

# Directed Stockpile Work

## Program Mission

**Directed Stockpile Work (DSW)** supports Defense Programs' mission to maintain the safety, security, reliability, and performance of the Nation's nuclear stockpile without underground nuclear testing, and is designed to ensure that stockpiled weapons meet military requirements. DSW encompasses the broad range of activities that directly support weapons in the enduring nuclear stockpile, as directed by the Presidentially approved Nuclear Weapons Stockpile Plan, including current maintenance; day-to-day care; and research, development, engineering, and certification activities to support planned life extensions, as indicated in the National Nuclear Security Administration's (NNSA) Production and Planning Directive (P&PD-2001-0), and to maintain this capability as far into the future as necessary. It also includes procurement of materials (exclusive of nuclear materials); fabrication and assembly of nuclear weapons and weapon components; lifetime surety, maintenance and reliability assessments of the enduring stockpile; weapon dismantlement and disposal; training; maintenance of field manuals/documents; and support equipment.

## Program Goal

The goal of Directed Stockpile Work is to maintain and refurbish nuclear weapons in accordance with directed schedules to sustain confidence in their safety and reliability indefinitely under the nuclear testing moratorium and arms reduction treaties.

## Program Objectives

The objectives of DSW are to: 1) assess and certify the stockpile and ensure that required technologies are available to support the stockpile certification process; 2) provide limited life components for the stockpile; 3) perform quality evaluations, special testing, and surveillance of nuclear weapons; 4) support life extension activities and repair; 5) establish baselines for all weapon types; 6) provide required technologies, engineering development and technical oversight necessary to meet the integrated weapons schedule, consistent with DOE and joint DOE/DoD safety/surety policies; 7) conduct research and development to solve existing stockpile issues and anticipate future stockpile needs; 8) support the warhead dismantlement/disposal program; and 9) resolve significant finding investigations.

The NNSA works closely with the Department of Defense (DoD) through the joint Phase 6.X refurbishment process to refurbish the stockpile weapons to extend their lifetime. The W87 is currently undergoing full scale refurbishment while the B61-7/11, the W76, and the W80 are in limited scale design definition, development engineering and production engineering phases of the refurbishment projects. The scheduled completion date for the refurbished First Production Units (FPU) of the B61-7/11 is FY 2004. For the W76 and the W80, the targeted completion dates of the refurbished FPUs will be deferred from the previously endorsed dates of FY 2007 and FY 2006, respectively or the scope of the refurbishment will be decreased. In addition, beginning with this request, Stockpile R&D activities associated with the W88 pit have transferred to the newly restructured and renamed W88 Pit Manufacturing and Certification Campaign (previously the Pit Readiness Campaign).

**Directed Stockpile Work** includes the following budget elements: Stockpile Research and Development (R&D); Stockpile Maintenance; Stockpile Evaluation; Dismantlement/Disposal; Field Engineering, Training and Manuals; and Production Support.

**Nuclear Weapon Life Cycle Management:** Historically, the warhead life-cycle has moved through the acquisition phase: Phase 1 - Concept Development, Phase 2 - Program Feasibility Study, Phase 2A - Design Definition and Cost Study, Phase 3 - Development Engineering, Phase 4 - Production Engineering, Phase 5 - First Production, Phase 6 - Quantity Production and Stockpile, and Phase 7 - Retirement/Storage.

Since all enduring stockpile weapons are currently in Phase 6, an expanded process has been established to extend the life of weapons in the stockpile. The process is actually an expanded subset of the Quantity Production and Stockpile Phase (Phase 6) of the historical process, and accordingly has been called the Phase 6.X process. The Phase 6.X process provides a framework to conduct and manage life extension activities for existing weapons.

The 6.X phases are:

- Phase 6.0 - Quantity Production and Stockpile (Presence in the stockpile before and after the refurbishment project)
- Phase 6.1 - Concept Assessment
- Phase 6.2 - Feasibility Study and Option Down-select
- Phase 6.2A - Design Definition and Cost Study
- Phase 6.3 - Development Engineering
- Phase 6.4 - Production Engineering
- Phase 6.5 - First Production
- Phase 6.6 - Full-Scale Production

As the controlling process for extending the life of the stockpile, the 6.X Process can affect all areas of DSW, particularly Stockpile R&D and Stockpile Maintenance.

## **Performance Measures**

Maintain and refurbish nuclear weapons in accordance with directed schedules to sustain confidence in their safety and reliability indefinitely under the nuclear testing moratorium and arms reduction treaties. (NS-1)

## **Significant Accomplishments and Program Shifts**

Both now and in the future, Defense Programs must be able to address multiple issues, including a significant workload of weapon refurbishment; an aging workforce in the nuclear weapons complex; an aging stockpile that must be maintained; and the need for intensive internal and external review to ensure that the program will achieve its goals within fiscal limitations, while preserving the institutional viability of the laboratories, production plants, and the test site. The FY 2002 Request places a high priority on accomplishing the near-term workload to support the stockpile; however, supporting research and development must also continue to ensure capability to support ongoing and future missions.

These activities, conducted in concert with the DoD, support our top priority. Beginning in FY 2001, Directed Stockpile Work has increased as we prepare to undertake life extension activities for three weapon systems: the B61 bomb and the W80 and W76 warheads. NNSA is working with the Nuclear Weapons Council (NWC) to reach agreement on the pace and scope aspects of this work. For the B61-3/4/10, the NWC has approved commencement of Phase 6.3 for Alt 354 to change the fin cant on the bombs and a Phase 6.2/2A study on the B61-7/11 to focus on canned subassembly aging issues. The W80 is in Phase 6.3 to extend warhead life, which will consider adding ACORN II and improving outside surety, and the W76 is currently in Phase 6.3 to extend warhead life, which will consider performing primary and secondary refurbishment, adding a new arming, firing and fusing system, and adding ACORN II technology. The scope or pace of the W80 and

W76 refurbishment will be altered from the previously endorsed dates. In FY 2002, much of this work is focused on Stockpile R&D, supporting the laboratory efforts needed in the development engineering stages.

### Funding Profile

(dollars in thousands)

	FY2000 Comparable Appropriation	FY 2001 Original Appropriation	FY 2001 Adjustments <sup>a</sup>	FY 2001 Comparable Appropriation	FY 2002 Request
<b>Directed Stockpile Work</b>					
Stockpile Research and Development . . . . .	203,860	272,300	-26,830	245,470	305,460
Stockpile Maintenance . . . . .	242,395	279,994	41,715	321,709	362,493
Stockpile Evaluation . . . . .	118,588	174,710	-5,883	168,827	180,834
Dismantlement . . . . .	31,402	29,260	-1,889	27,371	35,414
Production Support . . . . .	131,754	149,939	-5,009	144,930	152,890
Field Engineering, Training & Manuals . . . . .	4,089	4,400	1,829	6,229	6,700
<b>Total, Directed Stockpile Work . . . . .</b>	<b>732,088</b>	<b>910,603</b>	<b>3,933</b>	<b>914,536</b>	<b>1,043,791</b>

**Public Law Authorization:**

Public Law 106-398, "Floyd D. Spence National Defense Authorization Act for FY 2001"

Public Law 106-377, "Energy and Water Development Appropriations Act for FY2001"

<sup>a</sup> See Table DSW-1 for detailed explanation of FY 2001 Adjustments.

**Table DSW-1**

**Directed Stockpile Work  
FY 2001 Adjustments & Comparabilities**

(Dollars in Thousands)

	<b>FY 2001 Original Appropriation</b>	General Reduction	Safeguards & Security Amendment	Accounting & Technical Adjustments	FY 2001 Omnibus Rescission	Internal Reprogram- ming  Y-12 S&S Requirements	FY 2002 Structure Comparabilities  Pit Manufacturing Certification	<b>FY 2001 Adjust- ments (Subtotal)</b>	<b>FY 2001 Comparable Appropriation</b>
Stockpile Research & Development . . .	<b>272,300</b>	-669	-15,325	16,964	-600		-27,200	<b>-26,830</b>	<b>245,470</b>
Stockpile Maintenance . . .	<b>279,994</b>	-725	-1,604	44,751	-707			<b>41,715</b>	<b>321,709</b>
Stockpile Evaluation . . . . .	<b>174,710</b>	-451	-1,655	1,606	-383	-5,000		<b>-5,883</b>	<b>168,827</b>
Dismantlement/ Disposal . . . . .	<b>29,260</b>		-294	-1,535	-60			<b>-1,889</b>	<b>27,371</b>
Field Engineering/ Training & Manuals . . . . .	<b>4,400</b>		1	1,842	-14			<b>1,829</b>	<b>6,229</b>
Production Support . . . . .	<b>149,939</b>		-86	-4,603	-320			<b>-5,009</b>	<b>144,930</b>
<b>Total, Directed Stockpile Work .</b>	<b>910,603</b>	-1,845	-18,963	59,025	-2,084	-5,000	-27,200	<b>3,933</b>	<b>914,536</b>

## Funding by Site

(dollars in thousands)

Directed Stockpile Work	FY 2000	FY 2001	FY 2002	\$ Change	% Change
Albuquerque Operations Office					
Kansas City . . . . .	117,449	166,996	175,358	8,362	5.0%
Los Alamos National Laboratory . . . . .	120,596	129,993	151,391	21,398	16.5%
Pantex . . . . .	77,299	124,528	139,161	14,633	11.8%
Sandia National Laboratories . . . . .	196,591	251,110	296,542	45,432	18.1%
Total, Albuquerque Operations Office . . . . .	511,935	672,627	762,452	89,825	13.4%
Nevada Operations Office . . . . .	29,978	30,007	43,725	13,718	45.7%
Oak Ridge Operations Office					
Y-12 Plant . . . . .	103,866	103,844	111,886	8,042	7.7%
ORNL . . . . .	0	1,658	1,752	94	5.7%
Total, Oak Ridge Operations Office . . . . .	103,866	105,502	113,638	8,136	7.7%
Oakland Operations Office					
Lawrence Livermore National Laboratory . . . . .	52,190	49,772	71,946	22,174	44.6%
Savannah Operations Office					
Savannah River Site . . . . .	32,119	24,394	35,525	11,131	45.6%
Headquarters . . . . .	2,000	32,234	16,505	-15,729	-48.8%
Total, Directed Stockpile Work . . . . .	732,088	914,536	1,043,791	129,255	14.1%

# Stockpile Research & Development

## Mission Supporting Goals and Objectives

Stockpile Research & Development includes activities that are performed and conducted by the national laboratories in the following categories: *R&D - Assessment and Certification* maintains system certification, assesses the safety and reliability of the nuclear weapon stockpile as a basis for the Annual Certification to the President, *R&D - Maintenance* supports directive schedules, *R&D - Surveillance* responds to emerging problems or issues in a timely manner, including Significant Finding Investigations, *R&D - Baselineing* develops modern physics and engineering baselines, *R&D - Refurbishment* develops modern physics and engineering to support refurbishments approved by the NWC, and *Supporting R&D* maintains flexibility to respond to new requirements, maintains the development capability to refurbish and design new weapons, as required.

### Funding Schedule

(dollars in thousands)

	FY 2000	FY 2001	FY 2002	\$ Change	% Change
R&D - Assessment & Certification . . . . .	67,402	76,618	104,955	28,337	37.0%
R&D - Maintenance . . . . .	27,766	39,162	49,958	10,796	27.6%
R&D - Surveillance . . . . .	15,693	26,834	14,645	-12,189	-45.4%
R&D - Baselineing . . . . .	9,640	15,989	11,896	-4,093	-25.6%
R&D - Refurbishment . . . . .	36,443	54,013	91,439	37,426	69.3%
Supporting Research & Development . . . . .	46,916	32,854	32,567	-287	-0.9%
<b>Total, Stockpile R&amp;D . . . . .</b>	<b>203,860</b>	<b>245,470</b>	<b>305,460</b>	<b>59,990</b>	<b>24.4%</b>

## Performance Measures

Performance will be demonstrated by:

- # Annual Certification: Completing the Annual Certification and Annual Surety Reports to the President and subsequently to the Congress for the stockpile weapons.
- # Code Management System: Demonstrating Initial Operating Capability (IOC) of a Code Management System at Air Force Material Command (AMAC) and Pantex, to enhance positive Command and Control of nuclear weapons, and IOC for Theater Secure Recode system for European Command and the United States Air Forces in Europe (USAFE).
- # B61: Completing the B61-7/11 phase 6.2/6.2A, Feasibility Study and Option Down-select and Design Definition and Cost Study, initiated in FY 2001; initiating B61-7/11 Phase 6.3, Development Engineering for the bomb's secondary component, the canned subassembly; and initiating and completing the B61-7/11 baselining of the physics and engineering performance in FY 2002.
- # W76: Initiating the development of a new (type 2) joint test assembly (JTA) for use in surveillance tests; continuing Phase 6.3 Development Engineering activity but at a reduced pace or scope from the previously endorsed FPU date of FY 2007, pending the Administration's strategic review.
- # W80: Initiating the development of an enhanced fidelity JTA; conducting hydrotest; and commencing Phase 6.3 activity but at a reduced pace or scope from the previously endorsed FPU date of FY 2006, pending the Administration's strategic review.
- # B83: Initiating and completing the baselining of the physics and engineering performance in FY 2002; and performing development activities on the gas transfer system and common radar.
- # W87: Continuing the development of the high fidelity JTA; completing Final Weapon Development Report Supplement and Final Major Assembly Release and FPU for the gas transfer system.
- # W88: Conducting integrated physics experiments and gas cavity hydrotest.

## Detailed Program Justification

(dollars in thousands)

FY 2000	FY 2001	FY 2002
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<b>R&amp;D - Assessment &amp; Certification</b> .....	67,402	76,618	104,955
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Includes engineering and physics analysis required to certify that weapons conform to the requirements of their Military Characteristics (MCs) and Stockpile-to-Target Sequence (STS), a document containing life-cycle environments for the weapon. Activities in this category include: completion of the annual certification and annual surety efforts including conduct of subcritical experiments associated with the certification of specific weapon systems, weapon systems tests such as hydrotests and hi-fidelity joint test assemblies (JTAs), and safety/surety assessments. In addition to the annual certification and annual surety activities, FY 2002 initiates the assessment and certification for the W87 Safety Enhanced Reentry Vehicle replacement and limited archiving efforts for the W80 in support of the life extension program.

<b>R&amp;D - Maintenance</b> .....	27,766	39,162	49,958
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Provides design interface with the DOE weapons production plants. Activities in this category include: production liaison interactions between the weapons laboratories and the production plants, military liaison with the Department of Defense, and systematic review and revalidation of weapon assembly and disassembly operations. In addition to continuing a series of weapon alterations (Alts), the increase in FY 2002 supports the development and validation of solid models for the B61 Canned Sub-Assembly (CSA), development of an enhanced W87 shipping/storage container, development of a small neutron generator in FY 2006 to support the W80 limited life component exchange, the Initial Operating Capability of a Code Management System for Air Force Material Command (AFMC) and Pantex to support Strategic Command, Air Combat Command, Navy, and the initiation of the F-16 Aircraft Monitor and Control (AMAC) certification.

<b>R&amp;D - Surveillance</b> .....	15,693	26,834	14,645
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Supports assessments of the nuclear package and nonnuclear components of each weapon system to uncover design and manufacturing defects in all phases of production, provides early detection of safety and reliability problems caused by aging and Stockpile-to-Target Sequence (STS) environments, and demonstrates compatibility between DoD and DOE interfaces. Activities in this category include surveillance oversight for enduring stockpile weapon systems; pits; CSAs; high explosives; polymers; detonators; reservoirs; valves; safety surveillance monitoring of pits and CSAs being stored while awaiting dismantlement; and evaluation of data for closure of open Significant Finding Investigations. The FY 2002 decrease reflects a normalized budget level compared with a one-time increase in FY 2001 to fabricate JTA modules for evaluation of weapon system and JTA designs for multiple weapons systems.

(dollars in thousands)

FY 2000	FY 2001	FY 2002
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**R&D - Baselineing** ..... 9,640 15,989 11,896

Continues development of a modern certification basis for each weapon system and establishes a peer reviewed understanding and model of weapon system performance and safety, including critical design margins and uncertainties. Activities in this category include: 3-D models, nuclear performance models, engineering mechanical/thermal response models, and identifying/analyzing/ archiving relevant technical data. No new models will be developed; existing models will be used to better characterize systems to develop a “snapshot in time” of our current understanding of systems using existing technology. This will be used to identify needs for future experimentation and new model development. In FY 2001, the W80 baselining will be completed. In FY 2002, the B61-7/11 and B83 baselining will be initiated and completed.

**R&D - Refurbishment** ..... 36,443 54,013 91,439

Provides long-term support of the stockpile with corrective maintenance and weapon component replacement and refurbishment as defined by refurbishment planning and documented in Annex E, Production and Planning Directive 2001 and the FY 2001 Stockpile Life Extension and Refurbishment Planning Component Description document published by DP. Activities in this category include performing engineering design studies to fully understand the requirements needed to extend the life of a system; developing a suite of refurbishment options, qualification and certification activities to ensure refurbished systems meet all required military characteristics; and supporting the directive schedule, including modifications (Mods) and Alts.

The FY 2002 efforts will support laboratory activities to complete the B61 Phase 6.2/6.2A study; initiate the B61-7/11 Phase 6.3 Development and Engineering supporting an First Production Unit (FPU) of a refurbished weapon in FY 2004; support limited W76 Block 1 initial development work, and provide limited Phase 6.3 Development Engineering for the W80.

**Supporting Research & Development** ..... 46,916 32,854 32,567

Conducts research and development (R&D) applicable to specific weapon systems as well as general R&D not yet directly tied to a particular weapon system. Weapon-specific R&D supports technologies needed to support a specific weapon refurbishment, maintenance, surveillance, and/or certification program. Activities include joint test assembly (JTA) redevelopment; ACORN, a gas transfer system development, and neutron generator development. General supporting R&D pursues technologies which are used to support the nuclear weapons stockpile, but are not designed for a specific weapon system. Activities include military requirements as issued by the Nuclear Weapons Council (NWC), technology development/materials studies, and advanced development systems engineering. The FY 2002 efforts will support limited research and development of a Commercial Off the Shelf (COTS) qualification process for the W80 and W76; development of the W78 gas transfer system and the enhanced fidelity JTA.

(dollars in thousands)

	FY 2000	FY 2001	FY 2002
<b>Total, Stockpile Research &amp; Development . . . . .</b>	<b>203,860</b>	<b>245,470</b>	<b>305,460</b>

**Explanation of Funding Changes from FY 2001 to FY 2002**

FY 2002 vs. FY 2001 (\$000)
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**R&D - Assessment & Certification**

# Initiates the assessment and certification for the W87 Single Enhanced Reentry Vehicle replacement startup and supports limited archiving efforts for the W80 to support baselining and information exchange to LLNL in support of the life extension program and supports development of test experimental hardware for subcritical experiments . . . . . 28,337

**R&D - Maintenance**

# Supports an enhanced W87 shipping and storage container and the development of a small neutron generator to support the W80 limited life component exchange. Also, supports expansion of Code Management System development activities at Air Force Material Command (AFMC) and Pantex to support the U.S. Strategic Command (STRATCOM), Air Combat Command (ACC), Navy, and the initiation of the F-16 Aircraft Monitor and Control (AMAC) certification . . . . . 10,796

**R&D - Surveillance**

# Decrease reflects a normalized budget level compared with a one-time increase in FY 2001 to fabricate joint test assembly (JTA) modules for evaluation in support of weapon system and JTA designs for use in multiple weapons systems -12,189

**R&D - Baselining**

# Funding decreases because the B61 and B83 baselining in FY 2002 is less intensive than the W80 baselining conducted in FY 2001. . . . . -4,093

FY 2002 vs. FY 2001 (\$000)
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**R&D - Refurbishment**

# Increase supports laboratory activities to complete the B61 Phase 6.2/6.2A study, initiate the B61-7/11 Phase 6.3 Development and Engineering which supports an FPU of a refurbished weapon in FY 2004, and develop a plan for certification of the B61-7/11 with a refurbished Canned Sub-Assembly (CSA). The start of the B61 Phase 6.2/6.2A study was delayed due to the Cerro Grande fire and security issues at Los Alamos National Laboratory. As a result, both the completion of the study and the development engineering work are scheduled in FY 2002.

The increased funding also provides limited support to the W76 Block 1 initial development work, including the refurbishment of the nuclear explosive package and the AF&F, but at a reduced pace or scope from the previously endorsed FPU date of FY 2007, pending the Administration's strategic review. For the W80, limited Phase 6.3 Development Engineering, including the implementation of an improved surety option is also supported, but at a reduced pace or scope from the previously endorsed FPU date of FY 2006, pending the Administration's strategic review.

37,426

**Supporting Research & Development**

# Slight funding decrease supporting the W78 and W88 gas transfer systems and W88 Joint Test Assemblies activities .....

-287

**Total Funding Change, Stockpile Research and Development .....**

**59,990**

## Capital Operating Expenses & Construction Summary

### Capital Operating Expenses <sup>a</sup>

(dollars in thousands)

	FY 2000	FY 2001	FY 2002	\$ Change	% Change
General Plant Projects . . . . .	0	0	0	0	N/A
Capital Equipment . . . . .	1,519	2,014	2,014	0	0%
<b>Total, Capital Operating Expenses . .</b>	<b>1,519</b>	<b>2,014</b>	<b>2,014</b>	<b>0</b>	<b>0%</b>

### Construction Projects

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Appropriations	FY 2000	FY 2001	FY 2002	Unappropriated Balance
Total, Construction	0	0	0	0	0	0

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<sup>a</sup> 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 2001 and FY 2002 funding shown reflects estimates based on actual FY2000 obligations.

## Stockpile Maintenance

### Mission Supporting Goals and Objectives

Stockpile Maintenance includes day-to-day stockpile maintenance activities for limited life components, including the production and installation of these components in each of the weapon types, refurbishment and replacement of aging components, and major refurbishment activities to extend the stockpile life of the W87, W76, W80, and B61.

### Funding Schedule

(dollars in thousands)

	FY2000	FY 2001	FY 2002	\$ Change	% Change
Limited Life Component Exchange . . . . .	82,322	107,321	108,134	813	0.8%
Life Extension Operations, Repairs, and Maintenance . . . . .	145,412	202,930	247,266	44,336	21.8%
Development & Engineering . . . . .	14,661	11,458	7,093	-4,365	-38.1%
<b>Total, Stockpile Maintenance . . . . .</b>	<b>242,395</b>	<b>321,709</b>	<b>362,493</b>	<b>40,784</b>	<b>12.7%</b>

## Performance Measures

Performance will be demonstrated by:

- # B61-3,4,10: Completing production to change the fin angle on a selected subset of weapons (Alt 354) and continuing production and field installation of safety enhancements and surety upgrades (Alts 335 and 339). These alterations upgrade components or refurbish or replace aged components so that weapons will continue to meet Military Characteristics and remain safe and reliable in the environments defined in the Stockpile-to-Target Sequence. Work is also anticipated from the ongoing aging assessment of several components including the spin rocket motor. These will be decided through the Phase 6.X refurbishment process.
- # B61-7,11: Completing the Final Weapon Development Report and publishing the Major Assembly Release for the B61-11 in FY 2001; completing final Design Review And Acceptance Group (DRAAG) documentation and retrofit of structural enhancements (Alt 349) in FY 2001; completing delivery of electrostatic safety upgrade kits (Alt 336) for installation during limited life component exchanges in FY 2002; continuing to conduct production portion of Phase 6.2/6.2A Study and beginning Phase 6.3 for the CSA refurbishment in FY 2002.
- # W76: Continuing Limited Development and Production Engineering (Phase 6.3/6.4) for life extension; starting and continuing neutron generator changes and ACORN deliveries; making decisions on facility capability and capacity issues at the Y-12 Plant, Savannah River Site (SRS), Kansas City (KC) and Pantex (PX) plants are based on scope or schedule adjustments for the W76, which are pending the Administration's strategic review.
- # W78: Starting and continuing retrofit with modified gas transfer system (Alt 351).
- # W80: Initiating the Limited Development and Production Engineering (Phase 6.3/6.4) portion of the life extension program; and decisions on potential capacity issues at the SRS, KC and PX plants are based on scope or schedule adjustments for the W80, which are pending the Administration's strategic review.
- # B83: Continuing Alt 750 which adds common radar (following approval of revised potting process); and continuing Alt 752 which incorporates a new cable for revised radar heights of burst. Efforts that are ongoing to evaluate the gas transfer system could lead to additional Phase 6.X refurbishment activities.
- # W87: Completing the Final Weapon Development Report and the Major Assembly Release; continuing retrofits to improve the structural integrity and extend the life of the W87 (Alt 342), completing FPU of a new gas transfer system for Alt 345, and the Alternate Storage Container.
- # Limited Life Component Exchange (LLCE): Delivering neutron generators and reservoirs consistent with the Production & Planning Directive (P&PD) 2001-0; producing 1M and 2M gas transfer system reservoirs and deliver gas generator kits for the B61 program; continuing ACORN and neutron generator deliveries for the W76; producing reservoirs for the W62, W78, and W80; deploying new reservoirs on the W87 (Alt 345) and continuing gas transfer system exchange on the W88. The LLCE Program supports deliveries of approximately 1,800 components, consisting of 16 different reservoir types and 2 neutron generator types, support 12 different weapons configurations. Deliveries are made to 10 different sites around the U.S.

## Detailed Program Justification

FY 2001 Congressional Item of Interest: The FY 2001 appropriation included an additional \$13 million over the President's Request for life extension and development and engineering activities to support the W76, W80, W87 life extension programs and the B61 and B83 alterations. The FY 2002 Request continues the W87 life extension program and continues with the life extension programs for the B61-7/11. Scope or schedule adjustments will be made for the W76 and W80 pending the Administration's strategic review. The Nuclear Weapons Council has approved the joint DoD-DOE refurbishment process to achieve these weapon life extensions. The B61-7/11 design, development, and production engineering activities will be completed in time to support the start of full-scale production in FY 2004.

(dollars in thousands)

	FY 2000	FY 2001	FY 2002
<b>Limited Life Component Exchange</b> .....	82,322	107,321	108,134
<p>P&amp;PD schedule for limited life component exchange consistent with START I and/or the ability to reactivate to START I. Funding supports the production costs for the W76 neutron generator and reservoir production, engineering and production supporting the B61, W62, W76, W78, W80, B83, W87, and W88.</p>			
<b>Life Extension Operations, Repairs, and Maintenance</b> .....	145,412	202,930	247,266
<p>Supports Stockpile Modernization/Maintenance activities in accordance with Production and Planning Directive schedule for the B61 Alts 335, 336, 339, 349, and 354; W87 Life Extension Program (Alt 342), and the B83-1 Alt 750/752. The increase in FY 2002 funding is driven by production schedules for the W87 Life Extension Program which will continue into FY 2004, and the initiation of Phase 6.3/6.4 for the B61-7/11. Initiation of Phase 6.3/6.4 for the W76 and W80 will be based on adjustments to the scope or schedule, pending the Administration's strategic review.</p>			
<b>Development and Engineering</b> .....	14,661	11,458	7,093
<p>Includes production development and engineering activities to support Phase 6.2/6.2A and Phase 6.3. These production related efforts include early analysis and assessment of production processes and industrial engineering requirements associated with stockpile refurbishment efforts. FY 2002 efforts will focus on the W80, B61, and W76 life extension programs. The decrease in funding reflects the migration of activities at LANL, KCP and Pantex associated with the upcoming life extension programs to Life Extension Operations, Repairs and Maintenance.</p>			
<b>Total, Stockpile Maintenance</b> .....	<b>242,395</b>	<b>321,709</b>	<b>362,493</b>

## Explanation of Funding Changes from FY 2001 to FY 2002

FY 2002 vs. FY 2001 (\$000)
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**Limited Life Component Exchange**

# There is no significant increase in funding. . . . . 813

**Life Extension Operations, Repairs, and Maintenance**

# The increase reflects production schedules for the W87 Life Extension Program which will continue into FY 2004, and the initiation of Phase 6.3/6.4 for the B61-7/11 . . . . . 44,336

**Development and Engineering**

# Development and Engineering funding decrease reflects the migration of activities at LANL, KCP and Pantex associated with the upcoming life extension programs to Stockpile Life Extension Operations, Repairs and Maintenance. . . . . -4,365

**Total Funding Change, Stockpile Maintenance** . . . . . 40,784

## Capital Operating Expenses & Construction Summary

### Capital Operating Expenses <sup>a</sup>

(dollars in thousands)

	FY 2000	FY 2001	FY 2002	\$ Change	% Change
General Plant Projects . . . . .	302	309	309	0	0%
Capital Equipment . . . . .	28	37	37	0	0%
<b>Total, Capital Operating Expenses . .</b>	<b>330</b>	<b>346</b>	<b>346</b>	<b>0</b>	<b>0%</b>

### Construction Projects

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Appropriations	FY 2000	FY 2001	FY 2002	Unappropriated Balance
Total, Construction	0	0	0	0	0	0

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<sup>a</sup> 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 2001 and FY 2002 funding shown reflects estimates based on actual FY2000 obligations.

# Stockpile Evaluation

## Mission Supporting Goals and Objectives

Stockpile Evaluation includes new material laboratory tests, new material flight tests, stockpile laboratory tests, stockpile flight tests, quality evaluations, special testing, and surveillance of weapon systems to support assessment of the safety and reliability of the nuclear weapons stockpile, which contribute to the Annual Certification to the President.

### Performance Measures

Performance will be demonstrated by:

- # Beginning implementation of the recommendations from the Strategic Review of the Surveillance Program (150-Day Study).
- # Improving the Significant Finding Investigation (SFI) Process.
- # Completing the Pit Sampling Process.
- # Redesigning the W76 JTA, performing non-destructive evaluation of Pits/CSAs at Pantex.
- # Building and testing the first B83 JTA-1A.
- # Revising the sampling plan for W80.
- # Completing the W87 life extension REST unit evaluations
- # Eliminating W76, W88 and B83 surveillance backlogs.
- # Starting the first accelerated aging unit.
- # Developing revised sampling plan for the second system.

### Funding Schedule

(dollars in thousands)

	FY2000	FY 2001	FY 2002	\$ Change	% Change
Stockpile Laboratory Tests . . . . .	41,353	59,559	71,890	12,331	20.7%
Stockpile Flight Test . . . . .	46,203	65,856	64,998	-858	-1.3%
Surveillance . . . . .	31,032	43,412	40,040	-3,372	-7.8%
Integrated Safety Management . . . . .	0	0	3,906	3,906	100.0%
<b>Total, Stockpile Evaluation . . . . .</b>	<b>118,588</b>	<b>168,827</b>	<b>180,834</b>	<b>12,007</b>	<b>7.1%</b>

## Detailed Program Justification

FY 2001 Congressional Item of Interest: The FY 2001 appropriation included an additional \$23 million over the President's Request. This additional funding was required for the completion of all cycle work at the Pantex Plant, completion of all Canned Sub-Assembly (CSA) evaluations and Joint Test Assembly (JTA) hardware support at the Y-12 Plant, as well as for pit surveillance activities at Lawrence Livermore National Laboratory (LLNL). Additional personnel resources were provided at Savannah River Site (SRS) to begin to address the reservoir testing backlog. Some of this funding was used at Pantex to support implementation of non-destructive pit and CSA diagnostic techniques for reservoir and pit surveillance and evaluation activities for the W80, W62, and W88.

In FY 2002, efforts will be continued to address the testing backlog at SRS by conducting a critical design review for a third test station that will be replacing an older station. The FY 2002 funding will also be used to continue to support the personnel resources provided in FY 2001 to continue to eliminate the testing backlog. The W87 enhanced fidelity instrumentation (EFI) JTA will also be supported in FY 2002.

(dollars in thousands)

	FY 2000	FY 2001	FY 2002
<b>Stockpile Laboratory Tests (SLT)</b> .....	41,353	59,559	71,890
Conducts new material laboratory tests/stockpile laboratory tests to establish confidence in the performance, reliability, and safety of the nuclear weapon inventory. The funding increase will promote a reduction of the testing backlog.			
<b>Stockpile Flight Tests (SFT)</b> .....	46,203	65,856	64,998
Conducts new material flight tests/stockpile flight tests to establish confidence in the performance, reliability, and safety of the nuclear weapon inventory throughout its intended operational environment.			
<b>Surveillance</b> .....	31,032	43,412	40,040
Conducts surveillance testing to include special testing and surveillance of weapon systems to ensure quality evaluation and certification of the reliability of War Reserve weapons and components.			
<b>Integrated Safety Management</b> .....	0	0	3,906
Conducts activities necessary to formulate the safety basis authorization and certify tooling and processes needed to perform operations with nuclear explosives that are necessary for weapon surveillance and refurbishment activities within the nuclear weapons complex. (Funding was included in other categories prior to FY 2002.)			
<b>Total, Stockpile Evaluation</b> .....	<b>118,588</b>	<b>168,827</b>	<b>180,834</b>

## Explanation of Funding Changes from FY 2001 to FY 2002

FY 2002 vs. FY 2001 (\$000)
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### Stockpile Evaluation

# The increase will support implementation of changes recommended by the 150-day study including the W80 revised sample pilot program, reduction of surveillance backlogs at SRS and Y-12 Plant, and reinstatement of the shelf life program at the Pantex and Y-12 Plants .....	12,007
<b>Total Funding Change, Stockpile Evaluation .....</b>	<b>12,007</b>

## Capital Operating Expenses & Construction Summary

### Capital Operating Expenses <sup>a</sup>

(dollars in thousands)

	FY 2000	FY 2001	FY 2002	\$ Change	% Change
General Plant Projects . . . . .	0	0	0	0	N/A
Capital Equipment . . . . .	260	345	345	0	0%
<b>Total, Capital Operating Expenses . .</b>	<b>260</b>	<b>345</b>	<b>345</b>	<b>0</b>	<b>0%</b>

### Construction Projects

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Appropriations	FY 2000	FY 2001	FY 2002	Unappropriated Balance
Total, Construction	0	0	0	0	0	0

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<sup>a</sup> 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 2001 and FY 2002 funding shown reflects estimates based on actual FY2000 obligations.

## Dismantlement/Disposal

### Mission Supporting Goals and Objectives

Dismantlement/Disposal includes all activities, including safety analysis associated with weapon retirement, disassembly, component characterization, and disposal and reclamation of materials and components; the engineering, development, testing, certification, procurement, and refurbishment of containers required for interim storage; and the staging and storage of weapons, components, and materials awaiting dismantlement. The increase will enable Pantex to go from one W56/W79 dismantlement line to two W79 lines and one W56 line.

### Performance Measures

Performance will be demonstrated by:

- Dismantling weapons in accordance with the Production and Planning Directive.
- Performing and issuing Nuclear Explosive Safety Study (NESSs) for W78.
- Continuing demilitarization, sanitization, and disposal of weapon components.

### Funding Schedule

(dollars in thousands)

	FY2000	FY 2001	FY 2002	\$ Change	% Change
Dismantlement/Disposal . . . . .	31,402	27,371	35,414	8,043	29.4%
<b>Total, Dismantlement/Disposal . . . . .</b>	<b>31,402</b>	<b>27,371</b>	<b>35,414</b>	<b>8,043</b>	<b>29.4%</b>

### Detailed Program Justification

(dollars in thousands)

	FY 2000	FY 2001	FY 2002
<b>Dismantlement/Disposal . . . . .</b>	31,402	27,371	35,414

Includes all activities, including safety analysis associated with weapon retirement, disassembly, component characterization, and disposal and reclamation of materials and components; the engineering, development, testing, certification, procurement, and refurbishment of containers required for interim storage; and the staging and storage of weapons, components, and materials awaiting dismantlement. The increase will enable Pantex to go from one W56/W79 dismantlement line to two W79 lines and one W56 line.

<b>Total, Dismantlement/Disposal . . . . .</b>	<b>31,402</b>	<b>27,371</b>	<b>35,414</b>
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## Explanation of Funding Changes from FY 2001 to FY 2002

FY 2002 vs. FY 2001 (\$000)
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### Dismantlement/Disposal

# Increases at the Pantex Plant provide funding for expansion from one combined line in FY 2001 to one full line on the W56 and two full lines on the W79 to support FY 2002 dismantlement .....	8,043
<b>Total Funding Change, Dismantlement/Disposal</b>	<b>8,043</b>

# Production Support

## Mission Supporting Goals and Objectives

Production Support includes all activities at the nuclear weapons production plants to conduct the refurbishment and life extension efforts for the stockpile in accordance with Annex E, P&PD 2001 and the FY 2001 Stockpile Life Extension and Refurbishment Planning Component Description Document published by HQ DP. Specific elements for this effort include: quality and production supervision and control, production planning and scheduling; quality assurance; production and process engineering; tool, gauge, and test equipment services; purchasing and material support; manufacturing support; production engineering support; and information systems support.

### Performance Measures

Performance is demonstrated by:

- Providing quality and production efforts related to the W87 life extension program, concurrent quality and production development efforts for the W80 and W76 life extension programs, and similar efforts for the B61-7/11 Canned Sub-Assembly (CSA) refurbishment.
- Supporting Limited Life Component Exchange (LLCE) and component production and process engineering activities for the stockpile.

### Funding Schedule

(dollars in thousands)

	FY2000	FY 2001	FY 2002	\$ Change	% Change
Kansas City Plant . . . . .	46,224	66,234	71,714	5,480	8.3%
Pantex Plant . . . . .	0	62,528	64,515	1,987	3.2%
Los Alamos National Laboratory . . . . .	12,166	12,095	12,348	253	2.1%
Savannah River Site . . . . .	21,614	4,073	4,313	240	5.9%
Y-12 Plant . . . . .	51,750	0	0	0	0.0%
<b>Total, Production Support . . . . .</b>	<b>131,754</b>	<b>144,930</b>	<b>152,890</b>	<b>7,960</b>	<b>5.5%</b>

## Detailed Program Justification

(dollars in thousands)

	FY 2000	FY 2001	FY 2002
<b>Production Support</b>			
Kansas City Plant .....	46,224	66,234	71,714
Pantex Plant .....	0	62,528	64,515
Los Alamos National Laboratory .....	12,166	12,095	12,348
Savannah River Site .....	21,614	4,073	4,313
Y-12 .....	51,750	0	0
<b>Total, Production Support .....</b>	<b>131,754</b>	<b>144,930</b>	<b>152,890</b>

### Explanation of Funding Changes from FY 2001 to FY 2002

FY 2002 vs. FY 2001 (\$000)
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#### Production Support

# This increase is primarily at Kansas City Plant (KCP) and is associated with increased manpower costs and software support requirements for electrical design manufacturing automation systems .....	7,960
<b>Total Funding Change, Production Support .....</b>	<b>7,960</b>

# Capital Operating Expenses & Construction Summary

## Capital Operating Expenses <sup>a</sup>

(dollars in thousands)

	FY 2000	FY 2001	FY 2002	\$ Change	% Change
General Plant Projects . . . . .	0	0	0	0	N/A
Capital Equipment . . . . .	1,913	2,537	2,537	0	0%
<b>Total, Capital Operating Expenses . .</b>	<b>1,913</b>	<b>2,537</b>	<b>2,537</b>	<b>0</b>	<b>0%</b>

## Construction Projects

(dollars in thousands)

	Total Estimated Cost (TEC)	Prior Year Appropriations	FY 2000	FY 2001	FY 2002	Unappropriated Balance
Total, Construction	0	0	0	0	0	0

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<sup>a</sup> 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 2001 and FY 2002 funding shown reflects estimates based on actual FY2000 obligations.

## Field Engineering, Training and Manuals

### Mission Supporting Goals and Objectives

Field Engineering, Training, and Manuals includes technical training of military and DOE nuclear weapons complex personnel, preparation of and updates to weapon manuals and technical publications, participation in the Joint Task Group of weapon evaluations prior to complete engineering release, and support for field engineering activities on alterations and modifications.

### Performance Measures

Performance will be demonstrated by:

- Conducting classroom and field training in weapons handling for DOE, DoD, and laboratory personnel; continuing maintenance, preparation and distribution of approximately 140 technical manuals for DoD.
- Providing field engineering support for approved Alterations/Modifications primarily for B61 bombs and identified weapon repairs.

### Funding Schedule

(dollars in thousands)

	FY2000	FY 2001	FY 2002	\$ Change	% Change
Field Engineering, Training, and Manuals	4,089	6,229	6,700	471	7.6%
<b>Total, Field Engineering, Training and Manuals . . . . .</b>	<b>4,089</b>	<b>6,229</b>	<b>6,700</b>	<b>471</b>	<b>7.6%</b>

### Detailed Program Justification

(dollars in thousands)

	FY 2000	FY 2001	FY 2002
Field Engineering, Training and Manuals . . . . .	4,089	6,229	6,700
<b>Total, Field Engineering, Training and Manuals . . .</b>	<b>4,089</b>	<b>6,229</b>	<b>6,700</b>

## Explanation of Funding Changes from FY 2001 to FY 2002

FY 2002 vs. FY 2001 (\$000)
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### Field Engineering, Training and Manuals

# Increase supports planned field activities .....	471
<b>Total Funding Change, Field Engineering, Training and Manuals .....</b>	<b>471</b>