

# Weapons Activities

## Proposed Appropriation Language

For Department of Energy expenses, including the purchase, construction and acquisition of plant and capital equipment and other incidental expenses necessary for atomic energy defense weapons activities in carrying out the purposes of the Department of Energy Organization Act (42 U.S.C. 7101 et seq.), including the acquisition or condemnation of any real property or any facility or for plant or facility acquisition, construction, or expansion; [the purchase of not to exceed 1 fixed wing aircraft;] and the purchase of passenger motor vehicles (not to exceed [32] 3 for replacement only [,and one bus], [\$4,400,000,000] *\$4,531,000,000* to remain available until expended: [Provided, That funding for any ballistic missile defense program undertaken by the Department of Energy for the Department of Defense shall be provided by the Department of Defense according to procedures established for Work for Others by the Department of Energy.] *Further, for the foregoing purposes; \$4,531,000,000, to become available October 1, 2000 and remain available until expended.* (Energy and Water Development Appropriations Act, 1999.)

## Explanation of Change

Changes in the appropriation language include the number of vehicles required; a request for appropriations covering two years; and deletion of language pertaining to the ballistic missile defense system which does not need to be repeated annually.

# **Weapons Activities**

## **Executive Budget Summary**

### **Vision**

High confidence in the safety, security, reliability and performance of the Nation's enduring nuclear weapon stockpile under a comprehensive test ban, utilizing a science-based approach to stockpile stewardship within a smaller, more efficient and cost effective weapons complex infrastructure.

### **Mission**

The mission of Defense Programs is:

- # to maintain indefinitely the safety, reliability and performance of the current nuclear weapons stockpile without nuclear testing;
- # to maintain the capability to return to the design and production of new weapons and to underground nuclear testing, if so directed by the President; and,
- # to dismantle excess weapons safely, and dispose of or store excess components.

### **Strategy**

Rely on scientific understanding and expert judgement, rather than on nuclear testing and the development of new weapons, to predict, identify and correct problems affecting the safety, reliability or performance of the enduring stockpile. Carry out assessment and certification activities, analyzing and evaluating the effects of changes on warhead safety and performance. Develop and enhance surveillance capabilities for predicting and detecting problems. Develop advanced design and manufacturing capabilities necessary to refurbish stockpile warheads and certify new parts, materials and processes for the future. Retire and dismantle weapons as needed to meet arms control objectives. As new tools are developed and validated, incorporate them into a smaller, environmentally-sound, more flexible and agile weapons complex infrastructure for the future.

### **Policy Framework**

In the early 1990's, as part of its continuing world leadership role in the arms control arena, the U.S. halted production of new nuclear warheads and conducted its last nuclear explosive test. Thus ended an era in which the U.S. modernized its nuclear weapon stockpile by continually replacing aging systems with new systems and in which nuclear testing served as the ultimate arbiter of the safety, reliability and performance of the Nation's nuclear weapon stockpile. With the decision to cease production of new nuclear warheads and end nuclear testing, the Nation faced the challenge of maintaining its existing nuclear weapon stockpile with other tools and different kinds of tests for the foreseeable future. In 1993 and 1994, the President and the Congress directed the Secretary of Energy to establish a stockpile stewardship program to ensure the preservation of the core intellectual and technical competencies of the United States in nuclear weapons.

In September 1994, the President approved the Nuclear Posture Review, which established requirements for the Department of Energy related to maintaining nuclear weapons infrastructure and capabilities, and ensuring tritium availability. The requirements for DOE were stated in terms of "infrastructure to support U.S. nuclear forces," delineated specifically as follows: maintain nuclear weapon capability (without underground nuclear testing); develop a stockpile surveillance engineering base; demonstrate the capability to design, fabricate and certify weapon types in the enduring stockpile; maintain the capability to design, fabricate, and certify new warheads; and ensure tritium availability. No production of new-design nuclear warheads is required. To meet these requirements, the Department of Energy developed the Stockpile Stewardship and Management Program. The strategies and key components of this approach were articulated initially in the May 1995 DOE report, *The Stockpile Stewardship and Management Program: Maintaining Confidence in the Safety and Reliability of the Enduring U.S. Nuclear Weapon Stockpile*.

In August 1995, the President announced that the United States would pursue a zero yield Comprehensive Test Ban Treaty (CTBT) as a means of reducing the danger posed by nuclear weapons proliferation. In September 1996, the United Nations General Assembly voted nearly unanimously to endorse the CTBT negotiated at the Geneva-based Conference on Disarmament. President Clinton signed the treaty on September 24, 1996, and submitted it to the Senate for ratification on September 23, 1997. One of the six safeguards that defines the United States' participation in the CTBT is the conduct of a stockpile stewardship program to ensure the safety and reliability of the weapons remaining in the nation's nuclear stockpile. In addition, the President requested a new annual certification process to certify that the stockpile is safe and reliable in the absence of underground nuclear testing, and to produce a statement about future confidence in the safety and reliability of the stockpile.

In January 1996, the Senate gave overwhelming approval to the START II Treaty; however, the Russian Duma has not ratified START II. The U.S. Senate's treaty ratification text highlighted the Nation's commitment to proceed with a robust stockpile stewardship program, to reestablish and maintain sufficient production capabilities and capacities, to maintain the U.S. nuclear weapons laboratories and the core competencies therein, to ensure rapid access to a new production source for tritium within the next decade, and to maintain the Nevada Test Site at a level which would enable timely resumption of underground nuclear testing if directed by the President.

In April 1996, the Secretary of Energy submitted to the Congress the first Stockpile Stewardship and Management Plan. The Plan was a roadmap of program activities needed to accomplish stockpile stewardship and management program goals. The document's first update was completed and sent to the Congress on October 28, 1997, and Defense Programs also issued a summary progress report on the program, *Stockpile Stewardship Program; Overview and Progress*, in October 1997. The second update was issued in April 1998, and the third update of the *Stockpile Stewardship Plan* is targeted for publication in support of the FY 2000 Congressional Budget Request.

The Department completed work on the Stockpile Stewardship and Management Programmatic Environmental Impact Statement (SSM/PEIS) in late 1996. On December 19, 1996, the Secretary of Energy signed the Record of Decision, enabling the DOE to proceed to construction on several key new experimental facilities, reestablish a limited pit manufacturing capability, and begin facility downsizing in FY 1998 where needed in accordance with anticipated future workload levels.

On June 18, 1997, the President signed the implementing Presidential Decision Directive (PDD) for the Fiscal Year 1997-2002 Nuclear Weapons Stockpile Memorandum. The President has declared United

States nuclear forces will maintain flexibility to both "hedge" against foreign political reversals (START I) as well as to "lead" through further reductions (START II). This strategy has been recognized in developing the programs and associated budget to meet these goals. This strategy is also supported in the Department's plans to transition the nuclear weapons complex from capacity-based to capability-based, while providing flexibility to support changing stockpile sizes.

On December 22, 1998, Secretary of Energy Bill Richardson made two key national security decisions related to the stockpile. He chose the use of Tennessee Valley Authority (TVA) reactors for producing tritium over construction of a new linear accelerator at Savannah River, and designated TVA's Watts Bar and Sequoyah reactors as the preferred facilities rather than paying for the completion of TVA's unfinished Bellefonte reactor. Secretary Richardson decided that Hanford's Fast Flux Test Facility should not play any role in producing tritium for the nation's stockpile and he outlined a course for deciding whether it should be restarted to serve future civilian research missions.

Secretary Richardson's announcement fulfills the Department's 1995 commitment to select by the end of 1998 between a commercial light water reactor and a linear accelerator as the primary source of tritium. Consistent with the Department's dual track strategy for tritium production, the linear accelerator option has been designated as a backup technology. As directed by the FY 1999 National Security Authorization Act, the Department will continue the dual track through FY 1999, and plans to complete key engineering, development and demonstration milestones for the accelerator by the end of 2002.

On December 11, 1998, Secretary Richardson signed the annual certification letter to the President (below) and on December 23, 1998, he signed the FY 1998-2003 Nuclear Weapons Stockpile Memorandum (NWSM). The NWSM was forwarded to the President on January 7, 1999. There will be no FY 1999 NWSM; rather, the current NWSM requires the FY 2000-2005 NWSM by September 30, 1999.

MEMORANDUM FOR THE PRESIDENT

DEC 11 1998

SUBJECT: Nuclear Stockpile Certification

In response to your direction to conduct an annual certification of the nuclear weapons stockpile, we have thoroughly reviewed the safety and reliability of the stockpile under the Comprehensive Test Ban Treaty. The nuclear stockpile has no safety or reliability concerns that require underground testing at this time. Problems that have arisen in the stockpile are being addressed and resolved without underground nuclear testing to ensure the stockpile remains safe and reliable. In reaching this conclusion, we have obtained the advice of the Directors of the National Weapons Laboratories, the Commander in Chief, United States Strategic Command, and the Nuclear Weapons Council. We will continue to inform you annually on the safety and reliability of the nuclear weapons stockpile in the absence of underground nuclear testing, and in the context of the DOE's Stockpile Stewardship Plan.



Bill Richardson  
Secretary of Energy



William S. Cohen  
Secretary of Defense

Executed: December 22, 1998

## Program Overview

Defense Programs carries out a single, highly integrated technical program for maintaining the safety and reliability of the U. S. nuclear stockpile that has evolved in response to this policy framework. The Stockpile Stewardship Program's overall goal is encompassed in the *DOE Strategic Plan (September 1997)* National Security Strategic Goal:

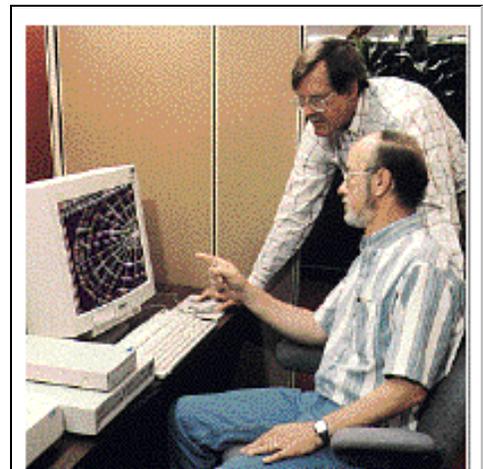
*Support national security, promote international nuclear safety, and reduce global nuclear danger from weapons of mass destruction.*

It is Defense Programs' mission to carry out this goal by providing high confidence in the safety, security, reliability and performance of the enduring U.S. stockpile without nuclear testing, ensuring the effectiveness of the U.S. nuclear deterrent while simultaneously supporting U.S. arms control and nonproliferation objectives. Defense Programs also provides the capabilities to resume U.S. underground nuclear testing and to reconstitute nuclear weapons production capacities, consistent with Presidential directives, the Nuclear Posture Review, and the START I treaty, should national security so demand in the future.

There are four national security objectives from the *DOE Strategic Plan* upon which this program and budget are based:

- # Maintain confidence in the safety, reliability and performance of the nuclear weapon stockpile without nuclear testing.
- # Replace nuclear testing with a science-based stockpile stewardship and management program.
- # Ensure the vitality of DOE's national security enterprise.
- # Reduce nuclear weapon stockpiles and the proliferation threat caused by the possible diversion of nuclear materials.

The **Stockpile Stewardship** activities address issues of assessing and maintaining confidence in stockpile safety and reliability without nuclear testing through a technically challenging science-based stockpile stewardship program utilizing upgraded or new experimental, computational and simulation capabilities. The programs are planned to meet the infrastructure requirements of the Nuclear Posture Review to maintain the vitality of the laboratories and the Nevada Test Site. Major initiatives continue in high energy density research with lasers, radiography, and pulsed power. Accelerated research and development in advanced computations to acquire and use data will improve predictive capabilities which will be the foundation of the science-based stewardship approach. Highly complex subcritical experiments are conducted using chemical high explosives to generate high pressure environments in which to study and obtain new data on nuclear weapon materials, such as plutonium. The Accelerated Strategic Computing Initiative (ASCI), a discrete element within the Stockpile Stewardship decision unit, provides the leading-edge, high end simulation capabilities needed to meet weapon assessment and certification requirements without nuclear testing. ASCI synergizes the resources of the national laboratories, computer industry, and academia to push the



Weapon designers and computational physicists partner to develop 3-dimensional simulation and modeling tools.

development of hardware and advanced applications, and then introduces the new applications into the core programs.

To form the scientific basis of, and scientific validation for, the stewardship program, major new experimental facilities are also planned to expand and enhance the scientific base for stockpile stewardship. The National Ignition Facility, scheduled to be completed in 2003, will provide a means to study primary boosting, assess secondary performance and validate new physics models and codes while pursuing its goal to demonstrate thermonuclear ignition in the laboratory. The Dual-Axis Radiographic Hydrodynamic Test Facility, when completed in FY 2002, will provide an experimental capability to validate the implosion performance of nuclear weapons primaries. Technology development is underway for potential facilities to maintain the scientific capabilities needed in the future, and to assure that Defense Programs can continue to attract and retain the high quality personnel needed to make the scientific and technical judgements related to the safety and reliability of the stockpile in the absence of nuclear testing.

The **Stockpile Management** activities continue historical responsibilities to provide near-term and long-range support for the enduring stockpile, and to ensure an adequate supply of tritium. Along with stockpile surveillance, this includes normal maintenance, corrective maintenance and system refurbishment, as well as weapon dismantlement. The Stockpile Management decision unit funds initiatives in enhanced surveillance and advanced manufacturing, as well as the Stockpile Management Restructuring Initiative projects to downsize and modernize production capabilities needed for the future. The activities are supportive of the infrastructure requirements cited in the Nuclear Posture Review.

The DOE completed a PEIS for tritium production, and pursued a dual-track approach to research, development and engineering of potential future tritium supply technologies. After extensive review of the regulatory, cost, proliferation, environmental, technical and national security issues associated with each option, on December 22, 1998, Secretary Richardson chose to use commercial light water reactors owned by the TVA for producing tritium in the future. Engineering, development and demonstration and preliminary design of essential components of an accelerator for production of tritium will be supported as a backup technology.

Weapons **Program Direction** funds all federal personnel related costs, as well as support and contractual services for Federal employees. Other support costs are also included through FY 1999, such as a salary subsidy for the Los Alamos School District and payments for the Northern New Mexico Educational Enrichment Foundation. These activities more appropriately belong within a program decision unit, and beginning in FY 2000 are transferred to Stockpile Stewardship.

The major initiatives included in the Stockpile Stewardship Program are designed to assist in a rapid and effective transition from program activities optimized for the former underground nuclear testing era to a future program under the constraints of a CTBT. These initiatives are beginning to achieve their objectives, and as such, this budget reflects integration of some of these efforts into the ongoing base programs within this five year period.

In recognition of this progress, Defense Programs will consider proposing **budget structure** changes in the future. Although the current budget and accounting structure is meeting our needs today, and those of our contractors and customers in the Department, OMB and Congress, we are analyzing potential changes for the future ranging from changing the overall title of the appropriation to eliminating current decision units in favor of a single integrated account structure. We expect to study various options to

keep pace with the program's continuing evolution as discussed above, with organizational changes, and in response to ongoing implementation of the Government Performance and Results Act.

Maintaining the U.S. nuclear weapon stockpile in this new era will continue to challenge our best capabilities. The Stockpile Stewardship and Management programs must be implemented promptly and fully. In particular, new facilities and capabilities must be developed and validated while personnel with nuclear-test experience are still available. This program provides the framework and capabilities for success, although there are areas where challenges and risks are increasing at a rate that warrants continued vigilance.

**Table 1**  
**Weapons Activities Account Summary**

(dollars in thousands)

	FY 1998 Current Approp.	FY 1999 Original Approp.	FY 1999 Adjust- ment	FY 1999 Current Approp.	FY 2000 Request	\$ Change	% Change
Operations and Maintenance . . . . .	3,691,805	3,997,235	-67,783	3,903,452	3,991,076	87,624	2.2%
Construction . . . . .	457,495	485,301	3,683	514,984	539,924	24,940	4.8%
Subtotal, Weapons Activities . . . . .	4,149,300	4,482,536	-64,100	4,418,436	4,531,000	112,564	2.5%
PY Work Conducted in FY 1999 . . . . .	0	0	28,558	28,558	0	-28,558	-100.0%
Subtotal, Weapons Activities . . . . .	4,149,300	4,482,536	-35,542	4,446,994	4,531,000	-84,006	-1.9%
Use of PY Balances . . . . .	-2,608	-82,536	35,542	-46,994	0	46,994	-100.0%
Total, Weapons Activities . . . . .	4,146,692	4,400,000	0	4,400,000	4,531,000	131,000	3.0%

The FY 1999 appropriation totals \$4.4 billion. The appropriations act authorized \$4.482 billion, but provided only \$4.4 billion in new budget authority with the difference to be made up by use of prior year balances. The Department plans to obligate \$4.418 billion to new commitments in FY 1999. That level is a result of new appropriations of \$4.4 billion, and reapplication of \$18 million in prior year balances which were available with no adverse program impact. Also included in this amount is a reprogramming of \$3.683 million approved in November 1998. The process to determine use of prior year balances to offset the Congressional reduction is discussed more fully later in this section. In addition, \$28.6 million in prior year work has been carried over to be conducted in FY 1999, for a total planned obligational level of \$4.447 billion. End of year FY 1998 unobligated balances associated with this work will be obligated in FY 1999, and as such are not available to be applied to the appropriation as discussed above.

The request for the FY 2000 program is \$4.531 billion. This is consistent with the Administration's commitment that about \$4.5 billion will be needed annually to adequately support the Stockpile Stewardship program. FY 2000 funding for the Tritium source programs is included within this level, and reflects the December 1998 decision on technology and schedule for the new tritium source.

**Table 2**

## Decision Unit Summary

(dollars in thousands)

	FY 1998 Approp	FY 1999 Approp	Adjust- ments	FY 1999 Adjusted	FY 2000 Request	\$ Change	% Change
Stockpile Stewardship . . . . .	1,858,213	2,148,075	-32,193	2,115,882	2,286,200	170,318	8.1%
Stockpile Management . . . . .	2,041,087	2,084,461	-31,907	2,052,554	1,998,300	-54,254	-2.6%
Program Direction . .	250,000	250,000	0	250,000	246,500	-3,500	-1.4%
Subtotal . . . . .	4,149,300	4,482,536	-64,100	4,418,436	4,531,000	112,564	2.5%
Use of PY Balances	-2,608	-82,536	64,100	-18,436	0	18,436	-
Total, Weapons Activities Budget Authority . . . . .	4,146,692	4,400,000	0	4,400,000	4,531,000	131,000	3.0%
Federal Staff (FTEs) <sup>a</sup>	1,837	1,876	0	1,876	1,799	-77	-2.2%

### General

The FY 2000 budget request increases 3 percent over the FY 1999 appropriation. The increase is driven by an 8 percent increase in activities in the Stockpile Stewardship decision unit, principally related to simulation and modeling efforts in both ASCI and the core programs, and functional transfers of education-related activities into the decision unit from Program Direction. The Stockpile Management decision unit decreases 2.6 percent, due to reductions programmatic infrastructure. The budget request includes \$170 million for tritium supply activities. The Program Direction decision unit decreases 1.4 percent, reflecting savings attributable to a smaller federal workforce.

The FY 2000 budget request supports initiatives begun during the past five years that are maturing and contributing the new tools and technologies needed for science based stewardship under the provisions of a CTBT. We are meeting our commitments to provide new and enhanced experimental facilities, and have accomplished significant downsizing and reorganizing of the Federal and contractor workforce to accomplish the mission in the future.

### Stockpile Stewardship

Activities in the Stockpile Stewardship decision unit provide the physical and intellectual infrastructure required to meet the scientific and technical requirements of the Stockpile Stewardship Program, principally at the Lawrence Livermore, Los Alamos and Sandia National Laboratories and the Nevada Test Site. The programs provide the technical basis for confidence in the safety, reliability, and performance of the U.S. weapons stockpile in the absence of underground nuclear testing. The programs have been balanced to develop and maintain essential scientific and technical capabilities over the long

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<sup>a</sup> This FTE level represents a Departmental employment ceiling. Defense Programs anticipates a total employment level below the ceiling.

term while meeting near term workload requirements and schedules. The Accelerated Strategic Computing Initiative (ASCI) and the Inertial Confinement Fusion (ICF), Technology Partnerships, Education, and Infrastructure Construction programs are included in the Stockpile Stewardship decision unit.

Stockpile Stewardship is requesting \$2,286.2 million in FY 2000, an increase of \$170.3 million or 8 percent over FY 1999. The funding increase is primarily due to increased requirements in the core programs to verify and validate new physics and materials models resulting from successful ASCI-sponsored efforts in advanced code development, and additional planned growth in ASCI and Stockpile Computing programs. Initiation of three new laboratory infrastructure projects will provide specialized space necessary for the advanced computers and associated capabilities. The increase also reflects the transfer of support for the Los Alamos Schools and the Northern New Mexico Educational Enrichment Foundation from the Weapons Program Direction account, and inclusion of funding for the new National Atomic Museum in Albuquerque, New Mexico.

The growth in the ASCI and Computations programs is about 12 percent from FY 1999 to FY 2000. This continues the momentum in both hardware development and acquisition to attain computers capable of sustained operations of 100 trillion operations per second (TeraOps) level by 2004, as well as in building 3-D computer codes which, in conjunction with the experimental programs in core stewardship and ICF, are aimed at providing the required levels of fidelity in weapons simulations. Two new computations initiatives begun in FY 1999 will continue in FY 2000. Distributed Computing at a Distance (DisCom<sup>2</sup>) will enable the ASCI and Stockpile Computing program to deliver key computing and communications technologies that complement the ASCI vision, and the Numerical Environment for Weapons Simulations (NEWS) will create localized data exploration super corridors to support large-scale data analysis and assimilation tasks for researchers and weapons assessment teams.

A significant new item in the stewardship programs in FY 2000 is the advent of a laboratory infrastructure construction initiative. The goal is to provide for the infrastructure needs at the laboratories and the Nevada Test Site at about \$100 million in annual investments over a 5-10 year period. Major programmatic facilities are not included in this effort; they will continue to be separately justified and funded within the R&D portions of the account. In the near term, the emphasis will be on construction of four facilities to provide the unique floor space needed at the laboratories to house the state of the art computers as well as provide visualization and other simulation capabilities to maximize the utility of the greatly enhanced computing capabilities by the weapon designers. A listing of candidate projects and associated cost estimates is included in the budget request.

Detailed discussion of the Stockpile Stewardship program activities is included in the following sections of the budget document.

### **Stockpile Management**

The Stockpile Management budget was formulated to maintain infrastructure essential for stockpile operations. Program activities support limited life component exchange; provide for stockpile surveillance/evaluation; support enhanced surveillance, directed weapon modifications and alterations supporting Stockpile Life Extension Program decision points; reestablish pit production capability and capacity; support commitments to entities external to Defense Programs, such as the DNFSB; support the Advanced Manufacturing Design and Production Technologies program and remaining ESP tasks consistent with Program Plans; and support the dismantlement of retired weapons. The Stockpile Management request is \$1,998.3 million, 2.6 percent below FY 1999. Small increases are included for

Enhanced Surveillance, ADAPT, Radiological Nuclear Accident Response, Tritium and Materials. These increases are offset by decreases in the Core Management base program. Stockpile maintenance efforts will focus on limited life component exchange consistent with the START I stockpile, Life Extension for the W87, and alterations for the B61 and B83. Dismantlement work will focus on continuation of the W56 and W79, and start up activities for the B53 for projected dismantlement of approximately 375 weapons.

Pit Production efforts will continue to recapture required technologies at Los Alamos for the W88, B61-7 and W87. Fabrication of a limited number of W88 Trident II pits for certification and qualification continues on schedule with the goal of providing war-reserve pits for the stockpile in 2001.

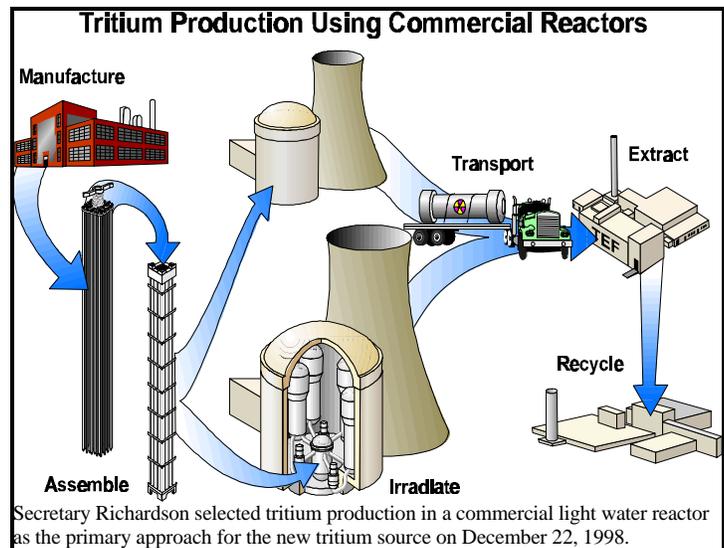
### **Tritium Source**

The \$170 million funding request for the tritium source in FY 2000 is consistent with the December 22, 1998, secretarial decision which designated irradiation in a commercial light water reactor as the primary tritium production technology and production in a linear accelerator as backup.

Detailed discussion of the Stockpile Management program activities is included in the following sections of the budget document

### **Program Direction**

The request for Program Direction funding decreases about 1.4% from the FY 1999 appropriated level, related to continued downsizing of the federal workforce. Federal support costs (\$9.6 million) for the Amarillo, Kirtland and Kansas City Area Offices are relocated from the Stockpile Management decision unit into Program Direction to fully reflect the cost of Federal oversight performed by those offices. Funding for the Los Alamos School District and the Northern New Mexico Educational Foundation formerly included in this decision unit has been transferred to a more appropriate location in the Stockpile Stewardship Education programs in FY 2000.



### **Independent Assessments of Construction Projects**

The conference report accompanying P.L. 105-245, Energy and Water Development Appropriations Act for FY 1999, stated that none of the funds provided for new FY 1999 construction project starts could be obligated until an independent assessment validating the cost and schedule for the specific project was completed and provided to the House and Senate Committees on Appropriations. This direction followed similar language in FY 1998 which directed external reviews of selected ongoing construction projects, but without the prohibition on release of funds.

The DOE assessment process is managed by the Office of Field Management (FM). The reviews are conducted by support service contractors, and FM coordinates DOE's response to review findings and recommendations as well as transmission of the reports to the congressional committees.

To date, six of eleven DP reports on ongoing projects resulting from the FY 1998 direction have been submitted to the Congress. Five assessments from this first group are still in process. There are nine reviews required as a result of the FY 1999 language. One review is near completion; the other eight are targeted to begin by February 1, 1999, with transmission to Congress targeted for early April, 1999. These delays have already affected FY 1999 budget execution and overall project schedules, and modifications are reflected in the FY 2000 budget.

In FY 1999, for projects in the Stockpile Stewardship decision unit, \$15 million of the \$25 million requested for new starts was provided in a single line, to be allocated to specific projects by the Department. The allocation of funding to the FY 1999 new starts and the project schedules reflected in the budget request is consistent with the schedule for completion of the assessments. To the extent that this schedule slips, or that projects are significantly changed by external review recommendations and corrective actions, we will keep the Congress fully and currently informed.

### **Use of Prior Year Balances**

The appropriations conference report included language which directed that FY 1999 activities be funded using \$4.4 billion in new budget authority and \$82.5 million in prior year balances. To implement this guidance, Defense Programs undertook a rigorous process to examine prior year O&M balances reported at the end of FY 1998. This task was made even more difficult by the fact that **overall ending net FY 1998 uncosted balances for Defense Programs were \$160 million below the Department's goal for operations and maintenance activities.** Using DP's Financial Information Variance Reporting (FIVR) system, the FY 1998 end of year accounting data at the lowest level and the Department's threshold goal for appropriate levels of uncosted balances, DP Headquarters, field and contractor organizations analyzed and rejustified any individual uncosted balances in excess of the Department of Energy's thresholds of 13% for operating expenses and 50% for capital equipment and general plant projects, and all unobligated balances (including construction) reported at the end of the year. As a result of this process which examined about \$125 million in potentially available balances, only about \$6.3 million in uncosted balances and \$8.5 million in unobligated balances could be deobligated/reobligated without unacceptable impact on programs authorized and funded in prior years. This \$14.8 million can be reobligated to fund the FY 1999 program in addition to the \$4.4 billion in new budget authority, making a total of \$4.414 billion available for the FY 1999 program, rather than \$4.482 as outlined in the appropriation. (A congressional reprogramming request was also approved in November 1998 which revises the total FY 1999 appropriation to \$4.418 million.)

This reduced FY 1999 funding level will have negative program impacts; details are still being assessed by Defense Programs program managers and by contractor personnel at the laboratories and plants. To arrive at the current program and site allocations, DP accommodated all congressional direction on FY 1999 programmatic and site funding first and then assessed the \$82.5 million funding reduction proportionally to each DP organization. Available prior year balances were reobligated in the programs where they were identified. We will continue to examine our activities to determine whether additional prior year balances may become available later in the fiscal year to increase the \$4.418 billion total currently available for FY 1999 activities.

### **Surplus Facilities and Nuclear Materials**

The historical development of the nuclear weapons program and the end of the Cold War resulted in a weapons complex that was much larger and more diverse than needed for the future mission. Major portions of the complex have already been transferred to the Office of Environmental Management (EM).

Yet, as DP continues to consolidate and otherwise adjust the size of the complex to meet future needs, many more facilities and nuclear materials have and will become excess to national security needs.

Due to their hazardous nature, these facilities and materials require significant expenditures to assure safety, security and environmental protection. These expenditures will continue to be required until the hazards are removed through deactivation, decommissioning and decontamination activities. If DP is unable to transfer the excess facilities and materials without having to invest large sums, the financial burden will increase over time thereby resulting in decreased funding for DP's core mission.

For the FY 2000 budget and beyond, Defense Programs makes the following three assumptions regarding disposition of surplus facilities and nuclear materials:

(1) Beginning in FY 2002, DP will be able to transfer its contaminated excess facilities, including any excess nuclear materials remaining therein, to EM for deactivation, decommissioning and decontamination.

(2) DP further assumes that given two years notice of intent to transfer surplus facilities and nuclear materials, EM will accept such facilities and nuclear materials in "as is" condition. In doing so, EM will budget for and manage the cleanup and disposal of such facilities and nuclear materials.

(3) In FY 2001, DP will transfer responsibility for Building 3019 at the Oak Ridge National Laboratory to EM.

**Table 3**  
**Site Funding Estimates**

(dollars in thousands)

	FY 1998	FY 1999	FY 2000	\$ Change	% Change
<b>Albuquerque Operations Office</b>					
Albuquerque Operations Office . . . . .	270,972	252,001	222,749	-29,252	-11.6%
Kansas City Plant . . . . .	297,487	295,972	288,067	-7,905	-2.7%
Los Alamos National Laboratory . . . . .	772,312	883,529	908,763	25,234	2.9%
Pantex Plant . . . . .	259,912	260,759	241,266	-19,493	-7.5%
Sandia National Laboratories . . . . .	683,610	749,136	774,251	25,115	3.4%
<b>Subtotal, Albuquerque Ops Office . . . . .</b>	<b>2,284,293</b>	<b>2,441,397</b>	<b>2,435,096</b>	<b>-6,301</b>	<b>-0.3%</b>
Chicago Operations Office . . . . .	7,164	14,192	10,159	-4,033	-28.4%
Idaho Operations Office . . . . .	19,310	5,446	384	-5,062	-92.9%
Nevada Operations Office . . . . .	243,045	257,791	256,531	-1,260	-0.5%
<b>Oak Ridge Operations Office</b>					
Oak Ridge Y-12 . . . . .	449,183	420,451	379,961	-40,490	-9.6%
OR Institute for Science & Ed . . . . .	15,206	13,487	13,287	-200	-1.5%
OR Science & Technology Institute . . . . .	149	147	150	3	2.0%
Oak Ridge National Laboratory . . . . .	17,409	17,970	18,508	538	3.0%
Oak Ridge Operations Office . . . . .	17,612	17,819	12,488	-5,331	-29.9%
<b>Subtotal, Oak Ridge Operations Office . . . . .</b>	<b>499,559</b>	<b>469,874</b>	<b>424,394</b>	<b>-45,480</b>	<b>-9.7%</b>
<b>Oakland Operations Office</b>					
General Atomics . . . . .	10,937	8,870	7,000	-1,870	-21.1%
Lawrence Berkeley Laboratory . . . . .	6,374	15,112	23,018	7,906	52.3%
Lawrence Livermore National Laboratory . . . . .	742,259	815,590	852,081	36,491	4.5%
Naval Research Laboratory . . . . .	9,000	16,758	9,500	-7,258	-43.3%
Oakland Operations Office . . . . .	16,080	18,810	18,570	-240	-1.3%
University of Rochester . . . . .	26,349	28,850	30,500	1,650	5.7%
<b>Subtotal, Oakland Operations Office . . . . .</b>	<b>810,999</b>	<b>903,990</b>	<b>940,669</b>	<b>36,679</b>	<b>4.1%</b>
<b>Richland Operations Office</b>					
Pacific Northwest Laboratory . . . . .	26,040	24,086	14,960	-9,126	-37.9%
Richland Operations Office . . . . .	21,569	347	393	46	13.3%

	FY 1998	FY 1999	FY 2000	\$ Change	% Change
Subtotal, Richland Operations Office . . . . .	47,609	24,433	15,353	-9,080	-37.2%
Savannah River Operations Office					
Savannah River Operations Office . . . . .	8,355	8,827	9,701	874	9.9%
Savannah River Westinghouse . . . . .	150,996	151,849	129,276	-22,573	-14.9%
Subtotal, Savannah River Operations Office	159,351	160,676	138,977	-21,699	-13.5%
Headquarters . . . . .	77,970	140,637	309,427	168,800	120.0%
Subtotal, Weapons Activities . . . . .	4,149,300	4,418,436	4,530,990	112,554	2.5%
Use of PY Balances . . . . .	-2,608	-18,436	0	18,436	100.0%
Total, Weapons Activities . . . . .	4,146,692	4,400,000	4,530,990	130,990	3.0%

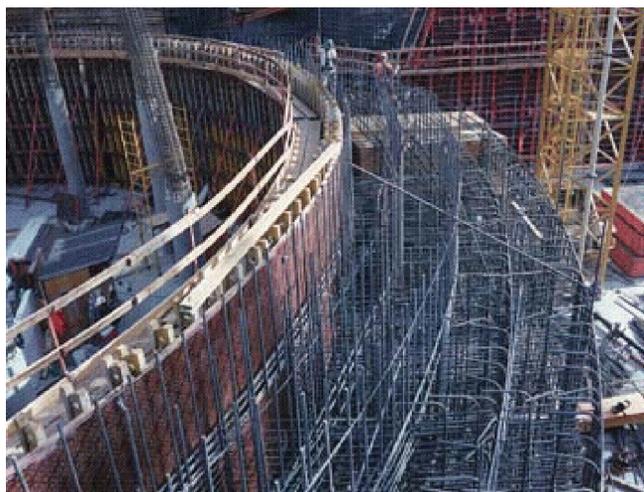
Following are brief site descriptions; more detailed information about Defense Programs' sites and facilities is located in each of the following decision units.

**Los Alamos National Laboratory (LANL)**

LANL is a multidisciplinary research facility located in northern New Mexico, engaged in a variety of programs for DOE and other government agencies. While the primary mission is defense programs, LANL supports other programs including: arms control, nonproliferation, nuclear material disposition, energy research, science and technology, and environmental management. Research and development at LANL in the basic sciences, mathematics, and computing have application to a broad range of activities including: national security, nonnuclear defense, nuclear and nonnuclear energy, atmospheric and space research, geoscience, bioscience, biotechnology, and the environment. Activities in both the Stockpile Stewardship and Stockpile Management decision units are carried out at LANL.

**Lawrence Livermore National Laboratory (LLNL)**

LLNL is a multidisciplinary research facility located in Livermore, California, engaged in a variety of programs for DOE and other government agencies. While the primary mission is defense programs, LLNL supports other programs including: arms control, nonproliferation, nuclear material disposition, energy research, science and technology, and environmental management. Research and development at LLNL in the basic sciences, mathematics, and computing have application to a broad range of activities including: national security, nonnuclear defense, nuclear and nonnuclear energy, atmospheric and space research, geoscience, bioscience, biotechnology, and the environment. Activities in both the Stockpile Stewardship and Stockpile Management decision units are carried out at LLNL.



National Ignition Facility at LLNL - Reinforcing steel in place for the 12 foot thick target bay wall (October 1998).

### **Sandia National Laboratories (SNL)**

SNL is a multidisciplinary research facility engaged in a variety of programs for DOE and other government agencies. Sandia has two principal locations: Albuquerque, New Mexico and Livermore, California. While the primary mission is defense and related programs, SNL conducts R&D activities in advanced manufacturing, electronics, information, pulsed power, energy, environment, transportation, and modeling and simulation-based life cycle engineering. Activities in both the Stockpile Stewardship and Stockpile Management decision units are carried out at SNL.

### **Kansas City Plant (KCP)**

The Kansas City (Missouri) Plant is the main facility in the nuclear weapons complex for the manufacture and procurement of nonnuclear components for nuclear weapons, including electrical, electronic, electromechanical, mechanical, plastic, and nonfissionable metal. The broad range of components and devices procured from U.S. industry is supported by an extensive system to qualify suppliers and accept products. The Kansas City Plant primarily supports activities in the Stockpile Management decision unit.

### **Pantex Plant (PXP)**

The Pantex Plant, located near Amarillo, Texas, is the only facility in the nuclear weapons complex for quantity assembly\disassembly of nuclear weapons. Also, plutonium pits from dismantled weapons are stored at Pantex. The site has been designated as the permanent location for strategic reserve pit storage and the interim storage location for surplus pits resulting from dismantlement activities and the planned closure of the Rocky Flats Site. Pantex fabricates high explosives used in nuclear weapons and performs modifications and surveillance of nuclear weapons scheduled to remain in the future stockpile. The Pantex Plant primarily supports activities in the Stockpile Management decision unit.

### **Y-12 Plant (Y-12)**

The Y-12 Plant in Oak Ridge, Tennessee, maintains the only capability in the nuclear weapons complex to fabricate quantity uranium and lithium components and parts for nuclear weapons, including secondaries and radiation cases. In addition, Y-12 has historically stored highly enriched uranium (HEU) and lithium for the nuclear weapons complex and Y-12 is now designated the permanent location for the storage of strategic reserves of these materials. The Y-12 Plant primarily supports activities in the Stockpile Management decision unit.

### **Savannah River Site (SRS)**

The primary DP mission at the SRS in Aiken, South Carolina, is the recycling of tritium from the weapons stockpile and the loading and surveillance of tritium reservoirs. Formerly, this location was the site for production of special nuclear materials, however these capabilities have been closed down and the site is undergoing environmental restoration. The tritium loading infrastructure at SRS primarily supports activities in the Stockpile Management decision unit.

### **Nevada Test Site (NTS)**

The core DP mission at the NTS is to maintain the capability to conduct an underground nuclear test within 2-3 years as required by Presidential Directive and by Safeguard C accompanying the Comprehensive Test Ban Treaty. DOE is involved in a number of other activities at NTS including hazardous liquids spill testing, solar technology demonstration, radioactive and mixed waste disposal, and the Yucca Mountain characterization programs. The Nevada Test Site supports activities in both the Stockpile Stewardship and Stockpile Management decision units.

**Table 4**  
**Federal Employment Estimates**  
(FTEs)

	FY 1998	FY 1999	FY 2000
Albuquerque Operations Office . . . . .	1,109	1,151	1,122
Nevada Operations Office . . . . .	253	259	238
Oakland Operations Office . . . . .	80	82	84
Oak Ridge Operations Office . . . . .	64	64	58
Savannah River Operations Office . . . . .	32	33	33
Headquarters . . . . .	299	287	264
Total Weapons Federal Employment (DOE Estimated FTEs) . . . . .	1,837	1,876	1,799

This FTE level represents a Departmental employment ceiling. Defense Programs anticipates a total employment level below the ceiling.

**Strategic Alignment Initiative**

Onboard staffing for Defense Programs at the time of transmission of the 120-Day Study to the Congress in June 1997 was 1,992. Defense Programs reached its FY 1998 Strategic Alignment Initiative (SAI) end of year staffing level of 1,895 by the end of January 1998. Of the approximately 100 separations required to meet the FY 1998 SAI staffing level, Headquarters provided about 50, including 17 involuntary separations. The field provided its share of 50 separations through voluntary actions; no involuntary actions occurred in the field during FY 1998. Defense Programs ended FY 1998 with an actual staffing level of 1,787.

New SAI targets were received in May 1998 which reduced DP's allocation by an additional 86 in FY 1998 (1,895 to 1,809) and 65 in FY 1999 (1,876 to 1,811) and adjusted the FY 2000 target to 1,782 in recognition of DP's successful staff reduction efforts. Actual FY 2000 end of year on board staffing is currently estimated at 1,746, although that estimate and DP's SAI target may be adjusted based upon the results of the Secretary's ongoing Workforce 21 initiative to review critical skills and workforce imbalances throughout DOE.

**Table 5**  
**Detailed Program Funding Summary**

(dollars in thousands)

	FY 1998 Approp	FY 1999 Adjusted	FY 2000 Request	\$ Change	% Change
<b>Stockpile Stewardship</b>					
Core Stewardship O&M .....	907,015	969,576	1,092,855	123,279	12.7%
Construction .....	59,700	42,400	61,000	18,600	43.9%
Subtotal, Core Stewardship .....	966,715	1,011,976	1,153,855	141,879	14.0%
ASCI/Computations O&M .....	374,089	483,726	542,500	58,774	12.2%
Inertial Confinement Fusion O&M .....	215,654	219,182	217,600	-1,582	-0.7%
Construction .....	197,800	284,200	248,100	-36,100	-12.7%
Subtotal, ICF .....	413,454	503,382	465,700	-37,682	-7.5%
Technology Partnerships/Education O&M ..	64,845	52,072	52,000	-72	-.1%
Infrastructure Construction .....	39,110	64,726	72,145	7,419	0
Subtotal, Stewardship .....	1,858,213	2,115,882	2,286,200	170,318	8.1%
<b>Stockpile Management</b>					
Core Management O&M .....	1,418,823	1,522,754	1,457,321	-39,443	-2.6%
Construction .....	83,370	97,658	94,679	-2,979	-3.1%
Subtotal, Core Management .....	1,502,193	1,620,412	1,552,000	-68,412	-4.2%
Enhanced Surveillance O&M .....	48,714	81,511	85,290	3,779	4.6%
ADAPT O&M .....	90,098	79,520	85,000	5,480	6.9%
Radiolog/Nuc Response O&M .....	78,808	76,200	77,600	1,400	1.8%
Tritium Source O&M .....	183,340	141,000	106,000	-35,000	-24.8%
Tritium Construction .....	77,515	26,000	64,000	38,000	0.0%
Subtotal, Tritium Source .....	260,855	167,000	170,000	3,000	1.8%
Materials O&M .....	60,419	27,911	28,410	499	1.8%
Subtotal, Management .....	2,041,087	2,052,554	1,998,300	-54,254	-2.6%
Program Direction O&M .....	250,000	250,000	246,500	-3,500	-1.4%
Subtotal, Weapons Activities .....	4,149,300	4,418,436	4,531,000	112,564	2.5%
Use of PY Balances .....	-2,608	-18,436	0	18,436	-100.0%
Total, Weapons Activities .....	4,146,692	4,400,000	4,531,000	131,000	3.0%

**Table 6**  
**Construction Project Summary**

(Dollars in thousands)

	TEC	Prior Years	FY 1998	FY 1999	FY 2000	Outyears
<b>Stockpile Stewardship</b>						
00-D-103, Terascale Simulation Facility, LLNL	83,500	0	0	0	8,000	75,500
00-D-105, Strategic Computing Complex, LANL	100,000	0	0	0	26,000	74,000
00-D-107, Joint Computational Engineering Laboratory (JCEL), SNL	28,870	0	0	0	1,800	27,070
99-D-102, Rehabilitation of Maintenance Facility, LLNL	7,900	0	0	4,000	3,900	0
99-D-103, Isotope Sciences Facilities, LLNL	17,400	0	0	2,000	2,000	13,400
99-D-104, Protection of Real Property (Roof Reconstruction, Ph. II), LLNL	19,900	0	0	2,500	2,400	15,000
99-D-105, Central Health Physics Calibration Facility, LANL	3,900	0	0	2,900	1,000	0
99-D-106, Model Validation & Systems Certification Test Center, SNL	18,230	0	0	1,600	6,500	10,130
99-D-108, Renovate Existing Roadways, NV	11,005	0	0	2,000	7,005	2,000
97-D-102, Dual-Axis Radiographic Hydrotest Facility (DARHT), LANL	259,700	81,400	46,300	36,000	61,000	35,000
96-D-102, Stockpile Stewardship Facilities Revitalization, Phase VI, VL	74,226	21,770	19,810	24,106	2,640	5,900
96-D-103, Atlas, LANL	43,300	23,500	13,400	6,400	0	0
96-D-104, Processing & Engineering Technology Laboratory (PETL), SNL	45,900	16,080	0	18,920	10,900	0
96-D-105, Contained Firing Facility Addition, LLNL	49,700	23,700	19,300	6,700	0	0
96-D-111, National Ignition Facility (NIF), LLNL	1,045,700	169,300	197,800	284,200	248,100	146,300
<b>Total, Stockpile Stewardship Construction</b>	<b>1,809,231</b>	<b>335,750</b>	<b>296,610</b>	<b>391,326</b>	<b>381,245</b>	<b>404,300</b>

continued

(dollars in thousands)

	TEC	Prior Years	FY 1998	FY 1999	FY 2000	Outyears
<b>Stockpile Management</b>						
99-D-122, Rapid Reactivation, VL	22,900	0	0	11,200	11,700	0
99-D-123, Replace Mechanical Utility Systems, Y-12	4,330	0	0	1,900	0	2,430
99-D-125, Replace Boilers & Controls, KC	14,000	0	0	1,000	0	13,000
99-D-127, SMRI - Kansas City Plant II	119,500	0	0	13,700	17,000	88,800
99-D-128, SMRI -Pantex Consolidation	13,218	0	0	1,108	3,429	8,681
99-D-132, Nuclear Materials S&S Upgrades Project, LANL	60,746	0	0	9,700	11,300	39,746
98-D-123, SMRI - Tritium Facility Modernization & Consolidation, SR	98,400	0	11,000	27,500	21,800	38,100
98-D-124, SMRI - Y-12 Consolidation	24,800	0	6,450	10,700	3,150	4,500
98-D-125, Tritium Extraction Facility, SR	285,650	0	9,650	6,000	33,000	237,000
98-D-126, APT, LANL	144,865	0	67,865	20,000	31,000	26,000
97-D-122, NMSF Renovation, LANL	22,364	4,000	9,200	2,500	0	6,664
97-D-123, Structural Upgrades, KC	18,000	1,400	0	6,400	4,800	5,400
97-D-124, Steam Plant Wastewater Treatment Facility Upgrade, Y-12	2,500	600	1,900	0	0	0
96-D-122, Sewage Treatment Upgd, PX	11,300	700	6,900	3,700	0	0
96-D-123, HVAC & Chillers, Y-12	12,800	10,100	2,700	0	0	0
95-D-102, CMR Upgrades Prj, LANL	174,100	67,740	5,000	5,000	18,000	78,360
95-D-122, Sanitary Sewer Upgd, Y-12	32,000	19,400	12,600	0	0	0
94-D-124, Hydrogen Fluoride Supply System, Y-12	26,300	24,900	1,400	0	0	0
94-D-125, Upgrade Life Safety, KC	14,700	12,700	2,000	0	0	0
93-D-122, Life Safety Upgrades, Y-12	29,200	23,850	2,100	3,250	0	0
92-D-126, Emerg'y Notif'n System, VL	28,800	17,100	3,200	0	0	8,500
88-D-122, FCAP, VL	398,724	379,804	18,920	0	0	0
88-D-123, Security Enhance Project, PX	131,200	125,000	0	0	3,500	2,700
Total, Stockpile Management Con.	1,690,397	687,294	160,885	123,658	158,679	559,881
Total, Weapons Activities Construction	3,499,628	1,023,044	457,495	514,984	539,924	964,181

## **Program Performance Measures**

The Strategic Objectives, Strategies and Performance Measures from the September 1997, Department of Energy Strategic Plan are the basis for this budget request. The following four national security strategic objectives will be accomplished as a result of carrying out the supporting activities detailed in this budget justification.

- NS-1 Maintain confidence in the safety, reliability, and performance of the nuclear weapons stockpile without nuclear testing.
- NS-2 Replace nuclear testing with a science-based Stockpile Stewardship and Management Program.
- NS-3 Ensure the vitality of DOE's national security enterprise.
- NS-4 Reduce nuclear weapons stockpiles and the proliferation threat caused by the possible diversion of nuclear materials.

The FY 2000 Performance Plan and the FY 1999 Performance Agreement with the Secretary are highlighted later in this document.

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Victor H. Reis  
Assistant Secretary for Defense Programs

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Date

## Defense Programs Performance Measures for FY 2000

Following is a listing of each National Security Strategic Plan objective, and the accompanying strategies and performance measures for Defense programs focused on FY 2000. "Other" is indicated for funding associated with activities supporting a strategy, but not encompassed within the specific performance measures listed for that strategy.

**Objective 1:** Maintain confidence in the safety, reliability, and performance of the nuclear weapons stockpile without nuclear testing.

Strategy 1: Extend the life of U. S. nuclear weapons by continuing the Stockpile Life Extension Program and Stockpile Maintenance activities.

Performance Measures:

- A. Meet all annual weapon alteration and modification schedules developed jointly by DOE and DoD.
- B. Conduct studies and development work required to support weapon systems and components for the future stockpile.

Strategy 2: Improve detection and prediction capabilities for assessing nuclear weapon component performance and the effects of aging.

Performance Measure:

- A. Adhere to schedules set forth in the Enhanced Surveillance Program Plan for activities that enhance knowledge of weapon-relevant physical processes affecting aging and operation of weapon components.

Strategy 3: Continually evaluate the safety, reliability, and performance of the nuclear weapons stockpile.

Performance Measures:

- A. Annually report to the President on the need or lack of need to resume underground nuclear testing to certify the safety and reliability of the nuclear weapons stockpile.
- B. Revalidate enduring stockpile systems to meet established military characteristics.
- C. Undertake an independent assessment of the Stockpile Stewardship Program and its implementation throughout the DP national security enterprise.

Strategy 4: Provide a reliable source of tritium for the nuclear weapons stockpile.

Performance Measure:

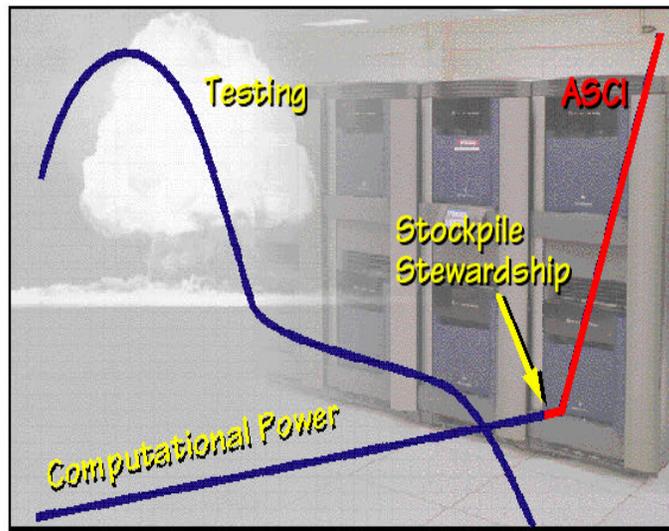
- A. Begin implementation of the selected technology and backup to provide a reliable source of tritium.

**Objective 2:** Replace nuclear testing with a science-based Stockpile Stewardship and Management Program

Strategy 1: Develop the advanced simulation and modeling technologies and computational tools necessary to confidently mitigate the loss of underground nuclear testing.

Performance Measures:

- A. Provide computer platforms sized to support the stewardship objective of full physics, high fidelity simulations of nuclear weapons performance.
- B. Deliver three-dimensional high fidelity weapons performance codes by 2004.
- C. Demonstrate a computer code capable of performing a three-dimensional analysis of the dynamic behavior of a nuclear weapon primary, including a prediction of the total explosive yield, on an ASCI computer system.
- D. Develop and implement visualization, networking and data management systems to efficiently support utilization of ASCI codes and computers across the weapons complex.



1945 1992  
Growth in computations needed for the change from a test-based to a science-based stockpile stewardship program.



**Aerial view of the NIF construction site, October 1998**

Strategy 2: Develop new nuclear weapons physics experimental test capabilities.

Performance Measures:

- A. Continue construction of the National Ignition Facility according to its Project Execution Plan schedules.
- B. Meet all cost and schedule goals for construction of the Dual-Axis Radiographic Hydrodynamic Test Facility (DARHT) consistent with an FY 2002 completion.
- C. Meet all cost and schedule goals for construction of the Contained Firing Facility at LLNL consistent with a 4<sup>th</sup> quarter FY 2001 completion.
- D. Meet all cost and schedule goals for construction of the Atlas facility at

LANL consistent with a 1<sup>st</sup> quarter FY 2001 completion.

- E. Obtain and assess information required to decide whether to construct 1) an advanced hydrotest facility and/or 2) an advanced pulsed power facility.

Strategy 3: Advance our understanding of the fundamental characteristics of weapons behavior through weapon systems engineering and advanced experiments to support future assessments of weapons safety, reliability, and performance.

Performance Measures:

- A. Conduct two subcritical experiments at the Nevada Test Site to provide valuable scientific information about the behavior of nuclear materials during the implosion phase of a nuclear weapon.
- B. Conduct experimental and theoretical research necessary to maintain or advance research, development and engineering capabilities in nuclear materials science and weapons design.
- C. Conduct high energy density research on inertial confinement fusion facilities necessary to enhance understanding of areas of physics relevant to a better predictive assessment of nuclear weapons performance.

**Objective 3:** Ensure the vitality of DOE's national security enterprise

Strategy 1: Provide an appropriately-sized, cost-effective, safe, secure, and environmentally sound national security enterprise.

Performance Measures:

- A. Ensure that all facilities required for successful achievement of the Stockpile Stewardship Plan are operational.
- B. Meet the established schedules for downsizing and modernizing our production facilities.
- C. Adhere to schedules set forth in the Advanced Manufacturing, Design and Production Technology Multi-Year Program Plan.
- D. Meet schedules to rebuild, qualify and certify Trident II pits by FY 2001 and develop intermediate pit production capability of 20 pits per year at the Los Alamos National Laboratory by 2007.

Other transportation and logistics capabilities.

Strategy 2: Ensure that sufficient scientific and technical personnel are available to meet DOE's long-term national security requirements.

Performance Measures:

- A. Establish strategic alliances and collaborations among the weapons laboratories, industries, and universities to enable effective use of scientific and technical personnel throughout the R&D community.
- B. Implement the Strategic Alignment Initiative and recommendations of the 120-Day Study.

Strategy 3: Ensure and enhance protection of nuclear materials, sensitive information, and facilities.

Performance Measures:

- A. Continue material protection, control, and accountability upgrades at three DOE facilities with weapons-usable material.
- B. No loss of U.S. origin nuclear materials in the U.S. and abroad from theft, loss, or illicit trafficking.

Strategy 4: [Strategy 4 does not receive direct Defense Programs support]

Strategy 5: Maintain test readiness and maintain and enhance emergency response and management capabilities to address any nuclear weapons, radiological or other emergency in the U.S. or abroad.

Performance Measures:

- A. Ensure that the capability to resume underground nuclear testing is maintained, in accordance with the Presidential Decision Directive and Safeguard C of the CTBT.
- B. Maintain robust emergency response assets in accordance with Presidential Decision Directive 39, the Atomic Energy Act, Executive Order 12656 and Federal Emergency Plans.
- C. Continue ongoing efforts of exercises, training and drills to improve response readiness to any possible weapons of mass destruction (WMD) and terrorist threat contingency using upgraded diagnostics and new equipment.

**Objective 4:** Reduce nuclear weapons stockpiles and the proliferation threat caused by the possible diversion of nuclear materials.

Strategy 1: Dismantle nuclear warheads that have been removed from the U.S. nuclear weapons stockpile in a safe and secure manner.

Performance Measure:

- A. Adhere to schedules for the safe and secure dismantlement of approximately 375 nuclear warheads that have been removed from the U.S. nuclear weapons stockpile.

## Defense Programs FY 1998 Performance Agreement

(dollars in millions)

FY 1998 Performance Measure	Final Status	Budget Reference <sup>a</sup>	FY 1998 Estimate
Meeting all DoD annual weapons alteration, modification and surveillance schedules.	Successful	1.1	718
Certifying nuclear weapon stockpile safety, reliability and performance according to DOE/DoD procedures	Fully Successful	1.3.a 1.3.b	336
Completing the analysis to support the selection, by December 1998, of a new source for tritium.	Successful	1.4.a/b	261
Meeting established schedules for the development and installation of a 3-trillion operations per second computer system	Fully Successful	2.1.b	71
Beginning the physical construction according to schedules in the Project Execution Plan for the National Ignition Facility	Fully Successful	2.2.a	282
Conducting 3 or 4 subcritical experiments to provide information about the behavior of nuclear materials during the implosion phase of a nuclear weapon	Partially Successful	2.3.a	86
Ensuring that the capability to resume underground testing is maintained in accordance with the Presidential Decision Directive and Safeguard C of the CTBT through a combined experimental and test readiness program	Fully Successful	3.5.a	122
Maintaining robust emergency response assets in accordance with Presidential Decision Directive 39, the Atomic Energy Act and executive Order 12656 to ensure Departmental response to any nuclear weapons or radiological emergency in the United States or abroad.	Fully Successful	3.5.b/c	77
Adhering to schedules for the safe and secure dismantlement of approximately 1,000 nuclear warheads that have been removed from the U.S. nuclear weapon stockpile.	Fully Successful	4.1.a	190
Assuring that all facilities required for successful achievement of the Stockpile Stewardship and Management Plan are operational, and that schedules for downsizing and modernizing facilities are met.	Partially Successful	3.1.a&b	432

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<sup>a</sup> FY 1999 Congressional Budget Request; Listing of performance measures, Objective N, Strategy N, Performance Measure a-e

*(The following Performance Agreement Status document is an excerpt from the Department of Energy SOLOMON Database)*

## **U.S. Department of Energy**

### **FY 1998 PERFORMANCE AGREEMENT STATUS**

#### **Agreement Status Details**

Data as of 12-Jan-99

## **NATIONAL SECURITY**

### **NS 1-1 MAINTAINING THE ENDURING STOCKPILE**

**Status:** Successful

**Description:** Extend the life of U.S. nuclear weapons by continuing the Stockpile Life Extension Program and Stockpile Maintenance activities. Improve detection and prediction capabilities for assessing nuclear weapon component performance and the effects of aging, and continually evaluate the safety, reliability, and performance of the nuclear weapons stockpile.

*Success will be measured by:*

*Certifying nuclear weapons stockpile safety, reliability, and performance according to DOE/DoD procedures.*

**Analysis:** The establishment of an annual process for the review and certification of the safety and reliability of the nuclear weapons stockpile was directed by President Clinton and is crucial to this Nation's pursuit of the Comprehensive Test Ban Treaty. The Secretaries of Defense and Energy must advise the President each year whether the nuclear stockpile has any safety or reliability concerns that require underground testing. In reaching their conclusion they are advised by the Directors of DOE's national weapons laboratories, the Commander of the U.S. Strategic Command, and the joint Nuclear Weapons Council.

Two annual certifications have been successfully completed, the latest submitted to Congress by the President on February 12, 1998.

The DOE portion of the 3rd Annual Certification was completed on July 31, 1998. Final 1998 DOE laboratory reports reviewing the status of the nine types of warheads in the enduring stockpile were published during July 1998, and signed out by Defense Programs for distribution to the members of the Nuclear Weapons Council Standing and Safety Committee for their use in preparing the 3rd NWC Annual Stockpile Certification report. *(The third annual certification letter was signed by the Secretaries of Defense and Energy on December 11, 1998, and executed on December 22, 1998.)*

**Status:** Fully Successful

*Meeting all DoD annual weapons alteration, modification and surveillance schedules.*

**Analysis:** Surveillance activities are required to properly assess the safety and reliability of weapons in the Nation's stockpile. Surveillance includes both tests on weapon components at DOE's nuclear weapons laboratories and flight tests of unarmed weapons to examine delivery performance. During Fiscal Year 1998, the Department completed 40 of the 45 planned flight tests and 82 of the planned 100 laboratory tests. The flight test shortfall was due to logistics issues between the DoD and DOE. The laboratory test shortfall was due to a expiration of the W62 Nuclear Explosive Safety Study and other facility related issues.

Weapon alterations and modifications are crucial to upgrade the stockpile to meet higher safety standards, replace faulty components, meet changed military requirements, or extend the life of the weapon. During Fiscal Year 1998, the Department had eight weapon alterations and modification ongoing (either research and development activities or refurbishment). The alterations were for the B61 (three), W87 (two), B83 (two), and the W76. The modification was for the B83. All of these activities were performed on schedule. The one modification this year was completed on schedule. DOE plans to complete the remaining required tests next fiscal year. Even with this shortfall, the DOE was able to give the DoD a reliability assessment.

**Status:** Successful

#### **NS 1-4 DEVELOPING A REPLACEMENT SOURCE OF TRITIUM**

**Status:** Successful

**Description:** Provide a reliable source of tritium as required for the nuclear weapons stockpile by FY 2005 or FY 2007 depending on the production option selected.

*Success will be measured by:*

*Success will be measured in FY 1998 by completing the analysis to support the selection by December 1998, of a new production source for tritium.*

**Analysis:** Tritium, is a radioactive isotope of hydrogen essential to the proper function of all U.S. nuclear weapons. Tritium decays at about 5 percent per year and must therefore be replaced in weapons periodically. No new tritium has been produced by the U.S. since 1988. Tritium is recycled from dismantled weapons to meet stockpile requirements. A reliable source of tritium production for the stockpile should be available by fiscal year 2005 or fiscal year 2007 depending on the technology selected.

In late 1995 DOE announced it would pursue a dual track approach to examine and demonstrate the two most promising supply alternatives, the purchase of an existing or partially complete commercial light water reactor (CLWR) or purchase of irradiation services therefrom or the design and construction of an accelerator for the production of tritium (APT).

In January, 1998, the Tritium Supply Program completed the analysis of the primary tritium source options necessary to support a possible 2nd Qtr. FY 1998 technology decision by the Secretary. A decision, however, was not made at that time. Both projects have continued development, demonstration, and design

activities through FY 1998 and the analysis is expected to be updated for a decision expected by the end of December 1998.

CLWR activities so far this fiscal year include the following: In October 1997, thirty two tritium-producing rods were placed in the Tennessee Valley Authority's (TVA) Watts Bar reactor for an irradiation demonstration. Two draft environmental impact statements were completed and issued for public comment: Draft Environmental Impact Statement for the Production of Tritium in a Commercial Light Water Reactor and Draft Environmental Impact Statement for Construction and Operation of a Tritium Extraction Facility at the Savannah River Site. Preliminary design of the Tritium Extraction Facility, a FY 1998 milestone, has been completed and an independent, parametric cost estimate is being conducted. As required by Congress, an interagency review of nonproliferation policy issues has been completed. A technical report has been prepared and submitted to the Nuclear Regulatory Commission. DOE is in receipt of a proposal from the TVA for the Department to provide funds for completion of TVA's Bellefonte Unit 1 reactor in exchange for long-term irradiation services. An interagency agreement for irradiation services without completion of Bellefonte may also be a possibility. Concluding an agreement with TVA, a FY 1998 milestone, has not yet been completed, pending the Secretary's selection decision.

Accelerator Production of Tritium (APT) activities this fiscal year include the following: An engineering development and demonstration program has successfully demonstrated key elements of a tritium production accelerator. Performance testing of a laser beam through the Chalk River Injector Test Stand radio-frequency quadrupole (RFQ) was successfully completed and exceeded requirements. Fabrication and assembly of the copper RFQ for the Low Energy Demonstration Accelerator was completed. Installation of the RFQ and preparations for tests of beam through the RFQ were nearly completed. Preliminary engineering design of the APT plant was initiated in October 1997. An APT Modular Design Study, optimizing plan configurations for START-I and START II stockpile requirements, was completed in May 1998. Safety presentations to independent reviewers and the DNFSB were conducted throughout the year. Issues raised by these reviewers have resulted in features being incorporated into the APT design to increase its safety. A draft Environmental Impact Statement to construct and operate the APT at the Savannah River Site was completed and approved, public hearings were held, and the final EIS was completed for review.

**Status:** Successful

## **NS 2-1 REPLACING UNDERGROUND TESTING WITH SCIENCE**

**Status:** Fully Successful

**Description:** Develop the advanced simulation and modeling technologies necessary to confidently mitigate the loss of underground testing by FY 2004.

*Success will be measured by:*

*Success will be measured in FY 1998 by meeting established schedules for the development and installation of a 3- trillion operations per second computer system.*

**Analysis:** The Accelerated Strategic Computing Initiative (ASCI) is a time-critical, essential element of the Department of Energy's Stockpile Stewardship Program. ASCI will enable DOE to develop the advanced

simulation and modeling technologies necessary to shift from the past stockpile management approach based on new weapon development and nuclear testing to a science-based approach based on maintenance of the existing stockpile through advanced simulation and fundamental experiments. Specifically, ASCI will create and provide to all stewardship activities the leading-edge weapon simulation capabilities that are essential for maintaining the safety, reliability, and performance of the nation's nuclear stockpile under the current nuclear test moratorium and to meet the challenge set forth by the Comprehensive Test Ban Treaty.

Currently, ASCI is meeting all established schedules for the development and installation of a 3-trillion operations per second computer system. The initial delivery of a computer system was received in FY 1997, and the technology refresh was installed in the first half of FY 1998. Code development teams, including weapons designers, at the national weapons laboratories are using the system performing at a level of between 400-900 billion operations per second and running weapons simulations that are larger and more complex than was possible on previous machines. These simulations include higher resolution, improved physics models, and more robust computational math. At the end of September 1998, three months ahead of schedule, IBM benchmarked the 3-terops computer system at a sustained 1-teraops calculation.

**Status:** Fully Successful

## **NS 2-2 DEVELOPING NEW EXPERIMENTAL CAPABILITIES FOR UNDERSTANDING WEAPONS SCIENCE**

**Status:** Fully Successful

**Description:** Develop new nuclear weapons physics experimental test capabilities.

*Success will be measured by:*

*Success will be measured in FY 1998 by beginning the physical construction according to schedules in the Project Execution Plan for the National Ignition Facility (NIF).*

**Analysis:** The NIF Project is essentially on schedule and on cost, and all aspects of the Project are making satisfactory progress. All of the Project's firm fixed price building contracts have been awarded. In June, major concrete pours for the Target Building and Switchyard floors were completed essentially on schedule. Construction of the Laser Building and Central Plant, which are on the critical path for Conventional Facilities, is currently delayed 2-4 weeks, but the Project completion date is being held. The critical task for the remainder of this year is to get the roofing and siding completed by the start of the next rainy season. Design and procurement of special equipment and materials are the most challenging aspects of the NIF Project. Design reviews continue to be successfully completed and production of engineering drawings continues, although at a slower rate than planned. The beam transport system procurement was awarded in June, and the target chamber contract is on schedule. Establishment of needed manufacturing capacity at optics vendors is proceeding well as they prepare for pilot production beginning in early FY 1999. More information on the NIF project can be obtained at <http://lasers.llnl.gov/lasers/nif.html>

**Status:** Fully Successful

## **NS 2-3 CONDUCTING EXPERIMENTS TO ADVANCE OUR UNDERSTANDING OF WEAPONS BEHAVIOR**

**Status:** Partially Successful

**Description:** Advance our understanding of the fundamental characteristics of weapons behavior through systems engineering and advanced experiments and modeling to support future assessments of weapons safety, reliability, and performance.

*Success will be measured by:*

*Success will be measured in FY 1998 by conducting three to four subcritical experiments to provide information about the behavior of nuclear materials during the implosion phase of a nuclear weapon.*

**Analysis:** Subcritical experiments are designed to provide an improved understanding of certain dynamic material properties of plutonium, the fissile material in most primaries, and are considered essential for assessing nuclear warhead performance, reliability, and safety in the absence of nuclear testing. These experiments also make a significant contribution to maintaining nuclear test readiness, required by Safeguard C of the Comprehensive Test Ban Treaty and Presidential Decision Directive.

On March 25, 1998, we conducted the first subcritical experiment of FY 1998, Stagecoach, a Los Alamos National Laboratory experiment. On September 26, 1998, Bagpipe, a Lawrence Livermore National Laboratory subcritical experiment, was successfully executed. Extensive preparatory work has been completed for Cimarron and Clarinet, the third and fourth subcritical experiments planned for FY 1998. Planned execution for Cimarron is November, 1998, and Clarinet is planned to follow one or two months thereafter. The Stagecoach subcritical experiment was used to obtain additional data on the equation of state of high explosively shocked plutonium materials at high pressures and to develop diagnostic instrumentation for future experiments. In addition to providing information that will be used on future subcritical experiments, Bagpipe was also used to further understanding of the effects on plutonium of aging, the use of different coating materials, and the effects of different manufacturing methods. Data from subcritical experiments will be used to develop the science-based stewardship computer models.

**Status:** Partially Successful

## **NS 3-1 DOWNSIZING AND MODERNIZING THE NATIONAL SECURITY ENTERPRISE**

**Status:** Partially Successful

**Description:** Provide an appropriately-sized, cost-effective, safe, secure, and environmentally sound national security enterprise. Ensure that sufficient scientific and technical personnel are available to meet DOE's long-term national security requirements.

*Success will be measured by:*

*Ensuring that all facilities required for successful achievement of the Stockpile Stewardship and Management Plan remain operational, and the established schedules for downsizing and modernization of the production facilities are met.(DP)*

**Analysis:** Two key activities are underway to provide operational production facilities for the successful implementation of the Stockpile Stewardship Plan. These two activities are the reestablishment of a Pit Production Program at the Los Alamos National Laboratory in New Mexico and resumption of Enriched Uranium Operations (EUO) at the Y-12 Plant near Oak Ridge, Tennessee.

During FY 1997 shipping/receiving, assembly/disassembly, depleted uranium operations, and evaluation of canned subassemblies operations were all restored. Phase A1 of the enriched uranium operations resumption process (resuming casting, rolling and forming, and machining operations) restarted in June 1998. Phase A2 (materials control and accountability functions) has been delayed and rescheduled to November 1998. The final phase (phase B) of resumption provides chemical processing capabilities, is scheduled for completion in calendar year 1999.

The Pit Production Program successfully demonstrated on schedule the first major step in its plan to reestablish a pit production capability. In February 1998 the first early development unit pit was successfully produced. While not meeting the full certification requirements to enter the stockpile this pit did successfully demonstrate the first series of capabilities needed to produce a fully certified pit.

The downsizing and modernization of production facilities are planned under the Stockpile Management Restructuring Initiative. This includes the tritium facilities at the Savannah River Site near Aiken, South Carolina; uranium machining, recycling and storage facilities at the Y-12 Plant at the Oak Ridge Reservation, Oak Ridge, Tennessee; assembly/disassembly and high explosive fabrication facilities at the Pantex Plant near Amarillo, Texas; and non-nuclear production facilities for electronic, electro-optical devices, plastic and machined parts at the Kansas City Plant in Kansas City, Missouri. Construction funds for the downsizing at Savannah River and Y-12 were received in FY 1998 and construction funds for Pantex and Kansas City have been requested in the FY 1999 Budget.

Title I design for the project at Savannah River, scheduled to commence the second quarter of this fiscal year was delayed to the third quarter. Physical construction started in the third quarter on schedule. Due to rescoping, the start of the Title I design of the Y-12 project was delayed from the first quarter of this fiscal year to the fourth quarter. For the projects at Pantex and Kansas City critical decision two (approval of baselines) was not approved in the fourth quarter as scheduled

**Status:** Partially Successful

### **NS 3-5 MAINTAINING READINESS FOR NUCLEAR EMERGENCIES**

**Status:** Fully Successful

**Description:** Maintain nuclear test readiness and enhance emergency management capabilities to address any nuclear weapons, radiological, or other emergency in the United States or abroad.

*Success will be measured by:*

*Ensuring that the capability to resume underground testing is maintained in accordance with the Presidential Decision Directive and Safeguard C of the CTBT through a combined experimental and test readiness program.*

**Analysis:** Maintaining the capability to resume nuclear testing requires DOE to maintain (1) test facilities and equipment at the Nevada Test Site (NTS) and (2) nuclear testing skills of personnel at both the NTS and the nuclear weapons laboratories.

Experiments requiring large quantities of high explosives or special nuclear materials driven by small amounts of high explosives, the latter referred to as subcritical experiments, are conducted at the NTS. These experiments and specially designed test readiness exercises maintain NTS personnel test readiness skills including containment, security, assembly, storage and transportation, insertion and emplacement, timing and control, arming and firing, diagnostics, test control center activities, and postshot drilling.

Two subcritical experiments, Stagecoach and Bagpipe, and 29 high-explosive experiments have been conducted at the NTS in FY 1998. In September, 1998, we conducted VENTEX98, a table-top exercise that simulated a mass venting of an underground nuclear test at the Nevada Test Site for the purpose of exercising the emergency response systems that could be needed during a nuclear test.

The NTS also has an ongoing archiving program capturing on videotape the knowledge and testing experience of departing personnel as well as data, photos, drawings, procedures, nuclear explosive safety studies, containment evaluation plans, lesson learned, and other information.

In FY 1998, almost 84 hours of video taping of subject matter experts discussing 11 functional areas was completed; over 32,000 pages of documents were scanned and indexed into the archiving database; and encyclopedic-style CD-ROMs covering 5 functional areas were produced.

Hundreds of stockpile stewardship experiments have been conducted this fiscal year at nuclear weapons laboratory facilities such as the Flash X-Ray, Pulsed High-Energy Radiographic Machine Emitting X-Rays, Pegasus, Los Alamos Neutron Science Center, Nova Laser, High Explosive Applications Facility and PBFA Z which exercise many nuclear testing related skills and technologies, including nuclear design, experiment integration, nuclear chemistry, and weapons engineering.

**Status:** Fully Successful

*Maintaining robust emergency response assets in accordance with Presidential Decision Directive 39, The Atomic Energy Act of 1954 and Executive Order 12656 to ensure Departmental response to any nuclear weapons or radiological emergency in the United States or abroad.*

**Analysis:** The Department's Emergency Response program provides a national capability to respond to any radiological emergency or nuclear accident within the United States and abroad. The all volunteer force that makes up the cadre of deployment forces is mostly from the nuclear weapons laboratories. The seven major capabilities/assets maintained are the Aerial Measuring System (AMS), the Accident Response Group (ARG), the Atmosphere Release Advisory Capability (ARAC), the Federal Radiological Monitoring & Assessment Center (FRMAC), the Radiological Assistance Program (RAP), the Nuclear Emergency Search Team (NEST) and the Radiation Emergency Assistance Center & Training Site (REAC/TS). These capabilities are maintained primarily through participation in national, state and local operations, exercises, and training.

The Department's emergency response program performed at a Fully Successful level for FY 1998. Highlights of these activities for the fiscal year are as follows: During FY 1998, DOE radiological emergency response assets participated in 32 U.S. and overseas exercises and 17 real-world events. Also,

REAC/TS responded to 67(60 U.S.- 7 Foreign) calls for medical assistance for 224 individuals and provided radiation accident management training to 399 health professionals. During June 1998, emergency response assets participated in an interagency exercise ELLIPSE ALPHA in Virginia Beach, Virginia. The objective of the exercise was to evaluate the federal capabilities of responding to a domestic radiological Weapon of Mass Destruction. In September 1998, Departmental emergency assets also participated in a major overseas exercise ELLIPSE BRAVO. The objective of the exercise was to evaluate and validate the U.S. federal response to a biological Weapon of Mass Destruction in an international environment. On October 15, 1997, emergency response support was provided to the National Aeronautics and Space Administration for the launch of the Cassini Space Mission to Saturn. The Department participated with multiple agencies to identify support requirements and develop ground operations and emergency response plans and procedures in the event of a launch accident and the release of radioactive material. On board generators contained 32.8 kilograms of plutonium dioxide. Over 100 personnel and equipment from RAP, ARAC, REAC/TS, and FRMAC, capable of providing onsite and offsite radiological support, participated in the launch. A joint U.S./U.K. nuclear weapon accident command post exercise DIAGONAL GLANCE was conducted in the United Kingdom during the period September 15-18, 1998. The scenario involved a U.S. Air Force aircraft carrying nuclear weapons crashing on U.K. soil. The primary objective of DIAGONAL GLANCE was to evaluate international, national, and local government agreements, policies, procedures, and interfaces as they apply to a U.S. nuclear weapon accident occurring on U.K. soil. Between April 2-8, 1998, RAP teams were deployed to provide assistance to the State of Connecticut and the Environmental Protection Agency (EPA) in conducting surveys for radioactive contamination in buildings previously used in the clock manufacturing and the radium dial painting industry. Ten buildings in four different cities were surveyed. Contamination was found in four of the five occupied buildings. As lead Federal Agency, the EPA recommended follow-up resolutions and protective actions. With respect to Domestic Preparedness Training in support of the Nunn, Lugar, Domenici legislation, RAP and REAC/TS elements participated in 29 city visits and training activities. In April 1998, the Department of State requested DOE radiological advisory assistance to the United Arab Emirates to validate either the presence or absence of radiological contamination threat at the crash site of an airliner. The Departmental assets performed an assessment of the threat of "Red Mercury" being aboard the aircraft which had crashed in the desert on December 16, 1997, killing 77 individuals. No evidence of radiological contamination was detected.

**Status:** Fully Successful

#### **NS 4-1 REDUCING THE WEAPONS STOCKPILE**

**Status:** Fully Successful

**Description:** Dismantle nuclear warheads that have been removed from the U.S. nuclear weapons stockpile in a safe and secure manner.

*Success will be measured by:*

*Success will be measured in FY 1998 by adhering to schedules for the safe and secure dismantlement of approximately 1,000 nuclear warheads that have been removed from the U.S. nuclear weapons stockpile.*

**Analysis:** In fiscal year 1998, 1062 U.S. nuclear warheads were dismantled versus a fiscal year goal of 1004. The majority of dismantlements were W69 Short-Range Attack Missile warheads, in addition to some W79 Artillery-Fired Atomic Projectile warheads and surveillance units.

**Status:** Fully Successful

## Defense Programs FY 1999 Performance Agreement

(Budget Authority Dollars in Millions)

FY 1999 Performance Measure	Budget Reference <sup>a</sup>	FY 1999 Estimate
Meeting all annual weapons alteration and modification schedules developed jointly by DOE and DoD.	1.1	834
Annually report to the President on the need or lack of need to resume underground nuclear testing to certify the safety and reliability of the nuclear weapon stockpile.	1.3.a 1.3.b	373
Continue development of the dual-path options and select, by December 1998, a primary tritium production technology.	1.4.a/b	167
Demonstrate a 3-trillion operations per second computer system	2.1.b	107
Continue construction of the National Ignition Facility (NIF) according to its Project execution Plan schedules.	2.2.a	378
Conducting two to three subcritical experiments to provide information about the behavior of nuclear materials during the implosion phase of a nuclear weapon	2.3.a	87
Ensure that all facilities required for successful achievement of the Stockpile Stewardship Plan remain operational.	3.1.a	406
Meet the established schedules for downsizing and modernizing our production facilities.	3.1.b	68
Ensure that the capability to resume underground testing is maintained in accordance with the Presidential Decision Directive and Safeguard C of the CTBT.	3.5.a	124
Maintain robust emergency response assets in accordance with Presidential Decision Directive 39, the Atomic Energy Act and Executive Order 12656 and Federal Emergency Plans.	3.5.b/c	76
Adhering to schedules for the safe and secure dismantlement of approximately 275 nuclear warheads that have been removed from the U.S. nuclear weapon stockpile.	4.1.a	173

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<sup>a</sup> FY 1999 Congressional Budget Request; Listing of Performance Measures, Objective N, Strategy N, Performance Measure a-e

## Defense Programs FY 2000 Performance Plan

(dollars in millions)

FY 2000 Performance Measure	Budget Reference <sup>a</sup>	FY 2000 Estimate
Meeting all annual weapons alteration and modification schedules developed jointly by DOE and DoD.	1.1	898
Annually report to the President on the need or lack of need to resume underground nuclear testing to certify the safety and reliability of the nuclear weapon stockpile.	1.3.a	363
Undertake an independent assessment of the Stockpile Stewardship Program and its implementation throughout the DP national security enterprise.	1.3.c	2
Begin implementation of the selected technology and backup to provide a reliable source of tritium.	1.4.a/b	170
Demonstrate a computer code capable of performing a three dimensional analysis of the dynamic behavior of a nuclear weapon primary, including a prediction of the total explosive yield, on an ASCI computer system.	2.1.c	88
Continue construction of the National Ignition Facility (NIF) according to its Project execution Plan schedules.	2.2.a	346
Conduct two subcritical experiments to provide valuable scientific information about the behavior of nuclear materials during the implosion phase of a nuclear weapon	2.3.a	73
Ensure that all facilities required for successful achievement of the Stockpile Stewardship Plan remain operational.	3.1.a	287
Meet the established schedules for downsizing and modernizing our production facilities.	3.1.b	61
Ensure that the capability to resume underground testing is maintained in accordance with the Presidential Decision Directive and Safeguard C of the CTBT.	3.5.a	143
Maintaining robust emergency response assets in accordance with Presidential Decision Directive 39, the Atomic Energy Act and Executive Order 12656, and Federal Emergency Plans.	3.5.b/c	77
Adhere to schedules for the safe and secure dismantlement of approximately 375 weapons that have been removed from the U.S. nuclear weapon stockpile.	4.1.a	153

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<sup>a</sup> FY 2000 Congressional Budget; Listing of performance measures, Objective N, Strategy N, Performance measure a-e.