q 2009	453,000	504,000

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Design [c]			
2001	10,456	10,456	6,673
2002	4,500	4,500	8,283
Construction			
2001	9,500	9,500	0
2002	63,500 [d]	63,500	54,744
2003	75,000	75,000	80,000
2004	61,800	61,800	54,000
2005	63,654	63,654	78,000
2006	65,564	65,564	63,000
2007	67,531	67,531	64,000
2008	31,495	31,495	40,000
2009	0	0	4,300

[a] Preliminary estimate for the MDL retooling only.

[b] Preliminary estimate for the infrastructure upgrades appropriated in 01-D-103, and transferred to this line item by the FY 2001 Supplemental ($17,000,000), and the preliminary estimate for the MDL Rad-Hard IC Retooling ($51,000,000).

[c] Design funding was appropriated in 01-D-103, Project Engineering and Design (PED).

[d] Original appropriation of $67,000,000 was reduced by $3,500,000 as part of the Weapons Activities general reduction.

3. Project Description, Justification and Scope

Project Description

The Microsystems and Engineering Sciences Applications (MESA) Complex at Sandia National Laboratories (Sandia) in Albuquerque, is a proposed state-of-the-art national complex that will provide for the design, integration, prototyping and fabrication, and qualification of microsystems into weapon components, subsystems, and systems within the stockpile.

The MESA Project will respond to mission needs by providing needed capabilities to:

- Enable integrated teams of weapon system designers, subsystem designers, analysts, and microsystems scientists and technologists to work effectively and efficiently to design, integrate, and qualify for weapon use microsystems-based components and weapons subsystems and ensure their incorporation into weapon systems assemblies;
- Provide facilities and tooling to support radiation-hardened integrated circuit production and qualification in the event the United States loses the last remaining vendor;
- Conduct R&D, rapid prototyping, pre-production fabrication and analysis, and a war reserve microsystem production capability "of last resort" for DOE/NNSA and the Nuclear Weapons Complex;
- Develop and use predictive codes (characterized by high-performance, nonlinear, full-system, multi-physics models) for microscale physics and for the necessary integration with macroscale codes;
- Develop and use computational tools and capabilities (including visualization-design labs) to support microsystems design, simulation, and manufacturing; weapons performance assessments; renewal process analyses; and qualification of microsystems components, integrated subsystems, and the certification of the overall weapon system;
- Allow technology developers to contribute to both classified stewardship problems and unclassified R&D collaborations with partners in industry and academia; and
- Incorporate cost-effective recycle and reclaim systems that significantly reduce annual water use and result in other secondary benefits including reduced utility costs and bulk chemical storage.

Justification

Management of the stockpile focuses on the surveillance, maintenance, refurbishment, assessment, and certification activities necessary to extend the life of the current stockpile. As weapons approach, or exceed, their useful (warranted) lifetimes, their limited-life components require periodic refurbishment, retrofit and remanufacture. These activities are driven by the Life Extension Program (LEP), an evaluation and prioritization framework for performing systematic, life-extension upgrades on, and replacements of, subsystems and components of nuclear weapons.

The MESA Project is critical to meet NNSA needs. It must deliver capabilities to meet the long term needs of Stockpile Stewardship for continual advances in technologies that improve nuclear weapon surety as well as the more immediate LEP needs of incorporating advanced technologies into upcoming weapon refurbishments,

eliminating present safety exceptions in the annual certification process. The microsystems that will be developed in MESA will have the ability to sense, think, act, and communicate within a wide range of environments. They will employ a technology base that spans photonics, mechanics, and radiation-hardened microelectronics on size and integration scales that have not been previously achieved. MESA will radically advance the use of computational modeling and simulation technologies to develop modular design tools for microsystems that can concurrently optimize designs for performance, manufacturability, inspection, qualification, certification, procurement, and cost in the design process. It will create linked virtual prototyping environments in which a microsystem-based product and its manufacturing processes are designed concurrently. Ultimately, the integrated technologies of research, design, and production will contribute to a reduction in the overall part count in a weapon system. It is this reduction in part count that appears to be the most promising approach to achieve needed cost and schedule reductions within the Stockpile Stewardship Program, the Life Extension Program, and related weapon campaigns.

In order to meet stockpile refurbishment requirements, Sandia has developed an integration effort focused on modernizing the non-nuclear components of nuclear weapons. Modern electrical, optical, and mechanical components are required to ensure the continuing safety, security, and reliability of the US nuclear deterrent. Achieving this objective requires integration of activities conducted within several of NNSA's campaigns, and it requires capital investment. To be able to provide modern components, outmoded equipment must be replaced and upgraded. Semiconductor processing equipment, in particular, is expensive and upgrades cost millions of dollars per tool. Commercial integrated circuit technology continues to advance in terms of performance and cost. As stated in the 1997 National Technology Roadmap for Semiconductors, the semiconductor industry has maintained its growth by achieving a 25-30% per-year cost reduction per function throughout its history. Key to this reduction has been a 30% reduction in feature size every three years. The reduction in feature size, and changes in fabrication technology and materials that accompany it, drives changes and consistent improvements in the capital equipment used to fabricate integrated circuits.

Existing Sandia facilities are not adequate in size or function to support the development, prototyping, and use of advanced design and fabrication technologies. Such technologies are critical to support microsystems design, simulation, and manufacturing; weapons performance assessments; renewal process analyses; and qualification of microsystems components, integrated subsystems, and the certification of the overall weapon system. MESA will employ state-of-the-art visualization technologies in support of stockpile stewardship activities. In addition, the retooled, silicon-based production capability (currently located in the existing MDL) and the new compound semiconductor cleanroom, in combination with required new light laboratory and work spaces to replace the CSRL, will allow MESA to conduct R&D, rapid prototyping, pre-production fabrication and analysis, and house a war reserve microsystem production capability for DOE/NNSA and the Nuclear Weapons Complex (NWC).

Project Scope

Infrastructure Upgrades

The infrastructure upgrades portion of this project includes systems upgrades to the existing Microelectronics Development Laboratory (MDL) and utilities upgrades to reroute existing utilities to enable construction of the MESA Complex.

The systems upgrades to the MDL will repair and modify the existing building infrastructure including the acid exhaust system, specialty gas room, process chilled water, make-up air, de-ionized water plant and emergency power. These upgrades are necessary in order to prepare for the equipment retooling of the MDL.

The utilities upgrades work reroutes existing communications, power, sewer, storm drain, steam, gas and water utilities and provides a utilities corridor for the proposed MESA building site.

Microelectronics Development Laboratory (MDL) Rad-hard Integrated Circuit (IC) Retooling

This portion of the project supports the costs of retooling the Microelectronics Development Laboratory with the equipment that is required in order to produce radiation hardened integrated circuits. The MDL currently does not have the complete tool set needed to produce qualified war reserve (WR) microsystem products. The existing tool set is developmental in nature, is missing some key tools, and includes critical one-of-a-kind tools with no backup. Many of MDL's fabrication tools are more than 10 years old and have exceeded, or are approaching, the end of their useful lives. Downtime is increasing, supplier support for tool maintenance is decreasing, and spare parts are increasingly unavailable. More importantly, commercial vendors for radiation hardened integrated circuits soon will cease to exist, leaving Sandia as the only supplier for these key weapons components. Therefore, refurbishment of the MDL fabrication toolset is a critical capability that the Department must have. The parts of the MESA project involving retooling of the MDL will play a substantial role in developing weapon refurbishment options. The MDL will be an enduring, critical part of the MESA Complex.

The original cost estimate for the MDL retooling is based on the Conceptual Design Report completed in May 2000 for the MESA Complex. The estimate for the rad-hard IC retooling is primarily equipment, design and fit-up costs. The tool delivery time is estimated at 6-12 months after order, followed by installation, inspection and start up time. Tools are ordered in sequence to maximize efficiency and minimize downtime and disruptions to on-going MDL activities.

MESA Complex

The MESA Project includes:

- Site utilities (as described above under Infrastructure Upgrades)
- Retooling of equipment and support infrastructure in the existing MDL (as described above under Infrastructure Upgrades and MDL Rad-Hard IC Retooling)
- Critical microsystem retooling for the MDL.
- A new cleanroom facility, light laboratories, and work spaces for personnel replacing the existing, but antiquated, Compound Semiconductor Research Laboratory (CSRL)
- New capital equipment associated with the cleanroom facility and light labs
- Light laboratories and work group and support spaces for researchers, scientists, and technology developers involved in computation, engineering sciences, microsystems, and weapons design who are focused on incorporating microsystems into planned weapon refurbishments
- Special visualization facilities to enable full deployment of ASC and ADaPT modeling and simulation tools for application to microsystems and full weapon development; and
- Advanced communications cabling and network electronics to support unclassified and classified ultra-high

speed local computing and inter-connectivity to supercomputing resources.
- Decontamination and decommissioning of the CSRL once vacated.

The MESA facilities comprise approximately 391,000 gross square feet (gsf) and will include:

Microsystems Fabrication (MicroFab). This facility provides cleanrooms that replace the Compound Semiconductor Research Laboratory, Building 893 (CSRL), and transition cleanroom space for prototyping new devices. Built in the late 1980s as an "interim facility" with a five-year lifetime, Sandia scientists have literally "used up" the CSRL and it is no longer practical or cost effective to maintain this facility. Moreover, the mission of the CSRL has grown over time, and the current facility does not, and cannot, meet functional requirements. Therefore, this project will replace the CSRL with the MicroFab and retool approximately 80% of the existing tools used in this facility.

Microsystems Laboratory (MicroLab). This facility will house microsystems researchers and engineers and a small group of MESA external partners. It will accommodate chemical, electrical and laser light laboratories, workspaces to support approximately 274 personnel and a Design and Education Center. This new building will be used to conduct research and development critical to the development of microsystems components as well as rapid prototyping and testing of these components.

Weapons Integration Facility

Weapons Integration Facility – Classified (WIF-C). This portion of the WIF facility will house weapons designers, analysts and computational and engineering sciences (C&ES) staff. It will include a Visual Interactive Environment for Weapons Simulation (VIEWS) Corridor, visualization lab, primarily electrical and laser light laboratories and workspace to support approximately 274 personnel. This portion of the WIF buildings will facilitate design, system integration, and the qualification of weapons systems.

Weapons Integration Facility – Unclassified (WIF-U). This portion of the WIF facility will house C&ES staff and MESA partners. It will include an advanced scientific visualization laboratory, and workspaces to support approximately 100 personnel. This facility will enable collaboration and proximity between partners from industry and academia and Sandia scientists and engineers. Workspaces will encourage and provide the environment necessary for process development and two-way information transfer.

Project Milestones:

FY 2002:	Start Construction, systems upgrades and utilities upgrades	2Q
	Start Construction, MDL Retooling (long lead procurements)	2Q
FY 2003:	Start MESA complex construction	3Q

4. Details of Cost Estimate [a]

(dollars in thousands)

	Current Estimate	Previous Estimate
Total, Design Phase (3.3% of TEC) [b]	14,956	100
Construction Phase		
Improvements to Land	7,200	0
Buildings	157,200	4,600
Special Equipment	141,000	44,000
Utilities	4,600	7,900
Standard Equipment	7,500	0
Major Computer Items	16,600	0
Inspection, Design and project liaison, testing, checkout and acceptance	20,400	0
Construction Management (3.8% of TEC)	17,400	1,700
Project Management (2.6% of TEC)	11,800	400
Total Construction Costs (84.7% of TEC)	383,700	58,600
Contingencies		
Construction Phase (12.0% of TEC)	54,344	9,300
Total, Line Item Costs (TEC)	453,000	68,000

5. Method of Performance

Construction contracts will be awarded using Sandia's best value procurement process and will be awarded as firm fixed price contracts. Equipment will be procured using either design procurement and installation contracts or turnkey design/procure/install contracts as appropriate.

[a] Previous Estimate reflects estimate for infrastructure upgrades and the MDL Rad-Hard IC retooling only consistent with the FY 2002 budget request and the FY 2001 Congressional Budget Supplemental. The current estimate is based on progress to date on preliminary design and the currently anticipated schedule for this project. The performance baseline will be established following Critical Decision 2 scheduled for later this fiscal year.

[b] Design funding was appropriated in 01-D-103, Project Engineering and Design (PED).

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 2001	FY 2002	FY 2003	Outyears	Total
Project Cost						
Facility Costs						
Design [a]	0	6,673	8,283	0	0	14,956
Construction	0	0	54,744	80,000	303,300	438,044
Total, Line item TEC	0	6,673	63,027	80,000	303,300	453,000
Total Facility Costs (Federal and Non-Federal)	0	6,673	63,027	80,000	303,300	453,000
Other Project Costs						
Conceptual design costs	2,100	0	0	0	0	2,100
Decontamination & Decommissioning costs	0	0	0	0	4,000	4,000
NEPA documentation costs	90	40	0	0	0	130
Other ES&H Costs	175	515	450	300	900	2,340
Other project-related costs	3,970	3,545	3,150	3,800	27,965	42,430
Total, Other Project Costs	6,335	4,100	3,600	4,100	32,865	51,000
Total Project Cost (TPC)	6,335	10,773	66,627	84,100	336,165	504,000

[a] Design funding was appropriated in 01-D-103, Project Engineering and Design (PED).

7. Related Annual Funding Requirements

(FY 2009 dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs [a]	2,900	N/A
Annual facility maintenance/repair costs [b]	1,700	N/A
Programmatic operating expenses directly related to the facility [c]	215,000	N/A
Capital equipment not related to construction but related to the programmatic effort in the facility [d]	18,300	N/A
Utility costs [e]	2,400	N/A
Total related annual funding (operating from FY 2009 through FY 2038)	240,300	N/A

[a] Average annual facility operating costs for material and labor, including systems engineering, infrastructure operations, custodial, and maintenance and sub-sites management. An average total of 15.5 staff years per year will be required.

[b] Average annual facility maintenance and repair costs for materials and labor. An average of 8.0 craft years per year will be required. Costs include maintenance and ordinary repair, including tasks like removals and replacements, repair and refinishing that result from normal wear and tear and maintenance of the grounds.

[c] Programmatic operating expenses directly related to the MESA complex. This estimate reflects the annual operating expenses associated with programmatic work that will be done within the MESA complex. As such, **this estimate reflects funding that is primarily already existing from other established DOE programs** (i.e., Engineering Campaigns, Readiness in Technical Base and Facilities, Advanced Simulation and Computing, etc.). This estimate is based on costs for personnel associated with the integrated occupancy of MESA (integration of weapons design personnel, present CSRL personnel, present Microsystems Development Laboratory personnel and computational and engineering sciences personnel). In addition to costs for personnel time, this estimate also reflects costs for benefits, travel, purchases, corporate loads etc.

[d] Capital equipment not related to construction, but related to the programmatic effort in the facility. This reflects the average annual investment that is required in retooling and in replacement of fabrication and computing capital equipment to maintain toolsets one generation behind industry in microsystems technologies and at state-of-the-art in computational capability.

[e] Utility costs reflect the average annual costs for electricity, gas, water and sewer discharges.

01-D-124, Highly Enriched Uranium Materials Facility

Y-12 National Security Complex, Oak Ridge, Tennessee

(Changes from FY 2002 Congressional Budget Request are denoted with a vertical line [?] in the left margin.)

Significant Changes

The Department is currently conducting an evaluation of this project to address changes in facility/operations and program requirements, ongoing site planning, the establishment of a new M&O contractor, and funding availability. Project funding profiles have been adjusted to reflect revised project needs, but the Total Estimated Cost and Total Project Cost (with the exception of the Safeguards and Security Amendment adjustment as noted below) have not been changed pending completion of the evaluation and Departmental approval of any proposed baseline changes.

This data sheet reflects a preliminary baseline estimate. The performance baseline for cost, schedule and scope will be established following completion of preliminary design and Critical Decision 2 and final FY 2002 appropriations. The TEC/TPC funding profile and schedule milestone dates reflected in this data sheet are preliminary. The TEC/TPC, outyear funding profile, and schedule have not been validated and may be modified after completion of a thorough review and validation.

1. Construction Schedule History

	Fiscal Quarter				Total Estimated Cost ($000)	Total Project Cost ($000)
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
FY 2001 Budget Request *(Preliminary Estimate)*	1Q 2001	1Q 2002	2Q 2001	2Q 2005	120,000	144,000
FY 2002 Budget Request	3Q 2001	4Q 2002	4Q 2001	2Q 2005	119,949[a]	143,949
FY 2003 Budget Request *(Current Estimate)*	3Q 2001	4Q 2003	2Q 2002	4Q 2006	119,949	143,949 [b]

[a] Original appropriation was $120,000,000. This was reduced by $51,000 for the Safeguards and Security (S&S) Amendment in 2001.

[b] This is a preliminary estimate. The performance baseline will be established following completion of preliminary design and Critical Decision 2 currently scheduled for 3Q FY 2002.

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
2001	17,710 [a] [b]	17,710	0
2002	0	0	7,500
2003	25,000	25,000	18,800
2004	46,000	46,000	32,200
2005	21,239	21,239	42,200
2006	10,000	10,000	19,249

3. Project Description, Justification and Scope

The Highly Enriched Uranium (HEU) Materials Facility will support the consolidation of long-term highly enriched uranium materials into a state-of-the-art facility. The new facility will result in cost savings and an increased security posture and will feature: storage in an earthen-bermed structure for enhanced security, an automated inventory system which minimizes inventory validation, new Safe Secure Trailer (SST) or Safeguard Transport (SGT) shipping/receiving station, a central location near HEU processing facilities, an underground connector to allow direct tie-in to a future Enriched Uranium Operations (EUO) Modernization Facility which allows a reduced footprint for HEU activities, and a small administrative facility to house the building operators. This facility will be located in a Protected Area. The Systems Requirements Document for the Y-12 National Security Complex HEU Materials Facility, Y/EN-5636 (May 1999), documents the forecasted long-term storage requirement of approximately 14,000 cans and approximately 14,000 55-gallon drums equivalents. It will also provide a contingency storage area for an additional 4,000 drums which will be designed such that it can be retrofitted and segregated from the main storage area for non-proliferation initiatives.

[a] The original appropriation request was $17,800,000. This was reduced by $51,000 by the Safeguards and Security (S&S) Amendment, and the amount appropriated in FY 2001 was $17,749,000.

[b] The revised appropriation request of $17,749,000 was reduced by $39,000 to $17,710,000 for a rescission enacted by Section 1403 of the FY 2001 Consolidated Appropriations Act.

The Y-12 National Security Complex Environmental, Safety, and Health (ES&H) Vulnerability Assessment, dated October 1996, resulted in a number of findings related to the current storage of HEU in multiple buildings. The assessment raised issues concerning fire, flooding, natural phenomena, and related concerns which would likely involve major upgrades to existing facilities in order to continue present HEU storage. In addition to ES&H vulnerabilities, existing conditions are inefficient. Maintaining and expanding HEU storage in multiple facilities involves increased security personnel, increased operations personnel, increased maintenance and utility costs, increased Special Nuclear Material (SNM) vehicle transfers, increased cost for ES&H, facility safety assessments and upgrades, and management oversight. Costs for HEU storage will be reduced by implementing this initiative. Cost savings are achieved by reduced personnel requirements, by the efficient use of space and technology, by reduction of the footprint, and by eliminating the necessity for creating additional storage in the old facilities.

This project will provide the following:

- receipt and storage for Canned Sub-Assemblies (CSAs) as well as cans of uranium oxide and metal
- docks for SST/SGT shipping/receiving
- a small administrative facility
- storage space for materials subject to International Atomic Energy Agency (IAEA) safeguards inspections.

The life expectancy of the facilities is 50 years, thereby assuring a viable, long-term HEU storage capability to support the enduring weapons stockpile and strategic reserve for the foreseeable future.

The facilities will be designed to meet Conduct of Operations requirements, minimize the number of personnel required for operations, and meet DOE requirements for SNM accountability and control.

| FY 2003 funding will be utilized to complete Titles I and II activities, complete site clearances and readiness activities, initiate building construction, and continue construction management.

Project Milestones:

FY 2002:	A-E Work Initiated	1Q
	Physical Construction Started	2Q
	Preliminary Design Complete	3Q
FY 2003:	A-E Work Completed	4Q
FY 2006:	Physical Construction Completed	4Q

4. Details of Cost Estimate [a]

(dollars in thousands)

	Current Estimate	Previous Estimate
Design Phase		
Preliminary and Final Design costs (Design Drawings and Specifications)	7,470	7,470
Design Management Costs (0.7% of TEC)	853	853
Project Management Costs (0.9% of TEC)	1,098	1,098
Total, Design Costs (7 9% of TEC)	9,421	9,421
Construction Phase		
Other Structures	72,350	72,350
Construction Management (8.4% of TEC)	10,090	10,090
Project Management (5.2% of TEC)	6,220	6,220
Total, Construction Costs (73.9% of TEC)	88,660	88,660
Contingencies		
Design Phase (1.7% of TEC)	2,070	2,070
Construction Phase (16.5% of TEC)	19,798	19,798
Total, Contingencies (18.2% of TEC)	21,868	21,868
Total, Line Item Costs (TEC)	119,949	119,949

5. Method of Performance

Overall project direction and responsibility resides with the DOE.

[a] Conceptual design defining these costs was completed in FY 1999 at an estimated cost of $1,160,000. The annual escalation rates assumed for FY 2001 through FY 2005 are 2.0, 2.4, 2.8, 2.9, and 2.9 percent, respectively.

A design and build subcontractor under contract to the Facility Manager will design and manage the construction of the HEU Materials Facility except as noted below. The Facility Manager will be responsible for procuring and then managing the design and build subcontractor.

The Facility Manager will be responsible for project integration and will design the data acquisition system, which will tie in to the existing Central Alarm system. The Facility Manager will design and procure speciality systems and equipment, and will design a portion of the site clearance and readiness package.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 2001	FY 2002	FY 2003	Outyears	Total
Project Cost						
Facility Cost						
Design	0	0	7,500	3,991	0	11,491
Construction	0	0	0	14,809	93,649	108,458
Total, Line item TEC	0	0	7,500	18,800	93,649	119,949
Total, Facility Costs	0	0	7,500	18,800	93,649	119,949
Other Project Costs						
Conceptual design cost [a]	1,160	0	0	0	0	1,160

[a] A Conceptual Design Report (CDR) was completed in FY 1999 at an estimated cost of $1,160,000.

	Prior Years	FY 2001	FY 2002	FY 2003	Outyears	Total
Other project-related costs [b]	7,010	5,000	6,000	2,500	2,330	22,840
Total, Other Project Costs	8,170	5,000	6,000	2,500	2,330	24,000
Total, Project Costs (TPC)	8,170	5,000	13,500	21,300	95,979	143,949

7. Related Annual Funding Requirements [b]

(FY 2005 dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs [c]	60	60
Annual facility maintenance/repair costs [d]	2,000	2,000
Programmatic operating expenses directly related to the facility [e]	7,600	7,600

[a] NEPA for this project is included in a Site Wide Environment Impact Study resulting in no cost to this project. Major FY 2000 cost result from criticality safety evaluations/analysis of process and conceptual designs for $1,400,000, Criticality Safety Accident Alarm evaluations/analysis for $220,000, Hazards Evaluation and initiation of the Preliminary Safety Analysis Report for $900,000, preparation of the design criteria and Request for Proposal for $2,500,000, subsurface geological investigation for $370,000, can pallet prototyping and testing for $350,000, and independent reviews for $225,000. Other items such as project management, development of project procedures/processes in accordance with the Construction Project Management Plan, subcontractor support, operations support, process descriptions account for approximately $1,045,000 in cost. FY 2001 activities include: completion of the PSAR for an estimated cost of $990,,000, continuing the Criticality Safety Evaluations (CSE) for $960,000, and other project costs of approximately s $3,050,000. FY 2002 activities include: preparing documentation for use of Safe Secure Transports (SST) for transporting HEU on site for $320,000, and continuing the criticality safety analysis along with other project documentation for approximately $2,250,000, and $4,830,000 for project support. An Operational Readiness Review (ORR) technical basis for operations, relocation of cans, development of operational procedures, training, revisions to fire protection plans, revisions to nuclear control and accountability (NMC&A) procedures, and user acceptance testing will be performed in the out-years at an estimated cost of $3,430,000.

[b] These costs are from the cost/benefit analysis for the HEU building, with additions for the surge capacity .

[c] Operating costs are the costs of managing the facility.

[d] Facility utility costs are combined with the facility maintenance and repair costs.

[e] These are the costs for receipt, storage, and inventory of the contents.

	(FY 2005 dollars in thousands)	
	Current Estimate	Previous Estimate
Other costs[f]	350	350
Total related annual funding (operating from FY 2005 through FY 2054)	10,010	10,010

[a] Other costs include the ES&H costs for keeping the facility compliant.

01-D-126, Weapons Evaluation Test Laboratory (WETL), Sandia National Laboratories

(Changes from FY 2002 Congressional Budget Request are denoted with a vertical line [?] in the left margin.)

Significant Changes

| # This data sheet reflects a preliminary baseline estimate. The performance baseline for cost, schedule and scope will be established following completion of preliminary design and Critical Decision 2. The TEC/TPC funding profile and schedule milestone dates reflected in this data sheet are preliminary. The TEC/TPC, outyear funding profile, and schedule have not been validated and may be modified after completion of a thorough review and validation.

1. Construction Schedule History

	Fiscal Quarter					
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete	Total Estimated Cost ($000)	Total Project Cost ($000)
FY 2001 Budget Request *(Preliminary Estimate)*	2Q 2001	2Q 2002	3Q 2002	1Q 2004	22,181	23, 483
FY 2002 Budget Request	2Q 2001	2Q 2002	3Q 2002	1Q 2004	22,181	23, 483
FY 2003 Budget Request *(Current Estimate)*	3Q 2001	4Q 2002	1Q 2003	2Q 2004	22,181	23, 483 [a]

[a] This is a preliminary estimate. The performance baseline will be established following completion of preliminary design and Critical Decision 2 currently scheduled for 2Q FY 2002.

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
2001	2,993 [a]	2,993	286
2002	7,700	7,700	2,165
2003	8,650	8,650	10,281
2004	2,838	2,838	7,849
2005	0	0	1,600[b]

3. Project Description, Justification and Scope

The Weapons Evaluation Testing Laboratory (WETL) facility is currently located at the Department of Energy Pantex Plant in Amarillo, Texas, and has been in operation since 1965. This project will construct a new facility at the Pantex site; relocate some of the existing equipment, augmented with state-of-the-art upgraded high resolution test data acquisition hardware and software systems, from the existing WETL into the new facility; continue existing functions and operations of the WETL in the new facility indefinitely into the future, and remediate any legacy contamination in the existing facility. The existing facility will be retained for other Pantex operations.

The WETL will be relocated from a Material Access Area (MAA) to a Limited Area (LA) zone on the Pantex site. Removal of WETL from the MAA will result in reduction of man-hours necessary to process or move material between WETL and other Pantex facilities. There will be operational cost savings on any material that comes to WETL from outside sources due to decreased security requirements. By locating WETL outside the MAA, guard inspections, security requirements, and radiation safety requirements for outside shipments will be reduced. In addition to providing the operational cost savings from the safeguards and security and radiation safety operations, the new facility will provide cost savings from the workflow improvements, automated data collection and analysis, and material handling procedures.

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[a] Original appropriation was $3,000,000. This was reduced by $7,000 for a rescission enacted by Section 1403 of the FY 2001 Consolidated Appropriations Act. There is no change to the TEC due to a corresponding increase to the FY 2004 appropriation amount.

[b] Physical construction of the buidling is scheduled to be completed in 2Q2004. The equipment relocation and installation is scheduled to be completed in 1Q2005. Therefore the planned costing amount in FY 2005 is to pay for the planned equipment relocation and installation into the building of this line item.

The new WETL consists of an approximately 30,000-gross-square-foot facility, providing offices and office support, lab/test and test support spaces, and storage space. It is designed architecturally to enhance functional operations and flexibility and provide a more suitable work environment. The proposed site, which is located next to a LA, will be fenced for inclusion into the existing LA at the completion of construction.

Some equipment will be replaced or upgraded. Data acquisition hardware and software will be updated or replaced to permit higher resolution, a higher rate of data transfer, and state-of-the-art data processing capabilities. An existing hydraulic centrifuge will be replaced by an all-electric drive centrifuge. The new facility will enhance efficiency in performing existing work functions. No operational changes will be expected to result from the transfer of functions from the old to the new facility.

The new facility will provide a laboratory environment capable of supporting the Enhanced Surveillance Campaign (ESC) through flexibility of floor space configuration, appropriate adjacencies for an optimal work environment, and the mechanical and data infrastructure to be dependable and efficient in supporting advanced test technologies.

Each year the Stockpile Evaluation Program draws weapons from the stockpile. These are disassembled and inspected in other Pantex facilities. Some non-nuclear parts and components from these weapon samples are built into system beds and tested at environmental extremes at WETL. Approximately 65 principal tests and hundreds of subsequent tests are conducted each year. If problems are detected or failures occur, a team is formed to evaluate the cause of the anomaly, assess its impact (on stockpile reliability), and recommend a solution. This testing is conducted and the necessary data acquired with special test equipment that is housed in the WETL.

The inefficient layout of the current facility does not support optimal workflow, and the facility also has a number of issues that require immediate attention, including roof leaks and an aging mechanical system. An improved WETL is needed to modernize the facility to integrate ESC initiatives, decrease operational expenses, upgrade old and outdated equipment, and mitigate risk of loss (these needs are discussed in more detail in the following sections).

Support to the Enhanced Surveillance Campaign (ESC)

ESC is an initiative to develop advanced capabilities for understanding degradation mechanisms in the enduring stockpile. The campaign has invested tens of millions of dollars in research and development of methodologies to observe and analyze changes in stockpile material prior to aging failure.

The technology base of test data collection equipment used at the existing WETL lacks the capability to acquire the data at the needed volume levels and clarity to support the ESC. In addition to improved data collection equipment, the WETL facility must be capable of supporting advanced test technologies by providing accurate and dependable environmental controls, wide bandwidth data transfer infrastructure, and floor space configuration flexibility.

Decreased Operational Expense

The WETL facility is currently located within the MAA at the Pantex plant, but for security reasons is only required to be located in a LA. The Complex 21 Study completed in May 1993 recommended that WETL should be relocated outside the MAA.

The MAA is the most secure area on the site, designed to protect access to special nuclear material. Because of WETL's location within the MAA, all staff and visitors are subject to security and personnel assurance program (PAP) requirements. This program actively monitors and periodically re-certifies personnel as suitable to perform nuclear explosive duties in a safe and reliable manner and involves medical and psychological evaluation. The security and PAP requirements for WETL personnel and visitors add operational expense that will be avoided if WETL is relocated to a LA.

Additionally, there will be operational cost savings on any material that comes to WETL from outside sources due to decreased security requirements. Incoming and outgoing shipments of support material are now received in an area outside the MAA due to security requirements of the MAA. All shipments are inspected prior to movement to WETL, and all shipments require movement through many guard stations. Outgoing shipments require green tags from radiation safety, as does the calibration equipment discussed above. Locating WETL outside the MAA will reduce guard inspections, security requirements and radiation safety requirements. In addition, the project will provide funding for the acquisition of diagnostic equipment. New building systems will be designed to meet Federal guidelines for energy efficiency, which will also reduce operating costs.

Scope:

Plan and design the project.

Construct a new facility, approximately 30,000 gsf, which includes test support spaces, below grade centrifuge rooms and laboratories, storage space, offices and support space, conference and video conference space, and mechanical and electrical systems.

Provide site work including curbs and gutters, walkways, parking lot, minor paving, and landscaping.

Extend site utilities to serve WETL.

Provide new diagnostic equipment for data acquisition systems ($3.8M).

Provide standard equipment, including new furniture and video conferencing equipment.

The FY 2003 funds will be used to initiate physical construction.

Project Milestones:

FY 2001: Start Design	3Q
FY 2002: Preliminary Design	2Q
Complete Design	4Q
FY 2003: CD3	1Q
Construction Start	1Q
FY 2004: Construction Complete	2Q
FY 2005: Fit Up/Move In	1Q
CD4	1Q
Project Closeout	2Q

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
Design Phase		
Preliminary and Final Design costs (Design, Drawings and Specifications $629)	1343	1209
Design Management Costs (1.6% of TEC)	359	400
Project Management Costs (0.5% of TEC)	100	41
Total, Design Costs (8.1% of TEC)	1,802	1,708
Construction Phase		
Procurement	98	98
Improvements to Land	485	485
Buildings	7,288	7,288
Special Equipment	3,570	3,570
Utilities	1,006	1,006
Standard Equipment	306	306
Equipment Relocation	684	684
Inspection, Design and Project Liaison, Testing, Checkout and Acceptance	2,787	2,787
Construction Management (3.2% of TEC)	720	720
Project Management (3.5% of TEC)	779	779
Total, Construction Costs (79.9% of TEC)	17,723	17,723
Contingencies		
Design Phase (0.5% of TEC)	107	165
Construction Phase (11.5% of TEC)	2,549	2643
Total, Contingencies (12.0% of TEC)	2,656	2,808
Total, Line Item Costs (TEC) [a]	22,181	22,181

[a] Escalation rates taken from the FY 2001 DOE escalation multiplier tables.

5. Method of Performance

Architectural and engineering design will be performed under a negotiated fixed-price contract based on capability and capacity to perform the work. Inspection will be performed by Sandia Facilities Department. Construction will be performed under a competitive-bid fixed-price contract based on best value. BWXT Pantex will provide consultation as needed.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 2001	FY 2002	FY 2003	Outyears	Total
Project Cost						
Facility Cost						
Design	0	286	1,623	0	0	1,909
Construction	0	0	542	10,281	9,449	20,272
Total, Line item TEC	0	286	2,165	10,281	9,449	22,181
Total Facility Costs (Federal and Non-Federal)	0	286	2,165	10,281	9,449	22,181
Other Project Costs						
Conceptual design cost [a]	458	0	0	0	0	458
Other project-related costs [b]	476	118	87	87	86	844
Total, Other Project Costs	934	118	87	87	86	1,302
Total, Project Costs (TPC)	934	404	2,252	10,368	9,535	23,483

[a] Includes NEPA documentation costs.

[b] Including tasks such as Project Execution Plan, Pre-Title I Development, Design Criteria, Safeguards and Security Analysis, Architect/Engineer Selection, Value Engineering Study, Independent Cost Estimate, Energy Conservation Report, Fire Hazards Assessment, Site Surveys, Soils Reports, Permits, Administrative Support, Operations and Maintenance Support, ES&H Monitoring, Operations Testing, Energy Management Control System Support, Readiness Assessment.

7. Related Annual Funding Requirements

(FY 2004 dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs [a]	194	194
Annual facility maintenance/repair costs [b]	118	118
Programmatic operating expenses directly related to the facility [c]	7,343	7,343
Utility costs	23	23
Total related annual funding (operating from FY 2005 through FY 2045)	7,678	7,678

[a] When the facility is operational in the 1st Quarter of FY 2005, the average cost will be $265,000 for labor and materials per year.

[b] A total of 1.0 staff years per year is required to maintain the facility.

[c] Annual programmatic operating expenses are estimated at $7.4M, based on representative current WETL operating expenses and the System Test Equipment (STE) labor. The majority of this funding is expected to come from DOE/DP for activities in support of the Nuclear Weapons Stockpile Stewardship Program. If a new WETL is constructed, funds will be provided to acquire modern test equipment, which reduces the number of testers required, thus reducing the current labor costs to the representative amount. This labor savings, estimated over a 40-year life cycle, returns the initial investment by a factor of 7.

01-D-800, Sensitive Compartmented Information Facility, Lawrence Livermore National Laboratory, Livermore, California

(Changes from FY 2002 Congressional Budget Request are denoted with a vertical line [?] in the left margin.)

Significant Changes

| # Building square footage has increased to 64,000 square feet as a result of the completion of the Preliminary Design. This increase was approved by the Acqusition Executive as the performance baseline scope at Critical Decision 2.

1. Construction Schedule History

	Fiscal Quarter					
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete	Total Estimated Cost ($000)	Total Project Cost ($000)
FY 2001 Budget Request *(Preliminary Estimate)*	2Q 2001	1Q 2002	2Q 2002	2Q 2004[a]	24,000	24,200
FY 2002 Budget Request	2Q 2001	1Q 2002	2Q 2002	4Q 2003	24,597[b]	25,102
| FY 2003 Budget Request *(Current Baseline Estimate)*	2Q 2001	1Q 2002	2Q 2002	4Q 2003	24,597	25,102

[a] 2Q 2004 was a typographical error and the correct date should have been 4Q 2003 for Physical Construction Complete.

[b] The Total Estimated Cost (TEC) for this project was increased by $600,000 from $24,000,000 to $24,600,000 based on the results of an independent cost review. This revised TEC of $24,600,000 was reduced by $3,000 to $24,597,000 because of the FY 2001 Safeguards and Security (S&S) Amendment.

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriation	Obligations	Costs
2001	1,993[a] [b]	1993	1,519
2002	12,993	12,993	5,931
2003	9,611	9,611	1 2,397
2004	0	0	4,750

3. Project Description, Justification and Scope

The new Sensitive Compartmented Information Facility (SCIF) is essential for the Nonproliferation Arms Control and International Security (NAI) directorate to continue to carry out its mission, to reduce maintenance and special security costs and to consolidate Lawrence Livermore National Laboratory (LLNL) national security programs, enhancing their capability to execute projects. To accomplish mission, as the primary occupant of the SCIF, Z Division must have a facility that can accommodate modern technologies. The fast moving information revolution requires major enhancements in information management, networking, storage, and retrieval, and real time communications with DOE and the intelligence community. The planned SCIF will be housed in a new building located in close proximity to the rest of the NAI directorate.

The planned Sensitive Compartmented Information Facility (SCIF) is proposed as a new two story building with a gross floor area of 64,000 square feet. This SCIF is sited on the west side of the laboratory, adjacent to and north of Building 132, which currently houses most of the NAI directorate. A new parking lot west of the facility will also be provided.

- FY 2001 funds will be used for project startup and design.
- FY 2002 funds will be used for construction.

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[a] Original appropriation was $2,000,000. This was reduced by $4,000 for a rescission enacted by Section 1403 of the FY 2001 Consolidated Appropriations Act. This action caused no change to the TEC due to a corresponding increase to the FY 2003 appropriation amount.

[b] The revised FY 2001 appropriation of $1,996,000 was reduced by $3,000 for the Safeguards and Security (S&S) Amendment. This action resulted in a reduction of the TEC.

| # FY 2003 funds will be used for construction and activation.

Project Milestones:

FY 2001: Start Design	2Q
FY 2002: Start Construction	2Q
FY 2003: Physical Construction Complete (Beneficial Occupancy)	4Q
FY 2004: Transition to Operations	2Q

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
Design Phase		
Preliminary and Final Design costs (Design, Drawings and Specifications $629)	1,264	1,230
Design Management Costs (0.8% of TEC)	180	180
Project Management Costs (1.6% of TEC)	385	385
Total, Design Costs (6.7% of TEC)	1,829	1,795
Construction Phase		
Procurement	0	0
Improvements to Land	800	800
Buildings	11,555	11,555
Special Equipment	0	0
Utilities	1,815	1,815
Standard Equipment	3.670	3,670
Equipment Relocation	0	0
Inspection, Design and Project Liaison, Testing, Checkout and Acceptance	875	875
Construction Management (2.5% of TEC)	615	615
Project Management (2.5% of TEC)	615	615
Total, Construction Costs (81.1% of TEC)	19,945	19,945
Contingencies		
Design Phase (0.6% of TEC)	136	170
Construction Phase (10.3% of TEC)	2,687	2,687
Total, Contingencies (10.9% of TEC)	2,823	2,857
Total, Line Item Costs (TEC) [a]	24,597	24,597

[a] Escalation rates taken from the FY 2002 Guidance contained in the January, 2000 DOE escalation table. Current estimate based on enhanced CDR dated May 2000.

5. Method of Performance

The design for the project shall be preformed by a negotiated best value architect/engineer contract. The construction will be accomplished by a fixed-price contract based on competitive bidding, prequalified and best value award.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 2001	FY 2002	FY 2003	Outyears	Total
Project Cost						
Facility Cost						
Design	0	1,519	310	0	0	1,829
Construction	0	0	5,621	12,397	4,750	22,768
Total, Line item TEC	0	1,519	5,931	12,397	4,750	24,597
Total Facility Costs (Federal and Non-Federal)	0	1,519	5,931	12,397	4,750	24,597
Other Project Costs						
Conceptual design cost [a]	135	0	0	0	0	135
Other project-related costs [b]	55	180	50	45	40	370
Total, Other Project Costs	190	180	50	45	40	505
Total, Project Costs (TPC)	190	1,699	5,981	12,442	4,790	25,102

7. Related Annual Funding Requirements

[a] Includes previous conceptual design reports and updating the conceptual design report for the FY 2001 budget submission.

[b] Includes funds for one-time training of Plant Engineering personnel on building operations, migration costs for 185 people, survey, geological investigation, design criteria development, and A/E selection.

(FY 2004 dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs [a]	510	510
Annual facility maintenance/repair costs [b]	0	0
Programmatic operating expenses directly related to the facility [c]	0	0
GPP or other construction related to the programmatic effort in the facility [d]	30	30
Utility costs [e]	95	95
Total related annual funding (operating from FY 2004 through FY 2044)	635	635

[a] Includes the LLNL space charge and annual cost for a facility coordinator.

[b] Included in facility operating costs.

[c] Included in facility operating costs.

[d] Minor additions and modifications to the facility related to programmatic effort.

[e] Electricity costs only. Other utilities are provided without a separate charge.

99-D-103, Isotope Sciences Facility, Lawrence Livermore National Laboratory, Livermore, California

(Changes from FY 2002 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 1999 Budget Request (*Preliminary Estimate*)	1Q 1999	4Q 1999	2Q 2000	2Q 2002	19,400	19,800
FY 2000 Budget Request	4Q 1999	1Q 2003	2Q 2000	2Q 2004	17,400	17,700
FY 2001 Budget Request	2Q 2000	3Q 2003 [a]	3Q 2000	2Q 2004	17,392	17,692
FY 2002 Budget Request	2Q 2000	1Q 2004	2Q 2000	2Q 2004	17,367 [b]	17,667
FY 2003 Budget Request *(Current Baseline Estimate)*	2Q 2000	1Q 2004	2Q 2000	2Q 2004	17,367	17,667

[a] Project design and construction components are organized into separate phases with construction on individual phases proceeding upon completion of the design for that phase.

[b] Appropriation of $5,000,000 was reduced by $25,000 by the Safeguards and Security (S&S) amendment.

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
1999	2,000	0	0
2000	1,992 [a]	3,992	1,214
2001	4,964 [b] [c]	4,964	1,970
2002	4,400	4,400	7,078
2003	4,011	4,011	5,255
2004	0	0	1,850

3. Project Description, Justification and Scope

This project provides for a major rehabilitation of the nuclear chemistry facilities at Lawrence Livermore National Laboratory to extend the life of these essential program facilities. The principle objective of the project is to enhance the radio chemistry research, analytical, and characterization services provided to Defense Program activities at LLNL. These facilities also support critical analytical waste characterization and programmatic environmental monitoring activities as well.

The project provides for a seismic retrofit and construction of an office addition to the Isotope Science Facility (Building 151), retrofit of Building 151/Building 154 ventilation systems, decontamination of the Refractory Materials Facility (Building 241). The current nuclear chemistry building (B-151) is a 34-year old wet-chemistry research building in need of a major rehabilitation to extend its life in support of the Weapons Stockpile Stewardship Program. The seismic rating of Building 151 does not meet current code requirements. This project will provide the seismic modifications necessary to meet current code requirements for performing isotopic research and to support the ongoing mission.

- The Building 151 Office Addition (B-155) is approximately 22,000 square feet contiguous to B-151. It resolves long-standing co-location and program operating efficiency issues in a cost-effective package. Exterior treatment will be selected consistent with the existing building. The addition will contain offices, conference and meeting rooms, elevator, rest rooms, programmatic storage, and various support facilities.

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[a] Original appropriation was $2,000,000. This was reduced by $8,000 for the FY 2000 rescission enacted by P.L. 106-113.

[b] Appropriation of $5,000,000 was reduced by $25,000 by the Safeguards and Security (S&S) amendment.

[c] Original appropriation was $4,975,000. This was reduced by $11,000 for a rescission enacted by Section 1403 of the FY 2001 Consolidated Appropriation Act. There is no change to the TEC due to a corresponding increase to the FY 2003 appropriation amount.

- The existing Building 151 HVAC system is inefficient, difficult to maintain, and does not meet current requirements for exhaust and control. The majority of mechanical work entails replacing older fume-hood and glove box exhaust systems with up-to-date variable air volume systems. Building 154 is underutilized due to the difficulties in balancing the three air-pressure zones as required by researchers. To fully utilize this building for wet-chemistry laboratory use, the existing HVAC system, utilities, and fire-protection system must be upgraded. The HVAC work done under an FY 1998 General Plant Project corrected some of the HVAC system problems but not all. In addition, approximately eight new fume hoods with associated exhaust ductwork, fans, and controls will be provided. B-151 and B-154 HVAC modifications and fume hood replacements will rehabilitate these high downtime and high maintenance subsystems and extend life to meet the current mission. Some safety and operational benefits also result.

- After moves are completed from Building 241, it will be characterized and decontaminated for future use by Defense Programs at Lawrence Livermore National Laboratory. Consolidation of operations from B-241 and personnel from four older trailers complete the efficiency and cost-driven elements, which though minor in cost, have substantial operational benefits.

Along with the seismic retrofit and HVAC system/fume hood replacement, the project encompasses program consolidation for increased efficiency of operations, indirect cost savings, and safety of operations benefits.

Project Milestones:

FY 2002:

Start Operations: B-154 HVAC	1Q
Start Construction: B-151 Seismic Upgrade	3Q

FY 2003:

Complete Construction: B-151 Office Addition (B-155)	1Q
Start Construction: B-151 Mechanical Upgrades	2Q

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
Design Phase		
Preliminary and Final Design costs (Design Drawings and Specifications - $1,125)	1,265	1,405
Design Management Costs (0.8% of TEC)	140	115
Project Management Costs (1.7% of TEC)	295	175
Total Design Costs (9.8% of TEC)	1,700	1,695
Construction Phase		
Improvements to Land	185	260
Buildings	9,341	7,270
Utilities	295	90
Standard Equipment	745	950
Removal Cost Less Salvage	1,400	2,115
Inspection, Design and Project Liaison, Testing, Checkout and Acceptance	705	1,080
Construction Management (4.8% of TEC)	833	1,100
Project Management (3.0% of TEC)	513	405
Total Construction Costs (80.7% of TEC)	14,017	13,270
Contingencies		
Design Phase (0.8% of TEC)	135	175
Construction Phase (8.7% of TEC)	1,515	2,227
Total Contingencies (9.5% of TEC)	1,650	2,402
Total, Line Item Costs (TEC) [a]	17,367	17,367

The current estimate is based on the Conceptual Design Report of March 1997 and the supplement dated April 1998.

5. Method of Performance

Contracting arrangements are as follows: Design will be performed by A-E and Lawrence Livermore National Laboratory forces. Construction will be accomplished by fixed-price contracts awarded on the basis of competitive bidding. Activation will be done by Lawrence Livermore National Laboratory forces.

[a] Escalation rates taken from the FY 2001 DOE escalation multiplier tables (January 1999 update).

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 2001	FY 2002	FY 2003	Outyears	Total
Project Costs						
Facility Costs						
Design	473	978	279	105	0	1,835
Construction	741	992	6,799	5,150	1,850	15,532
Total, Line item TEC	1,214	1,970	7,078	5,255	1,850	17,367
Total Facility Costs (Federal and Non-Federal)	1,214	1,970	7,078	5,255	1,850	17,367
Other Project Costs						
Conceptual design costs	150	0	0	0	0	150
NEPA documentation costs	25	0	0	0	0	25
Other project-related costs	75	0	0	0	50	125
Total, Other Project Costs	250	0	0	0	50	300
Total Project Cost (TPC)	1,464	1,970	7,078	5,255	1,900	17,667

7. Related Annual Funding Requirements

(FY 2004 dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs	740	740
Total related annual funding (operating from FY 2004 through FY 2023)	740	740

99-D-104, Protection of Real Property (Roof Reconstruction-Phase II) , Lawrence Livermore National Laboratory, Livermore, California

(Changes from FY 2002 Congressional Budget Request are denoted with a vertical line [|] in the left margin.)

Significant Changes

The funding profile has been changed to move some of the funding for this project out until FY 2004 consistent with National Nuclear Security Administration priorities. As a result of the funding profile change, the completion date for this project is delayed one year, with no impact to scope or cost.

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*)	1Q 1999	1Q 2000	3Q 1999	4Q 2001	19,900	19,930
FY 2000 Budget Request	3Q 1999	2Q 2003	4Q 1999	4Q 2003	19,900	19,970
FY 2001 Budget Request	4Q 1999	2Q 2003	4Q 1999	4Q 2003	19,900	19,970
FY 2002 Budget Request	4Q 1999	2Q 2003	4Q 1999 [a]	4Q 2003	19,886 [b]	19,956
FY 2003 Budget Request (*Current Baseline Estimate)*	4Q 1999	2Q 2003	4Q 1999	4Q 2004	19,886	19,956

[a] Design and construction is planned as five separate packages, each including 1 to 4 buildings. Construction on each package will begin upon completion of the design for that package, while design continues on the remaining packages.

[b] Appropriation of $2,800,000 was reduced by $14,000 by the Safeguards and Security (S&S) amendment.

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
1999	2,500	2,500	419
2000	2,391 [a]	2,391	2,090
2001	2,780 [b] [c]	2,780	3,474
2002	2,800	2,800	4,245
2003	5,915	5,915	4,658
2004	3,500	3,500	4,000
2005	0	0	1,000

3. Project Description, Justification and Scope

This project is the second of three phases of the LLNL roof replacement program. The first Phase is funded under 96-D-102. Phase II addresses 11 Weapons Stockpile Stewardship Program buildings which require complete roofing system replacement along with the replacement of associated roof mounted equipment and piping systems which have deteriorated beyond economical repair. This is required in order to maintain and protect the integrity of the facilities and to assure that programmatic work can proceed without the risk of serious damage to the buildings or the programmatic efforts contained within. Work includes buildings: B111, B113, B121, B141, B194, B231, B241, B251, B281, B321, and B332. In all cases, the roofing systems have exceeded their 20-year design life by 11 to 23 years. The same holds true for most of the roof mounted equipment and piping systems as they are original equipment, again with an average design life of 20 years. Both the roofing and mechanical systems have deteriorated to the point where normal repair is no longer a viable alternative.

The 11 roofs in this project are experiencing severe deterioration problems including membrane failure, and the associated roof mounted mechanical equipment is also showing high levels of unreliable operation which adversely effect the support to the programmatic effort. As stated, normal maintenance procedures no longer are effective to maintain weather integrity of the roofing systems, to the point that leaks in the roofing system are jeopardizing experiments, experimental data and equipment. The impact from not replacing the roofing and

[a] Original appropriation was $2,400,000. This was reduced by $9,000 for the FY 2000 rescission enacted by P.L. 106-113.

[b] Appropriation of $2,800,000 was reduced by $14,000 by the Safeguards and Security (S&S) amendment.

[c] Original appropriation was $2,786,000. This was reduced by $6,000 for a rescission enacted by Section 1403 of the FY 2001 Consolidated Appropriation Act. There is no change to the TEC due to a corresponding increase to the FY 2003 appropriation amount.

mechanical equipment systems will result in excessive maintenance and repair costs. In addition, the adverse programmatic impact could cost the Lab and Defense Programs significant dollars in lost production.

Operating expense budgets fund maintenance at a level of required repair, but not at the level required to replace roofs and roof mounted mechanical equipment. Since these 11 buildings are required to support critical Weapons Stockpile Stewardship Program missions, capital funding is requested for the replacement of the roofs and associated roof mounted mechanical equipment.

Project Milestones:

FY 2002:	Package No. 4 (Buildings 251 and 281)		
	Start Design		1Q
	Complete Design		2Q
	Start Construction		3Q
	Complete Construction	4Q	
FY 2003:	Package No. 5 (Buildings 113 and 231)		
	Start Design		1Q
	Complete Design		2Q
	Start Construction		3Q
	Complete Construction	4Q	

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
Design Phase		
Preliminary and Final Design costs (Design Drawings and Specifications - $640)	947	947
Design Management Costs (0.2% of TEC)	29	29
Project Management Costs 0.3% of TEC)	50	50
Total Design Costs (5.2% of TEC)	1,026	1,026
Construction Phase		
Other Structures	9,018	9,018
Standard Equipment	3,672	3,672
Inspection, Design and Project Liaison, Testing, Checkout and Acceptance	2,160	2,160
Construction Management (2.2% of TEC)	444	444
Project Management (4.3% of TEC)	857	857
Total Construction Costs (81.2% of TEC)	16,151	16,151
Contingencies		
Design Phase (1.0% of TEC)	200	200
Construction Phase (12.6% of TEC)	2,509	2,509
Total Contingencies (13.6% of TEC)	2,709	2,709
Total, Line Item Costs (TEC) [a]	19,886	19,886

5. Method of Performance

The Laboratory proposes a new approach to the implementation of this project. Mechanical and electrical modifications will be completed prior to re-roofing construction start. Modifications will be accomplished using LLNL personnel. The construction contract is planned to be a unit price based contract with standard construction details. Change order processing and negotiations will be greatly simplified. This new approach should greatly reduce the cost of engineering and design.

[a] Escalation rates taken from FY 1999 DOE escalation multiplier tables. Current estimate based on Conceptual Design Report of March 1997.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 2001	FY 2002	FY 2003	Outyears	Total
Project Cost						
Facility Costs						
Design	276	259	286	205	200	1,226
Construction	2,233	3,215	3,959	4,453	4,800	18,660
Total, Line item TEC	2,509	3,474	4,245	4,658	5,000	19,886
Total Facility Costs (Federal and Non-Federal)	2,509	3,474	4,245	4,658	5,000	19,886
Other Project Costs						
Conceptual design costs	30	0	0	0	0	30
NEPA documentation costs	2	0	0	0	0	2
Other ES&H costs	38	0	0	0	0	38
Total, Other Project Costs	70	0	0	0	0	70
Total Project Cost (TPC)	2,579	3,474	4,245	4,658	5,000	19,956

7. Related Annual Funding Requirements

(FY 2003 dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs	0	0
Total related annual funding (operating from FY 2003 through FY 2022)	0	0

99-D-127, Stockpile Management Restructuring Initiative
Kansas City Plant, Kansas City, Missouri

(Changes from FY 2002 Congressional Budget Request are denoted with a vertical line [|] in the left margin.)

Significant Changes

| # The scope of this project has been changed consistant with the National Nuclear Security Administration (NNSA) priorities. Changes include deleting ten of the original 58 work elements within this SMRI project that are no longer required to support mission objectives and the addition of two new work elements. This adjustment to the scope of work will result in the returning, to GSA, of an additional (approximately) 140,000 square feet of vacant space no longer required by the Department to meet current and projected mission requirements. The result is a reduction of the TEC from $122,200,000 to $120,420,000 and the reduction of the TPC from $141,400,000 to $138,949,000. The new work will extend the estimated construction completion period by five additional months.

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)*	1Q 1999	2Q 2004	3Q 1999	3Q 2006	122,500	139,500
FY 2000 Budget Request	2Q 1999	3Q 2004	3Q 1999	2Q 2005	119,500	139,700
FY 2001 Budget Request	2Q 1999	3Q 2004	3Q 1999	2Q 2005	122,400	141,600
FY 2002 Budget Request	2Q 1999	3Q 2004	3Q 1999	2Q 2005	122,201	141,401
FY 2003 Budget Request *(Current Baseline Estimate)*	2Q 1999	3Q 2004	3Q 1999	4Q 2005	120,420	138,949

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
1999	13,700	2,349	153
2000	16,935 [a]	26,066	12,385
2001	23,514 [b] [c]	25,734	24,017
2002	22,200	22,200	26,494
2003	29,900	29,900	26,300
2004	12,475	12,475	26,088
2005	1,696	1,696	4,983

3. Project Description, Justification and Scope

The end of the Cold War radically changed the defense posture of the United States, calling for significant changes and reductions in nuclear weapons complex structure and operations. The initial phase of this retrenchment began when the Department of Energy decided to cease nonnuclear production at three plants and consolidate most of its nonnuclear manufacturing at the Kansas City Plant (KCP). However, even with the influx of new missions, the downturn in defense production meant continued reductions in operating costs and work force.

The Stockpile Management Restructuring Initiative provides a cost-effective plan that capitalizes on the KCP's logistic and manufacturing expertise to ensure quality nonnuclear products through the year 2010 and beyond. Furthermore, the initiative minimizes DOE costs in the near term by lessening risks and reducing operating expenditures concurrent with capital investments. It also provides the technical capability, production capacity, and flexibility necessary to allow the KCP to support scheduled nonnuclear production and a wide range of unanticipated production requirements, confidently and effectively.

The Stockpile Management Restructuring Initiative will allow the KCP's infrastructure to be altered and greatly reduced from the current plant profile, substantially reducing costs to operate the KCP. The restructuring initiative consists of changing the existing plant and operational approach in four major aspects: 1) physically reducing the size of the facility, 2) changing the approach to manufacturing from product-based to process-

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[a] Original appropriation was $17,000,000. This was reduced by $65,000 for the FY 2000 rescission enacted by P.L. 106-113.

[b] Original appropriation request was $23,765,000. This was reduced by $199,000 by the Safeguards and Security (S&S) Amendment. The comparable S&S amount for FY 2000 for this project was $142,000; the comparable appropriation amount was $16,793,000.

[c] Original appropriation was $23,566,000. This was reduced by $52,000 for a rescission enacted by Section 1403 of the FY 2001 Consolidated Appropriations Act. There is no change to the TEC due to a corresponding increase to the FY 2005 appropriation amount.

based, 3) reducing the support infrastructure appropriate for the right-sized operation, and 4) further streamlining the organizational structure to focus directly on the core manufacturing mission.

Currently, the KCP consists of approximately 3.2 million square feet of floor space contained in three connected buildings: the main building, the manufacturing support building (MSB) and the technology transfer center (TTC). Approximately 3 million square feet of floor space is Defense Programs funded. Much of the floor space is underutilized and costly to maintain and approximately 780,000 square feet of vacant floor space will be returned to GSA for reallocation to other Federal agencies. The KCP will be rearranged into three business units and a support operations business unit to bring about an overall reduction in total managed floor space, streamline operations, and produce increased long-term operating efficiencies in manufacturing processes. The approximate square footage of each business unit after consolidation is as follows:

	Square Ft.	
Electrical Products Business Unit	236,000	
Mechanical Business Unit	350,000	
Engineered Materials Business Unit	198,000	
Support Operations Business Unit	910,000	
Unallocated and Unusable	666,000	(includes aisles, restrooms, and utility set backs)
Total	2,360,000	

Electronics Products Business Unit (EPBU) Technology Overview

The electronics products factory includes three process modules: microelectronics, interconnects, and final assembly. Each electronic process module will fabricate all product lines that require the processes of that module. In addition to the three process modules, there will be three manufacturing areas for specialized products: Joint Test Assembly (JTA), Special Electronic Assembly (SEA), and Test Equipment.

The three process modules are:

Microelectronics: All substrates, hybrid microcircuits, chip packages, and leadless chip carriers that require clean room processing are fabricated in the state-of-the-art microelectronics module. The module is located in the new microelectronics facility which was completed in June 1995 and became fully operational in September 1998.

Interconnects: The interconnects module contains all the processes used to attach and interconnect components. This includes processes such as welding, conventional hand soldering, wave soldering, vapor phase soldering, and belt furnace re-flow soldering. In addition to printed wiring assemblies, interconnect products, such as cables and junction boxes, can be fabricated in this module.

Final Assembly: The fabrication of complete electronic systems is performed in the final assembly module. This consists of the assembly and encapsulation of all components required for complete electronic products.

Procured components, and manufactured hardware are assembled to produce complete electronic systems such as radars, programmers, trajectory sensing, and firesets.

Mechanical Business Unit (MBU) Technology Overview

The MBU will consist of 14 modules which will fabricate or procure all required product lines. This is a process-based approach for most mechanical technologies, complemented by generic product-based manufacturing departments, mechanical support laboratories, and engineering services as follows:

Mechanical Welding: Mechanical Welding is a process-based activity group providing welded mechanical hardware and welding operations in common support of factory operations. The in-place consolidation will combine operations which currently exist in Welding Operations, Interim Reservoir Welding, Model Shop and Tool Room, and the Mechanical Welding Laboratory.

Sheet Metal and Mechanical Assembly: The sheet metal fabrication assembly area will provide common support for a range of mechanical and electromechanical products, and includes typical sheet metal processes as well as laser marking.

Electromechanical Assembly: Electromechanical Assembly will be restructured in a downsized and consolidated operation to provide support of stronglinks and other miniature assemblies which have design features that include miniature solenoids, ceramic electrical headers, miniature springs, friction reducing coatings and bearings, low resistance electrical contacts, magnetically coupled switching, and a host of other unique designs. Most miniature mechanisms require assembly in a Class 100 clean environment, utilizing clean benches within a class 100,000 clean room.

Heat Treating and Abrasive Blasting: The heat treat and abrasive blasting areas provide service for all mechanical product lines. Included in the relocation of the Heat Treat department is the replacement of a portion of the furnaces and support equipment which will not survive the relocation due to their poor condition. The structural integrity of the furnaces being replaced is very poor and modifications would be required to refurbish fire brick and heating elements and the equipment may not survive the relocation. Due to the large size of these furnaces and the criticality of this equipment as a unique capability, new furnaces will be procured and installed in the new location prior to excess of the old equipment.

Mechanical Machining: Mechanical machining and inspection will be a downsized and consolidated operation that will fabricate hardware through traditional and non-traditional means in sizes ranging from large case-type housings to miniature piece parts for assemblies. The machined hardware provided by this module will support requirements of all programs at KCP for both internal and external customers.

Reservoir Fabrication and Assembly: Reservoir production responsibility was transferred from the DOE's Rocky Flats Plant to the KCP through the nonnuclear reconfiguration program. Because of special handling, cleaning and contamination considerations associated with reservoir production, KCP's reservoir facility contains most processes necessary to manufacture, test and inspect a wide variety of production reservoirs. SMRI implementation will not change the Reservoir facility.

STA Products Manufacturing: Secure Transportation Asset Products Manufacturing supports the secure transportation needs for the DOE Secure Transportation Asset including refurbishment of existing trailers, original manufacture of the new design Safeguards Transporter Trailer (SGT) and multiple short-term special maintenance activities. The TSD manufacturing area will be consolidated by combining the secure trailer sheet metal area with the primary SGT assembly facility.

Mechanical Support Laboratories: Support laboratories for Mechanical Operations will continue to provide the current types of support, though in a smaller footprint through consolidation.

Plastics Molding & Filled Elastomers: This area supports injection, compression, and transfer molding of thermoset and thermoplastic compounds, and material preparation and compression molding of filled elastomeric products.

Foam Products: Foam Products is a process-based approach, which has combined equipment needed for fabrication of rigid polyurethane foams, filled elastomer foams and foam desiccant product lines.

Plastics Machining, Assembly & Inspection: In the Plastics Machining, Assembly & Inspection module, the manufacturing and machining of all Special Plastics Case Assemblies and Subassemblies, Gas Getters, Composites, and all other plastic products and the related inspection of these products will be consolidated. This consolidation allows for some enhanced utilization of floor space and equipment.

Plating & Painting: These two process modules provide custom metal finishing services to the entire plant. They are not undergoing consolidation as part of the SMRI project.

Engineered Materials Business Unit (EMBU) Technology Overview

The engineered materials factory consists of four processing modules as follows:

Engineering Laboratories: The Engineered Materials Business Unit contains several large laboratories. Except for the Nuclear Grade Steels Receiving and Inspection, and Environmental & Non-Destructive test labs, the Engineering Laboratories will remain unchanged by the SMRI project.

Engineering Services: The Engineered Materials Business Unit provides document control, drafting, and other support services for the other business units. These functions are primarily office areas, and are not modified in the SMRI project.

Metrology: Metrology provides calibration services to the plant and will not be modified under SMRI.

Support Operations Technology Overview

Support operations includes boilerhouses, waste management operations, patrol headquarters, stores (including enduring stockpile), maintenance, cafeteria, offices and other functions that are essential for plant operations. Included under this function is the physical plant separation work for walls and utilities and security guard support during construction. Also included is the construction and relocation of a downsized cafeteria. These functions, generally placed in the category of support, are common to plant operations and are not assigned to a specific factory.

Physical Plant Separation: Maximum Foreseeable Fire Loss (MFL) rated separation between the DOE and GSA will be provided by construction of fire rated subdivision walls. Major air handling and utilities systems serving both DOE and GSA will be separated to allow for independent maintenance of these services on both sides of the separation line after the SMRI project is complete.

Stores: New stores will occupy approximately 21 areas, down from the existing 70. Gages and fixtures, chemicals, and some of the production and non-production stores areas will remain in their current locations. Bulk materials and large production and non-production areas will be relocated and resized to meet future stores requirements. This bulk storage area will be located in a high-roof, unexcavated area of the plant which is adjacent to a new high-rack storage area.

Project Milestones:

FY 1999:	A-E Work Initiated	2Q
	Physical Construction Starts	3Q
FY 2004:	A-E Work Completed	3Q
FY 2005:	Physical Construction Completed	4Q

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
Design Phase		
Preliminary and Final Design costs (Design Drawings and Specifications)	7,411	8,451
Design Management Costs (0.9% of TEC)	1,112	1,268
Project Management Costs (0.3% of TEC)	371	422
Total, Design Costs (7.4% of TEC)	8,894	10,141
Construction Phase		
Buildings	42,423	46,381
Standard Equipment	36,793	32,210
Inspection, Design and Project Liaison, Testing, Checkout and Acceptance	3,170	3,440
Construction Management (5.3% of TEC)	6,392	6,278
Project Management (5.3% of TEC)	6,330	5,750
Total, Construction Costs (79.0% of TEC)	95,108	94,059
Contingencies		
Design Phase (1.1% of TEC)	1,377	1,799
Construction Phase (12.5% of TEC)	15,041	16,202
Total, Contingencies (13.6% of TEC)	16,418	18,001
Total, Line Item Costs (TEC) [a]	120,420	122,201

5. Method of Performance

Design and inspection will be performed under KCP negotiated architect-engineer contract. Construction will be accomplished either by fixed-price contract awarded after competitive proposals or by cost plus incentive fee contracts. All contracts will be administered by Honeywell.

Best value contracting methods will be used for design and construction services.

[a] The Conceptual Design Report was completed in March 1997. Escalation is calculated to the midpoint of each activity. Escalation rates were taken from the FY 1998 DOE escalation multiplier tables. Overhead estimates were calculated at a factor of 14 percent for procurement and 85 percent for internal labor.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 2001	FY 2002	FY 2003	Outyears	Total
Project Cost						
Facility Cost						
Design	3,992	2,959	1,675	756	889	10,271
Construction	8,546	21,058	24,819	25,544	30,182	110,149
Total, Line item TEC	12,538	24,017	26,494	26,300	31,071	120,420
Total, Facility Costs (Federal and Non-Federal)	12,538	24,017	26,494	26,300	31,071	120,420
Other Project Costs						
Conceptual design cost	1,000	0	0	0	0	1,000
Other project-related costs	10,408	3,869	2,430	329	493	17,520
Total, Other Project Costs	11,408	3,869	2,430	329	493	18,529
Total, Project Cost (TPC)	23,946	27,886	28,924	26,629	31,564	138,949

7. Related Annual Funding Requirements

(FY 2005 dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs [a]	3,700	3,700
Annual facility maintenance/repair costs	5,400	5,400
Programmatic operating expenses directly related to the facility	9,374	9,374
Total related annual funding (operating from FY 2005 through FY 2034)	18,474	18,474

[a] Estimated life of project–30 years.

99-D-128, Stockpile Management Restructuring Initiative Pantex Plant, Amarillo, Texas

(Changes from FY 2002 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 1999 Budget Request *(Preliminary Estimate)*	2Q 1999	2Q 2003	4Q 2000	4Q 2006	42,380	49,600
FY 2000 Budget Request	3Q 1999	4Q 2001	2Q 2000	4Q 2004	13,218	17,863
FY 2001 Budget Request	3Q 1999	4Q 2001	2Q 2000	4Q 2004	13,218	17,863
FY 2002 Budget Request	3Q 1999	4Q 2001	2Q 2000	4Q 2004	13,218	17,863
FY 2003 Budget Request *(Current Baseline Estimate)*	3Q 1999	4Q 2001	2Q 2000	4Q 2004	13,218	17,863

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
1999	1,108	920	74
2000	3,416 [a]	469	471
2001	4,987 [b]	4,440	1,387
2002	3,300	6,281	7,948
2003	407	1,108	2,857
2004	0	0	481

[a] Original appropriation was $3,429,000. This was reduced by $13,000 for the FY 2000 rescission enacted by P.L. 106-113.

[b] Original appropriation was $4,998,000. This was reduced by $11,000 for a rescission enacted by Section 1403 of the FY 2001 Consolidated Appropriations Act. There is no change to the TEC due to a corresponding increase to the FY 2004 appropriation amount.

3. Project Description, Justification and Scope

The Pantex Plant Stockpile Management Restructuring Initiative (SMRI) Project will provide for the design and construction for various relocation and upgrades and for the shutdown of obsolete structures. The project will help to reduce the plant footprint by consolidating functions into fewer and more modern facilities.

The scope for this project has been established based upon the Department of Energy's directed workload for the Pantex Plant. This directed workload is the weapons work Pantex is directed to do through Program Control Documents (PCDs), Retirement/Disposal Program Control Documents, the Quality Assurance Production Plan (QAPP), and other special written requests provided by DOE.

The technical baseline for this project has been broken up into three parts that are detailed below:

Relocation of High Explosive Formulation to 11-050

This portion of the SMRI project will remove existing High Explosive (HE) machining equipment from Building 11-050 following startup of HE machining operations in Building 12-121. Building 11-050 will be modified to receive the HE formulation related operations currently performed in Building 12-019 East and Building 12-017, and selected operations and equipment from Building 11-017. Following modifications to Building 11-050 the required equipment from these buildings will be relocated and the equipment put into operation in Building 11-050. Finally, Building 12-019 East will be placed into a long-term caretaker status. Equipment and support items will be procured and/or relocated as required and any items that cannot be successfully relocated will be replaced. This portion of the SMRI project was designed to meet the applicable DOE and regulatory requirements in place at the start of Title I design.

Relocate Mass Properties

This portion of the SMRI project will relocate the Mass Properties function to Buildings 12-084 and 12-104 and will consist of modifications to the buildings to accept the mass properties operations from Building 12-060. Four existing pieces of equipment will be replaced by procuring two new, more technically advanced pieces of equipment. Equipment and support items will be procured and/or relocated as required and any items that cannot be successfully relocated will be replaced. This portion of the SMRI project was designed to meet the applicable DOE and regulatory requirements in place at the start of Title I design.

Relocate 35 Account Materials

This portion of the SMRI project will relocate the 35 Account warehousing activities in Buildings 12-005A, 12-005B, 12-010, 12-009, and Ramp 12-R-010 into Building 12-118. The 35 Account activities include materials in contact with a weapon or weapon component during a weapon assembly, disassembly or test units. Typical materials include such items as epoxy resin, paint, dry air, rubber gloves and acetone. Equipment and support items will be procured and/or relocated as required and any items that cannot be successfully relocated will be replaced. This portion of the SMRI project was designed to meet the applicable DOE and regulatory

requirements in place at the start of Title I design. Buildings 12-005A, 12-005B, 12-010, and 12-R-010 will be placed into Long-term Caretaker status.

Project Milestones:

FY 1999: A-E Work Initiated	3Q
FY 2000: Construction Start	2Q
FY 2004: Physical Construction Complete	4Q

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
Design Phase		
Preliminary and Final Design costs (Design Drawings and Specifications)	1,210	1,210
Project Management costs (4.4% of TEC)	579	579
Total, Design Costs (13.5% of TEC)	1,789	1,789
Construction Phase		
Improvements to Land	61	61
Buildings	4,298	4,298
Other Structures	510	510
Utilities	20	20
Standard Equipment	2,873	2,873
Removal Cost Less Salvage	35	35
Inspection, Design and Project Liaison, Testing, Checkout and Acceptance	146	146
Construction Management (5.8% of TEC)	773	773
Project Management (3.4% of TEC)	455	455
Total, Construction Costs (69.4% of TEC)	9,171	9,171
Contingencies		
Design Phase (2.7% of TEC)	358	358
Construction Phase (14.3% of TEC)	1,900	1,900
Total, Contingencies (17.1% of TEC)	2,258	2,258
Total, Line Item Costs (TEC) [a]	13,218	13,218

[a]Escalation rates taken from the FY 1999 DOE escalation multiplier tables. The estimate was based on the Independent Cost Reviews (ICR 6/97 and 8/97) of the Conceptual Design Report (Revision 1) and included security guard costs under project management. The current estimate is based on new burden rates and correctly includes security guard costs under construction management.

5. Method of Performance

The design services (Title I, II, and III) were accomplished by an outside A-E firm and will be administered by the Operating Contractor (BWXT Pantex). Mason and Hanger Corporation will perform portions of the design for selected projects.

The construction services of this project will be performed by an outside construction contractor operating under a contract to be awarded on the basis of competitive bids. This contract will be administered by the Operating Contractor (BWXT Pantex).

Construction Management Services will be performed by the DOE Operating Contractor.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 2001	FY 2002	FY 2003	Outyears	Total
Project Cost						
Facility Cost						
Design	545	761	775	66	0	2,147
Construction	0	626	7,173	2,791	481	11,071
Total, Line item TEC	545	1,387	7,948	2,857	481	13,218
Total, Facility Costs (Federal and Non-Federal)	545	1,387	7,948	2,857	481	13,218
Other Project Costs						
Conceptual design cost	768	0	0	0	0	768
NEPA documentation costs	353	63	45	92	0	553
Other ES&H costs	100	38	23	77	0	238
Other project-related costs	927	886	358	500	415	3,086
Total, Other Project Costs	2,148	987	426	669	415	4,645
Total, Project Cost (TPC)	2,693	2,374	8,374	3,526	896	17,863

7. Related Annual Funding Requirements

(FY 2004 dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs [a]	355	355
Annual facility maintenance/repair costs	218	218
Programmatic operating expenses directly related to the facility	1,418	1,418

[a]Estimated life of project–30 years.

(FY 2004 dollars in thousands)

	Current Estimate	Previous Estimate
Capital equipment not related to construction but related to the programmatic effort in the facility	350	350
Utility costs	106	106
Total related annual funding (operating from FY 2004 through FY 2033)	2,447	2,447

98-D-123, Stockpile Management Restructuring Initiative Tritium Facility Modernization and Consolidation, Savannah River Site, Aiken, South Carolina

(Changes from FY 2002 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 1998 Budget Request *(Preliminary Estimate)*	2Q 1998	1Q 2000	1Q 1999	2Q 2002	68,790	85,540
FY 1999 Budget Request [a]	2Q 1998	2Q 2000	3Q 1998	3Q 2004	98,400	122,000
FY 2000 Budget Request [b]	2Q 1998	3Q 2000	3Q 1998	4Q 2004	98,400	122,000
FY 2001 Budget Request	2Q 1998	3Q 2000	3Q 1998	4Q 2004	98,400	122,000
FY 2002 Budget Request	2Q 1998	3Q 2000	3Q 1998	4Q 2004	113,613	141,761
FY 2003 Budget Request *(Current Baseline Estimate)*	2Q 1998	3Q 2000	3Q 1998	4Q 2004	113,613	141,761

[a] Reflected changes from including scope and associated funding to process tritium containing gases from the Commercial Light Water Reactor (CLWR), which was originally included in the Tritium Extraction Facility (Line Item 98-D-125).

[b] Reflected changes in schedule due to delayed start of design on most processes in Building 233-H.

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
1998	11,000	5,119	5,092
1999	27,500	27,500	19,704
2000	20,233 [a]	20,673	24,481
2001	30,699 [b]	36,208	24,789
2002	13,700	13,700	25,761
2003	10,481	10,481	11,032
2004	0	0	2,754

3. Project Description, Justification and Scope

In 1994, production operations were curtailed at three of the seven weapons production facilities (Mound in Ohio, Pinellas in Florida, and Rocky Flats in Colorado). Their production responsibilities were transferred to two of the remaining four production plants (Kansas City Plant (KCP) and Savannah River Site (SRS)) and to two of the national laboratories (Los Alamos National Laboratory (LANL) and Sandia National Laboratory (SNL), New Mexico). After the closure of these production operations, studies were continued to determine the optimum size and configuration of the nuclear weapons complex. It was recognized that the remaining four production facilities provided excess capacity than that required to support the projected stockpile, and that further closure and consolidation or significant downsizing of operations was necessary. Studies were begun in late 1994 to address whether the reduced stockpile levels necessitated further plant closures and consolidation/collocation at the weapons laboratories or supported the downsizing of operations at the existing production plants. These studies were used to assess all reasonable alternatives which required little or no construction of new facilities. The result of these in-depth programmatic assessments culminated in the development and approval of the Justification of Mission Need document and the Critical Decision I authorization for the Stockpile Management Restructuring Initiative (SMRI) on April 2, 1996.

The SMRI will support the implementation of Departmental decisions related to production facility downsizing or relocation of missions consistent with the Stockpile Stewardship and Management (SSM) Programmatic Environmental Impact Statement (PEIS) and the Tritium Supply and Recycling PEIS Records of Decision (ROD). The preferred alternative for restructuring the stockpile management complex was announced by the Secretary of Energy on February 28, 1996. The Secretary of Energy approved a ROD for the Tritium Supply and Recycling PEIS on December 5, 1995.

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[a] Original appropriation was $21,800,000. This was reduced by $67,000 for the FY 2000 rescission enacted by P.L. 106-113, and by $1,500,000 for an FY 2000 general reduction.

[b] Original appropriation was $30,767,000. This was reduced by $68,000 for a rescission enacted by Section 1403 of the FY 2001 Consolidated Appropriations Act. There is no change to the TEC due to a corresponding increase to the FY 2003 appropriation amount.

The goal of the Stockpile Stewardship Program, as implemented by the SMRI, is to attain the following objectives: (1) fully support the evaluation, enhanced surveillance, maintenance, and repair of the enduring stockpile; (2) provide flexibility to respond to new requirements or to achieve further reductions in the stockpile size; (3) maintain and improve (where necessary) the manufacturing technology necessary to fully support the stockpile; and (4) achieve significant reductions in operating costs for the complex.

The SMRI involves (1) the downsizing of weapons assembly/disassembly and high explosives missions at the Pantex Plant; (2) downsizing nonnuclear component manufacturing at the Kansas City Plant; (3) downsizing weapons secondary and case fabrication at the Y-12 National Security Complex; and (4) consolidation of existing tritium operations at the SRS.

No new facilities are being proposed for implementing the SMRI. Existing facilities will be utilized to the maximum extent possible. All existing facilities that have been identified for utilization under each site specific recommended alternative will be repaired, upgraded, and/or modified to meet current environment, safety, and health requirements. In addition, they will be configured to maximize effectiveness and efficiency in support of the site-specific downsizing and/or consolidation management capability requirements for the smaller stockpile.

The Tritium Facility Modernization and Consolidation work package will relocate several process systems and equipment and/or process functions from Buildings 232-H into existing buildings within the Tritium Facility. High and Moderate hazard processes will be relocated into Building 233-H.

Low Hazard processes will be relocated to the North end of Building 234-H. The Building 233-H and 234-H service support systems will be upgraded to accommodate the additional loads.

The consolidation of Tritium processing activities into Buildings 233-H, 249-H, and the newer portion of 234-H will improve the safety of operations, reduce environmental releases, improve productivity, and significantly reduce future operating costs.

The consolidation of equipment into fewer operating buildings will allow for the reduction of maintenance, operations, and support staffing. The closure of 232-H will further reduce the Defense Programs operating budget for the SRS. It is estimated that financial pay back for this project can be realized in approximately four years.

The scope of work also includes work that was transferred from the Tritium Extraction Facility, Line Item 98-D-125. These are increases in capacities and flows in the primary separation system, process stripper/tritium recovery system, glovebox stripper/tritium recovery system. Also added is an isotope separation process. These additions will allow the Consolidation project to handle additional process and waste gases from any new tritium source.

Project Milestones

FY 1998: Physical Construction Starts	3Q
FY 2000: A-E Work Completed	3Q
FY 2004: Physical Construction Complete	4Q

4. Details of Cost Estimate

(dollars in thousands)

	Current Estimate	Previous Estimate
Design Phase		
Preliminary and Final Design costs (Design Drawings and Specifications)	25,349	25,349
Design Management Costs (1.1% of TEC)	1,539	1,539
Project Management Costs (0.84% of TEC)	1,164	1,164
Total, Design Costs (20.3% of TEC)	28,052	28,052
Construction Phase		
Improvements to Land	100	100
Buildings [a]	5,300	6,752
Special Equipment	49,900	46,000
Standard Equipment	3,263	3,906
Removal Cost Less Salvage	1,934	1,934
Inspection, Design and Project Liaison, Testing, Checkout and Acceptance	7,769	9,462
Construction Management (2.0% of TEC)	2,328	2,328
Project Management (2.5% of TEC)	2,840	2,793
Total, Construction Costs (64.6% of TEC)	73,434	73,275
Contingencies		
Design Phase	0	0
Construction Phase (10.7% of TEC)	12,127	12,286
Total, Contingencies (10.7% of TEC)	12,127	12,286
Total, Line Item Costs (TEC) [b]	113,613	113,613

5. Method of Performance

The Management and Operating (M&O) contractor, Westinghouse Savannah River Company, will have overall project performance responsibility. The M&O contractor will accomplish design, construction and procurement, utilizing fixed-price subcontracts awarded on the basis of competitive bidding to the extent feasible.

[a] This amount includes improvements to land, special equipment, other structures and utilities with more exact breakout to be determined.

[b] Escalation rates taken from the FY 1998 DOE escalation multiplier tables.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 2001	FY 2002	FY 2003	Outyears	Total
Project Cost						
Facility Cost						
Design	28,052	0	0	0	0	28,052
Construction	21,225	24,789	25,761	11,032	2,754	85,561
Total, Line item TEC	49,277	24,789	25,761	11,032	2,754	113,613
Total, Facility Costs (Federal and Non-Federal)	49,277	24,789	25,761	11,032	2,754	113,613
Other Project Costs						
R&D necessary to complete construction	800	0	0	0	0	800
Conceptual design cost	300	0	0	0	0	300
Decontamination and Decommissioning (D&D)	200	0	0	0	0	200
NEPA documentation costs	30	0	0	0	0	30
Other ES&H costs	90	0	0	0	0	90
Other project-related costs	7,700	4,352	3,800	10,876	0	26,728
Total, Other Project Costs	9,120	4,352	3,800	10,876	0	28,148
Total, Project Cost (TPC)	58,397	29,141	29,561	21,908	2,754	141,761

7. Related Annual Funding Requirements

(FY 2004 dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs [a]	330	330
Annual facility maintenance/repair costs	440	440
Programmatic operating expenses directly related to the facility	1,100	1,100
Capital equipment not related to construction but related to the programmatic effort in the facility	30	30
GPP or other construction related to the programmatic effort in the facility	10	10
Utility costs	170	170
Total related annual funding (operating from FY 2004 through FY 2033)	2,080	2,080

[a]Estimated life of project–30 years.

Nuclear Weapons Incident Response

Mission Supporting Goals and Objectives

Nuclear Weapons Incident Response provides funding for emergency management and response activities that ensure a central point of contact and an integrated response to emergencies requiring Departmental assistance. Specific attention is focused on providing an appropriate technical response to any nuclear or radiological emergency within the Department, the United States and abroad in accordance with Presidential Decision Directive 39, the Atomic Energy Act as amended, and Executive Order 12656. This is accomplished through the seven unique Departmental assets for both crisis and consequence management events.

In meeting these mission requirements, DOE possesses the ability to monitor and predict environmental impacts of radiation at major DOE and other federal agency facilities in the event of a radiological accident or incident. DOE's response is further rounded out by the ability to provide medical and health physics support to radiological accidents and for incident resolution. This requires a close working relationship with federal agencies and the military to support the operations, exercise and training of associates who provide technical assistance in response to the incident/situation.

In response to the September 11th attacks, the deployment of DOE's Emergency Response assets has accelerated dramatically. These resources were used not only to respond directly to the events of September 11th but they continue to support search missions throughout the country. The scope of the program's search and response activities has also expanded in response to changing national security requirements and additional requirements are likely to continue.

Funding Schedule

(dollars in thousands)

	FY 2001	FY 2002	FY 2003	$ Change	% Change
Emergency Response.....	74,210	77,173[a]	77,925	752	0.9%
Emergency Management	11,564	12,750	13,075	325	2.5%
Total, Nuclear Weapons Incident Response	85,774	89,923	91,000	1,077	1.2%

Performance Measures

Performance will be demonstrated by:

- Ensuring that the appropriate infrastructure is in place to provide command, control, communications,

[a] Includes an additional $1,000,000 appropriated in the FY 2002 Supplemental Appropriations Act for the deployment of BASIS technology.

and trained response personnel necessary to ensure the successful resolution of an emergency event. Readiness is measured through the exercise program and improvements are measured through policy, training and assets technical integration of capabilities.

- Providing technical advice and assistance to Departmental elements for cost effective implementation of the emergency operations programs through the development, maintenance, and promulgation of policy, planning and preparedness guidance, and readiness assurance activities.

Significant Program Accomplishments

- Provided immediate response assistance to first responders to the attacks of September 11th which included:
  - Immediate deployment of the Radiological Assistance Program (RAP), Nuclear Emergency Support Teams (NEST) and the Consequence Management Teams to the crisis areas.
  - Modified equipment to better support search and rescue requirements at the World Trade Center, e.g., providing ground penetrating radar.
  - Provided Aerial Measurement System aircraft as requested by the State of New York.
  - Maintained specially equipped aircraft at Andrews and Nellis Air Force Base on alert to provide real time airborne monitoring support
  - Provided on-scene and remote advanced technical and health physics/medical assistance at the request of State and Federal officials
  - Provided computer-based predictive modeling systems at Lawrence Livermore National Laboratory to emergency responders.
- Initiated the PAGER-S program to provide portable pager-size radiation detection devices to law enforcement officials throughout the country, particularly those serving in large urban areas.
- Deployed teams equipped with BASIS aerial monitoring technology.
- Provided response team support to federal law enforcement efforts at national events of significant size.
- Established an immediate response team to address requirements in the National Capital area.
- Established critical improvements in equipment and response capability for Consequence Management teams to support population monitoring, automated assessments, training, and analytical processes.

Detailed Program Justification

	FY 2001	FY 2002	FY 2003
Emergency Response	74,210	77,173[a]	77,925

Emergency Response maintains provides specialized technical expertise in response to nuclear/radiological incidents, including those involving nuclear weapons. These capabilities include immediate situation resolution as well as longer-term consequence management, and address issues relating to human health.

The Emergency Response assets are staffed primarily by engineers, scientists, other technical personnel from the national laboratories and production facilities, and other DOE management and operating contractors supporting the nuclear weapons complex. The funding for this program is allocated to 15 nationwide Department locations with the Nevada and Albuquerque Operations Offices, the Los Alamos National Laboratory (LANL), the Lawrence Livermore Laboratory (LLNL), and the Sandia National Laboratories (SNL), receiving the majority of the funding.

Historically, these assets have been maintained as distinct activities, the Accident Response Group (ARG), the Nuclear Emergency Support Team (NEST), and Other Assets. As a result of the September 11th attacks, Emergency Response program activity has increased significantly. Search and response teams have been on full alert since the events of September 11th. The accelerated pace and additional requirements are likely to continue in response to changing national security and law enforcement needs. To remain responsive, the program is managing the assets as integrated unit, using expertise and equipment across funding categories to support mission requirements. For this reason the funding allocations for the budget sub-categories listed for ARG, NEST, and Other Assets,
are estimates and likely to change. The total amount for Emergency Response activities will remain the same, changes may occur in the distribution among the sub-categories. The program will keep Congress informed of significant departures from these estimates.

✍ **Accident Response Group (ARG)**	12,055	12,082	12,360[b]

[a] Includes an additional $1,000,000 appropriated in the FY 2002 Supplemental Appropriations Act for the deployment of BASIS technology.

[b] The allocation is an estimate and may change in response to national security requirements.

FY 2001	FY 2002	FY 2003

The Accident Response Group (ARG) is a combination of federal and civilian employees and equipment from the Department of Energy, and its national laboratories standing ready to respond to any accident where nuclear weapons may be involved. ARG was established under a joint agreement between the Departments of Defense and Energy, and the Federal Emergency Management Agency delineating areas of responsibility and policy for response to peacetime nuclear weapon accidents and nuclear weapon significant incidents, within the U.S. and its territories. For DOD and DOE, the responsibilities and scope of this agreement extends worldwide subject to the provisions of applicable international agreements.

✍ **Nuclear Emergency Support Team (NEST)**	42,972	43,188	44,181[b]

Under the provisions of the Atomic Energy Act of 1954 and Presidential Decision Directives-39 and 62, government agencies are directed to plan for, train, and resource a more robust capability to combat terrorism, especially in the area of weapons of mass destruction. The Nuclear Emergency Support Team (NEST) program was initiated in 1974 to provide technical assistance for DOE and the Lead Federal Agency (DOE, FBI, EPA, NRC, EPA, DOD) in dealing with such activities including terrorist threats involving the use of special nuclear materials. The NEST program has been structured to address threats posed by domestic and foreign terrorists likely to have both the will, and intent, to employ weapons of mass destruction with little regard for human lives or property. NEST response assumes that such an act might occur with little, if any, advanced notice.

Under such circumstances NEST would respond to assist in the identification and characterization of any radioactive contamination or to search for the possibility of additional devices that may have been emplaced and provide assistance for final disposition. In recognition of the increasing potential for such an incident with little or no advance warning, NEST has been restructured to rapidly respond by deploying small, highly capable technical teams to the incident location which require only minimal logistical support to be fully effective.

✍ **Other Assets**	19,183	21,903	21,384[b]

Emergency Response also maintains the following Other Assets to provide assistance to local, state and other federal agencies, and conduct drills in response to emergencies involving nuclear/radiological materials, and the detection of biological agents. Additionally, these assets provide support to the NEST and ARG programs to ensure the safe resolution of the incident, and protect public safety and the environment.

The FY 2002 Supplemental Appropriations bill added $1.0 million for the deployment of BASIS technology. In response to the events of September 11th the Emergency Response program

[b] The allocation is an estimate and may change in response to national security requirements.

expanded to include this activity as part of its search and response efforts.

- The *Aerial Measurement System* detects, measures, and tracks radioactive material at an emergency scene to determine contamination levels using fixed and rotary aircraft.
- The *Atmospheric Release Advisory Capability* develops predictive plots generated by sophisticated computer models.
- The *Consequence Management Teams* provide the technical capabilities to assist and coordinate federal radiological monitoring and assessment activities and effects with FEMA, NRC, EPA, DoD, state and local agencies, and others.

- The *Radiological Assistance Program (RAP)* is usually the first responder to DOE, state, local, and other federal agencies to assess a radiological emergency situation and decide what future steps should be taken to minimize the hazards.
- The *Radiological Emergency Assistance Center/Training Site (REAC/TS)* provides treatment and medical consultation for injuries resulting from radiation exposure and contamination, and serves as a training facility. Additionally, REAC/TS provides training to the medical community and maintains a database of medical responders within the United States and abroad.
- The *Biological Aerosol Sentry and Information Team (BASIS team)* provides early detection and identification of biological aerosols to support early medical intervention and law enforcement.

Emergency Management.....	11,564	12,750	13,075

Emergency Management provides for the comprehensive, integrated emergency planning, preparedness, and response programs throughout the Department's field operations. The program develops and implements specific programs, plans and systems to minimize the impact of emergencies on national security, worker and public safety, and the environment. The program provides overall coordination and consultation regarding the Department's Emergency Operations System. This includes emergency assistance and mobilization under the Federal Response Plan to
radiological and non-radiological hazardous materials events, or in the event of malevolent threats or nuclear materials smuggling. The program promulgates Departmental requirements and
implementing guidance, and conducts readiness assurance activities to ensure an effective emergency operations system is in place at Departmental facilities.

The program coordinates inter-agency and intra-Departmental emergency planning, preparedness and exercises, and coordinates with state and local governments, international agencies, foreign governments, and industry on emergency planning, preparedness and exercise issues

The program operates and maintains the DOE headquarters 24-hour per day emergency operations facilities and 24-hour communications center for the collection and processing of information relative to emergency notifications. In addition, the program is responsible for reporting on and support of
headquarters emergency management activities and implementing a security program for the protection of

	FY 2001	FY 2002	FY 2003
office information, equipment, and facilities.			
Total, Nuclear Weapons Incident Response	85,774	89,923	91,000

Explanation of Funding Changes from FY 2002 to FY 2003

	FY 2003 v. FY 2002 ($000)
Emergency Response	
The increase maintains the current level of radiological emergency response capability offset by a $1.0 million decrease reflecting the addition of a one-time FY 2002 Supplemental Appropriation for deployment of BASIS technology.	1,077
**Total Funding Change, Nuclear Weapons Incident Response ..... **	1,077